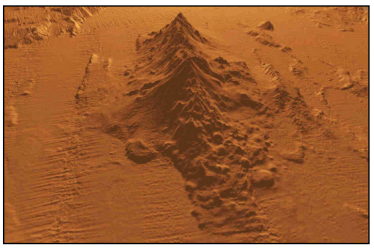

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Città Metropolitana di Bologna

Comune di Bologna

MANIFESTAZIONE DI INTERESSE AGLI INTERVENTI DA COMPRENDERE NEL PIANO OPERATIVO COMUNALE PER LA LOCALIZZAZIONE DEGLI IMPIANTI DI DISTRIBUZIONE CARBURANTE AD USO PUBBLICO

Proprietà: Market Ingross S.r.l

Via Provinciale, 29
40056 CRESPELLANO (BO)

Dott.Geol. Germano Scannavini
ORDINE DEI GEOLOGI
REGIONE EMILIA-ROMAGNA
ISCR. ALBO N. 724

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1. Rapporti delle prove penetrometriche CPTU.
2. Elaborati di verifica del potenziale di liquefazione.

1. **Normativa di riferimento.**

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AGI: raccomandazioni sulle prove geotecniche di laboratorio, Maggio 1990 (edizione provvisoria);
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3. Premessa.

Su incarico della Proprietà si è eseguito uno studio e sismico sui terreni siti in Comune di Bologna posti all'incrocio tra Via Marco Emilio Lepido (SS. 9) e via Rigosa per determinare la risposta sismica locale di III livello e verificare il potenziale di liquefazione dei terreni.

Il sito si raggiunge facilmente percorrendo la SS. 9 via Emilia in direzione Modena.

Superato l'ingresso dell'autostrada A1 si oltrepassa il cavalcavia sulla tangenziale e si giunge alla rotonda Antonio Gasbarrini, attraversata la quale sulla sinistra si trova l'area di studio.

Il sito è posto in fregio alla via M.E. Lepido lato sud nei pressi dell'area di servizio esistente. (figura 3.1 e 3.2).

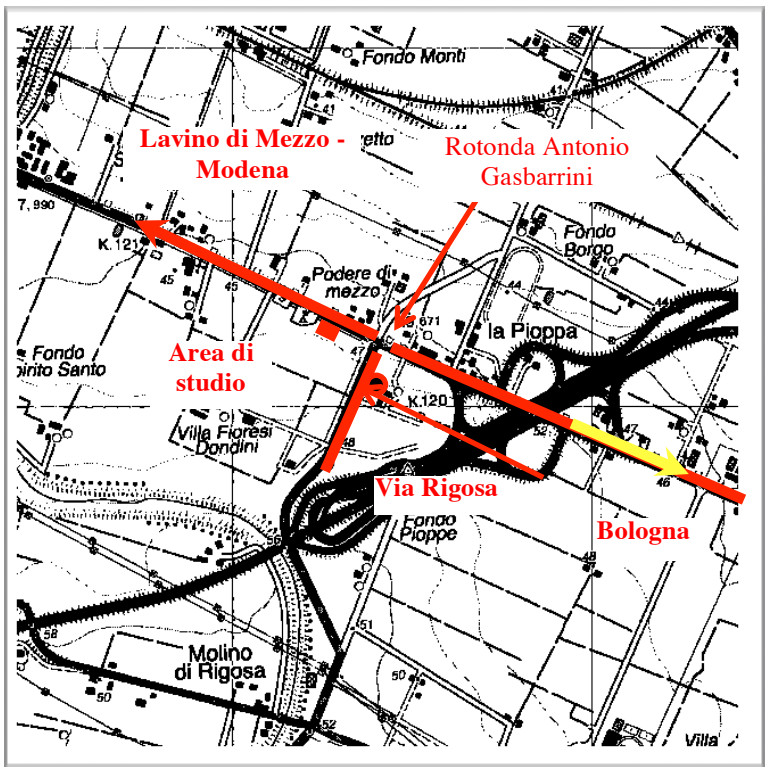


Figura 3.1: ubicazione stradale dell'area.

Lo scopo di questo studio è di analizzare la risposta sismica dei terreni in funzione del nuovo intervento e di verificarne il potenziale alla liquefazione.

Lo studio è stato espletato mediante l'esecuzione di tre prove penetrometriche statiche munite di punta elettrica, eseguite il 9 agosto 2018, una acquisizione di microtremore e uno stendimento MASW.

L'area e identificabile mediante la cartografia elencata nella tabella 3.1.


Figura 3.2: ubicazione geogeafica dell'area.

Cartografia	Toponimo	Scala
Carta Geologica regionale on line		
Foglio n° 220	Bologna	1:50.000
Foglo n° 220 NE	Bologna Nord Ovest	1:25.000
Sezone n°220070	Anzola dell'Emilia	1:10.000
Elemento n°220071	Lavino di Mezzo	1.5.000

Tabella 3.1 quadro sinottico degli elemeti cartografici utilizzati

4. Morfologia e geologia.

Geograficamente l'area di studio si trova in Comune Bologna, in destra orografica del Torrente Lavino nella fascia di media Pianura Padana, alla quota media di circa 44,0 m s.l.m, su di un dosso fluviale appartenente alla conoide del torrente Lavino (figura 4.1).

Figura 4.1: Cartografia geomorfologica dell'area: Bergonzoni A. Elmi C. Carta Geomorfologica in Geologia del territorio di pianura del Comune di Bologna.

I depositi della Pianura Padana sono rappresentativi di un cuneo sedimentario sintettonico che ha raccolto, nel corso del Pliocene – Pleistocene – Olocene, i sedimenti derivati dall'erosione delle vicine catene montuose (gli Appennini a Sud e le Alpi a Nord), con uno spessore totale di 4000 m.

Questi sedimenti sono stati deposti per un lungo periodo di tempo in ambiente marino con evoluzione da sedimenti di mare aperto (RIL: substrato Pliocenico marino) a sedimenti marini marginali (IMO: Sabbie di Imola; vecchio ciclo Qm - Quaternario marino), mostrando quindi un trend regressivo. Successivamente il progressivo riempimento del bacino ha permesso l'instaurarsi di ambienti continentali alluvionali che hanno, fin ai giorni nostri e per uno spessore di 1000 - 1500 m, condizionato la natura dei depositi (Supersintema Emiliano-Romagnolo, ex ciclo Qc). Questi

normalmente consistono, a partire dal pedeappenninico, in depositi di conoide, generalmente ghiaie e in subordine sabbie ed argille, che testimoniano la brusca perdita di potenza dei corsi d'acqua allo sbocco sulla pianura (depositi di alta pianura); successivamente sono i depositi degli alvei dei fiumi e delle piane alluvionali che determinano cicli sedimentari a grande variazione sia orizzontale sia verticale, costituiti da sabbie, limi ed argille (media e bassa pianura). La presenza di ciclicità in queste variazioni ha permesso di distinguere, all'interno del Supersintema, Sintemi di rango inferiore: il Sintema Emiliano - Romagnolo Inferiore e quello Superiore. A sua volta il Sintema Superiore si suddivide in Subsintemi. A partire da circa 300 m di profondità verso il piano di campagna attuale riconosciamo AES_4 – AES_5 – AES_6 – AES_7 – AES_8.

Tutta la porzione superficiale del territorio è inquadrata all'interno della Sucessione neogenico-quaternaria del margine appenninico padano (Sintema di Ravenna AES_8 figura 5.2), mentre la parte più profonda è costituita dai terreni appartenenti alla formazione delle Sabbie di Imola (IMO).

4.1. Successione neogenico - quaternaria del margine appenninico padano.

4.2. Supersintema Emiliano-Romagnolo.

Il Supersintema Emiliano-Romagnolo è l'unità stratigrafica che comprende l'insieme dei depositi quaternari di origine continentale affioranti al margine appenninico padano e dei sedimenti ad essi correlati nel sottosuolo della pianura emiliano-romagnola. Questi ultimi comprendono depositi alluvionali deltizi, litorali e marini, organizzati in successioni cicliche di vario ordine gerarchico.

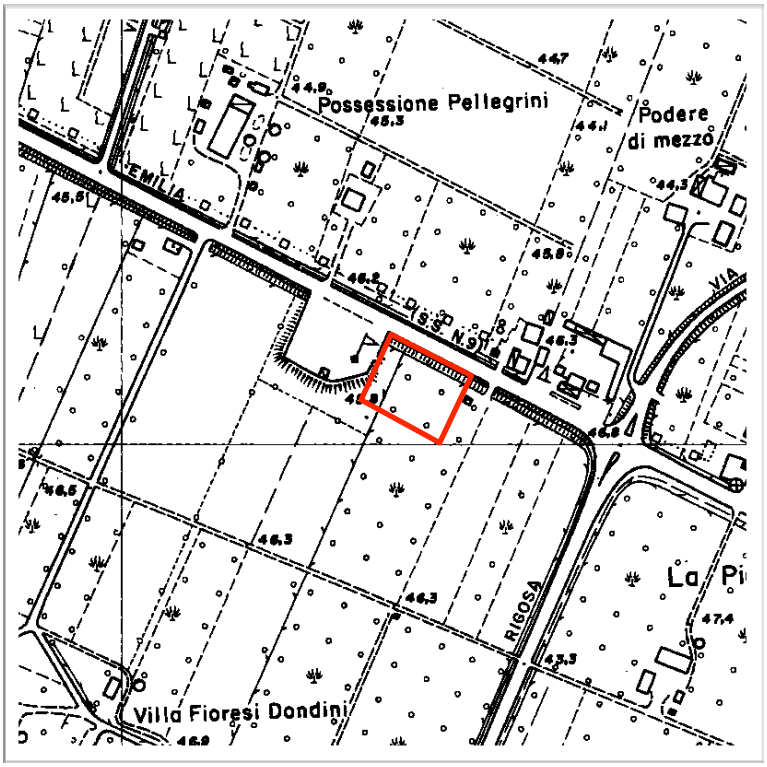


Figura 4.2: Carta CTR n°220071 Lavino di Mezzo con ubicazione dell'area.

In affioramento, al margine appenninico padano, il Supersintema Emiliano-Romagnolo coincide con il ciclo Qc e presenta un limite inferiore inconforme, evidenziato da una discordanza angolare sui depositi litorali delle Sabbie di Imola o su

quelli marini di età più antica. Nel sottosuolo della pianura emiliano-romagnola, al margine del bacino padano, il Supersintema Emiliano-Romagnolo appoggia in discordanza angolare su depositi correlati alle Sabbie di Imola. Il limite superiore coincide col piano topografico.

L'età del Supersintema è attribuibile al Pleistocene medio - Olocene (~ 650.000 anni B.P. - Attuale).

4.2.1. Sintema emiliano-romagnolo superiore (AES).

Il Sintema Emiliano-Romagnolo Superiore (AES) costituisce la porzione superiore del Supersintema Emiliano-Romagnolo. Lo spessore di AES varia da pochi metri al margine appenninico fino a un massimo di 330 metri nel sottosuolo, in corrispondenza della zona depocentrale.

Figura 4.3: carta geologica di superficie dell'area in oggetto su base CTR 220071 Lavino di Mezzo.

Nelle porzioni intravallive e di margine appenninico, l'unità è costituita da depositi terrazzati di piana alluvionale intravalliva che appoggiano in discordanza su depositi marini più antichi.

Si tratta di ghiaie e sabbie di canale fluviale passanti ad alternanze di argille, limi e sabbie di piana inondabile variamente pedogenizzati.

I rilievi geologici effettuati hanno permesso di suddividere AES in alcune unità stratigrafiche di rango inferiore (subsintemi) riconosciute nelle porzioni intravallive e lungo il margine appenninico emiliano-romagnolo.

I singoli subsintemi, correlabili su più aste fluviali, corrispondono a singoli terrazzi alluvionali o a insiemi di terrazzi alluvionali attribuibili a più ordini.

L’ambiente di sedimentazione di questi depositi è prevalentemente costituito dalle conoidi alluvionali dei piccoli torrenti che solcano la zona di interfluvio.

L’età della base di AES è attribuita al Pleistocene medio (350-450 ka).

4.2.2. Subsintema di Ravenna (AES_8).

Nei settori intravallivi il subsintema di Ravenna è costituito da ghiaie passanti a sabbie e limi organizzate in numerosi ordini di terrazzi alluvionali. Negli sbocchi vallivi e nella piana alluvionale (AES_8) è rappresentato da ghiaie, sabbie, limi ed argille. Limite superiore dato da suoli variabili da non calcarei a calcarei. I suoli non calcarei e scarsamente calcarei hanno colore bruno scuro e bruno scuro giallastro, spessore dell'alterazione da 0,5 ad 1,5 m e contengono frequenti reperti archeologici di età del Bronzo, del Ferro e Romana. I suoli calcarei appartengono all'unita' AES_{8a}. Unità di Modena. Limite inferiore erosivo sui depositi marini e alluvionali sottostanti. Questo Subsintema contiene una unità a limiti inconformi di rango gerarchico inferiore (AES_{8a}) che, dove presente, ne costituisce il tetto stratigrafico. Spessore massimo in pianura di 25 metri circa. Età:Pleistocene sup. - Olocene (14 ka - attuale; datazione 14C).

4.3. Unità di Modena (AES8a).

Nei settori intravallivi AES_{8a} è rappresentato da ghiaie prevalenti organizzate in 2 ordini di terrazzi alluvionali. Negli sbocchi vallivi e nella piana alluvionale da ghiaie, sabbie, limi ed argille. Limite superiore sempre affiorante dato da un suolo calcareo di colore bruno olivastro e bruno grigiastro privo di reperti archeologici romani, o piu' antichi, non rimaneggiati. Limite inferiore dato da una superficie di erosione fluviale. Spessore massimo in pianura 7 metri, nel sottosuolo circa 10 m. Età: post-romana (IV-VI sec. d.C. - Attuale; datazione archeologica).

5. Rischi geologici e naturali.

Dai sopralluoghi effettuati non emergono particolari rischi per l’ambiente. Eventuali rischi potranno essere connessi a eventi temporaleschi estremamente intensi che portino all’esondazione del

torrente Lavino (§ successivo) il cui alveo è presente nelle vicinanze dell'area interessata allo studio.

6. Idrogeologia superficiale.

Le sorgenti del Lavino sono situate tra l'Altopiano di Croce delle Pradole (687 m s.l.m.) e il monte Vignola (817 m), subito a monte della frazione Montepastore.

Scende, con corso di modesta larghezza, per una valle abbastanza stretta, bagnando Calderino che, insieme al altre frazioni, si allunga per quasi otto chilometri sulla sua riva sinistra. Riceve in destra e da sinistra orografica rispettivamente alcuni affluenti tra cui i torrenti Olivetta e Landa.

Sbocca in pianura a Zola Predosa, dando il suo nome a tre località (L. di Sopra, località di Zola Predosa sulla ex via Bazzanese; L. di Mezzo, frazione di Anzola dell'Emilia e Bologna, sulla Via Emilia; e L. di Sotto, località di Calderara di Reno, sulla Via Persicetana) tutte nell'area metropolitana bolognese.

Poco prima della confluenza nel Samoggia, in località Forcelli, riceve da sinistra il torrente Ghironda che nasce nelle colline alle spalle di Zola Predosa e bagna Anzola dell'Emilia.

Come il suo affluente Ghironda, ha regime marcatamente torrentizio con portate medie annue di 1,5 m^3/s, ma che oscillano da minimi assoluti di 0,05 m^3/s, a massimi che nelle piene ordinarie arrivano a 40 m^3/s, ma nelle piene centennali, possono superare i 100 m^3/s.

Nella zona a valle della Via Bazzanese scorre profondamente incassato fra alte arginature.

Come il suo affluente Ghironda, è assai pericoloso durante le piene disastrose cui va soggetto e non raramente può esondare in pianura.

Il Torrente Lavino conluisce in destra orografica, nel torrente Samoggia, di cui è il principale affluente.

7. Modello sismico.

Il territorio del Comune di Bologna, ai sensi dell'OPCM 3274/2003, è classificato come zona sismica di terza categoria.

La sismicità della zona[1], nel campo vicino, è legata alla presenza delle strutture sismogenetiche ITCS047 – Castelvetro di Modena–Castel San Pietro, ITCS051 – Novi–Poggio Renatico, ITCS012 – Malalbergo– Ravenna, ITCS050 – Poggiorusco–Migliarino, ITCS103 – Finale Emilia – Mirabello.

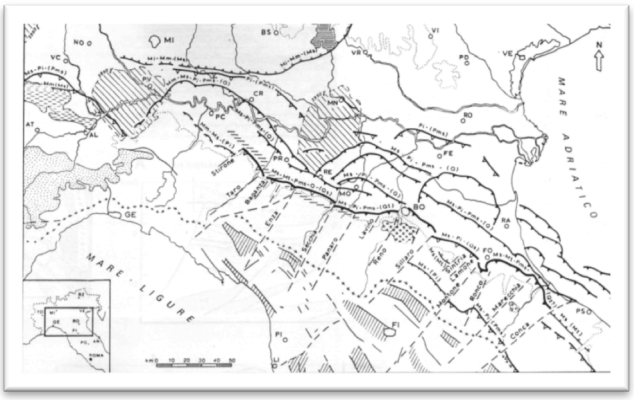


Figura 7.1: Zone sismogenetiche.

ITCS047 – Castelvetro di Modena–Castel San Pietro è una sorgente composita che attraversa la regione in tutta l'Alta Valle del Reno, intorno alla città di Bologna, e appartiene al *Pedeapenninic Thrust Front*. Si tratta di un sistema di faglie NE vergenti, in parte composta da piccoli archi, ai piedi della catena Appenninica settentrionale.

Cataloghi storici e strumentali (Boschi *et al*., 2000; Gruppo di Lavoro CPTI, 2004; Pondrelli *et al*., 2006; Guidoboni *et al*., 2007) mostrano una concentrazione di sismicità sia media (4.5<Mw<5.0) sia elevata nel settore centrale e orientale della regione. I terremoti principali, da E a W, si sono verificati nelle date 3 gennaio 1505 (Mw 5.5, Bologna), 20 aprile 1929 (Mw 5.5, Bolognese) e 20 luglio 1399 (Mw 5.4, Modenese). Inoltre ebbe luogo un altro evento appena a sud della zona il 6 febbraio 1455 (Mw 5.4, Bolognese).

Dati del sottosuolo (Pieri e Groppi, 1981; Cassano *et al*., 1986), anomalie dei *pattern* fluviali (Amorosi *et al*., 1996) e analisi strutturali (Castellarin *et al*., 1985) denotano l'attività tettonica corrente del *Pedeapenninic Thrust Front* che conferisce potenziale sismogenetico a questa zona.

ITCS051 – Novi-Poggio Renatico è la parte principale della porzione nascosta del *thrust* dell'Appennino romagnolo esterno e può spiegare la sismicità della regione. In realtà, dati di sottosuolo (Cassano *et al*., 1986) mostrano anticlinali sepolte ben sviluppate, tra cui la Sorgente Sismogenetica Mirandola (in figura), responsabile di alcuni sismi accaduti nel 2012. Inoltre, ci sono ben note anomalie dei *pattern* fluviali in questo settore (Castaldini *et al*., 1979), per il quale Burrato *et al*. (2003) ipotizzano un'origine tettonica. Questi ultimi autori propongono che i segmenti dei *blind thrusts* dedotti da dati del sottosuolo possano essere potenziali fonti, in questo settore, di terremoti con Mw 5.5.

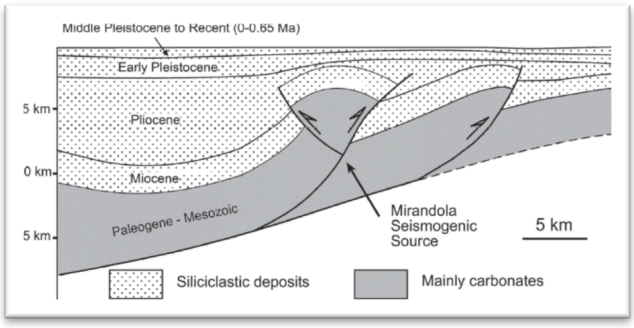


Figura 7.2: sezione raffigurante la sorgente sismogenetica di Mirandola (vedi testo).

[1] Basili R., G. Valensise, P. Vannoli, P. Burrato, U. Fracassi, S. Mariano, M.M. Tiberti, E. Boschi (2008), The Database of Individual Seismogenic Sources (DISS), version 3: summarizing 20 years of research on Italy's earthquake geology, Tectonophysics,

ITCS012 – Malalbergo-Ravenna è una fonte composita che attraversa la porzione più bassa della valle del Reno sino alla città di Ravenna e appartiene alla parte anteriore del *Ferrara Thrust Front*. Questo sistema di faglie è l'arco esterno con vergenza N - NE al confine NE della catena appenninica e marca la spinta più avanzata a NE con potenziale sismogenetico di danno negli Appennini.

I cataloghi storici e strumentali (Boschi *et al*., 2000; Gruppo di Lavoro CPTI, 2004; Pondrelli *et al*., 2006; Guidoboni *et al*., 2007) mostrano un certo numero di terremoti che hanno interessato l'area; a SE (anche se in posizione incerta) vi è il terremoto del 725 A.D. (Mw 5.6, Classe-Ravenna); nel centro della regione, il sisma del 18 marzo 1624 (Mw 5.4, Argenta) ed eventi del 30 dicembre 1967 (Mw 5.4, Bassa Padana), del 22 ottobre 1796 (Mw 5.6, Bassa Padana), del 13 gennaio 1909 (Mw 5.5, Bassa Padana).

Questa sorgente è una parte avanzata e poco profonda rispetto al resto dell'*Outer Thrust* dell'Appennino Romagnolo e comprende il lato destro del fronte.

ITCS050 – Poggio Rusco – Migliarino è una struttura che attraversa la bassa valle del Po e forma la parte esterna del *Ferrara Arc Thrust Front*. È un sistema di faglie NE vergenti al limite NE della catena appenninica nella pianura padana e marca il più avanzato *thrust* NE appenninico sismogenetico.

I cataloghi storici e strumentali (Boschi *et al*., 2000; Gruppo di Lavoro CPTI, 2004; Pondrelli *et al*., 2006; Guidoboni *et al*., 2007) mostrano una sismicità intermedia sparsa nella regione, con l'eccezione notevole del terremoto del 22 febbraio 1346 (Mw 5.8, Ferrara) alla punta W della zona e l'evento del 17 novembre 1570 (Mw 5.5) nella città di Ferrara. Questa sorgente è poco profonda per rappresentare la sismicità della regione. Si ritiene che questa zona possieda un potenziale sismogenetico basato su dati ipogei (Pieri e Groppi, 1981; Boccaletti e Martelli, 2004) e su evidenze di deformazione attiva alla superficie (Burrato *et al*., 2003) che suggeriscono l'attività tettonica dell'arco di Ferrara. Un segmento di quest'arco è stato associato con il terremoto 1570 di Ferrara.

ITCS103 – Finale Emilia – Mirabello è una sorgente composita a cavallo della regione attraversa le valli più basse dei fiumi Reno e Secchia e appartiene al *Ferrara Arc Thrust Front*. Questo sistema di faglie è l'arco esterno a NE vergente della porzione nord-orientale della catena Appenninica settentrionale, anche nella Pianura Padana, e segna il *thrust* con potenziale sismogenetico più avanzato a NE dell'Appennino.

Il 20 e 29 maggio 2012 due terremoti di Mw 5.9 e 5.8 e la loro sequenza di scosse ha colpito la Pianura Padana centrale a circa 40 km a nord di Bologna. Durante la sequenza sismica è stato generato un meccanismo di fagliazione compressionale da parte dei *blind thrusts* dell'Arco Ferrarese occidentale, attivando così un tratto lungo 50 km di questo fronte esterno sepolto

dell'Appennino settentrionale. I meccanismi focali delle scosse maggiori sono d'accordo con la redazione degli indicatori di stress tettonici attuali che mostrano nella zona una massima sollecitazione orizzontale orientata NS, orientata cioè perpendicolarmente alle principali tendenze strutturali. La maggior parte della sequenza sismica si limitava tra 1 e 12 km di profondità, sopra il distaccamento basale locale dell'*Outer Thrust Front* dell'Appennino settentrionale.

Oltre alla sequenza del terremoto del 2012, cataloghi storici e strumentali (Boschi *et al*., 2000; Gruppo di Lavoro CPTI, 2004; Pondrelli *et al*. 2006; Guidoboni *et al*., 2007) mostrano una sismicità della regione da scarsa a intermedia (4.5 < Mw < 5.0), con la notevole eccezione del terremoto di Ferrara del 22 Febbraio 1346 (Mw 5.8).

Questa sorgente è la parte principale dell'*Outer Thrust* degli Appennini Romagnoli e può spiegare la sismicità della regione. Dati di sottosuolo (Cassano *et al*., 1986) mostrano anticlinali sepolte ben sviluppate. Inoltre, ci sono ben note anomalie di drenaggio in questo settore (Castaldini *et al*., 1979), per le quali Burrato *et al*. (2003) ipotizzano una origine tettonica. Questi ultimi autori propongono che i segmenti dei *blind thrust* dedotti dai dati di sottosuolo possano essere potenziali fonti di rari terremoti in questa zona con Mw 5.5.

Un segmento di questa fonte è la sorgente sismogenetica del terremoto del 20 maggio 2012 (Mw 5.9), prima scossa principale della sequenza 2012.

Lo *strike* di questa sorgente è basato su quello delle strutture regionali mappate (N 110° - 120°). Il *dip* è basato su osservazioni geologiche e considerazioni geometriche (40° - 50°). Il *rake* basato su osservazioni geologiche rappresenta *thrusting* (80° - 100°). La profondità minima e massima si basano su considerazioni tettoniche e geometriche riguardanti la geometria del *thrust* (3.5 e 10.0 km, rispettivamente). Lo *slip rate* è stato desunto dai dati geologici (0.25 - 0.50 mm/y). La magnitudo massima è stata presa dal terremoto più dannoso associato alla sorgente (Mw 6.1).

Nella tabella seguente[2] sono elencati gli eventi sismici storici riportati dal Catalogo DBMI15 e relativi al Comune di Bologna.

File downloaded from CPTI15 - DBMI15	
Catalogo Parametrico dei Terremoti Italiani 2015 - Database Macrosismico Italiano 2015	
Istituto Nazionale di Geofisica e Vulcanologia	
Seismic history of Bologna	
PlaceID	IT_39296
Coordinates (lat, lon)	44.494, 11.343

[2] Locati M., Camassi R., Rovida A., Ercolani E., Bernardini F., Castelli V., Caracciolo C.H., Tertulliani A., Rossi A., Azzaro R., D'Amico S., Conte S., Rocchetti E. (2016). DBMI15, the 2015 version of the Italian Macroseismic Database. Istituto Nazionale di Geofisica e Vulcanologia. doi: http://doi.org/10.6092/INGV.IT-DBMI15.

Parametro	Descrizione
Is	**Intensità al sito (MCS)[F=*felt* - percepito; NF=*not felt* - non percepito; NR=*not* reported - non segnalato; RS=registrazione strumentale] - valori intermedi (3-4 / 6-7 indicano incertezza nel dato)**
Data	**Tempo origine: anno mese giorno ora**
Ax	**Area epicentrale**
Np	**Codice dell'elemento di catalogo**
Io	**Intensità epicentrale (MCS)**
Mw	**Magnitudo momento**

Municipality (ISTAT 2015)	Bologna				
Province	Bologna				
Region	Emilia-Romagna				
No. of reported earthquakes	204				
Intensity	Year Mo Da Ho Mi Se	Epicentral area	NMDP	Io	Mw
5-6	1174 08 17 18	Val Padana	3	4-5	3.93
F	1194	Galeata	3	6-7	4.86
6	1222 12 25 12 30	Bresciano-Veronese	18	7-8	5.68
5-6	1280 01 25	Pianura emiliana	2	5-6	4.4
5-6	1323 02 25 19	Bologna	2	5	4.16
5	1348 01 25	Alpi Giulie	89	9	6.63
F	1349 09 09 08 15	Viterbese	9		
3-4	1352 12 25	Alta Valtiberina	7	9	6.31
7-8	1365 07 25 18	Bologna	1	7-8	5.33
6-7	1399 07 20 23	Appennino modenese	6	7	5.1
5	1400 02 29 19 15	Bologna	1	5	4.16
5	1400 03 03 12 15	Bologna	1	5	4.16
5	1408 01 03 16 30	Bologna	2	4	3.7
3	1414 08 07	Colline Metallifere	8	7-8	5.7
7	1433 05 04 08 05	Bologna	4	6	4.63
NC	1455 02 06	Appennino bolognese	2		
6-7	1455 12 20 20 45	Appennino bolognese	5	5-6	4.4
2-3	1473 05 07 07 45	Milanese	5	4	3.7
3-4	1483 08 11 19 40	Romagna	14	8	5.69
3	1501 06 05 10	Modenese	17	9	6.05
6-7	1504 12 31 04	Bolognese	15	6	5.02
8	1505 01 03 02	Bolognese	31	8	5.62
6-7	1505 01 20 23 50	Bolognese	11	5-6	4.76
5-6	1505 01 27 02 40	Bolognese	2	5	4.16
5-6	1505 04 03 12 25	Bolognese	1	5-6	4.4
5-6	1505 05 15	Bolognese	1	5-6	4.4
NF	1509 04 19	Faentino	5	7	5.02
5-6	1511 03 26 15 30	Friuli-Slovenia	120	9	6.32
4	1536 08 17 00 05	Appennino settentrionale	10	6-7	5.12
4-5	1542 06 13 02 15	Mugello	46	9	6.02
4	1570 11 17 19 10	Ferrarese	58	7-8	5.44
3-4	1591 07 10	Romagna	6	6-7	5.13
4	1624 03 19	Argenta	18	7-8	5.43
4	1661 03 21 23	Modenese	4	6-7	4.86
5-6	1661 03 22 12 50	Appennino forlivese	79	9	6.05
6	1666 04 14 18 58	Bolognese	3	5	4.16
3	1671 06 20 10	Modenese-Reggiano	8	7	5.27
3	1672 04 14 15 45	Riminese	92	8	5.59
6	1688 04 11 12 20	Romagna	39	8-9	5.84
5	1695 02 25 05 30	Asolano	107	10	6.4
F	1703 01 14 18	Valnerina	197	11	6.92
F	1719 01 07	Italia nord-orientale	11	5-6	4.94
4	1725 10 29 17 40	Appennino tosco-emiliano	28	8	5.67
4	1727 03 09 11	Mugello	6	6-7	4.93
4-5	1728 02 04 03	Bolognese	2	5-6	4.4
5-6	1739 07 31 11	Bologna	1	5-6	4.4
3	1740 03 06 05 40	Garfagnana	32	8	5.64
6	1779 06 01 23 55	Bolognese	8		
6	1779 06 02 07 30	Bolognese	3		
7	1779 06 04 07	Bolognese	12	7	5.22
6-7	1779 06 10 08 35	Bolognese	10		
7	1779 07 14 19 30	Bolognese	17		
5	1779 08 20 10 50	Bolognese	2	5	4.16
6	1779 11 23 18 30	Bolognese	14	5	4.7
6-7	1780 02 06 04	Bolognese	9	6-7	5.06
4	1780 09 22 13 45	Forlivese	3	4-5	3.93
4	1781 04 04 21 20	Faentino	96	9-10	6.12
3	1781 07 17 09 40	Faentino	46	8	5.61
4-5	1786 12 25 01	Riminese	90	8	5.66
6-7	1796 10 22 04	Emilia orientale	27	7	5.45
6	1801 10 08 07 52 53.00	Bolognese	6	6	4.9
F	1802 05 12 09 30	Valle dell'Oglio	94	8	5.6
4-5	1806 02 12	Reggiano	28	7	5.21
4	1810 12 25 00 45	Pianura emiliana	33	6	5.06
4	1811 07 15 22 44	Modenese-Reggiano	19	6-7	5.13
4-5	1813 09 21 07 45	Romagna	12	7	5.28
2	1818 12 09 18 55	Parmense	26	7	5.24
3	1828 04 11 22 25	Appennino umbro-marchigiano	22	5-6	4.93

4	1830 01 26 04 30	Alto Reno	11	5	4.53
3	1831 09 11 18 15	Pianura emiliana	25	7-8	5.48
4-5	1832 03 13 03 30	Reggiano	97	7-8	5.51
4	1834 02 14 13 15	Val di Taro-Lunigiana	112	9	5.96
3	1834 07 04 00 45	Val di Taro-Lunigiana	24	6-7	5.08
6	1834 10 04 19	Bolognese	12	6	4.71
3	1843 10 25 03 30	Mugello	17	6-7	5.03
NF	1846 08 14 12	Colline Pisane	121	9	6.04
5	1850 09 18 06 20	Modenese	7	5	4.16
3	1854 06 16 13 25	Imola	9	5	4.57
4	1861 10 16	Romagna	10	6-7	5.13
3-4	1864 03 15	Zocca	13	6-7	4.84
4	1864 12 11 17 40	Mugello	9	7	5.11
5-6	1869 06 25 13 58	Appennino bolognese	18	7-8	5.43
3	1869 12 13 02 53	Sassuolo	13	5	4.57
3	1870 10 30 18 34	Forlivese	41	8	5.61
F	1871 01 22 21 30	Pianura romagnola	8	6	4.95
3-4	1873 03 12 20 04	Appennino marchigiano	196	8	5.85
5	1873 06 29 03 58	Alpago Cansiglio	197	9-10	6.29
4-5	1873 09 17	Appennino tosco-ligure	64	6-7	5.26
4-5	1874 10 07	Imolese	60	7	4.96
4-5	1875 03 17 23 51	Costa romagnola	144	8	5.74
NF	1875 12 06	Gargano	97	8	5.86
5	1878 03 12 21 36	Bolognese	31	6	4.84
5	1878 04 05 09 46	Bolognese	6	6	4.63
4	1878 06 04 14 40	Bolognese	13	5	4.52
4	1878 11 09 17 48 50.00	Tossignano	8	5	4.53
5	1879 04 27 04 06	Appennino tosco-emiliano	20	7	5.03
6	1881 01 24 16 14	Bolognese	38	7	5.22
5	1881 01 25 07 06	Bolognese	18	5	4.59
6	1881 02 14 09 00 30.00	Appennino bolognese	21	6	4.77
3	1881 09 28	Cesena	24	6-7	4.71
4	1885 02 26 20 48	Pianura Padana	78	6	5.01
3	1885 12 29	Alpago Cansiglio	47	6	4.96
F	1887 02 23 05 21 50.00	Liguria occidentale	1511	9	6.27
NF	1887 11 14 05 48 05.00	Fiorentino	101	6	4.47
6	1889 03 08 02 57 04.00	Bolognese	38	5	4.53
3	1889 12 08	Gargano	122	7	5.47
NF	1890 03 26 20 10	Bellunese	48	6	4.82
3	1891 06 07 01 06 14.00	Valle d'Illasi	403	8-9	5.87
NF	1891 08 01 13 32 22.00	Lugo	15	4-5	4.36
2-3	1892 08 09 07 58	Valle d'Alpone	160	6-7	4.91
NF	1892 12 29 13 47 48.00	Castel del Rio	36	5-6	4.37
2	1894 02 09 12 48 05.00	Valle d'Illasi	116	6	4.74
3	1894 11 27 05 07	Bresciano	183	6	4.89
NF	1895 03 23	Comacchio	33	6	4.65
4	1895 05 18 19 55 12.00	Fiorentino	401	8	5.5
2-3	1895 08 07 19 49 32.00	Appennino tosco-emiliano	84	5	4.67
NF	1895 08 09 17 38 20.00	Adriatico centrale	103	6	5.11
NF	1896 07 08 01 51 28.00	Porretta Terme	17	5	4.37
3	1897 12 18 07 24 20.00	Alta Valtiberina	132	7	5.09
3	1898 01 16 13 10	Romagna settentrionale	110	6	4.59
4	1898 03 04 21 05	Parmense	313	7-8	5.37
3	1899 06 26 23 17 22.00	Valle del Bisenzio	138	7	5.02
3	1901 10 30 14 49 58.00	Garda occidentale	289	7-8	5.44
NF	1902 12 04 16 35 01.00	Lunigiana	36	5	4.35
3	1904 02 25 18 47 50.00	Reggiano	62	6	4.81
3	1904 06 10 11 15 28.00	Frignano	101	6	4.82
NF	1904 11 17 05 02	Pistoiese	204	7	5.1
3-4	1908 06 02 22 30	Frignano	18	4-5	4.5
6	1909 01 13 00 45	Emilia Romagna orientale	867	6-7	5.36
3	1911 02 19 07 18 30.00	Forlivese	181	7	5.26
NF	1911 09 13 22 29 02.00	Chianti	115	7	5.08
3	1913 07 21 22 35	Appennino romagnolo	43	5-6	4.79
5	1914 10 27 09 22	Lucchesia	660	7	5.63
3	1915 01 13 06 52 43.00	Marsica	1041	11	7.08
5	1916 05 17 12 50	Riminese	132	8	5.82
5	1916 08 16 07 06 14.00	Riminese	257	8	5.82
2	1918 05 06 08 05	Reggiano	8	5-6	4.41
4-5	1918 11 10 15 12 28.00	Appennino forlivese	187	9	5.96
4-5	1919 06 29 15 06 13.00	Mugello	565	10	6.38
5	1920 09 07 05 55 40.00	Garfagnana	750	10	6.53
NF	1920 10 06 22 47	Mantovano	19	4-5	4.14

3	1922 05 24 21 17 25.00	Ferrarese	7	4	3.7
3-4	1926 01 01 18 04 03.00	Carniola interna	63	7-8	5.72
6	1929 04 10 05 44	Bolognese	87	6	5.05
4	1929 04 11 00 56	Bolognese	10	4	4.72
4	1929 04 12 00 32	Bolognese	7	4	4.82
5-6	1929 04 19 04 16	Bolognese	82	6-7	5.13
4	1929 04 19 22 40	Bolognese	12	5-6	4.54
5	1929 04 20 01 10	Bolognese	109	7	5.36
5	1929 04 22 08 26	Bolognese	41	6-7	5.1
5	1929 04 22 14 19	Bolognese	12	5-6	4.61
5	1929 04 28 19 40	Bolognese	20	6	4.73
5	1929 04 29 18 36	Bolognese	45	6	5.2
4	1929 05 01 21 13	Imolese	3	4	4.57
5	1929 05 11 19 23	Bolognese	64	6-7	5.29
2-3	1929 07 18 21 02	Mugello	56	6-7	4.96
3	1929 08 17 04 25	Bolognese	10	4-5	3.89
4	1930 10 24 00 52	Appennino tosco-emiliano	12	4	3.97
4	1930 10 26 07 14	Appennino tosco-emiliano	14	4	4.21
3	1930 10 26 07 31	Modenese	11	4	4.12
2	1930 10 30 07 13	Senigallia	268	8	5.83
3	1931 04 11 01 26	Faentino	19	4-5	4.81
3	1931 06 10 17 02	Modenese	14	4	4.59
NF	1931 12 15 03 23	Mugello	35	6	4.62
3	1935 06 05 11 48	Faentino	27	6	5.23
3	1936 10 18 03 10	Alpago Cansiglio	269	9	6.06
3	1939 10 15 14 05	Garfagnana	62	6-7	4.96
3-4	1951 05 15 22 54	Lodigiano	179	6-7	5.17
3	1956 04 26 03 00 03.00	Appennino bolognese	89	6	4.74
3	1960 10 29 00 08 39.00	Mugello	69	7	4.91
F	1963 07 19 05 46 01.50	Mar Ligure	412		5.95
3-4	1964 09 05 21 09	Appennino tosco-emiliano	22	5	4.35
NF	1967 12 09 03 09 56.00	Adriatico centrale	22		4.36
4	1967 12 30 04 19	Emilia Romagna orientale	40	6	5.05
4	1971 07 15 01 33 23.00	Parmense	228	8	5.51
3	1972 10 25 21 56 11.31	Appennino settentrionale	198	5	4.87
4-5	1976 05 06 20	Friuli	770	9-10	6.45
2-3	1976 09 11 16 35 02.44	Friuli	40	7-8	5.6
4-5	1976 09 15 09 21 19.01	Friuli	54	8-9	5.95
3	1977 09 16 23 48 07.64	Friuli	94	6-7	5.26
4	1978 12 05 15 39 04.00	Romagna	34	4-5	4.61
3	1978 12 25 22 53 41.00	Bassa modenese	28	5	4.39
3	1979 02 09 14 44	Bergamasco	73	6	4.78
3	1980 06 07 18 35 01.00	Garfagnana	102	6-7	4.64
3	1980 11 23 18 34 52.00	Irpinia-Basilicata	1394	10	6.81
3	1980 12 23 12 01 06.00	Piacentino	69	6-7	4.57
4	1983 11 09 16 29 52.00	Parmense	850	6-7	5.04
NF	1984 04 29 05 02 59.00	Umbria settentrionale	709	7	5.62
2	1986 12 06 17 07 19.77	Ferrarese	604	6	4.43
4	1987 05 02 20 43 53.32	Reggiano	802	6	4.71
F	1987 07 11 01 46 52.02	Bassa Bolognese	15	5	4.2
4	1989 09 13 21 54 01.50	Prealpi Vicentine	779	6-7	4.85
2-3	1992 04 17 11 59 07.29	Appennino bolognese	56	4-5	4.11
4-5	1996 10 15 09 55 59.95	Pianura emiliana	135	7	5.38
3-4	1997 09 26 09 40 26.60	Appennino umbro-marchigiano	869	8-9	5.97
4	1999 07 07 17 16 12.59	Frignano	32	5	4.67
NF	2000 05 06 22 07 03.78	Faentino	85	5	4.08
NF	2000 05 08 12 29 56.20	Faentino	126	5	4.67
NF	2000 05 10 16 52 11.60	Faentino	151	5-6	4.82
5	2003 09 14 21 42 53.18	Appennino bolognese	133	6	5.24
3	2004 11 24 22 59 38.55	Garda occidentale	176	7-8	4.99
NF	2005 07 15 15 17 18.00	Forlivese	173	4-5	4.29
4	2008 12 23 15 24 21.77	Parmense	291	6-7	5.36
3	2011 07 17 18 30 27.31	Pianura lombardo-veneta	73	5	4.79

Tabella 7.1: storia sismica di Bologna.

Utilizzando i dati ricavati dal sito web dell'INGV è stata analizzata la disaggregazione[3] dei dati

[3] La disaggregazione (o deaggregazione) della pericolosità sismica (McGuire, 1995; Bazzurro and Cornell, 1999) è un'operazione che consente di valutare i contributi di diverse sorgenti sismiche alla pericolosità di un sito. La forma più comune di disaggregazione è quella bidimensionale in magnitudo e distanza (M-R) che permette di definire il contributo di sorgenti sismogenetiche a distanza R capaci di generare terremoti di magnitudo

sismici relativi al nodo più vicino del reticolo in cui è suddiviso il territorio nazionale. Per il vicino nodo 16729 (posto alla distanza di 1765 m) il dato medio è di magnitudo 4.90[4] con una distanza epicentrale media di 8.71 km ed un valore e di 0.851.

I dati disaggregati[5] mostrano la distribuzione descritta dalla tabella 7.2.

Disaggregazione del valore di a(g) con probabilita' di eccedenza del 5% in 50 anni											
(Coordinate del punto lat: 44.5137, lon: 11.2474, ID: 16729)											
Distanza in km	Magnitudo										
	3.5 4.0	4.0 4.5	4.5 5.0	5.0 5.5	5.5 6.0	6.0 6.5	6.5 7.0	7.0 7.5	7.5 8.0	8.0 8.5	8.5 9.0
0-10	0.000	19.300	**34.200**	18.100	7.020	0.307	0.000	0.000	0.000	0.000	0.000
10-20	0.000	1.550	5.660	6.210	4.290	0.380	0.000	0.000	0.000	0.000	0.000
20-30	0.000	0.000	0.132	0.927	1.300	0.162	0.000	0.000	0.000	0.000	0.000
30-40	0.000	0.000	0.000	0.037	0.312	0.063	0.000	0.000	0.000	0.000	0.000
40-50	0.000	0.000	0.000	0.000	0.033	0.030	0.005	0.000	0.000	0.000	0.000
50-60	0.000	0.000	0.000	0.000	0.000	0.003	0.002	0.000	0.000	0.000	0.000
60-70	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
70-80	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
80-90	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
90-100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Tabella 7.2: Disaggregazione del valore di a(g) con probabilita' di eccedenza del 5% in 50 anni.

Dall'esame della quale si evince che la classe sismica dominante è individuata da terremoti con magnitudo comprese fra 4.0 e 6.5 il cui epicentro è nell'intervallo di distanza 0-10 km per un totale percentuale del 78.9%. Nell'intervallo di distanze epicentrali 10-20 km è rappresentato il 18.1% dei sismi con magnitudo comprese fra 4.0 e 6.5. Nell'intervallo 0-20 km vi è quindi il 97% dei sismi con magnitudo comprese fra 4.0 e 6.5.

Nel sito dell'INGV sono anche disponibili gli spettri di risposta a pericolosità uniforme Se(T) con probabilità di eccedenza in 50 anni. I dati relativi al 50° percentile sono riassunti nella tabella seguente.

Prob. di ecc. in 50 aa	Spettri di risposta a pericolosita' uniforme										
	50° percentile (Coordinate del punto lat: 44.5137, lon: 11.2474, ID: 16729)										
	Periodo (in sec)										
	0.00	0.10	0.15	0.20	0.30	0.40	0.50	0.75	1.00	1.50	2.00
2%	0.2765	0.6015	0.7040	0.7255	0.6679	0.5711	0.4659	0.2784	0.1909	0.1045	0.0711
5%	0.2073	0.4525	0.5283	0.5392	0.4848	0.4140	0.3382	0.1999	0.1340	0.0738	0.0505
10%	0.1615	0.3499	0.4140	0.4020	0.3740	0.3159	0.2573	0.1524	0.1004	0.0554	0.0372
22%	0.1177	0.2560	0.3026	0.2914	0.2698	0.2177	0.1787	0.1045	0.0695	0.0382	0.0255
30%	0.1000	0.2212	0.2631	0.2539	0.2327	0.1861	0.1528	0.0884	0.0589	0.0322	0.0208
39%	0.0866	0.1888	0.2314	0.2237	0.2038	0.1599	0.1305	0.0740	0.0495	0.0267	0.0175
50%	0.0754	0.1661	0.2016	0.1949	0.1753	0.1375	0.1110	0.0598	0.0399	0.0218	0.0143
63%	0.0649	0.1439	0.1743	0.1677	0.1506	0.1157	0.0930	0.0483	0.0316	0.0175	0.0113
81%	0.0525	0.1173	0.1401	0.1338	0.1169	0.0924	0.0676	0.0335	0.0208	0.0124	0.0073

M. Espresso in altri termini il processo di disaggregazione in M-R fornisce il terremoto che domina lo scenario di pericolosità (terremoto di scenario) inteso come l'evento di magnitudo M a distanza R dal sito oggetto di studio che contribuisce maggiormente alla pericolosità sismica del sito stesso. Analogamente alla disaggregazione in M-R è possibile definire la disaggregazione tridimensionale in M-R-ε dove ε rappresenta il numero di deviazioni standard per cui lo scuotimento (logaritmico) devia dal valore mediano predetto da una data legge di attenuazione dati M ed R.

[4] La magnitudo indicata è quella locale (Ml). Per convertirla in magnitudo momento (Mw) sono proposte alcune relazioni, tra le quali: Mw = 0.812 Ml+1.145 (Gruppo di Lavoro INGV, 2004) e M"w = 0.890 M"l+0.283 (Castellaro *et al*., 2006), ove M"w=Mw-4.5 e M"l=Ml-4.5.

[5] Tratti da "Convenzione INGV-DPC 2004 – 2006 - Progetto S1 - Proseguimento della assistenza al Dipartimento della Protezione Civile per il completamento e la gestione della mappa di pericolosità sismica prevista dall'Ordinanza PCM 3274 e progettazione di ulteriori sviluppi - Mappe interattive di pericolosità sismica (*versione 1.1 - 31 luglio 2007*)"

Dall'analisi dei dati suelencati il catalogo CPTI15 è stato interrogato per parametri, con centro nel punto d'interesse (simboleggiato da un quadrato rosso) e con raggio 30 km, per analizzare i sismi (e le relative intensità MCS) che formano l'*hazard* dell'area, ottenendo i risultati compendiati nella grafica riprodotta a lato.

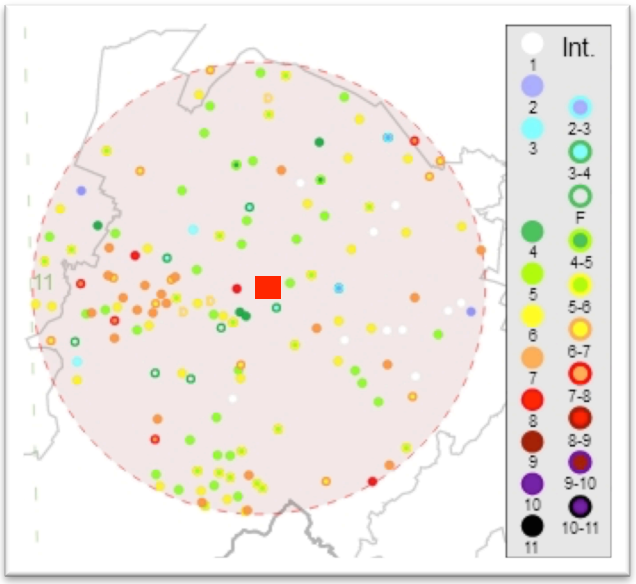


Figura 7.3: risultati compendiati in forma graficadell"hazard dell'area.

Nella storia sismica analizzata i sismi con magnitudo momento epicentrale maggiore sono gli eventi del 1399 (Modenese), 1505 (Bologna) e del 1929 (Bolognese) cui vanno aggiunti gli eventi del 2012.

Gli eventi citati in tabella appartengono alle zone sismogenetiche 912, 913 e 914[6].

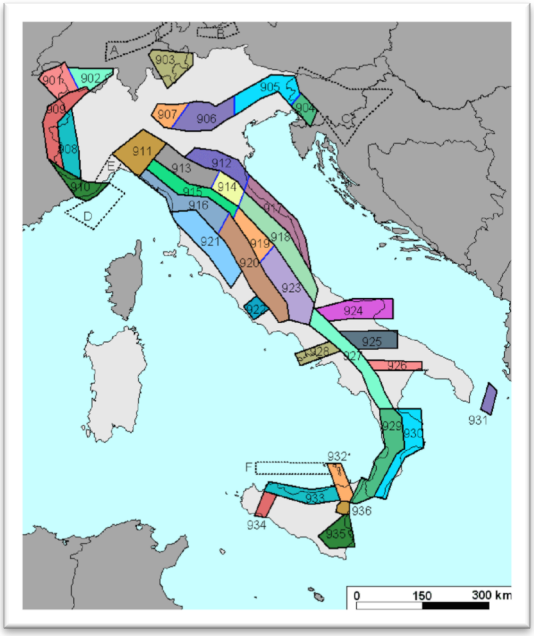


Figura 7.4: zone sismogenetiche.

Procedendo dal Tirreno all'Adriatico, le zone-sorgente da 912 a 923, longitudinali rispetto all'asse della catena appenninica, modificano le precedenti zone da 27 a 55 di ZS4 sulla base di vedute aggiornate sulla fagliazione attiva e sulla geometria delle sorgenti sismogenetiche. In particolare le zone 912 e 917 rappresentano la porzione più esterna della fascia in compressione dell'arco appenninico settentrionale, ottenute tenendo conto delle nuove informazioni sulla geometria delle sorgenti sismogenetiche e sul regime di stress in atto. Il numero di terremoti che ricadono nella zona 917 è sicuramente inferiore a quello degli eventi nella zona 912. In quest'ultima, la sismicità sembra evidenziare l'andamento del fronte compressivo sepolto più avanzato (a ridosso del Po). In queste zone si osserva in atto un regime tettonico debolmente compressivo. Strutture compressive (prevalentemente *thrust*) allineate lungo la costa o a breve distanza da essa sono responsabili della sismicità.

Le zone 913, 914 e 918 derivano dalla scomposizione della fascia che da Parma si estende fino

[6] Gruppo di Lavoro INGV (2004). Redazione della mappa di pericolosità sismica prevista dall'OPCM 3274/2003. Zonazione sismogenetica ZS9. Rapporto conclusivo. INGV, Aprile 2004.

all'Abruzzo. In questa fascia accadono terremoti prevalentemente compressivi nella porzione nord-occidentale e probabilmente distensivi in quella più sud-orientale; si possono altresì avere meccanismi trascorrenti nelle zone di svincolo che dissecano la continuità longitudinale delle strutture. L'intera fascia è caratterizzata da terremoti storici che raramente hanno raggiunto valori di magnitudo molto elevati. Le profondità ipocentrali sono mediamente maggiori in questa fascia di quanto non siano in quella più esterna; lo testimoniano anche quegli eventi che hanno avuto risentimenti su aree piuttosto vaste. Queste zone ricadono invece in una fascia di transizione a carattere misto, in cui convivono meccanismi diversi (essenzialmente compressivi a NW e distensivi a SE).

Per le zone sismogenetiche 912, 913 e 914 la Tab. 6 in Gruppo di Lavoro INGV (2004) indica, dopo le analisi di completezza, un valore di Mw_{max} pari a 6.14, valore prossimo a quello dei sismi del maggio 2012 (Finale Emilia 20/05/2012 – Ml 5.9 [Mw 6.1], Mirandola-S. Felice S.P. 29/05/2012 – Ml 5.8 [Mw 5.9][7]).

7.1. Procedure sperimentali per la determinazione della categoria di suolo.

Nel sito in oggetto è stata eseguita una misura del rumore sismico ambientale della durata di 30' e una rilevazione in sismica attiva col metodo MASW.

La misura H/V è stata eseguita con un tromografo digitale progettato specificamente per l'acquisizione del rumore sismico. Lo strumento (TROMINO©, 10 x 7 x 14 cm per 1 kg di peso) è dotato di tre sensori elettrodinamici (velocimetri) orientati N-S, E-W e verticalmente, alimentato da 2 batterie AA da 1.5 V, fornito di GPS interno e senza cavi esterni. I dati di rumore, amplificati e digitalizzati a 24 bit equivalenti, sono stati acquisiti alla frequenza di campionamento di 128 Hz.

7.1.1. Sismica passiva (H/V).

Il rumore sismico ambientale, presente ovunque sulla superficie terreste, è generato dai fenomeni atmosferici (onde oceaniche, vento) e dall'attività antropica oltre che, ovviamente, dall'attività dinamica terrestre. Si chiama anche microtremore perché riguarda oscillazioni molto piccole (10–15 $[m/s^2]$[2] in termini di accelerazione), molto più piccole di quelle indotte dai terremoti nel campo vicino.

I metodi che si basano sulla sua acquisizione si dicono passivi giacché il rumore non è generato ad

[7] Pondrelli S. *et al*.: Quick regional centroid moment tensor solutions for the Emilia 2012 (northern Italy) seismic sequence. ANNALS OF GEOPHYSICS, 55, 4, 2012; doi: 10.4401/ag-6146.

hoc, come ad esempio le esplosioni della sismica attiva.

Nelle zone in cui non è presente alcuna sorgente di rumore locale, in assenza di vento e nel caso in cui il terreno sia roccioso e pianeggiante, lo spettro in frequenza del rumore di fondo presenta l'andamento illustrato in figura, dove la curva in basso rappresenta il rumore di fondo "minimo" di riferimento secondo il servizio geologico statunitense (USGS) mentre la curva in alto rappresenta il "massimo" di tale rumore e dove i picchi a 0.14 e 0.07 Hz sono comunemente interpretati come originati dalle onde oceaniche. Tali componenti spettrali vengono attenuate pochissimo anche dopo tragitti di migliaia di chilometri per effetto di guida d'onda[s]. A tale andamento generale, che è sempre presente, si sovrappongono le sorgenti locali, antropiche (traffico, industrie o anche il semplice passeggiare di una persona) e naturali che però si attenuano fortemente a frequenze superiori a 20 Hz, a causa dell'assorbimento anelastico originato dall'attrito interno delle rocce.

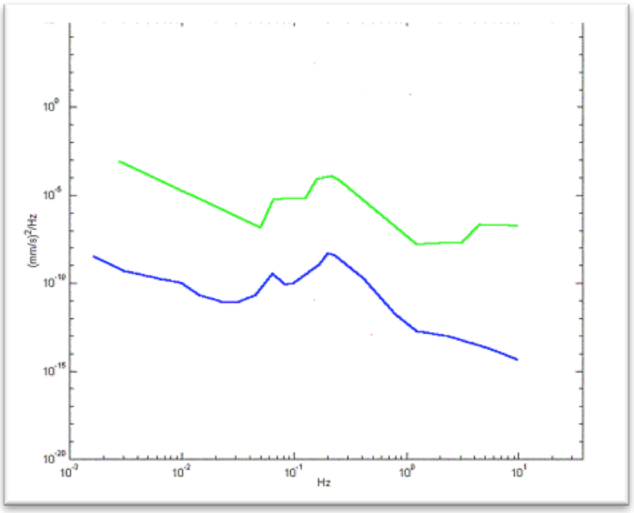


Figura 7.1: la curva a inferiore rappresenta il rumore di fondo "minimo" di riferimento secondo il servizio geologico statunitense (USGS) mentre la curva superiore rappresenta il "massimo" di tale rumore, e dove i picchi a 0.14 e 0.07 Hz sono comunemente interpretati come originati dalle onde oceaniche.

Nel tragitto dalla sorgente s al sito x le onde elastiche (tanto di terremoto quanto di microtremore) subiscono riflessioni, rifrazioni, intrappolamenti per fenomeni di guida d'onda, attenuazioni che dipendono dalla natura del sottosuolo attraversato. Questo significa che, se da un lato l'informazione relativa alla sorgente viene persa e non sono più applicabili le tecniche della sismica classica di "*ray tracing*", è presente comunque una parte debolmente correlata nel segnale che può essere estratta e che contiene le informazioni relative al percorso del segnale ed in particolare relative alla struttura locale vicino al sensore.

Dunque, anche il debole rumore sismico, che tradizionalmente costituisce la parte di segnale scartata dalla sismologia classica, contiene informazione. Questa informazione è però "sepolta" all'interno del rumore casuale e può essere estratta attraverso tecniche opportune.

Una di queste è la tecnica dei rapporti spettrali o, semplicemente, HVSR.

Il tipo di stratigrafia che le tecniche di sismica passiva possono restituire si basa sul concetto di contrasto di impedenza. Per strato si intende cioè un'unità distinta da quelle sopra e sottostanti per

[s] **Si intende per guida d'onda il fenomeno per cui un campo di onde tende a rimanere confinato dentro un canale (es. un tubo o una fibra in ottica) a causa delle riflessioni delle onde con l'interfaccia di confinamento. In sismica il fenomeno si verifica nei mezzi stratificati ed è all'origine delle onde di Rayleigh e di Love.**

un contrasto di impedenza, ossia per il rapporto tra i prodotti di velocità delle onde sismiche nel mezzo e densità del mezzo stesso.

Dai primi studi di Kanai (1957) in poi, diversi metodi sono stati proposti per estrarre l'informazione relativa al sottosuolo a partire dagli spettri del rumore sismico registrati in un sito. Tra questi la tecnica che si è maggiormente consolidata nell'uso è quella dei rapporti spettrali tra le componenti del moto orizzontale e quella verticale (HVSR), applicata da Nogoshi e Igarashi (1970). Il metodo fu in seguito reso popolare principalmente da Nakamura (1989) come strumento per la determinazione dell'amplificazione sismica locale. Mentre su questo punto non è ancora stato raggiunto consenso, è invece ampiamente riconosciuto che l'HVSR è in grado di fornire stime affidabili delle frequenze principali di risonanza dei sottosuoli. Riconosciuta questa capacità e dato che, se è disponibile una stima delle velocità delle onde elastiche, le frequenze di risonanza possono essere convertite in stratigrafia, ne risulta che il metodo HVSR può essere in linea di principio usato come strumento stratigrafico.

Le basi teoriche dell'HVSR sono relativamente semplici in un sistema stratificato in cui i parametri variano solo con la profondità (1-D).

Considerando il sistema in figura a lato in cui gli strati 1 e 2 si distinguono per le diverse densità (ϱ_1 e ϱ_2) e le diverse velocità delle onde sismiche (V_1 e V_2), un'onda che viaggia nel mezzo 1 viene (parzialmente) riflessa dall'orizzonte 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 incidente (λ) è 4 volte (o suoi multipli dispari) lo spessore h del primo strato. In altre parole la frequenza fondamentale di risonanza (n) dello strato 1 relativa alle onde P è pari a

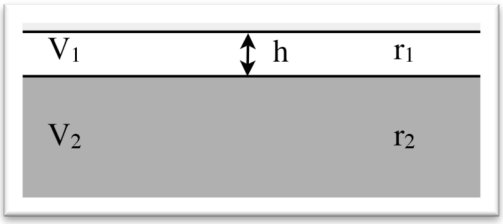


Figura 7.2. Modello di suolo costituito da due strati a diverse velocità delle onde sismiche e densità.

$$n = V_{P1}/(4\,h) \quad [7.1]$$

mentre quella relativa alle onde S è

$$n = V_{S1}/(4\,h) \quad [7.2]$$

Questo effetto è sommabile cosicché la curva HVSR mostra come massimi relativi le frequenze di risonanza dei vari strati. Ciò, insieme ad una stima delle velocità, è in grado di fornire previsioni sullo spessore h degli strati. L'informazione è per lo più contenuta nella componente verticale del moto ma la prassi di usare il rapporto tra gli spettri orizzontali e quello verticale, piuttosto che il solo spettro verticale, deriva dal fatto che il rapporto fornisce un'importante normalizzazione del segnale per il contenuto in frequenza, la risposta strumentale e l'ampiezza del segnale quando le registrazioni vengono effettuate in momenti con rumore di fondo più o meno alto. La

normalizzazione, che rende più semplice l'interpretazione del segnale, è alla base del successo del metodo. Rileviamo inoltre come i microtremori siano solo in parte costituiti da onde di volume, P o S, e in misura molto maggiore da onde superficiali, in particolare da onde di Rayleigh (Lachet e Bard, 1994). Tuttavia ci si può ricondurre a risonanza delle onde di volume poiché le onde di superficie sono prodotte da interferenza costruttiva di queste ultime e poiché la velocità dell'onda di Rayleigh è molto prossima a quella delle onde S. L'applicabilità pratica della semplice formula [7.2] è stata già dimostrata in molti studi sia nell'ambito della prospezione geofisica che nell'ambito ingegneristico (Gallipoli *et al*., 2000; Mucciarelli e Gallipoli, 2001; Castellaro *et al*., 2005). Poiché la situazione illustrata è tipica delle coltri sedimentarie sovrastanti basamenti rocciosi, il metodo HVSR è parso immediatamente applicabile alla determinazione dello spessore delle coltri sedimentarie (Ibs-Von Seht e Wohlenberg, 1999).

In questo lavoro i segnali saranno analizzati non solo attraverso i rapporti spettrali HVSR ma anche attraverso gli spettri delle singole componenti, come in Mulargia e Castellaro (2006).

Dalle registrazioni del rumore sismico sono state ricavate e analizzate:

1. le curve HVSR, ottenute col software Grilla in dotazione a TROMINO®, secondo la procedura descritta in Castellaro et al. (2005), con parametri:
   - larghezza delle finestre d'analisi 20",
   - lisciamento secondo finestra triangolare con ampiezza pari al 10% della frequenza centrale,
   - rimozione delle finestre con rapporto STA/LTA (media a breve termine / media a lungo termine) superiore ad 2,
   - rimozione manuale di eventuali transienti ancora presenti.
2. le curve dello spettro di velocità delle tre componenti del moto (ottenute dopo analisi con gli stessi parametri del punto 1).

7.1.1.1. Indagine sismica passiva (H/V).

Nel lotto in esame è stata eseguita una stazione di misura, per un tempo di acquisizione di 30'. In conformità con le disposizioni del protocollo europeo SESAME per le misure di microzonazione sismica, lo strumento, in acquisizione, è stato orientato a N.

Dopo le operazioni di elaborazione dati descritte sopra, si sono ottenuti i diagrammi H/V riportati qui di seguito.

TR1

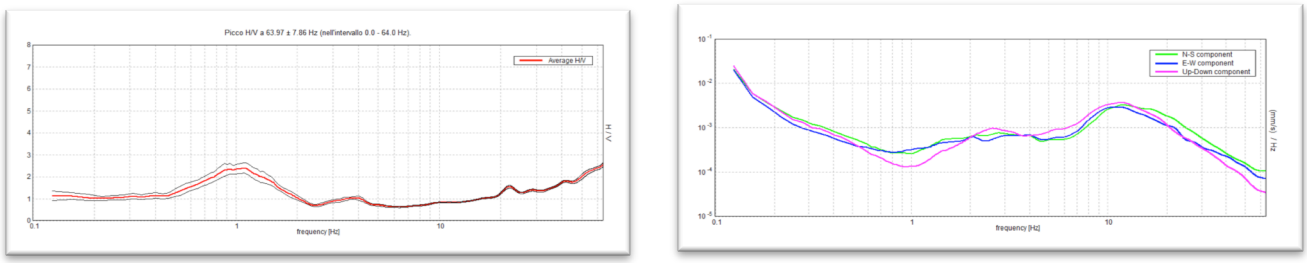


Figura 7.3: diagrammi H/V.

La ricerca dei picchi da interpretare è stata effettuata, congiuntamente, nel grafico H/V e in quello degli spettri singoli. In particolare, i picchi H/V di origine stratigrafica sono quelli generati da un minimo nelle componenti verticali del moto – curve magenta negli spettri – che significa minimo delle onde di Rayleigh alla frequenza di risonanza. Oltre a questo può esistere un massimo nelle componenti orizzontali del modo, curve blu e verdi negli spettri (massimo delle onde SH).

Il tracciato, procedendo dalle alte frequenze verso le basse, cioè dalla superficie in profondità, presenta alcuni picchi sopra 25 Hz circa, dovuti alla presenza di livelli superficiali antropizzati o essiccati.

A frequenze inferiori vi è un lieve contrasto che genera un picco a 4.0 (circa 20 m di profondità) dovuto alla presenza di livelli di terreno più consistenti.

A profondità maggiori vi sono i picchi, a 1.1 e 0.9 Hz, determinati dai contatti AES-AEI e AEI con IMO e FAA.

A frequenza maggiore di 1.5 Hz, il picco è di entità modesta e lo spettro esaminato presenta valori del rapporto H/V ≅ 1.2, segno di bassa propensione all'amplificazione sismica. Una medio-alta amplificazione è presente per frequenze inferiori a 1.5 Hz (rapporto H/V > 2.5).

7.2. Sismica attiva (MASW).

Il metodo MASW (*Multichannel Analysis of Surface Waves*) è una tecnica d'indagine non invasiva che permette di individuare il profilo di velocità delle onde di taglio Vs, sulla base della misura delle onde superficiali eseguita in corrispondenza di diversi sensori (geofoni) posti sulla superficie del suolo. Il contributo predominante alle onde superficiali è dato dalle onde di Rayleigh, che viaggiano con una velocità correlata alla rigidezza della porzione di terreno interessata dalla propagazione delle onde. In un mezzo stratificato le onde di Rayleigh sono dispersive (fenomeno della dispersione geometrica), cioè onde con diverse lunghezze d'onda si propagano con diverse

velocità di fase e velocità di gruppo (Achenbach, J.D., 1999, Aki, K., Richards, P.G., 1980) o, detto in maniera equivalente, la velocità di fase (o di gruppo) apparente delle onde di Rayleigh dipende dalla frequenza di propagazione.

La natura dispersiva delle onde superficiali è correlabile al fatto che onde ad alta frequenza con lunghezza d'onda corta si propagano negli strati più superficiali e quindi forniscono informazioni sulla parte più superficiale del suolo, invece onde a bassa frequenza si propagano e quindi interessano gli strati più profondi del suolo.

Il metodo d'indagine MASW è di tipo attivo poiché le onde superficiali sono generate in un punto sulla superficie del suolo (l'energizzazione è stata ottenuta con caduta di un grave) e misurate utilizzando il TROMINO® come geofono triassiale. Si sono effettuate le energizzazioni a distanze G crescenti dal TROMINO® (2 – 4 – 6 - ... - 50 m) spostando di volta in volta a queste distanze il geofono che fungeva da trigger, come schematizzato nella figura seguente.

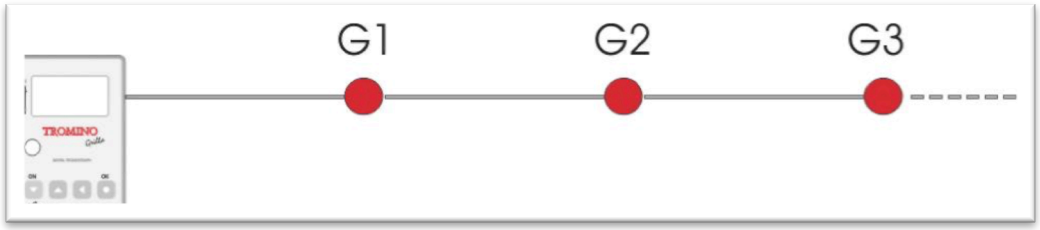


Figura 7.4: schematizzazione allineamento MASW.

Il metodo attivo qui impiegato consente di ottenere una velocità di fase (o curva di dispersione) sperimentale apparente nel *range* di frequenze compreso tra 1 Hz e 30 Hz, quindi fornisce informazioni sulla parte più superficiale del suolo, generalmente compresa nei primi 30 m, in funzione della rigidezza del suolo e delle caratteristiche della sorgente.

Le condizioni stratigrafiche del sito sovente limitano la profondità d'indagine a circa la metà (o anche meno) di questo valore, rendendo il MASW un metodo ottimo per la caratterizzazione sismica degli strati superficiali ma limitato se non inapplicabile per le modellazioni profonde al *bedrock*.

I fondamenti teorici del metodo MASW fanno riferimento a un semispazio stratificato con strati paralleli e orizzontali, quindi una limitazione alla sua applicabilità potrebbe essere rappresentata sia dalla presenza di pendenze significative superiori a 20°, sia della topografia, sia delle diverse discontinuità elastiche e anche dalla eteropia laterale dell'assetto stratigrafico del suolo.

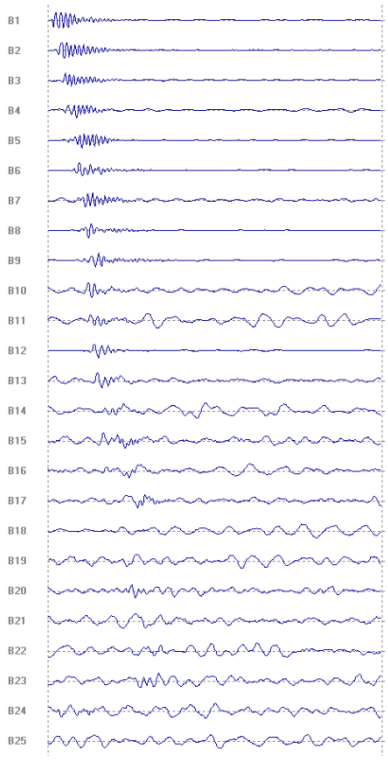
È da rilevare che, a differenza delle tecniche in sismica passiva, in caso di presenza di strati nel sottosuolo che presentino inversioni di velocità rispetto a quelli sovrastanti, in sismica attiva *non* è fisicamente possibile individuarle.

L'elaborazione è stata poi eseguita tramite il software Grilla® di Micromed.

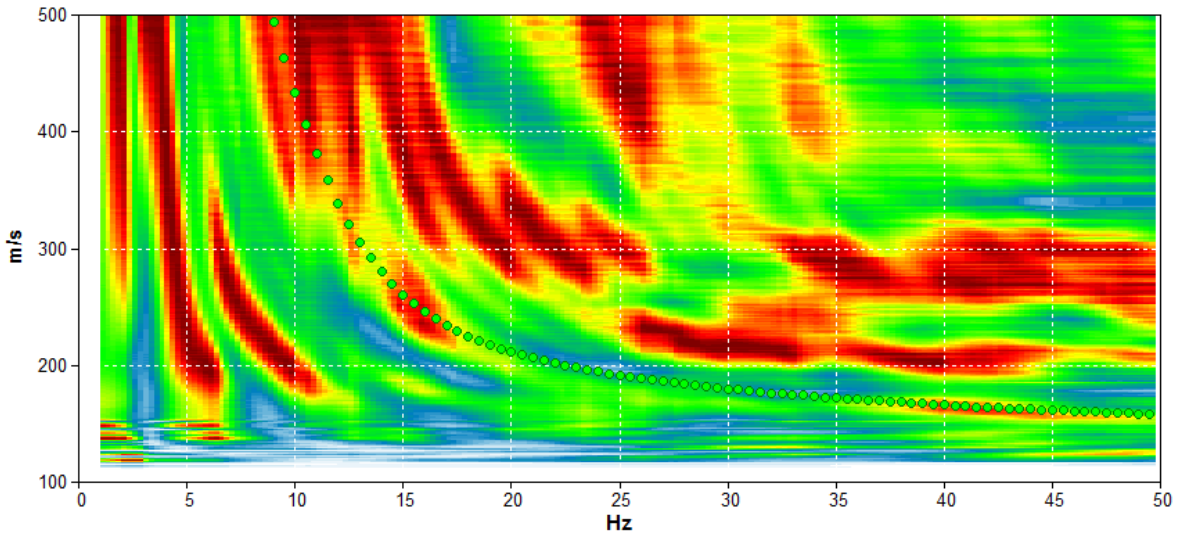
I dati ricavati dal MASW sono stati quindi incrociati con quelli ottenuti dalla sismica passiva allo

scopo di affinare la procedura con la quale si è ricavato il profilo sismico del sottosuolo.

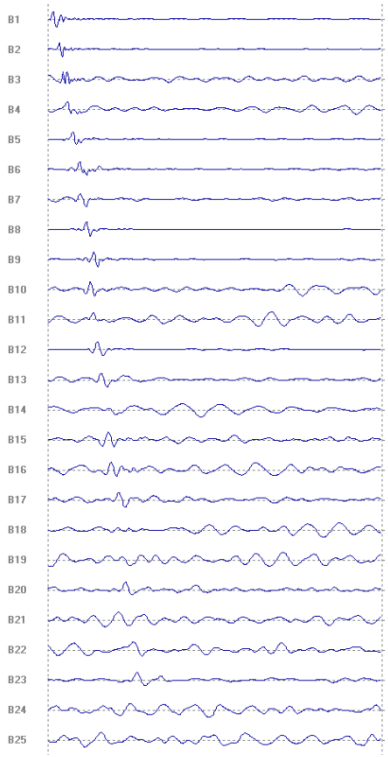
7.2.1.Onde di Love.



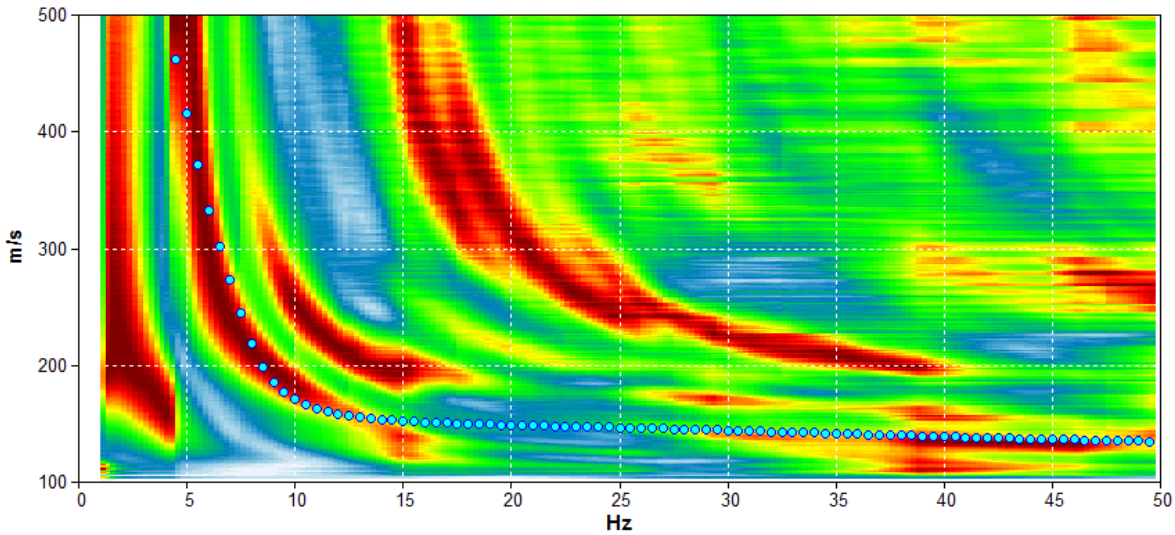
7.2.1.1. Velocità di fase.



7.2.2. Onde di Rayleigh.



7.2.2.1. Velocità di fase.



7.3. Modello sismico del sottosuolo.

Allo scopo di creare un modello sismico del sito, è stata eseguita l'inversione delle curve H/V mirando a far corrispondere le frequenze dei picchi principali e la forma generale della curva (tecnica del "*best fit*").

L'ancoraggio fornito dalla prospezione MASW, stabilendo la Vs del primo strato fonte di contrasto

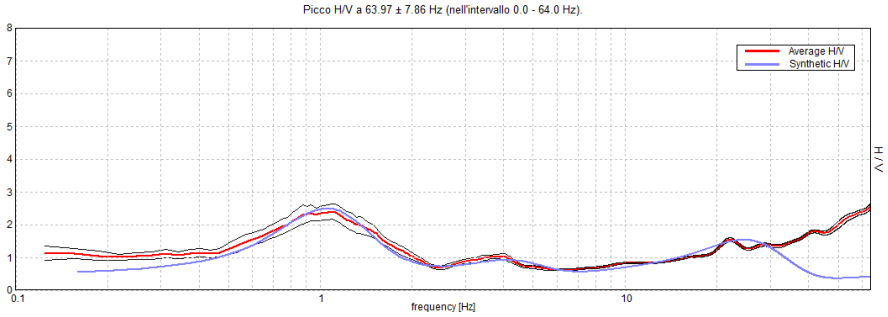
d'impedenza e nota la frequenza del picco corrispondente, ha dato, con le notazioni sovrariportate, la possibilità di passare da un modello sismico "relativo" a uno vincolato[9].

Nell'inversione sono state seguite le procedure descritte in Arai e Tokimatsu (2004), usando il solo modo fondamentale delle onde di Rayleigh e Love.

Nella tabella riportata sotto, vi è il modello sismico del sottosuolo sviluppato per il calcolo di Vs_{30} e nella figura il confronto tra la curva H/V teorica e sperimentale.

Profondità alla base dello strato [m]	Spessore [m]	Vs [m/s]
1.20	1.20	130
13.40	12.20	210
53.40	40.00	300
118.40	65.00	445
∞	∞	800

Parametri del modello.



Confronto tra curva H/V teorica e sperimentale.

Applicando il procedimento di calcolo indicato dall'OPCM 3274/2003 e dalle NTC08, per le misure eseguite si ottiene, assumendo un'incertezza associata alla stima pari al 20%[10]:

$$Vs_{30}=\frac{30}{\sum_{i=1}^{n}\frac{h_i}{Vs_i}}=245m/s\mp 20\%\ [7.3]$$

Pertanto il suolo, secondo la procedura semplificata ex § 3.2.2 NTC08, è classificabile nel profilo stratigrafico C[11].

Essendo il sito pianeggiante è attribuibile la categoria topografica T1.

[9] Castellaro S, Mulargia F.: Stime di Vs_{30} a stazione singola tramite misure H/V vincolate. GNGTS, Roma, Novembre 2007.

[10] Asten e Boore, 2005; Mulargia e Castellaro, 2009.

[11] 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 Vs_{30} compresi tra 180 m/s e 360 m/s.

7.3.1. Parametri sismici di sito.

Il moto generato da un terremoto in un sito dipende dalle particolari condizioni locali, cioè dalle caratteristiche topografiche e stratigrafiche dei depositi di terreno e degli ammassi rocciosi e dalle proprietà fisiche e meccaniche dei materiali che li costituiscono. Alla scala della singola opera o del singolo sistema geotecnico, la risposta sismica locale consente di definire le modifiche che un segnale sismico subisce, a causa dei fattori anzidetti, rispetto a quello di un sito di riferimento rigido con superficie topografica orizzontale (sottosuolo di categoria A, definito al § 3.2.2 NTC08).

Pericolosità sismica di base

Vita nominale (Vn):	50	[anni]
Classe d'uso:	III	-
Coefficiente d'uso (Cu):	1.5	-
Periodo di riferimento (Vr):	75	[anni]
Periodo di ritorno (Tr) SLO:	45	[anni]
Periodo di ritorno (Tr) SLD:	75	[anni]
Periodo di ritorno (Tr) SLV:	712	[anni]
Periodo di ritorno (Tr) SLC:	1462	[anni]
Tipo di interpolazione:	Media ponderata	
Coordinate geografiche del punto		
Latitudine (WGS84):	44.5283470	[°]
Longitudine (WGS84):	11.2423325	[°]
Latitudine (ED50):	44.5292854	[°]
Longitudine (ED50):	11.2433281	[°]

Coordinate dei punti della maglia elementare del reticolo di riferimento che contiene il sito e valori della distanza rispetto al punto in esame.

Punto	ID	Latitudine (ED50) [°]	Longitudine (ED50) [°]	Distanza [m]
1	16728	44.512340	11.177390	5556.93
2	16729	44.513690	11.247430	1764.45
3	16507	44.563670	11.245570	3827.42
4	16506	44.562320	11.175500	6510.40

Parametri di pericolosità sismica per TR diversi da quelli previsti nelle NTC08, per i nodi della maglia elementare del reticolo di riferimento.

Punto 1

Stato limite	Tr [anni]	ag [g]	F0 [-]	Tc* [s]
	30	0.052	2.487	0.257
SLO	45	0.062	2.496	0.268
	50	0.065	2.498	0.271
	72	0.075	2.488	0.276
SLD	75	0.077	2.486	0.277
	101	0.087	2.477	0.283
	140	0.100	2.457	0.285
	201	0.118	2.408	0.289
	475	0.162	2.380	0.311
SLV	712	0.185	2.409	0.316
	975	0.204	2.432	0.319
SLC	1462	0.231	2.459	0.321
	2475	0.272	2.495	0.324

Punto 2

Stato limite	Tr [anni]	ag [g]	F0 [-]	Tc* [s]
	30	0.052	2.485	0.258
SLO	45	0.062	2.493	0.268
	50	0.065	2.495	0.271
	72	0.075	2.488	0.277
SLD	75	0.077	2.487	0.278
	101	0.087	2.478	0.284
	140	0.100	2.461	0.287
	201	0.118	2.407	0.291
	475	0.162	2.400	0.313
SLV	712	0.186	2.421	0.314
	975	0.207	2.438	0.315
SLC	1462	0.235	2.452	0.319
	2475	0.276	2.470	0.323

Punto 3

Stato limite	Tr [anni]	ag [g]	F0 [-]	Tc* [s]
	30	0.051	2.483	0.258
SLO	45	0.060	2.502	0.269
	50	0.062	2.507	0.272
	72	0.073	2.488	0.278
SLD	75	0.074	2.489	0.279
	101	0.084	2.497	0.284
	140	0.098	2.454	0.286
	201	0.117	2.414	0.287
	475	0.166	2.418	0.292
SLV	712	0.193	2.419	0.293
	975	0.217	2.419	0.294
SLC	1462	0.250	2.403	0.301
	2475	0.299	2.382	0.311

Punto 4

Stato limite	Tr [anni]	ag [g]	F0 [-]	Tc* [s]
	30	0.051	2.485	0.257
SLO	45	0.060	2.504	0.269
	50	0.062	2.508	0.272
	72	0.073	2.489	0.278
SLD	75	0.074	2.489	0.278
	101	0.084	2.487	0.283
	140	0.098	2.452	0.288

	201	0.115	2.431	0.287
	475	0.163	2.406	0.302
SLV	712	0.191	2.396	0.304
	975	0.216	2.388	0.305
SLC	1462	0.248	2.380	0.308
	2475	0.297	2.371	0.313

Punto d'indagine

Stato limite	Tr [anni]	ag [g]	F0 [-]	Tc* [s]
SLO	45	0.061	2.497	0.269
SLD	75	0.076	2.488	0.278
SLV	712	0.188	2.415	0.308
SLC	1462	0.239	2.433	0.314

7.4. Definizione della RSL mediante Analisi Numerica (III livello di approfondimento).

Ai sensi delle prescrizioni del PSC della Città Metropolitana di Bologna e vista la classe d'uso dell'intervento si procede all'analisi numerica della Risposta Sismica Locale mediante il codice di calcolo RSL III di Geostru S.r.l..

7.4.1 Introduzione.

La procedura di calcolo adoperata per la valutazione della funzione di trasferimento presuppone come base di partenza uno o più accelerogrammi e la conoscenza della stratigrafia del sito attraverso i seguenti parametri geotecnici per ogni strato:

- peso per unità di volume;
- velocità di propagazione delle onde di taglio;
- coefficiente di spinta laterale;
- modulo di taglio iniziale (opzionale);
- spessore;
- indice di plasticità.

1. La non linearità del calcolo è introdotta dalla dipendenza del modulo di deformazione al taglio e del coefficiente di smorzamento Valutazione dello spettro di Fourier dell'accelerogramma;
2. Ricerca di un errore relativo piccolo seguendo la procedura di:
    2.1. Stima della funzione di trasferimento;

Valutazione della deformazione indotta in ciascuno stratoviscoso dalla deformazione.

Schematicamente la procedura è riassumibile nel seguente modo:

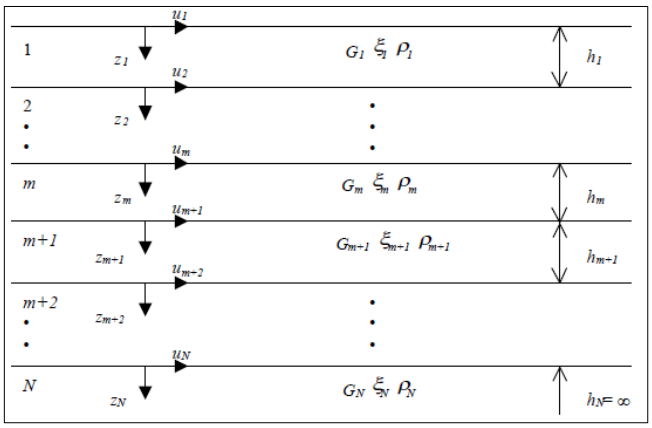
2.2. ;

2.3. Correzione del modulo di deformazione al taglio e del coefficiente di smorzamento viscoso per ogni strato;

Le operazioni 2.1 - 2.2 - 2.3 sono ripetute fino a quando la differenza di deformazione tra un'iterazione e la precedente non rimane sotto a una soglia ritenuta accettabile.

3. Trasformazione inversa di Fourier dello spettro in precedenza calcolato e opportunamente pesato per mezzo della funzione di trasferimento calcolata.

Attraverso questa procedura è possibile "trasferire" l'accelerogramma dal bedrock in superficie. La deformazione per ciascuno strato è corretta sulla base del rapporto fra deformazione effettiva e massima come suggerito dalla letteratura scientifica, ovvero



$$\frac{\gamma_{\text{eff}}}{\gamma_{\max}} = \frac{M-1}{10} \quad [7.4]$$

dove *M* rappresenta la magnitudo del sisma.

Per la valutazione della funzione di trasferimento, si considera un suolo variamente stratificato composto da N strati orizzontali di cui l'N-esimo è il letto di roccia (*bedrock*).

Ponendo come ipotesi che ciascuno strato si comporti come un solido di Kelvin-Voigt $\tau = G_\gamma + \mu \frac{\delta\gamma(z,t)}{\delta z \delta t}$ [7.5], la propagazione delle onde di taglio che attraversano gli strati verticalmente può essere definita dall'equazione dell'onda:

$$\rho \frac{\delta^2 u}{\delta t^2} = G \frac{\delta^2 u}{\delta z^2} + \mu \frac{\delta^3 u}{\delta z^2 \delta t} \quad [7.5]$$

dove: u rappresenta lo spostamento; t il tempo; r la densità; G il modulo di deformazione al taglio; m la viscosità. Per onde armoniche lo spostamento può essere scritto come:

$$u(z,t) = U(z)^{i\omega t} \quad [7.6]$$

che sostituita nella (1) pone:

$$(G + i\omega\mu)\frac{d^2U}{dz^2} = \rho\omega^2 U \quad [7.7])$$

Dove ω rappresenta la frequenza angolare. La (3) può essere riscritta come:

$$G^* \frac{d^2U}{dz^2} = \rho\omega^2 U \quad [7.8]$$

avendo posto G*=G+iωm, ovvero il modulo di deformazione al taglio *complesso*. Questo può essere ulteriormente riscritto come:

$$G^* = G(1 + 2i\xi) \quad [7.9]$$

avendo posto

$$\mu = \frac{2G}{\omega}\xi \qquad [7.10]$$

dove ξ rappresenta il coefficiente di smorzamento viscoso. Ciò posto, e fatta convenzione che l'apice * indichi la natura complessa della variabili in gioco, la soluzione dell'equazione generica dell'onda è la seguente:

$$u(z,t) = Ee^{i(\omega t + k^* z)} + Fe^{i(\omega t - k^* z)} \qquad [7.11]$$

dove E e F dipendono dalle condizioni al contorno e rappresentano l'ampiezza d'onda che viaggia rispettivamente verso l'alto (-z) e verso il basso (+z), mentre k^* rappresenta il numero d'onda complesso dato dalla seguente espressione:

$$k^* = \omega\sqrt{\frac{\rho}{G^*}} \qquad [7.12]$$

Il taglio invece è dato da:

$$\tau(z,t) = G^*\frac{dU}{dz}e^{i\omega t} = ik^*G^*\left[Ee^{i(\omega t + k^* z)} + Fe^{i(\omega t - k^* z)}\right]e^{i\omega t} \qquad [7.13]$$

Per il generico strato *m* di spessore h_m gli spostamenti, rispettivamente in sommità (z = 0) e al fondo ($z = h_m$), sono:

$$u_m(0,t) = (E_m + F_m)e^{i\omega t} \qquad [7.14]$$

$$u_m(h_m,t) = (E_m e^{ik_m^* h_m} + F_m e^{-ik_m^* h_m})e^{i\omega t} \qquad [7.15]$$

Poiché deve essere rispettata la congruenza sullo spostamento all'interfaccia tra gli strati, ovvero lo spostamento in sommità ad uno strato deve essere uguale allo spostamento sul fondo di quello immediatamente sopra, se ne deduce che:

$$u_m(z = h_m, t) = u_{m+1}(z = 0, t) \qquad [7.16]$$

Usando la (7.14), (7.15) e la (7.16), ne consegue che

$$E_{m+1} + F_{m+1} = E_m e^{ik_m^* h_m} + F_m e^{-ik_m^* h_m} \qquad [7.17]$$

Il taglio in sommità e al fondo dell'm-esimo strato è dato da:

$$\tau_m(0,t) = ik_m^* G_m^*[E_m - F_m]e^{i\omega t} \qquad [7.18]$$

$$\tau_m(h_m,t) = ik_m^* G_m^*\left[E_m e^{ik_m^*} - Fe^{ik^* h_m}\right]e^{i\omega t} \qquad [7.19]$$

Poiché fra uno strato e l'altro il taglio deve essere continuo si ha

$$\tau_m(z = h_m, t) = \tau_{m+1}(z = 0, t) \qquad [7.20]$$

ovvero

$$E_{m+1} - F_{m+1} = \frac{k_m^* G_m^*}{k_{m+1}^* G_{m+1}^*}(E_m e^{ik_m^* h_m} - F_m e^{-ik_m^* h_m}) \qquad [7.21]$$

Sommando la (7.17) alla (7.21) e sottraendo la (7.21) alla (7.17) si ottiene

$$E_{m+1} = \frac{1}{2}E_m(1 + \alpha_m^*)e^{ik_m^* h_m} + \frac{1}{2}F_m(1 - \alpha_m^*)e^{-ik_m^* h_m} \qquad [7.22]$$

$$F_{m+1} = \frac{1}{2}E_m(1 - \alpha_m^*)e^{ik_m^* h_m} + \frac{1}{2}F_m(1 + \alpha_m^*)e^{-ik_m^* h_m} \qquad [7.23]$$

Dove $\boldsymbol{\alpha_m^*}$ rappresenta il rapporto di impedenza complesso all'interfaccia tra i piani *m* ed *m+1*, ed è dato dalla seguente espressione:

$$\alpha_m^* = \frac{k_m^* * G_m^*}{k_{m+1}^* * G_{m+1}^*} = \sqrt{\frac{\rho_m G_m^*}{\rho_{m+1} G_{m+1}^*}} \qquad [7.24]$$

Poiché in superficie il taglio è nullo,

$$\tau_1(0,t) = ik_1^* G_1^* [E_1 - F_1] e^{i\omega t} = 0 \qquad [7.25]$$

Da cui $E_1 = F_1$.

Le equazioni (7.22) e (7.23) possono essere poi applicate agli strati successivi da 2 ad m. La funzione di trasferimento A_{mn} che lega gli spostamenti in sommità dei piani *m* ed *n* è definita dalla seguente espressione:

$$A_{mn} = \frac{u_m}{u_n} = \frac{E_m + F_m}{E_n + F_n} \quad A_{mn}(\omega) = \frac{u_m}{u_n} = \frac{E_m + F_m}{E_n + F_n} \qquad [7.26]$$

La velocità *u'(z,t)* e l'accelerazione *u"(z,t)* sono legati allo spostamento dalle relazioni

$$u'(z,t) = \frac{\delta u}{\delta t} = i\omega u(z,t) \qquad u''(z,t) = \frac{\delta^2 u}{\delta t^2} = -\omega^2 u(z,t) \qquad [7.27]$$

La funzione di trasferimento A_{mn} può essere espressa anche in funzione delle velocità e dell'accelerazione al tetto degli strati n ed m:

$$A_{mn}(\omega) = \frac{u_m}{u_n} = \frac{u'_m}{u'_n} = \frac{u''_m}{u''_n} = \frac{E_m + F_m}{E_n + F_n} \qquad [7.28]$$

La deformazione tangenziale g alla profondità z e al tempo t è definita dalla relazione:

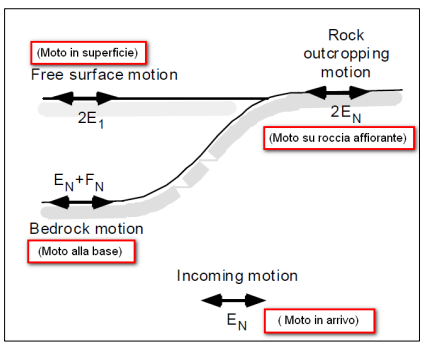
$$\gamma(z,t) = \frac{\delta u}{\delta z} = ik^*(Ee^{ik^* z} - Fe^{-ik^* z})e^{i\omega t} \qquad [7.29]$$

e la corrispondente tensione alla profondità z ed al tempo t dalla:

$$\tau(z,t) = G^* \gamma(z,t) \qquad [7.30]$$

Ai fini di una corretta interpretazione del problema della risposta sismica locale, è utile riprodurre la rappresentazione schematica di figura in cui è riportata la terminologia utilizzata per lo studio del moto sismico di un deposito che poggia su un basamento roccioso.

Le onde di taglio si propagano verticalmente attraverso il bedrock con ampiezza pari ad E_N; al tetto del bedrock, sotto il deposito degli strati di terreno, il moto ha un'ampiezza pari a $E_N + F_N$. Sulla roccia affiorante, poiché le tensioni tangenziali sono nulle ($E_N = F_N$), il moto avrà ampiezza pari a $2E_N$. La funzione di trasferimento dal *bedrock* al *bedrock*-affiorante è la seguente:



$$A_{NN}(\omega) = \frac{2E_N}{E_N + F_N} \qquad [7.31]$$

A è non lineare poiché *G* è funzione di *g*. Nella procedura di calcolo, infatti, da una stima iniziale del modulo di deformazione al taglio, si ottiene la tensione ipotizzando un legame lineare, per

poi ottenere un nuovo valore di *g*. Grazie a questo valore aggiornato si valuta un nuovo modulo *G* così da ripetere la procedura fino a quando la differenza tra la deformazione aggiornata e quella ottenuta dalla precedente iterazione è ritenuta accettabile. Il modello per *G(g)* adoperato è quello suggerito da Ishibashi e Zhang (1993) che tiene conto degli effetti della pressione di confinamento e dell'indice di plasticità:

$$G = G_{max} K(\gamma, PI)(\sigma'_m)^{m(\gamma,PI)-m_0} \quad [7.32]$$

$$K(\gamma, PI) = 0.5\left\{1 + \tanh\left[\ln\left(\frac{0.000102+n(PI)}{\gamma}\right)^{0.492}\right]\right\} \quad [7.33]$$

$$m(\gamma, PI) - m_0 = 0.272\left\{1 - \tanh\left[\ln\left(\frac{0.000556}{\gamma}\right)^{0.4}\right]\right\}\exp\left(-0.0145PI^{1.3}\right) \quad [7.34]$$

$$n(PI) = \begin{cases} 3.37 \times 10^{-6} PI^{1.404} & \text{per } 0 < PI \leq 15 \\ 7.00 \times 10^{-7} PI^{1.976} & \text{per } 15 \leq PI \leq 70 \\ 2.70 \times 10^{-5} PI^{1.115} & \text{per } PI > 70 \end{cases} \quad [7.35]$$

Dove G_{max} è dato dalla relazione

$$G_{max} = \rho V_s^2 \quad [7.36]$$

Dove *r* è la densità del terreno e V_s la velocità di propagazione delle onde di taglio nello stesso. La (7.36) fornisce il valore iniziale di G per la prima iterazione.

Per quanto riguarda invece il coefficiente di smorzamento viscoso ξ, in conseguenza del modello introdotto dalla (7.29) si ha:

$$\xi = 0.333\frac{1+\exp\left(-0.0145PI^{1.3}\right)}{2}\left[0.586\left(\frac{G}{G_{max}}\right)^2 - 1.547\frac{G}{G_{max}} + 1\right] \quad [7.37]$$

da cui si deduce che anche ξ deve essere ricalcolato ad ogni iterazione.

7.4.2 Dati Generali.

Stratigrafia

n.	Profondità [m]	Spessore [m]	Terreno	Gmax [MPa]	Peso unità vol. [kN/m³]	Vs [m/s]	Tensione verticale [kPa]
1	--	1.2	Idriss (1990) Clay (Seed and Sun 1989)	31.01	18.0	130.0	4.9
2	1.2	12.2	Idriss (1990) Clay (Seed and Sun 1989)	85.41	19.0	210.0	125.7
3	13.4	40.0	Idriss (1990) Sand (Seed and Idriss 1970)	183.49	20.0	300.0	445.4
4	53.4	65.0	Idriss (1990) Sand (Seed and Idriss 1970)	423.91	21.0	445.0	1012.9
5	118.4	∞	Sabbie Gialle (IMO)	1435.27	22.0	800.0	1376.6

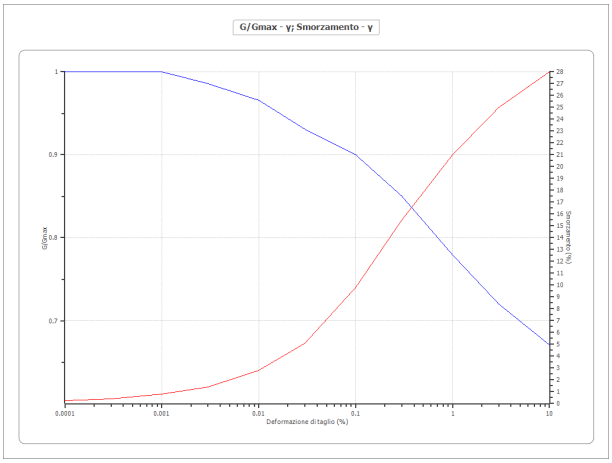
Strato con falda: 3

Strato rilevamento accelerogramma: 5 *Bedrock* – Affiorante (*outcrop*)

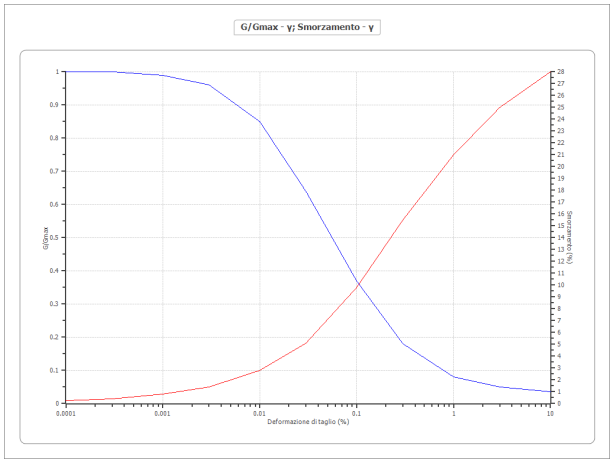
7.4.3. Parametri dinamici.

Agli strati sono state applicate le curve di smorzamento riprodotte di seguito.

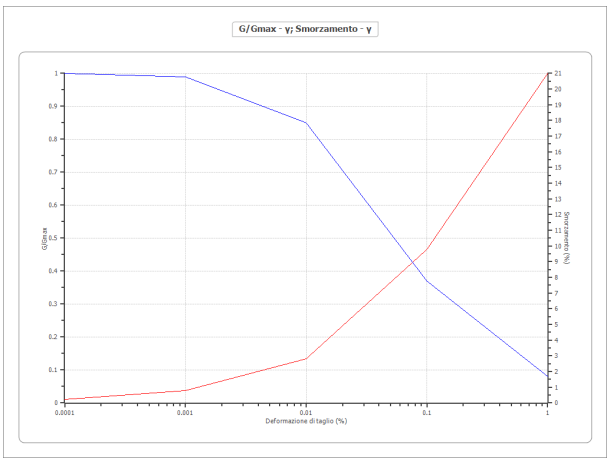
Idriss (1990) Clay (Seed and Sun 1989)



Idriss (1990) Sand (Seed and Idriss 1970)



Sabbie Gialle (IMO)



7.4.4. Elaborazione.

Sono stati utilizzati 7 accelerogrammi, estratti con la procedura SeismHome di Eucentre (PV) e 3 elaborati dalla Regione Emilia-Romagna. I codici degli accelerogrammi sono i seguenti:

TR475_ID16729_1 [g] TR475_ID16729_2 [g] TR475_ID16729_3 [g] TR475_ID16729_4 [g]

TR475_ID16729_5 [g] TR475_ID16729_6 [g] TR475_ID16729_7 [g]

000126xa_037006Bologna [g] 000354xa_037006Bologna [g] 000046xa_037006Bologna [g]

I requisiti di selezione degli accelerogrammi, tutti scalati alla PGA_0[12] di sito pari a 0.168, sono stati

[12] Al *bedrock*, suolo di categoria A e categoria topografica T1.

così fissati:

- Categoria di suolo A
- Classe d'uso III
- Intervallo di Magnitudo 4.5÷6.0
- Distanza 0÷25 km
- Meccanismo focale: Thrust

7.4.5. Fattori di amplificazione.

I fattori di amplificazione sono così determinati (procedura sec. Linee Guida Protezione Civile).

1. Si determina il periodo di massimo valore dello spettro medio di input T_{ai} e dello spettro medio di output T_{ao};
2. Si ricavano i valori medi degli spettri di input (Sami) e di output (Samo) nell'intorno Tai e Tao come:

$$\mathrm{Sam} = \frac{1}{\mathrm{Ta}} \int_{0.5\mathrm{Ta}}^{1.5\mathrm{Ta}} \mathrm{SA(T)dT} \quad [7.38]$$

dove Sam è lo spettro medio, e può essere Sami o Samo
SA(T) è lo spettro di risposta elastico in accelerazione pari a Sai per l'input, Sao per l'output
Ta vale Tai per l'input Tao per l'output

3. Si determinano i periodi propri Tvi e Tvo di massimo valore degli spettri di pseudovelocità così definiti

$$\mathrm{Sv(T)} = \mathrm{SA(T)} \frac{\mathrm{T}}{2\pi} \quad [7.39]$$

dove Sv(T) corrisponde rispettivamente a Svi(T) per l'input e Svo(T) per l'output

Si calcolano i valori medi degli spettri medi di pseudovelocità (Svmi) e (Svmo) nell'intorno di Tvi e Tvo

$$Svm = \frac{1}{0.4Tv} \int_{0.8Tv}^{1.2Tv} Sv(T)dT \quad [7.40]$$

dove
Svm è il valore medio dello spettro e può essere può essere Svmi o Svmo, rispettivamente per l'input e l'output
Tv può essere Tvi e Tvo, rispettivamente per l'input e l'output

L'intervallo di integrazione è ridotto rispetto a quello dell'accelerazione perché lo spettro di velocità ha,
generalmente, un andamento più regolare.
Il valore di Fa è pari a

$$\mathrm{Fa} = \frac{\mathrm{Samo}}{\mathrm{Sami}} \quad [7.41]$$

Il valore di Fv è pari a

$$\mathrm{Fv} = \frac{\mathrm{Svmo}}{\mathrm{Svmi}} \quad [7.42]$$

Per determinare i valori dello spettro normalizzato valgono le seguenti relazioni:

Periodo TC

$$\mathrm{TC} = 2\pi \frac{\mathrm{Svmi} * \mathrm{Fv}}{\mathrm{Sami} * \mathrm{Fa}} \quad [7.43]$$

Periodo TB

$$\mathrm{TB} = \frac{1}{3}\mathrm{TC} \quad [7.44]$$

Il ramo iniziale dello spettro fra T=0 e T=TB si assume lineare con

$$\mathrm{SA}(0) = \mathrm{SAi}(0) * \mathrm{FA} \quad [7.44]$$

$$\mathrm{SA}(\mathrm{TB}) = \mathrm{Sami} * \mathrm{FA} \quad [7.45]$$

Il ramo dello spettro ad accelerazione spettrale costante, tra TB e TC, ha ordinata pari a

$$\mathrm{SA} = \mathrm{Sami} * \mathrm{Fa} \quad [7.46]$$

Il ramo dello spettro a velocità costante per T>TC ha ordinate pari a

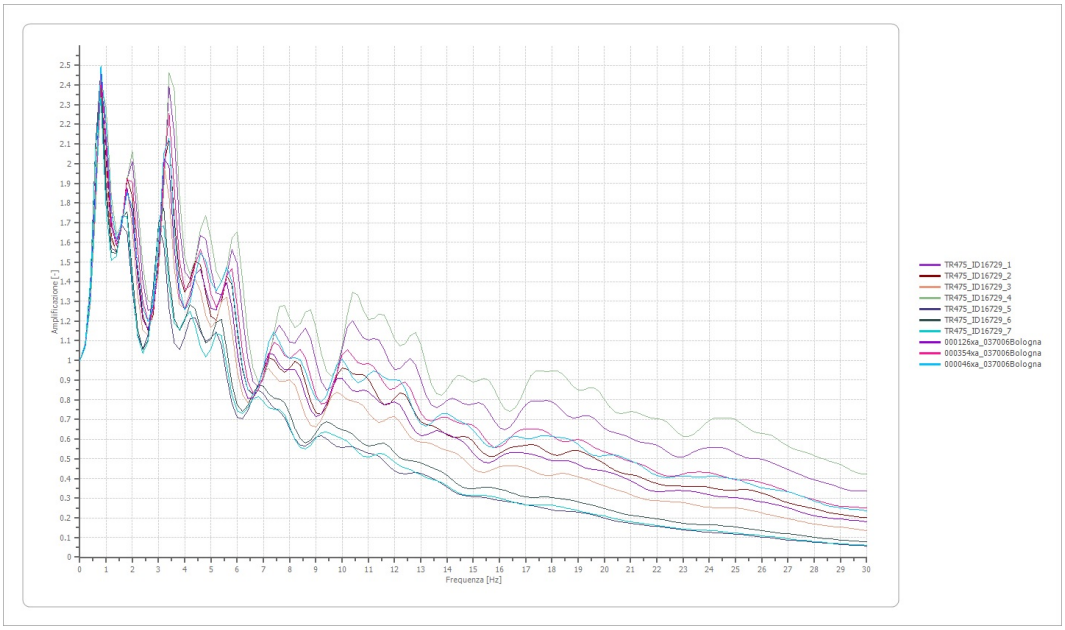
$$\mathrm{SA} = \mathrm{Sami} * \mathrm{Fa} * \frac{\mathrm{TC}}{\mathrm{T}} \quad [7.47]$$

7.4.6. Verifica allo Stato limite di VITA (SLV).

Le impostazioni di analisi adottate sono le seguenti.

Numero di iterazioni	8
Rapporto tra deformazione a taglio effettiva e deformazione massima: [(M-1)/10]	0.500
Tipo di modulo elastico	Shake 91
Massimo errore percentuale di convergenza	1.11 x 10^{-5}

Il grafico seguente descrive l'andamento delle curve di amplificazione rispetto alla frequenza, per ogni accelerogramma elaborato.



Determinazione del rapporto Pga/Pga_0

Dall'analisi si sono ottenuti i valori riassunti in tabella.

Profondità	0	1.2	13.4	53.4	118.4	--
	[m]	[m]	[m]	[m]	[m]	--
Accelerogramma	Pga				Pga0	Pga/Pga0
TR475_ID16729_1 [g]	0.271	0.261	0.141	0.143	0.181	1.497
TR475_ID16729_2 [g]	0.201	0.193	0.170	0.115	0.187	1.075
TR475_ID16729_3 [g]	0.249	0.240	0.168	0.163	0.188	1.324
TR475_ID16729_4 [g]	0.254	0.240	0.131	0.134	0.182	1.396
TR475_ID16729_5 [g]	0.271	0.269	0.199	0.118	0.189	1.434
TR475_ID16729_6 [g]	0.213	0.202	0.138	0.121	0.198	1.076
TR475_ID16729_7 [g]	0.275	0.270	0.156	0.166	0.188	1.463
000126xa_037006Bologna [g]	0.267	0.261	0.155	0.134	0.188	1.420
000354xa_037006Bologna [g]	0.282	0.271	0.124	0.135	0.188	1.500
000046xa_037006Bologna [g]	0.233	0.221	0.173	0.172	0.188	1.239
Valore medio [g]	**0.252**	0.243	0.156	0.140	0.188	1.340

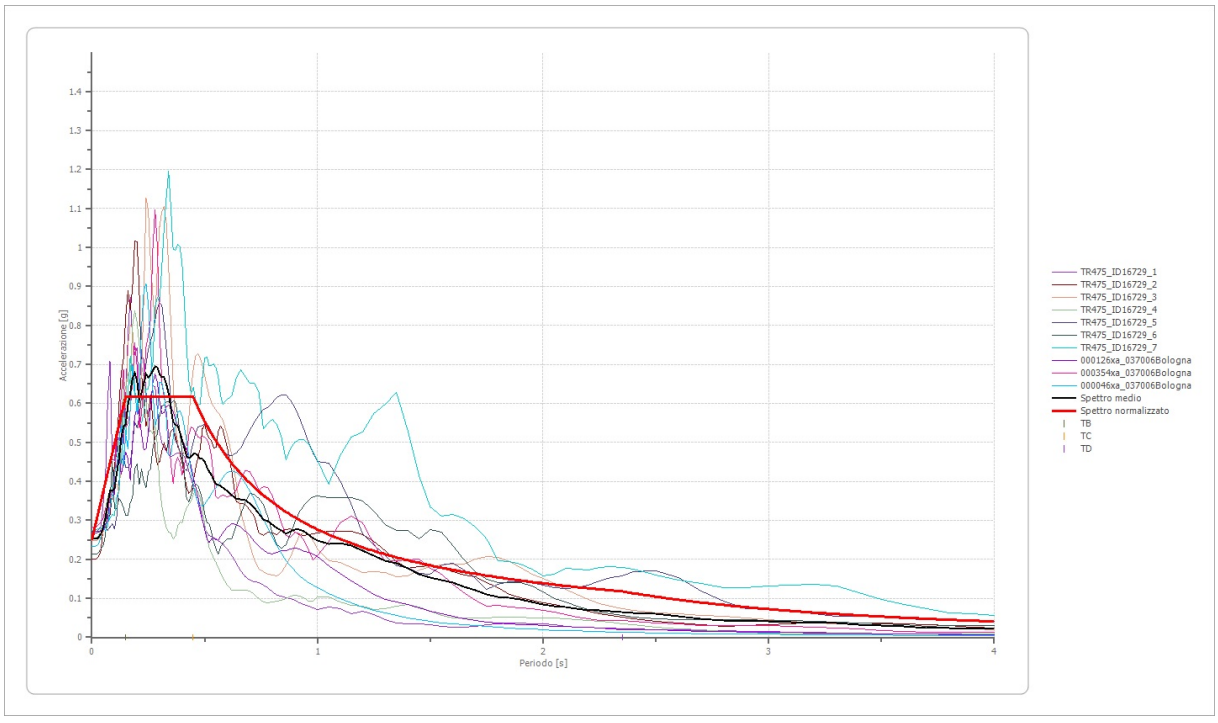
Fattori di amplificazione SLV

Tai	0.160	[s]	**Fa**	**1.330**	**[-]**
Tvi	0.740	[s]	**Fv**	**1.857**	**[-]**
Tao	0.280	[s]	TB	0.150	[s]
Tvo	1.250	[s]	TC	0.449	[s]
Sami	4.552	[m/s²]	TD	2.352	[s]
Svmi	0.233	[m/s]	SA(0)	0.250	[g]
Samo	6.055	[m/s²]	SA(TB)	0.617	[g]
Svmo	0.432	[m/s]			

Fattori di amplificazione su intensità spettrale

Periodo minimo [s]	Periodo massimo [s]	**FA Housner**
0.100	0.500	0.071
0.500	1.000	0.116
0.500	1.500	0.226
0.100	2.500	0.492

Confronto tra spettri elaborati, spettro medio e spettro normalizzato SLV



Spettro di accelerazione medio SLV

Periodo [s]	Accelerazione [g]	Periodo [s]	Accelerazione [g]	Periodo [s]	Accelerazione [g]	Periodo [s]	Accelerazione [g]	Periodo [s]	Accelerazione [g]
0.00	0.2516	0.26	0.6740	0.52	0.4252	0.98	0.2536	2.25	0.0682
0.01	0.2516	0.27	0.6852	0.53	0.4159	1.00	0.2478	2.30	0.0669
0.02	0.2526	0.28	0.6957	0.54	0.4036	1.05	0.2389	2.35	0.0650
0.03	0.2562	0.29	0.6937	0.55	0.3928	1.10	0.2410	2.40	0.0635
0.04	0.2649	0.30	0.6761	0.56	0.3904	1.15	0.2349	2.50	0.0597
0.05	0.2828	0.31	0.6676	0.57	0.3876	1.20	0.2215	2.60	0.0543
0.06	0.3055	0.32	0.6667	0.58	0.3841	1.25	0.2100	2.70	0.0485
0.07	0.3442	0.33	0.6505	0.60	0.3765	1.30	0.1957	2.80	0.0433
0.08	0.3749	0.34	0.6255	0.62	0.3642	1.35	0.1895	2.90	0.0407
0.09	0.3754	0.35	0.5879	0.64	0.3568	1.40	0.1769	3.00	0.0400
0.10	0.3823	0.36	0.5524	0.66	0.3547	1.45	0.1619	3.10	0.0389
0.11	0.4219	0.37	0.5452	0.68	0.3518	1.50	0.1522	3.20	0.0377
0.12	0.4586	0.38	0.5407	0.70	0.3441	1.55	0.1477	3.30	0.0358
0.13	0.5108	0.39	0.5268	0.72	0.3333	1.60	0.1395	3.40	0.0329
0.14	0.5427	0.40	0.5059	0.74	0.3176	1.65	0.1290	3.50	0.0299
0.15	0.5458	0.41	0.4857	0.76	0.3031	1.70	0.1205	3.60	0.0272
0.16	0.5960	0.42	0.4643	0.78	0.2974	1.75	0.1103	3.70	0.0248
0.17	0.6249	0.43	0.4597	0.80	0.2896	1.80	0.1034	3.80	0.0229
0.18	0.6637	0.44	0.4641	0.82	0.2802	1.85	0.1008	3.90	0.0221
0.19	0.6786	0.45	0.4711	0.84	0.2737	1.90	0.0966	4.00	0.0208
0.20	0.6587	0.46	0.4697	0.86	0.2661	1.95	0.0912		
0.21	0.6111	0.47	0.4655	0.88	0.2712	2.00	0.0850		
0.22	0.6288	0.48	0.4573	0.90	0.2759	2.05	0.0804		
0.23	0.6494	0.49	0.4573	0.92	0.2760	2.10	0.0774		
0.24	0.6762	0.50	0.4502	0.94	0.2713	2.15	0.0729		
0.25	0.6661	0.51	0.4362	0.96	0.2635	2.20	0.0697		

Spettro di velocità medio SLV

Periodo [s]	Velocità [cm/s]	Periodo [s]	Velocità [cm/s]	Periodo [s]	Velocità [cm/s]	Periodo [s]	Velocità [cm/s]	Periodo [s]	Velocità [cm/s]
0,00	0,0000	0,26	25,0396	0,52	34,9191	0,98	42,5788	2,25	30,8649
0,01	0,0143	0,27	26,7732	0,53	35,1643	1,00	42,4376	2,30	31,3418
0,02	0,0786	0,28	28,3631	0,54	35,1890	1,05	41,6378	2,35	31,7115
0,03	0,1891	0,29	29,8434	0,55	35,1221	1,10	43,3576	2,40	31,8911
0,04	0,4596	0,30	30,0137	0,56	35,3212	1,15	43,9038	2,50	30,9828
0,05	0,9851	0,31	31,0750	0,57	35,5115	1,20	43,3381	2,60	30,5129
0,06	1,4789	0,32	31,9965	0,58	35,3148	1,25	44,8530	2,70	29,0198
0,07	2,1677	0,33	31,9337	0,60	35,0437	1,30	44,5974	2,80	27,0319
0,08	3,2432	0,34	31,6557	0,62	34,9036	1,35	44,2197	2,90	26,5324
0,09	3,6342	0,35	30,7390	0,64	35,7692	1,40	43,8035	3,00	27,9367
0,10	4,3236	0,36	30,2426	0,66	37,6774	1,45	41,4307	3,10	28,9187
0,11	5,3927	0,37	30,7374	0,68	38,9918	1,50	39,8698	3,20	28,9900
0,12	6,5926	0,38	30,6623	0,70	39,2445	1,55	38,8047	3,30	28,1101
0,13	8,3578	0,39	30,8295	0,72	39,0896	1,60	38,2496	3,40	27,5660
0,14	10,0790	0,40	30,5445	0,74	39,2164	1,65	37,0765	3,50	27,0266
0,15	10,4211	0,41	30,6977	0,76	38,7029	1,70	35,9156	3,60	26,3639
0,16	12,1706	0,42	30,3671	0,78	37,9908	1,75	34,9788	3,70	25,9346
0,17	14,5072	0,43	30,1255	0,80	37,2612	1,80	34,2538	3,80	25,5092
0,18	16,6380	0,44	31,4953	0,82	37,0247	1,85	34,3316	3,90	25,1737
0,19	17,9520	0,45	32,6842	0,84	37,6191	1,90	33,9833	4,00	24,7144
0,20	18,7061	0,46	33,4404	0,86	38,9931	1,95	33,4693		
0,21	18,4186	0,47	34,0525	0,88	40,1127	2,00	32,8351		
0,22	19,5183	0,48	34,4602	0,90	41,3109	2,05	32,0111		
0,23	21,1238	0,49	34,6602	0,92	42,3392	2,10	31,5105		
0,24	23,0311	0,50	35,0229	0,94	42,5953	2,15	31,0037		
0,25	23,9398	0,51	34,7687	0,96	42,3382	2,20	30,7343		

Spettro di spostamento medio SLV

Periodo [s]	Spostamento [cm]	Periodo [s]	Spostamento [cm]	Periodo [s]	Spostamento [cm]	Periodo [s]	Spostamento [cm]	Periodo [s]	Spostamento [cm]
0,00	0,0000	0,26	1,1272	0,52	2,8422	0,98	6,0174	2,25	8,4701
0,01	0,0006	0,27	1,2367	0,53	2,8888	1,00	6,1219	2,30	8,6815
0,02	0,0025	0,28	1,3491	0,54	2,9097	1,05	6,5092	2,35	8,8087
0,03	0,0057	0,29	1,4423	0,55	2,9380	1,10	7,2098	2,40	8,9848
0,04	0,0105	0,30	1,5041	0,56	3,0272	1,15	7,6774	2,50	9,1411
0,05	0,0175	0,31	1,5885	0,57	3,1139	1,20	7,8746	2,60	8,9857
0,06	0,0273	0,32	1,6868	0,58	3,1951	1,25	8,1062	2,70	8,6495
0,07	0,0418	0,33	1,7500	0,60	3,3507	1,30	8,1578	2,80	8,3212
0,08	0,0593	0,34	1,7881	0,62	3,4614	1,35	8,5183	2,90	8,3734
0,09	0,0750	0,35	1,7808	0,64	3,6114	1,40	8,5570	3,00	8,8074
0,10	0,0951	0,36	1,7688	0,66	3,8167	1,45	8,3983	3,10	9,1345
0,11	0,1267	0,37	1,8446	0,68	4,0192	1,50	8,4509	3,20	9,4195
0,12	0,1637	0,38	1,9312	0,70	4,1647	1,55	8,7548	3,30	9,4997
0,13	0,2143	0,39	1,9797	0,72	4,2669	1,60	8,8069	3,40	9,2831
0,14	0,2629	0,40	2,0002	0,74	4,2985	1,65	8,6612	3,50	8,9159
0,15	0,3040	0,41	2,0183	0,76	4,3260	1,70	8,5807	3,60	8,5697
0,16	0,3788	0,42	2,0254	0,78	4,4699	1,75	8,3220	3,70	8,2356
0,17	0,4474	0,43	2,1022	0,80	4,5772	1,80	8,2551	3,80	8,0670
0,18	0,5320	0,44	2,2231	0,82	4,6545	1,85	8,4998	3,90	8,1997
0,19	0,6053	0,45	2,3590	0,84	4,7709	1,90	8,5851	4,00	8,0911
0,20	0,6530	0,46	2,4587	0,86	4,8619	1,95	8,5405		
0,21	0,6660	0,47	2,5438	0,88	5,1874	2,00	8,3570		
0,22	0,7526	0,48	2,6067	0,90	5,5210	2,05	8,3079		
0,23	0,8494	0,49	2,7158	0,92	5,7694	2,10	8,3858		
0,24	0,9619	0,50	2,7837	0,94	5,9228	2,15	8,2677		
0,25	1,0302	0,51	2,8041	0,96	6,0020	2,20	8,2890		

Spettro normalizzato SLV

Periodo [s]	Accelerazione [g]	Periodo [s]	Accelerazione [g]	Periodo [s]	Accelerazione [g]	Periodo [s]	Accelerazione [g]	Periodo [s]	Accelerazione [g]
0.00	0.2497	0.26	0.6172	0.52	0.5325	0.98	0.2825	2.25	0.1231
0.01	0.2743	0.27	0.6172	0.53	0.5224	1.00	0.2769	2.30	0.1204
0.02	0.2988	0.28	0.6172	0.54	0.5127	1.05	0.2637	2.35	0.1178
0.03	0.3234	0.29	0.6172	0.55	0.5034	1.10	0.2517	2.40	0.1154
0.04	0.3480	0.30	0.6172	0.56	0.4944	1.15	0.2408	2.50	0.1108
0.05	0.3726	0.31	0.6172	0.57	0.4858	1.20	0.2307	2.60	0.1065
0.06	0.3971	0.32	0.6172	0.58	0.4774	1.25	0.2215	2.70	0.1025
0.07	0.4217	0.33	0.6172	0.60	0.4615	1.30	0.2130	2.80	0.0989
0.08	0.4463	0.34	0.6172	0.62	0.4466	1.35	0.2051	2.90	0.0955
0.09	0.4709	0.35	0.6172	0.64	0.4326	1.40	0.1978	3.00	0.0923
0.10	0.4954	0.36	0.6172	0.66	0.4195	1.45	0.1910	3.10	0.0893
0.11	0.5200	0.37	0.6172	0.68	0.4072	1.50	0.1846	3.20	0.0865
0.12	0.5446	0.38	0.6172	0.70	0.3955	1.55	0.1786	3.30	0.0839
0.13	0.5692	0.39	0.6172	0.72	0.3846	1.60	0.1730	3.40	0.0814
0.14	0.5937	0.40	0.6172	0.74	0.3742	1.65	0.1678	3.50	0.0791
0.15	0.6172	0.41	0.6172	0.76	0.3643	1.70	0.1629	3.60	0.0769
0.16	0.6172	0.42	0.6172	0.78	0.3550	1.75	0.1582	3.70	0.0748
0.17	0.6172	0.43	0.6172	0.80	0.3461	1.80	0.1538	3.80	0.0729
0.18	0.6172	0.44	0.6172	0.82	0.3377	1.85	0.1497	3.90	0.0710
0.19	0.6172	0.45	0.6153	0.84	0.3296	1.90	0.1457	4.00	0.0692
0.20	0.6172	0.46	0.6019	0.86	0.3220	1.95	0.1420		
0.21	0.6172	0.47	0.5891	0.88	0.3146	2.00	0.1384		
0.22	0.6172	0.48	0.5768	0.90	0.3076	2.05	0.1351		
0.23	0.6172	0.49	0.5651	0.92	0.3010	2.10	0.1318		

0.24	0.6172	0.50	0.5538	0.94	0.2946	2.15	0.1288		
0.25	0.6172	0.51	0.5429	0.96	0.2884	2.20	0.1259		

Parametri spettro normalizzato SLV

Ag [g]	F0	Tc*	TB [s]	TC [s]	TD [s]	Se(0) [g]	Se(TB) [g]
0.250	2.472	--	0.150	0.449	2.352	0.250	0.617

7.4.7. Verifica allo Stato limite di COLLASSO (SLC).

Le impostazioni di analisi adottate sono le seguenti.

Numero di iterazioni	50
Rapporto tra deformazione a taglio effettiva e deformazione massima: [(M-1)/10]	0.500
Tipo di modulo elastico	Shake 91
Massimo errore percentuale di convergenza	$1.55 \times 10^{+5}$

Determinazione del rapporto Pga/Pga_0

Dall'analisi si sono ottenuti i valori riassunti in tabella.

Profondità	0	1.2	13.4	53.4	118.4	--
	[m]	[m]	[m]	[m]	[m]	--
Accelerogramma	Pga				Pga0	Pga/Pga0
TR475_ID16729_1 [g]	0.319	0.307	0.157	0.184	0.231	1.380
TR475_ID16729_2 [g]	0.236	0.229	0.199	0.148	0.238	0.991
TR475_ID16729_3 [g]	0.291	0.287	0.190	0.191	0.239	1.217
TR475_ID16729_4 [g]	0.303	0.287	0.156	0.172	0.231	1.312
TR475_ID16729_5 [g]	0.303	0.300	0.218	0.153	0.241	1.257
TR475_ID16729_6 [g]	0.252	0.243	0.170	0.152	0.251	1.004
TR475_ID16729_7 [g]	0.320	0.316	0.188	0.188	0.239	1.339
000126xa_037006Bologna [g]	0.285	0.271	0.205	0.225	0.239	1.192
000354xa_037006Bologna [g]	0.318	0.310	0.187	0.161	0.239	1.330
000046xa_037006Bologna [g]	0.316	0.305	0.146	0.158	0.239	1.322
Valore medio [g]	0.294	0.286	0.182	0.173	0.239	1.230

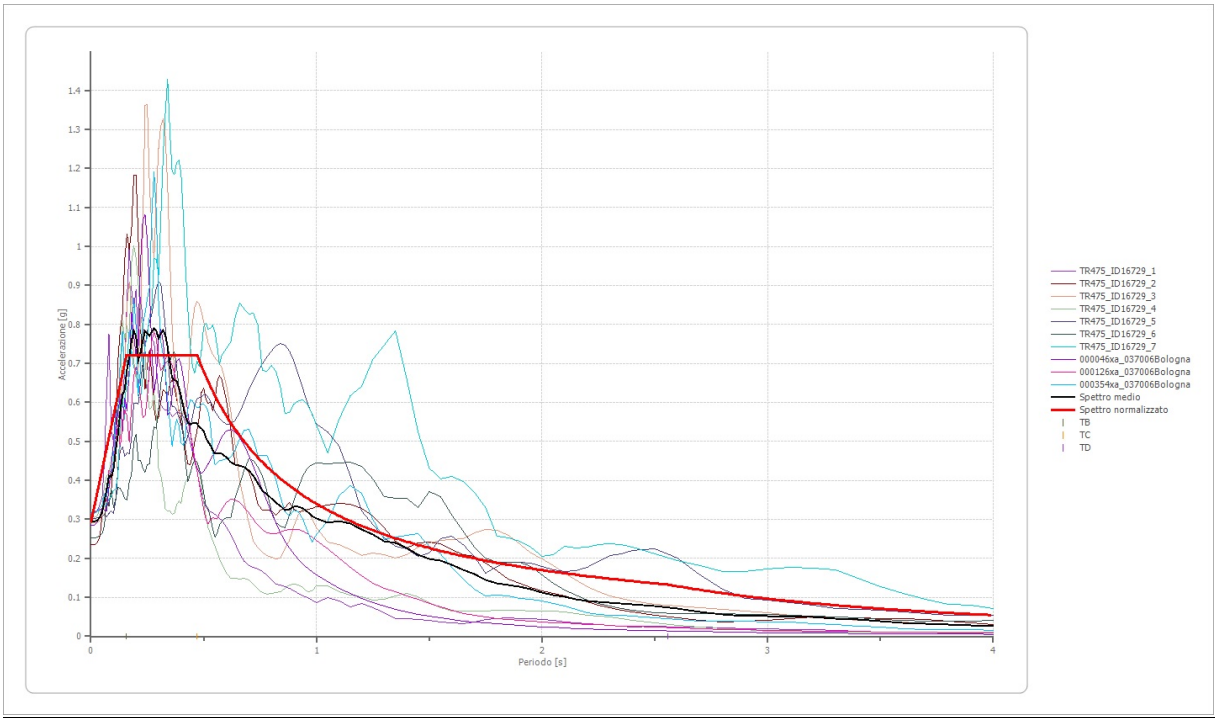
Fattori di amplificazione SLC

Tai	0.160	[s]	**Fa**	**1.221**	**[-]**
Tvi	0.740	[s]	**Fv**	**1.792**	**[-]**
Tao	0.280	[s]	TB	0.157	[s]
Tvo	1.350	[s]	TC	0.472	[s]
Sami	5.786	[m/s²]	TD	2.556	[s]
Svmi	0.296	[m/s]	SA(0)	0.291	[g]
Samo	7.068	[m/s²]	SA(TB)	0.720	[g]
Svmo	0.530	[m/s]			

Fattori di amplificazione su intensità spettrale

Periodo minimo [s]	Periodo massimo [s]	**FA Housner**
0.100	0.500	0.091
0.500	1.000	0.147
0.500	1.500	0.287
0.100	2.500	0.625

Confronto tra spettri elaborati, spettro medio e spettro normalizzato SLC



Spettro di accelerazione medio SLC

Periodo [s]	Accelerazione [g]	Periodo [s]	Accelerazione [g]	Periodo [s]	Accelerazione [g]	Periodo [s]	Accelerazione [g]	Periodo [s]	Accelerazione [g]
0.00	0.2943	0.26	0.7715	0.52	0.4991	0.98	0.3085	2.25	0.0892
0.01	0.2943	0.27	0.7818	0.53	0.4909	1.00	0.3023	2.30	0.0874
0.02	0.2953	0.28	0.7898	0.54	0.4772	1.05	0.2905	2.35	0.0851
0.03	0.2988	0.29	0.7840	0.55	0.4687	1.10	0.2953	2.40	0.0828
0.04	0.3075	0.30	0.7633	0.56	0.4692	1.15	0.2894	2.50	0.0778
0.05	0.3203	0.31	0.7767	0.57	0.4675	1.20	0.2743	2.60	0.0709
0.06	0.3472	0.32	0.7860	0.58	0.4685	1.25	0.2611	2.70	0.0632
0.07	0.3768	0.33	0.7727	0.60	0.4603	1.30	0.2448	2.80	0.0562
0.08	0.4118	0.34	0.7433	0.62	0.4465	1.35	0.2400	2.90	0.0527
0.09	0.4095	0.35	0.7011	0.64	0.4395	1.40	0.2257	3.00	0.0518
0.10	0.4274	0.36	0.6631	0.66	0.4371	1.45	0.2090	3.10	0.0506
0.11	0.4779	0.37	0.6578	0.68	0.4337	1.50	0.1992	3.20	0.0487
0.12	0.5175	0.38	0.6542	0.70	0.4261	1.55	0.1939	3.30	0.0464
0.13	0.5761	0.39	0.6385	0.72	0.4123	1.60	0.1833	3.40	0.0426
0.14	0.6200	0.40	0.6141	0.74	0.3927	1.65	0.1705	3.50	0.0387
0.15	0.6328	0.41	0.5880	0.76	0.3728	1.70	0.1590	3.60	0.0352
0.16	0.6850	0.42	0.5613	0.78	0.3642	1.75	0.1448	3.70	0.0322
0.17	0.7163	0.43	0.5473	0.80	0.3548	1.80	0.1361	3.80	0.0296
0.18	0.7570	0.44	0.5446	0.82	0.3427	1.85	0.1326	3.90	0.0286
0.19	0.7827	0.45	0.5457	0.84	0.3339	1.90	0.1272	4.00	0.0269
0.20	0.7706	0.46	0.5465	0.86	0.3237	1.95	0.1204		
0.21	0.7075	0.47	0.5464	0.88	0.3269	2.00	0.1120		
0.22	0.7273	0.48	0.5372	0.90	0.3317	2.05	0.1057		
0.23	0.7577	0.49	0.5341	0.92	0.3321	2.10	0.1014		
0.24	0.7839	0.50	0.5264	0.94	0.3283	2.15	0.0954		
0.25	0.7780	0.51	0.5103	0.96	0.3190	2.20	0.0910		

Spettro di velocità medio SLC

Periodo [s]	Velocità [cm/s]	Periodo [s]	Velocità [cm/s]	Periodo [s]	Velocità [cm/s]	Periodo [s]	Velocità [cm/s]	Periodo [s]	Velocità [cm/s]
0,01	0,0156	0,27	30,5461	0,53	41,0612	1,00	51,3229	2,30	40,4086
0,02	0,0846	0,28	31,8104	0,54	41,3376	1,05	50,2495	2,35	40,7955
0,03	0,2019	0,29	33,3725	0,55	41,5532	1,10	52,4316	2,40	41,0764
0,04	0,4536	0,30	33,9819	0,56	42,0273	1,15	53,1402	2,50	39,9343
0,05	0,9544	0,31	35,6178	0,57	42,4264	1,20	53,6489	2,60	39,1345
0,06	1,4627	0,32	37,2494	0,58	42,3006	1,25	55,3851	2,70	37,2765
0,07	2,2245	0,33	37,5389	0,60	42,6693	1,30	55,3222	2,80	34,7579
0,08	3,3709	0,34	37,1922	0,62	42,6930	1,35	55,5896	2,90	33,6759
0,09	3,7109	0,35	36,3582	0,64	43,9779	1,40	55,3138	3,00	35,4090
0,10	4,6099	0,36	36,3718	0,66	46,3179	1,45	52,3329	3,10	36,7921
0,11	5,9024	0,37	37,0728	0,68	47,9115	1,50	50,6599	3,20	36,9825
0,12	7,1928	0,38	37,2064	0,70	48,1471	1,55	49,9247	3,30	35,8575
0,13	9,1760	0,39	37,2229	0,72	48,0781	1,60	49,5631	3,40	34,9086
0,14	11,4596	0,40	36,9633	0,74	48,1861	1,65	48,4253	3,50	34,2060
0,15	12,1411	0,41	36,8142	0,76	47,1048	1,70	46,5369	3,60	33,3693
0,16	13,8390	0,42	36,4904	0,78	46,3444	1,75	44,8341	3,70	32,7293
0,17	16,1302	0,43	36,1246	0,80	45,6748	1,80	44,0010	3,80	32,1095
0,18	18,7413	0,44	36,4950	0,82	45,0463	1,85	44,3583	3,90	31,7041
0,19	20,3141	0,45	37,9583	0,84	45,5778	1,90	43,7823	4,00	31,1289
0,20	21,4560	0,46	38,8319	0,86	47,2757	1,95	43,2793		
0,21	21,0715	0,47	39,5039	0,88	48,4926	2,00	42,4149		
0,22	22,3107	0,48	39,9662	0,90	49,8578	2,05	41,1743		
0,23	24,4264	0,49	40,3016	0,92	51,0206	2,10	40,6496		
0,24	26,6286	0,50	40,6303	0,94	51,2949	2,15	39,9051		
0,25	27,5866	0,51	40,4631	0,96	51,1255	2,20	39,5684		

Spettro di spostamento medio SLC

Periodo [s]	Spostamento [cm]	Periodo [s]	Spostamento [cm]	Periodo [s]	Spostamento [cm]	Periodo [s]	Spostamento [cm]	Periodo [s]	Spostamento [cm]
0,00	0,0000	0,26	1,2891	0,52	3,3380	0,98	7,3205	2,25	11,0923
0,01	0,0007	0,27	1,4102	0,53	3,4095	1,00	7,4694	2,30	11,3660
0,02	0,0029	0,28	1,5323	0,54	3,4402	1,05	7,9147	2,35	11,5536
0,03	0,0067	0,29	1,6300	0,55	3,5063	1,10	8,8338	2,40	11,7295
0,04	0,0122	0,30	1,7012	0,56	3,6386	1,15	9,4588	2,50	11,9286
0,05	0,0199	0,31	1,8456	0,57	3,7563	1,20	9,7532	2,60	11,7424
0,06	0,0310	0,32	1,9916	0,58	3,8972	1,25	10,0774	2,70	11,2839
0,07	0,0461	0,33	2,0802	0,60	4,0974	1,30	10,2068	2,80	10,7934
0,08	0,0654	0,34	2,1237	0,62	4,2440	1,35	10,7980	2,90	10,8619
0,09	0,0826	0,35	2,1228	0,64	4,4512	1,40	10,9224	3,00	11,4069
0,10	0,1060	0,36	2,1250	0,66	4,7069	1,45	10,8473	3,10	11,8972
0,11	0,1439	0,37	2,2259	0,68	4,9566	1,50	11,0688	3,20	12,1827
0,12	0,1846	0,38	2,3351	0,70	5,1586	1,55	11,4953	3,30	12,3280
0,13	0,2407	0,39	2,4021	0,72	5,2800	1,60	11,5734	3,40	12,0344
0,14	0,3013	0,40	2,4301	0,74	5,3143	1,65	11,4482	3,50	11,5637
0,15	0,3520	0,41	2,4449	0,76	5,3216	1,70	11,3237	3,60	11,1252
0,16	0,4345	0,42	2,4483	0,78	5,4753	1,75	10,9329	3,70	10,7132
0,17	0,5130	0,43	2,5028	0,80	5,6096	1,80	10,8671	3,80	10,4226
0,18	0,6078	0,44	2,6070	0,82	5,6922	1,85	11,1851	3,90	10,6085
0,19	0,7001	0,45	2,7325	0,84	5,8204	1,90	11,3118	4,00	10,4762
0,20	0,7610	0,46	2,8601	0,86	5,9146	1,95	11,2873		
0,21	0,7727	0,47	2,9835	0,88	6,2556	2,00	11,0291		
0,22	0,8709	0,48	3,0604	0,90	6,6362	2,05	10,9259		
0,23	0,9932	0,49	3,1700	0,92	6,9476	2,10	10,9985		
0,24	1,1184	0,50	3,2542	0,94	7,1681	2,15	10,8359		
0,25	1,2015	0,51	3,2820	0,96	7,2664	2,20	10,8240		

Spettro normalizzato SLC

Periodo [s]	Accelerazione [g]	Periodo [s]	Accelerazione [g]	Periodo [s]	Accelerazione [g]	Periodo [s]	Accelerazione [g]	Periodo [s]	Accelerazione [g]
0.00	0.2915	0.26	0.7205	0.52	0.6533	0.98	0.3467	2.25	0.1510
0.01	0.3188	0.27	0.7205	0.53	0.6410	1.00	0.3397	2.30	0.1477
0.02	0.3461	0.28	0.7205	0.54	0.6291	1.05	0.3235	2.35	0.1446
0.03	0.3733	0.29	0.7205	0.55	0.6177	1.10	0.3088	2.40	0.1416
0.04	0.4006	0.30	0.7205	0.56	0.6066	1.15	0.2954	2.50	0.1359
0.05	0.4279	0.31	0.7205	0.57	0.5960	1.20	0.2831	2.60	0.1307
0.06	0.4552	0.32	0.7205	0.58	0.5857	1.25	0.2718	2.70	0.1258
0.07	0.4825	0.33	0.7205	0.60	0.5662	1.30	0.2613	2.80	0.1213
0.08	0.5098	0.34	0.7205	0.62	0.5479	1.35	0.2516	2.90	0.1171
0.09	0.5371	0.35	0.7205	0.64	0.5308	1.40	0.2427	3.00	0.1132
0.10	0.5644	0.36	0.7205	0.66	0.5147	1.45	0.2343	3.10	0.1096
0.11	0.5917	0.37	0.7205	0.68	0.4996	1.50	0.2265	3.20	0.1062
0.12	0.6190	0.38	0.7205	0.70	0.4853	1.55	0.2192	3.30	0.1029
0.13	0.6463	0.39	0.7205	0.72	0.4718	1.60	0.2123	3.40	0.0999
0.14	0.6736	0.40	0.7205	0.74	0.4591	1.65	0.2059	3.50	0.0971
0.15	0.7009	0.41	0.7205	0.76	0.4470	1.70	0.1998	3.60	0.0944
0.16	0.7205	0.42	0.7205	0.78	0.4355	1.75	0.1941	3.70	0.0918
0.17	0.7205	0.43	0.7205	0.80	0.4247	1.80	0.1887	3.80	0.0894
0.18	0.7205	0.44	0.7205	0.82	0.4143	1.85	0.1836	3.90	0.0871
0.19	0.7205	0.45	0.7205	0.84	0.4044	1.90	0.1788	4.00	0.0849
0.20	0.7205	0.46	0.7205	0.86	0.3950	1.95	0.1742		
0.21	0.7205	0.47	0.7205	0.88	0.3860	2.00	0.1699		
0.22	0.7205	0.48	0.7078	0.90	0.3775	2.05	0.1657		
0.23	0.7205	0.49	0.6933	0.92	0.3693	2.10	0.1618		
0.24	0.7205	0.50	0.6794	0.94	0.3614	2.15	0.1580		
0.25	0.7205	0.51	0.6661	0.96	0.3539	2.20	0.1544		

Parametri spettro normalizzato SLC

Ag [g]	F0	Tc*	TB [s]	TC [s]	TD [s]	Se(0) [g]	Se(TB) [g]
0.291	2.472	--	0.157	0.472	2.556	0.291	0.720

7.4.8. Verifica allo Stato limite di DANNO (SLD).

Le impostazioni di analisi adottate sono le seguenti.

Numero di iterazioni	8
Rapporto tra deformazione a taglio effettiva e deformazione massima: [(M-1)/10]	0.500
Tipo di modulo elastico	Shake 91
Massimo errore percentuale di convergenza	1.71 x 10^{-2}

Determinazione del rapporto Pga/Pga_0

Dall'analisi si sono ottenuti i valori riassunti in tabella.

Profondità	0	1.2	13.4	53.4	118.4	--
	[m]	[m]	[m]	[m]	[m]	--
Accelerogramma	Pga				Pga0	Pga/Pga0
TR475_ID16729_1 [g]	0.135	0.129	0.072	0.060	0.073	1.849
TR475_ID16729_2 [g]	0.112	0.100	0.085	0.059	0.076	1.474
TR475_ID16729_3 [g]	0.126	0.117	0.091	0.066	0.076	1.658
TR475_ID16729_4 [g]	0.116	0.110	0.059	0.066	0.073	1.589
TR475_ID16729_5 [g]	0.128	0.128	0.103	0.057	0.077	1.662
TR475_ID16729_6 [g]	0.107	0.096	0.060	0.073	0.080	1.338
TR475_ID16729_7 [g]	0.134	0.131	0.079	0.079	0.076	1.763
000126xa_037006Bologna [g]	0.128	0.125	0.073	0.057	0.076	1.684
000354xa_037006Bologna [g]	0.138	0.131	0.059	0.061	0.076	1.816
000046xa_037006Bologna [g]	0.106	0.098	0.085	0.060	0.076	1.395
Valore medio [g]	0.123	0.117	0.077	0.064	0.076	1.618

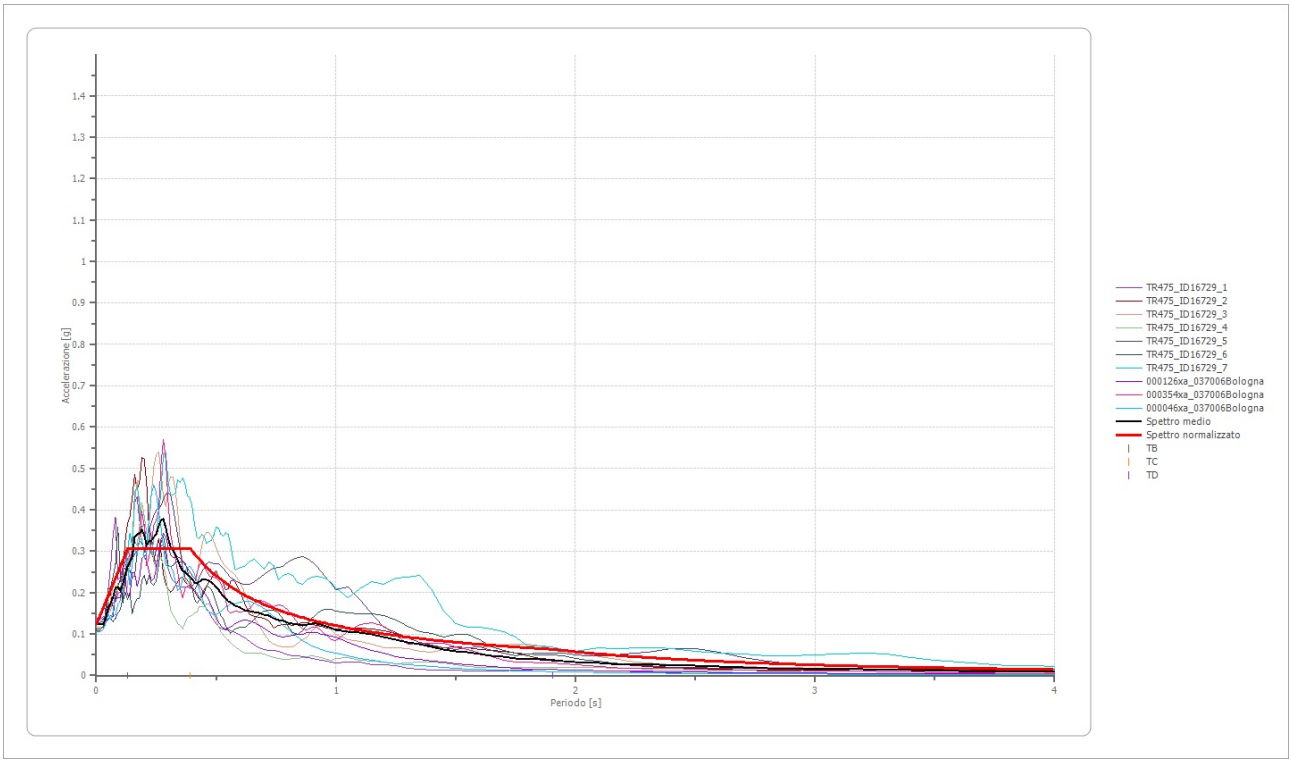
Fattori di amplificazione SLD

Tai	0.160	[s]	**Fa**	**1.632**	**[-]**
Tvi	0.740	[s]	**Fv**	**1.997**	**[-]**
Tao	0.280	[s]	TB	0.131	[s]
Tvo	1.150	[s]	TC	0.393	[s]
Sami	1.840	[m/s²]	TD	1.904	[s]
Svmi	0.094	[m/s]	SA(0)	0.124	[g]
Samo	3.003	[m/s²]	SA(TB)	0.306	[g]
Svmo	0.188	[m/s]			

Fattori di amplificazione su intensità spettrale

Periodo minimo [s]	Periodo massimo [s]	**FA Housner**
0.100	0.500	1.703
0.500	1.000	1.841
0.500	1.500	1.949
0.100	2.500	1.825

Confronto tra spettri elaborati, spettro medio e spettro normalizzato SLD



Spettro di accelerazione medio SLD

Periodo [s]	Accelerazione [g]	Periodo [s]	Accelerazione [g]	Periodo [s]	Accelerazione [g]	Periodo [s]	Accelerazione [g]	Periodo [s]	Accelerazione [g]
0.00	0.1230	0.26	0.3597	0.52	0.1982	0.98	0.1135	2.25	0.0261
0.01	0.1230	0.27	0.3766	0.53	0.1917	1.00	0.1091	2.30	0.0256
0.02	0.1235	0.28	0.3772	0.54	0.1851	1.05	0.1060	2.35	0.0250
0.03	0.1262	0.29	0.3559	0.55	0.1795	1.10	0.1040	2.40	0.0244
0.04	0.1393	0.30	0.3295	0.56	0.1764	1.15	0.0995	2.50	0.0229
0.05	0.1644	0.31	0.3110	0.57	0.1729	1.20	0.0921	2.60	0.0208
0.06	0.1745	0.32	0.3021	0.58	0.1687	1.25	0.0865	2.70	0.0187
0.07	0.1903	0.33	0.2908	0.60	0.1644	1.30	0.0795	2.80	0.0169
0.08	0.2124	0.34	0.2784	0.62	0.1582	1.35	0.0752	2.90	0.0158
0.09	0.2145	0.35	0.2640	0.64	0.1546	1.40	0.0689	3.00	0.0155
0.10	0.2054	0.36	0.2535	0.66	0.1528	1.45	0.0620	3.10	0.0150
0.11	0.2209	0.37	0.2504	0.68	0.1507	1.50	0.0576	3.20	0.0147
0.12	0.2439	0.38	0.2449	0.70	0.1469	1.55	0.0556	3.30	0.0139
0.13	0.2636	0.39	0.2389	0.72	0.1442	1.60	0.0525	3.40	0.0128
0.14	0.2733	0.40	0.2323	0.74	0.1384	1.65	0.0481	3.50	0.0116
0.15	0.2866	0.41	0.2240	0.76	0.1332	1.70	0.0451	3.60	0.0105
0.16	0.3349	0.42	0.2212	0.78	0.1310	1.75	0.0417	3.70	0.0096
0.17	0.3402	0.43	0.2259	0.80	0.1284	1.80	0.0390	3.80	0.0090
0.18	0.3428	0.44	0.2300	0.82	0.1247	1.85	0.0378	3.90	0.0087
0.19	0.3525	0.45	0.2311	0.84	0.1221	1.90	0.0363	4.00	0.0082
0.20	0.3389	0.46	0.2303	0.86	0.1213	1.95	0.0343		
0.21	0.3146	0.47	0.2285	0.88	0.1237	2.00	0.0320		
0.22	0.3232	0.48	0.2236	0.90	0.1260	2.05	0.0307		
0.23	0.3261	0.49	0.2192	0.92	0.1261	2.10	0.0296		
0.24	0.3341	0.50	0.2147	0.94	0.1238	2.15	0.0279		
0.25	0.3407	0.51	0.2062	0.96	0.1192	2.20	0.0268		

Spettro di velocità medio SLD

Periodo [s]	Velocità [cm/s]	Periodo [s]	Velocità [cm/s]	Periodo [s]	Velocità [cm/s]	Periodo [s]	Velocità [cm/s]	Periodo [s]	Velocità [cm/s]
0,00	0,0000	0,26	13,8621	0,52	16,6040	0,98	18,9458	2,25	12,4062
0,01	0,0085	0,27	15,0906	0,53	16,4206	1,00	18,8878	2,30	12,5452
0,02	0,0502	0,28	15,8554	0,54	16,3438	1,05	18,5168	2,35	12,7675
0,03	0,1277	0,29	15,7504	0,55	16,1286	1,10	19,1762	2,40	12,8282
0,04	0,3655	0,30	15,1443	0,56	16,1349	1,15	19,4561	2,50	12,5214
0,05	0,7595	0,31	14,8279	0,57	16,1175	1,20	18,0483	2,60	12,3730
0,06	1,0330	0,32	14,9653	0,58	15,8527	1,25	18,8314	2,70	11,7744
0,07	1,4312	0,33	14,5996	0,60	15,3771	1,30	18,7912	2,80	10,9710
0,08	2,1150	0,34	14,1708	0,62	15,3461	1,35	18,3614	2,90	11,0734
0,09	2,4183	0,35	14,0840	0,64	15,6981	1,40	17,8659	3,00	11,5881
0,10	2,6462	0,36	14,0714	0,66	16,4786	1,45	16,8669	3,10	11,8968
0,11	3,1636	0,37	14,2624	0,68	17,0534	1,50	16,0068	3,20	11,8744
0,12	3,7037	0,38	14,1550	0,70	17,2166	1,55	15,6622	3,30	11,4866
0,13	4,5396	0,39	14,1896	0,72	17,2400	1,60	15,4343	3,40	11,4699
0,14	5,1054	0,40	14,2316	0,74	17,3780	1,65	14,8506	3,50	11,2662
0,15	5,5491	0,41	14,2476	0,76	17,2768	1,70	14,5026	3,60	11,0367
0,16	7,2887	0,42	14,2591	0,78	17,1363	1,75	14,2404	3,70	10,8845
0,17	8,2636	0,43	14,6572	0,80	16,6513	1,80	14,0866	3,80	10,7225
0,18	8,6911	0,44	15,5433	0,82	16,8640	1,85	14,0180	3,90	10,5526
0,19	9,3330	0,45	16,1032	0,84	17,2877	1,90	13,7411	4,00	10,4002
0,20	9,7909	0,46	16,5684	0,86	17,9591	1,95	13,4686		
0,21	9,6116	0,47	16,7689	0,88	18,4486	2,00	13,2661		
0,22	10,2118	0,48	17,0499	0,90	18,8146	2,05	13,0609		
0,23	10,6974	0,49	17,0768	0,92	19,1809	2,10	12,7865		
0,24	11,4608	0,50	16,9169	0,94	19,2847	2,15	12,5969		
0,25	12,3766	0,51	16,7631	0,96	19,0587	2,20	12,3889		

Spettro di spostamento medio SLD

Periodo [s]	Spostamento [cm]	Periodo [s]	Spostamento [cm]	Periodo [s]	Spostamento [cm]	Periodo [s]	Spostamento [cm]	Periodo [s]	Spostamento [cm]
0,00	0,0000	0,26	0,6009	0,52	1,3246	0,98	2,6926	2,25	3,2318
0,01	0,0003	0,27	0,6798	0,53	1,3306	1,00	2,6955	2,30	3,3128
0,02	0,0012	0,28	0,7317	0,54	1,3339	1,05	2,8872	2,35	3,3873
0,03	0,0028	0,29	0,7411	0,55	1,3422	1,10	3,1096	2,40	3,4496
0,04	0,0055	0,30	0,7329	0,56	1,3676	1,15	3,2508	2,50	3,5020
0,05	0,0101	0,31	0,7387	0,57	1,3887	1,20	3,2729	2,60	3,4353
0,06	0,0156	0,32	0,7648	0,58	1,4035	1,25	3,3382	2,70	3,3206
0,07	0,0232	0,33	0,7833	0,60	1,4635	1,30	3,3136	2,80	3,2332
0,08	0,0339	0,34	0,7956	0,62	1,5029	1,35	3,3760	2,90	3,2384
0,09	0,0431	0,35	0,7997	0,64	1,5643	1,40	3,3309	3,00	3,4099
0,10	0,0509	0,36	0,8118	0,66	1,6440	1,45	3,2138	3,10	3,5201
0,11	0,0665	0,37	0,8472	0,68	1,7215	1,50	3,2016	3,20	3,6660
0,12	0,0870	0,38	0,8751	0,70	1,7774	1,55	3,2945	3,30	3,6876
0,13	0,1103	0,39	0,8984	0,72	1,8460	1,60	3,3106	3,40	3,6069
0,14	0,1325	0,40	0,9190	0,74	1,8724	1,65	3,2286	3,50	3,4573
0,15	0,1595	0,41	0,9306	0,76	1,8997	1,70	3,2071	3,60	3,3117
0,16	0,2118	0,42	0,9649	0,78	1,9689	1,75	3,1385	3,70	3,1803
0,17	0,2438	0,43	1,0327	0,80	2,0285	1,80	3,1082	3,80	3,1644
0,18	0,2747	0,44	1,1014	0,82	2,0712	1,85	3,1869	3,90	3,2088
0,19	0,3142	0,45	1,1571	0,84	2,1264	1,90	3,2249	4,00	3,1699
0,20	0,3362	0,46	1,2052	0,86	2,2160	1,95	3,2093		
0,21	0,3433	0,47	1,2476	0,88	2,3656	2,00	3,1471		
0,22	0,3873	0,48	1,2743	0,90	2,5216	2,05	3,1743		
0,23	0,4262	0,49	1,3008	0,92	2,6359	2,10	3,2046		
0,24	0,4754	0,50	1,3271	0,94	2,7014	2,15	3,1606		
0,25	0,5273	0,51	1,3268	0,96	2,7134	2,20	3,1820		

Spettro normalizzato SLD

Periodo [s]	Accelerazione [g]	Periodo [s]	Accelerazione [g]	Periodo [s]	Accelerazione [g]	Periodo [s]	Accelerazione [g]	Periodo [s]	Accelerazione [g]
0.00	0.1238	0.26	0.3061	0.52	0.2315	0.98	0.1228	2.25	0.0535
0.01	0.1377	0.27	0.3061	0.53	0.2271	1.00	0.1204	2.30	0.0523
0.02	0.1516	0.28	0.3061	0.54	0.2229	1.05	0.1146	2.35	0.0512
0.03	0.1655	0.29	0.3061	0.55	0.2189	1.10	0.1094	2.40	0.0502
0.04	0.1794	0.30	0.3061	0.56	0.2149	1.15	0.1047	2.50	0.0481
0.05	0.1934	0.31	0.3061	0.57	0.2112	1.20	0.1003	2.60	0.0463
0.06	0.2073	0.32	0.3061	0.58	0.2075	1.25	0.0963	2.70	0.0446
0.07	0.2212	0.33	0.3061	0.60	0.2006	1.30	0.0926	2.80	0.0430
0.08	0.2351	0.34	0.3061	0.62	0.1941	1.35	0.0892	2.90	0.0415
0.09	0.2490	0.35	0.3061	0.64	0.1881	1.40	0.0860	3.00	0.0401
0.10	0.2629	0.36	0.3061	0.66	0.1824	1.45	0.0830	3.10	0.0388
0.11	0.2768	0.37	0.3061	0.68	0.1770	1.50	0.0802	3.20	0.0376
0.12	0.2907	0.38	0.3061	0.70	0.1720	1.55	0.0777	3.30	0.0365
0.13	0.3046	0.39	0.3061	0.72	0.1672	1.60	0.0752	3.40	0.0354
0.14	0.3061	0.40	0.3009	0.74	0.1627	1.65	0.0730	3.50	0.0344
0.15	0.3061	0.41	0.2936	0.76	0.1584	1.70	0.0708	3.60	0.0334
0.16	0.3061	0.42	0.2866	0.78	0.1543	1.75	0.0688	3.70	0.0325
0.17	0.3061	0.43	0.2799	0.80	0.1505	1.80	0.0669	3.80	0.0317
0.18	0.3061	0.44	0.2736	0.82	0.1468	1.85	0.0651	3.90	0.0309
0.19	0.3061	0.45	0.2675	0.84	0.1433	1.90	0.0634	4.00	0.0301
0.20	0.3061	0.46	0.2617	0.86	0.1400	1.95	0.0617		
0.21	0.3061	0.47	0.2561	0.88	0.1368	2.00	0.0602		
0.22	0.3061	0.48	0.2508	0.90	0.1337	2.05	0.0587		
0.23	0.3061	0.49	0.2457	0.92	0.1308	2.10	0.0573		
0.24	0.3061	0.50	0.2407	0.94	0.1281	2.15	0.0560		
0.25	0.3061	0.51	0.2360	0.96	0.1254	2.20	0.0547		

Parametri spettro normalizzato SLD

Ag [g]	F0	Tc*	TB [s]	TC [s]	TD [s]	Se(0) [g]	Se(TB) [g]
0.124	2.472	--	0.131	0.393	1.904	0.124	0.306

7.4.9. Verifica allo Stato limite di OPERATIVITÀ (SLO).

Le impostazioni di analisi adottate sono le seguenti.

Numero di iterazioni	8
Rapporto tra deformazione a taglio effettiva e deformazione massima: [(M-1)/10]	0.500
Tipo di modulo elastico	Shake 91
Massimo errore percentuale di convergenza	8,77 x 10^{-3}

Determinazione del rapporto Pga/Pga_0

Dall'analisi si sono ottenuti i valori riassunti in tabella.

Profondità	0	1.2	13.4	53.4	118.4	--
	[m]	[m]	[m]	[m]	[m]	--
Accelerogramma	Pga				Pga0	Pga/Pga0
TR475_ID16729_1 [g]	0.112	0.107	0.061	0.048	0.059	1.898
TR475_ID16729_2 [g]	0.096	0.084	0.073	0.050	0.061	1.574
TR475_ID16729_3 [g]	0.106	0.097	0.076	0.052	0.061	1.738
TR475_ID16729_4 [g]	0.094	0.089	0.048	0.054	0.059	1.593
TR475_ID16729_5 [g]	0.104	0.104	0.085	0.047	0.061	1.705
TR475_ID16729_6 [g]	0.091	0.081	0.050	0.059	0.064	1.422
TR475_ID16729_7 [g]	0.111	0.110	0.064	0.066	0.061	1.820
000126xa_037006Bologna [g]	0.106	0.103	0.061	0.048	0.061	1.738
000354xa_037006Bologna [g]	0.113	0.108	0.049	0.050	0.061	1.852
000046xa_037006Bologna [g]	0.086	0.079	0.069	0.047	0.061	1.410
Valore medio [g]	0.102	0.096	0.063	0.052	0.061	1.672

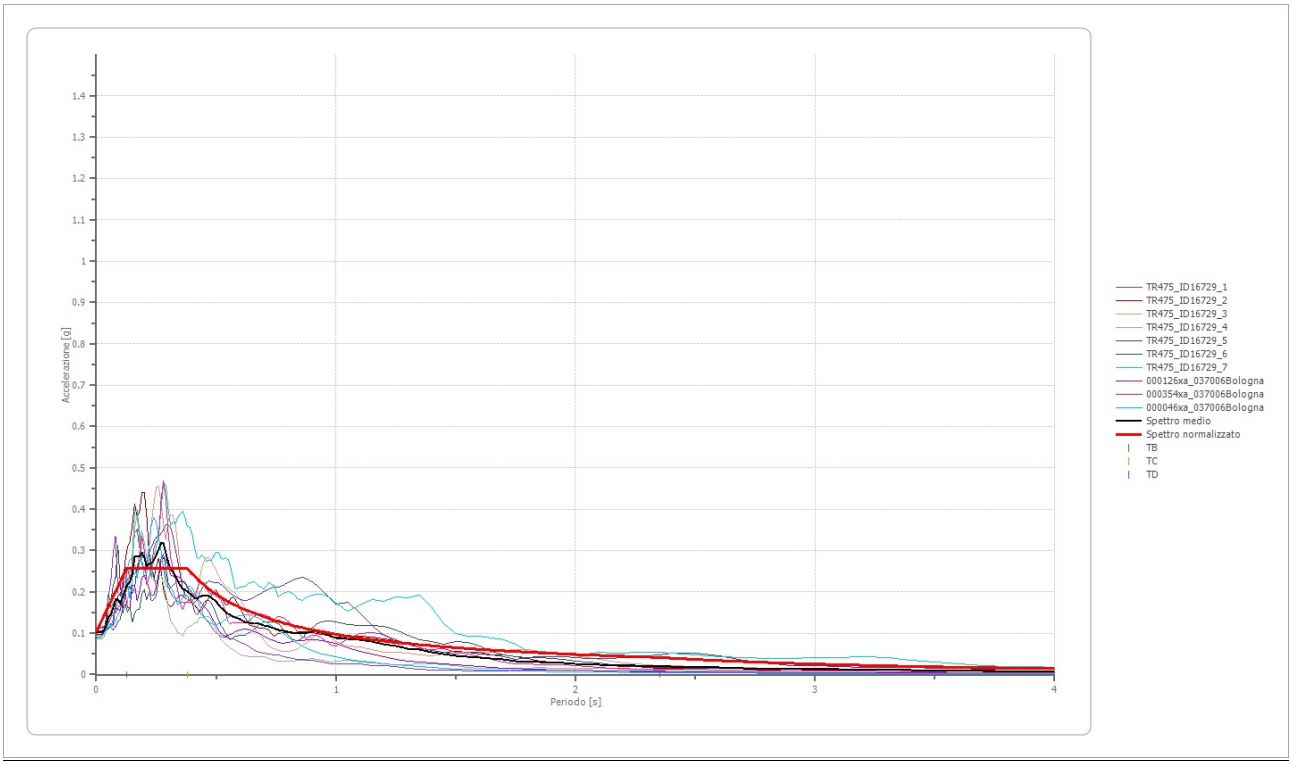
Fattori di amplificazione SLO

Tai	0.160	[s]	**Fa**	**1.710**	[-]
Tvi	0.740	[s]	**Fv**	**2.014**	[-]
Tao	0.270	[s]	TB	0.126	[s]
Tvo	1.150	[s]	TC	0.379	[s]
Sami	1.477	[m/s²]	TD	2.352	[s]
Svmi	0.076	[m/s]	SA(0)	0.104	[g]
Samo	2.526	[m/s²]	SA(TB)	0.257	[g]
Svmo	0.152	[m/s]			

Fattori di amplificazione su intensità spettrale

Periodo minimo [s]	Periodo massimo [s]	**FA Housner**
0.100	0.500	1.762
0.500	1.000	1.871
0.500	1.500	1.970
0.100	2.500	1.845

Confronto tra spettri elaborati, spettro medio e spettro normalizzato SLO



Spettro di accelerazione medio SLO

Periodo [s]	Accelerazione [g]	Periodo [s]	Accelerazione [g]	Periodo [s]	Accelerazione [g]	Periodo [s]	Accelerazione [g]	Periodo [s]	Accelerazione [g]
0.00	0.1020	0.26	0.3029	0.52	0.1622	0.98	0.0923	2.25	0.0208
0.01	0.1020	0.27	0.3176	0.53	0.1567	1.00	0.0886	2.30	0.0204
0.02	0.1025	0.28	0.3168	0.54	0.1513	1.05	0.0860	2.35	0.0200
0.03	0.1053	0.29	0.2942	0.55	0.1468	1.10	0.0839	2.40	0.0195
0.04	0.1159	0.30	0.2715	0.56	0.1440	1.15	0.0801	2.50	0.0183
0.05	0.1410	0.31	0.2538	0.57	0.1411	1.20	0.0740	2.60	0.0166
0.06	0.1455	0.32	0.2476	0.58	0.1373	1.25	0.0694	2.70	0.0149
0.07	0.1614	0.33	0.2376	0.60	0.1336	1.30	0.0635	2.80	0.0135
0.08	0.1821	0.34	0.2267	0.62	0.1283	1.35	0.0601	2.90	0.0126
0.09	0.1816	0.35	0.2161	0.64	0.1256	1.40	0.0549	3.00	0.0124
0.10	0.1729	0.36	0.2070	0.66	0.1239	1.45	0.0494	3.10	0.0120
0.11	0.1880	0.37	0.2052	0.68	0.1220	1.50	0.0459	3.20	0.0118
0.12	0.2048	0.38	0.2013	0.70	0.1191	1.55	0.0442	3.30	0.0111
0.13	0.2188	0.39	0.1966	0.72	0.1171	1.60	0.0417	3.40	0.0103
0.14	0.2254	0.40	0.1914	0.74	0.1125	1.65	0.0383	3.50	0.0093
0.15	0.2443	0.41	0.1857	0.76	0.1082	1.70	0.0358	3.60	0.0084
0.16	0.2844	0.42	0.1829	0.78	0.1067	1.75	0.0332	3.70	0.0077
0.17	0.2852	0.43	0.1870	0.80	0.1046	1.80	0.0310	3.80	0.0072
0.18	0.2846	0.44	0.1903	0.82	0.1017	1.85	0.0301	3.90	0.0069
0.19	0.2934	0.45	0.1909	0.84	0.0996	1.90	0.0289	4.00	0.0065
0.20	0.2846	0.46	0.1907	0.86	0.0990	1.95	0.0273		
0.21	0.2618	0.47	0.1890	0.88	0.1009	2.00	0.0255		
0.22	0.2679	0.48	0.1847	0.90	0.1028	2.05	0.0245		
0.23	0.2690	0.49	0.1808	0.92	0.1029	2.10	0.0236		
0.24	0.2772	0.50	0.1763	0.94	0.1010	2.15	0.0222		
0.25	0.2883	0.51	0.1693	0.96	0.0972	2.20	0.0214		

Spettro di accelerazione medio SLO

Periodo [s]	Accelerazione [g]	Periodo [s]	Accelerazione [g]	Periodo [s]	Accelerazione [g]	Periodo [s]	Accelerazione [g]	Periodo [s]	Accelerazione [g]
0.00	0.1041	0.26	0.2574	0.52	0.1874	0.98	0.0994	2.25	0.0433
0.01	0.1163	0.27	0.2574	0.53	0.1839	1.00	0.0974	2.30	0.0424
0.02	0.1284	0.28	0.2574	0.54	0.1805	1.05	0.0928	2.35	0.0415
0.03	0.1406	0.29	0.2574	0.55	0.1772	1.10	0.0886	2.40	0.0406
0.04	0.1527	0.30	0.2574	0.56	0.1740	1.15	0.0847	2.50	0.0390
0.05	0.1649	0.31	0.2574	0.57	0.1710	1.20	0.0812	2.60	0.0375
0.06	0.1770	0.32	0.2574	0.58	0.1680	1.25	0.0780	2.70	0.0361
0.07	0.1892	0.33	0.2574	0.60	0.1624	1.30	0.0750	2.80	0.0348
0.08	0.2013	0.34	0.2574	0.62	0.1572	1.35	0.0722	2.90	0.0336
0.09	0.2135	0.35	0.2574	0.64	0.1523	1.40	0.0696	3.00	0.0325
0.10	0.2256	0.36	0.2574	0.66	0.1476	1.45	0.0672	3.10	0.0314
0.11	0.2378	0.37	0.2574	0.68	0.1433	1.50	0.0650	3.20	0.0305
0.12	0.2499	0.38	0.2564	0.70	0.1392	1.55	0.0629	3.30	0.0295
0.13	0.2574	0.39	0.2499	0.72	0.1353	1.60	0.0609	3.40	0.0287
0.14	0.2574	0.40	0.2436	0.74	0.1317	1.65	0.0591	3.50	0.0278
0.15	0.2574	0.41	0.2377	0.76	0.1282	1.70	0.0573	3.60	0.0271
0.16	0.2574	0.42	0.2320	0.78	0.1249	1.75	0.0557	3.70	0.0263
0.17	0.2574	0.43	0.2266	0.80	0.1218	1.80	0.0541	3.80	0.0256
0.18	0.2574	0.44	0.2215	0.82	0.1188	1.85	0.0527	3.90	0.0250
0.19	0.2574	0.45	0.2165	0.84	0.1160	1.90	0.0513	4.00	0.0244
0.20	0.2574	0.46	0.2118	0.86	0.1133	1.95	0.0500		
0.21	0.2574	0.47	0.2073	0.88	0.1107	2.00	0.0487		
0.22	0.2574	0.48	0.2030	0.90	0.1083	2.05	0.0475		
0.23	0.2574	0.49	0.1989	0.92	0.1059	2.10	0.0464		
0.24	0.2574	0.50	0.1949	0.94	0.1037	2.15	0.0453		
0.25	0.2574	0.51	0.1911	0.96	0.1015	2.20	0.0443		

Spettro di velocità medio SLO

Periodo [s]	Velocità [cm/s]	Periodo [s]	Velocità [cm/s]	Periodo [s]	Velocità [cm/s]	Periodo [s]	Velocità [cm/s]	Periodo [s]	Velocità [cm/s]
0,00	0,0000	0,26	11,8096	0,52	13,6852	0,98	15,3875	2,25	9,9652
0,01	0,0073	0,27	12,7899	0,53	13,4832	1,00	15,3590	2,30	10,0873
0,02	0,0431	0,28	13,3816	0,54	13,3765	1,05	15,0498	2,35	10,2618
0,03	0,1088	0,29	13,1549	0,55	13,2060	1,10	15,5520	2,40	10,3049
0,04	0,3222	0,30	12,5351	0,56	13,1903	1,15	15,7784	2,50	10,0765
0,05	0,6782	0,31	12,2119	0,57	13,1527	1,20	14,6000	2,60	9,9565
0,06	0,9318	0,32	12,2898	0,58	12,9242	1,25	15,1587	2,70	9,4878
0,07	1,2286	0,33	11,9584	0,60	12,5326	1,30	15,1530	2,80	8,8336
0,08	1,8168	0,34	11,5858	0,62	12,5047	1,35	14,7548	2,90	8,9320
0,09	2,1240	0,35	11,5144	0,64	12,8090	1,40	14,3378	3,00	9,3406
0,10	2,2345	0,36	11,5207	0,66	13,4318	1,45	13,5293	3,10	9,5808
0,11	2,7401	0,37	11,7005	0,68	13,8814	1,50	12,8346	3,20	9,5528
0,12	3,1223	0,38	11,6198	0,70	14,0071	1,55	12,5625	3,30	9,2408
0,13	3,7812	0,39	11,6896	0,72	14,0502	1,60	12,3875	3,40	9,2628
0,14	4,2018	0,40	11,7525	0,74	14,1620	1,65	11,9208	3,50	9,0957
0,15	4,7154	0,41	11,7525	0,76	14,0719	1,70	11,6591	3,60	8,9136
0,16	6,2607	0,42	11,8098	0,78	13,9858	1,75	11,4596	3,70	8,7903
0,17	6,9468	0,43	12,1685	0,80	13,6054	1,80	11,3578	3,80	8,6611
0,18	7,1878	0,44	12,8817	0,82	13,7957	1,85	11,3017	3,90	8,5308
0,19	7,8306	0,45	13,3658	0,84	14,1272	1,90	11,0805	4,00	8,4329
0,20	8,2464	0,46	13,7447	0,86	14,6672	1,95	10,8209		
0,21	8,0077	0,47	13,9136	0,88	15,0539	2,00	10,6741		
0,22	8,5112	0,48	14,1207	0,90	15,3498	2,05	10,5157		
0,23	8,8690	0,49	14,1316	0,92	15,6072	2,10	10,2987		
0,24	9,5236	0,50	13,9051	0,94	15,6998	2,15	10,1371		
0,25	10,4285	0,51	13,8219	0,96	15,5420	2,20	9,9741		

Spettro di spostamento medio SLO

Periodo [s]	Spostamento [cm]	Periodo [s]	Spostamento [cm]	Periodo [s]	Spostamento [cm]	Periodo [s]	Spostamento [cm]	Periodo [s]	Spostamento [cm]
0,00	0,0000	0,26	0,5070	0,52	1,0845	0,98	2,1910	2,25	2,5768
0,01	0,0003	0,27	0,5725	0,53	1,0880	1,00	2,1894	2,30	2,6397
0,02	0,0010	0,28	0,6148	0,54	1,0906	1,05	2,3422	2,35	2,7018
0,03	0,0024	0,29	0,6119	0,55	1,0973	1,10	2,5098	2,40	2,7513
0,04	0,0046	0,30	0,6045	0,56	1,1163	1,15	2,6160	2,50	2,7918
0,05	0,0088	0,31	0,6035	0,57	1,1330	1,20	2,6291	2,60	2,7412
0,06	0,0130	0,32	0,6277	0,58	1,1416	1,25	2,6771	2,70	2,6487
0,07	0,0195	0,33	0,6394	0,60	1,1888	1,30	2,6497	2,80	2,5833
0,08	0,0286	0,34	0,6484	0,62	1,2192	1,35	2,6989	2,90	2,5845
0,09	0,0364	0,35	0,6545	0,64	1,2708	1,40	2,6526	3,00	2,7207
0,10	0,0430	0,36	0,6640	0,66	1,3327	1,45	2,5579	3,10	2,8080
0,11	0,0561	0,37	0,6951	0,68	1,3936	1,50	2,5472	3,20	2,9283
0,12	0,0732	0,38	0,7183	0,70	1,4415	1,55	2,6211	3,30	2,9472
0,13	0,0914	0,39	0,7390	0,72	1,4991	1,60	2,6333	3,40	2,8810
0,14	0,1095	0,40	0,7572	0,74	1,5209	1,65	2,5672	3,50	2,7606
0,15	0,1359	0,41	0,7719	0,76	1,5436	1,70	2,5493	3,60	2,6426
0,16	0,1803	0,42	0,7982	0,78	1,6034	1,75	2,4993	3,70	2,5395
0,17	0,2037	0,43	0,8554	0,80	1,6526	1,80	2,4752	3,80	2,5311
0,18	0,2280	0,44	0,9114	0,82	1,6882	1,85	2,5339	3,90	2,5661
0,19	0,2624	0,45	0,9561	0,84	1,7340	1,90	2,5660	4,00	2,5356
0,20	0,2811	0,46	0,9979	0,86	1,8078	1,95	2,5526		
0,21	0,2858	0,47	1,0324	0,88	1,9307	2,00	2,5051		
0,22	0,3210	0,48	1,0519	0,90	2,0575	2,05	2,5311		
0,23	0,3522	0,49	1,0730	0,92	2,1510	2,10	2,5553		
0,24	0,3949	0,50	1,0898	0,94	2,2041	2,15	2,5193		
0,25	0,4453	0,51	1,0884	0,96	2,2129	2,20	2,5392		

Spettro normalizzato SLO

Periodo [s]	Accelerazione [g]	Periodo [s]	Accelerazione [g]	Periodo [s]	Accelerazione [g]	Periodo [s]	Accelerazione [g]	Periodo [s]	Accelerazione [g]
0.00	0.1041	0.26	0.2574	0.52	0.1874	0.98	0.0994	2.25	0.0433
0.01	0.1163	0.27	0.2574	0.53	0.1839	1.00	0.0974	2.30	0.0424
0.02	0.1284	0.28	0.2574	0.54	0.1805	1.05	0.0928	2.35	0.0415
0.03	0.1406	0.29	0.2574	0.55	0.1772	1.10	0.0886	2.40	0.0406
0.04	0.1527	0.30	0.2574	0.56	0.1740	1.15	0.0847	2.50	0.0390
0.05	0.1649	0.31	0.2574	0.57	0.1710	1.20	0.0812	2.60	0.0375
0.06	0.1770	0.32	0.2574	0.58	0.1680	1.25	0.0780	2.70	0.0361
0.07	0.1892	0.33	0.2574	0.60	0.1624	1.30	0.0750	2.80	0.0348
0.08	0.2013	0.34	0.2574	0.62	0.1572	1.35	0.0722	2.90	0.0336
0.09	0.2135	0.35	0.2574	0.64	0.1523	1.40	0.0696	3.00	0.0325
0.10	0.2256	0.36	0.2574	0.66	0.1476	1.45	0.0672	3.10	0.0314
0.11	0.2378	0.37	0.2574	0.68	0.1433	1.50	0.0650	3.20	0.0305
0.12	0.2499	0.38	0.2564	0.70	0.1392	1.55	0.0629	3.30	0.0295
0.13	0.2574	0.39	0.2499	0.72	0.1353	1.60	0.0609	3.40	0.0287
0.14	0.2574	0.40	0.2436	0.74	0.1317	1.65	0.0591	3.50	0.0278
0.15	0.2574	0.41	0.2377	0.76	0.1282	1.70	0.0573	3.60	0.0271
0.16	0.2574	0.42	0.2320	0.78	0.1249	1.75	0.0557	3.70	0.0263
0.17	0.2574	0.43	0.2266	0.80	0.1218	1.80	0.0541	3.80	0.0256
0.18	0.2574	0.44	0.2215	0.82	0.1188	1.85	0.0527	3.90	0.0250
0.19	0.2574	0.45	0.2165	0.84	0.1160	1.90	0.0513	4.00	0.0244
0.20	0.2574	0.46	0.2118	0.86	0.1133	1.95	0.0500		
0.21	0.2574	0.47	0.2073	0.88	0.1107	2.00	0.0487		

0.22	0.2574	0.48	0.2030	0.90	0.1083	2.05	0.0475		
0.23	0.2574	0.49	0.1989	0.92	0.1059	2.10	0.0464		
0.24	0.2574	0.50	0.1949	0.94	0.1037	2.15	0.0453		
0.25	0.2574	0.51	0.1911	0.96	0.1015	2.20	0.0443		

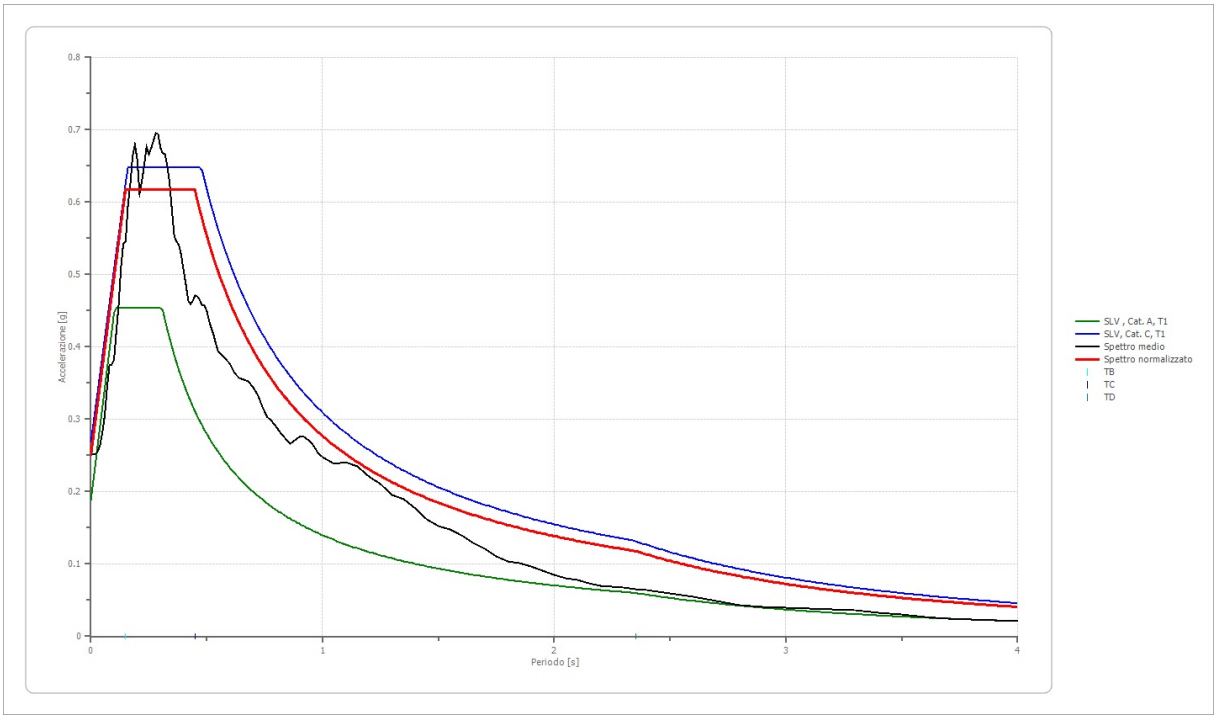
Parametri spettro normalizzato SLO

Ag [g]	F0	Tc*	TB [s]	TC [s]	TD [s]	Se(0) [g]	Se(TB) [g]
0.104	2.472	--	0.126	0.379	2.352	0.104	0.257

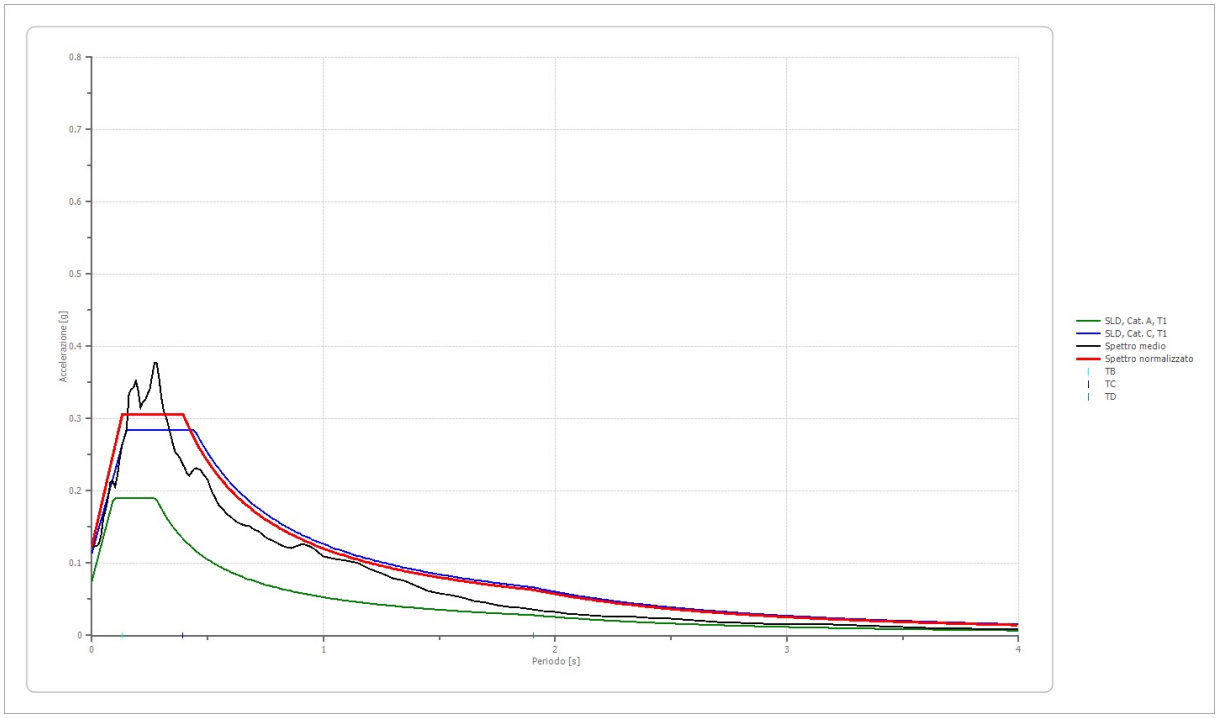
7.4.10. Confronto con lo spettro di normativa per un suolo di categoria C.

Di seguito si riportano gli spettri normalizzati agli stati limite calcolati (in rosso), ricavati dall'analisi numerica che sono stati messi a confronto con gli spettri al *bedrock* (A-T1, in verde) e con quelli desumibili dall'analisi secondo la procedura semplificata (§ 3.2.2. NTC08) per un sottosuolo di categoria C-T1 (in blu).

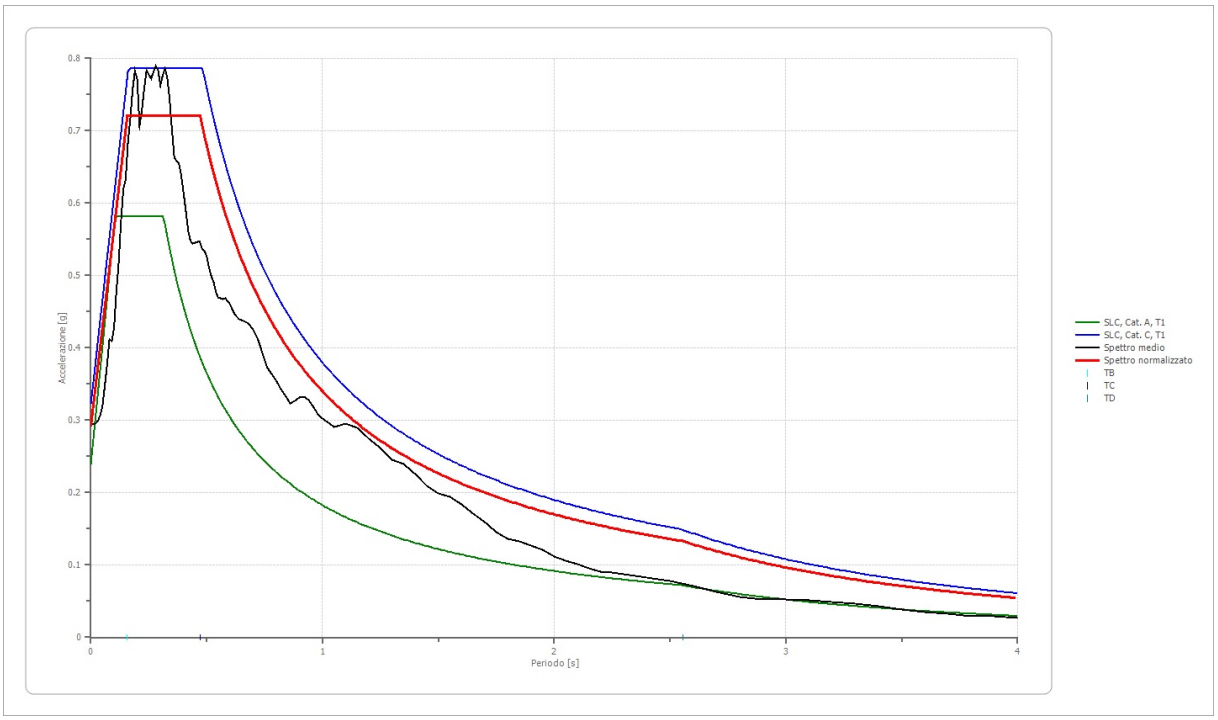
SLV



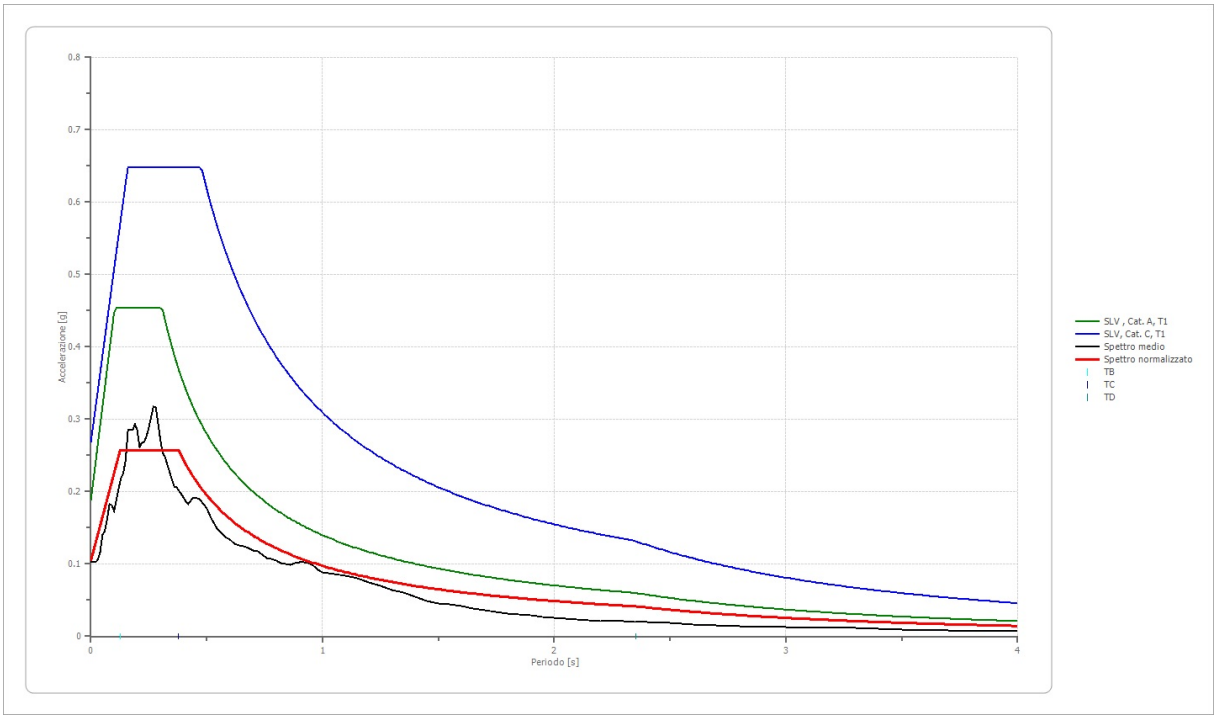
SLD


0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Accelerazione [g]
0
1
2
3
4
Periodo [s]
SLD, Cat. A, T1
SLD, Cat. C, T1
Spettro medio
Spettro normalizzato
TB
TC
TD

SLC


0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Accelerazione [g]
0
1
2
3
4
Periodo [s]
SLC, Cat. A, T1
SLC, Cat. C, T1
Spettro medio
Spettro normalizzato
TB
TC
TD

SLO



La scelta definitiva in merito agli spettri da utilizzarsi nella progettazione rimane comunque di competenza esclusiva del Progettista.

8. Programma d'indagine e strumentazione impiegata.

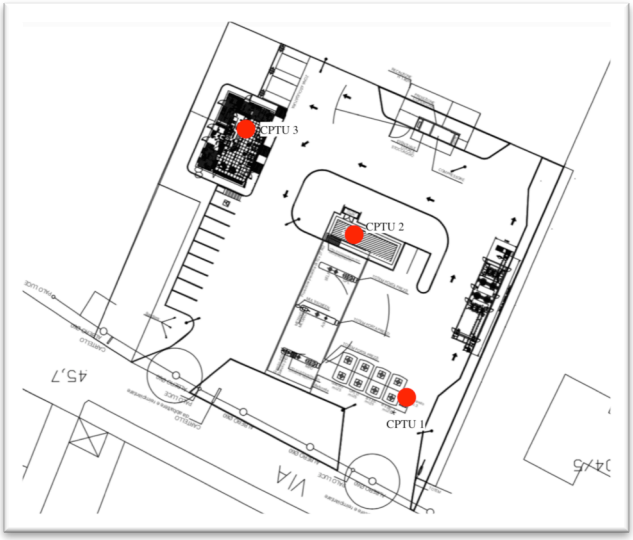


Figura 8.1: ubicazione delle prove.

Per l'espletamento di questo incarico, si sono eseguite tre prove penetrometriche statiche con punta elettrica spinta fino alla profondità di 20 metri (figura *6.1*), mediante un penetrometro statico da 100 KN di spinta modello **Pagani TG 63 (100 kN)** munito di punta elettrica **TECNOPENTA TP CPL2IN** le cui caratteristiche sono riportate nella tabella *6.2*.

La prova penetrometrica CPT si esegue seguendo le seguenti fasi:

1) ancoraggio: il dispositivo di spinta, previa verificata la sua orrizontalità mediante l'utilizzo di una bolla sferica, viene ancorato al terreno, attaverso delle ancore elicoidali, per fornire il contrasto alla penetrazione della punta nel terreno (per profondità di infissione > 30m in genere si usano strumenti fissati su autocarro zavorrato),

2) fase di spinta: attraverso due pistoni idraulici la punta conica viene fatta avanzare nel terreno per 4 cm mediante la spinta che essi esercitano su una batteria di aste di piccolo diametro che scorrono liberamente all'interno delle aste filettate che, in un certo senso, svolgono il compito di tubi di rivestimento; in questo modo si misura la resistenza alla punta (q_c).

Successivamente all'infissione della sola punta, questa viene fatta avanzare di 4 cm insieme al manicotto laterale: in questo modo si misura la resistenza totale data dalla somma della resistenza di punta e di quella laterale del manicotto. Infine agendo sui tubi esterni si ha la ricomposizione della punta e si procede all'avanzamento di tutto l'insieme per 12 cm.

In sintesi per ogni 20 cm di verticale indagata si ottengono una lettura relativa alla resistenza di punta (q_c) e una relativa alla resistenza laterale (f_s) quest'ultima come differenza tra la resistenza totale e quella di punta

2a) la punta può essere meccanica tipo "Begemann" (prova CPTM) con letture con manometro e o digitali ogni 20 cm di due parametri: la resistenza alla punta, la resistenza punta+resistenza laterale su manicotto esterno ed eventualmente di una terza resistenza, la totale (punta, punta + laterale, totale sull'intero treno di aste),

2b) in alternativa la punta può essere elettrica con o senza piezocono (CPTE-CPTU): in tal caso i valori di resistenza a rottura del terreno vengono misurati in modo elettronico (con misure quasi continue ogni 1-2 cm) mediante trasduttori di forza presenti indipendentemente sulla punta e sul manicotto laterale. Per la punta con piezocono è presente un trasduttore di pressione per la misura della pressione neutra. Vi sono altri sensori ad esempio per garantire la verticalità

della prova e per la misura della temperatura; il campionamento avviene in modo esclusiavmente elettronico sulla memoria di massa della centralina e su un pc.

3) teminata la corsa dei due pistoni idraulici e svincolata l'asta si fanno risalire i pistoni idraulici e si inserisce una nuova asta da un metro,

4) raggiunta la profondità voluta inizia il processo di estrazione delle aste terminato il quale il penetrometro viene "disancorato".

Caratteristiche Strumentali Pagani TG 63 (100 kN).	
Rif. Norme	ASTM D3441
Diametro Punta conica meccanica (mm)	35,7
Angolo di apertura punta (°)	60
Area punta (cm^2)	10
Superficie manicotto (cm^2)	150
Passo letture (cm)	2
Costante di trasformazione Ct	10

Tabella 8.1: Caratteristiche tecniche del penetrometro statico Pagani TG 63 (100 kN).

8.1. Caratteristiche litologiche dei terreni.

Terminate le prove si è misurato il livello statico della falda che è risultato essere a -3,80 m dal piano campagna della prova.

La profondità raggiunta dalle prove è riportata nella tabella 8.2. mentre la loro ubicazione è indicata nella figura 8.1.

CPTU	Profondità (m)	Falda dal p.c. (m)
1	20,42	- 3,80
2	20,62	- 3,78
3	20,64	- 3,80

Tabella 8.2: profondità raggiunta dalle prove penetrometriche.

Accanto alle prove si sono indicate le coordinate geografiche ricavate con il software Google Earth.

CPTU 1 44°31'42.70" N - 11°14'32.74" E		
Profondità		Descrizione
da	a	
0,00	3,50	Alternanze tra sabbie-silt sabbiosi e silt sabbiosi -sabbie siltose. Gli strati hanno spessore centimetrico.
3,50	6,00	Alternanze tra argille e silt-sabbiosi e sabbie siltose. All'interno si rinvengono livelli centimetrici di argille, argille-siltose.
6,00	20,42	Argille con intercalati livelli centimetrici di torbe e argille siltose.
CPTU 2 44°31'42.11" N - 11°14'32.79" E		
Profondità		Descrizione
da	a	
0,00	0,50	Livello di sabbia-sabbia siltosa.
0,50	5,50	Alternanze ritmiche tra argille e argille, argille-siltose.
5,50	20,62	Argille con intercalati livelli centimetrici di torbe e argille siltose.

CPTU 3 44°31'41.17" N - 11°14'33.13" E		
Profondità		Descrizione
da	a	
0,00	1,10	Livello di sabbia-sabbia siltosa, con intercalato un livello centimetrico di argilla, argilla siltosa
1,10	2,35	Argille, argille-siltose con all'interno un livelletto di pochi cm di sabbie, sabbie siltose.
2,35	5,50	Alternanze ritmiche tra argille e argille, argille-siltose, con all'interno un livello centimetrico di sabbie, sabbie siltose.
5,50	20,64	Argille con intercalati livelli centimetrici di torbe e argille siltose. le alternanze sono più frequenti al tetto dello strato per poi diminuire verso la fine della prova.

La genesi di questi depositi è da ricondurre all'evoluzione spazio temporale dei sedimenti depositati dal torrente Lavino che, in regimi idraulici di media energia, (rotte di argine) depositava i materiale più grossolano (sabbie limose-limi sabbiosi), mentre nelle fasi di bassa energia o di migrazione dell'alveo, depositava sedimenti via via più fini fino (limi argilosi-argille siltose / argille-argille siltose) che potevano eventualmente essere ricoperti dai depositi più grossolani di rotta.
Nell'allegato 2 sono riportati i rapporti di prova.

8.2 Verifica del potenziale di liquefazione.

La liquefazione è il comportamento di quei terreni che, a causa di un aumento della pressione interstiziale, passano improvvisamente da uno stato solido "ad uno fluido". La liquefazione avviene più frequentemente in depositi sabbiosi e/o sabbioso limosi sciolti, a granulometria uniforme, normalmente consolidati e saturi. Durante la fase di carico, le sollecitazioni indotte nel terreno, quali possono essere quelle derivanti da un evento sismico, possono causare un aumento delle pressioni interstiziali fino ad eguagliare la tensione soprastante. Viene così annullata "la resistenza al taglio" del terreno secondo il principio delle pressioni efficaci di Terzaghi, e si assiste al fenomeno di fluidificazione del terreno.
I depositi più soggetti a liquefazione sono sabbie e limi la cui deposizione è avvenuta nell'Olocene (ovvero si tratta cioè di terreni generalmente non più antichi di 10,000 anni) ben classati che si trovano in strati con spessori nell'ordine dei metri e in condizioni sature.
La probabilità che un deposito raggiunga le condizioni per liquefare dipendono:

- dal grado di addensamento;
- dalla granulometria e forma dei granuli;
- dalle condizioni di drenaggio;
- dall'andamento ciclico delle sollecitazioni sismiche e loro durata;
- dall'età del deposito;
- dalla profondità della linea di falda (prossima alla superficie)
- dall'intensita dei terremoti (terremoti di magnitudo ≥ 5.5, con accelerazioni superiori o uguali a 0,2 g);
- dalla profondità dei depositi (oltre i 15 metri profondità non sono stati osservati fenomeni di liquefazione).

Per la verifica del potenziale di liquefazione si è ricorso alla sua valutazione mediante l'utilizzo dei metodi semplificati che si basano sul rapporto che intercorre fra le sollecitazioni di taglio che producono liquefazione e quelle indotte dal terremoto; si ha perciò bisogno di valutare i parametri relativi sia all'evento sismico sia al deposito, determinati questi ultimi privilegiando metodi basati

su correlazioni della resistenza alla liquefazione con parametri desunti da prove in situ.

La resistenza del deposito alla liquefazione viene quindi valutata in termini di fattore di resistenza alla liquefazione F_s definito come segue:

$$F_S = \frac{CRR}{CSR} \qquad [8.1]$$

dove:

CRR (Cyclic Resistance Ratio) indica la resistenza del terreno agli sforzi di taglio ciclico,

CSR (Cyclic Stress Ratio) la sollecitazione di taglio massima indotta dal sisma.

I metodi semplificati proposti differiscono fra loro soprattutto per il modo con cui viene ricavata CRR, la resistenza alla liquefazione.
Il parametro maggiormente utilizzato è il numero dei colpi nella prova SPT anche se oggi, con il progredire delle conoscenze, si preferisce valutare il potenziale di liquefazione utilizzando prove statiche (CPT) o prove di misurazione delle onde di taglio Vs.

Il metodo di calcolo del potenziale di liquefazione adottato è basato sull'utilizzo delle prove penetrometriche statiche CPTU, si è utilizzato il metodo di Boulanger & Idris (2014).
Nel caso che si abbiano a disposizione i dati provenienti da prove SPT, il termine a numeratore della (8.1), cioè la resistenza alla liquefazione CRR, viene calcolato in funzione della magnitudo, del numero di colpi, della pressione verticale effettiva, della densità relativa.

Magnitudo	Seed H. B. & Idriss I. M. (1982)	Ambraseys N. N. (1988)	NCEER (Seed R. B. et al.) (1997; 2003)
5.5	1.43	2.86	2,21
6.0	1.32	2.20	1,77
6.5	1.19	1.69	1,44
7.0	1.08	1.30	1,19
7.5	1.00	1.00	1,00
8.0	0.94	0.67	0,84
8.5	0.89	0.44	0,73

Tabella 8.3: Magnitudo Scaling Factor.

Si perviene ad un grafico (figure 8.2 - 8.3) ottenuto selezionando i casi di terreni in cui si è avuta liquefazione e non liquefazione durante i terremoti.

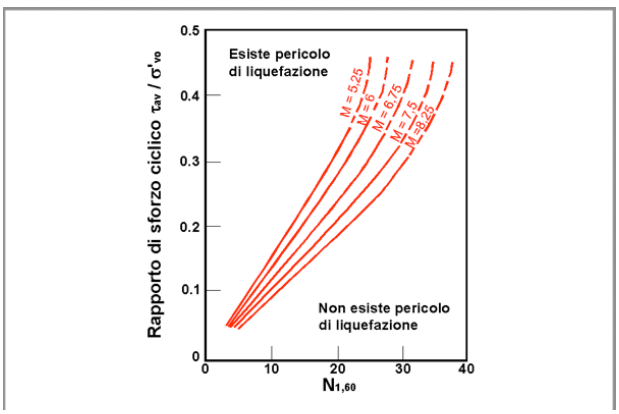


Figura 8.2.: Correlazione fra CSR e $N_{1,60}$

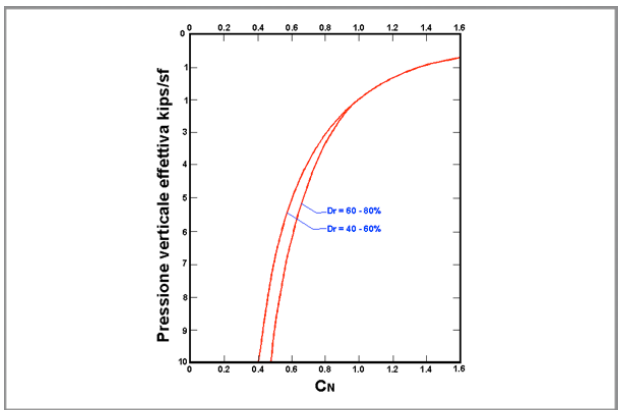


Figura 8.3.: Coefficiente correttivo C_N

Si calcola inizialmente il numero dei colpi corretto alla quota desiderata per tenere conto della pressione litostatica mediante la seguente espressione:

$$(N_{1,60}) = C_N N_m \qquad [8.2]$$

dove N_m è il numero medio dei colpi nella prova penetrometrica standard SPT e C_N un coefficiente correttivo che si calcola mediante la seguente espressione:

$$C_N = \left(\frac{Pa}{\sigma'_{vo}}\right)^{0,5} \qquad [8.3]$$

dove s'_{VO} è la pressione verticale effettiva, Pa la pressione atmosferica espressa nelle stesse unità di s'_{VO} ed n un'esponente che dipende dalla densità relativa del terreno (Fig. 8.3).

E' stato dimostrato che per un terremoto di magnitudo pari a 7,5 CRR è:

$$CRR \approx \frac{N_{1,60}}{90} \qquad [8.4]$$

Quando si hanno a disposizione i parametri q_c ed f_s, derivati dalla prova penetrometrica statica, i metodi utilizzati pervengono al valore di CRR e di CRS, per la risoluzione dell'equazione 1, attraverso specifici algoritmi.

8. 2.1. Metodo di Boulanger R.W. Idriss I.M. (2004).

La verifica alla liquefazione dei terreni è stata sviluppata mediante il metodo di Boulanger R.W. Idriss I.M. (2014)[13] in osservanza delle direttive esposte nel DGR 21.12.2015 n°2193 della Regione Emilia Romagna. Si omette, pertanto, l'esposizione delle equazioni che illustrano il metodo, rimandando al testo della DGR citata oppure al trattato originale riportato nella nota in calce alla pagina.

8. 2.2. Calcolo della suscettibilità di liquefazione.

Il calcolo della suscettibilità alla liquefazione è stato sviluppato **SU UN SINGOLO EVENTO** secondo le metodologie proposte da Boulanger e Idris R.W. Idriss I.M. (2014) introducendo i seguenti dati generali:
profondità della falda = - 3,80 m,
profondità della falda a seguito dell'evento sismico ipotizzato = -3,30 m p.c. (si ipotizza perciò che

[13] Boulanger R.W. Idriss I.M. : (2014): CPT and SPT Based liquefaction triggering procedures. Department of Civil & Enviromental Engineering College of Engineering University of California AT Davis.

a seguito dell'evento sismico la falda possa risalire di 0,50 metri rispetto allo stato di quiete misurato a fine prova)
Peak ground acceleration (SLV) = 0,252 g dalla tabella rapporto tra Pga e Pga_0 (pagina 44)
magnitudo del sisma: per la determinazione della magnitudine si è ricorsi alla studio della disaggregazione sismica presentata nel paragrafo , dal quale si evincono i valori riassunti nella tabella seguente:

Km	4,0 - 4,5	4,5 - 5,0	5,0 - 5,5	5,5 - 6,0
0,00 - 10,00	19,300	34,200	18,100	7,020
10,00 - 20,00	1,550	5,660	6,210	4,290
20,00 - 30,00		0,132	0,927	1,300
Totale per magnetudo	20,85	39,992	25,237	12,610
Totale	98,689			

da cui si evince che il 98,70% degli eventi rientrano nelle fascia di mangnitudo tra 4,0 - 6,0 e in un intorno tra 0,00 e 30,00 km dal sito in oggetto. Pertanto l'analisi sarà effettuata per la classe maggiormente rappresentativa che rappresenta quella statisticamente più significativa.
Il risultato delle verifiche eseguite è riportato nelle tabelle che seguono.

CPT 1	LPI (Liquefaction Potential Index)	Cedimento sismico (cm)
4,50 - 5,00	0,03	0,10
5,00 - 5,50	0,06	0,21
5,50 - 6,00	0,15	0,35

CPT 2	LPI (Liquefaction Potential Index)	Cedimento sismico (cm)
4,50 - 5,00	0,05	0,12
5,00 - 5,50	0,06	0,14
5,50 - 6,00	0,07	0,15

CPT 3	LPI (Liquefaction Potential Index)	Cedimento sismico (cm)
4,50 - 5,00	0,34	0,55
5,00 - 5,50	0,41	0,65
5,50 - 6,00	0,49	0,75

Liquefaction Potential Index (LPI)			
LPI	0,00		Liquefaction risk very low
LPI	0,00	5,00	Liquefaction risk low
LPI	5,00	15,00	Liquefaction risk high
LPI	>	15,00	Liquefaction risk very high

Tabella 8.4: quadro sinottico delle variazione dell'indice LPI, secondo Boulanger R.W. Idriss I.M (2014).

Liquefaction Potential Index (LPI)			
LPI	0,00		Non liquefacibile (FL ≥ 1,2)
LPI	0,00	2,00	Potenziale BASSO
LPI	2,00	5,00	Potenziale MODERATO
LPI	5,00	15,00	Potenziale ALTO
LPI	>	15,00	Potenziale MOLTO ALTO

Tabella 8.5: quadro sinottico delle variazione dell'indice LPI secondo quanto disposto dalla DGR 2193 del 21.12.2015.

Dalle elaborazioni risulta che l'indice LPI medio (Liquefaction Potential Index) appartiene alla categoria **RISCHIO LIQUEFAZIONE BASSO** (0,00< LPI <5.00 secondo Boulanger R.W. Idriss I.M (2014).) e **POTENZIALE BASSO** (0,00< LPI <2,00 secondo DGR 2193 del 21.12.2015.).
I risultati della verifica alla liquefazione del terreno sono proposti nell'allegato 5 solo per l'intervallo di magnetudine 4,5 - 5,00.

9. Codici di calcolo utilizzati.

Nel presente studio sono stati utilizzati alcuni software commerciali a seconda che si siano eseguite prove penetrometriche dinamiche o statiche o entrambe, oppure per le verifiche delle fondazioni superficiali, per la verifica della stabilità del versante, per la determinazione dei parametri geotecnici caratteristici e dei parmetri sismici del sito o infine per l'analisi di risposta sismica di III livello.

Nella tabella seguente vengono elenvati i principali software utilizzati.

Per maggior informazioni si consulytino i seguenti siti:

www.geostru.com/IT/validazione_codice_calcolo.aspx

oppure

www.geostru.com/download/validazione/nomedel programma.zip

Nome del programma	Produttore
Geostru Ps	Geostru srl
RLS III	Geostru srl
Cliq	GEOLOGISMIKI

10. Conclusioni.

Su incarico della Proprietà si è eseguito uno studio e sismico sui terreni siti in Comune di Bologna posti all'incrocio tra la SS. 9 via Marco Emilio Lepido e via Rigosa per determinare la suscettibilità alla liquefazione e la risposta sismica locale di III livello.

Il sito si raggiunge facilmente percorrendo la SS. 9 via Emilia in direzione Modena.

Superato l'ingresso dell'autostrada A1 si oltrepassa il cavalcavia sulla tangenziale e si giunge alla rotonda Antonio Gasbarrini, attraversata la quale sulla sinistra si trova l'area di studio.

Il sito è posto in fregio a via M.E. Lepido lato sud nei pressi dell'area di servizio esistente. (figura 3.1 e 3.2).

Per l'espletamento dell'incarico, in data 9 agosto 2018, si sono eseguite 3 prove CPTU spinte a -20,00 metri dal piano campagna attuale pre lavori.

Nel paragrafo 7 si sono sviluppate le elaborazioni per la risposta sismica locale di III livello.

Nel paragrafo 8 si è presentata la stratigrafia dell'area dedotta dalle prove penetrometriche.

Infine a partire dal paragrafo 8.2 si sono sviluppati i calcoli per la determinazione del potenziale di liquefazione secondo la metodologia proposta da Boulanger e Idris (2004) adottata dalla Regione Emilia-Romagna.
Queste verifiche sono state eseguite per un evento unico con magnetudo 5.
A questo valore di si è giunti dalla disaggregazione dei parametri sismici da dove si evince che la classe maggiormente rappresentata, per il sito in oggetto, e quella che presenta valori compresi tra 4,5 e 5,00 nell'intervallo chilometrico 0,00-30,00. In questo intervallo ricadono il 98,7% degli eventi sismici risentiti nel sito in esame.

Il potenziale di liquefazione (LPI) è stato poi confrontato con le categorie individuate da Boulanger e Idris (2004) e dalla Regione Emilia-Romagna (DGR 2193 del 21.12.2015).
LPI è risultato BASSO in entrambe le classificazioni.
I risultati dei calcoli per la determinazione di LPI sono allegati alla relazione, solo per il valore di magnitudo 5.00, estremo massimo dell'intervallo 4,50-5,00 derivato dalla disaggregazione dei parametri sismici.

Dalle analisi effettuate non emergono elementi ostativi alla realizzazione dell'opera; pertanto si esprime un parere favorevole alla realizzazione dell'opera.

Casalecchio di Reno lì 22 agosto 2018

Dott. Geol. Germano Scannavini

Ordine dei Geologi

Regione Emilia-Romagna

Iscr. Albo N. 724

Allegati

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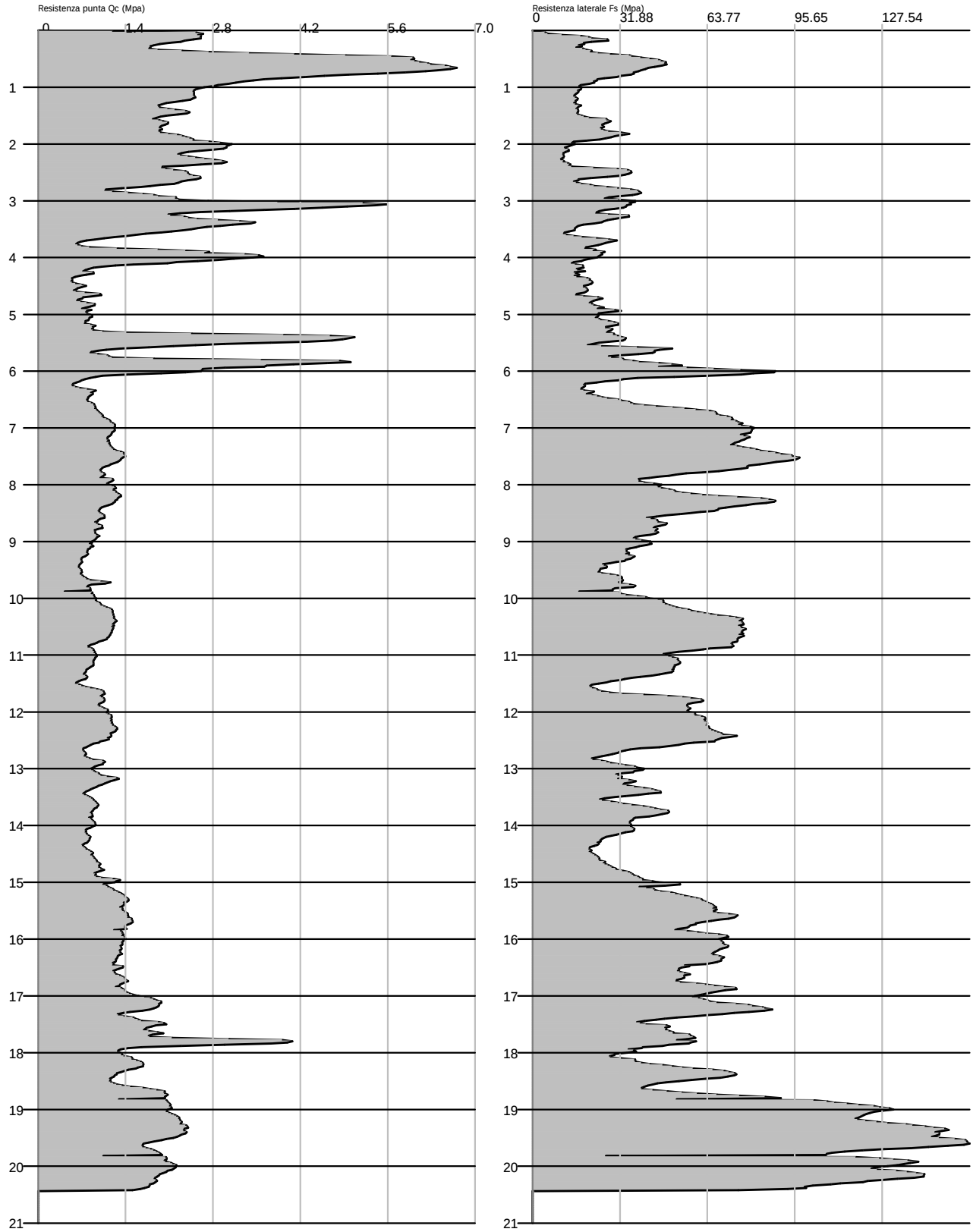
Probe CPTU - Piezocone CPTU 1
Strumento utilizzato TECNO PENTA TP CPL2IN

Committente: Market Ingross Srl
Cantiere: Nuova stazione di servizio
Località: Via Marco Emilio Lepido sn

Data: 09/08/2018



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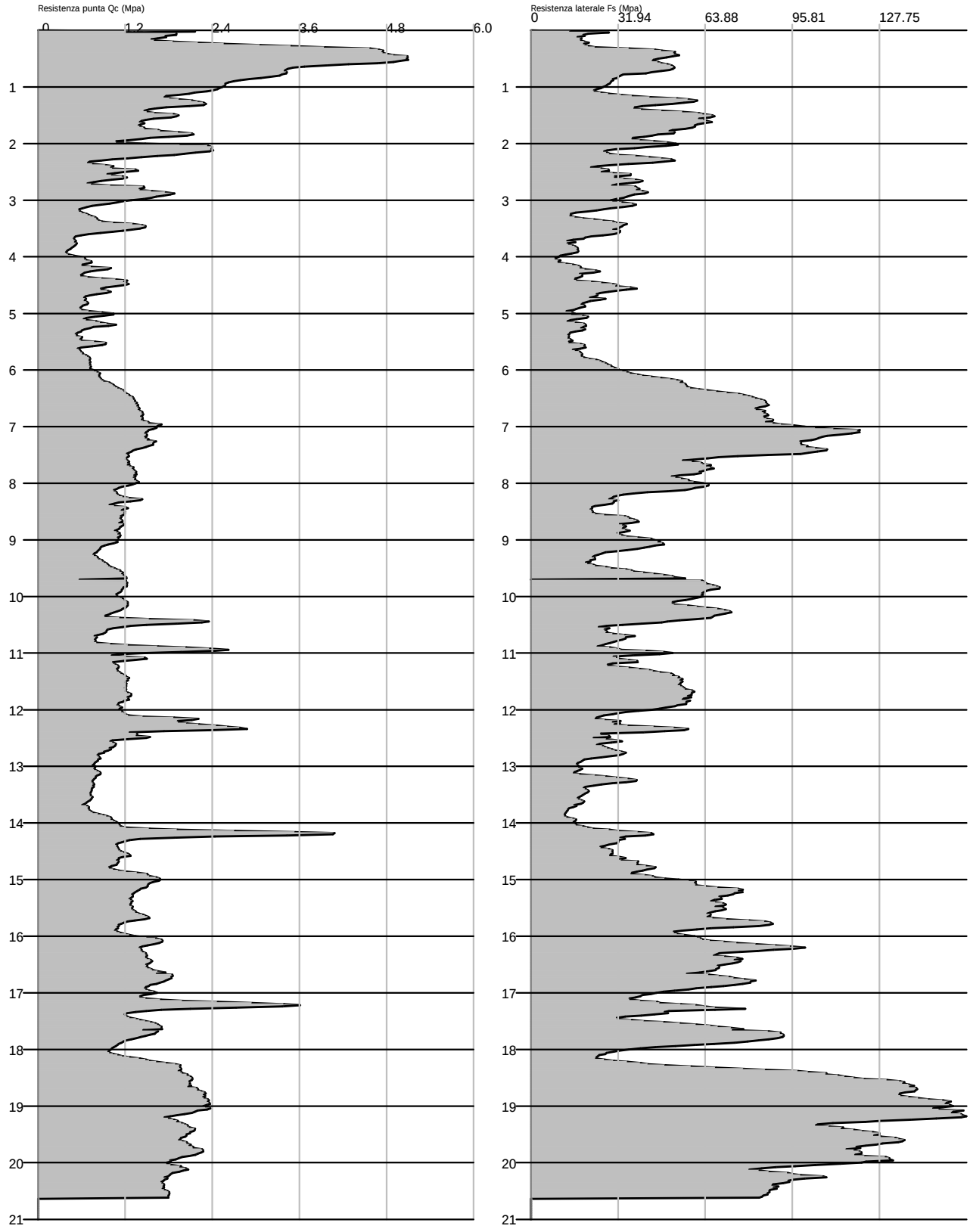
Probe CPTU - Piezocone CPTU 2
Strumento utilizzato TECNO PENTA TP CPL2IN

Committente: Market Ingross Srl
Cantiere: Nuova stazione di servizio
Località: Via Marco Emilio Lepido sn

Data: 09/08/2018



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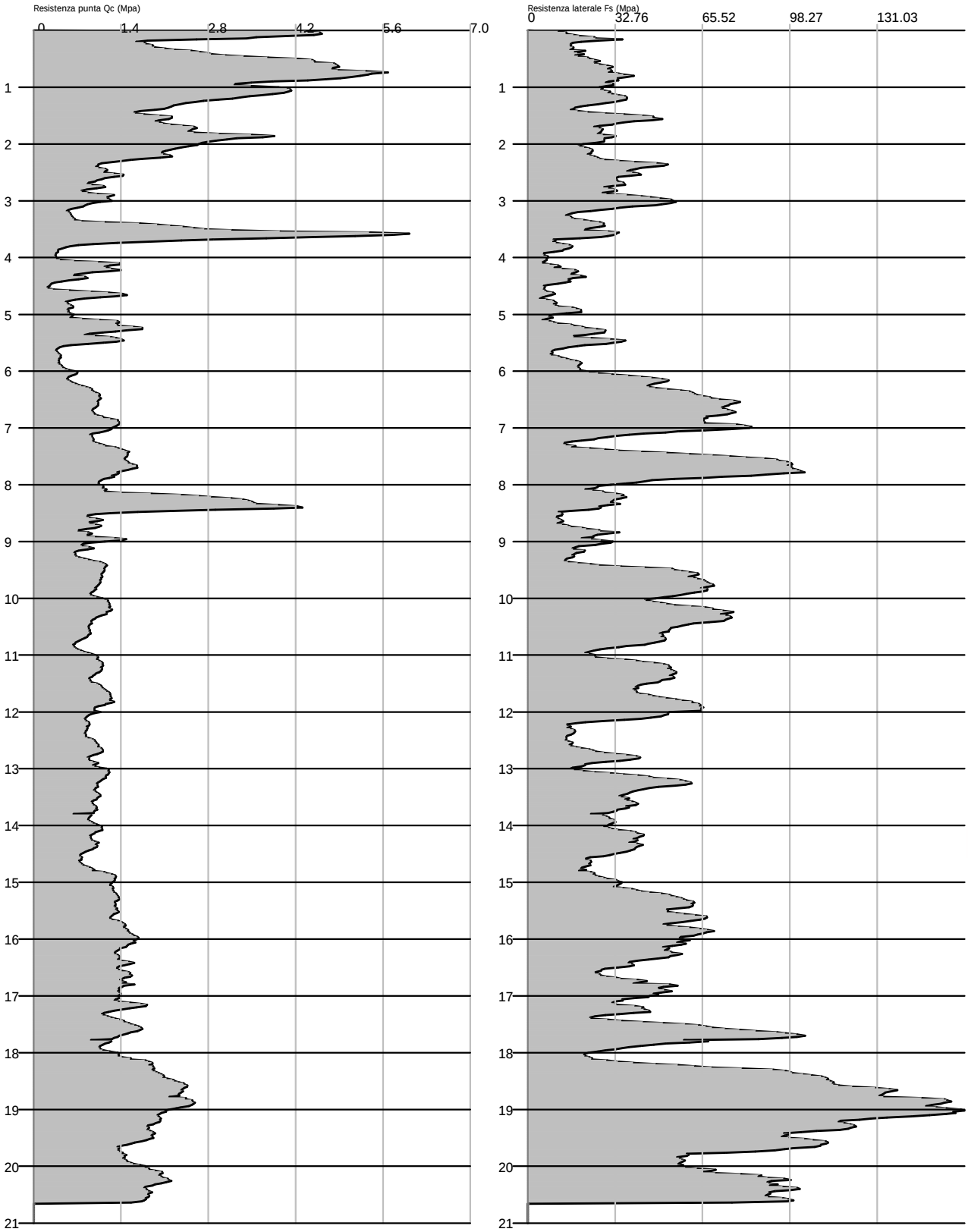
Probe CPTU - Piezocone CPTU 3
Strumento utilizzato TECNO PENTA TP CPL2IN

Committente: Market Ingross Srl
Cantiere: Nuova stazione di servizio
Località: Via Marco Emilio Lepido sn

Data: 09/08/2018



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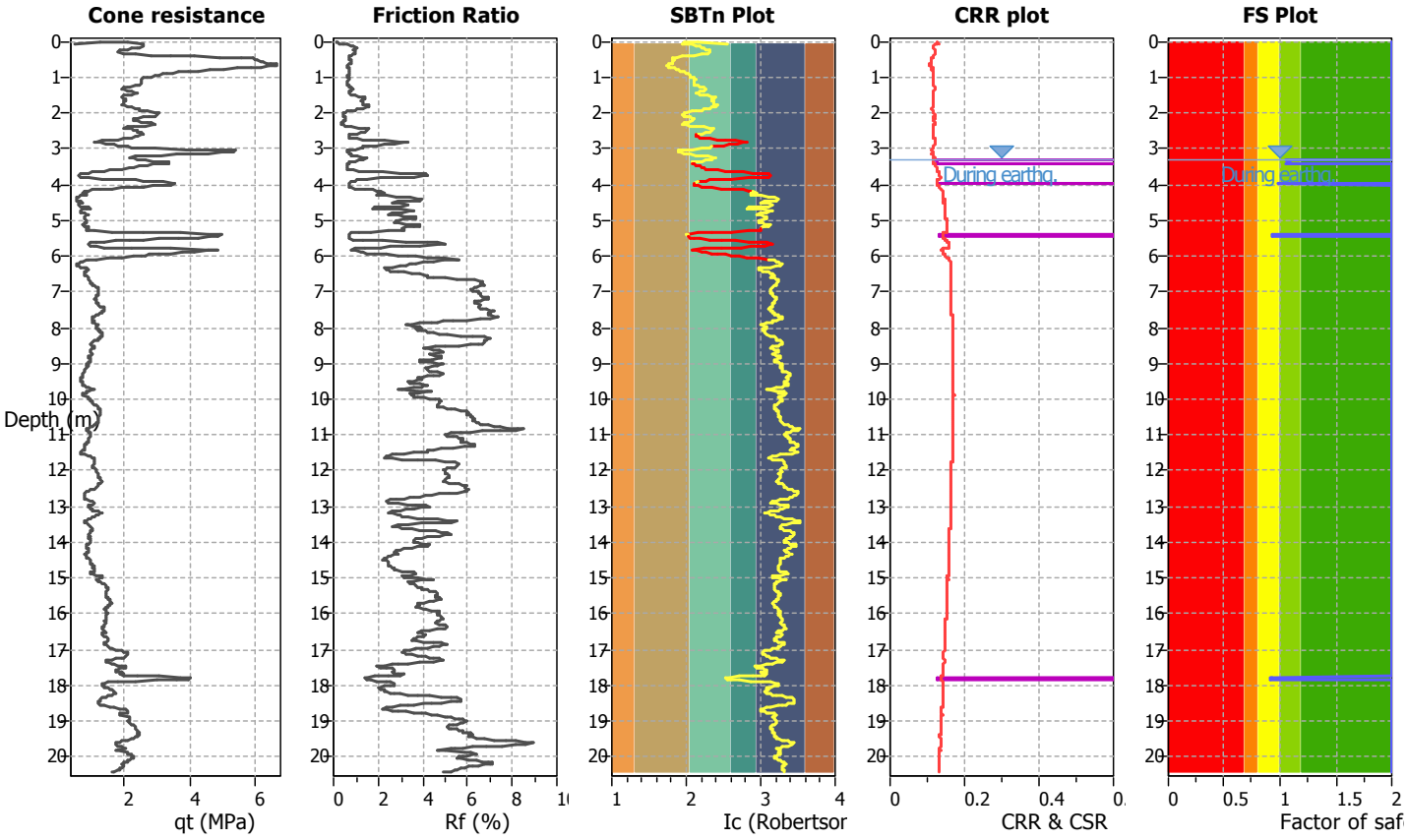
LIQUEFACTION ANALYSIS REPORT

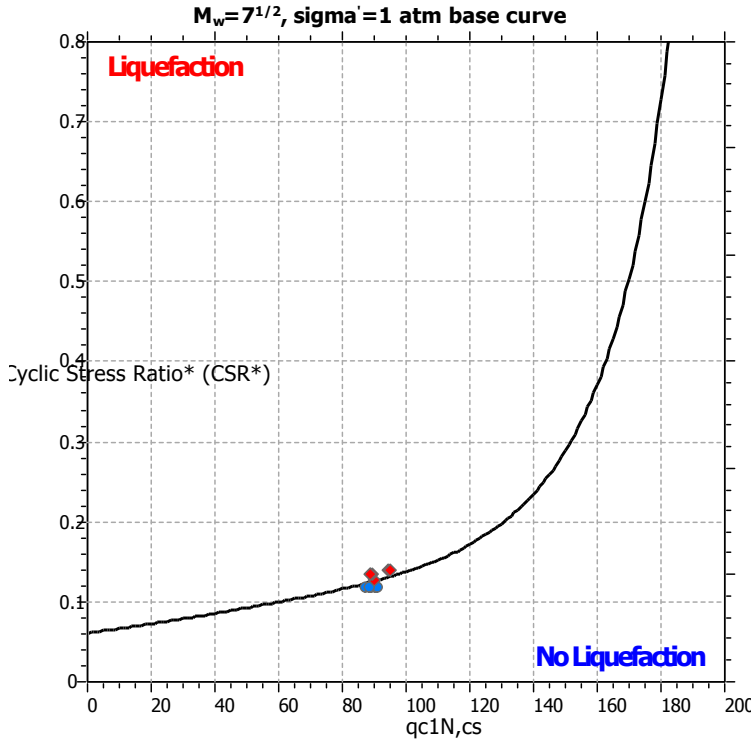
Project title : MARKET INGROSS srl **Location : Via Marco Emilio Lepido s.n.**

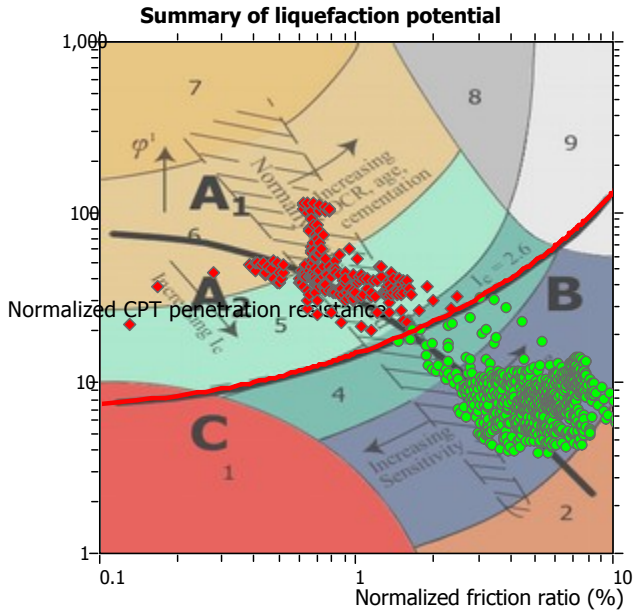
CPT file : CPTU 1

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	3.80 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	3.30 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:	5.00	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.25	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

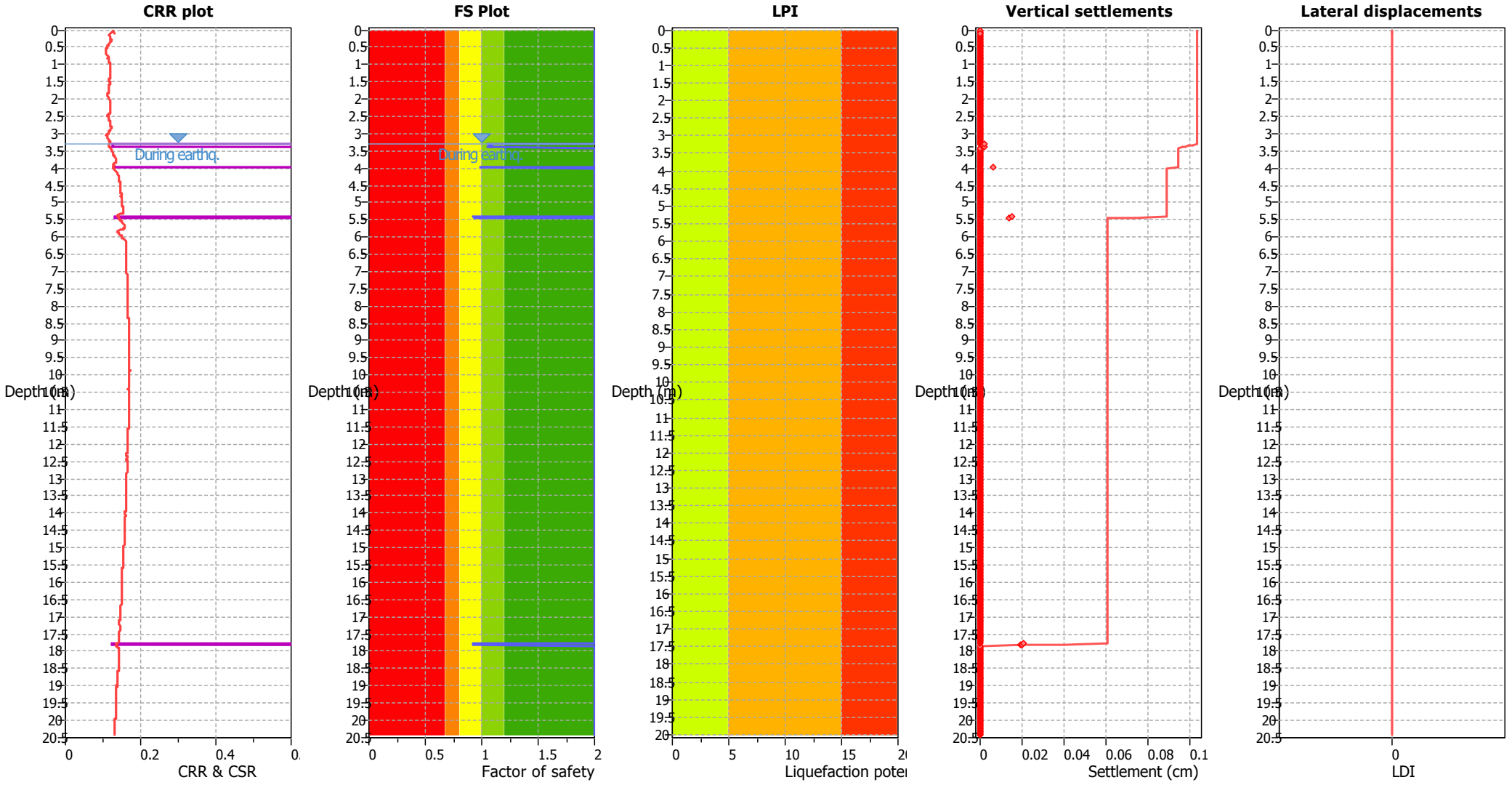






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and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

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	3.30 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	5.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.25	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	3.80 m	Fill height:	N/A	Limit depth:	N/A

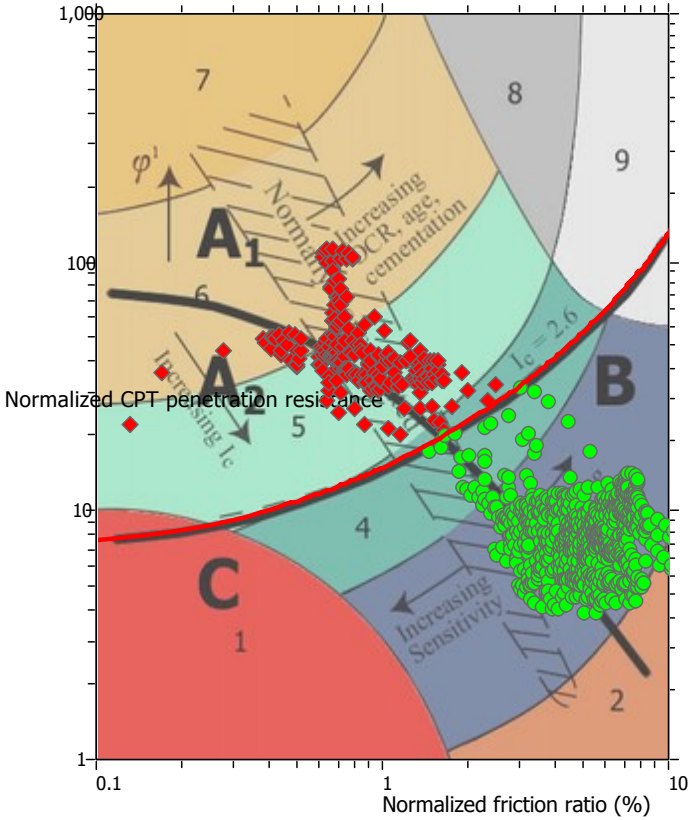
F.S. color scheme

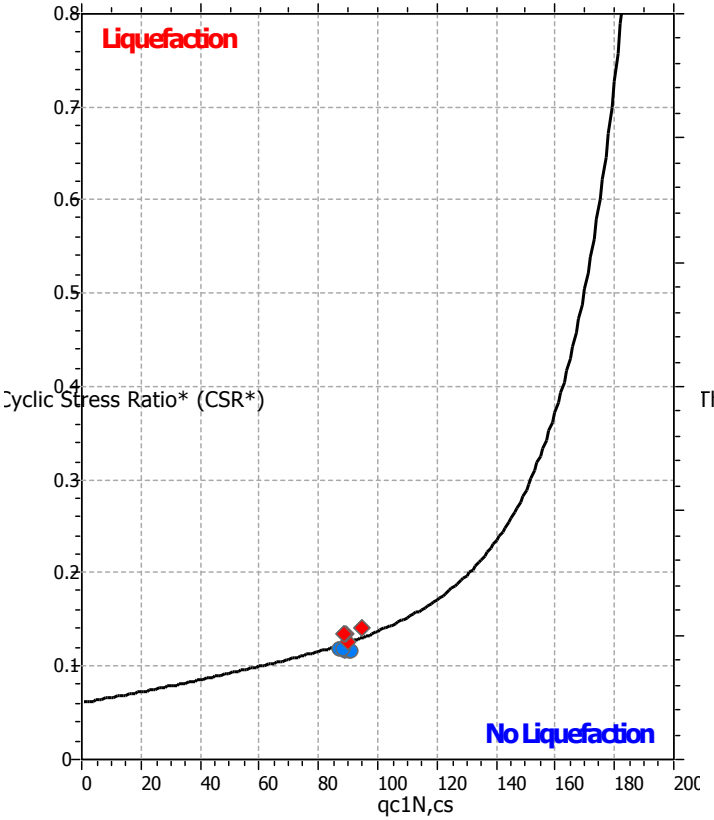
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

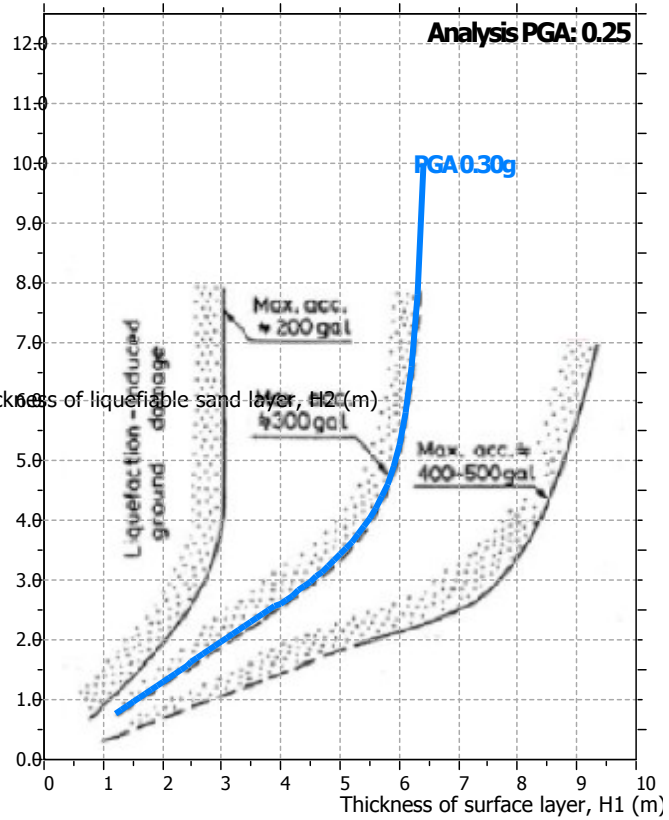
LPI color scheme

- Very high risk
- High risk
- Low risk

Liquefaction analysis summary plots



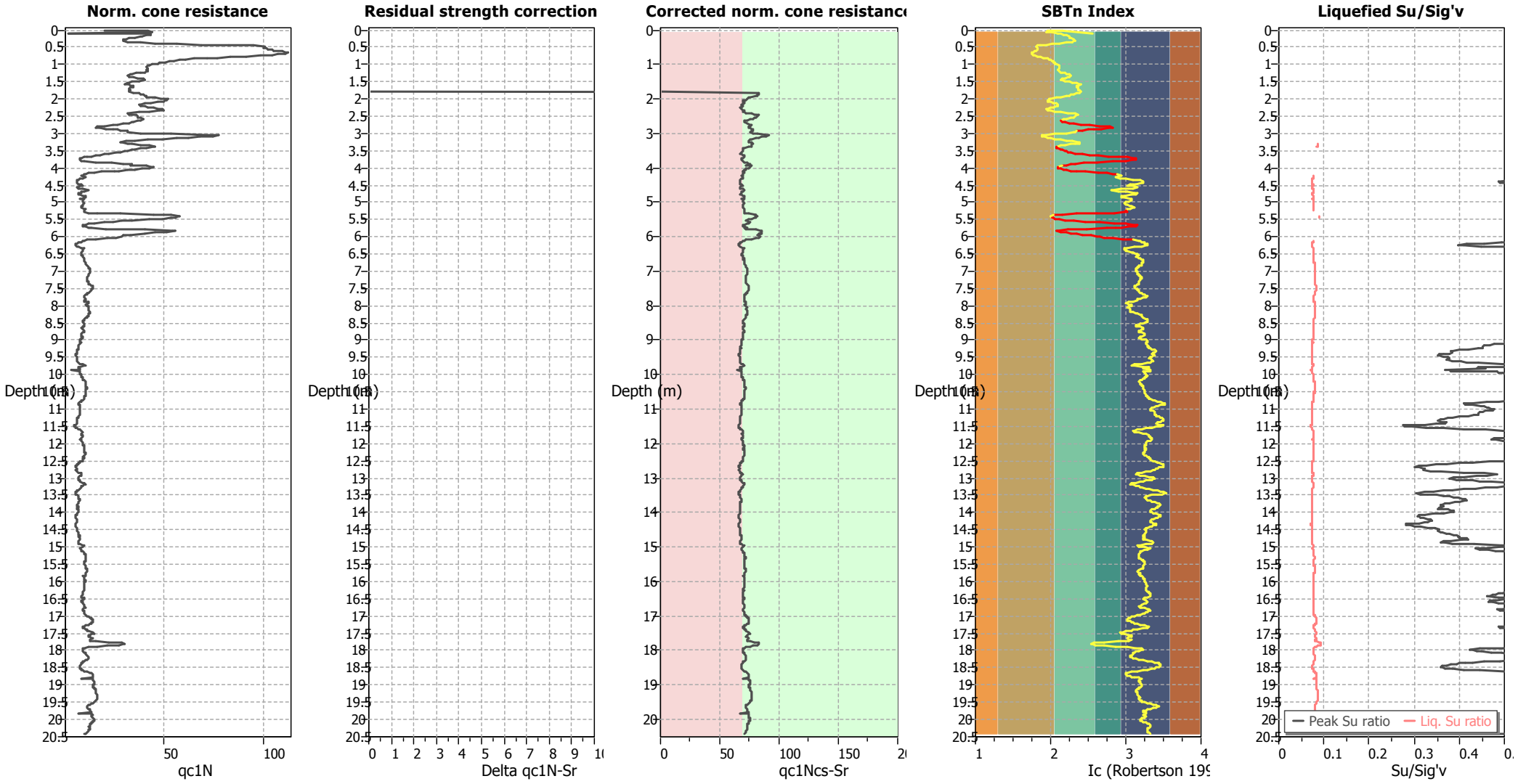




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	3.30 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	5.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.25	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	3.80 m	Fill height:	N/A	Limit depth:	N/A

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



Input parameters and analysis data

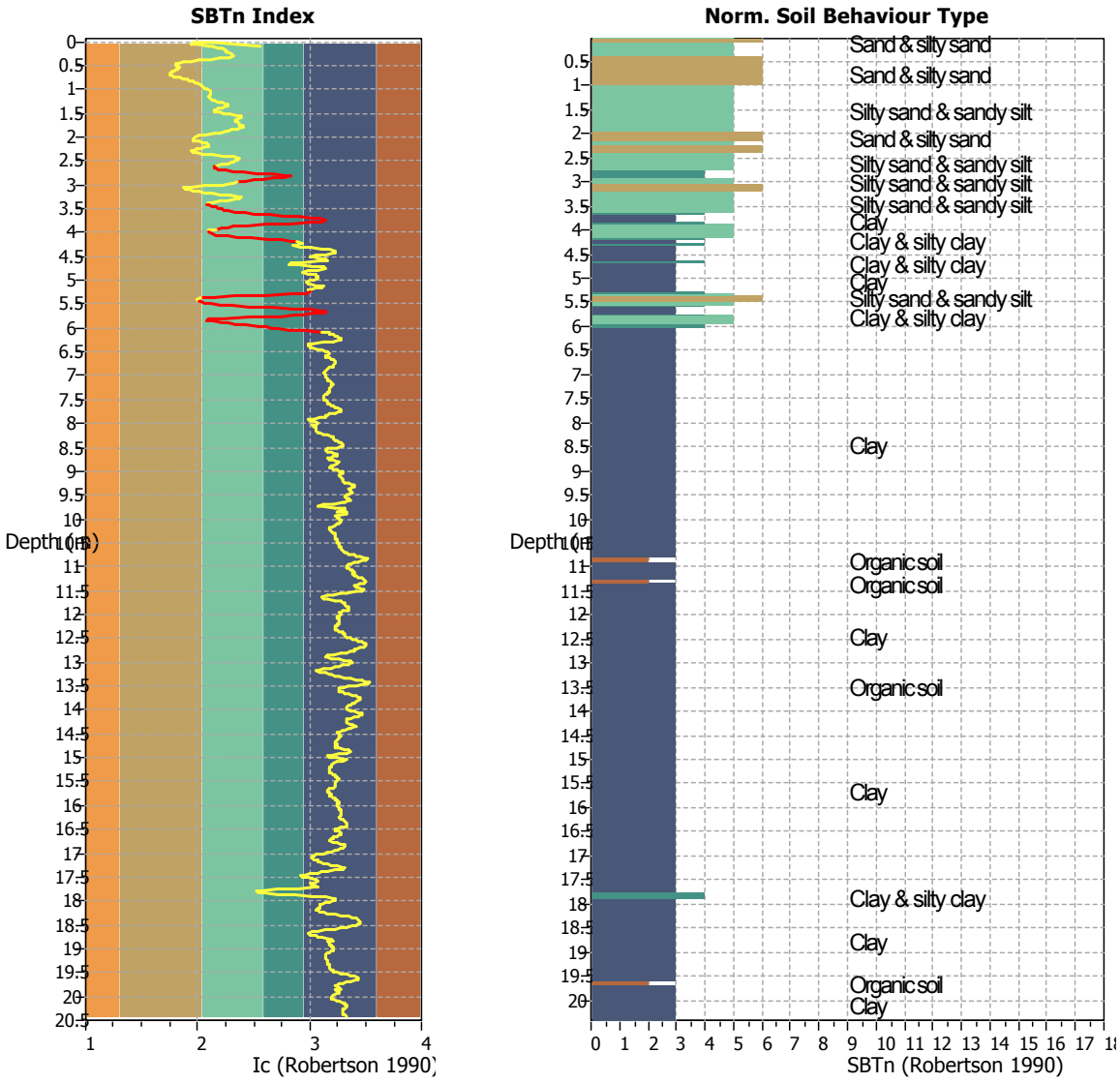
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	3.30 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	5.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.25	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	3.80 m	Fill height:	N/A	Limit depth:	N/A

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties

I_c minimum check value:	1.50
I_c maximum check value:	3.20
I_c change ratio value:	0.0100
Minimum number of points in layer:	2

General statistics

Total points in CPT file:	1022
Total points excluded:	99
Exclusion percentage:	9.69%
Number of layers detected:	9

Transition layer No	Number of points	Depth	SBT_n number	SBT_n description
Transition layer 1	10	Start depth: 2.64 (m)	5	Silty sand & sandy silt
		End depth: 2.82 (m)	3	Clay
Transition layer 2	8	Start depth: 2.82 (m)	3	Clay
		End depth: 2.96 (m)	5	Silty sand & sandy silt
Transition layer 3	17	Start depth: 3.42 (m)	5	Silty sand & sandy silt
		End depth: 3.74 (m)	3	Clay
Transition layer 4	11	Start depth: 3.76 (m)	3	Clay
		End depth: 3.96 (m)	5	Silty sand & sandy silt
Transition layer 5	12	Start depth: 4.00 (m)	5	Silty sand & sandy silt
		End depth: 4.22 (m)	3	Clay
Transition layer 6	8	Start depth: 5.26 (m)	3	Clay
		End depth: 5.40 (m)	6	Sand & silty sand
Transition layer 7	11	Start depth: 5.46 (m)	6	Sand & silty sand
		End depth: 5.66 (m)	3	Clay
Transition layer 8	8	Start depth: 5.68 (m)	3	Clay
		End depth: 5.82 (m)	5	Silty sand & sandy silt
Transition layer 9	14	Start depth: 5.84 (m)	5	Silty sand & sandy silt
		End depth: 6.10 (m)	3	Clay

Start depth: Depth where the transition layer begins
End depth: Depth where the transition layer ends

:: Liquefaction Potential Index calculation data ::

Depth (m)	FS	F_L	w_z	d_z	LPI	Depth (m)	FS	F_L	w_z	d_z	LPI
0.09	2.00	0.00	9.96	0.07	0.00	0.02	2.00	0.00	9.99	0.07	0.00
0.04	2.00	0.00	9.98	0.02	0.00	0.06	2.00	0.00	9.97	0.02	0.00
0.08	2.00	0.00	9.96	0.02	0.00	0.10	2.00	0.00	9.95	0.02	0.00
0.12	2.00	0.00	9.94	0.02	0.00	0.14	2.00	0.00	9.93	0.02	0.00
0.16	2.00	0.00	9.92	0.02	0.00	0.18	2.00	0.00	9.91	0.02	0.00
0.20	2.00	0.00	9.90	0.02	0.00	0.22	2.00	0.00	9.89	0.02	0.00
0.24	2.00	0.00	9.88	0.02	0.00	0.26	2.00	0.00	9.87	0.02	0.00
0.28	2.00	0.00	9.86	0.02	0.00	0.30	2.00	0.00	9.85	0.02	0.00
0.32	2.00	0.00	9.84	0.02	0.00	0.34	2.00	0.00	9.83	0.02	0.00
0.36	2.00	0.00	9.82	0.02	0.00	0.38	2.00	0.00	9.81	0.02	0.00
0.40	2.00	0.00	9.80	0.02	0.00	0.42	2.00	0.00	9.79	0.02	0.00
0.44	2.00	0.00	9.78	0.02	0.00	0.46	2.00	0.00	9.77	0.02	0.00
0.48	2.00	0.00	9.76	0.02	0.00	0.50	2.00	0.00	9.75	0.02	0.00
0.52	2.00	0.00	9.74	0.02	0.00	0.54	2.00	0.00	9.73	0.02	0.00
0.56	2.00	0.00	9.72	0.02	0.00	0.58	2.00	0.00	9.71	0.02	0.00
0.60	2.00	0.00	9.70	0.02	0.00	0.62	2.00	0.00	9.69	0.02	0.00
0.64	2.00	0.00	9.68	0.02	0.00	0.66	2.00	0.00	9.67	0.02	0.00
0.68	2.00	0.00	9.66	0.02	0.00	0.70	2.00	0.00	9.65	0.02	0.00
0.72	2.00	0.00	9.64	0.02	0.00	0.74	2.00	0.00	9.63	0.02	0.00
0.76	2.00	0.00	9.62	0.02	0.00	0.78	2.00	0.00	9.61	0.02	0.00
0.80	2.00	0.00	9.60	0.02	0.00	0.82	2.00	0.00	9.59	0.02	0.00
0.84	2.00	0.00	9.58	0.02	0.00	0.86	2.00	0.00	9.57	0.02	0.00
0.88	2.00	0.00	9.56	0.02	0.00	0.90	2.00	0.00	9.55	0.02	0.00
0.92	2.00	0.00	9.54	0.02	0.00	0.94	2.00	0.00	9.53	0.02	0.00
0.96	2.00	0.00	9.52	0.02	0.00	0.98	2.00	0.00	9.51	0.02	0.00
1.00	2.00	0.00	9.50	0.02	0.00	1.02	2.00	0.00	9.49	0.02	0.00
1.04	2.00	0.00	9.48	0.02	0.00	1.07	2.00	0.00	9.46	0.03	0.00
1.08	2.00	0.00	9.46	0.01	0.00	1.10	2.00	0.00	9.45	0.02	0.00
1.12	2.00	0.00	9.44	0.02	0.00	1.14	2.00	0.00	9.43	0.02	0.00
1.16	2.00	0.00	9.42	0.02	0.00	1.18	2.00	0.00	9.41	0.02	0.00
1.20	2.00	0.00	9.40	0.02	0.00	1.23	2.00	0.00	9.38	0.03	0.00
1.24	2.00	0.00	9.38	0.01	0.00	1.26	2.00	0.00	9.37	0.02	0.00
1.28	2.00	0.00	9.36	0.02	0.00	1.30	2.00	0.00	9.35	0.02	0.00
1.32	2.00	0.00	9.34	0.02	0.00	1.34	2.00	0.00	9.33	0.02	0.00
1.36	2.00	0.00	9.32	0.02	0.00	1.38	2.00	0.00	9.31	0.02	0.00
1.40	2.00	0.00	9.30	0.02	0.00	1.42	2.00	0.00	9.29	0.02	0.00
1.44	2.00	0.00	9.28	0.02	0.00	1.46	2.00	0.00	9.27	0.02	0.00
1.48	2.00	0.00	9.26	0.02	0.00	1.50	2.00	0.00	9.25	0.02	0.00
1.52	2.00	0.00	9.24	0.02	0.00	1.54	2.00	0.00	9.23	0.02	0.00
1.56	2.00	0.00	9.22	0.02	0.00	1.58	2.00	0.00	9.21	0.02	0.00
1.60	2.00	0.00	9.20	0.02	0.00	1.62	2.00	0.00	9.19	0.02	0.00
1.64	2.00	0.00	9.18	0.02	0.00	1.66	2.00	0.00	9.17	0.02	0.00
1.68	2.00	0.00	9.16	0.02	0.00	1.70	2.00	0.00	9.15	0.02	0.00
1.72	2.00	0.00	9.14	0.02	0.00	1.74	2.00	0.00	9.13	0.02	0.00
1.76	2.00	0.00	9.12	0.02	0.00	1.78	2.00	0.00	9.11	0.02	0.00
1.80	2.00	0.00	9.10	0.02	0.00	1.82	2.00	0.00	9.09	0.02	0.00
1.84	2.00	0.00	9.08	0.02	0.00	1.86	2.00	0.00	9.07	0.02	0.00
1.88	2.00	0.00	9.06	0.02	0.00	1.90	2.00	0.00	9.05	0.02	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (m)	FS	F_L	w_z	d_z	LPI	Depth (m)	FS	F_L	w_z	d_z	LPI
1.92	2.00	0.00	9.04	0.02	0.00	1.94	2.00	0.00	9.03	0.02	0.00
1.96	2.00	0.00	9.02	0.02	0.00	1.98	2.00	0.00	9.01	0.02	0.00
2.00	2.00	0.00	9.00	0.02	0.00	2.02	2.00	0.00	8.99	0.02	0.00
2.04	2.00	0.00	8.98	0.02	0.00	2.06	2.00	0.00	8.97	0.02	0.00
2.08	2.00	0.00	8.96	0.02	0.00	2.10	2.00	0.00	8.95	0.02	0.00
2.12	2.00	0.00	8.94	0.02	0.00	2.14	2.00	0.00	8.93	0.02	0.00
2.16	2.00	0.00	8.92	0.02	0.00	2.18	2.00	0.00	8.91	0.02	0.00
2.20	2.00	0.00	8.90	0.02	0.00	2.22	2.00	0.00	8.89	0.02	0.00
2.25	2.00	0.00	8.88	0.03	0.00	2.26	2.00	0.00	8.87	0.01	0.00
2.28	2.00	0.00	8.86	0.02	0.00	2.30	2.00	0.00	8.85	0.02	0.00
2.32	2.00	0.00	8.84	0.02	0.00	2.34	2.00	0.00	8.83	0.02	0.00
2.36	2.00	0.00	8.82	0.02	0.00	2.38	2.00	0.00	8.81	0.02	0.00
2.40	2.00	0.00	8.80	0.02	0.00	2.42	2.00	0.00	8.79	0.02	0.00
2.44	2.00	0.00	8.78	0.02	0.00	2.46	2.00	0.00	8.77	0.02	0.00
2.48	2.00	0.00	8.76	0.02	0.00	2.50	2.00	0.00	8.75	0.02	0.00
2.52	2.00	0.00	8.74	0.02	0.00	2.54	2.00	0.00	8.73	0.02	0.00
2.56	2.00	0.00	8.72	0.02	0.00	2.58	2.00	0.00	8.71	0.02	0.00
2.60	2.00	0.00	8.70	0.02	0.00	2.62	2.00	0.00	8.69	0.02	0.00
2.64	2.00	0.00	8.68	0.02	0.00	2.66	2.00	0.00	8.67	0.02	0.00
2.68	2.00	0.00	8.66	0.02	0.00	2.70	2.00	0.00	8.65	0.02	0.00
2.72	2.00	0.00	8.64	0.02	0.00	2.74	2.00	0.00	8.63	0.02	0.00
2.76	2.00	0.00	8.62	0.02	0.00	2.78	2.00	0.00	8.61	0.02	0.00
2.80	2.00	0.00	8.60	0.02	0.00	2.82	2.00	0.00	8.59	0.02	0.00
2.84	2.00	0.00	8.58	0.02	0.00	2.86	2.00	0.00	8.57	0.02	0.00
2.88	2.00	0.00	8.56	0.02	0.00	2.90	2.00	0.00	8.55	0.02	0.00
2.92	2.00	0.00	8.54	0.02	0.00	2.94	2.00	0.00	8.53	0.02	0.00
2.96	2.00	0.00	8.52	0.02	0.00	2.98	2.00	0.00	8.51	0.02	0.00
3.00	2.00	0.00	8.50	0.02	0.00	3.02	2.00	0.00	8.49	0.02	0.00
3.04	2.00	0.00	8.48	0.02	0.00	3.06	2.00	0.00	8.47	0.02	0.00
3.09	2.00	0.00	8.46	0.03	0.00	3.10	2.00	0.00	8.45	0.01	0.00
3.12	2.00	0.00	8.44	0.02	0.00	3.14	2.00	0.00	8.43	0.02	0.00
3.16	2.00	0.00	8.42	0.02	0.00	3.18	2.00	0.00	8.41	0.02	0.00
3.20	2.00	0.00	8.40	0.02	0.00	3.22	2.00	0.00	8.39	0.02	0.00
3.24	2.00	0.00	8.38	0.02	0.00	3.26	2.00	0.00	8.37	0.02	0.00
3.28	2.00	0.00	8.36	0.02	0.00	3.30	2.00	0.00	8.35	0.02	0.00
3.32	1.05	0.00	8.34	0.02	0.00	3.34	1.07	0.00	8.33	0.02	0.00
3.36	1.09	0.00	8.32	0.02	0.00	3.38	1.09	0.00	8.31	0.02	0.00
3.40	1.06	0.00	8.30	0.02	0.00	3.42	2.00	0.00	8.29	0.02	0.00
3.44	2.00	0.00	8.28	0.02	0.00	3.46	2.00	0.00	8.27	0.02	0.00
3.48	2.00	0.00	8.26	0.02	0.00	3.50	2.00	0.00	8.25	0.02	0.00
3.52	2.00	0.00	8.24	0.02	0.00	3.54	2.00	0.00	8.23	0.02	0.00
3.56	2.00	0.00	8.22	0.02	0.00	3.58	2.00	0.00	8.21	0.02	0.00
3.60	2.00	0.00	8.20	0.02	0.00	3.62	2.00	0.00	8.19	0.02	0.00
3.64	2.00	0.00	8.18	0.02	0.00	3.66	2.00	0.00	8.17	0.02	0.00
3.68	2.00	0.00	8.16	0.02	0.00	3.70	2.00	0.00	8.15	0.02	0.00
3.72	2.00	0.00	8.14	0.02	0.00	3.74	2.00	0.00	8.13	0.02	0.00
3.76	2.00	0.00	8.12	0.02	0.00	3.78	2.00	0.00	8.11	0.02	0.00
3.80	2.00	0.00	8.10	0.02	0.00	3.82	2.00	0.00	8.09	0.02	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (m)	FS	F_L	w_z	d_z	LPI	Depth (m)	FS	F_L	w_z	d_z	LPI
3.84	2.00	0.00	8.08	0.02	0.00	3.86	2.00	0.00	8.07	0.02	0.00
3.88	2.00	0.00	8.06	0.02	0.00	3.90	2.00	0.00	8.05	0.02	0.00
3.92	2.00	0.00	8.04	0.02	0.00	3.94	2.00	0.00	8.03	0.02	0.00
3.96	2.00	0.00	8.02	0.02	0.00	3.98	0.99	0.01	8.01	0.02	0.00
4.00	2.00	0.00	8.00	0.02	0.00	4.02	2.00	0.00	7.99	0.02	0.00
4.05	2.00	0.00	7.97	0.03	0.00	4.06	2.00	0.00	7.97	0.01	0.00
4.08	2.00	0.00	7.96	0.02	0.00	4.10	2.00	0.00	7.95	0.02	0.00
4.12	2.00	0.00	7.94	0.02	0.00	4.14	2.00	0.00	7.93	0.02	0.00
4.16	2.00	0.00	7.92	0.02	0.00	4.18	2.00	0.00	7.91	0.02	0.00
4.20	2.00	0.00	7.90	0.02	0.00	4.22	2.00	0.00	7.89	0.02	0.00
4.24	2.00	0.00	7.88	0.02	0.00	4.26	2.00	0.00	7.87	0.02	0.00
4.28	2.00	0.00	7.86	0.02	0.00	4.30	2.00	0.00	7.85	0.02	0.00
4.32	2.00	0.00	7.84	0.02	0.00	4.34	2.00	0.00	7.83	0.02	0.00
4.36	2.00	0.00	7.82	0.02	0.00	4.38	2.00	0.00	7.81	0.02	0.00
4.40	2.00	0.00	7.80	0.02	0.00	4.42	2.00	0.00	7.79	0.02	0.00
4.44	2.00	0.00	7.78	0.02	0.00	4.46	2.00	0.00	7.77	0.02	0.00
4.48	2.00	0.00	7.76	0.02	0.00	4.50	2.00	0.00	7.75	0.02	0.00
4.52	2.00	0.00	7.74	0.02	0.00	4.54	2.00	0.00	7.73	0.02	0.00
4.56	2.00	0.00	7.72	0.02	0.00	4.58	2.00	0.00	7.71	0.02	0.00
4.60	2.00	0.00	7.70	0.02	0.00	4.62	2.00	0.00	7.69	0.02	0.00
4.64	2.00	0.00	7.68	0.02	0.00	4.66	2.00	0.00	7.67	0.02	0.00
4.68	2.00	0.00	7.66	0.02	0.00	4.70	2.00	0.00	7.65	0.02	0.00
4.72	2.00	0.00	7.64	0.02	0.00	4.74	2.00	0.00	7.63	0.02	0.00
4.76	2.00	0.00	7.62	0.02	0.00	4.78	2.00	0.00	7.61	0.02	0.00
4.80	2.00	0.00	7.60	0.02	0.00	4.82	2.00	0.00	7.59	0.02	0.00
4.84	2.00	0.00	7.58	0.02	0.00	4.86	2.00	0.00	7.57	0.02	0.00
4.88	2.00	0.00	7.56	0.02	0.00	4.90	2.00	0.00	7.55	0.02	0.00
4.92	2.00	0.00	7.54	0.02	0.00	4.94	2.00	0.00	7.53	0.02	0.00
4.96	2.00	0.00	7.52	0.02	0.00	4.98	2.00	0.00	7.51	0.02	0.00
5.00	2.00	0.00	7.50	0.02	0.00	5.02	2.00	0.00	7.49	0.02	0.00
5.04	2.00	0.00	7.48	0.02	0.00	5.06	2.00	0.00	7.47	0.02	0.00
5.08	2.00	0.00	7.46	0.02	0.00	5.10	2.00	0.00	7.45	0.02	0.00
5.12	2.00	0.00	7.44	0.02	0.00	5.14	2.00	0.00	7.43	0.02	0.00
5.16	2.00	0.00	7.42	0.02	0.00	5.18	2.00	0.00	7.41	0.02	0.00
5.20	2.00	0.00	7.40	0.02	0.00	5.22	2.00	0.00	7.39	0.02	0.00
5.24	2.00	0.00	7.38	0.02	0.00	5.26	2.00	0.00	7.37	0.02	0.00
5.28	2.00	0.00	7.36	0.02	0.00	5.30	2.00	0.00	7.35	0.02	0.00
5.32	2.00	0.00	7.34	0.02	0.00	5.34	2.00	0.00	7.33	0.02	0.00
5.36	2.00	0.00	7.32	0.02	0.00	5.38	2.00	0.00	7.31	0.02	0.00
5.40	2.00	0.00	7.30	0.02	0.00	5.42	0.93	0.07	7.29	0.02	0.01
5.44	0.93	0.07	7.28	0.02	0.01	5.46	2.00	0.00	7.27	0.02	0.00
5.48	2.00	0.00	7.26	0.02	0.00	5.50	2.00	0.00	7.25	0.02	0.00
5.52	2.00	0.00	7.24	0.02	0.00	5.54	2.00	0.00	7.23	0.02	0.00
5.56	2.00	0.00	7.22	0.02	0.00	5.58	2.00	0.00	7.21	0.02	0.00
5.60	2.00	0.00	7.20	0.02	0.00	5.62	2.00	0.00	7.19	0.02	0.00
5.64	2.00	0.00	7.18	0.02	0.00	5.66	2.00	0.00	7.17	0.02	0.00
5.68	2.00	0.00	7.16	0.02	0.00	5.70	2.00	0.00	7.15	0.02	0.00
5.72	2.00	0.00	7.14	0.02	0.00	5.74	2.00	0.00	7.13	0.02	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (m)	FS	F_L	w_z	d_z	LPI	Depth (m)	FS	F_L	w_z	d_z	LPI
5.76	2.00	0.00	7.12	0.02	0.00	5.78	2.00	0.00	7.11	0.02	0.00
5.80	2.00	0.00	7.10	0.02	0.00	5.82	2.00	0.00	7.09	0.02	0.00
5.84	2.00	0.00	7.08	0.02	0.00	5.86	2.00	0.00	7.07	0.02	0.00
5.88	2.00	0.00	7.06	0.02	0.00	5.90	2.00	0.00	7.05	0.02	0.00
5.92	2.00	0.00	7.04	0.02	0.00	5.94	2.00	0.00	7.03	0.02	0.00
5.96	2.00	0.00	7.02	0.02	0.00	5.98	2.00	0.00	7.01	0.02	0.00
6.00	2.00	0.00	7.00	0.02	0.00	6.02	2.00	0.00	6.99	0.02	0.00
6.04	2.00	0.00	6.98	0.02	0.00	6.06	2.00	0.00	6.97	0.02	0.00
6.08	2.00	0.00	6.96	0.02	0.00	6.10	2.00	0.00	6.95	0.02	0.00
6.12	2.00	0.00	6.94	0.02	0.00	6.14	2.00	0.00	6.93	0.02	0.00
6.16	2.00	0.00	6.92	0.02	0.00	6.18	2.00	0.00	6.91	0.02	0.00
6.20	2.00	0.00	6.90	0.02	0.00	6.22	2.00	0.00	6.89	0.02	0.00
6.24	2.00	0.00	6.88	0.02	0.00	6.26	2.00	0.00	6.87	0.02	0.00
6.28	2.00	0.00	6.86	0.02	0.00	6.30	2.00	0.00	6.85	0.02	0.00
6.32	2.00	0.00	6.84	0.02	0.00	6.34	2.00	0.00	6.83	0.02	0.00
6.36	2.00	0.00	6.82	0.02	0.00	6.38	2.00	0.00	6.81	0.02	0.00
6.40	2.00	0.00	6.80	0.02	0.00	6.42	2.00	0.00	6.79	0.02	0.00
6.44	2.00	0.00	6.78	0.02	0.00	6.46	2.00	0.00	6.77	0.02	0.00
6.48	2.00	0.00	6.76	0.02	0.00	6.50	2.00	0.00	6.75	0.02	0.00
6.52	2.00	0.00	6.74	0.02	0.00	6.54	2.00	0.00	6.73	0.02	0.00
6.56	2.00	0.00	6.72	0.02	0.00	6.58	2.00	0.00	6.71	0.02	0.00
6.60	2.00	0.00	6.70	0.02	0.00	6.62	2.00	0.00	6.69	0.02	0.00
6.64	2.00	0.00	6.68	0.02	0.00	6.66	2.00	0.00	6.67	0.02	0.00
6.68	2.00	0.00	6.66	0.02	0.00	6.70	2.00	0.00	6.65	0.02	0.00
6.72	2.00	0.00	6.64	0.02	0.00	6.74	2.00	0.00	6.63	0.02	0.00
6.76	2.00	0.00	6.62	0.02	0.00	6.78	2.00	0.00	6.61	0.02	0.00
6.80	2.00	0.00	6.60	0.02	0.00	6.82	2.00	0.00	6.59	0.02	0.00
6.84	2.00	0.00	6.58	0.02	0.00	6.86	2.00	0.00	6.57	0.02	0.00
6.88	2.00	0.00	6.56	0.02	0.00	6.90	2.00	0.00	6.55	0.02	0.00
6.92	2.00	0.00	6.54	0.02	0.00	6.94	2.00	0.00	6.53	0.02	0.00
6.96	2.00	0.00	6.52	0.02	0.00	6.98	2.00	0.00	6.51	0.02	0.00
7.00	2.00	0.00	6.50	0.02	0.00	7.02	2.00	0.00	6.49	0.02	0.00
7.04	2.00	0.00	6.48	0.02	0.00	7.06	2.00	0.00	6.47	0.02	0.00
7.08	2.00	0.00	6.46	0.02	0.00	7.10	2.00	0.00	6.45	0.02	0.00
7.12	2.00	0.00	6.44	0.02	0.00	7.14	2.00	0.00	6.43	0.02	0.00
7.16	2.00	0.00	6.42	0.02	0.00	7.18	2.00	0.00	6.41	0.02	0.00
7.20	2.00	0.00	6.40	0.02	0.00	7.22	2.00	0.00	6.39	0.02	0.00
7.24	2.00	0.00	6.38	0.02	0.00	7.26	2.00	0.00	6.37	0.02	0.00
7.28	2.00	0.00	6.36	0.02	0.00	7.30	2.00	0.00	6.35	0.02	0.00
7.32	2.00	0.00	6.34	0.02	0.00	7.34	2.00	0.00	6.33	0.02	0.00
7.36	2.00	0.00	6.32	0.02	0.00	7.38	2.00	0.00	6.31	0.02	0.00
7.40	2.00	0.00	6.30	0.02	0.00	7.42	2.00	0.00	6.29	0.02	0.00
7.44	2.00	0.00	6.28	0.02	0.00	7.46	2.00	0.00	6.27	0.02	0.00
7.48	2.00	0.00	6.26	0.02	0.00	7.50	2.00	0.00	6.25	0.02	0.00
7.52	2.00	0.00	6.24	0.02	0.00	7.54	2.00	0.00	6.23	0.02	0.00
7.56	2.00	0.00	6.22	0.02	0.00	7.58	2.00	0.00	6.21	0.02	0.00
7.60	2.00	0.00	6.20	0.02	0.00	7.62	2.00	0.00	6.19	0.02	0.00
7.64	2.00	0.00	6.18	0.02	0.00	7.66	2.00	0.00	6.17	0.02	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (m)	FS	F_L	w_z	d_z	LPI	Depth (m)	FS	F_L	w_z	d_z	LPI
7.68	2.00	0.00	6.16	0.02	0.00	7.70	2.00	0.00	6.15	0.02	0.00
7.72	2.00	0.00	6.14	0.02	0.00	7.74	2.00	0.00	6.13	0.02	0.00
7.76	2.00	0.00	6.12	0.02	0.00	7.78	2.00	0.00	6.11	0.02	0.00
7.80	2.00	0.00	6.10	0.02	0.00	7.82	2.00	0.00	6.09	0.02	0.00
7.84	2.00	0.00	6.08	0.02	0.00	7.86	2.00	0.00	6.07	0.02	0.00
7.88	2.00	0.00	6.06	0.02	0.00	7.90	2.00	0.00	6.05	0.02	0.00
7.92	2.00	0.00	6.04	0.02	0.00	7.94	2.00	0.00	6.03	0.02	0.00
7.96	2.00	0.00	6.02	0.02	0.00	7.98	2.00	0.00	6.01	0.02	0.00
8.00	2.00	0.00	6.00	0.02	0.00	8.02	2.00	0.00	5.99	0.02	0.00
8.04	2.00	0.00	5.98	0.02	0.00	8.06	2.00	0.00	5.97	0.02	0.00
8.08	2.00	0.00	5.96	0.02	0.00	8.10	2.00	0.00	5.95	0.02	0.00
8.12	2.00	0.00	5.94	0.02	0.00	8.14	2.00	0.00	5.93	0.02	0.00
8.16	2.00	0.00	5.92	0.02	0.00	8.18	2.00	0.00	5.91	0.02	0.00
8.20	2.00	0.00	5.90	0.02	0.00	8.22	2.00	0.00	5.89	0.02	0.00
8.24	2.00	0.00	5.88	0.02	0.00	8.26	2.00	0.00	5.87	0.02	0.00
8.28	2.00	0.00	5.86	0.02	0.00	8.30	2.00	0.00	5.85	0.02	0.00
8.32	2.00	0.00	5.84	0.02	0.00	8.34	2.00	0.00	5.83	0.02	0.00
8.36	2.00	0.00	5.82	0.02	0.00	8.38	2.00	0.00	5.81	0.02	0.00
8.40	2.00	0.00	5.80	0.02	0.00	8.42	2.00	0.00	5.79	0.02	0.00
8.44	2.00	0.00	5.78	0.02	0.00	8.46	2.00	0.00	5.77	0.02	0.00
8.48	2.00	0.00	5.76	0.02	0.00	8.50	2.00	0.00	5.75	0.02	0.00
8.52	2.00	0.00	5.74	0.02	0.00	8.54	2.00	0.00	5.73	0.02	0.00
8.56	2.00	0.00	5.72	0.02	0.00	8.58	2.00	0.00	5.71	0.02	0.00
8.60	2.00	0.00	5.70	0.02	0.00	8.62	2.00	0.00	5.69	0.02	0.00
8.64	2.00	0.00	5.68	0.02	0.00	8.66	2.00	0.00	5.67	0.02	0.00
8.68	2.00	0.00	5.66	0.02	0.00	8.70	2.00	0.00	5.65	0.02	0.00
8.72	2.00	0.00	5.64	0.02	0.00	8.74	2.00	0.00	5.63	0.02	0.00
8.76	2.00	0.00	5.62	0.02	0.00	8.78	2.00	0.00	5.61	0.02	0.00
8.80	2.00	0.00	5.60	0.02	0.00	8.82	2.00	0.00	5.59	0.02	0.00
8.84	2.00	0.00	5.58	0.02	0.00	8.86	2.00	0.00	5.57	0.02	0.00
8.88	2.00	0.00	5.56	0.02	0.00	8.90	2.00	0.00	5.55	0.02	0.00
8.92	2.00	0.00	5.54	0.02	0.00	8.94	2.00	0.00	5.53	0.02	0.00
8.96	2.00	0.00	5.52	0.02	0.00	8.98	2.00	0.00	5.51	0.02	0.00
9.00	2.00	0.00	5.50	0.02	0.00	9.02	2.00	0.00	5.49	0.02	0.00
9.04	2.00	0.00	5.48	0.02	0.00	9.06	2.00	0.00	5.47	0.02	0.00
9.08	2.00	0.00	5.46	0.02	0.00	9.10	2.00	0.00	5.45	0.02	0.00
9.12	2.00	0.00	5.44	0.02	0.00	9.14	2.00	0.00	5.43	0.02	0.00
9.16	2.00	0.00	5.42	0.02	0.00	9.18	2.00	0.00	5.41	0.02	0.00
9.20	2.00	0.00	5.40	0.02	0.00	9.22	2.00	0.00	5.39	0.02	0.00
9.24	2.00	0.00	5.38	0.02	0.00	9.26	2.00	0.00	5.37	0.02	0.00
9.28	2.00	0.00	5.36	0.02	0.00	9.30	2.00	0.00	5.35	0.02	0.00
9.32	2.00	0.00	5.34	0.02	0.00	9.34	2.00	0.00	5.33	0.02	0.00
9.36	2.00	0.00	5.32	0.02	0.00	9.38	2.00	0.00	5.31	0.02	0.00
9.40	2.00	0.00	5.30	0.02	0.00	9.42	2.00	0.00	5.29	0.02	0.00
9.44	2.00	0.00	5.28	0.02	0.00	9.46	2.00	0.00	5.27	0.02	0.00
9.48	2.00	0.00	5.26	0.02	0.00	9.50	2.00	0.00	5.25	0.02	0.00
9.52	2.00	0.00	5.24	0.02	0.00	9.54	2.00	0.00	5.23	0.02	0.00
9.56	2.00	0.00	5.22	0.02	0.00	9.58	2.00	0.00	5.21	0.02	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (m)	FS	F_L	w_z	d_z	LPI	Depth (m)	FS	F_L	w_z	d_z	LPI
9.60	2.00	0.00	5.20	0.02	0.00	9.62	2.00	0.00	5.19	0.02	0.00
9.64	2.00	0.00	5.18	0.02	0.00	9.66	2.00	0.00	5.17	0.02	0.00
9.68	2.00	0.00	5.16	0.02	0.00	9.70	2.00	0.00	5.15	0.02	0.00
9.72	2.00	0.00	5.14	0.02	0.00	9.74	2.00	0.00	5.13	0.02	0.00
9.76	2.00	0.00	5.12	0.02	0.00	9.78	2.00	0.00	5.11	0.02	0.00
9.80	2.00	0.00	5.10	0.02	0.00	9.82	2.00	0.00	5.09	0.02	0.00
9.84	2.00	0.00	5.08	0.02	0.00	9.86	2.00	0.00	5.07	0.02	0.00
9.88	2.00	0.00	5.06	0.02	0.00	9.90	2.00	0.00	5.05	0.02	0.00
9.92	2.00	0.00	5.04	0.02	0.00	9.94	2.00	0.00	5.03	0.02	0.00
9.96	2.00	0.00	5.02	0.02	0.00	9.98	2.00	0.00	5.01	0.02	0.00
10.00	2.00	0.00	5.00	0.02	0.00	10.02	2.00	0.00	4.99	0.02	0.00
10.04	2.00	0.00	4.98	0.02	0.00	10.06	2.00	0.00	4.97	0.02	0.00
10.08	2.00	0.00	4.96	0.02	0.00	10.10	2.00	0.00	4.95	0.02	0.00
10.12	2.00	0.00	4.94	0.02	0.00	10.14	2.00	0.00	4.93	0.02	0.00
10.16	2.00	0.00	4.92	0.02	0.00	10.18	2.00	0.00	4.91	0.02	0.00
10.20	2.00	0.00	4.90	0.02	0.00	10.22	2.00	0.00	4.89	0.02	0.00
10.24	2.00	0.00	4.88	0.02	0.00	10.26	2.00	0.00	4.87	0.02	0.00
10.28	2.00	0.00	4.86	0.02	0.00	10.30	2.00	0.00	4.85	0.02	0.00
10.32	2.00	0.00	4.84	0.02	0.00	10.34	2.00	0.00	4.83	0.02	0.00
10.36	2.00	0.00	4.82	0.02	0.00	10.38	2.00	0.00	4.81	0.02	0.00
10.40	2.00	0.00	4.80	0.02	0.00	10.42	2.00	0.00	4.79	0.02	0.00
10.44	2.00	0.00	4.78	0.02	0.00	10.46	2.00	0.00	4.77	0.02	0.00
10.48	2.00	0.00	4.76	0.02	0.00	10.50	2.00	0.00	4.75	0.02	0.00
10.52	2.00	0.00	4.74	0.02	0.00	10.54	2.00	0.00	4.73	0.02	0.00
10.56	2.00	0.00	4.72	0.02	0.00	10.58	2.00	0.00	4.71	0.02	0.00
10.60	2.00	0.00	4.70	0.02	0.00	10.62	2.00	0.00	4.69	0.02	0.00
10.64	2.00	0.00	4.68	0.02	0.00	10.66	2.00	0.00	4.67	0.02	0.00
10.68	2.00	0.00	4.66	0.02	0.00	10.70	2.00	0.00	4.65	0.02	0.00
10.72	2.00	0.00	4.64	0.02	0.00	10.74	2.00	0.00	4.63	0.02	0.00
10.76	2.00	0.00	4.62	0.02	0.00	10.78	2.00	0.00	4.61	0.02	0.00
10.80	2.00	0.00	4.60	0.02	0.00	10.82	2.00	0.00	4.59	0.02	0.00
10.84	2.00	0.00	4.58	0.02	0.00	10.86	2.00	0.00	4.57	0.02	0.00
10.88	2.00	0.00	4.56	0.02	0.00	10.90	2.00	0.00	4.55	0.02	0.00
10.92	2.00	0.00	4.54	0.02	0.00	10.94	2.00	0.00	4.53	0.02	0.00
10.96	2.00	0.00	4.52	0.02	0.00	10.98	2.00	0.00	4.51	0.02	0.00
11.00	2.00	0.00	4.50	0.02	0.00	11.02	2.00	0.00	4.49	0.02	0.00
11.04	2.00	0.00	4.48	0.02	0.00	11.06	2.00	0.00	4.47	0.02	0.00
11.08	2.00	0.00	4.46	0.02	0.00	11.10	2.00	0.00	4.45	0.02	0.00
11.12	2.00	0.00	4.44	0.02	0.00	11.14	2.00	0.00	4.43	0.02	0.00
11.16	2.00	0.00	4.42	0.02	0.00	11.18	2.00	0.00	4.41	0.02	0.00
11.20	2.00	0.00	4.40	0.02	0.00	11.22	2.00	0.00	4.39	0.02	0.00
11.24	2.00	0.00	4.38	0.02	0.00	11.26	2.00	0.00	4.37	0.02	0.00
11.28	2.00	0.00	4.36	0.02	0.00	11.30	2.00	0.00	4.35	0.02	0.00
11.32	2.00	0.00	4.34	0.02	0.00	11.34	2.00	0.00	4.33	0.02	0.00
11.36	2.00	0.00	4.32	0.02	0.00	11.38	2.00	0.00	4.31	0.02	0.00
11.40	2.00	0.00	4.30	0.02	0.00	11.42	2.00	0.00	4.29	0.02	0.00
11.44	2.00	0.00	4.28	0.02	0.00	11.46	2.00	0.00	4.27	0.02	0.00
11.48	2.00	0.00	4.26	0.02	0.00	11.50	2.00	0.00	4.25	0.02	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (m)	FS	F_L	w_z	d_z	LPI	Depth (m)	FS	F_L	w_z	d_z	LPI
11.52	2.00	0.00	4.24	0.02	0.00	11.54	2.00	0.00	4.23	0.02	0.00
11.56	2.00	0.00	4.22	0.02	0.00	11.58	2.00	0.00	4.21	0.02	0.00
11.60	2.00	0.00	4.20	0.02	0.00	11.62	2.00	0.00	4.19	0.02	0.00
11.64	2.00	0.00	4.18	0.02	0.00	11.66	2.00	0.00	4.17	0.02	0.00
11.68	2.00	0.00	4.16	0.02	0.00	11.70	2.00	0.00	4.15	0.02	0.00
11.72	2.00	0.00	4.14	0.02	0.00	11.74	2.00	0.00	4.13	0.02	0.00
11.76	2.00	0.00	4.12	0.02	0.00	11.78	2.00	0.00	4.11	0.02	0.00
11.80	2.00	0.00	4.10	0.02	0.00	11.82	2.00	0.00	4.09	0.02	0.00
11.84	2.00	0.00	4.08	0.02	0.00	11.86	2.00	0.00	4.07	0.02	0.00
11.88	2.00	0.00	4.06	0.02	0.00	11.90	2.00	0.00	4.05	0.02	0.00
11.92	2.00	0.00	4.04	0.02	0.00	11.94	2.00	0.00	4.03	0.02	0.00
11.96	2.00	0.00	4.02	0.02	0.00	11.98	2.00	0.00	4.01	0.02	0.00
12.00	2.00	0.00	4.00	0.02	0.00	12.02	2.00	0.00	3.99	0.02	0.00
12.04	2.00	0.00	3.98	0.02	0.00	12.06	2.00	0.00	3.97	0.02	0.00
12.08	2.00	0.00	3.96	0.02	0.00	12.10	2.00	0.00	3.95	0.02	0.00
12.12	2.00	0.00	3.94	0.02	0.00	12.14	2.00	0.00	3.93	0.02	0.00
12.16	2.00	0.00	3.92	0.02	0.00	12.18	2.00	0.00	3.91	0.02	0.00
12.20	2.00	0.00	3.90	0.02	0.00	12.22	2.00	0.00	3.89	0.02	0.00
12.24	2.00	0.00	3.88	0.02	0.00	12.26	2.00	0.00	3.87	0.02	0.00
12.28	2.00	0.00	3.86	0.02	0.00	12.30	2.00	0.00	3.85	0.02	0.00
12.32	2.00	0.00	3.84	0.02	0.00	12.34	2.00	0.00	3.83	0.02	0.00
12.36	2.00	0.00	3.82	0.02	0.00	12.38	2.00	0.00	3.81	0.02	0.00
12.40	2.00	0.00	3.80	0.02	0.00	12.42	2.00	0.00	3.79	0.02	0.00
12.44	2.00	0.00	3.78	0.02	0.00	12.46	2.00	0.00	3.77	0.02	0.00
12.48	2.00	0.00	3.76	0.02	0.00	12.50	2.00	0.00	3.75	0.02	0.00
12.52	2.00	0.00	3.74	0.02	0.00	12.54	2.00	0.00	3.73	0.02	0.00
12.56	2.00	0.00	3.72	0.02	0.00	12.58	2.00	0.00	3.71	0.02	0.00
12.60	2.00	0.00	3.70	0.02	0.00	12.62	2.00	0.00	3.69	0.02	0.00
12.64	2.00	0.00	3.68	0.02	0.00	12.66	2.00	0.00	3.67	0.02	0.00
12.68	2.00	0.00	3.66	0.02	0.00	12.70	2.00	0.00	3.65	0.02	0.00
12.72	2.00	0.00	3.64	0.02	0.00	12.74	2.00	0.00	3.63	0.02	0.00
12.76	2.00	0.00	3.62	0.02	0.00	12.78	2.00	0.00	3.61	0.02	0.00
12.80	2.00	0.00	3.60	0.02	0.00	12.82	2.00	0.00	3.59	0.02	0.00
12.84	2.00	0.00	3.58	0.02	0.00	12.86	2.00	0.00	3.57	0.02	0.00
12.88	2.00	0.00	3.56	0.02	0.00	12.90	2.00	0.00	3.55	0.02	0.00
12.92	2.00	0.00	3.54	0.02	0.00	12.94	2.00	0.00	3.53	0.02	0.00
12.96	2.00	0.00	3.52	0.02	0.00	12.98	2.00	0.00	3.51	0.02	0.00
13.00	2.00	0.00	3.50	0.02	0.00	13.02	2.00	0.00	3.49	0.02	0.00
13.04	2.00	0.00	3.48	0.02	0.00	13.06	2.00	0.00	3.47	0.02	0.00
13.08	2.00	0.00	3.46	0.02	0.00	13.10	2.00	0.00	3.45	0.02	0.00
13.12	2.00	0.00	3.44	0.02	0.00	13.14	2.00	0.00	3.43	0.02	0.00
13.16	2.00	0.00	3.42	0.02	0.00	13.18	2.00	0.00	3.41	0.02	0.00
13.20	2.00	0.00	3.40	0.02	0.00	13.22	2.00	0.00	3.39	0.02	0.00
13.24	2.00	0.00	3.38	0.02	0.00	13.26	2.00	0.00	3.37	0.02	0.00
13.28	2.00	0.00	3.36	0.02	0.00	13.30	2.00	0.00	3.35	0.02	0.00
13.32	2.00	0.00	3.34	0.02	0.00	13.34	2.00	0.00	3.33	0.02	0.00
13.36	2.00	0.00	3.32	0.02	0.00	13.38	2.00	0.00	3.31	0.02	0.00
13.40	2.00	0.00	3.30	0.02	0.00	13.42	2.00	0.00	3.29	0.02	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (m)	FS	F_L	w_z	d_z	LPI	Depth (m)	FS	F_L	w_z	d_z	LPI
13.44	2.00	0.00	3.28	0.02	0.00	13.46	2.00	0.00	3.27	0.02	0.00
13.48	2.00	0.00	3.26	0.02	0.00	13.50	2.00	0.00	3.25	0.02	0.00
13.52	2.00	0.00	3.24	0.02	0.00	13.54	2.00	0.00	3.23	0.02	0.00
13.56	2.00	0.00	3.22	0.02	0.00	13.58	2.00	0.00	3.21	0.02	0.00
13.60	2.00	0.00	3.20	0.02	0.00	13.62	2.00	0.00	3.19	0.02	0.00
13.64	2.00	0.00	3.18	0.02	0.00	13.66	2.00	0.00	3.17	0.02	0.00
13.68	2.00	0.00	3.16	0.02	0.00	13.70	2.00	0.00	3.15	0.02	0.00
13.72	2.00	0.00	3.14	0.02	0.00	13.74	2.00	0.00	3.13	0.02	0.00
13.76	2.00	0.00	3.12	0.02	0.00	13.78	2.00	0.00	3.11	0.02	0.00
13.80	2.00	0.00	3.10	0.02	0.00	13.82	2.00	0.00	3.09	0.02	0.00
13.84	2.00	0.00	3.08	0.02	0.00	13.86	2.00	0.00	3.07	0.02	0.00
13.88	2.00	0.00	3.06	0.02	0.00	13.90	2.00	0.00	3.05	0.02	0.00
13.92	2.00	0.00	3.04	0.02	0.00	13.94	2.00	0.00	3.03	0.02	0.00
13.96	2.00	0.00	3.02	0.02	0.00	13.98	2.00	0.00	3.01	0.02	0.00
14.00	2.00	0.00	3.00	0.02	0.00	14.02	2.00	0.00	2.99	0.02	0.00
14.04	2.00	0.00	2.98	0.02	0.00	14.06	2.00	0.00	2.97	0.02	0.00
14.08	2.00	0.00	2.96	0.02	0.00	14.10	2.00	0.00	2.95	0.02	0.00
14.12	2.00	0.00	2.94	0.02	0.00	14.14	2.00	0.00	2.93	0.02	0.00
14.16	2.00	0.00	2.92	0.02	0.00	14.18	2.00	0.00	2.91	0.02	0.00
14.20	2.00	0.00	2.90	0.02	0.00	14.22	2.00	0.00	2.89	0.02	0.00
14.24	2.00	0.00	2.88	0.02	0.00	14.26	2.00	0.00	2.87	0.02	0.00
14.28	2.00	0.00	2.86	0.02	0.00	14.30	2.00	0.00	2.85	0.02	0.00
14.32	2.00	0.00	2.84	0.02	0.00	14.34	2.00	0.00	2.83	0.02	0.00
14.36	2.00	0.00	2.82	0.02	0.00	14.38	2.00	0.00	2.81	0.02	0.00
14.40	2.00	0.00	2.80	0.02	0.00	14.42	2.00	0.00	2.79	0.02	0.00
14.44	2.00	0.00	2.78	0.02	0.00	14.46	2.00	0.00	2.77	0.02	0.00
14.48	2.00	0.00	2.76	0.02	0.00	14.50	2.00	0.00	2.75	0.02	0.00
14.52	2.00	0.00	2.74	0.02	0.00	14.54	2.00	0.00	2.73	0.02	0.00
14.56	2.00	0.00	2.72	0.02	0.00	14.58	2.00	0.00	2.71	0.02	0.00
14.60	2.00	0.00	2.70	0.02	0.00	14.62	2.00	0.00	2.69	0.02	0.00
14.64	2.00	0.00	2.68	0.02	0.00	14.66	2.00	0.00	2.67	0.02	0.00
14.68	2.00	0.00	2.66	0.02	0.00	14.70	2.00	0.00	2.65	0.02	0.00
14.72	2.00	0.00	2.64	0.02	0.00	14.74	2.00	0.00	2.63	0.02	0.00
14.76	2.00	0.00	2.62	0.02	0.00	14.78	2.00	0.00	2.61	0.02	0.00
14.80	2.00	0.00	2.60	0.02	0.00	14.82	2.00	0.00	2.59	0.02	0.00
14.84	2.00	0.00	2.58	0.02	0.00	14.86	2.00	0.00	2.57	0.02	0.00
14.88	2.00	0.00	2.56	0.02	0.00	14.90	2.00	0.00	2.55	0.02	0.00
14.92	2.00	0.00	2.54	0.02	0.00	14.94	2.00	0.00	2.53	0.02	0.00
14.96	2.00	0.00	2.52	0.02	0.00	14.98	2.00	0.00	2.51	0.02	0.00
15.00	2.00	0.00	2.50	0.02	0.00	15.02	2.00	0.00	2.49	0.02	0.00
15.04	2.00	0.00	2.48	0.02	0.00	15.06	2.00	0.00	2.47	0.02	0.00
15.08	2.00	0.00	2.46	0.02	0.00	15.10	2.00	0.00	2.45	0.02	0.00
15.12	2.00	0.00	2.44	0.02	0.00	15.14	2.00	0.00	2.43	0.02	0.00
15.16	2.00	0.00	2.42	0.02	0.00	15.18	2.00	0.00	2.41	0.02	0.00
15.20	2.00	0.00	2.40	0.02	0.00	15.22	2.00	0.00	2.39	0.02	0.00
15.24	2.00	0.00	2.38	0.02	0.00	15.26	2.00	0.00	2.37	0.02	0.00
15.28	2.00	0.00	2.36	0.02	0.00	15.30	2.00	0.00	2.35	0.02	0.00
15.32	2.00	0.00	2.34	0.02	0.00	15.34	2.00	0.00	2.33	0.02	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (m)	FS	F_L	w_z	d_z	LPI	Depth (m)	FS	F_L	w_z	d_z	LPI
15.36	2.00	0.00	2.32	0.02	0.00	15.38	2.00	0.00	2.31	0.02	0.00
15.40	2.00	0.00	2.30	0.02	0.00	15.42	2.00	0.00	2.29	0.02	0.00
15.44	2.00	0.00	2.28	0.02	0.00	15.46	2.00	0.00	2.27	0.02	0.00
15.48	2.00	0.00	2.26	0.02	0.00	15.50	2.00	0.00	2.25	0.02	0.00
15.52	2.00	0.00	2.24	0.02	0.00	15.54	2.00	0.00	2.23	0.02	0.00
15.56	2.00	0.00	2.22	0.02	0.00	15.58	2.00	0.00	2.21	0.02	0.00
15.60	2.00	0.00	2.20	0.02	0.00	15.62	2.00	0.00	2.19	0.02	0.00
15.64	2.00	0.00	2.18	0.02	0.00	15.66	2.00	0.00	2.17	0.02	0.00
15.68	2.00	0.00	2.16	0.02	0.00	15.70	2.00	0.00	2.15	0.02	0.00
15.72	2.00	0.00	2.14	0.02	0.00	15.74	2.00	0.00	2.13	0.02	0.00
15.76	2.00	0.00	2.12	0.02	0.00	15.78	2.00	0.00	2.11	0.02	0.00
15.80	2.00	0.00	2.10	0.02	0.00	15.82	2.00	0.00	2.09	0.02	0.00
15.84	2.00	0.00	2.08	0.02	0.00	15.86	2.00	0.00	2.07	0.02	0.00
15.89	2.00	0.00	2.06	0.03	0.00	15.90	2.00	0.00	2.05	0.01	0.00
15.92	2.00	0.00	2.04	0.02	0.00	15.94	2.00	0.00	2.03	0.02	0.00
15.96	2.00	0.00	2.02	0.02	0.00	15.98	2.00	0.00	2.01	0.02	0.00
16.00	2.00	0.00	2.00	0.02	0.00	16.02	2.00	0.00	1.99	0.02	0.00
16.04	2.00	0.00	1.98	0.02	0.00	16.06	2.00	0.00	1.97	0.02	0.00
16.08	2.00	0.00	1.96	0.02	0.00	16.10	2.00	0.00	1.95	0.02	0.00
16.12	2.00	0.00	1.94	0.02	0.00	16.14	2.00	0.00	1.93	0.02	0.00
16.16	2.00	0.00	1.92	0.02	0.00	16.18	2.00	0.00	1.91	0.02	0.00
16.20	2.00	0.00	1.90	0.02	0.00	16.22	2.00	0.00	1.89	0.02	0.00
16.24	2.00	0.00	1.88	0.02	0.00	16.26	2.00	0.00	1.87	0.02	0.00
16.28	2.00	0.00	1.86	0.02	0.00	16.30	2.00	0.00	1.85	0.02	0.00
16.32	2.00	0.00	1.84	0.02	0.00	16.34	2.00	0.00	1.83	0.02	0.00
16.36	2.00	0.00	1.82	0.02	0.00	16.38	2.00	0.00	1.81	0.02	0.00
16.40	2.00	0.00	1.80	0.02	0.00	16.42	2.00	0.00	1.79	0.02	0.00
16.44	2.00	0.00	1.78	0.02	0.00	16.46	2.00	0.00	1.77	0.02	0.00
16.48	2.00	0.00	1.76	0.02	0.00	16.50	2.00	0.00	1.75	0.02	0.00
16.52	2.00	0.00	1.74	0.02	0.00	16.54	2.00	0.00	1.73	0.02	0.00
16.56	2.00	0.00	1.72	0.02	0.00	16.58	2.00	0.00	1.71	0.02	0.00
16.60	2.00	0.00	1.70	0.02	0.00	16.62	2.00	0.00	1.69	0.02	0.00
16.64	2.00	0.00	1.68	0.02	0.00	16.66	2.00	0.00	1.67	0.02	0.00
16.68	2.00	0.00	1.66	0.02	0.00	16.70	2.00	0.00	1.65	0.02	0.00
16.72	2.00	0.00	1.64	0.02	0.00	16.74	2.00	0.00	1.63	0.02	0.00
16.76	2.00	0.00	1.62	0.02	0.00	16.78	2.00	0.00	1.61	0.02	0.00
16.80	2.00	0.00	1.60	0.02	0.00	16.82	2.00	0.00	1.59	0.02	0.00
16.84	2.00	0.00	1.58	0.02	0.00	16.86	2.00	0.00	1.57	0.02	0.00
16.88	2.00	0.00	1.56	0.02	0.00	16.90	2.00	0.00	1.55	0.02	0.00
16.92	2.00	0.00	1.54	0.02	0.00	16.94	2.00	0.00	1.53	0.02	0.00
16.96	2.00	0.00	1.52	0.02	0.00	16.98	2.00	0.00	1.51	0.02	0.00
17.00	2.00	0.00	1.50	0.02	0.00	17.02	2.00	0.00	1.49	0.02	0.00
17.04	2.00	0.00	1.48	0.02	0.00	17.06	2.00	0.00	1.47	0.02	0.00
17.08	2.00	0.00	1.46	0.02	0.00	17.10	2.00	0.00	1.45	0.02	0.00
17.12	2.00	0.00	1.44	0.02	0.00	17.14	2.00	0.00	1.43	0.02	0.00
17.16	2.00	0.00	1.42	0.02	0.00	17.18	2.00	0.00	1.41	0.02	0.00
17.20	2.00	0.00	1.40	0.02	0.00	17.22	2.00	0.00	1.39	0.02	0.00
17.24	2.00	0.00	1.38	0.02	0.00	17.26	2.00	0.00	1.37	0.02	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (m)	FS	F_L	w_z	d_z	LPI	Depth (m)	FS	F_L	w_z	d_z	LPI
17.28	2.00	0.00	1.36	0.02	0.00	17.30	2.00	0.00	1.35	0.02	0.00
17.32	2.00	0.00	1.34	0.02	0.00	17.34	2.00	0.00	1.33	0.02	0.00
17.36	2.00	0.00	1.32	0.02	0.00	17.38	2.00	0.00	1.31	0.02	0.00
17.40	2.00	0.00	1.30	0.02	0.00	17.42	2.00	0.00	1.29	0.02	0.00
17.44	2.00	0.00	1.28	0.02	0.00	17.46	2.00	0.00	1.27	0.02	0.00
17.48	2.00	0.00	1.26	0.02	0.00	17.50	2.00	0.00	1.25	0.02	0.00
17.52	2.00	0.00	1.24	0.02	0.00	17.54	2.00	0.00	1.23	0.02	0.00
17.56	2.00	0.00	1.22	0.02	0.00	17.58	2.00	0.00	1.21	0.02	0.00
17.60	2.00	0.00	1.20	0.02	0.00	17.62	2.00	0.00	1.19	0.02	0.00
17.64	2.00	0.00	1.18	0.02	0.00	17.66	2.00	0.00	1.17	0.02	0.00
17.68	2.00	0.00	1.16	0.02	0.00	17.70	2.00	0.00	1.15	0.02	0.00
17.72	2.00	0.00	1.14	0.02	0.00	17.74	2.00	0.00	1.13	0.02	0.00
17.76	2.00	0.00	1.12	0.02	0.00	17.78	0.92	0.08	1.11	0.02	0.00
17.80	0.93	0.07	1.10	0.02	0.00	17.82	0.92	0.08	1.09	0.02	0.00
17.84	2.00	0.00	1.08	0.02	0.00	17.86	2.00	0.00	1.07	0.02	0.00
17.88	2.00	0.00	1.06	0.02	0.00	17.90	2.00	0.00	1.05	0.02	0.00
17.92	2.00	0.00	1.04	0.02	0.00	17.94	2.00	0.00	1.03	0.02	0.00
17.96	2.00	0.00	1.02	0.02	0.00	17.98	2.00	0.00	1.01	0.02	0.00
18.00	2.00	0.00	1.00	0.02	0.00	18.02	2.00	0.00	0.99	0.02	0.00
18.04	2.00	0.00	0.98	0.02	0.00	18.06	2.00	0.00	0.97	0.02	0.00
18.08	2.00	0.00	0.96	0.02	0.00	18.10	2.00	0.00	0.95	0.02	0.00
18.12	2.00	0.00	0.94	0.02	0.00	18.14	2.00	0.00	0.93	0.02	0.00
18.16	2.00	0.00	0.92	0.02	0.00	18.18	2.00	0.00	0.91	0.02	0.00
18.20	2.00	0.00	0.90	0.02	0.00	18.22	2.00	0.00	0.89	0.02	0.00
18.24	2.00	0.00	0.88	0.02	0.00	18.26	2.00	0.00	0.87	0.02	0.00
18.28	2.00	0.00	0.86	0.02	0.00	18.30	2.00	0.00	0.85	0.02	0.00
18.32	2.00	0.00	0.84	0.02	0.00	18.34	2.00	0.00	0.83	0.02	0.00
18.36	2.00	0.00	0.82	0.02	0.00	18.38	2.00	0.00	0.81	0.02	0.00
18.40	2.00	0.00	0.80	0.02	0.00	18.42	2.00	0.00	0.79	0.02	0.00
18.44	2.00	0.00	0.78	0.02	0.00	18.46	2.00	0.00	0.77	0.02	0.00
18.48	2.00	0.00	0.76	0.02	0.00	18.50	2.00	0.00	0.75	0.02	0.00
18.52	2.00	0.00	0.74	0.02	0.00	18.54	2.00	0.00	0.73	0.02	0.00
18.56	2.00	0.00	0.72	0.02	0.00	18.58	2.00	0.00	0.71	0.02	0.00
18.60	2.00	0.00	0.70	0.02	0.00	18.62	2.00	0.00	0.69	0.02	0.00
18.64	2.00	0.00	0.68	0.02	0.00	18.66	2.00	0.00	0.67	0.02	0.00
18.68	2.00	0.00	0.66	0.02	0.00	18.70	2.00	0.00	0.65	0.02	0.00
18.72	2.00	0.00	0.64	0.02	0.00	18.74	2.00	0.00	0.63	0.02	0.00
18.76	2.00	0.00	0.62	0.02	0.00	18.78	2.00	0.00	0.61	0.02	0.00
18.80	2.00	0.00	0.60	0.02	0.00	18.82	2.00	0.00	0.59	0.02	0.00
18.84	2.00	0.00	0.58	0.02	0.00	18.86	2.00	0.00	0.57	0.02	0.00
18.88	2.00	0.00	0.56	0.02	0.00	18.90	2.00	0.00	0.55	0.02	0.00
18.92	2.00	0.00	0.54	0.02	0.00	18.94	2.00	0.00	0.53	0.02	0.00
18.96	2.00	0.00	0.52	0.02	0.00	18.98	2.00	0.00	0.51	0.02	0.00
19.00	2.00	0.00	0.50	0.02	0.00	19.02	2.00	0.00	0.49	0.02	0.00
19.04	2.00	0.00	0.48	0.02	0.00	19.06	2.00	0.00	0.47	0.02	0.00
19.08	2.00	0.00	0.46	0.02	0.00	19.10	2.00	0.00	0.45	0.02	0.00
19.12	2.00	0.00	0.44	0.02	0.00	19.14	2.00	0.00	0.43	0.02	0.00
19.16	2.00	0.00	0.42	0.02	0.00	19.18	2.00	0.00	0.41	0.02	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (m)	FS	F_L	w_z	d_z	LPI	Depth (m)	FS	F_L	w_z	d_z	LPI
19.20	2.00	0.00	0.40	0.02	0.00	19.22	2.00	0.00	0.39	0.02	0.00
19.24	2.00	0.00	0.38	0.02	0.00	19.26	2.00	0.00	0.37	0.02	0.00
19.28	2.00	0.00	0.36	0.02	0.00	19.30	2.00	0.00	0.35	0.02	0.00
19.32	2.00	0.00	0.34	0.02	0.00	19.34	2.00	0.00	0.33	0.02	0.00
19.36	2.00	0.00	0.32	0.02	0.00	19.38	2.00	0.00	0.31	0.02	0.00
19.40	2.00	0.00	0.30	0.02	0.00	19.42	2.00	0.00	0.29	0.02	0.00
19.44	2.00	0.00	0.28	0.02	0.00	19.46	2.00	0.00	0.27	0.02	0.00
19.48	2.00	0.00	0.26	0.02	0.00	19.50	2.00	0.00	0.25	0.02	0.00
19.52	2.00	0.00	0.24	0.02	0.00	19.54	2.00	0.00	0.23	0.02	0.00
19.56	2.00	0.00	0.22	0.02	0.00	19.58	2.00	0.00	0.21	0.02	0.00
19.60	2.00	0.00	0.20	0.02	0.00	19.62	2.00	0.00	0.19	0.02	0.00
19.64	2.00	0.00	0.18	0.02	0.00	19.66	2.00	0.00	0.17	0.02	0.00
19.68	2.00	0.00	0.16	0.02	0.00	19.70	2.00	0.00	0.15	0.02	0.00
19.72	2.00	0.00	0.14	0.02	0.00	19.74	2.00	0.00	0.13	0.02	0.00
19.76	2.00	0.00	0.12	0.02	0.00	19.78	2.00	0.00	0.11	0.02	0.00
19.80	2.00	0.00	0.10	0.02	0.00	19.82	2.00	0.00	0.09	0.02	0.00
19.84	2.00	0.00	0.08	0.02	0.00	19.86	2.00	0.00	0.07	0.02	0.00
19.88	2.00	0.00	0.06	0.02	0.00	19.90	2.00	0.00	0.05	0.02	0.00
19.92	2.00	0.00	0.04	0.02	0.00	19.94	2.00	0.00	0.03	0.02	0.00
19.96	2.00	0.00	0.02	0.02	0.00	19.98	2.00	0.00	0.01	0.02	0.00
20.00	2.00	0.00	0.00	0.02	0.00	20.02	2.00	0.00	0.00	0.00	0.00
20.04	2.00	0.00	0.00	0.00	0.00	20.06	2.00	0.00	0.00	0.00	0.00
20.08	2.00	0.00	0.00	0.00	0.00	20.10	2.00	0.00	0.00	0.00	0.00
20.12	2.00	0.00	0.00	0.00	0.00	20.14	2.00	0.00	0.00	0.00	0.00
20.16	2.00	0.00	0.00	0.00	0.00	20.18	2.00	0.00	0.00	0.00	0.00
20.20	2.00	0.00	0.00	0.00	0.00	20.22	2.00	0.00	0.00	0.00	0.00
20.24	2.00	0.00	0.00	0.00	0.00	20.26	2.00	0.00	0.00	0.00	0.00
20.28	2.00	0.00	0.00	0.00	0.00	20.30	2.00	0.00	0.00	0.00	0.00
20.32	2.00	0.00	0.00	0.00	0.00	20.34	2.00	0.00	0.00	0.00	0.00
20.36	2.00	0.00	0.00	0.00	0.00	20.38	2.00	0.00	0.00	0.00	0.00
20.40	2.00	0.00	0.00	0.00	0.00	20.42	2.00	0.00	0.00	0.00	0.00

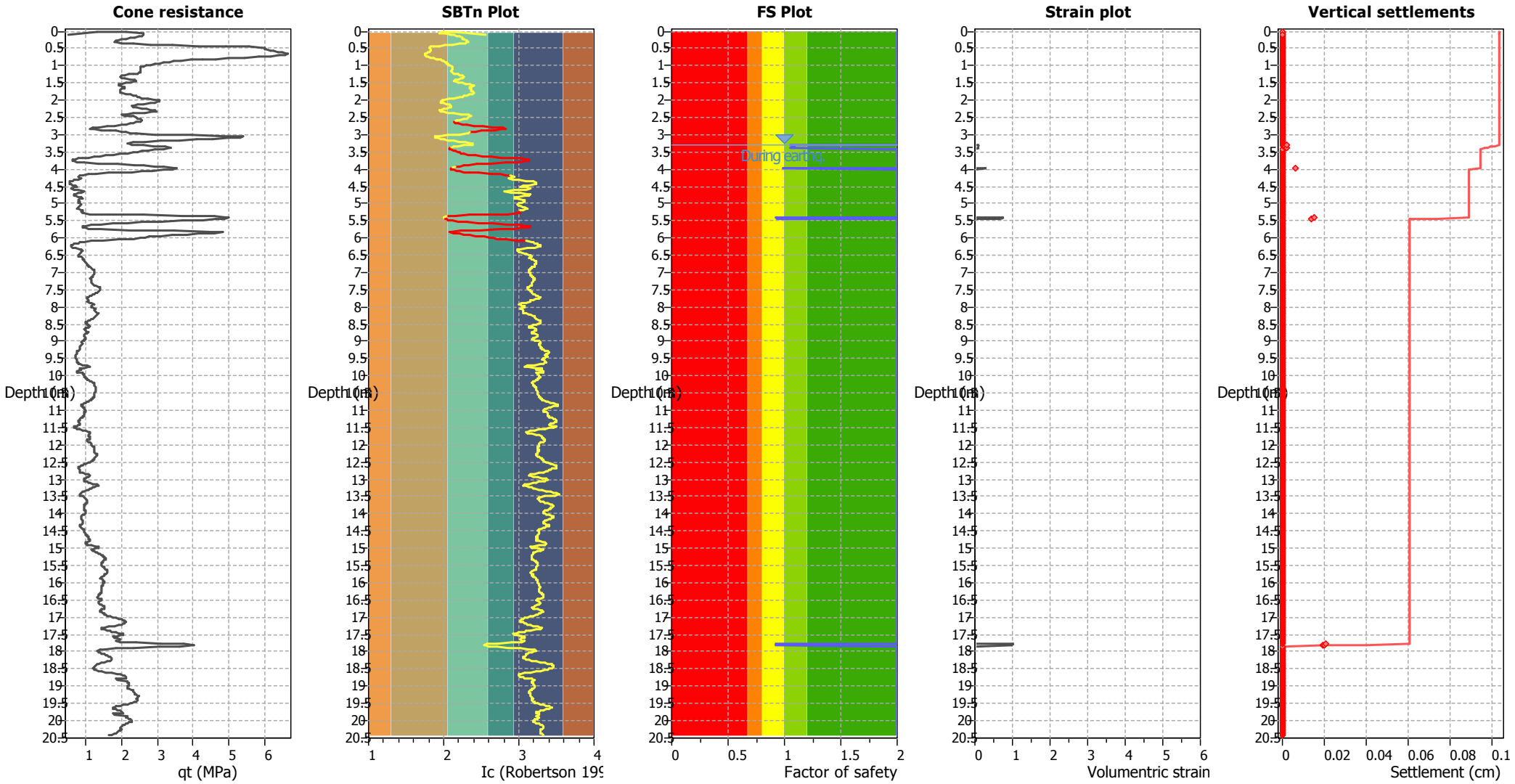
Overall liquefaction potential: 0.03

LPI = 0.00 - Liquefaction risk very low
LPI between 0.00 and 5.00 - Liquefaction risk low
LPI between 5.00 and 15.00 - Liquefaction risk high
LPI > 15.00 - Liquefaction risk very high

Abbreviations

FS: Calculated factor of safety for test point
F_L: 1 - FS
w_z: Function value of the extend of soil liquefaction according to depth
d_z: Layer thickness (m)
LPI: Liquefaction potential index value for test point

Estimation of post-earthquake settlements



Abbreviations

q_t:	Total cone resistance (cone resistance q_c corrected for pore water effects)
I_c:	Soil Behaviour Type Index
FS:	Calculated Factor of Safety against liquefaction
Volumentric strain:	Post-liquefaction volumentric strain

:: 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)
3.30	87.10	2.00	0.00	1.00	0.00	3.32	87.27	1.05	0.12	1.00	0.00
3.34	89.38	1.07	0.08	1.00	0.00	3.36	90.69	1.09	0.07	1.00	0.00
3.38	91.15	1.09	0.06	1.00	0.00	3.40	88.79	1.06	0.11	1.00	0.00
3.42	84.81	2.00	0.00	1.00	0.00	3.44	83.34	2.00	0.00	1.00	0.00
3.46	81.83	2.00	0.00	1.00	0.00	3.48	81.29	2.00	0.00	1.00	0.00
3.50	80.84	2.00	0.00	1.00	0.00	3.52	80.04	2.00	0.00	1.00	0.00
3.54	78.04	2.00	0.00	1.00	0.00	3.56	76.86	2.00	0.00	1.00	0.00
3.58	74.60	2.00	0.00	1.00	0.00	3.60	74.05	2.00	0.00	1.00	0.00
3.62	73.25	2.00	0.00	1.00	0.00	3.64	16.11	2.00	0.00	1.00	0.00
3.66	13.85	2.00	0.00	1.00	0.00	3.68	11.94	2.00	0.00	1.00	0.00
3.70	10.17	2.00	0.00	1.00	0.00	3.72	8.90	2.00	0.00	1.00	0.00
3.74	8.26	2.00	0.00	1.00	0.00	3.76	7.91	2.00	0.00	1.00	0.00
3.78	8.34	2.00	0.00	1.00	0.00	3.80	9.05	2.00	0.00	1.00	0.00
3.82	10.70	2.00	0.00	1.00	0.00	3.84	16.30	2.00	0.00	1.00	0.00
3.86	79.34	2.00	0.00	1.00	0.00	3.88	83.28	2.00	0.00	1.00	0.00
3.90	87.06	2.00	0.00	1.00	0.00	3.92	83.68	2.00	0.00	1.00	0.00
3.94	90.33	2.00	0.00	1.00	0.00	3.96	89.60	2.00	0.00	1.00	0.00
3.98	89.74	0.99	0.29	1.00	0.01	4.00	88.11	2.00	0.00	1.00	0.00
4.02	85.60	2.00	0.00	1.00	0.00	4.05	84.32	2.00	0.00	1.00	0.00
4.06	81.50	2.00	0.00	1.00	0.00	4.08	78.48	2.00	0.00	1.00	0.00
4.10	78.95	2.00	0.00	1.00	0.00	4.12	73.33	2.00	0.00	1.00	0.00
4.14	15.58	2.00	0.00	1.00	0.00	4.16	12.88	2.00	0.00	1.00	0.00
4.18	11.18	2.00	0.00	1.00	0.00	4.20	10.24	2.00	0.00	1.00	0.00
4.22	9.50	2.00	0.00	1.00	0.00	4.24	9.07	2.00	0.00	1.00	0.00
4.26	11.09	2.00	0.00	1.00	0.00	4.28	11.13	2.00	0.00	1.00	0.00
4.30	9.68	2.00	0.00	1.00	0.00	4.32	8.47	2.00	0.00	1.00	0.00
4.34	7.41	2.00	0.00	1.00	0.00	4.36	6.78	2.00	0.00	1.00	0.00
4.38	6.78	2.00	0.00	1.00	0.00	4.40	6.80	2.00	0.00	1.00	0.00
4.42	6.63	2.00	0.00	1.00	0.00	4.44	6.90	2.00	0.00	1.00	0.00
4.46	7.57	2.00	0.00	1.00	0.00	4.48	8.81	2.00	0.00	1.00	0.00
4.50	9.53	2.00	0.00	1.00	0.00	4.52	8.66	2.00	0.00	1.00	0.00
4.54	7.84	2.00	0.00	1.00	0.00	4.56	7.49	2.00	0.00	1.00	0.00
4.58	7.04	2.00	0.00	1.00	0.00	4.60	7.64	2.00	0.00	1.00	0.00
4.62	9.39	2.00	0.00	1.00	0.00	4.64	12.16	2.00	0.00	1.00	0.00
4.66	12.37	2.00	0.00	1.00	0.00	4.68	10.65	2.00	0.00	1.00	0.00
4.70	8.83	2.00	0.00	1.00	0.00	4.72	8.66	2.00	0.00	1.00	0.00
4.74	7.80	2.00	0.00	1.00	0.00	4.76	7.62	2.00	0.00	1.00	0.00
4.78	8.43	2.00	0.00	1.00	0.00	4.80	9.62	2.00	0.00	1.00	0.00
4.82	11.03	2.00	0.00	1.00	0.00	4.84	11.00	2.00	0.00	1.00	0.00
4.86	10.19	2.00	0.00	1.00	0.00	4.88	9.34	2.00	0.00	1.00	0.00
4.90	8.51	2.00	0.00	1.00	0.00	4.92	10.32	2.00	0.00	1.00	0.00
4.94	9.46	2.00	0.00	1.00	0.00	4.96	9.26	2.00	0.00	1.00	0.00
4.98	9.44	2.00	0.00	1.00	0.00	5.00	9.94	2.00	0.00	1.00	0.00
5.02	10.41	2.00	0.00	1.00	0.00	5.04	10.38	2.00	0.00	1.00	0.00
5.06	9.86	2.00	0.00	1.00	0.00	5.08	9.76	2.00	0.00	1.00	0.00
5.10	9.70	2.00	0.00	1.00	0.00	5.12	9.04	2.00	0.00	1.00	0.00
5.14	9.03	2.00	0.00	1.00	0.00	5.16	8.95	2.00	0.00	1.00	0.00
5.18	10.11	2.00	0.00	1.00	0.00	5.20	10.96	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)
5.22	10.38	2.00	0.00	1.00	0.00	5.24	10.46	2.00	0.00	1.00	0.00
5.26	10.24	2.00	0.00	1.00	0.00	5.28	10.49	2.00	0.00	1.00	0.00
5.30	12.31	2.00	0.00	1.00	0.00	5.32	16.65	2.00	0.00	1.00	0.00
5.34	82.61	2.00	0.00	1.00	0.00	5.36	94.70	2.00	0.00	1.00	0.00
5.38	94.69	2.00	0.00	1.00	0.00	5.40	95.57	2.00	0.00	1.00	0.00
5.42	94.38	0.93	0.75	1.00	0.02	5.44	94.87	0.93	0.67	1.00	0.01
5.46	94.42	2.00	0.00	1.00	0.00	5.48	92.09	2.00	0.00	1.00	0.00
5.50	89.05	2.00	0.00	1.00	0.00	5.52	83.95	2.00	0.00	1.00	0.00
5.54	81.91	2.00	0.00	1.00	0.00	5.56	80.74	2.00	0.00	1.00	0.00
5.58	20.49	2.00	0.00	1.00	0.00	5.60	15.45	2.00	0.00	1.00	0.00
5.62	12.65	2.00	0.00	1.00	0.00	5.64	11.13	2.00	0.00	1.00	0.00
5.66	9.88	2.00	0.00	1.00	0.00	5.68	9.71	2.00	0.00	1.00	0.00
5.70	11.13	2.00	0.00	1.00	0.00	5.72	12.82	2.00	0.00	1.00	0.00
5.74	13.06	2.00	0.00	1.00	0.00	5.76	13.72	2.00	0.00	1.00	0.00
5.78	76.29	2.00	0.00	1.00	0.00	5.80	93.27	2.00	0.00	1.00	0.00
5.82	100.94	2.00	0.00	1.00	0.00	5.84	101.48	2.00	0.00	1.00	0.00
5.86	101.20	2.00	0.00	1.00	0.00	5.88	99.24	2.00	0.00	1.00	0.00
5.90	95.63	2.00	0.00	1.00	0.00	5.92	97.45	2.00	0.00	1.00	0.00
5.94	90.92	2.00	0.00	1.00	0.00	5.96	88.13	2.00	0.00	1.00	0.00
5.98	29.46	2.00	0.00	1.00	0.00	6.00	29.24	2.00	0.00	1.00	0.00
6.02	26.46	2.00	0.00	1.00	0.00	6.04	22.13	2.00	0.00	1.00	0.00
6.06	16.26	2.00	0.00	1.00	0.00	6.08	11.63	2.00	0.00	1.00	0.00
6.10	10.41	2.00	0.00	1.00	0.00	6.12	9.44	2.00	0.00	1.00	0.00
6.14	8.56	2.00	0.00	1.00	0.00	6.16	7.86	2.00	0.00	1.00	0.00
6.18	7.59	2.00	0.00	1.00	0.00	6.20	6.90	2.00	0.00	1.00	0.00
6.22	6.34	2.00	0.00	1.00	0.00	6.24	6.15	2.00	0.00	1.00	0.00
6.26	6.26	2.00	0.00	1.00	0.00	6.28	6.77	2.00	0.00	1.00	0.00
6.30	7.58	2.00	0.00	1.00	0.00	6.32	8.90	2.00	0.00	1.00	0.00
6.34	10.33	2.00	0.00	1.00	0.00	6.36	9.87	2.00	0.00	1.00	0.00
6.38	9.44	2.00	0.00	1.00	0.00	6.40	9.79	2.00	0.00	1.00	0.00
6.42	9.41	2.00	0.00	1.00	0.00	6.44	9.15	2.00	0.00	1.00	0.00
6.46	8.88	2.00	0.00	1.00	0.00	6.48	8.85	2.00	0.00	1.00	0.00
6.50	8.69	2.00	0.00	1.00	0.00	6.52	8.73	2.00	0.00	1.00	0.00
6.54	8.88	2.00	0.00	1.00	0.00	6.56	9.47	2.00	0.00	1.00	0.00
6.58	9.91	2.00	0.00	1.00	0.00	6.60	9.95	2.00	0.00	1.00	0.00
6.62	10.05	2.00	0.00	1.00	0.00	6.64	10.13	2.00	0.00	1.00	0.00
6.66	10.01	2.00	0.00	1.00	0.00	6.68	10.31	2.00	0.00	1.00	0.00
6.70	10.50	2.00	0.00	1.00	0.00	6.72	10.68	2.00	0.00	1.00	0.00
6.74	10.85	2.00	0.00	1.00	0.00	6.76	11.12	2.00	0.00	1.00	0.00
6.78	11.30	2.00	0.00	1.00	0.00	6.80	11.20	2.00	0.00	1.00	0.00
6.82	11.45	2.00	0.00	1.00	0.00	6.84	11.98	2.00	0.00	1.00	0.00
6.86	12.40	2.00	0.00	1.00	0.00	6.88	12.53	2.00	0.00	1.00	0.00
6.90	12.62	2.00	0.00	1.00	0.00	6.92	13.00	2.00	0.00	1.00	0.00
6.94	13.27	2.00	0.00	1.00	0.00	6.96	13.28	2.00	0.00	1.00	0.00
6.98	13.22	2.00	0.00	1.00	0.00	7.00	13.14	2.00	0.00	1.00	0.00
7.02	13.16	2.00	0.00	1.00	0.00	7.04	13.19	2.00	0.00	1.00	0.00
7.06	13.00	2.00	0.00	1.00	0.00	7.08	12.65	2.00	0.00	1.00	0.00
7.10	12.63	2.00	0.00	1.00	0.00	7.12	12.49	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)
7.14	12.23	2.00	0.00	1.00	0.00	7.16	11.90	2.00	0.00	1.00	0.00
7.18	11.81	2.00	0.00	1.00	0.00	7.20	11.82	2.00	0.00	1.00	0.00
7.22	12.08	2.00	0.00	1.00	0.00	7.24	11.83	2.00	0.00	1.00	0.00
7.26	12.13	2.00	0.00	1.00	0.00	7.28	12.09	2.00	0.00	1.00	0.00
7.30	12.21	2.00	0.00	1.00	0.00	7.32	12.30	2.00	0.00	1.00	0.00
7.34	12.51	2.00	0.00	1.00	0.00	7.36	12.67	2.00	0.00	1.00	0.00
7.38	12.82	2.00	0.00	1.00	0.00	7.40	13.25	2.00	0.00	1.00	0.00
7.42	13.97	2.00	0.00	1.00	0.00	7.44	14.42	2.00	0.00	1.00	0.00
7.46	14.44	2.00	0.00	1.00	0.00	7.48	14.61	2.00	0.00	1.00	0.00
7.50	14.65	2.00	0.00	1.00	0.00	7.52	14.19	2.00	0.00	1.00	0.00
7.54	13.96	2.00	0.00	1.00	0.00	7.56	13.79	2.00	0.00	1.00	0.00
7.58	13.54	2.00	0.00	1.00	0.00	7.60	13.29	2.00	0.00	1.00	0.00
7.62	12.73	2.00	0.00	1.00	0.00	7.64	12.10	2.00	0.00	1.00	0.00
7.66	11.79	2.00	0.00	1.00	0.00	7.68	11.19	2.00	0.00	1.00	0.00
7.70	10.67	2.00	0.00	1.00	0.00	7.72	10.55	2.00	0.00	1.00	0.00
7.74	10.31	2.00	0.00	1.00	0.00	7.76	10.36	2.00	0.00	1.00	0.00
7.78	10.54	2.00	0.00	1.00	0.00	7.80	10.93	2.00	0.00	1.00	0.00
7.82	11.04	2.00	0.00	1.00	0.00	7.84	10.80	2.00	0.00	1.00	0.00
7.86	10.53	2.00	0.00	1.00	0.00	7.88	10.29	2.00	0.00	1.00	0.00
7.90	12.27	2.00	0.00	1.00	0.00	7.92	12.38	2.00	0.00	1.00	0.00
7.94	12.08	2.00	0.00	1.00	0.00	7.96	11.62	2.00	0.00	1.00	0.00
7.98	11.30	2.00	0.00	1.00	0.00	8.00	11.49	2.00	0.00	1.00	0.00
8.02	12.19	2.00	0.00	1.00	0.00	8.04	12.59	2.00	0.00	1.00	0.00
8.06	12.74	2.00	0.00	1.00	0.00	8.08	12.34	2.00	0.00	1.00	0.00
8.10	12.31	2.00	0.00	1.00	0.00	8.12	12.71	2.00	0.00	1.00	0.00
8.14	12.78	2.00	0.00	1.00	0.00	8.16	13.08	2.00	0.00	1.00	0.00
8.18	13.41	2.00	0.00	1.00	0.00	8.20	13.48	2.00	0.00	1.00	0.00
8.22	13.14	2.00	0.00	1.00	0.00	8.24	12.88	2.00	0.00	1.00	0.00
8.26	12.81	2.00	0.00	1.00	0.00	8.28	12.44	2.00	0.00	1.00	0.00
8.30	12.43	2.00	0.00	1.00	0.00	8.32	12.14	2.00	0.00	1.00	0.00
8.34	11.94	2.00	0.00	1.00	0.00	8.36	11.36	2.00	0.00	1.00	0.00
8.38	10.69	2.00	0.00	1.00	0.00	8.40	10.20	2.00	0.00	1.00	0.00
8.42	9.99	2.00	0.00	1.00	0.00	8.44	9.85	2.00	0.00	1.00	0.00
8.46	9.69	2.00	0.00	1.00	0.00	8.48	9.80	2.00	0.00	1.00	0.00
8.50	9.99	2.00	0.00	1.00	0.00	8.52	10.26	2.00	0.00	1.00	0.00
8.54	10.60	2.00	0.00	1.00	0.00	8.56	10.60	2.00	0.00	1.00	0.00
8.58	10.59	2.00	0.00	1.00	0.00	8.60	10.00	2.00	0.00	1.00	0.00
8.62	9.60	2.00	0.00	1.00	0.00	8.64	9.51	2.00	0.00	1.00	0.00
8.66	9.06	2.00	0.00	1.00	0.00	8.68	9.34	2.00	0.00	1.00	0.00
8.70	9.63	2.00	0.00	1.00	0.00	8.72	10.14	2.00	0.00	1.00	0.00
8.74	10.16	2.00	0.00	1.00	0.00	8.76	10.23	2.00	0.00	1.00	0.00
8.78	9.52	2.00	0.00	1.00	0.00	8.80	8.93	2.00	0.00	1.00	0.00
8.82	8.97	2.00	0.00	1.00	0.00	8.84	8.98	2.00	0.00	1.00	0.00
8.86	9.02	2.00	0.00	1.00	0.00	8.88	9.23	2.00	0.00	1.00	0.00
8.90	9.67	2.00	0.00	1.00	0.00	8.92	9.30	2.00	0.00	1.00	0.00
8.94	9.14	2.00	0.00	1.00	0.00	8.96	9.01	2.00	0.00	1.00	0.00
8.98	8.78	2.00	0.00	1.00	0.00	9.00	8.42	2.00	0.00	1.00	0.00
9.02	8.41	2.00	0.00	1.00	0.00	9.04	8.09	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)
9.06	8.36	2.00	0.00	1.00	0.00	9.08	8.61	2.00	0.00	1.00	0.00
9.10	8.17	2.00	0.00	1.00	0.00	9.12	8.10	2.00	0.00	1.00	0.00
9.14	7.74	2.00	0.00	1.00	0.00	9.16	7.69	2.00	0.00	1.00	0.00
9.18	7.62	2.00	0.00	1.00	0.00	9.20	7.62	2.00	0.00	1.00	0.00
9.22	7.73	2.00	0.00	1.00	0.00	9.24	7.57	2.00	0.00	1.00	0.00
9.26	7.27	2.00	0.00	1.00	0.00	9.28	6.85	2.00	0.00	1.00	0.00
9.30	6.68	2.00	0.00	1.00	0.00	9.32	6.66	2.00	0.00	1.00	0.00
9.34	6.71	2.00	0.00	1.00	0.00	9.36	6.80	2.00	0.00	1.00	0.00
9.38	6.62	2.00	0.00	1.00	0.00	9.40	6.44	2.00	0.00	1.00	0.00
9.42	6.32	2.00	0.00	1.00	0.00	9.44	6.28	2.00	0.00	1.00	0.00
9.46	6.27	2.00	0.00	1.00	0.00	9.48	6.47	2.00	0.00	1.00	0.00
9.50	6.66	2.00	0.00	1.00	0.00	9.52	6.67	2.00	0.00	1.00	0.00
9.54	6.71	2.00	0.00	1.00	0.00	9.56	6.55	2.00	0.00	1.00	0.00
9.58	6.54	2.00	0.00	1.00	0.00	9.60	6.79	2.00	0.00	1.00	0.00
9.62	6.98	2.00	0.00	1.00	0.00	9.64	7.31	2.00	0.00	1.00	0.00
9.66	7.46	2.00	0.00	1.00	0.00	9.68	8.01	2.00	0.00	1.00	0.00
9.70	9.67	2.00	0.00	1.00	0.00	9.72	11.05	2.00	0.00	1.00	0.00
9.74	10.18	2.00	0.00	1.00	0.00	9.76	8.13	2.00	0.00	1.00	0.00
9.78	7.58	2.00	0.00	1.00	0.00	9.80	7.44	2.00	0.00	1.00	0.00
9.82	7.92	2.00	0.00	1.00	0.00	9.84	7.89	2.00	0.00	1.00	0.00
9.86	7.96	2.00	0.00	1.00	0.00	9.88	4.03	2.00	0.00	1.00	0.00
9.90	8.21	2.00	0.00	1.00	0.00	9.92	8.10	2.00	0.00	1.00	0.00
9.94	8.42	2.00	0.00	1.00	0.00	9.96	8.44	2.00	0.00	1.00	0.00
9.98	8.53	2.00	0.00	1.00	0.00	10.00	8.75	2.00	0.00	1.00	0.00
10.02	8.68	2.00	0.00	1.00	0.00	10.04	8.69	2.00	0.00	1.00	0.00
10.06	8.86	2.00	0.00	1.00	0.00	10.08	9.27	2.00	0.00	1.00	0.00
10.10	9.37	2.00	0.00	1.00	0.00	10.12	9.49	2.00	0.00	1.00	0.00
10.14	9.90	2.00	0.00	1.00	0.00	10.16	10.27	2.00	0.00	1.00	0.00
10.18	10.79	2.00	0.00	1.00	0.00	10.20	11.05	2.00	0.00	1.00	0.00
10.22	11.13	2.00	0.00	1.00	0.00	10.24	11.12	2.00	0.00	1.00	0.00
10.26	11.12	2.00	0.00	1.00	0.00	10.28	11.20	2.00	0.00	1.00	0.00
10.30	11.21	2.00	0.00	1.00	0.00	10.32	11.31	2.00	0.00	1.00	0.00
10.34	11.26	2.00	0.00	1.00	0.00	10.36	11.28	2.00	0.00	1.00	0.00
10.38	11.45	2.00	0.00	1.00	0.00	10.40	11.66	2.00	0.00	1.00	0.00
10.42	11.38	2.00	0.00	1.00	0.00	10.44	11.22	2.00	0.00	1.00	0.00
10.46	11.07	2.00	0.00	1.00	0.00	10.48	11.23	2.00	0.00	1.00	0.00
10.50	10.91	2.00	0.00	1.00	0.00	10.52	11.10	2.00	0.00	1.00	0.00
10.54	11.01	2.00	0.00	1.00	0.00	10.56	10.89	2.00	0.00	1.00	0.00
10.58	10.84	2.00	0.00	1.00	0.00	10.60	10.82	2.00	0.00	1.00	0.00
10.62	10.66	2.00	0.00	1.00	0.00	10.64	10.61	2.00	0.00	1.00	0.00
10.66	10.45	2.00	0.00	1.00	0.00	10.68	10.32	2.00	0.00	1.00	0.00
10.70	10.12	2.00	0.00	1.00	0.00	10.72	10.06	2.00	0.00	1.00	0.00
10.74	9.49	2.00	0.00	1.00	0.00	10.76	8.86	2.00	0.00	1.00	0.00
10.78	8.63	2.00	0.00	1.00	0.00	10.80	8.19	2.00	0.00	1.00	0.00
10.82	7.70	2.00	0.00	1.00	0.00	10.84	7.30	2.00	0.00	1.00	0.00
10.86	7.33	2.00	0.00	1.00	0.00	10.88	7.81	2.00	0.00	1.00	0.00
10.90	8.00	2.00	0.00	1.00	0.00	10.92	8.05	2.00	0.00	1.00	0.00
10.94	8.23	2.00	0.00	1.00	0.00	10.96	8.19	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)
10.98	8.33	2.00	0.00	1.00	0.00	11.00	8.45	2.00	0.00	1.00	0.00
11.02	8.48	2.00	0.00	1.00	0.00	11.04	8.23	2.00	0.00	1.00	0.00
11.06	8.19	2.00	0.00	1.00	0.00	11.08	8.07	2.00	0.00	1.00	0.00
11.10	7.98	2.00	0.00	1.00	0.00	11.12	7.91	2.00	0.00	1.00	0.00
11.14	7.95	2.00	0.00	1.00	0.00	11.16	7.96	2.00	0.00	1.00	0.00
11.18	7.95	2.00	0.00	1.00	0.00	11.20	7.61	2.00	0.00	1.00	0.00
11.22	7.39	2.00	0.00	1.00	0.00	11.24	7.11	2.00	0.00	1.00	0.00
11.26	6.90	2.00	0.00	1.00	0.00	11.28	6.86	2.00	0.00	1.00	0.00
11.30	6.77	2.00	0.00	1.00	0.00	11.32	6.61	2.00	0.00	1.00	0.00
11.34	6.50	2.00	0.00	1.00	0.00	11.36	6.82	2.00	0.00	1.00	0.00
11.38	6.99	2.00	0.00	1.00	0.00	11.40	6.94	2.00	0.00	1.00	0.00
11.42	6.77	2.00	0.00	1.00	0.00	11.44	6.19	2.00	0.00	1.00	0.00
11.46	5.79	2.00	0.00	1.00	0.00	11.48	5.42	2.00	0.00	1.00	0.00
11.50	5.35	2.00	0.00	1.00	0.00	11.52	5.82	2.00	0.00	1.00	0.00
11.54	6.23	2.00	0.00	1.00	0.00	11.56	6.78	2.00	0.00	1.00	0.00
11.58	7.48	2.00	0.00	1.00	0.00	11.60	8.35	2.00	0.00	1.00	0.00
11.62	8.96	2.00	0.00	1.00	0.00	11.64	9.24	2.00	0.00	1.00	0.00
11.66	9.33	2.00	0.00	1.00	0.00	11.68	9.42	2.00	0.00	1.00	0.00
11.70	9.14	2.00	0.00	1.00	0.00	11.72	8.80	2.00	0.00	1.00	0.00
11.74	8.97	2.00	0.00	1.00	0.00	11.76	9.26	2.00	0.00	1.00	0.00
11.78	9.36	2.00	0.00	1.00	0.00	11.80	9.34	2.00	0.00	1.00	0.00
11.82	9.19	2.00	0.00	1.00	0.00	11.84	8.86	2.00	0.00	1.00	0.00
11.86	8.55	2.00	0.00	1.00	0.00	11.88	8.47	2.00	0.00	1.00	0.00
11.90	8.61	2.00	0.00	1.00	0.00	11.92	8.97	2.00	0.00	1.00	0.00
11.94	9.25	2.00	0.00	1.00	0.00	11.96	9.72	2.00	0.00	1.00	0.00
11.98	9.75	2.00	0.00	1.00	0.00	12.00	9.56	2.00	0.00	1.00	0.00
12.02	9.59	2.00	0.00	1.00	0.00	12.04	9.81	2.00	0.00	1.00	0.00
12.06	10.19	2.00	0.00	1.00	0.00	12.08	10.22	2.00	0.00	1.00	0.00
12.10	10.24	2.00	0.00	1.00	0.00	12.12	10.07	2.00	0.00	1.00	0.00
12.14	10.20	2.00	0.00	1.00	0.00	12.16	10.09	2.00	0.00	1.00	0.00
12.18	10.25	2.00	0.00	1.00	0.00	12.20	10.19	2.00	0.00	1.00	0.00
12.22	10.36	2.00	0.00	1.00	0.00	12.24	10.38	2.00	0.00	1.00	0.00
12.26	10.67	2.00	0.00	1.00	0.00	12.28	10.89	2.00	0.00	1.00	0.00
12.30	10.94	2.00	0.00	1.00	0.00	12.32	10.75	2.00	0.00	1.00	0.00
12.34	10.69	2.00	0.00	1.00	0.00	12.36	10.29	2.00	0.00	1.00	0.00
12.38	9.96	2.00	0.00	1.00	0.00	12.40	10.01	2.00	0.00	1.00	0.00
12.42	10.08	2.00	0.00	1.00	0.00	12.44	9.90	2.00	0.00	1.00	0.00
12.46	9.56	2.00	0.00	1.00	0.00	12.48	9.72	2.00	0.00	1.00	0.00
12.50	9.29	2.00	0.00	1.00	0.00	12.52	8.48	2.00	0.00	1.00	0.00
12.54	8.30	2.00	0.00	1.00	0.00	12.56	7.54	2.00	0.00	1.00	0.00
12.58	7.19	2.00	0.00	1.00	0.00	12.60	6.87	2.00	0.00	1.00	0.00
12.62	6.56	2.00	0.00	1.00	0.00	12.64	6.14	2.00	0.00	1.00	0.00
12.66	6.09	2.00	0.00	1.00	0.00	12.68	6.12	2.00	0.00	1.00	0.00
12.70	6.23	2.00	0.00	1.00	0.00	12.72	6.46	2.00	0.00	1.00	0.00
12.74	6.50	2.00	0.00	1.00	0.00	12.76	6.36	2.00	0.00	1.00	0.00
12.78	6.29	2.00	0.00	1.00	0.00	12.80	6.57	2.00	0.00	1.00	0.00
12.82	7.00	2.00	0.00	1.00	0.00	12.84	7.43	2.00	0.00	1.00	0.00
12.86	8.79	2.00	0.00	1.00	0.00	12.88	9.04	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)
12.90	8.78	2.00	0.00	1.00	0.00	12.92	8.75	2.00	0.00	1.00	0.00
12.94	8.17	2.00	0.00	1.00	0.00	12.96	7.65	2.00	0.00	1.00	0.00
12.98	7.42	2.00	0.00	1.00	0.00	13.00	7.11	2.00	0.00	1.00	0.00
13.02	7.27	2.00	0.00	1.00	0.00	13.04	7.51	2.00	0.00	1.00	0.00
13.06	7.73	2.00	0.00	1.00	0.00	13.08	8.13	2.00	0.00	1.00	0.00
13.10	8.23	2.00	0.00	1.00	0.00	13.12	8.48	2.00	0.00	1.00	0.00
13.14	9.33	2.00	0.00	1.00	0.00	13.16	10.58	2.00	0.00	1.00	0.00
13.18	10.85	2.00	0.00	1.00	0.00	13.20	10.29	2.00	0.00	1.00	0.00
13.22	9.66	2.00	0.00	1.00	0.00	13.24	9.25	2.00	0.00	1.00	0.00
13.26	8.90	2.00	0.00	1.00	0.00	13.28	8.54	2.00	0.00	1.00	0.00
13.30	8.09	2.00	0.00	1.00	0.00	13.32	7.83	2.00	0.00	1.00	0.00
13.34	7.38	2.00	0.00	1.00	0.00	13.36	7.00	2.00	0.00	1.00	0.00
13.38	6.78	2.00	0.00	1.00	0.00	13.40	6.35	2.00	0.00	1.00	0.00
13.42	6.16	2.00	0.00	1.00	0.00	13.44	5.98	2.00	0.00	1.00	0.00
13.46	6.18	2.00	0.00	1.00	0.00	13.48	6.56	2.00	0.00	1.00	0.00
13.50	6.82	2.00	0.00	1.00	0.00	13.52	7.12	2.00	0.00	1.00	0.00
13.54	7.32	2.00	0.00	1.00	0.00	13.56	7.37	2.00	0.00	1.00	0.00
13.58	7.58	2.00	0.00	1.00	0.00	13.60	7.73	2.00	0.00	1.00	0.00
13.62	7.84	2.00	0.00	1.00	0.00	13.64	7.95	2.00	0.00	1.00	0.00
13.66	7.83	2.00	0.00	1.00	0.00	13.68	7.73	2.00	0.00	1.00	0.00
13.70	7.45	2.00	0.00	1.00	0.00	13.72	7.28	2.00	0.00	1.00	0.00
13.74	7.17	2.00	0.00	1.00	0.00	13.76	7.02	2.00	0.00	1.00	0.00
13.78	6.90	2.00	0.00	1.00	0.00	13.80	7.04	2.00	0.00	1.00	0.00
13.82	7.10	2.00	0.00	1.00	0.00	13.84	7.15	2.00	0.00	1.00	0.00
13.86	6.66	2.00	0.00	1.00	0.00	13.88	6.92	2.00	0.00	1.00	0.00
13.90	7.05	2.00	0.00	1.00	0.00	13.92	7.18	2.00	0.00	1.00	0.00
13.94	7.39	2.00	0.00	1.00	0.00	13.96	7.42	2.00	0.00	1.00	0.00
13.98	7.48	2.00	0.00	1.00	0.00	14.00	7.41	2.00	0.00	1.00	0.00
14.02	7.07	2.00	0.00	1.00	0.00	14.04	6.77	2.00	0.00	1.00	0.00
14.06	6.37	2.00	0.00	1.00	0.00	14.08	6.16	2.00	0.00	1.00	0.00
14.10	6.21	2.00	0.00	1.00	0.00	14.12	6.17	2.00	0.00	1.00	0.00
14.14	6.28	2.00	0.00	1.00	0.00	14.16	6.34	2.00	0.00	1.00	0.00
14.18	6.55	2.00	0.00	1.00	0.00	14.20	6.77	2.00	0.00	1.00	0.00
14.22	6.68	2.00	0.00	1.00	0.00	14.24	6.64	2.00	0.00	1.00	0.00
14.26	6.62	2.00	0.00	1.00	0.00	14.28	6.45	2.00	0.00	1.00	0.00
14.30	6.30	2.00	0.00	1.00	0.00	14.32	5.96	2.00	0.00	1.00	0.00
14.34	5.71	2.00	0.00	1.00	0.00	14.36	5.75	2.00	0.00	1.00	0.00
14.38	5.95	2.00	0.00	1.00	0.00	14.40	6.13	2.00	0.00	1.00	0.00
14.42	6.22	2.00	0.00	1.00	0.00	14.44	6.56	2.00	0.00	1.00	0.00
14.46	6.82	2.00	0.00	1.00	0.00	14.48	7.07	2.00	0.00	1.00	0.00
14.50	6.97	2.00	0.00	1.00	0.00	14.52	6.82	2.00	0.00	1.00	0.00
14.54	7.04	2.00	0.00	1.00	0.00	14.56	7.14	2.00	0.00	1.00	0.00
14.58	7.25	2.00	0.00	1.00	0.00	14.60	7.39	2.00	0.00	1.00	0.00
14.62	7.52	2.00	0.00	1.00	0.00	14.64	7.55	2.00	0.00	1.00	0.00
14.66	7.83	2.00	0.00	1.00	0.00	14.68	7.97	2.00	0.00	1.00	0.00
14.70	7.80	2.00	0.00	1.00	0.00	14.72	7.78	2.00	0.00	1.00	0.00
14.74	7.81	2.00	0.00	1.00	0.00	14.76	8.04	2.00	0.00	1.00	0.00
14.78	8.43	2.00	0.00	1.00	0.00	14.80	8.01	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)
14.82	7.49	2.00	0.00	1.00	0.00	14.84	7.14	2.00	0.00	1.00	0.00
14.86	7.33	2.00	0.00	1.00	0.00	14.88	7.23	2.00	0.00	1.00	0.00
14.90	7.46	2.00	0.00	1.00	0.00	14.92	8.09	2.00	0.00	1.00	0.00
14.94	9.61	2.00	0.00	1.00	0.00	14.96	10.42	2.00	0.00	1.00	0.00
14.98	9.94	2.00	0.00	1.00	0.00	15.00	9.75	2.00	0.00	1.00	0.00
15.02	8.43	2.00	0.00	1.00	0.00	15.04	8.26	2.00	0.00	1.00	0.00
15.06	8.71	2.00	0.00	1.00	0.00	15.08	8.86	2.00	0.00	1.00	0.00
15.10	9.21	2.00	0.00	1.00	0.00	15.12	9.50	2.00	0.00	1.00	0.00
15.14	9.60	2.00	0.00	1.00	0.00	15.16	9.99	2.00	0.00	1.00	0.00
15.18	10.24	2.00	0.00	1.00	0.00	15.20	10.55	2.00	0.00	1.00	0.00
15.22	10.80	2.00	0.00	1.00	0.00	15.24	10.94	2.00	0.00	1.00	0.00
15.26	11.00	2.00	0.00	1.00	0.00	15.28	11.26	2.00	0.00	1.00	0.00
15.30	11.40	2.00	0.00	1.00	0.00	15.32	11.42	2.00	0.00	1.00	0.00
15.34	11.17	2.00	0.00	1.00	0.00	15.36	10.77	2.00	0.00	1.00	0.00
15.38	10.82	2.00	0.00	1.00	0.00	15.40	10.75	2.00	0.00	1.00	0.00
15.42	10.61	2.00	0.00	1.00	0.00	15.44	10.29	2.00	0.00	1.00	0.00
15.46	10.58	2.00	0.00	1.00	0.00	15.48	10.56	2.00	0.00	1.00	0.00
15.50	10.65	2.00	0.00	1.00	0.00	15.52	10.84	2.00	0.00	1.00	0.00
15.54	11.14	2.00	0.00	1.00	0.00	15.56	11.23	2.00	0.00	1.00	0.00
15.58	11.22	2.00	0.00	1.00	0.00	15.60	11.28	2.00	0.00	1.00	0.00
15.62	11.26	2.00	0.00	1.00	0.00	15.64	11.70	2.00	0.00	1.00	0.00
15.66	11.70	2.00	0.00	1.00	0.00	15.68	11.77	2.00	0.00	1.00	0.00
15.70	11.79	2.00	0.00	1.00	0.00	15.72	11.56	2.00	0.00	1.00	0.00
15.74	11.26	2.00	0.00	1.00	0.00	15.76	10.85	2.00	0.00	1.00	0.00
15.78	10.78	2.00	0.00	1.00	0.00	15.80	10.79	2.00	0.00	1.00	0.00
15.82	10.98	2.00	0.00	1.00	0.00	15.84	9.38	2.00	0.00	1.00	0.00
15.86	10.25	2.00	0.00	1.00	0.00	15.89	10.42	2.00	0.00	1.00	0.00
15.90	10.40	2.00	0.00	1.00	0.00	15.92	10.52	2.00	0.00	1.00	0.00
15.94	10.40	2.00	0.00	1.00	0.00	15.96	10.65	2.00	0.00	1.00	0.00
15.98	10.73	2.00	0.00	1.00	0.00	16.00	10.79	2.00	0.00	1.00	0.00
16.02	10.48	2.00	0.00	1.00	0.00	16.04	10.45	2.00	0.00	1.00	0.00
16.06	10.31	2.00	0.00	1.00	0.00	16.08	10.35	2.00	0.00	1.00	0.00
16.10	10.36	2.00	0.00	1.00	0.00	16.12	10.11	2.00	0.00	1.00	0.00
16.14	10.15	2.00	0.00	1.00	0.00	16.16	10.24	2.00	0.00	1.00	0.00
16.18	10.21	2.00	0.00	1.00	0.00	16.20	10.00	2.00	0.00	1.00	0.00
16.22	10.05	2.00	0.00	1.00	0.00	16.24	10.07	2.00	0.00	1.00	0.00
16.26	10.25	2.00	0.00	1.00	0.00	16.28	9.91	2.00	0.00	1.00	0.00
16.30	9.70	2.00	0.00	1.00	0.00	16.32	9.68	2.00	0.00	1.00	0.00
16.34	9.57	2.00	0.00	1.00	0.00	16.36	9.44	2.00	0.00	1.00	0.00
16.38	9.47	2.00	0.00	1.00	0.00	16.40	9.39	2.00	0.00	1.00	0.00
16.42	9.08	2.00	0.00	1.00	0.00	16.44	9.15	2.00	0.00	1.00	0.00
16.46	9.09	2.00	0.00	1.00	0.00	16.48	10.33	2.00	0.00	1.00	0.00
16.50	10.28	2.00	0.00	1.00	0.00	16.52	9.83	2.00	0.00	1.00	0.00
16.54	9.47	2.00	0.00	1.00	0.00	16.56	9.10	2.00	0.00	1.00	0.00
16.58	9.25	2.00	0.00	1.00	0.00	16.60	9.27	2.00	0.00	1.00	0.00
16.62	9.43	2.00	0.00	1.00	0.00	16.64	9.93	2.00	0.00	1.00	0.00
16.66	10.20	2.00	0.00	1.00	0.00	16.68	10.42	2.00	0.00	1.00	0.00
16.70	10.49	2.00	0.00	1.00	0.00	16.72	10.59	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)
16.74	10.86	2.00	0.00	1.00	0.00	16.76	10.51	2.00	0.00	1.00	0.00
16.78	10.15	2.00	0.00	1.00	0.00	16.80	9.87	2.00	0.00	1.00	0.00
16.82	9.79	2.00	0.00	1.00	0.00	16.84	9.33	2.00	0.00	1.00	0.00
16.86	9.99	2.00	0.00	1.00	0.00	16.88	10.18	2.00	0.00	1.00	0.00
16.90	10.39	2.00	0.00	1.00	0.00	16.92	10.46	2.00	0.00	1.00	0.00
16.94	10.68	2.00	0.00	1.00	0.00	16.96	11.00	2.00	0.00	1.00	0.00
16.98	11.38	2.00	0.00	1.00	0.00	17.00	12.03	2.00	0.00	1.00	0.00
17.02	12.88	2.00	0.00	1.00	0.00	17.04	13.57	2.00	0.00	1.00	0.00
17.06	13.96	2.00	0.00	1.00	0.00	17.08	14.28	2.00	0.00	1.00	0.00
17.10	14.82	2.00	0.00	1.00	0.00	17.12	14.84	2.00	0.00	1.00	0.00
17.14	14.50	2.00	0.00	1.00	0.00	17.16	14.55	2.00	0.00	1.00	0.00
17.18	14.45	2.00	0.00	1.00	0.00	17.20	14.20	2.00	0.00	1.00	0.00
17.22	13.85	2.00	0.00	1.00	0.00	17.24	13.39	2.00	0.00	1.00	0.00
17.26	12.43	2.00	0.00	1.00	0.00	17.28	10.94	2.00	0.00	1.00	0.00
17.30	10.12	2.00	0.00	1.00	0.00	17.32	9.42	2.00	0.00	1.00	0.00
17.34	9.57	2.00	0.00	1.00	0.00	17.36	10.24	2.00	0.00	1.00	0.00
17.38	11.31	2.00	0.00	1.00	0.00	17.40	11.53	2.00	0.00	1.00	0.00
17.42	11.92	2.00	0.00	1.00	0.00	17.44	12.32	2.00	0.00	1.00	0.00
17.46	14.35	2.00	0.00	1.00	0.00	17.48	15.00	2.00	0.00	1.00	0.00
17.50	15.26	2.00	0.00	1.00	0.00	17.52	14.01	2.00	0.00	1.00	0.00
17.54	13.48	2.00	0.00	1.00	0.00	17.56	12.88	2.00	0.00	1.00	0.00
17.58	12.67	2.00	0.00	1.00	0.00	17.60	12.51	2.00	0.00	1.00	0.00
17.62	13.15	2.00	0.00	1.00	0.00	17.64	14.19	2.00	0.00	1.00	0.00
17.66	14.83	2.00	0.00	1.00	0.00	17.68	13.57	2.00	0.00	1.00	0.00
17.70	13.05	2.00	0.00	1.00	0.00	17.72	13.24	2.00	0.00	1.00	0.00
17.74	15.92	2.00	0.00	1.00	0.00	17.76	22.88	2.00	0.00	1.00	0.00
17.78	88.67	0.92	1.03	1.00	0.02	17.80	89.34	0.93	0.97	1.00	0.02
17.82	88.80	0.92	1.02	1.00	0.02	17.84	28.05	2.00	0.00	1.00	0.00
17.86	22.25	2.00	0.00	1.00	0.00	17.88	16.86	2.00	0.00	1.00	0.00
17.90	12.18	2.00	0.00	1.00	0.00	17.92	10.52	2.00	0.00	1.00	0.00
17.94	9.64	2.00	0.00	1.00	0.00	17.96	9.35	2.00	0.00	1.00	0.00
17.98	9.27	2.00	0.00	1.00	0.00	18.00	9.57	2.00	0.00	1.00	0.00
18.02	9.73	2.00	0.00	1.00	0.00	18.04	9.77	2.00	0.00	1.00	0.00
18.06	10.03	2.00	0.00	1.00	0.00	18.08	10.87	2.00	0.00	1.00	0.00
18.10	10.95	2.00	0.00	1.00	0.00	18.12	10.98	2.00	0.00	1.00	0.00
18.14	11.50	2.00	0.00	1.00	0.00	18.16	11.93	2.00	0.00	1.00	0.00
18.18	12.16	2.00	0.00	1.00	0.00	18.20	12.25	2.00	0.00	1.00	0.00
18.22	12.22	2.00	0.00	1.00	0.00	18.24	12.17	2.00	0.00	1.00	0.00
18.26	11.58	2.00	0.00	1.00	0.00	18.28	11.35	2.00	0.00	1.00	0.00
18.30	10.44	2.00	0.00	1.00	0.00	18.32	9.97	2.00	0.00	1.00	0.00
18.34	9.53	2.00	0.00	1.00	0.00	18.36	9.07	2.00	0.00	1.00	0.00
18.38	9.05	2.00	0.00	1.00	0.00	18.40	8.81	2.00	0.00	1.00	0.00
18.42	8.73	2.00	0.00	1.00	0.00	18.44	8.43	2.00	0.00	1.00	0.00
18.46	8.23	2.00	0.00	1.00	0.00	18.48	8.31	2.00	0.00	1.00	0.00
18.50	8.21	2.00	0.00	1.00	0.00	18.52	8.35	2.00	0.00	1.00	0.00
18.54	8.67	2.00	0.00	1.00	0.00	18.56	9.03	2.00	0.00	1.00	0.00
18.58	9.68	2.00	0.00	1.00	0.00	18.60	10.66	2.00	0.00	1.00	0.00
18.62	12.12	2.00	0.00	1.00	0.00	18.64	12.93	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)
18.66	13.75	2.00	0.00	1.00	0.00	18.68	14.63	2.00	0.00	1.00	0.00
18.70	14.55	2.00	0.00	1.00	0.00	18.72	14.62	2.00	0.00	1.00	0.00
18.74	14.95	2.00	0.00	1.00	0.00	18.76	14.78	2.00	0.00	1.00	0.00
18.78	14.59	2.00	0.00	1.00	0.00	18.80	14.60	2.00	0.00	1.00	0.00
18.82	9.18	2.00	0.00	1.00	0.00	18.84	14.77	2.00	0.00	1.00	0.00
18.86	14.88	2.00	0.00	1.00	0.00	18.88	14.98	2.00	0.00	1.00	0.00
18.90	15.10	2.00	0.00	1.00	0.00	18.92	15.23	2.00	0.00	1.00	0.00
18.94	15.14	2.00	0.00	1.00	0.00	18.96	15.29	2.00	0.00	1.00	0.00
18.98	15.31	2.00	0.00	1.00	0.00	19.00	14.86	2.00	0.00	1.00	0.00
19.02	14.76	2.00	0.00	1.00	0.00	19.04	14.71	2.00	0.00	1.00	0.00
19.06	14.97	2.00	0.00	1.00	0.00	19.08	15.30	2.00	0.00	1.00	0.00
19.10	15.66	2.00	0.00	1.00	0.00	19.12	15.91	2.00	0.00	1.00	0.00
19.14	16.13	2.00	0.00	1.00	0.00	19.16	16.13	2.00	0.00	1.00	0.00
19.18	16.20	2.00	0.00	1.00	0.00	19.20	16.25	2.00	0.00	1.00	0.00
19.22	16.41	2.00	0.00	1.00	0.00	19.24	16.32	2.00	0.00	1.00	0.00
19.26	16.23	2.00	0.00	1.00	0.00	19.28	16.88	2.00	0.00	1.00	0.00
19.30	17.02	2.00	0.00	1.00	0.00	19.32	17.09	2.00	0.00	1.00	0.00
19.34	16.70	2.00	0.00	1.00	0.00	19.36	16.56	2.00	0.00	1.00	0.00
19.38	16.62	2.00	0.00	1.00	0.00	19.40	16.89	2.00	0.00	1.00	0.00
19.42	16.77	2.00	0.00	1.00	0.00	19.44	16.27	2.00	0.00	1.00	0.00
19.46	16.07	2.00	0.00	1.00	0.00	19.48	15.72	2.00	0.00	1.00	0.00
19.50	15.26	2.00	0.00	1.00	0.00	19.52	14.47	2.00	0.00	1.00	0.00
19.54	13.89	2.00	0.00	1.00	0.00	19.56	13.07	2.00	0.00	1.00	0.00
19.58	12.38	2.00	0.00	1.00	0.00	19.60	11.80	2.00	0.00	1.00	0.00
19.62	11.68	2.00	0.00	1.00	0.00	19.64	11.65	2.00	0.00	1.00	0.00
19.66	11.73	2.00	0.00	1.00	0.00	19.68	12.10	2.00	0.00	1.00	0.00
19.70	12.61	2.00	0.00	1.00	0.00	19.72	12.97	2.00	0.00	1.00	0.00
19.74	13.25	2.00	0.00	1.00	0.00	19.76	13.54	2.00	0.00	1.00	0.00
19.78	13.66	2.00	0.00	1.00	0.00	19.80	13.85	2.00	0.00	1.00	0.00
19.82	7.17	2.00	0.00	1.00	0.00	19.84	14.30	2.00	0.00	1.00	0.00
19.86	14.35	2.00	0.00	1.00	0.00	19.88	14.30	2.00	0.00	1.00	0.00
19.90	14.08	2.00	0.00	1.00	0.00	19.92	14.25	2.00	0.00	1.00	0.00
19.94	14.85	2.00	0.00	1.00	0.00	19.96	15.06	2.00	0.00	1.00	0.00
19.98	15.42	2.00	0.00	1.00	0.00	20.00	15.36	2.00	0.00	1.00	0.00
20.02	15.34	2.00	0.00	1.00	0.00	20.04	15.11	2.00	0.00	1.00	0.00
20.06	14.90	2.00	0.00	1.00	0.00	20.08	14.37	2.00	0.00	1.00	0.00
20.10	14.23	2.00	0.00	1.00	0.00	20.12	13.82	2.00	0.00	1.00	0.00
20.14	13.48	2.00	0.00	1.00	0.00	20.16	13.36	2.00	0.00	1.00	0.00
20.18	13.16	2.00	0.00	1.00	0.00	20.20	12.89	2.00	0.00	1.00	0.00
20.22	12.82	2.00	0.00	1.00	0.00	20.24	13.02	2.00	0.00	1.00	0.00
20.26	13.10	2.00	0.00	1.00	0.00	20.28	12.89	2.00	0.00	1.00	0.00
20.30	12.69	2.00	0.00	1.00	0.00	20.32	12.25	2.00	0.00	1.00	0.00
20.34	12.22	2.00	0.00	1.00	0.00	20.36	12.12	2.00	0.00	1.00	0.00
20.38	11.65	2.00	0.00	1.00	0.00	20.40	11.18	2.00	0.00	1.00	0.00
20.42	10.29	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)

Total estimated settlement: 0.10

Abbreviations

$Q_{tn,cs}$: Equivalent clean 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	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
0.09	0.50	8.47	3.11	26.31	2.56	N/A	N/A
0.02	1.30	22.07	1.00	22.07	2.15	N/A	N/A
0.04	2.14	36.29	1.00	36.29	1.96	N/A	N/A
0.06	2.59	44.00	1.00	44.00	1.94	N/A	N/A
0.08	2.61	44.41	1.00	44.41	2.02	N/A	N/A
0.10	2.60	44.15	1.44	63.57	2.09	N/A	N/A
0.12	2.61	44.38	1.52	67.30	2.13	N/A	N/A
0.14	2.57	43.71	1.61	70.28	2.18	N/A	N/A
0.16	2.49	42.28	1.71	72.38	2.22	N/A	N/A
0.18	2.38	40.46	1.78	72.04	2.24	N/A	N/A
0.20	2.26	38.31	1.79	68.69	2.25	N/A	N/A
0.22	2.12	36.04	1.81	65.07	2.25	N/A	N/A
0.24	1.98	33.61	1.87	62.92	2.28	N/A	N/A
0.26	1.88	31.84	1.96	62.52	2.30	N/A	N/A
0.28	1.83	30.99	1.98	61.22	2.31	N/A	N/A
0.30	1.80	30.54	2.03	61.93	2.32	N/A	N/A
0.32	1.84	31.27	2.00	62.70	2.32	N/A	N/A
0.34	2.02	34.18	1.91	65.13	2.29	N/A	N/A
0.36	2.34	39.66	1.69	66.87	2.21	N/A	N/A
0.38	2.83	47.98	1.47	70.63	2.11	N/A	N/A
0.40	3.43	58.19	1.32	76.98	2.02	N/A	N/A
0.42	4.16	70.60	1.23	86.96	1.94	N/A	N/A
0.44	4.92	83.53	1.16	97.23	1.87	N/A	N/A
0.46	5.55	94.28	1.13	106.10	1.83	N/A	N/A
0.48	5.92	100.47	1.11	111.40	1.80	N/A	N/A
0.50	6.02	102.18	1.12	114.03	1.81	N/A	N/A
0.52	6.03	102.36	1.13	115.29	1.83	N/A	N/A
0.54	6.06	102.89	1.13	116.49	1.83	N/A	N/A
0.56	6.15	104.45	1.13	117.84	1.83	N/A	N/A
0.58	6.24	105.87	1.12	119.05	1.82	N/A	N/A
0.60	6.37	108.19	1.11	120.36	1.81	N/A	N/A
0.62	6.49	110.23	1.10	121.18	1.79	N/A	N/A
0.64	6.63	112.57	1.08	121.75	1.76	N/A	N/A
0.66	6.66	113.01	1.07	121.14	1.75	N/A	N/A
0.68	6.59	111.90	1.07	119.64	1.75	N/A	N/A
0.70	6.43	109.07	1.07	117.23	1.75	N/A	N/A
0.72	6.18	104.91	1.08	113.79	1.77	N/A	N/A
0.74	5.86	99.40	1.10	109.70	1.80	N/A	N/A
0.76	5.45	92.36	1.13	104.56	1.83	N/A	N/A
0.78	5.02	85.03	1.16	99.05	1.87	N/A	N/A
0.80	4.62	78.39	1.20	93.74	1.91	N/A	N/A
0.82	4.27	72.32	1.22	88.18	1.93	N/A	N/A
0.84	3.95	66.85	1.24	83.16	1.95	N/A	N/A
0.86	3.67	62.14	1.27	78.90	1.98	N/A	N/A
0.88	3.47	58.69	1.30	76.12	2.00	N/A	N/A
0.90	3.32	56.11	1.33	74.52	2.02	N/A	N/A
0.92	3.18	53.86	1.35	72.69	2.04	N/A	N/A
0.94	3.05	51.54	1.36	70.30	2.05	N/A	N/A

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

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
0.96	2.93	49.55	1.37	67.80	2.05	N/A	N/A
0.98	2.80	47.36	1.39	65.91	2.06	N/A	N/A
1.00	2.70	45.62	1.43	65.20	2.09	N/A	N/A
1.02	2.60	43.93	1.47	64.73	2.11	N/A	N/A
1.04	2.54	42.95	1.49	63.96	2.12	N/A	N/A
1.07	2.51	42.44	1.50	63.45	2.12	N/A	N/A
1.08	2.51	42.31	1.49	62.98	2.12	N/A	N/A
1.10	2.51	42.33	1.48	62.75	2.11	N/A	N/A
1.12	2.51	42.35	1.47	62.22	2.11	N/A	N/A
1.14	2.51	42.37	1.46	61.82	2.10	N/A	N/A
1.16	2.52	42.50	1.46	61.87	2.10	N/A	N/A
1.18	2.51	42.40	1.47	62.28	2.11	N/A	N/A
1.20	2.49	42.04	1.49	62.52	2.12	N/A	N/A
1.23	2.43	40.88	1.52	62.08	2.13	N/A	N/A
1.24	2.33	39.20	1.56	61.27	2.15	N/A	N/A
1.26	2.20	37.01	1.63	60.25	2.18	N/A	N/A
1.28	2.09	35.12	1.71	59.91	2.22	N/A	N/A
1.30	2.00	33.67	1.80	60.50	2.25	N/A	N/A
1.32	1.96	32.97	1.85	61.12	2.27	N/A	N/A
1.34	1.95	32.76	1.87	61.41	2.28	N/A	N/A
1.36	2.00	33.66	1.81	60.77	2.25	N/A	N/A
1.38	2.09	35.18	1.73	60.89	2.23	N/A	N/A
1.40	2.23	37.55	1.64	61.44	2.19	N/A	N/A
1.42	2.35	39.47	1.57	62.12	2.16	N/A	N/A
1.44	2.41	40.49	1.54	62.29	2.14	N/A	N/A
1.46	2.36	39.77	1.56	62.03	2.15	N/A	N/A
1.48	2.24	37.67	1.65	62.03	2.19	N/A	N/A
1.50	2.10	35.28	1.78	62.68	2.24	N/A	N/A
1.52	1.99	33.32	1.93	64.29	2.29	N/A	N/A
1.54	1.91	32.08	2.12	68.08	2.35	N/A	N/A
1.56	1.91	31.94	2.24	71.54	2.38	N/A	N/A
1.58	1.94	32.52	2.29	74.54	2.39	N/A	N/A
1.60	2.02	33.91	2.20	74.57	2.37	N/A	N/A
1.62	2.07	34.68	2.14	74.10	2.35	N/A	N/A
1.64	2.08	34.89	2.09	72.87	2.34	N/A	N/A
1.66	2.04	34.27	2.10	72.09	2.35	N/A	N/A
1.68	2.00	33.57	2.15	72.06	2.36	N/A	N/A
1.70	1.97	33.05	2.18	71.94	2.37	N/A	N/A
1.72	1.97	33.07	2.17	71.88	2.36	N/A	N/A
1.74	1.97	32.97	2.18	71.97	2.37	N/A	N/A
1.76	1.97	32.95	2.22	73.16	2.38	N/A	N/A
1.78	1.96	32.84	2.31	75.98	2.40	N/A	N/A
1.80	2.01	33.73	2.35	79.30	2.41	N/A	N/A
1.82	2.11	35.40	2.28	80.86	2.39	N/A	N/A
1.84	2.23	37.40	2.13	79.77	2.35	N/A	N/A
1.86	2.32	38.97	1.98	77.31	2.31	N/A	N/A
1.88	2.39	40.10	1.87	75.16	2.28	N/A	N/A
1.90	2.45	41.05	1.79	73.32	2.25	N/A	N/A

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

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
1.92	2.48	41.66	1.69	70.26	2.21	N/A	N/A
1.94	2.58	43.38	1.54	66.68	2.14	N/A	N/A
1.96	2.73	45.84	1.40	64.19	2.07	N/A	N/A
1.98	2.94	49.34	1.31	64.62	2.01	N/A	N/A
2.00	3.04	51.10	1.00	51.10	1.98	N/A	N/A
2.02	3.07	51.60	1.00	51.60	1.97	N/A	N/A
2.04	3.04	51.10	1.00	51.10	1.96	N/A	N/A
2.06	3.01	50.59	1.00	50.59	1.95	N/A	N/A
2.08	2.94	49.39	1.00	49.39	1.97	N/A	N/A
2.10	2.80	46.91	1.00	46.91	2.00	N/A	N/A
2.12	2.61	43.74	1.00	43.74	2.05	N/A	N/A
2.14	2.44	40.86	1.41	57.75	2.08	N/A	N/A
2.16	2.33	38.93	1.44	56.19	2.09	N/A	N/A
2.18	2.28	38.21	1.00	38.21	2.10	N/A	N/A
2.20	2.32	38.82	1.00	38.82	2.09	N/A	N/A
2.22	2.42	40.43	1.00	40.43	2.07	N/A	N/A
2.25	2.55	42.64	1.00	42.64	2.03	N/A	N/A
2.26	2.69	45.02	1.00	45.02	2.00	N/A	N/A
2.28	2.83	47.43	1.00	47.43	1.97	N/A	N/A
2.30	2.94	49.39	1.00	49.39	1.95	N/A	N/A
2.32	2.98	50.01	1.00	50.01	1.96	N/A	N/A
2.34	2.87	48.04	1.00	48.04	1.99	N/A	N/A
2.36	2.63	44.07	1.37	60.45	2.05	N/A	N/A
2.38	2.32	38.69	1.52	58.79	2.13	N/A	N/A
2.40	2.11	35.15	1.74	61.30	2.23	N/A	N/A
2.42	2.02	33.59	2.04	68.45	2.33	N/A	N/A
2.44	2.08	34.65	2.20	76.32	2.37	N/A	N/A
2.46	2.20	36.78	2.20	81.03	2.37	N/A	N/A
2.48	2.32	38.75	2.13	82.60	2.35	N/A	N/A
2.50	2.40	40.02	2.07	82.65	2.33	N/A	N/A
2.52	2.42	40.40	2.03	81.91	2.32	N/A	N/A
2.54	2.45	40.92	1.96	80.32	2.30	N/A	N/A
2.56	2.51	42.01	1.85	77.69	2.27	N/A	N/A
2.58	2.57	43.00	1.71	73.56	2.22	N/A	N/A
2.60	2.59	43.21	1.59	68.66	2.17	N/A	N/A
2.62	2.52	42.09	1.54	64.70	2.14	N/A	N/A
2.64	2.42	40.34	1.54	61.95	2.14	N/A	N/A
2.66	2.32	38.73	1.58	61.23	2.16	N/A	N/A
2.68	2.25	37.44	1.64	61.33	2.19	N/A	N/A
2.70	2.14	35.54	1.78	63.38	2.24	N/A	N/A
2.72	1.98	32.96	2.00	65.87	2.32	N/A	N/A
2.74	1.80	29.88	2.35	70.11	2.41	N/A	N/A
2.76	1.59	26.32	2.86	75.27	2.52	N/A	N/A
2.78	1.36	22.28	3.70	82.46	2.66	N/A	N/A
2.80	1.17	19.09	4.63	88.39	2.78	N/A	N/A
2.82	1.12	18.31	5.01	91.75	2.83	N/A	N/A
2.84	1.25	20.38	4.53	92.33	2.77	N/A	N/A
2.86	1.45	23.85	3.81	90.77	2.67	N/A	N/A

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

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
2.88	1.67	27.58	3.20	88.26	2.58	N/A	N/A
2.90	1.83	30.33	2.78	84.18	2.50	N/A	N/A
2.92	2.01	33.30	2.39	79.46	2.42	N/A	N/A
2.94	2.12	35.27	2.14	75.34	2.35	N/A	N/A
2.96	2.23	36.99	2.03	75.22	2.33	N/A	N/A
2.98	2.40	39.51	1.98	78.24	2.31	N/A	N/A
3.00	2.95	47.37	1.72	81.40	2.22	N/A	N/A
3.02	3.94	60.73	1.40	84.92	2.07	N/A	N/A
3.04	4.89	72.98	1.23	89.99	1.94	N/A	N/A
3.06	5.41	79.26	1.17	92.97	1.88	N/A	N/A
3.09	5.32	77.66	1.18	91.69	1.89	N/A	N/A
3.10	4.98	73.04	1.21	88.49	1.92	N/A	N/A
3.12	4.55	67.04	1.26	84.29	1.97	N/A	N/A
3.14	4.10	60.76	1.31	79.52	2.01	N/A	N/A
3.16	3.61	53.74	1.38	74.37	2.06	N/A	N/A
3.18	3.10	46.66	1.50	70.23	2.13	N/A	N/A
3.20	2.65	40.34	1.68	67.89	2.21	N/A	N/A
3.22	2.32	35.80	1.93	68.96	2.29	N/A	N/A
3.24	2.17	33.76	2.18	73.64	2.37	N/A	N/A
3.26	2.19	34.17	2.28	77.95	2.39	N/A	N/A
3.28	2.30	35.59	2.22	78.98	2.38	N/A	N/A
3.30	2.44	37.27	2.05	76.43	2.33	N/A	N/A
3.32	2.63	39.43	1.86	73.33	2.27	0.09	0.70
3.34	2.90	42.77	1.67	71.30	2.20	0.09	0.71
3.36	3.21	46.51	1.52	70.60	2.13	0.09	0.73
3.38	3.38	48.43	1.44	69.72	2.09	0.09	0.73
3.40	3.34	47.52	1.41	67.24	2.08	0.08	0.73
3.42	3.15	44.71	1.42	63.68	2.08	0.08	0.72
3.44	2.92	41.35	1.46	60.49	2.10	0.08	0.71
3.46	2.74	38.73	1.51	58.62	2.13	0.08	0.70
3.48	2.58	36.53	1.57	57.53	2.16	0.08	0.69
3.50	2.45	34.72	1.64	56.78	2.19	0.08	0.69
3.52	2.31	32.67	1.70	55.52	2.21	0.08	0.68
3.54	2.15	30.39	1.77	53.64	2.24	0.07	0.67
3.56	1.95	27.57	1.87	51.62	2.28	0.07	0.66
3.58	1.76	24.95	2.05	51.20	2.33	0.07	0.65
3.60	1.57	22.40	2.38	53.32	2.42	0.08	0.64
3.62	1.40	20.20	2.84	57.48	2.51	0.08	0.62
3.64	1.23	17.98	3.56	64.08	2.64	0.08	1.36
3.66	1.07	15.76	4.54	71.49	2.77	0.08	1.16
3.68	0.92	13.65	5.74	78.32	2.90	0.08	0.98
3.70	0.79	11.64	6.93	80.70	3.02	0.08	0.83
3.72	0.70	10.09	7.91	79.79	3.10	0.08	0.72
3.74	0.64	9.14	8.44	77.11	3.14	0.07	0.65
3.76	0.63	8.89	8.44	74.99	3.14	0.07	0.63
3.78	0.65	9.19	7.94	72.92	3.10	0.08	0.66
3.80	0.73	10.30	6.84	70.49	3.01	0.08	0.74
3.82	0.94	13.33	5.04	67.20	2.83	0.08	0.97

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

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
3.84	1.35	18.86	3.43	64.76	2.62	0.08	1.42
3.86	1.86	25.59	2.47	63.18	2.44	0.08	0.65
3.88	2.35	31.90	2.03	64.73	2.32	0.08	0.68
3.90	2.60	35.02	1.86	65.24	2.27	0.08	0.69
3.92	2.92	38.98	1.71	66.48	2.22	0.08	0.70
3.94	3.18	42.15	1.58	66.51	2.16	0.09	0.71
3.96	3.49	45.89	1.47	67.23	2.11	0.08	0.72
3.98	3.53	46.25	1.44	66.81	2.09	0.08	0.72
4.00	3.40	44.50	1.46	65.16	2.11	0.08	0.72
4.02	3.16	41.42	1.52	62.75	2.13	0.08	0.71
4.05	2.87	37.61	1.60	60.01	2.17	0.08	0.70
4.06	2.56	33.71	1.70	57.28	2.21	0.08	0.68
4.08	2.29	30.17	1.83	55.14	2.26	0.08	0.67
4.10	1.94	25.79	2.10	54.29	2.35	0.08	0.65
4.12	1.61	21.64	2.61	56.58	2.47	0.08	0.63
4.14	1.26	17.13	3.52	60.31	2.63	0.08	1.28
4.16	1.05	14.32	4.41	63.15	2.75	0.08	1.05
4.18	0.91	12.37	5.09	63.00	2.84	0.08	0.90
4.20	0.82	11.12	5.63	62.63	2.89	0.08	0.80
4.22	0.76	10.33	6.11	63.11	2.94	0.08	0.74
4.24	0.79	10.64	5.88	62.58	2.92	0.08	0.76
4.26	0.83	11.22	5.51	61.89	2.88	0.08	0.81
4.28	0.85	11.42	5.31	60.63	2.86	0.08	0.82
4.30	0.78	10.46	5.83	60.97	2.91	0.08	0.75
4.32	0.68	8.99	6.82	61.32	3.01	0.08	0.64
4.34	0.60	7.82	7.98	62.42	3.10	0.07	0.56
4.36	0.56	7.14	9.02	64.46	3.18	0.07	0.51
4.38	0.54	6.90	9.58	66.10	3.22	0.07	0.49
4.40	0.54	6.83	9.76	66.66	3.24	0.07	0.49
4.42	0.54	6.87	9.76	67.02	3.24	0.07	0.49
4.44	0.57	7.17	9.41	67.47	3.21	0.07	0.51
4.46	0.63	8.03	8.40	67.43	3.14	0.07	0.57
4.48	0.70	9.06	7.32	66.36	3.05	0.08	0.65
4.50	0.73	9.48	6.87	65.12	3.01	0.08	0.68
4.52	0.70	9.09	7.13	64.80	3.03	0.08	0.65
4.54	0.65	8.27	7.88	65.16	3.10	0.07	0.59
4.56	0.60	7.62	8.58	65.43	3.15	0.07	0.54
4.58	0.60	7.54	8.66	65.24	3.16	0.07	0.54
4.60	0.65	8.28	7.85	65.02	3.09	0.07	0.59
4.62	0.79	10.29	6.16	63.37	2.95	0.08	0.74
4.64	0.93	11.99	5.08	60.91	2.83	0.08	0.87
4.66	0.96	12.43	4.88	60.65	2.81	0.08	0.90
4.68	0.87	11.27	5.76	64.92	2.91	0.08	0.81
4.70	0.77	9.83	7.05	69.27	3.03	0.08	0.70
4.72	0.69	8.69	8.15	70.88	3.12	0.08	0.62
4.74	0.66	8.21	8.52	69.99	3.15	0.07	0.59
4.76	0.65	8.12	8.42	68.31	3.14	0.07	0.58
4.78	0.70	8.83	7.64	67.40	3.08	0.08	0.63

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

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
4.80	0.80	10.16	6.62	67.23	2.99	0.08	0.73
4.82	0.87	11.16	6.05	67.53	2.94	0.08	0.80
4.84	0.89	11.37	6.07	68.99	2.94	0.08	0.81
4.86	0.84	10.70	6.61	70.75	2.99	0.08	0.76
4.88	0.77	9.71	7.32	71.14	3.05	0.08	0.69
4.90	0.78	9.77	7.50	73.26	3.07	0.08	0.70
4.92	0.79	9.81	7.70	75.53	3.08	0.08	0.70
4.94	0.81	10.11	7.62	77.03	3.08	0.08	0.72
4.96	0.78	9.76	7.66	74.74	3.08	0.08	0.70
4.98	0.80	9.93	7.20	71.56	3.04	0.08	0.71
5.00	0.83	10.38	6.75	70.05	3.00	0.08	0.74
5.02	0.86	10.73	6.50	69.78	2.98	0.08	0.77
5.04	0.86	10.69	6.49	69.40	2.98	0.08	0.76
5.06	0.84	10.42	6.66	69.43	2.99	0.08	0.74
5.08	0.82	10.15	6.89	69.95	3.01	0.08	0.72
5.10	0.80	9.81	7.30	71.68	3.05	0.08	0.70
5.12	0.78	9.52	7.73	73.62	3.08	0.08	0.68
5.14	0.76	9.23	8.20	75.67	3.12	0.08	0.66
5.16	0.79	9.64	7.99	76.97	3.10	0.08	0.69
5.18	0.85	10.38	7.41	76.85	3.06	0.08	0.74
5.20	0.89	10.91	6.89	75.25	3.01	0.08	0.78
5.22	0.90	11.04	6.66	73.51	2.99	0.08	0.79
5.24	0.88	10.75	6.84	73.46	3.01	0.08	0.77
5.26	0.89	10.78	6.87	74.08	3.01	0.08	0.77
5.28	0.94	11.49	6.47	74.31	2.97	0.08	0.82
5.30	1.12	13.84	5.26	72.76	2.85	0.08	1.00
5.32	1.65	20.32	3.43	69.80	2.62	0.08	1.50
5.34	2.62	31.84	2.10	66.95	2.35	0.08	0.68
5.36	3.71	44.49	1.55	69.06	2.15	0.09	0.72
5.38	4.58	54.35	1.35	73.18	2.03	0.09	0.75
5.40	4.93	58.29	1.30	75.86	2.00	0.09	0.75
5.42	4.99	58.98	1.30	76.66	2.00	0.09	0.76
5.44	4.87	57.56	1.32	76.03	2.02	0.09	0.75
5.46	4.64	54.83	1.34	73.58	2.03	0.09	0.75
5.48	4.26	50.28	1.38	69.62	2.06	0.09	0.73
5.50	3.69	43.56	1.48	64.56	2.11	0.08	0.72
5.52	3.09	36.58	1.66	60.59	2.20	0.08	0.69
5.54	2.57	30.54	1.98	60.39	2.31	0.08	0.67
5.56	2.16	25.88	2.58	66.76	2.46	0.08	0.65
5.58	1.76	21.31	3.72	79.29	2.66	0.08	1.56
5.60	1.40	17.01	5.20	88.41	2.85	0.08	1.22
5.62	1.13	13.55	6.73	91.26	3.00	0.08	0.97
5.64	0.97	11.43	7.80	89.19	3.09	0.08	0.82
5.66	0.89	10.31	8.53	87.96	3.15	0.08	0.74
5.68	0.89	10.31	8.37	86.24	3.13	0.08	0.74
5.70	0.98	11.42	7.24	82.71	3.04	0.08	0.82
5.72	1.08	12.69	6.10	77.39	2.94	0.08	0.91
5.74	1.16	13.60	5.41	73.58	2.87	0.08	0.98

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

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
5.76	1.41	16.59	4.37	72.48	2.75	0.08	1.20
5.78	2.23	26.23	2.67	70.09	2.48	0.08	0.65
5.80	3.44	40.20	1.76	70.75	2.24	0.09	0.71
5.82	4.49	52.02	1.44	74.85	2.09	0.10	0.74
5.84	4.84	55.95	1.41	78.79	2.07	0.10	0.75
5.86	4.59	53.21	1.51	80.58	2.13	0.10	0.74
5.88	4.14	48.21	1.72	82.78	2.22	0.10	0.73
5.90	3.80	44.34	1.86	82.47	2.27	0.09	0.72
5.92	3.44	40.14	2.09	84.01	2.34	0.10	0.71
5.94	3.09	36.23	2.42	87.72	2.43	0.09	0.69
5.96	2.76	32.47	2.98	96.64	2.54	0.09	0.68
5.98	2.63	31.05	3.39	105.19	2.61	0.09	2.28
6.00	2.54	29.97	3.70	110.88	2.66	0.10	2.19
6.02	2.32	27.37	4.14	113.32	2.72	0.09	1.99
6.04	1.93	22.72	4.97	112.95	2.82	0.09	1.64
6.06	1.49	17.29	6.32	109.31	2.96	0.09	1.24
6.08	1.14	12.88	7.94	102.29	3.10	0.08	0.92
6.10	0.93	10.33	8.90	91.90	3.17	0.08	0.74
6.12	0.84	9.18	9.05	83.04	3.19	0.08	0.66
6.14	0.77	8.23	9.29	76.47	3.20	0.08	0.59
6.16	0.71	7.54	9.58	72.27	3.22	0.07	0.54
6.18	0.67	6.92	9.90	68.55	3.25	0.07	0.49
6.20	0.62	6.36	10.07	64.01	3.26	0.07	0.45
6.22	0.58	5.82	10.41	60.64	3.28	0.07	0.42
6.24	0.56	5.59	10.53	58.81	3.29	0.07	0.40
6.26	0.57	5.74	10.24	58.75	3.27	0.07	0.41
6.28	0.62	6.26	9.42	58.97	3.21	0.07	0.45
6.30	0.70	7.23	8.17	59.03	3.12	0.07	0.52
6.32	0.81	8.53	6.97	59.48	3.02	0.08	0.61
6.34	0.88	9.37	6.55	61.38	2.98	0.08	0.67
6.36	0.89	9.57	6.56	62.75	2.98	0.08	0.68
6.38	0.88	9.36	6.73	63.04	3.00	0.08	0.67
6.40	0.87	9.19	6.83	62.77	3.01	0.08	0.66
6.42	0.86	9.08	7.02	63.75	3.02	0.08	0.65
6.44	0.83	8.74	7.53	65.80	3.07	0.08	0.62
6.46	0.82	8.53	7.93	67.67	3.10	0.08	0.61
6.48	0.80	8.35	8.40	70.14	3.14	0.08	0.60
6.50	0.80	8.29	8.72	72.32	3.16	0.08	0.59
6.52	0.80	8.30	8.99	74.61	3.18	0.08	0.59
6.54	0.83	8.58	8.86	76.02	3.17	0.08	0.61
6.56	0.86	9.00	8.61	77.50	3.15	0.08	0.64
6.58	0.90	9.38	8.46	79.31	3.14	0.08	0.67
6.60	0.91	9.58	8.55	81.96	3.15	0.08	0.68
6.62	0.92	9.65	8.88	85.72	3.17	0.08	0.69
6.64	0.93	9.67	9.24	89.33	3.20	0.08	0.69
6.66	0.93	9.75	9.51	92.74	3.22	0.08	0.70
6.68	0.95	9.87	9.70	95.76	3.23	0.08	0.71
6.70	0.97	10.11	9.72	98.29	3.23	0.08	0.72

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

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
6.72	0.99	10.29	9.71	99.91	3.23	0.08	0.74
6.74	1.01	10.51	9.57	100.55	3.22	0.08	0.75
6.76	1.03	10.73	9.42	101.03	3.21	0.08	0.77
6.78	1.04	10.84	9.40	101.91	3.21	0.08	0.77
6.80	1.05	10.95	9.41	103.05	3.21	0.08	0.78
6.82	1.07	11.19	9.30	104.04	3.20	0.08	0.80
6.84	1.11	11.61	9.01	104.54	3.18	0.08	0.83
6.86	1.15	11.99	8.76	105.02	3.16	0.08	0.86
6.88	1.17	12.21	8.64	105.49	3.16	0.08	0.87
6.90	1.19	12.42	8.56	106.33	3.15	0.08	0.89
6.92	1.21	12.68	8.41	106.55	3.14	0.08	0.91
6.94	1.23	12.90	8.28	106.79	3.13	0.08	0.92
6.96	1.24	12.97	8.28	107.33	3.13	0.08	0.93
6.98	1.24	12.90	8.39	108.33	3.14	0.08	0.92
7.00	1.24	12.85	8.48	108.98	3.14	0.08	0.92
7.02	1.24	12.83	8.50	108.98	3.14	0.08	0.92
7.04	1.23	12.76	8.51	108.65	3.15	0.08	0.91
7.06	1.22	12.57	8.62	108.36	3.15	0.08	0.90
7.08	1.20	12.36	8.72	107.79	3.16	0.08	0.88
7.10	1.19	12.16	8.79	106.85	3.17	0.08	0.87
7.12	1.18	12.00	8.85	106.21	3.17	0.08	0.86
7.14	1.16	11.73	9.06	106.19	3.19	0.08	0.84
7.16	1.14	11.47	9.27	106.37	3.20	0.08	0.82
7.18	1.12	11.32	9.39	106.20	3.21	0.08	0.81
7.20	1.13	11.37	9.28	105.54	3.20	0.08	0.81
7.22	1.13	11.37	9.23	104.91	3.20	0.08	0.81
7.24	1.14	11.47	9.09	104.19	3.19	0.08	0.82
7.26	1.15	11.46	9.04	103.56	3.18	0.08	0.82
7.28	1.16	11.58	8.89	102.93	3.17	0.08	0.83
7.30	1.17	11.63	8.86	103.07	3.17	0.08	0.83
7.32	1.18	11.76	8.82	103.76	3.17	0.08	0.84
7.34	1.20	11.91	8.83	105.17	3.17	0.08	0.85
7.36	1.21	12.09	8.82	106.56	3.17	0.08	0.86
7.38	1.24	12.34	8.74	107.84	3.16	0.08	0.88
7.40	1.28	12.78	8.55	109.27	3.15	0.08	0.91
7.42	1.33	13.34	8.31	110.79	3.13	0.08	0.95
7.44	1.37	13.74	8.17	112.32	3.12	0.08	0.98
7.46	1.40	13.95	8.16	113.86	3.12	0.08	1.00
7.48	1.40	14.02	8.19	114.92	3.12	0.08	1.00
7.50	1.40	13.92	8.33	115.99	3.13	0.08	0.99
7.52	1.38	13.68	8.50	116.20	3.14	0.08	0.98
7.54	1.35	13.36	8.69	116.11	3.16	0.08	0.95
7.56	1.33	13.12	8.77	115.04	3.16	0.08	0.94
7.58	1.31	12.88	8.80	113.40	3.17	0.08	0.92
7.60	1.28	12.49	8.91	111.33	3.18	0.08	0.89
7.62	1.24	11.98	9.11	109.13	3.19	0.08	0.86
7.64	1.19	11.44	9.33	106.83	3.21	0.08	0.82
7.66	1.14	10.90	9.62	104.86	3.23	0.08	0.78

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

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
7.68	1.09	10.39	9.96	103.49	3.25	0.08	0.74
7.70	1.06	9.95	10.29	102.44	3.27	0.08	0.71
7.72	1.03	9.64	10.46	100.82	3.28	0.08	0.69
7.74	1.02	9.53	10.36	98.69	3.28	0.08	0.68
7.76	1.02	9.52	10.08	95.95	3.26	0.08	0.68
7.78	1.04	9.72	9.56	92.92	3.22	0.08	0.69
7.80	1.07	9.95	9.02	89.73	3.18	0.08	0.71
7.82	1.08	10.03	8.67	86.96	3.16	0.08	0.72
7.84	1.06	9.89	8.54	84.44	3.15	0.08	0.71
7.86	1.04	9.62	8.51	81.89	3.15	0.08	0.69
7.88	1.09	10.14	7.82	79.23	3.09	0.08	0.72
7.90	1.15	10.78	7.19	77.49	3.04	0.08	0.77
7.92	1.21	11.40	6.71	76.46	3.00	0.08	0.81
7.94	1.19	11.16	6.90	76.98	3.01	0.08	0.80
7.96	1.16	10.78	7.27	78.37	3.05	0.08	0.77
7.98	1.14	10.57	7.61	80.39	3.07	0.08	0.75
8.00	1.16	10.76	7.59	81.63	3.07	0.08	0.77
8.02	1.20	11.19	7.33	82.05	3.05	0.08	0.80
8.04	1.25	11.61	7.07	82.06	3.03	0.08	0.83
8.06	1.25	11.65	7.13	83.05	3.03	0.08	0.83
8.08	1.24	11.55	7.31	84.41	3.05	0.08	0.82
8.10	1.24	11.53	7.42	85.55	3.06	0.08	0.82
8.12	1.26	11.67	7.43	86.67	3.06	0.08	0.83
8.14	1.29	11.92	7.39	88.11	3.06	0.08	0.85
8.16	1.31	12.15	7.44	90.40	3.06	0.08	0.87
8.18	1.34	12.38	7.54	93.28	3.07	0.08	0.88
8.20	1.34	12.39	7.82	96.82	3.09	0.08	0.88
8.22	1.32	12.19	8.28	100.97	3.13	0.08	0.87
8.24	1.30	11.95	8.73	104.31	3.16	0.08	0.85
8.26	1.28	11.70	9.11	106.58	3.19	0.08	0.84
8.28	1.27	11.54	9.29	107.20	3.20	0.08	0.82
8.30	1.25	11.30	9.44	106.75	3.21	0.08	0.81
8.32	1.23	11.12	9.45	105.15	3.21	0.08	0.79
8.34	1.20	10.75	9.58	102.96	3.22	0.08	0.77
8.36	1.15	10.25	9.79	100.38	3.24	0.08	0.73
8.38	1.09	9.65	10.14	97.86	3.26	0.08	0.69
8.40	1.05	9.18	10.40	95.45	3.28	0.08	0.66
8.42	1.02	8.89	10.57	93.92	3.29	0.08	0.63
8.44	1.00	8.71	10.66	92.84	3.30	0.08	0.62
8.46	1.00	8.64	10.58	91.47	3.29	0.08	0.62
8.48	1.01	8.69	10.30	89.49	3.27	0.08	0.62
8.50	1.03	8.87	9.81	87.11	3.24	0.08	0.63
8.52	1.05	9.14	9.26	84.59	3.20	0.08	0.65
8.54	1.08	9.34	8.79	82.02	3.17	0.08	0.67
8.56	1.09	9.44	8.40	79.24	3.14	0.08	0.67
8.58	1.07	9.23	8.44	77.87	3.14	0.08	0.66
8.60	1.04	8.88	8.75	77.69	3.16	0.08	0.63
8.62	1.00	8.51	9.20	78.32	3.20	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	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
8.64	0.97	8.19	9.59	78.60	3.22	0.08	0.59
8.66	0.96	8.10	9.79	79.25	3.24	0.08	0.58
8.68	0.97	8.13	9.82	79.89	3.24	0.08	0.58
8.70	1.00	8.49	9.46	80.30	3.21	0.08	0.61
8.72	1.03	8.76	9.08	79.49	3.19	0.08	0.63
8.74	1.05	8.95	8.78	78.57	3.17	0.08	0.64
8.76	1.03	8.73	8.95	78.16	3.18	0.08	0.62
8.78	0.99	8.32	9.36	77.87	3.21	0.08	0.59
8.80	0.95	7.89	9.84	77.59	3.24	0.08	0.56
8.82	0.93	7.71	10.05	77.42	3.26	0.08	0.55
8.84	0.94	7.73	10.01	77.38	3.25	0.08	0.55
8.86	0.95	7.81	9.86	77.02	3.24	0.08	0.56
8.88	0.97	8.05	9.40	75.66	3.21	0.08	0.58
8.90	0.99	8.15	9.07	73.94	3.19	0.08	0.58
8.92	0.98	8.12	8.91	72.37	3.18	0.08	0.58
8.94	0.96	7.89	9.11	71.85	3.19	0.08	0.56
8.96	0.95	7.71	9.37	72.26	3.21	0.08	0.55
8.98	0.92	7.47	9.84	73.47	3.24	0.08	0.53
9.00	0.90	7.26	10.24	74.34	3.27	0.08	0.52
9.02	0.88	7.03	10.64	74.78	3.30	0.08	0.50
9.04	0.88	7.00	10.62	74.41	3.29	0.07	0.50
9.06	0.89	7.06	10.42	73.58	3.28	0.08	0.50
9.08	0.89	7.08	10.21	72.30	3.27	0.08	0.51
9.10	0.88	6.99	10.12	70.73	3.26	0.07	0.50
9.12	0.85	6.70	10.34	69.22	3.28	0.07	0.48
9.14	0.84	6.53	10.42	68.12	3.28	0.07	0.47
9.16	0.82	6.37	10.60	67.58	3.29	0.07	0.46
9.18	0.82	6.33	10.70	67.74	3.30	0.07	0.45
9.20	0.82	6.34	10.68	67.68	3.30	0.07	0.45
9.22	0.82	6.31	10.74	67.81	3.30	0.07	0.45
9.24	0.81	6.19	11.00	68.08	3.32	0.07	0.44
9.26	0.78	5.89	11.56	68.13	3.35	0.07	0.42
9.28	0.75	5.60	12.09	67.70	3.39	0.07	0.40
9.30	0.73	5.40	12.33	66.54	3.40	0.07	0.39
9.32	0.72	5.35	12.28	65.72	3.40	0.07	0.38
9.34	0.73	5.39	11.98	64.57	3.38	0.07	0.38
9.36	0.73	5.37	11.75	63.16	3.37	0.07	0.38
9.38	0.72	5.28	11.56	61.05	3.35	0.07	0.38
9.40	0.70	5.12	11.66	59.64	3.36	0.07	0.37
9.42	0.69	5.00	11.82	59.11	3.37	0.07	0.36
9.44	0.69	4.94	12.00	59.29	3.38	0.07	0.35
9.46	0.69	4.99	11.83	58.99	3.37	0.07	0.36
9.48	0.71	5.11	11.46	58.52	3.35	0.07	0.36
9.50	0.72	5.23	11.08	58.01	3.32	0.07	0.37
9.52	0.73	5.31	10.90	57.87	3.31	0.07	0.38
9.54	0.73	5.27	11.01	58.01	3.32	0.07	0.38
9.56	0.72	5.22	11.30	59.00	3.34	0.07	0.37
9.58	0.73	5.25	11.59	60.81	3.36	0.07	0.37

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

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
9.60	0.74	5.39	11.65	62.76	3.36	0.07	0.38
9.62	0.77	5.63	11.39	64.16	3.34	0.07	0.40
9.64	0.79	5.85	11.06	64.67	3.32	0.07	0.42
9.66	0.83	6.18	10.56	65.23	3.29	0.07	0.44
9.68	0.91	6.94	9.52	66.06	3.22	0.07	0.50
9.70	1.04	8.11	8.23	66.70	3.12	0.08	0.58
9.72	1.12	8.78	7.58	66.57	3.07	0.08	0.63
9.74	1.06	8.25	8.14	67.15	3.12	0.08	0.59
9.76	0.94	7.10	9.56	67.88	3.22	0.07	0.51
9.78	0.84	6.21	10.95	67.98	3.32	0.07	0.44
9.80	0.84	6.14	10.84	66.60	3.31	0.07	0.44
9.82	0.85	6.25	10.36	64.75	3.28	0.07	0.45
9.84	0.87	6.42	9.81	62.98	3.24	0.07	0.46
9.86	0.73	5.18	11.18	57.89	3.33	0.07	0.37
9.88	0.75	5.29	11.09	58.74	3.32	0.07	0.38
9.90	0.75	5.35	11.13	59.60	3.33	0.07	0.38
9.92	0.91	6.77	9.71	65.72	3.23	0.07	0.48
9.94	0.92	6.83	9.85	67.33	3.24	0.08	0.49
9.96	0.94	6.96	9.99	69.58	3.25	0.08	0.50
9.98	0.95	7.06	10.12	71.49	3.26	0.08	0.50
10.00	0.96	7.14	10.25	73.20	3.27	0.08	0.51
10.02	0.96	7.19	10.37	74.57	3.28	0.08	0.51
10.04	0.97	7.22	10.48	75.65	3.28	0.08	0.52
10.06	0.99	7.40	10.29	76.21	3.27	0.08	0.53
10.08	1.02	7.62	10.06	76.58	3.26	0.08	0.54
10.10	1.04	7.81	9.88	77.21	3.24	0.08	0.56
10.12	1.06	8.01	9.74	78.07	3.23	0.08	0.57
10.14	1.10	8.30	9.54	79.10	3.22	0.08	0.59
10.16	1.14	8.71	9.23	80.31	3.20	0.08	0.62
10.18	1.18	9.06	9.01	81.66	3.18	0.08	0.65
10.20	1.22	9.33	8.88	82.86	3.17	0.08	0.67
10.22	1.23	9.43	8.91	84.02	3.18	0.08	0.67
10.24	1.23	9.44	9.01	85.09	3.18	0.08	0.67
10.26	1.24	9.46	9.13	86.41	3.19	0.08	0.68
10.28	1.24	9.48	9.25	87.74	3.20	0.08	0.68
10.30	1.25	9.53	9.38	89.42	3.21	0.08	0.68
10.32	1.25	9.54	9.54	91.02	3.22	0.08	0.68
10.34	1.26	9.56	9.68	92.55	3.23	0.08	0.68
10.36	1.26	9.60	9.72	93.29	3.23	0.08	0.69
10.38	1.28	9.72	9.62	93.54	3.23	0.08	0.69
10.40	1.28	9.75	9.59	93.45	3.22	0.08	0.70
10.42	1.27	9.66	9.66	93.39	3.23	0.08	0.69
10.44	1.25	9.47	9.87	93.41	3.24	0.08	0.68
10.46	1.25	9.41	9.89	93.10	3.25	0.08	0.67
10.48	1.24	9.31	9.97	92.81	3.25	0.08	0.66
10.50	1.24	9.31	9.95	92.65	3.25	0.08	0.66
10.52	1.24	9.23	10.07	92.94	3.26	0.08	0.66
10.54	1.24	9.22	10.09	93.01	3.26	0.08	0.66

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

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
10.56	1.23	9.13	10.18	92.86	3.26	0.08	0.65
10.58	1.22	9.06	10.21	92.48	3.27	0.08	0.65
10.60	1.21	8.98	10.28	92.32	3.27	0.08	0.64
10.62	1.21	8.90	10.34	92.04	3.28	0.08	0.64
10.64	1.19	8.77	10.48	91.97	3.28	0.08	0.63
10.66	1.18	8.66	10.59	91.65	3.29	0.08	0.62
10.68	1.17	8.50	10.75	91.32	3.30	0.08	0.61
10.70	1.15	8.37	10.84	90.71	3.31	0.08	0.60
10.72	1.12	8.10	11.13	90.09	3.33	0.08	0.58
10.74	1.08	7.69	11.61	89.31	3.36	0.08	0.55
10.76	1.03	7.23	12.19	88.16	3.39	0.08	0.52
10.78	0.98	6.82	12.75	86.91	3.42	0.08	0.49
10.80	0.94	6.45	13.30	85.74	3.46	0.07	0.46
10.82	0.89	6.02	14.05	84.62	3.50	0.07	0.43
10.84	0.86	5.75	14.57	83.76	3.53	0.07	0.41
10.86	0.87	5.80	14.27	82.76	3.51	0.07	0.41
10.88	0.89	6.03	13.55	81.77	3.47	0.07	0.43
10.90	0.92	6.27	12.79	80.15	3.43	0.07	0.45
10.92	0.94	6.39	12.28	78.50	3.40	0.07	0.46
10.94	0.95	6.44	11.89	76.56	3.37	0.07	0.46
10.96	0.96	6.52	11.46	74.74	3.35	0.07	0.47
10.98	0.97	6.58	11.23	73.94	3.33	0.08	0.47
11.00	0.98	6.67	11.08	73.90	3.32	0.08	0.48
11.02	0.97	6.63	11.22	74.45	3.33	0.08	0.47
11.04	0.96	6.55	11.47	75.09	3.35	0.07	0.47
11.06	0.95	6.41	11.75	75.38	3.37	0.07	0.46
11.08	0.94	6.33	11.94	75.54	3.38	0.07	0.45
11.10	0.93	6.24	12.10	75.47	3.39	0.07	0.45
11.12	0.93	6.19	12.19	75.51	3.39	0.07	0.44
11.14	0.93	6.18	12.21	75.46	3.39	0.07	0.44
11.16	0.93	6.19	12.14	75.09	3.39	0.07	0.44
11.18	0.92	6.08	12.26	74.48	3.40	0.07	0.43
11.20	0.90	5.89	12.51	73.76	3.41	0.07	0.42
11.22	0.87	5.63	12.99	73.08	3.44	0.07	0.40
11.24	0.84	5.40	13.39	72.35	3.46	0.07	0.39
11.26	0.82	5.23	13.73	71.86	3.48	0.07	0.37
11.28	0.81	5.12	13.93	71.38	3.49	0.07	0.37
11.30	0.80	5.03	14.05	70.71	3.50	0.07	0.36
11.32	0.79	4.92	14.13	69.52	3.50	0.07	0.35
11.34	0.79	4.94	13.85	68.36	3.49	0.07	0.35
11.36	0.81	5.05	13.27	67.05	3.45	0.07	0.36
11.38	0.82	5.19	12.62	65.47	3.42	0.07	0.37
11.40	0.82	5.17	12.28	63.44	3.40	0.07	0.37
11.42	0.79	4.91	12.50	61.39	3.41	0.07	0.35
11.44	0.75	4.55	12.95	58.94	3.44	0.07	0.33
11.46	0.70	4.13	13.66	56.43	3.48	0.07	0.30
11.48	0.67	3.87	13.93	53.94	3.49	0.07	0.28
11.50	0.67	3.88	13.50	52.43	3.47	0.07	0.28

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

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
11.52	0.70	4.13	12.48	51.62	3.41	0.07	0.30
11.54	0.76	4.58	11.30	51.73	3.34	0.07	0.33
11.56	0.82	5.09	10.32	52.56	3.27	0.07	0.36
11.58	0.90	5.75	9.39	53.97	3.21	0.07	0.41
11.60	0.98	6.41	8.62	55.24	3.15	0.08	0.46
11.62	1.05	6.95	8.13	56.49	3.12	0.08	0.50
11.64	1.09	7.24	8.00	57.91	3.11	0.08	0.52
11.66	1.11	7.37	8.19	60.42	3.12	0.08	0.53
11.68	1.10	7.34	8.75	64.19	3.16	0.08	0.52
11.70	1.08	7.17	9.60	68.81	3.22	0.08	0.51
11.72	1.07	7.03	10.39	73.03	3.28	0.08	0.50
11.74	1.07	7.06	10.79	76.20	3.30	0.08	0.50
11.76	1.10	7.23	10.86	78.50	3.31	0.08	0.52
11.78	1.11	7.33	10.89	79.85	3.31	0.08	0.52
11.80	1.11	7.30	11.00	80.35	3.32	0.08	0.52
11.82	1.09	7.14	11.14	79.58	3.33	0.08	0.51
11.84	1.06	6.89	11.34	78.21	3.34	0.08	0.49
11.86	1.04	6.68	11.53	76.98	3.35	0.08	0.48
11.88	1.03	6.60	11.58	76.45	3.35	0.08	0.47
11.90	1.05	6.74	11.37	76.64	3.34	0.08	0.48
11.92	1.08	6.97	11.07	77.18	3.32	0.08	0.50
11.94	1.12	7.30	10.64	77.68	3.29	0.08	0.52
11.96	1.15	7.53	10.34	77.89	3.28	0.08	0.54
11.98	1.16	7.62	10.22	77.85	3.27	0.08	0.54
12.00	1.16	7.58	10.32	78.18	3.27	0.08	0.54
12.02	1.16	7.59	10.36	78.65	3.28	0.08	0.54
12.04	1.19	7.78	10.19	79.25	3.27	0.08	0.56
12.06	1.21	7.96	10.03	79.85	3.25	0.08	0.57
12.08	1.23	8.09	9.96	80.57	3.25	0.08	0.58
12.10	1.23	8.05	10.08	81.12	3.26	0.08	0.57
12.12	1.23	8.04	10.10	81.22	3.26	0.08	0.57
12.14	1.22	7.99	10.16	81.13	3.26	0.08	0.57
12.16	1.23	8.04	10.10	81.22	3.26	0.08	0.57
12.18	1.23	8.03	10.13	81.35	3.26	0.08	0.57
12.20	1.24	8.11	10.05	81.50	3.26	0.08	0.58
12.22	1.25	8.14	10.01	81.46	3.25	0.08	0.58
12.24	1.27	8.28	9.86	81.65	3.24	0.08	0.59
12.26	1.29	8.44	9.70	81.90	3.23	0.08	0.60
12.28	1.31	8.60	9.56	82.20	3.22	0.08	0.61
12.30	1.31	8.62	9.56	82.38	3.22	0.08	0.62
12.32	1.31	8.55	9.67	82.66	3.23	0.08	0.61
12.34	1.28	8.35	9.94	82.95	3.25	0.08	0.60
12.36	1.25	8.10	10.27	83.21	3.27	0.08	0.58
12.38	1.23	7.90	10.56	83.37	3.29	0.08	0.56
12.40	1.22	7.83	10.77	84.31	3.30	0.08	0.56
12.42	1.22	7.80	10.85	84.68	3.31	0.08	0.56
12.44	1.20	7.66	11.01	84.34	3.32	0.08	0.55
12.46	1.18	7.51	11.07	83.05	3.32	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	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
12.48	1.16	7.30	11.22	81.92	3.33	0.08	0.52
12.50	1.12	6.95	11.65	80.91	3.36	0.08	0.50
12.52	1.06	6.53	12.06	78.74	3.38	0.08	0.47
12.54	1.00	6.00	12.65	75.89	3.42	0.08	0.43
12.56	0.95	5.61	13.00	72.98	3.44	0.07	0.40
12.58	0.89	5.19	13.60	70.50	3.47	0.07	0.37
12.60	0.86	4.89	13.94	68.25	3.49	0.07	0.35
12.62	0.82	4.58	14.21	65.08	3.51	0.07	0.33
12.64	0.79	4.35	14.26	61.98	3.51	0.07	0.31
12.66	0.77	4.21	14.10	59.37	3.50	0.07	0.30
12.68	0.77	4.24	13.69	58.07	3.48	0.07	0.30
12.70	0.79	4.36	13.19	57.49	3.45	0.07	0.31
12.72	0.81	4.48	12.69	56.86	3.42	0.07	0.32
12.74	0.81	4.52	12.39	56.03	3.40	0.07	0.32
12.76	0.81	4.48	12.21	54.66	3.39	0.07	0.32
12.78	0.81	4.50	11.85	53.33	3.37	0.07	0.32
12.80	0.84	4.69	11.13	52.22	3.33	0.07	0.34
12.82	0.89	5.04	10.30	51.90	3.27	0.07	0.36
12.84	0.98	5.72	9.29	53.19	3.20	0.07	0.41
12.86	1.06	6.35	8.68	55.16	3.16	0.08	0.45
12.88	1.12	6.77	8.43	57.08	3.14	0.08	0.48
12.90	1.12	6.75	8.68	58.60	3.16	0.08	0.48
12.92	1.08	6.48	9.26	59.98	3.20	0.08	0.46
12.94	1.04	6.14	10.03	61.57	3.25	0.07	0.44
12.96	0.99	5.74	10.88	62.41	3.31	0.07	0.41
12.98	0.94	5.42	11.66	63.19	3.36	0.07	0.39
13.00	0.93	5.31	11.95	63.51	3.38	0.07	0.38
13.02	0.94	5.34	11.86	63.36	3.37	0.07	0.38
13.04	0.96	5.53	11.38	62.92	3.34	0.07	0.39
13.06	1.00	5.79	10.68	61.81	3.30	0.07	0.41
13.08	1.03	6.00	10.11	60.65	3.26	0.07	0.43
13.10	1.06	6.22	9.59	59.66	3.22	0.07	0.44
13.12	1.11	6.58	9.11	59.90	3.19	0.08	0.47
13.14	1.20	7.27	8.36	60.78	3.13	0.08	0.52
13.16	1.30	7.97	7.66	61.02	3.08	0.08	0.57
13.18	1.34	8.25	7.48	61.71	3.06	0.08	0.59
13.20	1.30	7.97	7.88	62.85	3.10	0.08	0.57
13.22	1.24	7.50	8.49	63.68	3.14	0.08	0.54
13.24	1.18	7.09	8.89	63.02	3.17	0.08	0.51
13.26	1.14	6.76	9.14	61.72	3.19	0.08	0.48
13.28	1.10	6.41	9.54	61.11	3.22	0.08	0.46
13.30	1.05	6.08	10.12	61.55	3.26	0.07	0.43
13.32	1.01	5.73	10.92	62.62	3.31	0.07	0.41
13.34	0.96	5.41	11.79	63.76	3.37	0.07	0.39
13.36	0.92	5.09	12.65	64.44	3.42	0.07	0.36
13.38	0.88	4.79	13.51	64.66	3.47	0.07	0.34
13.40	0.85	4.54	14.20	64.44	3.51	0.07	0.32
13.42	0.82	4.30	14.70	63.27	3.53	0.07	0.31

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

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
13.44	0.81	4.26	14.53	61.85	3.52	0.07	0.30
13.46	0.83	4.38	13.72	60.06	3.48	0.07	0.31
13.48	0.86	4.63	12.63	58.47	3.42	0.07	0.33
13.50	0.90	4.91	11.52	56.54	3.35	0.07	0.35
13.52	0.94	5.13	10.67	54.79	3.30	0.07	0.37
13.54	0.96	5.29	10.19	53.92	3.27	0.07	0.38
13.56	0.98	5.42	10.07	54.64	3.26	0.07	0.39
13.58	1.00	5.54	10.17	56.36	3.26	0.07	0.40
13.60	1.02	5.68	10.25	58.23	3.27	0.07	0.41
13.62	1.03	5.79	10.36	59.98	3.28	0.07	0.41
13.64	1.04	5.82	10.64	61.88	3.30	0.07	0.42
13.66	1.03	5.78	11.03	63.69	3.32	0.07	0.41
13.68	1.01	5.62	11.55	64.96	3.35	0.07	0.40
13.70	0.99	5.45	12.04	65.70	3.38	0.07	0.39
13.72	0.97	5.29	12.56	66.44	3.41	0.07	0.38
13.74	0.95	5.16	12.96	66.95	3.44	0.07	0.37
13.76	0.94	5.05	13.27	67.05	3.45	0.07	0.36
13.78	0.93	5.01	13.28	66.59	3.46	0.07	0.36
13.80	0.94	5.04	13.08	65.90	3.44	0.07	0.36
13.82	0.95	5.11	12.71	64.94	3.42	0.07	0.37
13.84	0.94	5.01	12.57	63.03	3.41	0.07	0.36
13.86	0.93	4.97	12.35	61.42	3.40	0.07	0.36
13.88	0.93	4.96	12.16	60.28	3.39	0.07	0.35
13.90	0.95	5.11	11.79	60.21	3.37	0.07	0.36
13.92	0.97	5.24	11.48	60.18	3.35	0.07	0.37
13.94	0.99	5.34	11.24	60.10	3.33	0.07	0.38
13.96	1.00	5.43	11.10	60.26	3.32	0.07	0.39
13.98	1.00	5.43	11.11	60.34	3.33	0.07	0.39
14.00	0.99	5.32	11.31	60.23	3.34	0.07	0.38
14.02	0.96	5.11	11.73	59.94	3.36	0.07	0.36
14.04	0.92	4.80	12.40	59.52	3.40	0.07	0.34
14.06	0.88	4.53	13.05	59.10	3.44	0.07	0.32
14.08	0.86	4.36	13.44	58.65	3.46	0.07	0.31
14.10	0.85	4.31	13.45	57.91	3.46	0.07	0.31
14.12	0.86	4.34	13.15	57.12	3.45	0.07	0.31
14.14	0.86	4.38	12.80	56.10	3.43	0.07	0.31
14.16	0.88	4.50	12.32	55.37	3.40	0.07	0.32
14.18	0.90	4.64	11.76	54.53	3.37	0.07	0.33
14.20	0.92	4.73	11.34	53.65	3.34	0.07	0.34
14.22	0.92	4.75	11.12	52.85	3.33	0.07	0.34
14.24	0.91	4.71	11.10	52.28	3.32	0.07	0.34
14.26	0.91	4.64	11.18	51.91	3.33	0.07	0.33
14.28	0.89	4.54	11.30	51.34	3.34	0.07	0.32
14.30	0.87	4.35	11.69	50.84	3.36	0.07	0.31
14.32	0.84	4.13	12.14	50.13	3.39	0.07	0.29
14.34	0.81	3.97	12.48	49.52	3.41	0.07	0.28
14.36	0.81	3.97	12.29	48.78	3.40	0.07	0.28
14.38	0.83	4.09	11.82	48.35	3.37	0.07	0.29

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

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
14.40	0.85	4.23	11.39	48.14	3.34	0.07	0.30
14.42	0.88	4.40	11.03	48.56	3.32	0.07	0.31
14.44	0.91	4.60	10.62	48.87	3.29	0.07	0.33
14.46	0.95	4.85	10.19	49.39	3.27	0.07	0.35
14.48	0.96	4.96	10.02	49.67	3.25	0.07	0.35
14.50	0.96	4.95	10.14	50.16	3.26	0.07	0.35
14.52	0.96	4.93	10.27	50.65	3.27	0.07	0.35
14.54	0.96	4.94	10.35	51.09	3.28	0.07	0.35
14.56	0.97	5.02	10.28	51.56	3.27	0.07	0.36
14.58	0.98	5.08	10.20	51.79	3.27	0.07	0.36
14.60	1.00	5.19	10.04	52.05	3.25	0.07	0.37
14.62	1.02	5.28	9.97	52.64	3.25	0.07	0.38
14.64	1.04	5.41	9.83	53.18	3.24	0.07	0.39
14.66	1.06	5.54	9.70	53.77	3.23	0.07	0.40
14.68	1.07	5.62	9.64	54.13	3.23	0.07	0.40
14.70	1.07	5.60	9.76	54.71	3.24	0.07	0.40
14.72	1.06	5.56	9.93	55.22	3.25	0.07	0.40
14.74	1.07	5.63	9.92	55.87	3.25	0.07	0.40
14.76	1.10	5.82	9.72	56.53	3.23	0.07	0.42
14.78	1.11	5.87	9.78	57.42	3.24	0.08	0.42
14.80	1.09	5.70	10.20	58.19	3.27	0.07	0.41
14.82	1.03	5.32	11.03	58.66	3.32	0.07	0.38
14.84	1.00	5.11	11.53	58.96	3.35	0.07	0.37
14.86	0.99	5.05	11.73	59.19	3.36	0.07	0.36
14.88	1.01	5.15	11.62	59.85	3.36	0.07	0.37
14.90	1.05	5.38	11.29	60.70	3.34	0.07	0.38
14.92	1.15	6.06	10.27	62.25	3.27	0.07	0.43
14.94	1.27	6.91	9.17	63.42	3.19	0.08	0.49
14.96	1.35	7.43	8.70	64.70	3.16	0.08	0.53
14.98	1.36	7.46	8.82	65.79	3.17	0.08	0.53
15.00	1.27	6.88	9.85	67.75	3.24	0.08	0.49
15.02	1.20	6.41	10.75	68.88	3.30	0.08	0.46
15.04	1.16	6.12	11.24	68.86	3.33	0.07	0.44
15.06	1.18	6.25	10.65	66.58	3.30	0.08	0.45
15.08	1.23	6.53	9.92	64.73	3.25	0.08	0.47
15.10	1.26	6.75	9.50	64.14	3.22	0.08	0.48
15.12	1.29	6.96	9.40	65.40	3.21	0.08	0.50
15.14	1.33	7.17	9.27	66.52	3.20	0.08	0.51
15.16	1.36	7.38	9.19	67.83	3.20	0.08	0.53
15.18	1.40	7.65	9.07	69.34	3.19	0.08	0.55
15.20	1.44	7.87	8.98	70.73	3.18	0.08	0.56
15.22	1.47	8.07	8.89	71.70	3.17	0.08	0.58
15.24	1.49	8.18	8.88	72.71	3.17	0.08	0.58
15.26	1.50	8.30	8.88	73.75	3.17	0.08	0.59
15.28	1.52	8.42	8.88	74.79	3.17	0.08	0.60
15.30	1.54	8.52	8.86	75.51	3.17	0.08	0.61
15.32	1.54	8.47	8.97	75.97	3.18	0.08	0.61
15.34	1.51	8.27	9.21	76.16	3.20	0.08	0.59

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

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
15.36	1.48	8.07	9.47	76.44	3.22	0.08	0.58
15.38	1.46	7.94	9.66	76.70	3.23	0.08	0.57
15.40	1.45	7.89	9.76	76.98	3.24	0.08	0.56
15.42	1.43	7.74	9.96	77.11	3.25	0.08	0.55
15.44	1.43	7.70	10.01	77.05	3.25	0.08	0.55
15.46	1.43	7.68	10.05	77.14	3.26	0.08	0.55
15.48	1.44	7.75	9.94	77.05	3.25	0.08	0.55
15.50	1.45	7.80	9.88	77.09	3.24	0.08	0.56
15.52	1.47	7.94	9.73	77.27	3.23	0.08	0.57
15.54	1.50	8.10	9.65	78.22	3.23	0.08	0.58
15.56	1.52	8.21	9.70	79.58	3.23	0.08	0.59
15.58	1.53	8.26	9.75	80.53	3.24	0.08	0.59
15.60	1.53	8.28	9.76	80.79	3.24	0.08	0.59
15.62	1.55	8.42	9.55	80.41	3.22	0.08	0.60
15.64	1.57	8.55	9.31	79.57	3.20	0.08	0.61
15.66	1.60	8.70	9.01	78.39	3.18	0.08	0.62
15.68	1.61	8.74	8.80	76.88	3.17	0.08	0.62
15.70	1.60	8.70	8.68	75.48	3.16	0.08	0.62
15.72	1.58	8.56	8.69	74.45	3.16	0.08	0.61
15.74	1.55	8.31	8.85	73.55	3.17	0.08	0.59
15.76	1.52	8.09	9.02	72.96	3.18	0.08	0.58
15.78	1.50	7.96	9.08	72.32	3.19	0.08	0.57
15.80	1.50	8.00	8.95	71.57	3.18	0.08	0.57
15.82	1.45	7.62	9.24	70.44	3.20	0.08	0.54
15.84	1.43	7.48	9.40	70.31	3.21	0.08	0.53
15.86	1.41	7.34	9.72	71.35	3.23	0.08	0.52
15.89	1.45	7.60	9.65	73.36	3.23	0.08	0.54
15.90	1.46	7.68	9.79	75.18	3.24	0.08	0.55
15.92	1.46	7.67	10.00	76.71	3.25	0.08	0.55
15.94	1.47	7.74	10.07	77.92	3.26	0.08	0.55
15.96	1.48	7.79	10.04	78.23	3.26	0.08	0.56
15.98	1.50	7.89	9.87	77.89	3.24	0.08	0.56
16.00	1.50	7.84	9.87	77.41	3.24	0.08	0.56
16.02	1.48	7.75	9.95	77.15	3.25	0.08	0.55
16.04	1.46	7.62	10.13	77.20	3.26	0.08	0.54
16.06	1.46	7.58	10.19	77.22	3.26	0.08	0.54
16.08	1.46	7.55	10.24	77.30	3.27	0.08	0.54
16.10	1.45	7.49	10.35	77.46	3.28	0.08	0.53
16.12	1.44	7.43	10.45	77.59	3.28	0.08	0.53
16.14	1.44	7.39	10.48	77.44	3.28	0.08	0.53
16.16	1.44	7.42	10.38	76.99	3.28	0.08	0.53
16.18	1.44	7.37	10.37	76.41	3.28	0.08	0.53
16.20	1.43	7.32	10.38	75.92	3.28	0.08	0.52
16.22	1.42	7.27	10.38	75.52	3.28	0.08	0.52
16.24	1.44	7.34	10.25	75.25	3.27	0.08	0.52
16.26	1.43	7.30	10.28	75.06	3.27	0.08	0.52
16.28	1.42	7.19	10.45	75.21	3.28	0.08	0.51
16.30	1.39	7.03	10.75	75.61	3.30	0.08	0.50

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

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
16.32	1.38	6.94	10.93	75.86	3.31	0.08	0.50
16.34	1.37	6.86	11.05	75.82	3.32	0.08	0.49
16.36	1.36	6.81	11.10	75.56	3.32	0.08	0.49
16.38	1.35	6.75	11.15	75.26	3.33	0.08	0.48
16.40	1.34	6.65	11.22	74.63	3.33	0.08	0.47
16.42	1.33	6.56	11.23	73.69	3.33	0.08	0.47
16.44	1.31	6.48	11.09	71.85	3.32	0.08	0.46
16.46	1.37	6.81	10.43	71.01	3.28	0.08	0.49
16.48	1.42	7.11	9.84	69.96	3.24	0.08	0.51
16.50	1.45	7.30	9.56	69.78	3.22	0.08	0.52
16.52	1.41	7.06	9.76	68.94	3.24	0.08	0.50
16.54	1.36	6.73	10.15	68.34	3.26	0.08	0.48
16.56	1.34	6.57	10.38	68.19	3.28	0.08	0.47
16.58	1.33	6.52	10.49	68.43	3.29	0.08	0.47
16.60	1.35	6.62	10.46	69.22	3.28	0.08	0.47
16.62	1.38	6.81	10.22	69.65	3.27	0.08	0.49
16.64	1.42	7.07	9.88	69.87	3.24	0.08	0.51
16.66	1.47	7.34	9.50	69.77	3.22	0.08	0.52
16.68	1.49	7.49	9.30	69.68	3.20	0.08	0.53
16.70	1.51	7.58	9.15	69.30	3.19	0.08	0.54
16.72	1.52	7.65	9.00	68.85	3.18	0.08	0.55
16.74	1.52	7.61	9.03	68.78	3.18	0.08	0.54
16.76	1.49	7.45	9.37	69.81	3.21	0.08	0.53
16.78	1.45	7.16	9.94	71.19	3.25	0.08	0.51
16.80	1.42	6.96	10.46	72.76	3.28	0.08	0.50
16.82	1.39	6.78	10.90	73.94	3.31	0.08	0.48
16.84	1.40	6.86	11.01	75.51	3.32	0.08	0.49
16.86	1.43	7.01	10.95	76.77	3.32	0.08	0.50
16.88	1.48	7.30	10.57	77.19	3.29	0.08	0.52
16.90	1.50	7.43	10.29	76.48	3.27	0.08	0.53
16.92	1.53	7.57	9.95	75.34	3.25	0.08	0.54
16.94	1.56	7.74	9.62	74.43	3.23	0.08	0.55
16.96	1.60	7.99	9.22	73.68	3.20	0.08	0.57
16.98	1.66	8.36	8.73	72.95	3.16	0.08	0.60
17.00	1.74	8.87	8.17	72.43	3.12	0.08	0.63
17.02	1.84	9.46	7.66	72.44	3.08	0.08	0.68
17.04	1.93	9.98	7.32	73.04	3.05	0.08	0.71
17.06	2.00	10.36	7.14	73.93	3.03	0.08	0.74
17.08	2.05	10.69	6.98	74.59	3.02	0.08	0.76
17.10	2.09	10.91	6.91	75.38	3.01	0.08	0.78
17.12	2.10	10.97	7.03	77.04	3.02	0.08	0.78
17.14	2.09	10.90	7.27	79.17	3.05	0.08	0.78
17.16	2.08	10.79	7.51	81.04	3.07	0.08	0.77
17.18	2.06	10.70	7.70	82.37	3.08	0.08	0.76
17.20	2.03	10.51	7.91	83.15	3.10	0.08	0.75
17.22	1.99	10.21	8.22	84.00	3.12	0.08	0.73
17.24	1.91	9.73	8.62	83.82	3.15	0.08	0.69
17.26	1.78	8.93	9.23	82.48	3.20	0.08	0.64

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

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
17.28	1.63	8.03	9.94	79.82	3.25	0.08	0.57
17.30	1.50	7.20	10.67	76.80	3.30	0.08	0.51
17.32	1.43	6.82	10.89	74.23	3.31	0.08	0.49
17.34	1.44	6.85	10.54	72.25	3.29	0.08	0.49
17.36	1.53	7.36	9.56	70.34	3.22	0.08	0.53
17.38	1.61	7.85	8.69	68.20	3.16	0.08	0.56
17.40	1.68	8.26	7.99	65.99	3.11	0.08	0.59
17.42	1.71	8.44	7.57	63.90	3.07	0.08	0.60
17.44	1.82	9.09	6.82	62.06	3.01	0.08	0.65
17.46	1.94	9.76	6.24	60.90	2.95	0.08	0.70
17.48	2.05	10.43	5.85	60.95	2.91	0.08	0.74
17.50	2.03	10.29	6.13	63.09	2.94	0.08	0.74
17.52	1.97	9.90	6.58	65.13	2.99	0.08	0.71
17.54	1.87	9.29	7.14	66.32	3.03	0.08	0.66
17.56	1.81	8.95	7.40	66.22	3.06	0.08	0.64
17.58	1.77	8.70	7.57	65.90	3.07	0.08	0.62
17.60	1.78	8.78	7.54	66.17	3.07	0.08	0.63
17.62	1.85	9.18	7.26	66.68	3.05	0.08	0.66
17.64	1.96	9.79	6.87	67.22	3.01	0.08	0.70
17.66	1.98	9.89	6.93	68.50	3.02	0.08	0.71
17.68	1.93	9.58	7.26	69.52	3.05	0.08	0.68
17.70	1.86	9.15	7.71	70.61	3.08	0.08	0.65
17.72	1.96	9.78	7.27	71.06	3.05	0.08	0.70
17.74	2.40	12.34	5.73	70.65	2.90	0.08	0.88
17.76	3.10	16.69	4.11	68.57	2.72	0.09	1.17
17.78	3.73	20.97	3.23	67.77	2.58	0.09	0.63
17.80	4.02	23.00	2.94	67.60	2.53	0.09	0.64
17.82	3.97	22.56	3.03	68.37	2.55	0.09	0.64
17.84	3.61	20.11	3.34	67.11	2.60	0.09	1.38
17.86	3.04	16.26	4.06	66.03	2.71	0.09	1.14
17.88	2.34	11.90	5.36	63.81	2.86	0.08	0.85
17.90	1.82	8.86	7.02	62.15	3.02	0.08	0.63
17.92	1.50	6.98	8.48	59.16	3.14	0.08	0.50
17.94	1.38	6.24	9.29	57.99	3.20	0.08	0.45
17.96	1.33	5.92	9.68	57.29	3.23	0.08	0.42
17.98	1.32	5.91	9.68	57.17	3.23	0.08	0.42
18.00	1.34	6.01	9.30	55.94	3.20	0.08	0.43
18.02	1.37	6.15	8.85	54.46	3.17	0.08	0.44
18.04	1.39	6.28	8.47	53.22	3.14	0.08	0.45
18.06	1.45	6.59	8.06	53.06	3.11	0.08	0.47
18.08	1.50	6.90	7.79	53.74	3.09	0.08	0.49
18.10	1.55	7.15	7.80	55.78	3.09	0.08	0.51
18.12	1.58	7.32	7.88	57.65	3.10	0.08	0.52
18.14	1.62	7.57	7.76	58.76	3.09	0.08	0.54
18.16	1.68	7.89	7.52	59.31	3.07	0.08	0.56
18.18	1.71	8.08	7.48	60.41	3.06	0.08	0.58
18.20	1.73	8.15	7.64	62.29	3.08	0.08	0.58
18.22	1.73	8.15	7.88	64.28	3.10	0.08	0.58

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

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
18.24	1.70	7.98	8.30	66.22	3.13	0.08	0.57
18.26	1.66	7.74	8.76	67.86	3.16	0.08	0.55
18.28	1.58	7.29	9.57	69.76	3.22	0.08	0.52
18.30	1.51	6.87	10.40	71.45	3.28	0.08	0.49
18.32	1.43	6.39	11.34	72.49	3.34	0.08	0.46
18.34	1.37	6.03	12.07	72.80	3.38	0.08	0.43
18.36	1.33	5.79	12.58	72.80	3.41	0.08	0.41
18.38	1.30	5.60	12.95	72.57	3.44	0.08	0.40
18.40	1.28	5.52	13.06	72.04	3.44	0.08	0.39
18.42	1.26	5.35	13.25	70.95	3.45	0.08	0.38
18.44	1.23	5.20	13.33	69.32	3.46	0.08	0.37
18.46	1.21	5.09	13.25	67.43	3.45	0.07	0.36
18.48	1.20	5.03	12.99	65.37	3.44	0.08	0.36
18.50	1.21	5.07	12.53	63.49	3.41	0.07	0.36
18.52	1.23	5.16	11.99	61.89	3.38	0.08	0.37
18.54	1.27	5.38	11.30	60.81	3.34	0.08	0.38
18.56	1.33	5.73	10.52	60.26	3.29	0.08	0.41
18.58	1.42	6.25	9.61	60.04	3.23	0.08	0.45
18.60	1.57	7.05	8.50	59.94	3.14	0.08	0.50
18.62	1.72	7.90	7.58	59.89	3.07	0.08	0.56
18.64	1.86	8.69	6.98	60.67	3.02	0.08	0.62
18.66	1.97	9.34	6.69	62.48	3.00	0.08	0.67
18.68	2.05	9.75	6.68	65.13	2.99	0.08	0.70
18.70	2.09	9.97	6.81	67.91	3.01	0.08	0.71
18.72	2.11	10.04	7.05	70.85	3.03	0.08	0.72
18.74	2.12	10.10	7.34	74.07	3.05	0.08	0.72
18.76	2.12	10.09	7.70	77.62	3.08	0.08	0.72
18.78	2.10	10.00	8.08	80.75	3.11	0.08	0.71
18.80	1.85	8.57	8.97	76.91	3.18	0.08	0.61
18.82	1.86	8.63	9.18	79.27	3.20	0.08	0.62
18.84	1.88	8.71	9.35	81.46	3.21	0.08	0.62
18.86	2.15	10.20	8.76	89.36	3.16	0.08	0.73
18.88	2.16	10.27	8.84	90.77	3.17	0.08	0.73
18.90	2.18	10.35	8.89	92.09	3.17	0.08	0.74
18.92	2.19	10.39	9.02	93.67	3.18	0.08	0.74
18.94	2.20	10.43	9.10	94.94	3.19	0.08	0.74
18.96	2.20	10.45	9.20	96.09	3.20	0.08	0.75
18.98	2.19	10.37	9.32	96.72	3.21	0.08	0.74
19.00	2.17	10.23	9.45	96.72	3.21	0.08	0.73
19.02	2.14	10.07	9.53	95.97	3.22	0.08	0.72
19.04	2.15	10.10	9.41	95.06	3.21	0.08	0.72
19.06	2.18	10.23	9.23	94.45	3.20	0.08	0.73
19.08	2.22	10.47	8.99	94.14	3.18	0.08	0.75
19.10	2.27	10.70	8.77	93.90	3.17	0.08	0.76
19.12	2.31	10.91	8.59	93.66	3.15	0.08	0.78
19.14	2.33	11.02	8.47	93.33	3.14	0.09	0.79
19.16	2.34	11.09	8.40	93.19	3.14	0.09	0.79
19.18	2.35	11.11	8.41	93.46	3.14	0.09	0.79

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

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
19.20	2.36	11.18	8.44	94.33	3.14	0.09	0.80
19.22	2.37	11.20	8.53	95.51	3.15	0.09	0.80
19.24	2.37	11.19	8.67	97.05	3.16	0.09	0.80
19.26	2.39	11.31	8.71	98.45	3.16	0.09	0.81
19.28	2.43	11.48	8.71	99.91	3.16	0.09	0.82
19.30	2.47	11.68	8.64	101.01	3.16	0.09	0.83
19.32	2.46	11.63	8.78	102.11	3.17	0.09	0.83
19.34	2.44	11.51	8.93	102.84	3.18	0.09	0.82
19.36	2.42	11.39	9.04	103.00	3.18	0.09	0.81
19.38	2.43	11.44	8.97	102.63	3.18	0.09	0.82
19.40	2.44	11.48	8.91	102.28	3.18	0.09	0.82
19.42	2.43	11.39	8.96	102.07	3.18	0.09	0.81
19.44	2.39	11.18	9.12	101.94	3.19	0.09	0.80
19.46	2.35	10.91	9.30	101.45	3.20	0.08	0.78
19.48	2.30	10.65	9.50	101.23	3.22	0.08	0.76
19.50	2.23	10.24	9.91	101.48	3.25	0.08	0.73
19.52	2.14	9.77	10.44	102.07	3.28	0.08	0.70
19.54	2.04	9.22	11.09	102.19	3.32	0.08	0.66
19.56	1.95	8.68	11.71	101.69	3.36	0.08	0.62
19.58	1.85	8.15	12.37	100.78	3.40	0.08	0.58
19.60	1.79	7.79	12.82	99.91	3.43	0.08	0.56
19.62	1.75	7.61	12.99	98.89	3.44	0.08	0.54
19.64	1.75	7.60	12.84	97.60	3.43	0.08	0.54
19.66	1.77	7.71	12.47	96.18	3.41	0.08	0.55
19.68	1.82	7.95	11.89	94.57	3.37	0.08	0.57
19.70	1.88	8.27	11.23	92.84	3.33	0.08	0.59
19.72	1.94	8.56	10.61	90.84	3.29	0.08	0.61
19.74	1.98	8.79	10.14	89.14	3.26	0.08	0.63
19.76	2.02	8.96	9.81	87.91	3.24	0.08	0.64
19.78	2.05	9.11	9.58	87.25	3.22	0.08	0.65
19.80	1.75	7.49	10.17	76.14	3.26	0.08	0.53
19.82	1.78	7.65	10.14	77.59	3.26	0.07	0.55
19.84	1.80	7.78	10.28	80.01	3.27	0.08	0.56
19.86	2.14	9.58	9.72	93.12	3.23	0.08	0.68
19.88	2.13	9.52	9.97	94.92	3.25	0.08	0.68
19.90	2.13	9.49	10.14	96.23	3.26	0.08	0.68
19.92	2.16	9.62	10.07	96.90	3.26	0.08	0.69
19.94	2.21	9.86	9.83	96.96	3.24	0.08	0.70
19.96	2.26	10.15	9.50	96.41	3.22	0.08	0.73
19.98	2.29	10.27	9.31	95.64	3.20	0.08	0.73
20.00	2.30	10.33	9.15	94.58	3.19	0.08	0.74
20.02	2.29	10.25	9.13	93.52	3.19	0.08	0.73
20.04	2.26	10.12	9.19	93.03	3.20	0.08	0.72
20.06	2.22	9.87	9.48	93.59	3.22	0.08	0.71
20.08	2.18	9.65	9.82	94.68	3.24	0.08	0.69
20.10	2.13	9.37	10.22	95.74	3.27	0.08	0.67
20.12	2.09	9.14	10.54	96.39	3.29	0.08	0.65
20.14	2.05	8.92	10.83	96.61	3.31	0.08	0.64

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

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
20.16	2.02	8.75	11.03	96.56	3.32	0.08	0.63
20.18	1.99	8.60	11.16	95.97	3.33	0.08	0.61
20.20	1.97	8.46	11.21	94.86	3.33	0.08	0.60
20.22	1.96	8.43	11.08	93.39	3.32	0.08	0.60
20.24	1.97	8.48	10.83	91.84	3.31	0.08	0.61
20.26	1.98	8.50	10.66	90.62	3.30	0.08	0.61
20.28	1.96	8.41	10.57	88.97	3.29	0.08	0.60
20.30	1.93	8.20	10.65	87.31	3.30	0.08	0.59
20.32	1.90	8.03	10.61	85.20	3.29	0.08	0.57
20.34	1.87	7.89	10.60	83.62	3.29	0.08	0.56
20.36	1.84	7.74	10.65	82.46	3.30	0.08	0.55
20.38	1.79	7.48	10.85	81.10	3.31	0.08	0.53
20.40	1.71	7.02	11.09	77.79	3.32	0.08	0.50
20.42	1.64	6.67	11.17	74.46	3.33	0.08	0.48

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

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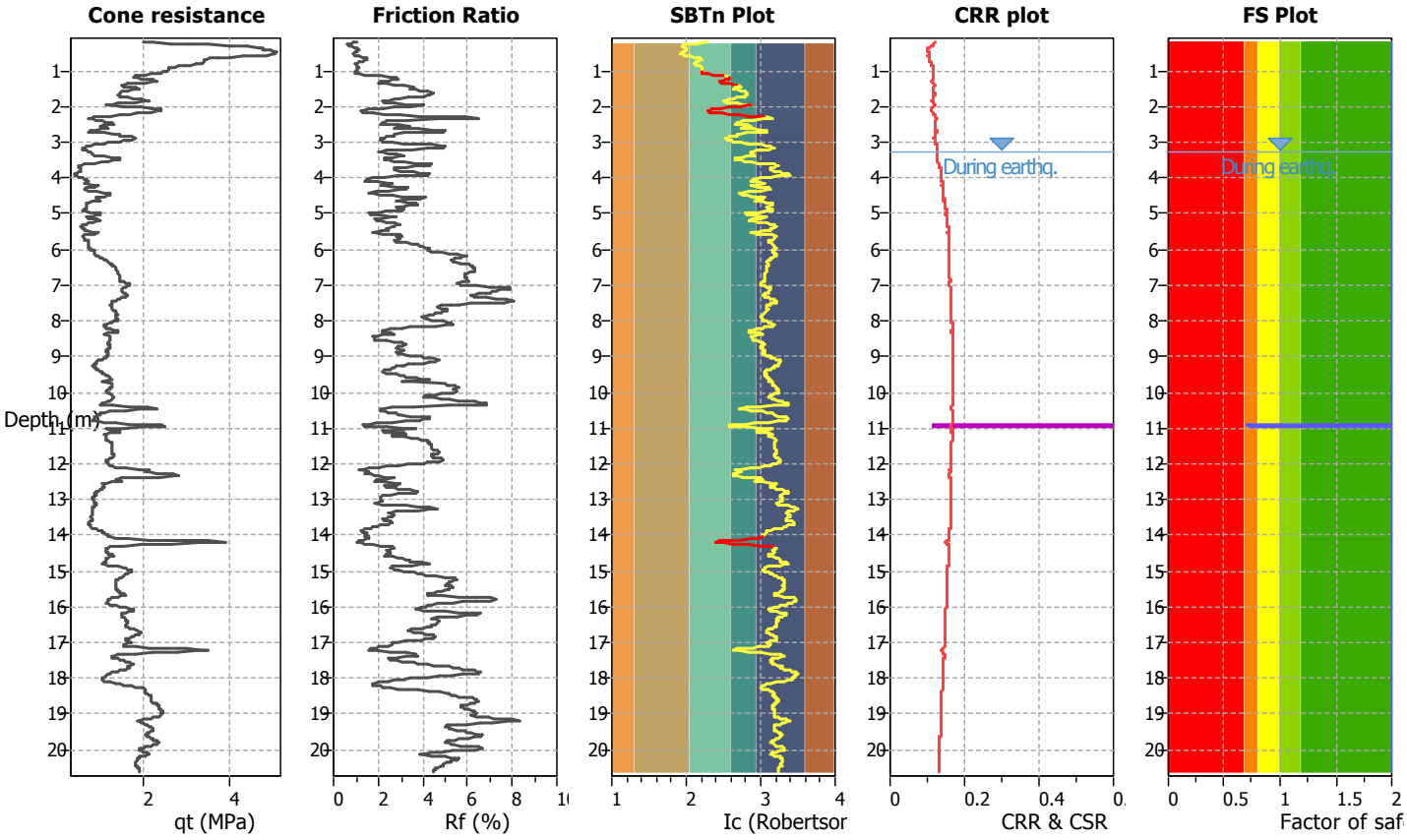
LIQUEFACTION ANALYSIS REPORT

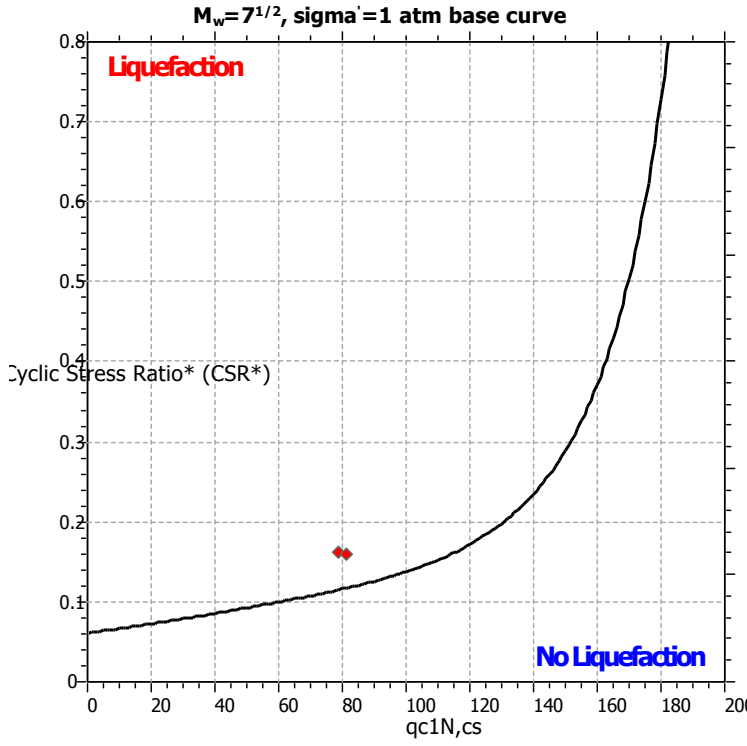
Project title : MARKET INGROSS srl **Location : Via Marco Emilio Lepido s.n.**

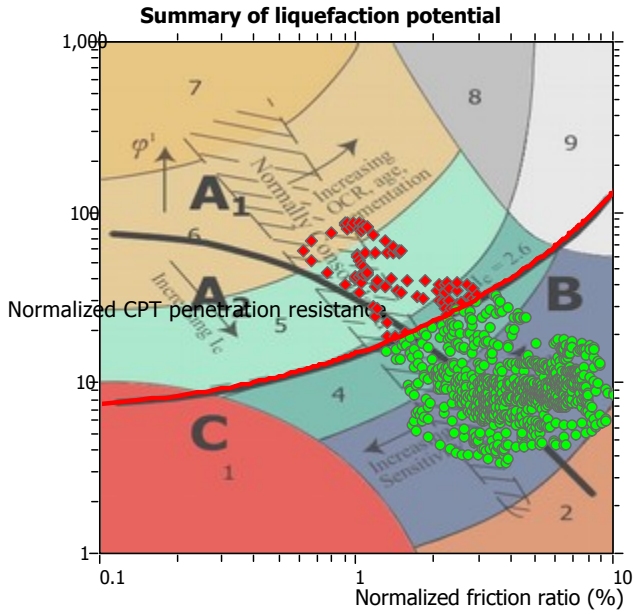
CPT file : CPTU 2

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	3.80 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	3.30 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:	5.00	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.25	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

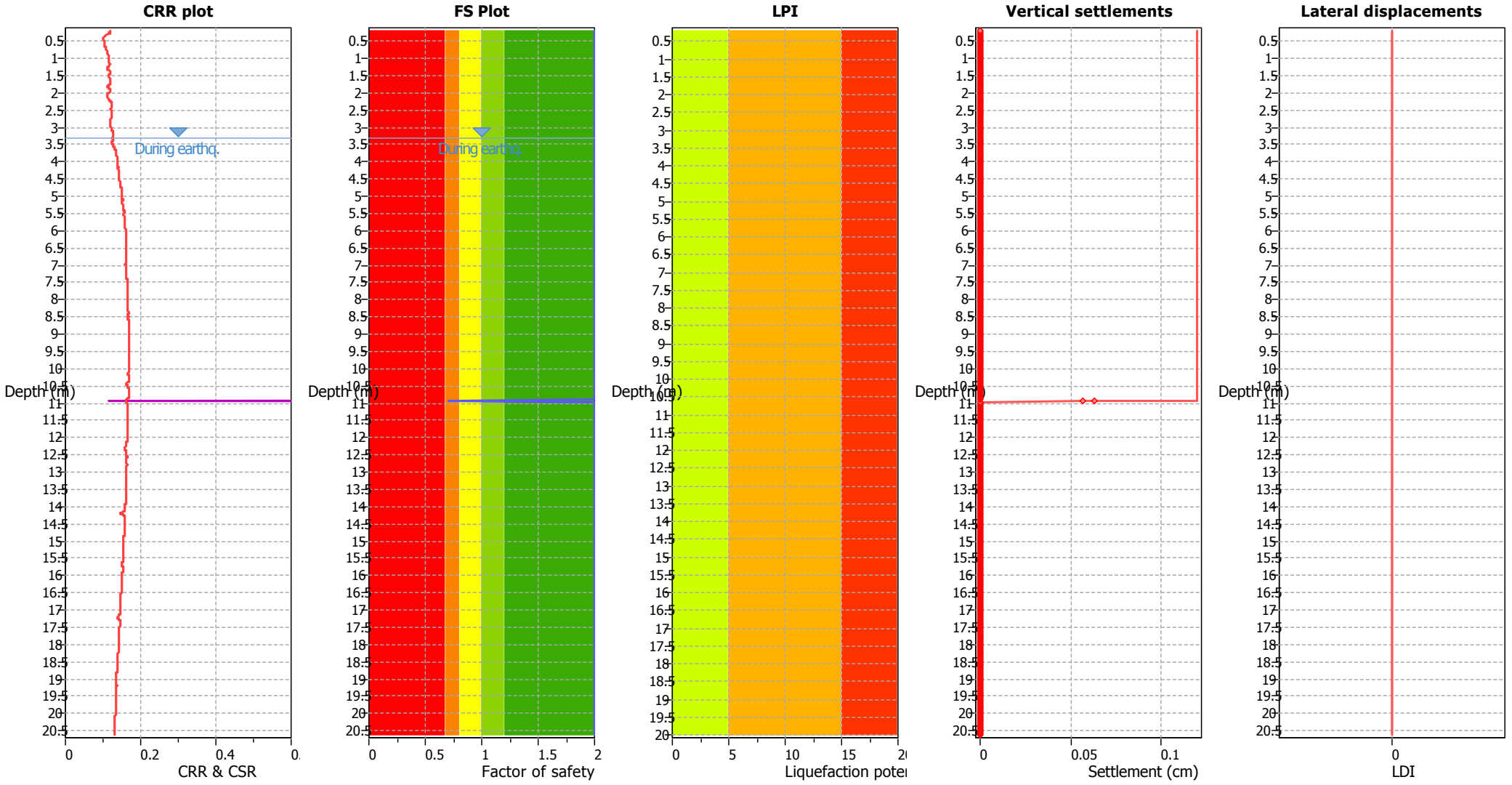






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and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

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	3.30 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	5.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.25	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	3.80 m	Fill height:	N/A	Limit depth:	N/A

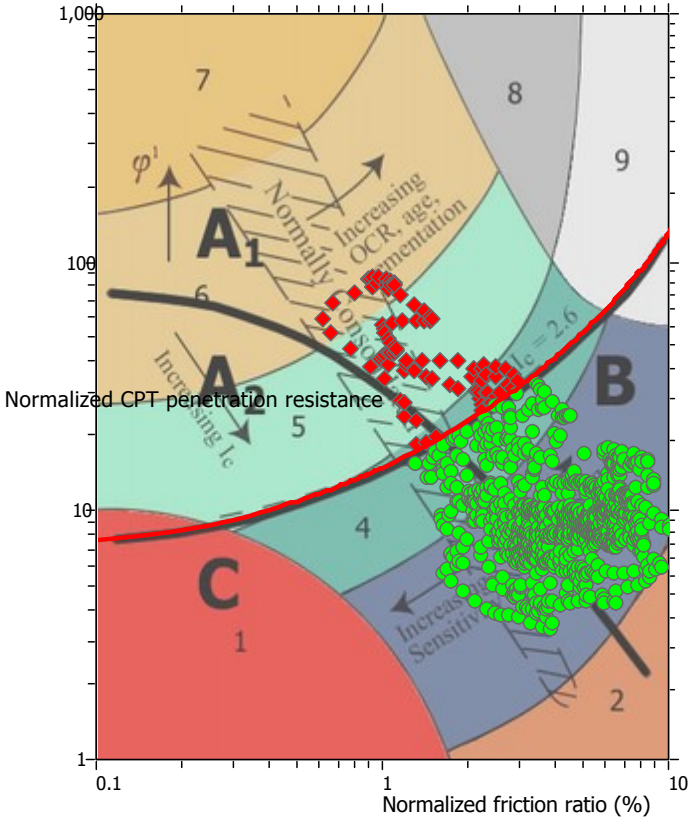
F.S. color scheme

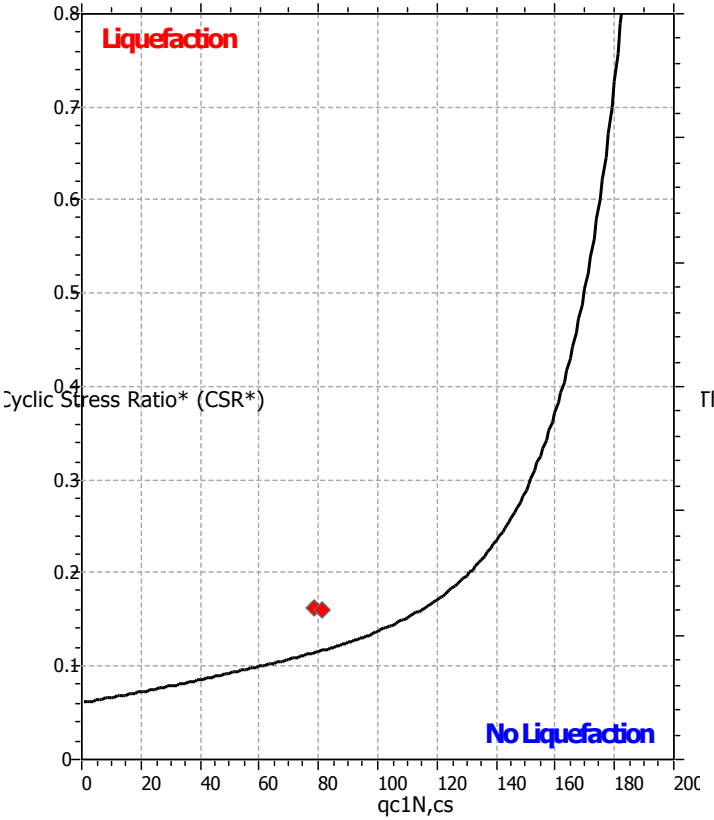
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

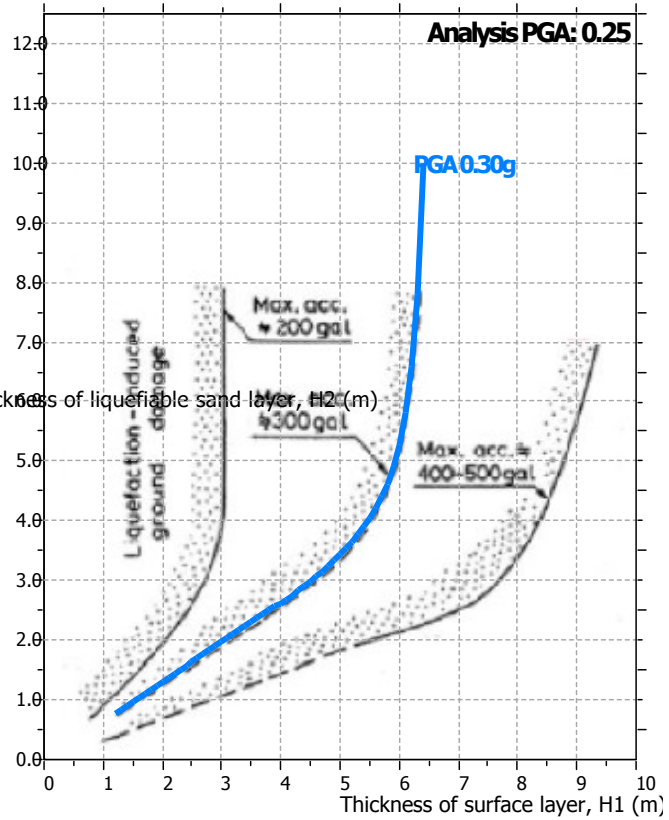
LPI color scheme

- Very high risk
- High risk
- Low risk

Liquefaction analysis summary plots



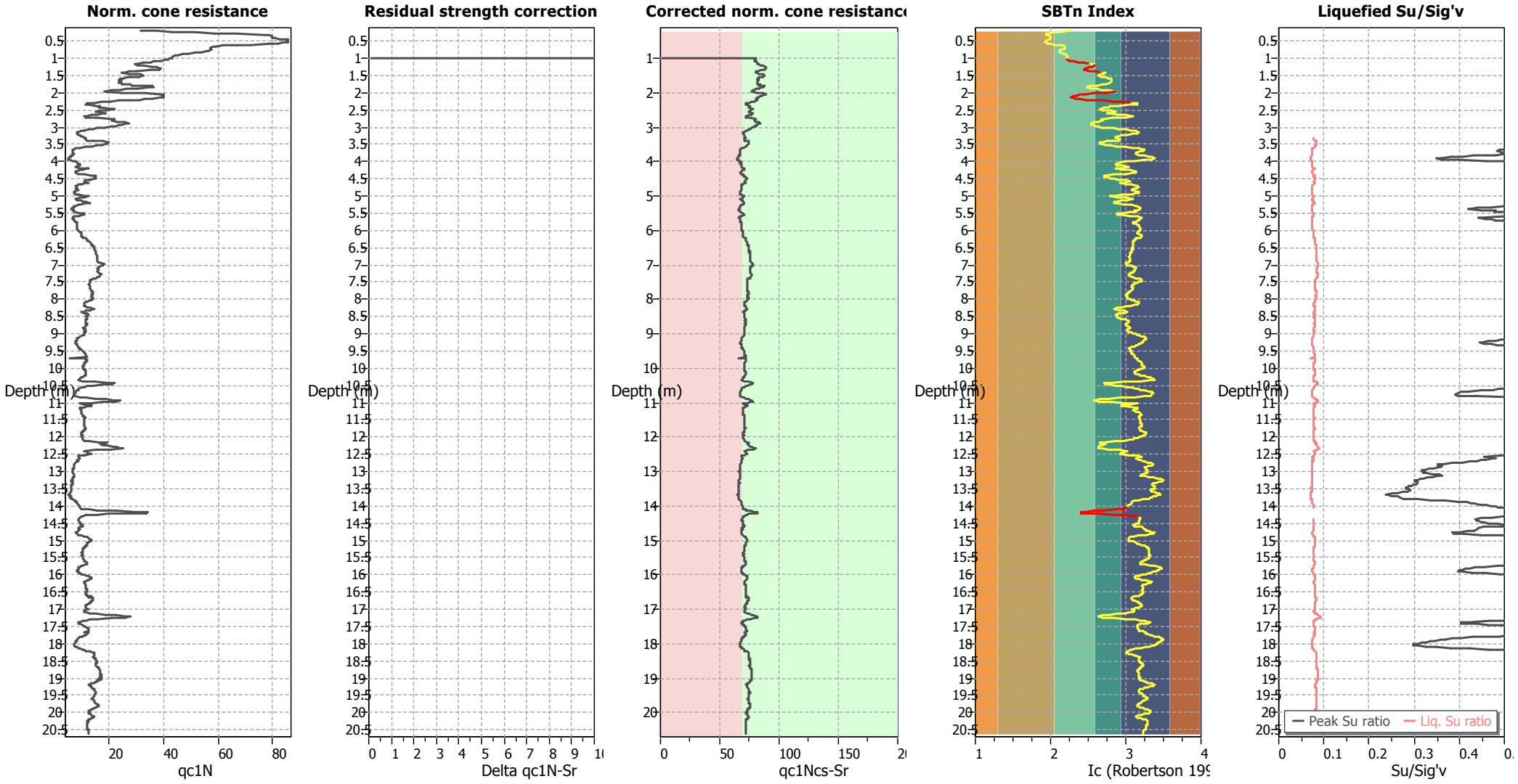




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	3.30 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	5.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.25	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	3.80 m	Fill height:	N/A	Limit depth:	N/A

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



Input parameters and analysis data

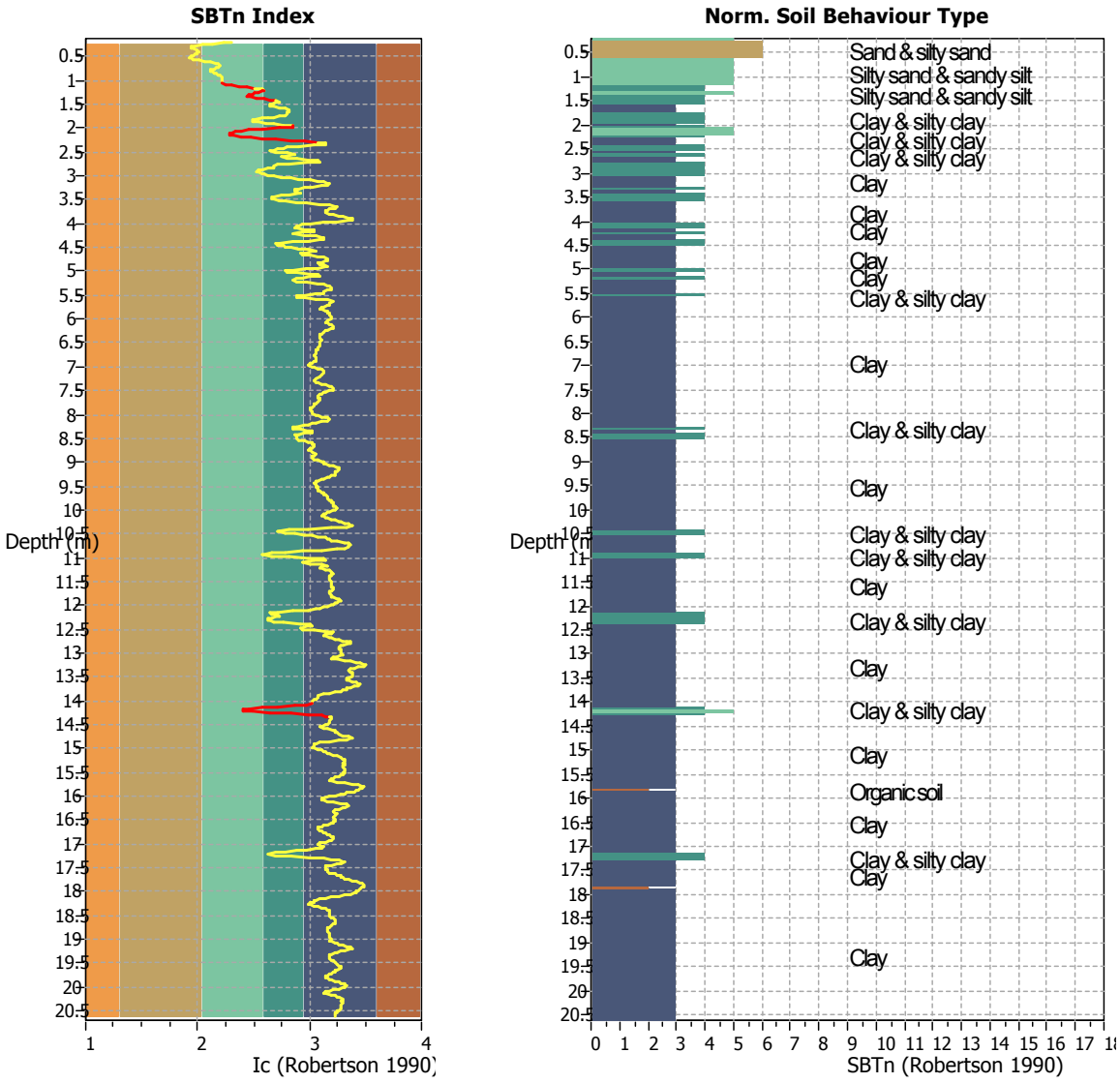
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	3.30 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	5.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.25	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	3.80 m	Fill height:	N/A	Limit depth:	N/A

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between 1.80 < I_c < 3.0) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties		General statistics	
I_c minimum check value:	1.50	Total points in CPT file:	1022
I_c maximum check value:	3.20	Total points excluded:	53
I_c change ratio value:	0.0100	Exclusion percentage:	5.19%
Minimum number of points in layer:	2	Number of layers detected:	7

Transition layer No	Number of points	Depth	SBT_n number	SBT_n description
Transition layer 1	7	Start depth: 1.06 (m)	5	Silty sand & sandy silt
		End depth: 1.18 (m)	4	Clay & silty clay
Transition layer 2	5	Start depth: 1.22 (m)	4	Clay & silty clay
		End depth: 1.30 (m)	5	Silty sand & sandy silt
Transition layer 3	7	Start depth: 1.32 (m)	5	Silty sand & sandy silt
		End depth: 1.44 (m)	4	Clay & silty clay
Transition layer 4	8	Start depth: 1.98 (m)	3	Clay
		End depth: 2.12 (m)	5	Silty sand & sandy silt
Transition layer 5	10	Start depth: 2.14 (m)	5	Silty sand & sandy silt
		End depth: 2.32 (m)	3	Clay
Transition layer 6	7	Start depth: 14.06 (m)	3	Clay
		End depth: 14.18 (m)	5	Silty sand & sandy silt
Transition layer 7	9	Start depth: 14.20 (m)	5	Silty sand & sandy silt
		End depth: 14.36 (m)	3	Clay

Start depth: Depth where the transition layer begins
End depth: Depth where the transition layer ends

:: Liquefaction Potential Index calculation data ::

Depth (m)	FS	F_L	w_z	d_z	LPI	Depth (m)	FS	F_L	w_z	d_z	LPI
0.20	2.00	0.00	9.90	0.02	0.00	0.22	2.00	0.00	9.89	0.02	0.00
0.24	2.00	0.00	9.88	0.02	0.00	0.26	2.00	0.00	9.87	0.02	0.00
0.28	2.00	0.00	9.86	0.02	0.00	0.30	2.00	0.00	9.85	0.02	0.00
0.32	2.00	0.00	9.84	0.02	0.00	0.34	2.00	0.00	9.83	0.02	0.00
0.36	2.00	0.00	9.82	0.02	0.00	0.38	2.00	0.00	9.81	0.02	0.00
0.40	2.00	0.00	9.80	0.02	0.00	0.42	2.00	0.00	9.79	0.02	0.00
0.44	2.00	0.00	9.78	0.02	0.00	0.46	2.00	0.00	9.77	0.02	0.00
0.48	2.00	0.00	9.76	0.02	0.00	0.50	2.00	0.00	9.75	0.02	0.00
0.52	2.00	0.00	9.74	0.02	0.00	0.54	2.00	0.00	9.73	0.02	0.00
0.56	2.00	0.00	9.72	0.02	0.00	0.58	2.00	0.00	9.71	0.02	0.00
0.60	2.00	0.00	9.70	0.02	0.00	0.62	2.00	0.00	9.69	0.02	0.00
0.64	2.00	0.00	9.68	0.02	0.00	0.66	2.00	0.00	9.67	0.02	0.00
0.68	2.00	0.00	9.66	0.02	0.00	0.70	2.00	0.00	9.65	0.02	0.00
0.72	2.00	0.00	9.64	0.02	0.00	0.74	2.00	0.00	9.63	0.02	0.00
0.76	2.00	0.00	9.62	0.02	0.00	0.78	2.00	0.00	9.61	0.02	0.00
0.80	2.00	0.00	9.60	0.02	0.00	0.82	2.00	0.00	9.59	0.02	0.00
0.84	2.00	0.00	9.58	0.02	0.00	0.86	2.00	0.00	9.57	0.02	0.00
0.88	2.00	0.00	9.56	0.02	0.00	0.90	2.00	0.00	9.55	0.02	0.00
0.92	2.00	0.00	9.54	0.02	0.00	0.94	2.00	0.00	9.53	0.02	0.00
0.96	2.00	0.00	9.52	0.02	0.00	0.98	2.00	0.00	9.51	0.02	0.00
1.00	2.00	0.00	9.50	0.02	0.00	1.02	2.00	0.00	9.49	0.02	0.00
1.04	2.00	0.00	9.48	0.02	0.00	1.06	2.00	0.00	9.47	0.02	0.00
1.08	2.00	0.00	9.46	0.02	0.00	1.10	2.00	0.00	9.45	0.02	0.00
1.12	2.00	0.00	9.44	0.02	0.00	1.14	2.00	0.00	9.43	0.02	0.00
1.16	2.00	0.00	9.42	0.02	0.00	1.18	2.00	0.00	9.41	0.02	0.00
1.20	2.00	0.00	9.40	0.02	0.00	1.22	2.00	0.00	9.39	0.02	0.00
1.24	2.00	0.00	9.38	0.02	0.00	1.26	2.00	0.00	9.37	0.02	0.00
1.28	2.00	0.00	9.36	0.02	0.00	1.30	2.00	0.00	9.35	0.02	0.00
1.32	2.00	0.00	9.34	0.02	0.00	1.34	2.00	0.00	9.33	0.02	0.00
1.36	2.00	0.00	9.32	0.02	0.00	1.38	2.00	0.00	9.31	0.02	0.00
1.40	2.00	0.00	9.30	0.02	0.00	1.42	2.00	0.00	9.29	0.02	0.00
1.44	2.00	0.00	9.28	0.02	0.00	1.46	2.00	0.00	9.27	0.02	0.00
1.48	2.00	0.00	9.26	0.02	0.00	1.50	2.00	0.00	9.25	0.02	0.00
1.52	2.00	0.00	9.24	0.02	0.00	1.54	2.00	0.00	9.23	0.02	0.00
1.56	2.00	0.00	9.22	0.02	0.00	1.58	2.00	0.00	9.21	0.02	0.00
1.60	2.00	0.00	9.20	0.02	0.00	1.62	2.00	0.00	9.19	0.02	0.00
1.64	2.00	0.00	9.18	0.02	0.00	1.66	2.00	0.00	9.17	0.02	0.00
1.68	2.00	0.00	9.16	0.02	0.00	1.70	2.00	0.00	9.15	0.02	0.00
1.72	2.00	0.00	9.14	0.02	0.00	1.74	2.00	0.00	9.13	0.02	0.00
1.76	2.00	0.00	9.12	0.02	0.00	1.78	2.00	0.00	9.11	0.02	0.00
1.80	2.00	0.00	9.10	0.02	0.00	1.82	2.00	0.00	9.09	0.02	0.00
1.84	2.00	0.00	9.08	0.02	0.00	1.86	2.00	0.00	9.07	0.02	0.00
1.88	2.00	0.00	9.06	0.02	0.00	1.90	2.00	0.00	9.05	0.02	0.00
1.92	2.00	0.00	9.04	0.02	0.00	1.94	2.00	0.00	9.03	0.02	0.00
1.96	2.00	0.00	9.02	0.02	0.00	1.98	2.00	0.00	9.01	0.02	0.00
2.00	2.00	0.00	9.00	0.02	0.00	2.02	2.00	0.00	8.99	0.02	0.00
2.04	2.00	0.00	8.98	0.02	0.00	2.06	2.00	0.00	8.97	0.02	0.00
2.08	2.00	0.00	8.96	0.02	0.00	2.10	2.00	0.00	8.95	0.02	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (m)	FS	F_L	w_z	d_z	LPI	Depth (m)	FS	F_L	w_z	d_z	LPI
2.12	2.00	0.00	8.94	0.02	0.00	2.14	2.00	0.00	8.93	0.02	0.00
2.16	2.00	0.00	8.92	0.02	0.00	2.18	2.00	0.00	8.91	0.02	0.00
2.20	2.00	0.00	8.90	0.02	0.00	2.22	2.00	0.00	8.89	0.02	0.00
2.24	2.00	0.00	8.88	0.02	0.00	2.26	2.00	0.00	8.87	0.02	0.00
2.28	2.00	0.00	8.86	0.02	0.00	2.30	2.00	0.00	8.85	0.02	0.00
2.32	2.00	0.00	8.84	0.02	0.00	2.34	2.00	0.00	8.83	0.02	0.00
2.36	2.00	0.00	8.82	0.02	0.00	2.38	2.00	0.00	8.81	0.02	0.00
2.40	2.00	0.00	8.80	0.02	0.00	2.42	2.00	0.00	8.79	0.02	0.00
2.44	2.00	0.00	8.78	0.02	0.00	2.46	2.00	0.00	8.77	0.02	0.00
2.48	2.00	0.00	8.76	0.02	0.00	2.50	2.00	0.00	8.75	0.02	0.00
2.52	2.00	0.00	8.74	0.02	0.00	2.54	2.00	0.00	8.73	0.02	0.00
2.56	2.00	0.00	8.72	0.02	0.00	2.58	2.00	0.00	8.71	0.02	0.00
2.60	2.00	0.00	8.70	0.02	0.00	2.62	2.00	0.00	8.69	0.02	0.00
2.64	2.00	0.00	8.68	0.02	0.00	2.66	2.00	0.00	8.67	0.02	0.00
2.68	2.00	0.00	8.66	0.02	0.00	2.70	2.00	0.00	8.65	0.02	0.00
2.72	2.00	0.00	8.64	0.02	0.00	2.74	2.00	0.00	8.63	0.02	0.00
2.76	2.00	0.00	8.62	0.02	0.00	2.78	2.00	0.00	8.61	0.02	0.00
2.80	2.00	0.00	8.60	0.02	0.00	2.82	2.00	0.00	8.59	0.02	0.00
2.84	2.00	0.00	8.58	0.02	0.00	2.86	2.00	0.00	8.57	0.02	0.00
2.88	2.00	0.00	8.56	0.02	0.00	2.90	2.00	0.00	8.55	0.02	0.00
2.92	2.00	0.00	8.54	0.02	0.00	2.94	2.00	0.00	8.53	0.02	0.00
2.96	2.00	0.00	8.52	0.02	0.00	2.98	2.00	0.00	8.51	0.02	0.00
3.00	2.00	0.00	8.50	0.02	0.00	3.02	2.00	0.00	8.49	0.02	0.00
3.04	2.00	0.00	8.48	0.02	0.00	3.06	2.00	0.00	8.47	0.02	0.00
3.08	2.00	0.00	8.46	0.02	0.00	3.10	2.00	0.00	8.45	0.02	0.00
3.12	2.00	0.00	8.44	0.02	0.00	3.14	2.00	0.00	8.43	0.02	0.00
3.16	2.00	0.00	8.42	0.02	0.00	3.18	2.00	0.00	8.41	0.02	0.00
3.20	2.00	0.00	8.40	0.02	0.00	3.22	2.00	0.00	8.39	0.02	0.00
3.24	2.00	0.00	8.38	0.02	0.00	3.26	2.00	0.00	8.37	0.02	0.00
3.28	2.00	0.00	8.36	0.02	0.00	3.30	2.00	0.00	8.35	0.02	0.00
3.32	2.00	0.00	8.34	0.02	0.00	3.34	2.00	0.00	8.33	0.02	0.00
3.36	2.00	0.00	8.32	0.02	0.00	3.38	2.00	0.00	8.31	0.02	0.00
3.40	2.00	0.00	8.30	0.02	0.00	3.42	2.00	0.00	8.29	0.02	0.00
3.44	2.00	0.00	8.28	0.02	0.00	3.46	2.00	0.00	8.27	0.02	0.00
3.48	2.00	0.00	8.26	0.02	0.00	3.50	2.00	0.00	8.25	0.02	0.00
3.52	2.00	0.00	8.24	0.02	0.00	3.54	2.00	0.00	8.23	0.02	0.00
3.56	2.00	0.00	8.22	0.02	0.00	3.58	2.00	0.00	8.21	0.02	0.00
3.60	2.00	0.00	8.20	0.02	0.00	3.62	2.00	0.00	8.19	0.02	0.00
3.64	2.00	0.00	8.18	0.02	0.00	3.66	2.00	0.00	8.17	0.02	0.00
3.68	2.00	0.00	8.16	0.02	0.00	3.70	2.00	0.00	8.15	0.02	0.00
3.72	2.00	0.00	8.14	0.02	0.00	3.74	2.00	0.00	8.13	0.02	0.00
3.76	2.00	0.00	8.12	0.02	0.00	3.78	2.00	0.00	8.11	0.02	0.00
3.80	2.00	0.00	8.10	0.02	0.00	3.82	2.00	0.00	8.09	0.02	0.00
3.84	2.00	0.00	8.08	0.02	0.00	3.86	2.00	0.00	8.07	0.02	0.00
3.88	2.00	0.00	8.06	0.02	0.00	3.90	2.00	0.00	8.05	0.02	0.00
3.92	2.00	0.00	8.04	0.02	0.00	3.94	2.00	0.00	8.03	0.02	0.00
3.96	2.00	0.00	8.02	0.02	0.00	3.98	2.00	0.00	8.01	0.02	0.00
4.00	2.00	0.00	8.00	0.02	0.00	4.02	2.00	0.00	7.99	0.02	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (m)	FS	F_L	w_z	d_z	LPI	Depth (m)	FS	F_L	w_z	d_z	LPI
4.04	2.00	0.00	7.98	0.02	0.00	4.06	2.00	0.00	7.97	0.02	0.00
4.08	2.00	0.00	7.96	0.02	0.00	4.10	2.00	0.00	7.95	0.02	0.00
4.12	2.00	0.00	7.94	0.02	0.00	4.14	2.00	0.00	7.93	0.02	0.00
4.16	2.00	0.00	7.92	0.02	0.00	4.18	2.00	0.00	7.91	0.02	0.00
4.20	2.00	0.00	7.90	0.02	0.00	4.22	2.00	0.00	7.89	0.02	0.00
4.24	2.00	0.00	7.88	0.02	0.00	4.26	2.00	0.00	7.87	0.02	0.00
4.28	2.00	0.00	7.86	0.02	0.00	4.30	2.00	0.00	7.85	0.02	0.00
4.32	2.00	0.00	7.84	0.02	0.00	4.34	2.00	0.00	7.83	0.02	0.00
4.36	2.00	0.00	7.82	0.02	0.00	4.38	2.00	0.00	7.81	0.02	0.00
4.40	2.00	0.00	7.80	0.02	0.00	4.42	2.00	0.00	7.79	0.02	0.00
4.44	2.00	0.00	7.78	0.02	0.00	4.46	2.00	0.00	7.77	0.02	0.00
4.48	2.00	0.00	7.76	0.02	0.00	4.50	2.00	0.00	7.75	0.02	0.00
4.52	2.00	0.00	7.74	0.02	0.00	4.54	2.00	0.00	7.73	0.02	0.00
4.56	2.00	0.00	7.72	0.02	0.00	4.58	2.00	0.00	7.71	0.02	0.00
4.60	2.00	0.00	7.70	0.02	0.00	4.62	2.00	0.00	7.69	0.02	0.00
4.64	2.00	0.00	7.68	0.02	0.00	4.66	2.00	0.00	7.67	0.02	0.00
4.68	2.00	0.00	7.66	0.02	0.00	4.70	2.00	0.00	7.65	0.02	0.00
4.72	2.00	0.00	7.64	0.02	0.00	4.74	2.00	0.00	7.63	0.02	0.00
4.76	2.00	0.00	7.62	0.02	0.00	4.78	2.00	0.00	7.61	0.02	0.00
4.80	2.00	0.00	7.60	0.02	0.00	4.82	2.00	0.00	7.59	0.02	0.00
4.84	2.00	0.00	7.58	0.02	0.00	4.86	2.00	0.00	7.57	0.02	0.00
4.88	2.00	0.00	7.56	0.02	0.00	4.90	2.00	0.00	7.55	0.02	0.00
4.92	2.00	0.00	7.54	0.02	0.00	4.94	2.00	0.00	7.53	0.02	0.00
4.96	2.00	0.00	7.52	0.02	0.00	4.98	2.00	0.00	7.51	0.02	0.00
5.00	2.00	0.00	7.50	0.02	0.00	5.02	2.00	0.00	7.49	0.02	0.00
5.04	2.00	0.00	7.48	0.02	0.00	5.06	2.00	0.00	7.47	0.02	0.00
5.08	2.00	0.00	7.46	0.02	0.00	5.10	2.00	0.00	7.45	0.02	0.00
5.12	2.00	0.00	7.44	0.02	0.00	5.14	2.00	0.00	7.43	0.02	0.00
5.16	2.00	0.00	7.42	0.02	0.00	5.18	2.00	0.00	7.41	0.02	0.00
5.20	2.00	0.00	7.40	0.02	0.00	5.22	2.00	0.00	7.39	0.02	0.00
5.24	2.00	0.00	7.38	0.02	0.00	5.26	2.00	0.00	7.37	0.02	0.00
5.28	2.00	0.00	7.36	0.02	0.00	5.30	2.00	0.00	7.35	0.02	0.00
5.32	2.00	0.00	7.34	0.02	0.00	5.34	2.00	0.00	7.33	0.02	0.00
5.36	2.00	0.00	7.32	0.02	0.00	5.38	2.00	0.00	7.31	0.02	0.00
5.40	2.00	0.00	7.30	0.02	0.00	5.42	2.00	0.00	7.29	0.02	0.00
5.44	2.00	0.00	7.28	0.02	0.00	5.46	2.00	0.00	7.27	0.02	0.00
5.48	2.00	0.00	7.26	0.02	0.00	5.50	2.00	0.00	7.25	0.02	0.00
5.52	2.00	0.00	7.24	0.02	0.00	5.54	2.00	0.00	7.23	0.02	0.00
5.56	2.00	0.00	7.22	0.02	0.00	5.58	2.00	0.00	7.21	0.02	0.00
5.60	2.00	0.00	7.20	0.02	0.00	5.62	2.00	0.00	7.19	0.02	0.00
5.64	2.00	0.00	7.18	0.02	0.00	5.66	2.00	0.00	7.17	0.02	0.00
5.68	2.00	0.00	7.16	0.02	0.00	5.70	2.00	0.00	7.15	0.02	0.00
5.72	2.00	0.00	7.14	0.02	0.00	5.74	2.00	0.00	7.13	0.02	0.00
5.76	2.00	0.00	7.12	0.02	0.00	5.78	2.00	0.00	7.11	0.02	0.00
5.80	2.00	0.00	7.10	0.02	0.00	5.82	2.00	0.00	7.09	0.02	0.00
5.84	2.00	0.00	7.08	0.02	0.00	5.86	2.00	0.00	7.07	0.02	0.00
5.88	2.00	0.00	7.06	0.02	0.00	5.90	2.00	0.00	7.05	0.02	0.00
5.92	2.00	0.00	7.04	0.02	0.00	5.94	2.00	0.00	7.03	0.02	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (m)	FS	F_L	w_z	d_z	LPI	Depth (m)	FS	F_L	w_z	d_z	LPI
5.96	2.00	0.00	7.02	0.02	0.00	5.98	2.00	0.00	7.01	0.02	0.00
6.00	2.00	0.00	7.00	0.02	0.00	6.02	2.00	0.00	6.99	0.02	0.00
6.04	2.00	0.00	6.98	0.02	0.00	6.06	2.00	0.00	6.97	0.02	0.00
6.08	2.00	0.00	6.96	0.02	0.00	6.10	2.00	0.00	6.95	0.02	0.00
6.12	2.00	0.00	6.94	0.02	0.00	6.14	2.00	0.00	6.93	0.02	0.00
6.16	2.00	0.00	6.92	0.02	0.00	6.18	2.00	0.00	6.91	0.02	0.00
6.20	2.00	0.00	6.90	0.02	0.00	6.22	2.00	0.00	6.89	0.02	0.00
6.24	2.00	0.00	6.88	0.02	0.00	6.26	2.00	0.00	6.87	0.02	0.00
6.28	2.00	0.00	6.86	0.02	0.00	6.30	2.00	0.00	6.85	0.02	0.00
6.32	2.00	0.00	6.84	0.02	0.00	6.34	2.00	0.00	6.83	0.02	0.00
6.36	2.00	0.00	6.82	0.02	0.00	6.38	2.00	0.00	6.81	0.02	0.00
6.40	2.00	0.00	6.80	0.02	0.00	6.42	2.00	0.00	6.79	0.02	0.00
6.44	2.00	0.00	6.78	0.02	0.00	6.46	2.00	0.00	6.77	0.02	0.00
6.48	2.00	0.00	6.76	0.02	0.00	6.50	2.00	0.00	6.75	0.02	0.00
6.52	2.00	0.00	6.74	0.02	0.00	6.54	2.00	0.00	6.73	0.02	0.00
6.56	2.00	0.00	6.72	0.02	0.00	6.58	2.00	0.00	6.71	0.02	0.00
6.60	2.00	0.00	6.70	0.02	0.00	6.62	2.00	0.00	6.69	0.02	0.00
6.64	2.00	0.00	6.68	0.02	0.00	6.66	2.00	0.00	6.67	0.02	0.00
6.68	2.00	0.00	6.66	0.02	0.00	6.70	2.00	0.00	6.65	0.02	0.00
6.72	2.00	0.00	6.64	0.02	0.00	6.74	2.00	0.00	6.63	0.02	0.00
6.76	2.00	0.00	6.62	0.02	0.00	6.78	2.00	0.00	6.61	0.02	0.00
6.80	2.00	0.00	6.60	0.02	0.00	6.82	2.00	0.00	6.59	0.02	0.00
6.84	2.00	0.00	6.58	0.02	0.00	6.86	2.00	0.00	6.57	0.02	0.00
6.88	2.00	0.00	6.56	0.02	0.00	6.90	2.00	0.00	6.55	0.02	0.00
6.92	2.00	0.00	6.54	0.02	0.00	6.94	2.00	0.00	6.53	0.02	0.00
6.96	2.00	0.00	6.52	0.02	0.00	6.98	2.00	0.00	6.51	0.02	0.00
7.00	2.00	0.00	6.50	0.02	0.00	7.02	2.00	0.00	6.49	0.02	0.00
7.04	2.00	0.00	6.48	0.02	0.00	7.06	2.00	0.00	6.47	0.02	0.00
7.08	2.00	0.00	6.46	0.02	0.00	7.10	2.00	0.00	6.45	0.02	0.00
7.12	2.00	0.00	6.44	0.02	0.00	7.14	2.00	0.00	6.43	0.02	0.00
7.16	2.00	0.00	6.42	0.02	0.00	7.18	2.00	0.00	6.41	0.02	0.00
7.20	2.00	0.00	6.40	0.02	0.00	7.22	2.00	0.00	6.39	0.02	0.00
7.24	2.00	0.00	6.38	0.02	0.00	7.26	2.00	0.00	6.37	0.02	0.00
7.28	2.00	0.00	6.36	0.02	0.00	7.30	2.00	0.00	6.35	0.02	0.00
7.32	2.00	0.00	6.34	0.02	0.00	7.34	2.00	0.00	6.33	0.02	0.00
7.36	2.00	0.00	6.32	0.02	0.00	7.38	2.00	0.00	6.31	0.02	0.00
7.40	2.00	0.00	6.30	0.02	0.00	7.42	2.00	0.00	6.29	0.02	0.00
7.44	2.00	0.00	6.28	0.02	0.00	7.46	2.00	0.00	6.27	0.02	0.00
7.48	2.00	0.00	6.26	0.02	0.00	7.50	2.00	0.00	6.25	0.02	0.00
7.52	2.00	0.00	6.24	0.02	0.00	7.54	2.00	0.00	6.23	0.02	0.00
7.56	2.00	0.00	6.22	0.02	0.00	7.58	2.00	0.00	6.21	0.02	0.00
7.60	2.00	0.00	6.20	0.02	0.00	7.62	2.00	0.00	6.19	0.02	0.00
7.64	2.00	0.00	6.18	0.02	0.00	7.66	2.00	0.00	6.17	0.02	0.00
7.68	2.00	0.00	6.16	0.02	0.00	7.70	2.00	0.00	6.15	0.02	0.00
7.72	2.00	0.00	6.14	0.02	0.00	7.74	2.00	0.00	6.13	0.02	0.00
7.76	2.00	0.00	6.12	0.02	0.00	7.78	2.00	0.00	6.11	0.02	0.00
7.80	2.00	0.00	6.10	0.02	0.00	7.82	2.00	0.00	6.09	0.02	0.00
7.84	2.00	0.00	6.08	0.02	0.00	7.86	2.00	0.00	6.07	0.02	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (m)	FS	F_L	w_z	d_z	LPI	Depth (m)	FS	F_L	w_z	d_z	LPI
7.88	2.00	0.00	6.06	0.02	0.00	7.90	2.00	0.00	6.05	0.02	0.00
7.92	2.00	0.00	6.04	0.02	0.00	7.94	2.00	0.00	6.03	0.02	0.00
7.96	2.00	0.00	6.02	0.02	0.00	7.98	2.00	0.00	6.01	0.02	0.00
8.00	2.00	0.00	6.00	0.02	0.00	8.02	2.00	0.00	5.99	0.02	0.00
8.04	2.00	0.00	5.98	0.02	0.00	8.06	2.00	0.00	5.97	0.02	0.00
8.08	2.00	0.00	5.96	0.02	0.00	8.10	2.00	0.00	5.95	0.02	0.00
8.12	2.00	0.00	5.94	0.02	0.00	8.14	2.00	0.00	5.93	0.02	0.00
8.16	2.00	0.00	5.92	0.02	0.00	8.18	2.00	0.00	5.91	0.02	0.00
8.20	2.00	0.00	5.90	0.02	0.00	8.22	2.00	0.00	5.89	0.02	0.00
8.24	2.00	0.00	5.88	0.02	0.00	8.26	2.00	0.00	5.87	0.02	0.00
8.28	2.00	0.00	5.86	0.02	0.00	8.30	2.00	0.00	5.85	0.02	0.00
8.32	2.00	0.00	5.84	0.02	0.00	8.34	2.00	0.00	5.83	0.02	0.00
8.36	2.00	0.00	5.82	0.02	0.00	8.38	2.00	0.00	5.81	0.02	0.00
8.40	2.00	0.00	5.80	0.02	0.00	8.42	2.00	0.00	5.79	0.02	0.00
8.44	2.00	0.00	5.78	0.02	0.00	8.46	2.00	0.00	5.77	0.02	0.00
8.48	2.00	0.00	5.76	0.02	0.00	8.50	2.00	0.00	5.75	0.02	0.00
8.52	2.00	0.00	5.74	0.02	0.00	8.54	2.00	0.00	5.73	0.02	0.00
8.56	2.00	0.00	5.72	0.02	0.00	8.58	2.00	0.00	5.71	0.02	0.00
8.60	2.00	0.00	5.70	0.02	0.00	8.62	2.00	0.00	5.69	0.02	0.00
8.64	2.00	0.00	5.68	0.02	0.00	8.66	2.00	0.00	5.67	0.02	0.00
8.68	2.00	0.00	5.66	0.02	0.00	8.70	2.00	0.00	5.65	0.02	0.00
8.72	2.00	0.00	5.64	0.02	0.00	8.74	2.00	0.00	5.63	0.02	0.00
8.76	2.00	0.00	5.62	0.02	0.00	8.78	2.00	0.00	5.61	0.02	0.00
8.80	2.00	0.00	5.60	0.02	0.00	8.82	2.00	0.00	5.59	0.02	0.00
8.84	2.00	0.00	5.58	0.02	0.00	8.86	2.00	0.00	5.57	0.02	0.00
8.88	2.00	0.00	5.56	0.02	0.00	8.90	2.00	0.00	5.55	0.02	0.00
8.92	2.00	0.00	5.54	0.02	0.00	8.94	2.00	0.00	5.53	0.02	0.00
8.96	2.00	0.00	5.52	0.02	0.00	8.98	2.00	0.00	5.51	0.02	0.00
9.00	2.00	0.00	5.50	0.02	0.00	9.02	2.00	0.00	5.49	0.02	0.00
9.04	2.00	0.00	5.48	0.02	0.00	9.06	2.00	0.00	5.47	0.02	0.00
9.08	2.00	0.00	5.46	0.02	0.00	9.10	2.00	0.00	5.45	0.02	0.00
9.12	2.00	0.00	5.44	0.02	0.00	9.14	2.00	0.00	5.43	0.02	0.00
9.16	2.00	0.00	5.42	0.02	0.00	9.18	2.00	0.00	5.41	0.02	0.00
9.20	2.00	0.00	5.40	0.02	0.00	9.22	2.00	0.00	5.39	0.02	0.00
9.24	2.00	0.00	5.38	0.02	0.00	9.26	2.00	0.00	5.37	0.02	0.00
9.28	2.00	0.00	5.36	0.02	0.00	9.30	2.00	0.00	5.35	0.02	0.00
9.32	2.00	0.00	5.34	0.02	0.00	9.34	2.00	0.00	5.33	0.02	0.00
9.36	2.00	0.00	5.32	0.02	0.00	9.38	2.00	0.00	5.31	0.02	0.00
9.40	2.00	0.00	5.30	0.02	0.00	9.42	2.00	0.00	5.29	0.02	0.00
9.44	2.00	0.00	5.28	0.02	0.00	9.46	2.00	0.00	5.27	0.02	0.00
9.48	2.00	0.00	5.26	0.02	0.00	9.50	2.00	0.00	5.25	0.02	0.00
9.52	2.00	0.00	5.24	0.02	0.00	9.54	2.00	0.00	5.23	0.02	0.00
9.56	2.00	0.00	5.22	0.02	0.00	9.58	2.00	0.00	5.21	0.02	0.00
9.60	2.00	0.00	5.20	0.02	0.00	9.62	2.00	0.00	5.19	0.02	0.00
9.64	2.00	0.00	5.18	0.02	0.00	9.66	2.00	0.00	5.17	0.02	0.00
9.68	2.00	0.00	5.16	0.02	0.00	9.70	2.00	0.00	5.15	0.02	0.00
9.72	2.00	0.00	5.14	0.02	0.00	9.74	2.00	0.00	5.13	0.02	0.00
9.76	2.00	0.00	5.12	0.02	0.00	9.78	2.00	0.00	5.11	0.02	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (m)	FS	F_L	w_z	d_z	LPI	Depth (m)	FS	F_L	w_z	d_z	LPI
9.80	2.00	0.00	5.10	0.02	0.00	9.82	2.00	0.00	5.09	0.02	0.00
9.84	2.00	0.00	5.08	0.02	0.00	9.86	2.00	0.00	5.07	0.02	0.00
9.88	2.00	0.00	5.06	0.02	0.00	9.90	2.00	0.00	5.05	0.02	0.00
9.92	2.00	0.00	5.04	0.02	0.00	9.94	2.00	0.00	5.03	0.02	0.00
9.96	2.00	0.00	5.02	0.02	0.00	9.98	2.00	0.00	5.01	0.02	0.00
10.00	2.00	0.00	5.00	0.02	0.00	10.02	2.00	0.00	4.99	0.02	0.00
10.04	2.00	0.00	4.98	0.02	0.00	10.06	2.00	0.00	4.97	0.02	0.00
10.08	2.00	0.00	4.96	0.02	0.00	10.10	2.00	0.00	4.95	0.02	0.00
10.12	2.00	0.00	4.94	0.02	0.00	10.14	2.00	0.00	4.93	0.02	0.00
10.16	2.00	0.00	4.92	0.02	0.00	10.18	2.00	0.00	4.91	0.02	0.00
10.20	2.00	0.00	4.90	0.02	0.00	10.22	2.00	0.00	4.89	0.02	0.00
10.24	2.00	0.00	4.88	0.02	0.00	10.26	2.00	0.00	4.87	0.02	0.00
10.28	2.00	0.00	4.86	0.02	0.00	10.30	2.00	0.00	4.85	0.02	0.00
10.32	2.00	0.00	4.84	0.02	0.00	10.34	2.00	0.00	4.83	0.02	0.00
10.36	2.00	0.00	4.82	0.02	0.00	10.38	2.00	0.00	4.81	0.02	0.00
10.40	2.00	0.00	4.80	0.02	0.00	10.42	2.00	0.00	4.79	0.02	0.00
10.44	2.00	0.00	4.78	0.02	0.00	10.46	2.00	0.00	4.77	0.02	0.00
10.48	2.00	0.00	4.76	0.02	0.00	10.50	2.00	0.00	4.75	0.02	0.00
10.52	2.00	0.00	4.74	0.02	0.00	10.54	2.00	0.00	4.73	0.02	0.00
10.56	2.00	0.00	4.72	0.02	0.00	10.58	2.00	0.00	4.71	0.02	0.00
10.60	2.00	0.00	4.70	0.02	0.00	10.62	2.00	0.00	4.69	0.02	0.00
10.64	2.00	0.00	4.68	0.02	0.00	10.66	2.00	0.00	4.67	0.02	0.00
10.68	2.00	0.00	4.66	0.02	0.00	10.70	2.00	0.00	4.65	0.02	0.00
10.72	2.00	0.00	4.64	0.02	0.00	10.74	2.00	0.00	4.63	0.02	0.00
10.76	2.00	0.00	4.62	0.02	0.00	10.78	2.00	0.00	4.61	0.02	0.00
10.80	2.00	0.00	4.60	0.02	0.00	10.82	2.00	0.00	4.59	0.02	0.00
10.84	2.00	0.00	4.58	0.02	0.00	10.86	2.00	0.00	4.57	0.02	0.00
10.88	2.00	0.00	4.56	0.02	0.00	10.90	2.00	0.00	4.55	0.02	0.00
10.92	0.71	0.29	4.54	0.02	0.03	10.94	0.73	0.27	4.53	0.02	0.02
10.96	2.00	0.00	4.52	0.02	0.00	10.98	2.00	0.00	4.51	0.02	0.00
11.00	2.00	0.00	4.50	0.02	0.00	11.02	2.00	0.00	4.49	0.02	0.00
11.04	2.00	0.00	4.48	0.02	0.00	11.06	2.00	0.00	4.47	0.02	0.00
11.08	2.00	0.00	4.46	0.02	0.00	11.10	2.00	0.00	4.45	0.02	0.00
11.12	2.00	0.00	4.44	0.02	0.00	11.14	2.00	0.00	4.43	0.02	0.00
11.16	2.00	0.00	4.42	0.02	0.00	11.18	2.00	0.00	4.41	0.02	0.00
11.20	2.00	0.00	4.40	0.02	0.00	11.22	2.00	0.00	4.39	0.02	0.00
11.24	2.00	0.00	4.38	0.02	0.00	11.26	2.00	0.00	4.37	0.02	0.00
11.28	2.00	0.00	4.36	0.02	0.00	11.30	2.00	0.00	4.35	0.02	0.00
11.32	2.00	0.00	4.34	0.02	0.00	11.34	2.00	0.00	4.33	0.02	0.00
11.36	2.00	0.00	4.32	0.02	0.00	11.38	2.00	0.00	4.31	0.02	0.00
11.40	2.00	0.00	4.30	0.02	0.00	11.42	2.00	0.00	4.29	0.02	0.00
11.44	2.00	0.00	4.28	0.02	0.00	11.46	2.00	0.00	4.27	0.02	0.00
11.48	2.00	0.00	4.26	0.02	0.00	11.50	2.00	0.00	4.25	0.02	0.00
11.52	2.00	0.00	4.24	0.02	0.00	11.54	2.00	0.00	4.23	0.02	0.00
11.56	2.00	0.00	4.22	0.02	0.00	11.58	2.00	0.00	4.21	0.02	0.00
11.60	2.00	0.00	4.20	0.02	0.00	11.62	2.00	0.00	4.19	0.02	0.00
11.64	2.00	0.00	4.18	0.02	0.00	11.66	2.00	0.00	4.17	0.02	0.00
11.68	2.00	0.00	4.16	0.02	0.00	11.70	2.00	0.00	4.15	0.02	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (m)	FS	F_L	w_z	d_z	LPI	Depth (m)	FS	F_L	w_z	d_z	LPI
11.72	2.00	0.00	4.14	0.02	0.00	11.74	2.00	0.00	4.13	0.02	0.00
11.76	2.00	0.00	4.12	0.02	0.00	11.78	2.00	0.00	4.11	0.02	0.00
11.80	2.00	0.00	4.10	0.02	0.00	11.82	2.00	0.00	4.09	0.02	0.00
11.84	2.00	0.00	4.08	0.02	0.00	11.86	2.00	0.00	4.07	0.02	0.00
11.88	2.00	0.00	4.06	0.02	0.00	11.90	2.00	0.00	4.05	0.02	0.00
11.92	2.00	0.00	4.04	0.02	0.00	11.94	2.00	0.00	4.03	0.02	0.00
11.96	2.00	0.00	4.02	0.02	0.00	11.98	2.00	0.00	4.01	0.02	0.00
12.00	2.00	0.00	4.00	0.02	0.00	12.02	2.00	0.00	3.99	0.02	0.00
12.04	2.00	0.00	3.98	0.02	0.00	12.06	2.00	0.00	3.97	0.02	0.00
12.08	2.00	0.00	3.96	0.02	0.00	12.10	2.00	0.00	3.95	0.02	0.00
12.12	2.00	0.00	3.94	0.02	0.00	12.14	2.00	0.00	3.93	0.02	0.00
12.16	2.00	0.00	3.92	0.02	0.00	12.18	2.00	0.00	3.91	0.02	0.00
12.20	2.00	0.00	3.90	0.02	0.00	12.22	2.00	0.00	3.89	0.02	0.00
12.24	2.00	0.00	3.88	0.02	0.00	12.26	2.00	0.00	3.87	0.02	0.00
12.28	2.00	0.00	3.86	0.02	0.00	12.30	2.00	0.00	3.85	0.02	0.00
12.32	2.00	0.00	3.84	0.02	0.00	12.34	2.00	0.00	3.83	0.02	0.00
12.36	2.00	0.00	3.82	0.02	0.00	12.38	2.00	0.00	3.81	0.02	0.00
12.40	2.00	0.00	3.80	0.02	0.00	12.42	2.00	0.00	3.79	0.02	0.00
12.44	2.00	0.00	3.78	0.02	0.00	12.46	2.00	0.00	3.77	0.02	0.00
12.48	2.00	0.00	3.76	0.02	0.00	12.50	2.00	0.00	3.75	0.02	0.00
12.52	2.00	0.00	3.74	0.02	0.00	12.54	2.00	0.00	3.73	0.02	0.00
12.56	2.00	0.00	3.72	0.02	0.00	12.58	2.00	0.00	3.71	0.02	0.00
12.60	2.00	0.00	3.70	0.02	0.00	12.62	2.00	0.00	3.69	0.02	0.00
12.64	2.00	0.00	3.68	0.02	0.00	12.66	2.00	0.00	3.67	0.02	0.00
12.68	2.00	0.00	3.66	0.02	0.00	12.70	2.00	0.00	3.65	0.02	0.00
12.72	2.00	0.00	3.64	0.02	0.00	12.74	2.00	0.00	3.63	0.02	0.00
12.76	2.00	0.00	3.62	0.02	0.00	12.78	2.00	0.00	3.61	0.02	0.00
12.80	2.00	0.00	3.60	0.02	0.00	12.82	2.00	0.00	3.59	0.02	0.00
12.84	2.00	0.00	3.58	0.02	0.00	12.86	2.00	0.00	3.57	0.02	0.00
12.88	2.00	0.00	3.56	0.02	0.00	12.90	2.00	0.00	3.55	0.02	0.00
12.92	2.00	0.00	3.54	0.02	0.00	12.94	2.00	0.00	3.53	0.02	0.00
12.96	2.00	0.00	3.52	0.02	0.00	12.98	2.00	0.00	3.51	0.02	0.00
13.00	2.00	0.00	3.50	0.02	0.00	13.02	2.00	0.00	3.49	0.02	0.00
13.04	2.00	0.00	3.48	0.02	0.00	13.06	2.00	0.00	3.47	0.02	0.00
13.08	2.00	0.00	3.46	0.02	0.00	13.10	2.00	0.00	3.45	0.02	0.00
13.12	2.00	0.00	3.44	0.02	0.00	13.14	2.00	0.00	3.43	0.02	0.00
13.16	2.00	0.00	3.42	0.02	0.00	13.18	2.00	0.00	3.41	0.02	0.00
13.20	2.00	0.00	3.40	0.02	0.00	13.22	2.00	0.00	3.39	0.02	0.00
13.24	2.00	0.00	3.38	0.02	0.00	13.26	2.00	0.00	3.37	0.02	0.00
13.28	2.00	0.00	3.36	0.02	0.00	13.30	2.00	0.00	3.35	0.02	0.00
13.32	2.00	0.00	3.34	0.02	0.00	13.34	2.00	0.00	3.33	0.02	0.00
13.36	2.00	0.00	3.32	0.02	0.00	13.38	2.00	0.00	3.31	0.02	0.00
13.40	2.00	0.00	3.30	0.02	0.00	13.42	2.00	0.00	3.29	0.02	0.00
13.44	2.00	0.00	3.28	0.02	0.00	13.46	2.00	0.00	3.27	0.02	0.00
13.48	2.00	0.00	3.26	0.02	0.00	13.50	2.00	0.00	3.25	0.02	0.00
13.52	2.00	0.00	3.24	0.02	0.00	13.54	2.00	0.00	3.23	0.02	0.00
13.56	2.00	0.00	3.22	0.02	0.00	13.58	2.00	0.00	3.21	0.02	0.00
13.60	2.00	0.00	3.20	0.02	0.00	13.62	2.00	0.00	3.19	0.02	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (m)	FS	F_L	w_z	d_z	LPI	Depth (m)	FS	F_L	w_z	d_z	LPI
13.64	2.00	0.00	3.18	0.02	0.00	13.66	2.00	0.00	3.17	0.02	0.00
13.68	2.00	0.00	3.16	0.02	0.00	13.70	2.00	0.00	3.15	0.02	0.00
13.72	2.00	0.00	3.14	0.02	0.00	13.74	2.00	0.00	3.13	0.02	0.00
13.76	2.00	0.00	3.12	0.02	0.00	13.78	2.00	0.00	3.11	0.02	0.00
13.80	2.00	0.00	3.10	0.02	0.00	13.82	2.00	0.00	3.09	0.02	0.00
13.84	2.00	0.00	3.08	0.02	0.00	13.86	2.00	0.00	3.07	0.02	0.00
13.88	2.00	0.00	3.06	0.02	0.00	13.90	2.00	0.00	3.05	0.02	0.00
13.92	2.00	0.00	3.04	0.02	0.00	13.94	2.00	0.00	3.03	0.02	0.00
13.96	2.00	0.00	3.02	0.02	0.00	13.98	2.00	0.00	3.01	0.02	0.00
14.00	2.00	0.00	3.00	0.02	0.00	14.02	2.00	0.00	2.99	0.02	0.00
14.04	2.00	0.00	2.98	0.02	0.00	14.06	2.00	0.00	2.97	0.02	0.00
14.08	2.00	0.00	2.96	0.02	0.00	14.10	2.00	0.00	2.95	0.02	0.00
14.12	2.00	0.00	2.94	0.02	0.00	14.14	2.00	0.00	2.93	0.02	0.00
14.16	2.00	0.00	2.92	0.02	0.00	14.18	2.00	0.00	2.91	0.02	0.00
14.20	2.00	0.00	2.90	0.02	0.00	14.22	2.00	0.00	2.89	0.02	0.00
14.24	2.00	0.00	2.88	0.02	0.00	14.26	2.00	0.00	2.87	0.02	0.00
14.28	2.00	0.00	2.86	0.02	0.00	14.30	2.00	0.00	2.85	0.02	0.00
14.32	2.00	0.00	2.84	0.02	0.00	14.34	2.00	0.00	2.83	0.02	0.00
14.36	2.00	0.00	2.82	0.02	0.00	14.38	2.00	0.00	2.81	0.02	0.00
14.40	2.00	0.00	2.80	0.02	0.00	14.42	2.00	0.00	2.79	0.02	0.00
14.44	2.00	0.00	2.78	0.02	0.00	14.46	2.00	0.00	2.77	0.02	0.00
14.48	2.00	0.00	2.76	0.02	0.00	14.50	2.00	0.00	2.75	0.02	0.00
14.52	2.00	0.00	2.74	0.02	0.00	14.54	2.00	0.00	2.73	0.02	0.00
14.56	2.00	0.00	2.72	0.02	0.00	14.58	2.00	0.00	2.71	0.02	0.00
14.60	2.00	0.00	2.70	0.02	0.00	14.62	2.00	0.00	2.69	0.02	0.00
14.64	2.00	0.00	2.68	0.02	0.00	14.66	2.00	0.00	2.67	0.02	0.00
14.68	2.00	0.00	2.66	0.02	0.00	14.70	2.00	0.00	2.65	0.02	0.00
14.72	2.00	0.00	2.64	0.02	0.00	14.74	2.00	0.00	2.63	0.02	0.00
14.76	2.00	0.00	2.62	0.02	0.00	14.78	2.00	0.00	2.61	0.02	0.00
14.80	2.00	0.00	2.60	0.02	0.00	14.82	2.00	0.00	2.59	0.02	0.00
14.84	2.00	0.00	2.58	0.02	0.00	14.86	2.00	0.00	2.57	0.02	0.00
14.88	2.00	0.00	2.56	0.02	0.00	14.90	2.00	0.00	2.55	0.02	0.00
14.92	2.00	0.00	2.54	0.02	0.00	14.94	2.00	0.00	2.53	0.02	0.00
14.96	2.00	0.00	2.52	0.02	0.00	14.98	2.00	0.00	2.51	0.02	0.00
15.00	2.00	0.00	2.50	0.02	0.00	15.02	2.00	0.00	2.49	0.02	0.00
15.04	2.00	0.00	2.48	0.02	0.00	15.06	2.00	0.00	2.47	0.02	0.00
15.08	2.00	0.00	2.46	0.02	0.00	15.10	2.00	0.00	2.45	0.02	0.00
15.12	2.00	0.00	2.44	0.02	0.00	15.14	2.00	0.00	2.43	0.02	0.00
15.16	2.00	0.00	2.42	0.02	0.00	15.18	2.00	0.00	2.41	0.02	0.00
15.20	2.00	0.00	2.40	0.02	0.00	15.22	2.00	0.00	2.39	0.02	0.00
15.24	2.00	0.00	2.38	0.02	0.00	15.26	2.00	0.00	2.37	0.02	0.00
15.28	2.00	0.00	2.36	0.02	0.00	15.30	2.00	0.00	2.35	0.02	0.00
15.32	2.00	0.00	2.34	0.02	0.00	15.34	2.00	0.00	2.33	0.02	0.00
15.36	2.00	0.00	2.32	0.02	0.00	15.38	2.00	0.00	2.31	0.02	0.00
15.40	2.00	0.00	2.30	0.02	0.00	15.42	2.00	0.00	2.29	0.02	0.00
15.44	2.00	0.00	2.28	0.02	0.00	15.46	2.00	0.00	2.27	0.02	0.00
15.48	2.00	0.00	2.26	0.02	0.00	15.50	2.00	0.00	2.25	0.02	0.00
15.52	2.00	0.00	2.24	0.02	0.00	15.54	2.00	0.00	2.23	0.02	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (m)	FS	F_L	w_z	d_z	LPI	Depth (m)	FS	F_L	w_z	d_z	LPI
15.56	2.00	0.00	2.22	0.02	0.00	15.58	2.00	0.00	2.21	0.02	0.00
15.60	2.00	0.00	2.20	0.02	0.00	15.62	2.00	0.00	2.19	0.02	0.00
15.64	2.00	0.00	2.18	0.02	0.00	15.66	2.00	0.00	2.17	0.02	0.00
15.68	2.00	0.00	2.16	0.02	0.00	15.70	2.00	0.00	2.15	0.02	0.00
15.72	2.00	0.00	2.14	0.02	0.00	15.74	2.00	0.00	2.13	0.02	0.00
15.76	2.00	0.00	2.12	0.02	0.00	15.78	2.00	0.00	2.11	0.02	0.00
15.80	2.00	0.00	2.10	0.02	0.00	15.82	2.00	0.00	2.09	0.02	0.00
15.84	2.00	0.00	2.08	0.02	0.00	15.86	2.00	0.00	2.07	0.02	0.00
15.88	2.00	0.00	2.06	0.02	0.00	15.90	2.00	0.00	2.05	0.02	0.00
15.92	2.00	0.00	2.04	0.02	0.00	15.94	2.00	0.00	2.03	0.02	0.00
15.96	2.00	0.00	2.02	0.02	0.00	15.98	2.00	0.00	2.01	0.02	0.00
16.00	2.00	0.00	2.00	0.02	0.00	16.02	2.00	0.00	1.99	0.02	0.00
16.04	2.00	0.00	1.98	0.02	0.00	16.06	2.00	0.00	1.97	0.02	0.00
16.08	2.00	0.00	1.96	0.02	0.00	16.10	2.00	0.00	1.95	0.02	0.00
16.12	2.00	0.00	1.94	0.02	0.00	16.14	2.00	0.00	1.93	0.02	0.00
16.16	2.00	0.00	1.92	0.02	0.00	16.18	2.00	0.00	1.91	0.02	0.00
16.20	2.00	0.00	1.90	0.02	0.00	16.22	2.00	0.00	1.89	0.02	0.00
16.24	2.00	0.00	1.88	0.02	0.00	16.26	2.00	0.00	1.87	0.02	0.00
16.28	2.00	0.00	1.86	0.02	0.00	16.30	2.00	0.00	1.85	0.02	0.00
16.32	2.00	0.00	1.84	0.02	0.00	16.34	2.00	0.00	1.83	0.02	0.00
16.36	2.00	0.00	1.82	0.02	0.00	16.38	2.00	0.00	1.81	0.02	0.00
16.40	2.00	0.00	1.80	0.02	0.00	16.42	2.00	0.00	1.79	0.02	0.00
16.44	2.00	0.00	1.78	0.02	0.00	16.46	2.00	0.00	1.77	0.02	0.00
16.48	2.00	0.00	1.76	0.02	0.00	16.50	2.00	0.00	1.75	0.02	0.00
16.52	2.00	0.00	1.74	0.02	0.00	16.54	2.00	0.00	1.73	0.02	0.00
16.56	2.00	0.00	1.72	0.02	0.00	16.58	2.00	0.00	1.71	0.02	0.00
16.60	2.00	0.00	1.70	0.02	0.00	16.62	2.00	0.00	1.69	0.02	0.00
16.64	2.00	0.00	1.68	0.02	0.00	16.66	2.00	0.00	1.67	0.02	0.00
16.68	2.00	0.00	1.66	0.02	0.00	16.70	2.00	0.00	1.65	0.02	0.00
16.72	2.00	0.00	1.64	0.02	0.00	16.74	2.00	0.00	1.63	0.02	0.00
16.76	2.00	0.00	1.62	0.02	0.00	16.78	2.00	0.00	1.61	0.02	0.00
16.80	2.00	0.00	1.60	0.02	0.00	16.82	2.00	0.00	1.59	0.02	0.00
16.84	2.00	0.00	1.58	0.02	0.00	16.86	2.00	0.00	1.57	0.02	0.00
16.88	2.00	0.00	1.56	0.02	0.00	16.90	2.00	0.00	1.55	0.02	0.00
16.92	2.00	0.00	1.54	0.02	0.00	16.94	2.00	0.00	1.53	0.02	0.00
16.96	2.00	0.00	1.52	0.02	0.00	16.98	2.00	0.00	1.51	0.02	0.00
17.00	2.00	0.00	1.50	0.02	0.00	17.02	2.00	0.00	1.49	0.02	0.00
17.04	2.00	0.00	1.48	0.02	0.00	17.06	2.00	0.00	1.47	0.02	0.00
17.08	2.00	0.00	1.46	0.02	0.00	17.10	2.00	0.00	1.45	0.02	0.00
17.12	2.00	0.00	1.44	0.02	0.00	17.14	2.00	0.00	1.43	0.02	0.00
17.16	2.00	0.00	1.42	0.02	0.00	17.18	2.00	0.00	1.41	0.02	0.00
17.20	2.00	0.00	1.40	0.02	0.00	17.22	2.00	0.00	1.39	0.02	0.00
17.24	2.00	0.00	1.38	0.02	0.00	17.26	2.00	0.00	1.37	0.02	0.00
17.28	2.00	0.00	1.36	0.02	0.00	17.30	2.00	0.00	1.35	0.02	0.00
17.32	2.00	0.00	1.34	0.02	0.00	17.34	2.00	0.00	1.33	0.02	0.00
17.36	2.00	0.00	1.32	0.02	0.00	17.38	2.00	0.00	1.31	0.02	0.00
17.40	2.00	0.00	1.30	0.02	0.00	17.42	2.00	0.00	1.29	0.02	0.00
17.44	2.00	0.00	1.28	0.02	0.00	17.46	2.00	0.00	1.27	0.02	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (m)	FS	F_L	w_z	d_z	LPI	Depth (m)	FS	F_L	w_z	d_z	LPI
17.48	2.00	0.00	1.26	0.02	0.00	17.50	2.00	0.00	1.25	0.02	0.00
17.52	2.00	0.00	1.24	0.02	0.00	17.54	2.00	0.00	1.23	0.02	0.00
17.56	2.00	0.00	1.22	0.02	0.00	17.58	2.00	0.00	1.21	0.02	0.00
17.61	2.00	0.00	1.20	0.03	0.00	17.62	2.00	0.00	1.19	0.01	0.00
17.64	2.00	0.00	1.18	0.02	0.00	17.66	2.00	0.00	1.17	0.02	0.00
17.68	2.00	0.00	1.16	0.02	0.00	17.70	2.00	0.00	1.15	0.02	0.00
17.72	2.00	0.00	1.14	0.02	0.00	17.74	2.00	0.00	1.13	0.02	0.00
17.76	2.00	0.00	1.12	0.02	0.00	17.78	2.00	0.00	1.11	0.02	0.00
17.80	2.00	0.00	1.10	0.02	0.00	17.82	2.00	0.00	1.09	0.02	0.00
17.84	2.00	0.00	1.08	0.02	0.00	17.86	2.00	0.00	1.07	0.02	0.00
17.88	2.00	0.00	1.06	0.02	0.00	17.90	2.00	0.00	1.05	0.02	0.00
17.92	2.00	0.00	1.04	0.02	0.00	17.94	2.00	0.00	1.03	0.02	0.00
17.96	2.00	0.00	1.02	0.02	0.00	17.98	2.00	0.00	1.01	0.02	0.00
18.00	2.00	0.00	1.00	0.02	0.00	18.02	2.00	0.00	0.99	0.02	0.00
18.04	2.00	0.00	0.98	0.02	0.00	18.06	2.00	0.00	0.97	0.02	0.00
18.08	2.00	0.00	0.96	0.02	0.00	18.10	2.00	0.00	0.95	0.02	0.00
18.12	2.00	0.00	0.94	0.02	0.00	18.14	2.00	0.00	0.93	0.02	0.00
18.16	2.00	0.00	0.92	0.02	0.00	18.18	2.00	0.00	0.91	0.02	0.00
18.20	2.00	0.00	0.90	0.02	0.00	18.22	2.00	0.00	0.89	0.02	0.00
18.24	2.00	0.00	0.88	0.02	0.00	18.26	2.00	0.00	0.87	0.02	0.00
18.28	2.00	0.00	0.86	0.02	0.00	18.30	2.00	0.00	0.85	0.02	0.00
18.32	2.00	0.00	0.84	0.02	0.00	18.34	2.00	0.00	0.83	0.02	0.00
18.36	2.00	0.00	0.82	0.02	0.00	18.38	2.00	0.00	0.81	0.02	0.00
18.40	2.00	0.00	0.80	0.02	0.00	18.42	2.00	0.00	0.79	0.02	0.00
18.44	2.00	0.00	0.78	0.02	0.00	18.46	2.00	0.00	0.77	0.02	0.00
18.48	2.00	0.00	0.76	0.02	0.00	18.50	2.00	0.00	0.75	0.02	0.00
18.52	2.00	0.00	0.74	0.02	0.00	18.54	2.00	0.00	0.73	0.02	0.00
18.56	2.00	0.00	0.72	0.02	0.00	18.58	2.00	0.00	0.71	0.02	0.00
18.60	2.00	0.00	0.70	0.02	0.00	18.62	2.00	0.00	0.69	0.02	0.00
18.64	2.00	0.00	0.68	0.02	0.00	18.66	2.00	0.00	0.67	0.02	0.00
18.68	2.00	0.00	0.66	0.02	0.00	18.70	2.00	0.00	0.65	0.02	0.00
18.72	2.00	0.00	0.64	0.02	0.00	18.74	2.00	0.00	0.63	0.02	0.00
18.76	2.00	0.00	0.62	0.02	0.00	18.78	2.00	0.00	0.61	0.02	0.00
18.80	2.00	0.00	0.60	0.02	0.00	18.82	2.00	0.00	0.59	0.02	0.00
18.84	2.00	0.00	0.58	0.02	0.00	18.86	2.00	0.00	0.57	0.02	0.00
18.88	2.00	0.00	0.56	0.02	0.00	18.90	2.00	0.00	0.55	0.02	0.00
18.92	2.00	0.00	0.54	0.02	0.00	18.94	2.00	0.00	0.53	0.02	0.00
18.96	2.00	0.00	0.52	0.02	0.00	18.98	2.00	0.00	0.51	0.02	0.00
19.00	2.00	0.00	0.50	0.02	0.00	19.02	2.00	0.00	0.49	0.02	0.00
19.04	2.00	0.00	0.48	0.02	0.00	19.06	2.00	0.00	0.47	0.02	0.00
19.08	2.00	0.00	0.46	0.02	0.00	19.10	2.00	0.00	0.45	0.02	0.00
19.12	2.00	0.00	0.44	0.02	0.00	19.14	2.00	0.00	0.43	0.02	0.00
19.16	2.00	0.00	0.42	0.02	0.00	19.18	2.00	0.00	0.41	0.02	0.00
19.20	2.00	0.00	0.40	0.02	0.00	19.22	2.00	0.00	0.39	0.02	0.00
19.24	2.00	0.00	0.38	0.02	0.00	19.26	2.00	0.00	0.37	0.02	0.00
19.28	2.00	0.00	0.36	0.02	0.00	19.30	2.00	0.00	0.35	0.02	0.00
19.32	2.00	0.00	0.34	0.02	0.00	19.34	2.00	0.00	0.33	0.02	0.00
19.36	2.00	0.00	0.32	0.02	0.00	19.38	2.00	0.00	0.31	0.02	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (m)	FS	F_L	w_z	d_z	LPI	Depth (m)	FS	F_L	w_z	d_z	LPI
19.40	2.00	0.00	0.30	0.02	0.00	19.42	2.00	0.00	0.29	0.02	0.00
19.44	2.00	0.00	0.28	0.02	0.00	19.46	2.00	0.00	0.27	0.02	0.00
19.48	2.00	0.00	0.26	0.02	0.00	19.50	2.00	0.00	0.25	0.02	0.00
19.52	2.00	0.00	0.24	0.02	0.00	19.54	2.00	0.00	0.23	0.02	0.00
19.56	2.00	0.00	0.22	0.02	0.00	19.58	2.00	0.00	0.21	0.02	0.00
19.60	2.00	0.00	0.20	0.02	0.00	19.62	2.00	0.00	0.19	0.02	0.00
19.64	2.00	0.00	0.18	0.02	0.00	19.66	2.00	0.00	0.17	0.02	0.00
19.68	2.00	0.00	0.16	0.02	0.00	19.70	2.00	0.00	0.15	0.02	0.00
19.72	2.00	0.00	0.14	0.02	0.00	19.74	2.00	0.00	0.13	0.02	0.00
19.76	2.00	0.00	0.12	0.02	0.00	19.78	2.00	0.00	0.11	0.02	0.00
19.80	2.00	0.00	0.10	0.02	0.00	19.82	2.00	0.00	0.09	0.02	0.00
19.84	2.00	0.00	0.08	0.02	0.00	19.86	2.00	0.00	0.07	0.02	0.00
19.88	2.00	0.00	0.06	0.02	0.00	19.90	2.00	0.00	0.05	0.02	0.00
19.92	2.00	0.00	0.04	0.02	0.00	19.94	2.00	0.00	0.03	0.02	0.00
19.96	2.00	0.00	0.02	0.02	0.00	19.98	2.00	0.00	0.01	0.02	0.00
20.00	2.00	0.00	0.00	0.02	0.00	20.02	2.00	0.00	0.00	0.00	0.00
20.04	2.00	0.00	0.00	0.00	0.00	20.06	2.00	0.00	0.00	0.00	0.00
20.08	2.00	0.00	0.00	0.00	0.00	20.10	2.00	0.00	0.00	0.00	0.00
20.12	2.00	0.00	0.00	0.00	0.00	20.14	2.00	0.00	0.00	0.00	0.00
20.16	2.00	0.00	0.00	0.00	0.00	20.18	2.00	0.00	0.00	0.00	0.00
20.20	2.00	0.00	0.00	0.00	0.00	20.22	2.00	0.00	0.00	0.00	0.00
20.24	2.00	0.00	0.00	0.00	0.00	20.26	2.00	0.00	0.00	0.00	0.00
20.28	2.00	0.00	0.00	0.00	0.00	20.30	2.00	0.00	0.00	0.00	0.00
20.32	2.00	0.00	0.00	0.00	0.00	20.34	2.00	0.00	0.00	0.00	0.00
20.36	2.00	0.00	0.00	0.00	0.00	20.38	2.00	0.00	0.00	0.00	0.00
20.40	2.00	0.00	0.00	0.00	0.00	20.42	2.00	0.00	0.00	0.00	0.00
20.44	2.00	0.00	0.00	0.00	0.00	20.46	2.00	0.00	0.00	0.00	0.00
20.48	2.00	0.00	0.00	0.00	0.00	20.50	2.00	0.00	0.00	0.00	0.00
20.52	2.00	0.00	0.00	0.00	0.00	20.54	2.00	0.00	0.00	0.00	0.00
20.56	2.00	0.00	0.00	0.00	0.00	20.58	2.00	0.00	0.00	0.00	0.00
20.60	2.00	0.00	0.00	0.00	0.00	20.62	2.00	0.00	0.00	0.00	0.00

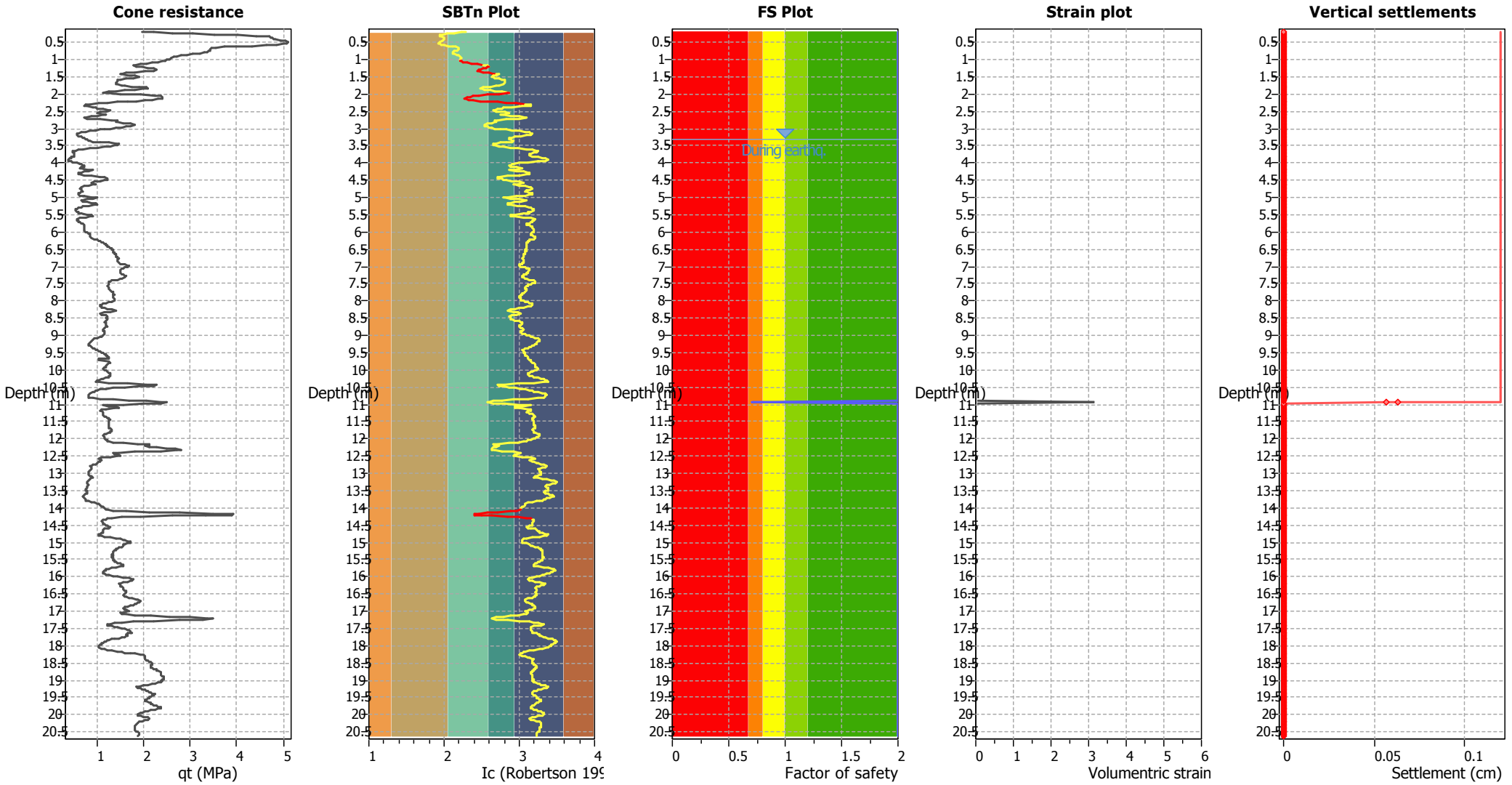
Overall liquefaction potential: 0.05

LPI = 0.00 - Liquefaction risk very low
LPI between 0.00 and 5.00 - Liquefaction risk low
LPI between 5.00 and 15.00 - Liquefaction risk high
LPI > 15.00 - Liquefaction risk very high

Abbreviations

FS: Calculated factor of safety for test point
F_L: 1 - FS
w_z: Function value of the extend of soil liquefaction according to depth
d_z: Layer thickness (m)
LPI: Liquefaction potential index value for test point

Estimation of post-earthquake settlements



Abbreviations

q_t:	Total cone resistance (cone resistance q_c corrected for pore water effects)
I_c:	Soil Behaviour Type Index
FS:	Calculated Factor of Safety against liquefaction
Volumentric strain:	Post-liquefaction volumentric strain

:: 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)
3.30	10.87	2.00	0.00	1.00	0.00	3.32	11.17	2.00	0.00	1.00	0.00
3.34	11.22	2.00	0.00	1.00	0.00	3.36	11.41	2.00	0.00	1.00	0.00
3.38	12.03	2.00	0.00	1.00	0.00	3.40	14.09	2.00	0.00	1.00	0.00
3.42	17.52	2.00	0.00	1.00	0.00	3.44	19.08	2.00	0.00	1.00	0.00
3.46	19.61	2.00	0.00	1.00	0.00	3.48	19.45	2.00	0.00	1.00	0.00
3.50	18.50	2.00	0.00	1.00	0.00	3.52	17.13	2.00	0.00	1.00	0.00
3.54	15.32	2.00	0.00	1.00	0.00	3.56	13.56	2.00	0.00	1.00	0.00
3.58	11.34	2.00	0.00	1.00	0.00	3.60	9.18	2.00	0.00	1.00	0.00
3.62	7.78	2.00	0.00	1.00	0.00	3.64	6.82	2.00	0.00	1.00	0.00
3.66	6.58	2.00	0.00	1.00	0.00	3.68	6.44	2.00	0.00	1.00	0.00
3.70	6.56	2.00	0.00	1.00	0.00	3.72	6.78	2.00	0.00	1.00	0.00
3.74	6.61	2.00	0.00	1.00	0.00	3.76	6.91	2.00	0.00	1.00	0.00
3.78	6.79	2.00	0.00	1.00	0.00	3.80	6.54	2.00	0.00	1.00	0.00
3.82	6.30	2.00	0.00	1.00	0.00	3.84	5.97	2.00	0.00	1.00	0.00
3.86	5.73	2.00	0.00	1.00	0.00	3.88	5.37	2.00	0.00	1.00	0.00
3.90	5.08	2.00	0.00	1.00	0.00	3.92	4.93	2.00	0.00	1.00	0.00
3.94	5.08	2.00	0.00	1.00	0.00	3.96	5.41	2.00	0.00	1.00	0.00
3.98	6.30	2.00	0.00	1.00	0.00	4.00	7.36	2.00	0.00	1.00	0.00
4.02	8.17	2.00	0.00	1.00	0.00	4.04	8.20	2.00	0.00	1.00	0.00
4.06	8.50	2.00	0.00	1.00	0.00	4.08	9.25	2.00	0.00	1.00	0.00
4.10	9.30	2.00	0.00	1.00	0.00	4.12	8.46	2.00	0.00	1.00	0.00
4.14	7.71	2.00	0.00	1.00	0.00	4.16	7.71	2.00	0.00	1.00	0.00
4.18	9.26	2.00	0.00	1.00	0.00	4.20	12.51	2.00	0.00	1.00	0.00
4.22	11.96	2.00	0.00	1.00	0.00	4.24	10.11	2.00	0.00	1.00	0.00
4.26	8.94	2.00	0.00	1.00	0.00	4.28	8.02	2.00	0.00	1.00	0.00
4.30	7.72	2.00	0.00	1.00	0.00	4.32	7.39	2.00	0.00	1.00	0.00
4.34	7.41	2.00	0.00	1.00	0.00	4.36	8.62	2.00	0.00	1.00	0.00
4.38	10.92	2.00	0.00	1.00	0.00	4.40	13.31	2.00	0.00	1.00	0.00
4.42	15.10	2.00	0.00	1.00	0.00	4.44	14.56	2.00	0.00	1.00	0.00
4.46	14.81	2.00	0.00	1.00	0.00	4.48	15.27	2.00	0.00	1.00	0.00
4.50	14.63	2.00	0.00	1.00	0.00	4.52	13.10	2.00	0.00	1.00	0.00
4.54	11.41	2.00	0.00	1.00	0.00	4.56	10.60	2.00	0.00	1.00	0.00
4.58	10.64	2.00	0.00	1.00	0.00	4.60	11.72	2.00	0.00	1.00	0.00
4.62	12.20	2.00	0.00	1.00	0.00	4.64	11.46	2.00	0.00	1.00	0.00
4.66	9.87	2.00	0.00	1.00	0.00	4.68	8.67	2.00	0.00	1.00	0.00
4.70	7.98	2.00	0.00	1.00	0.00	4.72	7.73	2.00	0.00	1.00	0.00
4.74	8.03	2.00	0.00	1.00	0.00	4.76	7.88	2.00	0.00	1.00	0.00
4.78	7.78	2.00	0.00	1.00	0.00	4.80	8.18	2.00	0.00	1.00	0.00
4.82	8.39	2.00	0.00	1.00	0.00	4.84	8.14	2.00	0.00	1.00	0.00
4.86	7.48	2.00	0.00	1.00	0.00	4.88	7.25	2.00	0.00	1.00	0.00
4.90	7.01	2.00	0.00	1.00	0.00	4.92	7.10	2.00	0.00	1.00	0.00
4.94	7.33	2.00	0.00	1.00	0.00	4.96	8.50	2.00	0.00	1.00	0.00
4.98	10.63	2.00	0.00	1.00	0.00	5.00	12.39	2.00	0.00	1.00	0.00
5.02	12.38	2.00	0.00	1.00	0.00	5.04	10.84	2.00	0.00	1.00	0.00
5.06	9.35	2.00	0.00	1.00	0.00	5.08	7.98	2.00	0.00	1.00	0.00
5.10	7.52	2.00	0.00	1.00	0.00	5.12	7.99	2.00	0.00	1.00	0.00
5.14	9.54	2.00	0.00	1.00	0.00	5.16	10.27	2.00	0.00	1.00	0.00
5.18	11.30	2.00	0.00	1.00	0.00	5.20	12.68	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)
5.22	11.47	2.00	0.00	1.00	0.00	5.24	9.05	2.00	0.00	1.00	0.00
5.26	8.50	2.00	0.00	1.00	0.00	5.28	7.57	2.00	0.00	1.00	0.00
5.30	7.12	2.00	0.00	1.00	0.00	5.32	7.02	2.00	0.00	1.00	0.00
5.34	6.47	2.00	0.00	1.00	0.00	5.36	6.11	2.00	0.00	1.00	0.00
5.38	6.28	2.00	0.00	1.00	0.00	5.40	6.30	2.00	0.00	1.00	0.00
5.42	7.17	2.00	0.00	1.00	0.00	5.44	7.03	2.00	0.00	1.00	0.00
5.46	6.81	2.00	0.00	1.00	0.00	5.48	7.04	2.00	0.00	1.00	0.00
5.50	9.17	2.00	0.00	1.00	0.00	5.52	10.89	2.00	0.00	1.00	0.00
5.54	10.84	2.00	0.00	1.00	0.00	5.56	10.27	2.00	0.00	1.00	0.00
5.58	8.75	2.00	0.00	1.00	0.00	5.60	6.97	2.00	0.00	1.00	0.00
5.62	6.35	2.00	0.00	1.00	0.00	5.64	6.65	2.00	0.00	1.00	0.00
5.66	6.79	2.00	0.00	1.00	0.00	5.68	6.90	2.00	0.00	1.00	0.00
5.70	7.18	2.00	0.00	1.00	0.00	5.72	7.15	2.00	0.00	1.00	0.00
5.74	7.65	2.00	0.00	1.00	0.00	5.76	7.97	2.00	0.00	1.00	0.00
5.78	8.22	2.00	0.00	1.00	0.00	5.80	8.28	2.00	0.00	1.00	0.00
5.82	8.18	2.00	0.00	1.00	0.00	5.84	8.14	2.00	0.00	1.00	0.00
5.86	8.27	2.00	0.00	1.00	0.00	5.88	8.17	2.00	0.00	1.00	0.00
5.90	8.25	2.00	0.00	1.00	0.00	5.92	8.20	2.00	0.00	1.00	0.00
5.94	8.33	2.00	0.00	1.00	0.00	5.96	8.22	2.00	0.00	1.00	0.00
5.98	8.19	2.00	0.00	1.00	0.00	6.00	8.64	2.00	0.00	1.00	0.00
6.02	8.90	2.00	0.00	1.00	0.00	6.04	9.30	2.00	0.00	1.00	0.00
6.06	9.70	2.00	0.00	1.00	0.00	6.08	9.53	2.00	0.00	1.00	0.00
6.10	9.56	2.00	0.00	1.00	0.00	6.12	9.55	2.00	0.00	1.00	0.00
6.14	9.69	2.00	0.00	1.00	0.00	6.16	9.81	2.00	0.00	1.00	0.00
6.18	10.02	2.00	0.00	1.00	0.00	6.20	10.26	2.00	0.00	1.00	0.00
6.22	11.10	2.00	0.00	1.00	0.00	6.24	11.35	2.00	0.00	1.00	0.00
6.26	11.63	2.00	0.00	1.00	0.00	6.28	11.77	2.00	0.00	1.00	0.00
6.30	12.04	2.00	0.00	1.00	0.00	6.32	12.33	2.00	0.00	1.00	0.00
6.34	12.76	2.00	0.00	1.00	0.00	6.36	13.10	2.00	0.00	1.00	0.00
6.38	13.26	2.00	0.00	1.00	0.00	6.40	13.37	2.00	0.00	1.00	0.00
6.42	13.57	2.00	0.00	1.00	0.00	6.44	13.89	2.00	0.00	1.00	0.00
6.46	14.00	2.00	0.00	1.00	0.00	6.48	14.42	2.00	0.00	1.00	0.00
6.50	14.51	2.00	0.00	1.00	0.00	6.52	14.55	2.00	0.00	1.00	0.00
6.54	14.69	2.00	0.00	1.00	0.00	6.56	14.68	2.00	0.00	1.00	0.00
6.58	14.97	2.00	0.00	1.00	0.00	6.60	14.84	2.00	0.00	1.00	0.00
6.62	15.10	2.00	0.00	1.00	0.00	6.64	14.95	2.00	0.00	1.00	0.00
6.66	15.12	2.00	0.00	1.00	0.00	6.68	15.27	2.00	0.00	1.00	0.00
6.70	15.12	2.00	0.00	1.00	0.00	6.72	15.33	2.00	0.00	1.00	0.00
6.74	15.62	2.00	0.00	1.00	0.00	6.76	15.62	2.00	0.00	1.00	0.00
6.78	15.71	2.00	0.00	1.00	0.00	6.80	15.65	2.00	0.00	1.00	0.00
6.82	15.34	2.00	0.00	1.00	0.00	6.84	15.56	2.00	0.00	1.00	0.00
6.86	15.60	2.00	0.00	1.00	0.00	6.88	15.43	2.00	0.00	1.00	0.00
6.90	15.71	2.00	0.00	1.00	0.00	6.92	16.35	2.00	0.00	1.00	0.00
6.94	16.48	2.00	0.00	1.00	0.00	6.96	18.26	2.00	0.00	1.00	0.00
6.98	17.77	2.00	0.00	1.00	0.00	7.00	17.50	2.00	0.00	1.00	0.00
7.02	17.46	2.00	0.00	1.00	0.00	7.04	16.94	2.00	0.00	1.00	0.00
7.06	16.29	2.00	0.00	1.00	0.00	7.08	16.14	2.00	0.00	1.00	0.00
7.10	15.88	2.00	0.00	1.00	0.00	7.12	15.70	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)
7.14	15.95	2.00	0.00	1.00	0.00	7.16	15.92	2.00	0.00	1.00	0.00
7.18	15.66	2.00	0.00	1.00	0.00	7.20	15.72	2.00	0.00	1.00	0.00
7.22	16.12	2.00	0.00	1.00	0.00	7.24	15.95	2.00	0.00	1.00	0.00
7.26	17.16	2.00	0.00	1.00	0.00	7.28	16.81	2.00	0.00	1.00	0.00
7.30	16.73	2.00	0.00	1.00	0.00	7.32	16.70	2.00	0.00	1.00	0.00
7.34	16.07	2.00	0.00	1.00	0.00	7.36	15.64	2.00	0.00	1.00	0.00
7.38	15.05	2.00	0.00	1.00	0.00	7.40	14.21	2.00	0.00	1.00	0.00
7.42	13.75	2.00	0.00	1.00	0.00	7.44	13.50	2.00	0.00	1.00	0.00
7.46	13.10	2.00	0.00	1.00	0.00	7.48	12.72	2.00	0.00	1.00	0.00
7.50	12.98	2.00	0.00	1.00	0.00	7.52	13.05	2.00	0.00	1.00	0.00
7.54	12.88	2.00	0.00	1.00	0.00	7.56	12.58	2.00	0.00	1.00	0.00
7.58	12.54	2.00	0.00	1.00	0.00	7.60	12.84	2.00	0.00	1.00	0.00
7.62	13.02	2.00	0.00	1.00	0.00	7.64	12.84	2.00	0.00	1.00	0.00
7.66	13.07	2.00	0.00	1.00	0.00	7.68	12.81	2.00	0.00	1.00	0.00
7.70	13.11	2.00	0.00	1.00	0.00	7.72	13.60	2.00	0.00	1.00	0.00
7.74	13.49	2.00	0.00	1.00	0.00	7.76	13.60	2.00	0.00	1.00	0.00
7.78	13.77	2.00	0.00	1.00	0.00	7.80	13.90	2.00	0.00	1.00	0.00
7.82	13.79	2.00	0.00	1.00	0.00	7.84	13.98	2.00	0.00	1.00	0.00
7.86	13.61	2.00	0.00	1.00	0.00	7.88	13.77	2.00	0.00	1.00	0.00
7.90	13.49	2.00	0.00	1.00	0.00	7.92	13.70	2.00	0.00	1.00	0.00
7.94	13.67	2.00	0.00	1.00	0.00	7.96	13.92	2.00	0.00	1.00	0.00
7.98	14.18	2.00	0.00	1.00	0.00	8.00	13.73	2.00	0.00	1.00	0.00
8.02	13.24	2.00	0.00	1.00	0.00	8.04	12.76	2.00	0.00	1.00	0.00
8.06	11.82	2.00	0.00	1.00	0.00	8.08	11.30	2.00	0.00	1.00	0.00
8.10	10.98	2.00	0.00	1.00	0.00	8.12	10.60	2.00	0.00	1.00	0.00
8.14	10.69	2.00	0.00	1.00	0.00	8.16	10.96	2.00	0.00	1.00	0.00
8.18	11.01	2.00	0.00	1.00	0.00	8.20	11.10	2.00	0.00	1.00	0.00
8.22	11.38	2.00	0.00	1.00	0.00	8.24	11.86	2.00	0.00	1.00	0.00
8.26	12.73	2.00	0.00	1.00	0.00	8.28	14.47	2.00	0.00	1.00	0.00
8.30	14.20	2.00	0.00	1.00	0.00	8.32	12.83	2.00	0.00	1.00	0.00
8.34	11.18	2.00	0.00	1.00	0.00	8.36	10.56	2.00	0.00	1.00	0.00
8.38	9.89	2.00	0.00	1.00	0.00	8.40	10.61	2.00	0.00	1.00	0.00
8.42	12.00	2.00	0.00	1.00	0.00	8.44	12.40	2.00	0.00	1.00	0.00
8.46	11.75	2.00	0.00	1.00	0.00	8.48	11.50	2.00	0.00	1.00	0.00
8.50	11.96	2.00	0.00	1.00	0.00	8.52	11.87	2.00	0.00	1.00	0.00
8.54	11.91	2.00	0.00	1.00	0.00	8.56	11.70	2.00	0.00	1.00	0.00
8.58	11.34	2.00	0.00	1.00	0.00	8.60	11.43	2.00	0.00	1.00	0.00
8.62	11.24	2.00	0.00	1.00	0.00	8.64	11.36	2.00	0.00	1.00	0.00
8.66	11.53	2.00	0.00	1.00	0.00	8.68	11.52	2.00	0.00	1.00	0.00
8.70	11.06	2.00	0.00	1.00	0.00	8.72	11.68	2.00	0.00	1.00	0.00
8.74	11.63	2.00	0.00	1.00	0.00	8.76	11.33	2.00	0.00	1.00	0.00
8.78	11.12	2.00	0.00	1.00	0.00	8.80	11.07	2.00	0.00	1.00	0.00
8.82	10.76	2.00	0.00	1.00	0.00	8.84	10.43	2.00	0.00	1.00	0.00
8.86	10.72	2.00	0.00	1.00	0.00	8.88	11.05	2.00	0.00	1.00	0.00
8.90	10.86	2.00	0.00	1.00	0.00	8.92	11.13	2.00	0.00	1.00	0.00
8.94	11.06	2.00	0.00	1.00	0.00	8.96	10.75	2.00	0.00	1.00	0.00
8.98	10.86	2.00	0.00	1.00	0.00	9.00	10.77	2.00	0.00	1.00	0.00
9.02	10.54	2.00	0.00	1.00	0.00	9.04	10.69	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)
9.06	10.15	2.00	0.00	1.00	0.00	9.08	9.41	2.00	0.00	1.00	0.00
9.10	8.94	2.00	0.00	1.00	0.00	9.12	8.50	2.00	0.00	1.00	0.00
9.14	8.35	2.00	0.00	1.00	0.00	9.16	8.30	2.00	0.00	1.00	0.00
9.18	8.10	2.00	0.00	1.00	0.00	9.20	7.91	2.00	0.00	1.00	0.00
9.22	7.82	2.00	0.00	1.00	0.00	9.24	7.48	2.00	0.00	1.00	0.00
9.26	7.38	2.00	0.00	1.00	0.00	9.28	7.54	2.00	0.00	1.00	0.00
9.30	7.91	2.00	0.00	1.00	0.00	9.32	7.98	2.00	0.00	1.00	0.00
9.34	8.13	2.00	0.00	1.00	0.00	9.36	8.54	2.00	0.00	1.00	0.00
9.38	8.61	2.00	0.00	1.00	0.00	9.40	8.84	2.00	0.00	1.00	0.00
9.42	9.14	2.00	0.00	1.00	0.00	9.44	9.28	2.00	0.00	1.00	0.00
9.46	9.41	2.00	0.00	1.00	0.00	9.48	9.63	2.00	0.00	1.00	0.00
9.50	10.11	2.00	0.00	1.00	0.00	9.52	10.38	2.00	0.00	1.00	0.00
9.54	10.82	2.00	0.00	1.00	0.00	9.56	10.85	2.00	0.00	1.00	0.00
9.58	11.15	2.00	0.00	1.00	0.00	9.60	11.07	2.00	0.00	1.00	0.00
9.62	11.23	2.00	0.00	1.00	0.00	9.64	11.38	2.00	0.00	1.00	0.00
9.66	11.58	2.00	0.00	1.00	0.00	9.68	11.61	2.00	0.00	1.00	0.00
9.70	5.42	2.00	0.00	1.00	0.00	9.72	11.52	2.00	0.00	1.00	0.00
9.74	11.51	2.00	0.00	1.00	0.00	9.76	11.65	2.00	0.00	1.00	0.00
9.78	11.58	2.00	0.00	1.00	0.00	9.80	11.61	2.00	0.00	1.00	0.00
9.82	11.57	2.00	0.00	1.00	0.00	9.84	11.14	2.00	0.00	1.00	0.00
9.86	11.03	2.00	0.00	1.00	0.00	9.88	10.88	2.00	0.00	1.00	0.00
9.90	10.88	2.00	0.00	1.00	0.00	9.92	10.70	2.00	0.00	1.00	0.00
9.94	10.41	2.00	0.00	1.00	0.00	9.96	10.11	2.00	0.00	1.00	0.00
9.98	10.16	2.00	0.00	1.00	0.00	10.00	10.24	2.00	0.00	1.00	0.00
10.02	10.70	2.00	0.00	1.00	0.00	10.04	10.98	2.00	0.00	1.00	0.00
10.06	11.13	2.00	0.00	1.00	0.00	10.08	11.25	2.00	0.00	1.00	0.00
10.10	11.54	2.00	0.00	1.00	0.00	10.12	11.57	2.00	0.00	1.00	0.00
10.14	11.54	2.00	0.00	1.00	0.00	10.16	11.55	2.00	0.00	1.00	0.00
10.18	11.36	2.00	0.00	1.00	0.00	10.20	11.24	2.00	0.00	1.00	0.00
10.22	10.81	2.00	0.00	1.00	0.00	10.24	10.61	2.00	0.00	1.00	0.00
10.26	10.15	2.00	0.00	1.00	0.00	10.28	9.78	2.00	0.00	1.00	0.00
10.30	9.28	2.00	0.00	1.00	0.00	10.32	8.98	2.00	0.00	1.00	0.00
10.34	8.58	2.00	0.00	1.00	0.00	10.36	8.59	2.00	0.00	1.00	0.00
10.38	10.45	2.00	0.00	1.00	0.00	10.40	14.24	2.00	0.00	1.00	0.00
10.42	19.95	2.00	0.00	1.00	0.00	10.44	21.77	2.00	0.00	1.00	0.00
10.46	20.87	2.00	0.00	1.00	0.00	10.48	17.60	2.00	0.00	1.00	0.00
10.50	13.78	2.00	0.00	1.00	0.00	10.52	11.80	2.00	0.00	1.00	0.00
10.54	10.71	2.00	0.00	1.00	0.00	10.56	9.51	2.00	0.00	1.00	0.00
10.58	8.80	2.00	0.00	1.00	0.00	10.60	8.67	2.00	0.00	1.00	0.00
10.62	8.61	2.00	0.00	1.00	0.00	10.64	8.46	2.00	0.00	1.00	0.00
10.66	8.17	2.00	0.00	1.00	0.00	10.68	7.50	2.00	0.00	1.00	0.00
10.70	7.11	2.00	0.00	1.00	0.00	10.72	7.40	2.00	0.00	1.00	0.00
10.74	7.23	2.00	0.00	1.00	0.00	10.76	7.12	2.00	0.00	1.00	0.00
10.78	7.20	2.00	0.00	1.00	0.00	10.80	7.12	2.00	0.00	1.00	0.00
10.82	7.40	2.00	0.00	1.00	0.00	10.84	9.12	2.00	0.00	1.00	0.00
10.86	11.35	2.00	0.00	1.00	0.00	10.88	15.02	2.00	0.00	1.00	0.00
10.90	18.60	2.00	0.00	1.00	0.00	10.92	78.48	0.71	3.15	1.00	0.06
10.94	81.43	0.73	2.83	1.00	0.06	10.96	22.22	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)
10.98	17.88	2.00	0.00	1.00	0.00	11.00	13.62	2.00	0.00	1.00	0.00
11.02	10.10	2.00	0.00	1.00	0.00	11.04	9.16	2.00	0.00	1.00	0.00
11.06	10.84	2.00	0.00	1.00	0.00	11.08	13.26	2.00	0.00	1.00	0.00
11.10	13.52	2.00	0.00	1.00	0.00	11.12	12.00	2.00	0.00	1.00	0.00
11.14	10.60	2.00	0.00	1.00	0.00	11.16	9.28	2.00	0.00	1.00	0.00
11.18	9.38	2.00	0.00	1.00	0.00	11.20	9.59	2.00	0.00	1.00	0.00
11.22	9.87	2.00	0.00	1.00	0.00	11.24	9.95	2.00	0.00	1.00	0.00
11.26	9.93	2.00	0.00	1.00	0.00	11.28	9.72	2.00	0.00	1.00	0.00
11.30	9.77	2.00	0.00	1.00	0.00	11.32	9.80	2.00	0.00	1.00	0.00
11.34	10.08	2.00	0.00	1.00	0.00	11.36	10.25	2.00	0.00	1.00	0.00
11.38	10.51	2.00	0.00	1.00	0.00	11.40	10.76	2.00	0.00	1.00	0.00
11.42	10.84	2.00	0.00	1.00	0.00	11.44	11.17	2.00	0.00	1.00	0.00
11.46	10.94	2.00	0.00	1.00	0.00	11.48	11.00	2.00	0.00	1.00	0.00
11.50	10.74	2.00	0.00	1.00	0.00	11.52	10.66	2.00	0.00	1.00	0.00
11.54	10.79	2.00	0.00	1.00	0.00	11.56	10.71	2.00	0.00	1.00	0.00
11.58	10.75	2.00	0.00	1.00	0.00	11.60	10.72	2.00	0.00	1.00	0.00
11.62	10.57	2.00	0.00	1.00	0.00	11.64	10.74	2.00	0.00	1.00	0.00
11.66	10.64	2.00	0.00	1.00	0.00	11.68	10.58	2.00	0.00	1.00	0.00
11.70	10.91	2.00	0.00	1.00	0.00	11.72	11.29	2.00	0.00	1.00	0.00
11.74	11.32	2.00	0.00	1.00	0.00	11.76	11.20	2.00	0.00	1.00	0.00
11.78	10.82	2.00	0.00	1.00	0.00	11.80	10.92	2.00	0.00	1.00	0.00
11.82	11.01	2.00	0.00	1.00	0.00	11.84	10.45	2.00	0.00	1.00	0.00
11.86	10.22	2.00	0.00	1.00	0.00	11.88	9.73	2.00	0.00	1.00	0.00
11.90	9.67	2.00	0.00	1.00	0.00	11.92	9.55	2.00	0.00	1.00	0.00
11.94	9.79	2.00	0.00	1.00	0.00	11.96	10.12	2.00	0.00	1.00	0.00
11.98	9.79	2.00	0.00	1.00	0.00	12.00	9.69	2.00	0.00	1.00	0.00
12.02	10.07	2.00	0.00	1.00	0.00	12.04	10.08	2.00	0.00	1.00	0.00
12.06	10.39	2.00	0.00	1.00	0.00	12.08	10.46	2.00	0.00	1.00	0.00
12.10	10.88	2.00	0.00	1.00	0.00	12.12	12.60	2.00	0.00	1.00	0.00
12.14	16.34	2.00	0.00	1.00	0.00	12.16	19.24	2.00	0.00	1.00	0.00
12.18	18.44	2.00	0.00	1.00	0.00	12.20	16.74	2.00	0.00	1.00	0.00
12.22	16.84	2.00	0.00	1.00	0.00	12.24	17.81	2.00	0.00	1.00	0.00
12.26	19.29	2.00	0.00	1.00	0.00	12.28	21.42	2.00	0.00	1.00	0.00
12.30	22.75	2.00	0.00	1.00	0.00	12.32	24.22	2.00	0.00	1.00	0.00
12.34	25.05	2.00	0.00	1.00	0.00	12.36	20.57	2.00	0.00	1.00	0.00
12.38	14.97	2.00	0.00	1.00	0.00	12.40	10.86	2.00	0.00	1.00	0.00
12.42	11.71	2.00	0.00	1.00	0.00	12.44	11.72	2.00	0.00	1.00	0.00
12.46	11.68	2.00	0.00	1.00	0.00	12.48	13.23	2.00	0.00	1.00	0.00
12.50	12.82	2.00	0.00	1.00	0.00	12.52	10.64	2.00	0.00	1.00	0.00
12.54	8.75	2.00	0.00	1.00	0.00	12.56	8.50	2.00	0.00	1.00	0.00
12.58	8.82	2.00	0.00	1.00	0.00	12.60	9.15	2.00	0.00	1.00	0.00
12.62	9.11	2.00	0.00	1.00	0.00	12.64	9.01	2.00	0.00	1.00	0.00
12.66	8.80	2.00	0.00	1.00	0.00	12.68	8.38	2.00	0.00	1.00	0.00
12.70	8.53	2.00	0.00	1.00	0.00	12.72	8.18	2.00	0.00	1.00	0.00
12.74	7.69	2.00	0.00	1.00	0.00	12.76	7.72	2.00	0.00	1.00	0.00
12.78	7.09	2.00	0.00	1.00	0.00	12.80	6.90	2.00	0.00	1.00	0.00
12.82	7.02	2.00	0.00	1.00	0.00	12.84	7.16	2.00	0.00	1.00	0.00
12.86	7.28	2.00	0.00	1.00	0.00	12.88	6.98	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)
12.90	6.94	2.00	0.00	1.00	0.00	12.92	6.73	2.00	0.00	1.00	0.00
12.94	6.58	2.00	0.00	1.00	0.00	12.96	6.49	2.00	0.00	1.00	0.00
12.98	6.33	2.00	0.00	1.00	0.00	13.00	6.65	2.00	0.00	1.00	0.00
13.02	6.60	2.00	0.00	1.00	0.00	13.04	6.51	2.00	0.00	1.00	0.00
13.06	6.57	2.00	0.00	1.00	0.00	13.08	6.86	2.00	0.00	1.00	0.00
13.10	7.15	2.00	0.00	1.00	0.00	13.12	7.23	2.00	0.00	1.00	0.00
13.14	7.18	2.00	0.00	1.00	0.00	13.16	6.82	2.00	0.00	1.00	0.00
13.18	6.66	2.00	0.00	1.00	0.00	13.20	6.64	2.00	0.00	1.00	0.00
13.22	6.47	2.00	0.00	1.00	0.00	13.24	6.33	2.00	0.00	1.00	0.00
13.26	6.24	2.00	0.00	1.00	0.00	13.28	6.23	2.00	0.00	1.00	0.00
13.30	6.35	2.00	0.00	1.00	0.00	13.32	6.46	2.00	0.00	1.00	0.00
13.34	6.30	2.00	0.00	1.00	0.00	13.36	6.38	2.00	0.00	1.00	0.00
13.38	6.21	2.00	0.00	1.00	0.00	13.40	6.12	2.00	0.00	1.00	0.00
13.42	6.14	2.00	0.00	1.00	0.00	13.44	6.08	2.00	0.00	1.00	0.00
13.46	6.01	2.00	0.00	1.00	0.00	13.48	5.94	2.00	0.00	1.00	0.00
13.50	5.99	2.00	0.00	1.00	0.00	13.52	6.00	2.00	0.00	1.00	0.00
13.54	6.20	2.00	0.00	1.00	0.00	13.56	6.13	2.00	0.00	1.00	0.00
13.58	6.05	2.00	0.00	1.00	0.00	13.60	5.90	2.00	0.00	1.00	0.00
13.62	5.71	2.00	0.00	1.00	0.00	13.64	5.49	2.00	0.00	1.00	0.00
13.66	5.32	2.00	0.00	1.00	0.00	13.68	5.01	2.00	0.00	1.00	0.00
13.70	5.57	2.00	0.00	1.00	0.00	13.72	5.75	2.00	0.00	1.00	0.00
13.74	5.72	2.00	0.00	1.00	0.00	13.76	5.77	2.00	0.00	1.00	0.00
13.78	5.85	2.00	0.00	1.00	0.00	13.80	6.04	2.00	0.00	1.00	0.00
13.82	6.28	2.00	0.00	1.00	0.00	13.84	6.86	2.00	0.00	1.00	0.00
13.86	7.39	2.00	0.00	1.00	0.00	13.88	7.81	2.00	0.00	1.00	0.00
13.90	8.21	2.00	0.00	1.00	0.00	13.92	8.32	2.00	0.00	1.00	0.00
13.94	8.30	2.00	0.00	1.00	0.00	13.96	8.56	2.00	0.00	1.00	0.00
13.98	8.84	2.00	0.00	1.00	0.00	14.00	9.01	2.00	0.00	1.00	0.00
14.02	9.15	2.00	0.00	1.00	0.00	14.04	9.23	2.00	0.00	1.00	0.00
14.06	9.33	2.00	0.00	1.00	0.00	14.08	9.93	2.00	0.00	1.00	0.00
14.10	12.62	2.00	0.00	1.00	0.00	14.12	15.80	2.00	0.00	1.00	0.00
14.14	79.38	2.00	0.00	1.00	0.00	14.16	86.22	2.00	0.00	1.00	0.00
14.18	90.84	2.00	0.00	1.00	0.00	14.20	90.85	2.00	0.00	1.00	0.00
14.22	85.81	2.00	0.00	1.00	0.00	14.24	20.03	2.00	0.00	1.00	0.00
14.26	15.40	2.00	0.00	1.00	0.00	14.28	11.49	2.00	0.00	1.00	0.00
14.30	10.26	2.00	0.00	1.00	0.00	14.32	9.83	2.00	0.00	1.00	0.00
14.34	9.38	2.00	0.00	1.00	0.00	14.36	8.97	2.00	0.00	1.00	0.00
14.38	8.69	2.00	0.00	1.00	0.00	14.40	8.80	2.00	0.00	1.00	0.00
14.42	8.82	2.00	0.00	1.00	0.00	14.44	8.90	2.00	0.00	1.00	0.00
14.46	8.99	2.00	0.00	1.00	0.00	14.48	9.05	2.00	0.00	1.00	0.00
14.50	9.22	2.00	0.00	1.00	0.00	14.52	9.56	2.00	0.00	1.00	0.00
14.54	9.97	2.00	0.00	1.00	0.00	14.56	10.16	2.00	0.00	1.00	0.00
14.58	10.28	2.00	0.00	1.00	0.00	14.60	9.37	2.00	0.00	1.00	0.00
14.62	8.95	2.00	0.00	1.00	0.00	14.64	8.94	2.00	0.00	1.00	0.00
14.66	8.71	2.00	0.00	1.00	0.00	14.68	8.92	2.00	0.00	1.00	0.00
14.70	8.83	2.00	0.00	1.00	0.00	14.72	8.73	2.00	0.00	1.00	0.00
14.74	8.67	2.00	0.00	1.00	0.00	14.76	8.11	2.00	0.00	1.00	0.00
14.78	7.81	2.00	0.00	1.00	0.00	14.80	7.89	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)
14.82	8.35	2.00	0.00	1.00	0.00	14.84	8.89	2.00	0.00	1.00	0.00
14.86	9.75	2.00	0.00	1.00	0.00	14.88	10.97	2.00	0.00	1.00	0.00
14.90	12.06	2.00	0.00	1.00	0.00	14.92	12.11	2.00	0.00	1.00	0.00
14.94	12.35	2.00	0.00	1.00	0.00	14.96	13.07	2.00	0.00	1.00	0.00
14.98	13.40	2.00	0.00	1.00	0.00	15.00	13.49	2.00	0.00	1.00	0.00
15.02	13.32	2.00	0.00	1.00	0.00	15.04	12.76	2.00	0.00	1.00	0.00
15.06	12.33	2.00	0.00	1.00	0.00	15.08	12.09	2.00	0.00	1.00	0.00
15.10	12.03	2.00	0.00	1.00	0.00	15.12	12.00	2.00	0.00	1.00	0.00
15.14	11.81	2.00	0.00	1.00	0.00	15.16	11.21	2.00	0.00	1.00	0.00
15.18	11.10	2.00	0.00	1.00	0.00	15.20	10.84	2.00	0.00	1.00	0.00
15.22	10.60	2.00	0.00	1.00	0.00	15.24	10.46	2.00	0.00	1.00	0.00
15.26	10.24	2.00	0.00	1.00	0.00	15.28	10.31	2.00	0.00	1.00	0.00
15.30	10.28	2.00	0.00	1.00	0.00	15.32	10.13	2.00	0.00	1.00	0.00
15.34	9.93	2.00	0.00	1.00	0.00	15.36	10.06	2.00	0.00	1.00	0.00
15.38	10.23	2.00	0.00	1.00	0.00	15.40	10.08	2.00	0.00	1.00	0.00
15.42	10.07	2.00	0.00	1.00	0.00	15.44	9.96	2.00	0.00	1.00	0.00
15.46	9.99	2.00	0.00	1.00	0.00	15.48	10.24	2.00	0.00	1.00	0.00
15.50	10.16	2.00	0.00	1.00	0.00	15.52	10.15	2.00	0.00	1.00	0.00
15.54	10.30	2.00	0.00	1.00	0.00	15.56	10.52	2.00	0.00	1.00	0.00
15.58	10.56	2.00	0.00	1.00	0.00	15.60	10.89	2.00	0.00	1.00	0.00
15.62	11.33	2.00	0.00	1.00	0.00	15.64	11.60	2.00	0.00	1.00	0.00
15.66	11.88	2.00	0.00	1.00	0.00	15.68	11.98	2.00	0.00	1.00	0.00
15.70	11.48	2.00	0.00	1.00	0.00	15.72	10.40	2.00	0.00	1.00	0.00
15.74	9.61	2.00	0.00	1.00	0.00	15.76	9.20	2.00	0.00	1.00	0.00
15.78	8.87	2.00	0.00	1.00	0.00	15.80	8.58	2.00	0.00	1.00	0.00
15.82	8.60	2.00	0.00	1.00	0.00	15.84	8.44	2.00	0.00	1.00	0.00
15.86	8.51	2.00	0.00	1.00	0.00	15.88	8.27	2.00	0.00	1.00	0.00
15.90	8.16	2.00	0.00	1.00	0.00	15.92	8.43	2.00	0.00	1.00	0.00
15.94	8.76	2.00	0.00	1.00	0.00	15.96	9.29	2.00	0.00	1.00	0.00
15.98	9.76	2.00	0.00	1.00	0.00	16.00	10.38	2.00	0.00	1.00	0.00
16.02	11.65	2.00	0.00	1.00	0.00	16.04	12.58	2.00	0.00	1.00	0.00
16.06	13.17	2.00	0.00	1.00	0.00	16.08	13.27	2.00	0.00	1.00	0.00
16.10	13.22	2.00	0.00	1.00	0.00	16.12	12.89	2.00	0.00	1.00	0.00
16.14	12.31	2.00	0.00	1.00	0.00	16.16	11.62	2.00	0.00	1.00	0.00
16.18	11.05	2.00	0.00	1.00	0.00	16.20	10.73	2.00	0.00	1.00	0.00
16.22	10.88	2.00	0.00	1.00	0.00	16.24	10.93	2.00	0.00	1.00	0.00
16.26	10.92	2.00	0.00	1.00	0.00	16.28	11.08	2.00	0.00	1.00	0.00
16.30	11.37	2.00	0.00	1.00	0.00	16.32	11.41	2.00	0.00	1.00	0.00
16.34	11.51	2.00	0.00	1.00	0.00	16.36	11.39	2.00	0.00	1.00	0.00
16.38	11.38	2.00	0.00	1.00	0.00	16.40	11.54	2.00	0.00	1.00	0.00
16.42	11.87	2.00	0.00	1.00	0.00	16.44	12.01	2.00	0.00	1.00	0.00
16.46	11.85	2.00	0.00	1.00	0.00	16.48	11.70	2.00	0.00	1.00	0.00
16.50	11.33	2.00	0.00	1.00	0.00	16.52	11.46	2.00	0.00	1.00	0.00
16.54	11.39	2.00	0.00	1.00	0.00	16.56	11.52	2.00	0.00	1.00	0.00
16.58	11.88	2.00	0.00	1.00	0.00	16.60	12.03	2.00	0.00	1.00	0.00
16.62	12.58	2.00	0.00	1.00	0.00	16.64	13.36	2.00	0.00	1.00	0.00
16.66	12.43	2.00	0.00	1.00	0.00	16.68	14.07	2.00	0.00	1.00	0.00
16.70	14.11	2.00	0.00	1.00	0.00	16.72	13.94	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)
16.74	13.97	2.00	0.00	1.00	0.00	16.76	13.67	2.00	0.00	1.00	0.00
16.78	13.32	2.00	0.00	1.00	0.00	16.80	13.15	2.00	0.00	1.00	0.00
16.82	12.69	2.00	0.00	1.00	0.00	16.84	12.32	2.00	0.00	1.00	0.00
16.86	11.65	2.00	0.00	1.00	0.00	16.88	11.50	2.00	0.00	1.00	0.00
16.90	11.16	2.00	0.00	1.00	0.00	16.92	11.07	2.00	0.00	1.00	0.00
16.94	11.20	2.00	0.00	1.00	0.00	16.96	11.51	2.00	0.00	1.00	0.00
16.98	12.02	2.00	0.00	1.00	0.00	17.00	12.33	2.00	0.00	1.00	0.00
17.02	11.67	2.00	0.00	1.00	0.00	17.04	10.88	2.00	0.00	1.00	0.00
17.06	10.51	2.00	0.00	1.00	0.00	17.08	10.52	2.00	0.00	1.00	0.00
17.10	11.17	2.00	0.00	1.00	0.00	17.12	12.68	2.00	0.00	1.00	0.00
17.14	14.98	2.00	0.00	1.00	0.00	17.16	18.71	2.00	0.00	1.00	0.00
17.18	22.40	2.00	0.00	1.00	0.00	17.20	25.83	2.00	0.00	1.00	0.00
17.22	27.57	2.00	0.00	1.00	0.00	17.24	25.63	2.00	0.00	1.00	0.00
17.26	20.65	2.00	0.00	1.00	0.00	17.28	15.77	2.00	0.00	1.00	0.00
17.30	12.67	2.00	0.00	1.00	0.00	17.32	11.09	2.00	0.00	1.00	0.00
17.34	9.99	2.00	0.00	1.00	0.00	17.36	9.09	2.00	0.00	1.00	0.00
17.38	8.82	2.00	0.00	1.00	0.00	17.40	8.84	2.00	0.00	1.00	0.00
17.42	9.09	2.00	0.00	1.00	0.00	17.44	9.41	2.00	0.00	1.00	0.00
17.46	10.06	2.00	0.00	1.00	0.00	17.48	10.43	2.00	0.00	1.00	0.00
17.50	10.99	2.00	0.00	1.00	0.00	17.52	11.52	2.00	0.00	1.00	0.00
17.54	11.97	2.00	0.00	1.00	0.00	17.56	12.24	2.00	0.00	1.00	0.00
17.58	12.40	2.00	0.00	1.00	0.00	17.61	12.61	2.00	0.00	1.00	0.00
17.62	12.55	2.00	0.00	1.00	0.00	17.64	12.64	2.00	0.00	1.00	0.00
17.66	10.67	2.00	0.00	1.00	0.00	17.68	12.20	2.00	0.00	1.00	0.00
17.70	11.95	2.00	0.00	1.00	0.00	17.72	11.83	2.00	0.00	1.00	0.00
17.74	11.34	2.00	0.00	1.00	0.00	17.76	10.86	2.00	0.00	1.00	0.00
17.78	10.39	2.00	0.00	1.00	0.00	17.80	9.94	2.00	0.00	1.00	0.00
17.82	9.39	2.00	0.00	1.00	0.00	17.84	8.91	2.00	0.00	1.00	0.00
17.86	8.55	2.00	0.00	1.00	0.00	17.88	8.38	2.00	0.00	1.00	0.00
17.90	8.07	2.00	0.00	1.00	0.00	17.92	7.97	2.00	0.00	1.00	0.00
17.94	7.78	2.00	0.00	1.00	0.00	17.96	7.58	2.00	0.00	1.00	0.00
17.98	7.38	2.00	0.00	1.00	0.00	18.00	7.27	2.00	0.00	1.00	0.00
18.02	7.09	2.00	0.00	1.00	0.00	18.04	6.99	2.00	0.00	1.00	0.00
18.06	7.18	2.00	0.00	1.00	0.00	18.08	7.52	2.00	0.00	1.00	0.00
18.10	8.00	2.00	0.00	1.00	0.00	18.12	8.46	2.00	0.00	1.00	0.00
18.14	9.19	2.00	0.00	1.00	0.00	18.16	10.17	2.00	0.00	1.00	0.00
18.18	10.80	2.00	0.00	1.00	0.00	18.20	11.22	2.00	0.00	1.00	0.00
18.22	11.93	2.00	0.00	1.00	0.00	18.24	12.91	2.00	0.00	1.00	0.00
18.26	13.84	2.00	0.00	1.00	0.00	18.28	14.31	2.00	0.00	1.00	0.00
18.30	14.25	2.00	0.00	1.00	0.00	18.32	14.27	2.00	0.00	1.00	0.00
18.34	14.36	2.00	0.00	1.00	0.00	18.36	14.33	2.00	0.00	1.00	0.00
18.38	14.07	2.00	0.00	1.00	0.00	18.40	14.35	2.00	0.00	1.00	0.00
18.42	14.49	2.00	0.00	1.00	0.00	18.44	14.98	2.00	0.00	1.00	0.00
18.46	14.97	2.00	0.00	1.00	0.00	18.48	15.29	2.00	0.00	1.00	0.00
18.50	15.42	2.00	0.00	1.00	0.00	18.52	15.44	2.00	0.00	1.00	0.00
18.54	15.39	2.00	0.00	1.00	0.00	18.56	15.10	2.00	0.00	1.00	0.00
18.58	15.10	2.00	0.00	1.00	0.00	18.60	15.16	2.00	0.00	1.00	0.00
18.62	15.10	2.00	0.00	1.00	0.00	18.64	15.26	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)
18.66	14.95	2.00	0.00	1.00	0.00	18.68	15.82	2.00	0.00	1.00	0.00
18.70	15.91	2.00	0.00	1.00	0.00	18.72	15.91	2.00	0.00	1.00	0.00
18.74	16.29	2.00	0.00	1.00	0.00	18.76	16.59	2.00	0.00	1.00	0.00
18.78	16.68	2.00	0.00	1.00	0.00	18.80	16.47	2.00	0.00	1.00	0.00
18.82	16.62	2.00	0.00	1.00	0.00	18.84	16.42	2.00	0.00	1.00	0.00
18.86	16.52	2.00	0.00	1.00	0.00	18.88	16.87	2.00	0.00	1.00	0.00
18.90	16.96	2.00	0.00	1.00	0.00	18.92	16.85	2.00	0.00	1.00	0.00
18.94	16.98	2.00	0.00	1.00	0.00	18.96	17.03	2.00	0.00	1.00	0.00
18.98	16.70	2.00	0.00	1.00	0.00	19.00	16.34	2.00	0.00	1.00	0.00
19.02	16.60	2.00	0.00	1.00	0.00	19.04	17.05	2.00	0.00	1.00	0.00
19.06	16.71	2.00	0.00	1.00	0.00	19.08	15.72	2.00	0.00	1.00	0.00
19.10	15.45	2.00	0.00	1.00	0.00	19.12	15.12	2.00	0.00	1.00	0.00
19.14	14.34	2.00	0.00	1.00	0.00	19.16	13.66	2.00	0.00	1.00	0.00
19.18	12.91	2.00	0.00	1.00	0.00	19.20	12.33	2.00	0.00	1.00	0.00
19.22	12.76	2.00	0.00	1.00	0.00	19.24	13.25	2.00	0.00	1.00	0.00
19.26	13.65	2.00	0.00	1.00	0.00	19.28	13.54	2.00	0.00	1.00	0.00
19.30	14.03	2.00	0.00	1.00	0.00	19.32	14.34	2.00	0.00	1.00	0.00
19.34	14.59	2.00	0.00	1.00	0.00	19.36	14.62	2.00	0.00	1.00	0.00
19.38	14.78	2.00	0.00	1.00	0.00	19.40	15.30	2.00	0.00	1.00	0.00
19.42	15.26	2.00	0.00	1.00	0.00	19.44	15.15	2.00	0.00	1.00	0.00
19.46	14.80	2.00	0.00	1.00	0.00	19.48	14.75	2.00	0.00	1.00	0.00
19.50	14.39	2.00	0.00	1.00	0.00	19.52	14.41	2.00	0.00	1.00	0.00
19.54	14.27	2.00	0.00	1.00	0.00	19.56	13.83	2.00	0.00	1.00	0.00
19.58	13.78	2.00	0.00	1.00	0.00	19.60	13.64	2.00	0.00	1.00	0.00
19.62	14.02	2.00	0.00	1.00	0.00	19.64	14.37	2.00	0.00	1.00	0.00
19.66	14.43	2.00	0.00	1.00	0.00	19.68	14.74	2.00	0.00	1.00	0.00
19.70	14.62	2.00	0.00	1.00	0.00	19.72	14.96	2.00	0.00	1.00	0.00
19.74	15.03	2.00	0.00	1.00	0.00	19.76	15.87	2.00	0.00	1.00	0.00
19.78	15.94	2.00	0.00	1.00	0.00	19.80	15.96	2.00	0.00	1.00	0.00
19.82	15.78	2.00	0.00	1.00	0.00	19.84	15.40	2.00	0.00	1.00	0.00
19.86	15.17	2.00	0.00	1.00	0.00	19.88	14.53	2.00	0.00	1.00	0.00
19.90	13.83	2.00	0.00	1.00	0.00	19.92	13.47	2.00	0.00	1.00	0.00
19.94	13.17	2.00	0.00	1.00	0.00	19.96	12.61	2.00	0.00	1.00	0.00
19.98	12.67	2.00	0.00	1.00	0.00	20.00	12.30	2.00	0.00	1.00	0.00
20.02	12.30	2.00	0.00	1.00	0.00	20.04	12.69	2.00	0.00	1.00	0.00
20.06	13.63	2.00	0.00	1.00	0.00	20.08	13.55	2.00	0.00	1.00	0.00
20.10	14.11	2.00	0.00	1.00	0.00	20.12	14.32	2.00	0.00	1.00	0.00
20.14	13.85	2.00	0.00	1.00	0.00	20.16	13.45	2.00	0.00	1.00	0.00
20.18	12.75	2.00	0.00	1.00	0.00	20.20	12.56	2.00	0.00	1.00	0.00
20.22	12.47	2.00	0.00	1.00	0.00	20.24	12.32	2.00	0.00	1.00	0.00
20.26	11.96	2.00	0.00	1.00	0.00	20.28	12.24	2.00	0.00	1.00	0.00
20.30	11.94	2.00	0.00	1.00	0.00	20.32	11.85	2.00	0.00	1.00	0.00
20.34	11.63	2.00	0.00	1.00	0.00	20.36	11.71	2.00	0.00	1.00	0.00
20.38	11.86	2.00	0.00	1.00	0.00	20.40	11.86	2.00	0.00	1.00	0.00
20.42	11.78	2.00	0.00	1.00	0.00	20.44	11.86	2.00	0.00	1.00	0.00
20.46	11.71	2.00	0.00	1.00	0.00	20.48	11.91	2.00	0.00	1.00	0.00
20.50	12.17	2.00	0.00	1.00	0.00	20.52	12.32	2.00	0.00	1.00	0.00
20.54	12.35	2.00	0.00	1.00	0.00	20.56	12.31	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)
20.58	12.24	2.00	0.00	1.00	0.00	20.60	12.21	2.00	0.00	1.00	0.00
20.62	12.22	2.00	0.00	1.00	0.00						

Total estimated settlement: 0.12

Abbreviations

$Q_{tn,cs}$: Equivalent clean 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	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
0.20	1.99	33.74	1.94	65.48	2.30	N/A	N/A
0.22	2.22	37.74	1.74	65.77	2.23	N/A	N/A
0.24	2.63	44.56	1.51	67.49	2.13	N/A	N/A
0.26	3.05	51.82	1.36	70.38	2.04	N/A	N/A
0.28	3.51	59.66	1.27	75.51	1.97	N/A	N/A
0.30	4.02	68.27	1.23	84.11	1.94	N/A	N/A
0.32	4.42	75.11	1.24	93.03	1.95	N/A	N/A
0.34	4.69	79.68	1.26	100.25	1.97	N/A	N/A
0.36	4.75	80.61	1.29	103.86	1.99	N/A	N/A
0.38	4.77	80.94	1.30	105.33	2.00	N/A	N/A
0.40	4.79	81.29	1.31	106.39	2.01	N/A	N/A
0.42	4.84	82.20	1.30	107.13	2.00	N/A	N/A
0.44	4.95	84.06	1.28	108.01	1.99	N/A	N/A
0.46	5.04	85.61	1.26	108.29	1.97	N/A	N/A
0.48	5.10	86.60	1.24	107.51	1.95	N/A	N/A
0.50	5.11	86.66	1.23	106.30	1.94	N/A	N/A
0.52	5.07	86.11	1.22	105.11	1.93	N/A	N/A
0.54	5.01	85.04	1.23	104.46	1.94	N/A	N/A
0.56	4.87	82.65	1.25	103.63	1.96	N/A	N/A
0.58	4.63	78.56	1.30	102.49	2.00	N/A	N/A
0.60	4.32	73.33	1.38	101.05	2.05	N/A	N/A
0.62	3.99	67.58	1.48	99.86	2.11	N/A	N/A
0.64	3.73	63.24	1.57	99.21	2.16	N/A	N/A
0.66	3.55	60.23	1.64	98.69	2.19	N/A	N/A
0.68	3.47	58.71	1.67	98.03	2.20	N/A	N/A
0.70	3.43	58.04	1.67	96.66	2.20	N/A	N/A
0.72	3.42	57.95	1.63	94.62	2.19	N/A	N/A
0.74	3.43	58.01	1.59	92.41	2.17	N/A	N/A
0.76	3.41	57.80	1.54	88.75	2.14	N/A	N/A
0.78	3.38	57.23	1.50	85.63	2.12	N/A	N/A
0.80	3.31	56.01	1.47	82.53	2.11	N/A	N/A
0.82	3.21	54.35	1.50	81.42	2.12	N/A	N/A
0.84	3.07	52.01	1.54	79.90	2.14	N/A	N/A
0.86	2.93	49.64	1.59	78.72	2.17	N/A	N/A
0.88	2.81	47.51	1.63	77.56	2.19	N/A	N/A
0.90	2.71	45.85	1.68	76.99	2.20	N/A	N/A
0.92	2.64	44.66	1.71	76.37	2.22	N/A	N/A
0.94	2.60	43.97	1.72	75.76	2.22	N/A	N/A
0.96	2.58	43.63	1.72	75.14	2.22	N/A	N/A
0.98	2.57	43.40	1.71	74.32	2.22	N/A	N/A
1.00	2.54	42.92	1.71	73.45	2.22	N/A	N/A
1.02	2.51	42.36	1.70	72.22	2.22	N/A	N/A
1.04	2.47	41.61	1.70	70.93	2.22	N/A	N/A
1.06	2.41	40.65	1.72	69.98	2.22	N/A	N/A
1.08	2.31	38.87	1.81	70.36	2.25	N/A	N/A
1.10	2.20	37.00	1.95	72.28	2.30	N/A	N/A
1.12	2.06	34.72	2.19	76.14	2.37	N/A	N/A
1.14	1.93	32.48	2.49	80.89	2.44	N/A	N/A

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

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
1.16	1.82	30.55	2.85	87.17	2.52	N/A	N/A
1.18	1.78	29.93	3.17	94.80	2.57	N/A	N/A
1.20	1.84	30.96	3.28	101.48	2.59	N/A	N/A
1.22	1.97	33.12	3.21	106.25	2.58	N/A	N/A
1.24	2.10	35.32	3.04	107.31	2.55	N/A	N/A
1.26	2.21	37.22	2.85	106.10	2.52	N/A	N/A
1.28	2.28	38.30	2.69	102.88	2.48	N/A	N/A
1.30	2.30	38.70	2.54	98.30	2.45	N/A	N/A
1.32	2.23	37.56	2.49	93.63	2.44	N/A	N/A
1.34	2.05	34.43	2.61	89.74	2.47	N/A	N/A
1.36	1.82	30.62	2.88	88.13	2.52	N/A	N/A
1.38	1.64	27.47	3.25	89.20	2.59	N/A	N/A
1.40	1.54	25.77	3.63	93.66	2.65	N/A	N/A
1.42	1.51	25.19	3.98	100.35	2.70	N/A	N/A
1.44	1.53	25.66	4.18	107.28	2.72	N/A	N/A
1.46	1.67	27.95	3.98	111.20	2.70	N/A	N/A
1.48	1.81	30.37	3.74	113.48	2.66	N/A	N/A
1.50	1.91	32.03	3.58	114.53	2.64	N/A	N/A
1.52	1.90	31.78	3.63	115.36	2.65	N/A	N/A
1.54	1.78	29.82	3.85	114.76	2.68	N/A	N/A
1.56	1.64	27.42	4.18	114.68	2.73	N/A	N/A
1.58	1.51	25.15	4.59	115.35	2.78	N/A	N/A
1.60	1.44	24.06	4.88	117.28	2.81	N/A	N/A
1.62	1.44	23.93	4.90	117.23	2.81	N/A	N/A
1.64	1.43	23.86	4.87	116.23	2.81	N/A	N/A
1.66	1.43	23.76	4.81	114.28	2.80	N/A	N/A
1.68	1.41	23.43	4.84	113.48	2.81	N/A	N/A
1.70	1.42	23.66	4.76	112.76	2.80	N/A	N/A
1.72	1.45	24.16	4.61	111.44	2.78	N/A	N/A
1.74	1.54	25.58	4.23	108.10	2.73	N/A	N/A
1.76	1.61	26.90	3.89	104.68	2.69	N/A	N/A
1.78	1.77	29.56	3.46	102.19	2.62	N/A	N/A
1.80	1.92	32.19	3.14	101.22	2.57	N/A	N/A
1.82	2.08	34.75	2.84	98.85	2.51	N/A	N/A
1.84	2.11	35.37	2.71	95.87	2.49	N/A	N/A
1.86	2.01	33.55	2.76	92.73	2.50	N/A	N/A
1.88	1.81	30.13	3.01	90.62	2.55	N/A	N/A
1.90	1.59	26.51	3.37	89.34	2.61	N/A	N/A
1.92	1.41	23.35	3.86	90.22	2.68	N/A	N/A
1.94	1.25	20.70	4.56	94.37	2.77	N/A	N/A
1.96	1.14	18.82	5.31	99.86	2.86	N/A	N/A
1.98	1.22	20.10	5.17	103.92	2.84	N/A	N/A
2.00	1.51	25.14	4.17	104.75	2.72	N/A	N/A
2.02	1.94	32.29	3.14	101.41	2.57	N/A	N/A
2.04	2.24	37.54	2.56	96.19	2.46	N/A	N/A
2.06	2.39	40.00	2.26	90.44	2.39	N/A	N/A
2.08	2.40	40.23	2.10	84.29	2.34	N/A	N/A
2.10	2.41	40.31	1.97	79.26	2.31	N/A	N/A

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

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
2.12	2.39	40.07	1.88	75.37	2.28	N/A	N/A
2.14	2.32	38.84	1.91	74.15	2.29	N/A	N/A
2.16	2.19	36.56	2.04	74.51	2.33	N/A	N/A
2.18	2.03	33.80	2.27	76.71	2.39	N/A	N/A
2.20	1.85	30.81	2.64	81.48	2.47	N/A	N/A
2.22	1.65	27.43	3.22	88.23	2.58	N/A	N/A
2.24	1.44	23.76	4.03	95.83	2.71	N/A	N/A
2.26	1.23	20.20	5.05	102.02	2.83	N/A	N/A
2.28	1.04	17.01	6.24	106.14	2.95	N/A	N/A
2.30	0.87	14.04	7.59	106.60	3.07	N/A	N/A
2.32	0.75	12.13	8.57	103.87	3.15	N/A	N/A
2.34	0.72	11.50	8.54	98.19	3.15	N/A	N/A
2.36	0.79	12.75	7.18	91.49	3.04	N/A	N/A
2.38	0.91	14.73	5.66	83.31	2.90	N/A	N/A
2.40	0.99	16.13	4.76	76.79	2.80	N/A	N/A
2.42	1.02	16.68	4.50	75.11	2.77	N/A	N/A
2.44	1.13	18.42	4.14	76.19	2.72	N/A	N/A
2.46	1.25	20.55	3.81	78.24	2.67	N/A	N/A
2.48	1.31	21.47	3.63	77.89	2.65	N/A	N/A
2.50	1.21	19.84	4.00	79.38	2.70	N/A	N/A
2.52	1.07	17.40	4.82	83.84	2.80	N/A	N/A
2.54	1.01	16.38	5.41	88.54	2.87	N/A	N/A
2.56	1.04	16.98	5.21	88.57	2.85	N/A	N/A
2.58	1.14	18.54	4.62	85.63	2.78	N/A	N/A
2.60	1.18	19.34	4.36	84.32	2.75	N/A	N/A
2.62	1.13	18.50	4.75	87.79	2.80	N/A	N/A
2.64	1.01	16.46	5.62	92.49	2.89	N/A	N/A
2.66	0.88	14.23	6.67	94.95	2.99	N/A	N/A
2.68	0.77	12.30	7.62	93.72	3.08	N/A	N/A
2.70	0.73	11.56	7.80	90.17	3.09	N/A	N/A
2.72	0.81	12.91	6.70	86.54	3.00	N/A	N/A
2.74	1.07	17.32	5.01	86.70	2.83	N/A	N/A
2.76	1.31	21.44	4.10	87.97	2.71	N/A	N/A
2.78	1.44	23.68	3.84	90.90	2.68	N/A	N/A
2.80	1.43	23.42	3.90	91.23	2.69	N/A	N/A
2.82	1.46	24.01	3.82	91.74	2.68	N/A	N/A
2.84	1.58	26.05	3.53	92.00	2.63	N/A	N/A
2.86	1.74	28.70	3.21	91.98	2.58	N/A	N/A
2.88	1.82	30.13	3.00	90.33	2.54	N/A	N/A
2.90	1.81	29.95	2.94	87.99	2.53	N/A	N/A
2.92	1.73	28.53	3.02	86.06	2.55	N/A	N/A
2.94	1.64	27.02	3.15	85.06	2.57	N/A	N/A
2.96	1.55	25.42	3.29	83.67	2.59	N/A	N/A
2.98	1.43	23.43	3.50	82.02	2.63	N/A	N/A
3.00	1.30	21.18	3.84	81.41	2.68	N/A	N/A
3.02	1.18	19.12	4.35	83.24	2.75	N/A	N/A
3.04	1.08	17.42	5.01	87.23	2.83	N/A	N/A
3.06	0.98	15.76	5.78	91.08	2.91	N/A	N/A

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

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
3.08	0.87	13.80	6.72	92.78	3.00	N/A	N/A
3.10	0.76	12.03	7.60	91.39	3.07	N/A	N/A
3.12	0.67	10.54	8.31	87.58	3.13	N/A	N/A
3.14	0.62	9.53	8.74	83.23	3.16	N/A	N/A
3.16	0.58	8.92	8.87	79.12	3.17	N/A	N/A
3.18	0.57	8.72	8.67	75.64	3.16	N/A	N/A
3.20	0.58	8.96	7.94	71.16	3.10	N/A	N/A
3.22	0.62	9.52	7.01	66.70	3.02	N/A	N/A
3.24	0.66	10.18	6.21	63.23	2.95	N/A	N/A
3.26	0.70	10.89	5.70	62.02	2.90	N/A	N/A
3.28	0.74	11.57	5.43	62.83	2.87	N/A	N/A
3.30	0.78	12.25	5.33	65.28	2.86	N/A	N/A
3.32	0.81	12.72	5.48	69.76	2.88	0.08	0.93
3.34	0.82	12.99	5.75	74.70	2.91	0.08	0.94
3.36	0.85	13.41	5.93	79.58	2.92	0.08	0.97
3.38	0.92	14.61	5.66	82.72	2.90	0.08	1.05
3.40	1.08	16.95	5.00	84.76	2.82	0.08	1.24
3.42	1.27	19.56	4.31	84.35	2.74	0.08	1.45
3.44	1.41	21.55	3.88	83.53	2.68	0.08	1.62
3.46	1.47	22.18	3.69	81.87	2.66	0.08	1.67
3.48	1.45	21.90	3.70	81.08	2.66	0.08	1.65
3.50	1.39	20.91	3.83	80.15	2.68	0.08	1.57
3.52	1.29	19.36	4.18	80.99	2.73	0.08	1.44
3.54	1.17	17.51	4.70	82.27	2.79	0.08	1.29
3.56	1.02	15.34	5.49	84.27	2.88	0.08	1.11
3.58	0.86	12.89	6.52	84.02	2.98	0.08	0.92
3.60	0.71	10.44	7.78	81.21	3.09	0.08	0.75
3.62	0.60	8.54	8.94	76.36	3.18	0.07	0.61
3.64	0.53	7.45	9.57	71.31	3.22	0.07	0.53
3.66	0.50	6.88	9.84	67.74	3.24	0.07	0.49
3.68	0.49	6.76	9.56	64.68	3.22	0.07	0.48
3.70	0.50	6.84	9.02	61.63	3.18	0.07	0.49
3.72	0.51	6.91	8.71	60.14	3.16	0.07	0.49
3.74	0.52	7.05	8.37	59.02	3.13	0.07	0.50
3.76	0.52	7.05	8.40	59.25	3.14	0.07	0.50
3.78	0.52	7.01	8.37	58.65	3.13	0.07	0.50
3.80	0.51	6.75	8.87	59.82	3.17	0.07	0.48
3.82	0.49	6.41	9.51	60.97	3.22	0.07	0.46
3.84	0.47	6.08	10.10	61.40	3.26	0.07	0.43
3.86	0.44	5.70	10.74	61.20	3.30	0.07	0.41
3.88	0.42	5.33	11.38	60.73	3.34	0.07	0.38
3.90	0.40	5.01	12.00	60.05	3.38	0.07	0.36
3.92	0.39	4.88	12.06	58.89	3.38	0.07	0.35
3.94	0.40	5.01	11.40	57.14	3.34	0.07	0.36
3.96	0.44	5.56	9.88	54.91	3.24	0.07	0.40
3.98	0.50	6.47	8.21	53.13	3.12	0.07	0.46
4.00	0.57	7.58	6.76	51.20	3.00	0.07	0.54
4.02	0.63	8.33	6.02	50.13	2.93	0.07	0.59

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

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
4.04	0.66	8.74	5.77	50.43	2.91	0.07	0.63
4.06	0.69	9.14	5.58	51.04	2.89	0.07	0.66
4.08	0.72	9.55	5.40	51.57	2.87	0.07	0.69
4.10	0.72	9.55	5.54	52.92	2.88	0.08	0.69
4.12	0.68	8.98	6.25	56.15	2.95	0.08	0.64
4.14	0.63	8.34	7.19	59.98	3.04	0.07	0.60
4.16	0.66	8.65	7.23	62.52	3.04	0.07	0.62
4.18	0.79	10.57	6.04	63.82	2.93	0.08	0.76
4.20	0.90	12.12	5.31	64.36	2.86	0.08	0.88
4.22	0.93	12.45	5.37	66.83	2.87	0.08	0.90
4.24	0.83	11.12	6.33	70.43	2.96	0.08	0.79
4.26	0.73	9.55	7.49	71.52	3.06	0.08	0.68
4.28	0.66	8.59	8.01	68.84	3.11	0.07	0.61
4.30	0.62	7.97	8.26	65.83	3.13	0.07	0.57
4.32	0.60	7.72	8.28	63.92	3.13	0.07	0.55
4.34	0.63	8.08	7.92	63.98	3.10	0.07	0.58
4.36	0.73	9.47	6.65	63.00	2.99	0.08	0.68
4.38	0.89	11.68	5.23	61.08	2.85	0.08	0.84
4.40	1.07	13.98	4.25	59.38	2.73	0.08	1.03
4.42	1.17	15.31	4.03	61.72	2.71	0.08	1.13
4.44	1.21	15.91	4.15	66.00	2.72	0.08	1.17
4.46	1.22	16.05	4.46	71.66	2.76	0.08	1.17
4.48	1.22	16.13	4.68	75.50	2.79	0.08	1.17
4.50	1.18	15.53	5.01	77.83	2.83	0.08	1.12
4.52	1.07	14.14	5.73	80.95	2.90	0.08	1.01
4.54	0.96	12.58	6.65	83.67	2.99	0.08	0.90
4.56	0.89	11.60	7.32	84.88	3.05	0.08	0.83
4.58	0.90	11.72	7.09	83.07	3.03	0.08	0.84
4.60	0.95	12.34	6.44	79.40	2.97	0.08	0.88
4.62	0.97	12.65	5.98	75.63	2.93	0.08	0.90
4.64	0.92	11.90	6.12	72.83	2.94	0.08	0.85
4.66	0.83	10.50	6.78	71.17	3.00	0.08	0.75
4.68	0.73	9.13	7.70	70.25	3.08	0.08	0.65
4.70	0.67	8.29	8.32	68.97	3.13	0.07	0.59
4.72	0.66	8.05	8.69	69.93	3.16	0.07	0.57
4.74	0.65	8.01	8.80	70.51	3.17	0.07	0.57
4.76	0.66	8.03	8.79	70.53	3.17	0.07	0.57
4.78	0.66	8.07	8.42	67.98	3.14	0.07	0.58
4.80	0.68	8.26	7.93	65.47	3.10	0.07	0.59
4.82	0.69	8.39	7.64	64.07	3.08	0.08	0.60
4.84	0.67	8.10	7.84	63.53	3.09	0.07	0.58
4.86	0.64	7.65	8.32	63.65	3.13	0.07	0.55
4.88	0.61	7.20	8.77	63.16	3.16	0.07	0.51
4.90	0.60	7.05	8.76	61.71	3.16	0.07	0.50
4.92	0.60	7.07	8.47	59.89	3.14	0.07	0.51
4.94	0.64	7.64	7.56	57.81	3.07	0.07	0.55
4.96	0.74	9.00	6.36	57.27	2.96	0.08	0.64
4.98	0.89	10.86	5.25	56.97	2.85	0.08	0.78

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

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
5.00	1.00	12.23	4.70	57.41	2.79	0.08	0.89
5.02	1.00	12.30	4.82	59.31	2.80	0.08	0.89
5.04	0.91	11.22	5.53	62.09	2.88	0.08	0.81
5.06	0.79	9.56	6.76	64.68	3.00	0.08	0.68
5.08	0.70	8.28	7.67	63.49	3.08	0.07	0.59
5.10	0.66	7.76	7.80	60.50	3.09	0.07	0.55
5.12	0.71	8.36	6.86	57.35	3.01	0.07	0.60
5.14	0.79	9.41	6.07	57.10	2.94	0.08	0.67
5.16	0.88	10.63	5.57	59.23	2.89	0.08	0.76
5.18	0.97	11.78	5.26	61.96	2.85	0.08	0.85
5.20	1.01	12.21	5.20	63.47	2.85	0.08	0.88
5.22	0.94	11.39	5.59	63.71	2.89	0.08	0.82
5.24	0.82	9.81	6.44	63.23	2.97	0.08	0.70
5.26	0.71	8.31	7.57	62.89	3.07	0.08	0.59
5.28	0.66	7.56	8.25	62.36	3.13	0.07	0.54
5.30	0.62	6.99	8.74	61.13	3.16	0.07	0.50
5.32	0.59	6.57	8.90	58.50	3.17	0.07	0.47
5.34	0.56	6.20	9.05	56.10	3.19	0.07	0.44
5.36	0.54	5.92	9.23	54.65	3.20	0.07	0.42
5.38	0.54	5.86	9.27	54.35	3.20	0.07	0.42
5.40	0.57	6.27	8.70	54.53	3.16	0.07	0.45
5.42	0.59	6.55	8.36	54.74	3.13	0.07	0.47
5.44	0.60	6.73	8.18	55.09	3.12	0.07	0.48
5.46	0.60	6.67	8.34	55.67	3.13	0.07	0.48
5.48	0.66	7.48	7.49	56.06	3.06	0.07	0.53
5.50	0.78	9.02	6.20	55.98	2.95	0.08	0.64
5.52	0.89	10.41	5.49	57.15	2.88	0.08	0.75
5.54	0.93	10.81	5.52	59.72	2.88	0.08	0.78
5.56	0.86	10.02	6.22	62.29	2.95	0.08	0.72
5.58	0.75	8.54	7.37	62.94	3.05	0.08	0.61
5.60	0.64	7.06	8.74	61.68	3.16	0.07	0.50
5.62	0.58	6.27	9.47	59.39	3.22	0.07	0.45
5.64	0.57	6.20	9.32	57.83	3.21	0.07	0.44
5.66	0.59	6.41	9.03	57.85	3.18	0.07	0.46
5.68	0.61	6.60	8.98	59.22	3.18	0.07	0.47
5.70	0.62	6.72	8.96	60.25	3.18	0.07	0.48
5.72	0.64	7.01	8.65	60.65	3.16	0.07	0.50
5.74	0.67	7.31	8.33	60.89	3.13	0.07	0.52
5.76	0.70	7.71	7.95	61.32	3.10	0.07	0.55
5.78	0.72	7.93	7.89	62.59	3.10	0.07	0.57
5.80	0.72	8.00	8.08	64.64	3.11	0.08	0.57
5.82	0.72	7.97	8.39	66.81	3.14	0.07	0.57
5.84	0.72	7.96	8.60	68.43	3.15	0.07	0.57
5.86	0.72	7.95	8.75	69.58	3.16	0.08	0.57
5.88	0.73	7.98	8.83	70.44	3.17	0.07	0.57
5.90	0.73	7.94	8.99	71.42	3.18	0.07	0.57
5.92	0.73	7.99	9.02	72.10	3.18	0.07	0.57
5.94	0.73	7.97	9.13	72.82	3.19	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	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
5.96	0.73	7.96	9.24	73.59	3.20	0.07	0.57
5.98	0.74	8.07	9.22	74.44	3.20	0.07	0.58
6.00	0.76	8.32	9.08	75.55	3.19	0.08	0.59
6.02	0.80	8.72	8.80	76.78	3.17	0.08	0.62
6.04	0.83	9.11	8.59	78.26	3.15	0.08	0.65
6.06	0.85	9.33	8.57	79.92	3.15	0.08	0.67
6.08	0.86	9.42	8.66	81.58	3.16	0.08	0.67
6.10	0.86	9.35	8.94	83.61	3.18	0.08	0.67
6.12	0.86	9.40	9.13	85.86	3.19	0.08	0.67
6.14	0.87	9.48	9.33	88.50	3.21	0.08	0.68
6.16	0.88	9.65	9.42	90.90	3.21	0.08	0.69
6.18	0.90	9.85	9.42	92.87	3.21	0.08	0.70
6.20	0.94	10.32	9.10	93.97	3.19	0.08	0.74
6.22	0.98	10.80	8.79	94.89	3.17	0.08	0.77
6.24	1.03	11.30	8.44	95.38	3.14	0.08	0.81
6.26	1.05	11.53	8.32	95.95	3.13	0.08	0.82
6.28	1.07	11.77	8.17	96.14	3.12	0.08	0.84
6.30	1.09	12.02	8.04	96.59	3.11	0.08	0.86
6.32	1.12	12.38	7.90	97.72	3.10	0.08	0.88
6.34	1.16	12.75	7.80	99.52	3.09	0.08	0.91
6.36	1.19	13.08	7.78	101.77	3.09	0.08	0.93
6.38	1.21	13.29	7.83	104.12	3.09	0.08	0.95
6.40	1.22	13.46	7.92	106.64	3.10	0.08	0.96
6.42	1.24	13.67	7.95	108.72	3.10	0.08	0.98
6.44	1.26	13.89	7.94	110.35	3.10	0.08	0.99
6.46	1.29	14.19	7.85	111.37	3.09	0.08	1.01
6.48	1.31	14.40	7.80	112.27	3.09	0.08	1.03
6.50	1.33	14.59	7.76	113.15	3.09	0.08	1.04
6.52	1.34	14.67	7.77	114.00	3.09	0.08	1.05
6.54	1.35	14.72	7.79	114.65	3.09	0.08	1.05
6.56	1.36	14.85	7.74	114.96	3.08	0.08	1.06
6.58	1.37	14.90	7.72	115.02	3.08	0.08	1.06
6.60	1.38	15.03	7.66	115.17	3.08	0.08	1.07
6.62	1.38	15.01	7.66	114.98	3.08	0.08	1.07
6.64	1.39	15.10	7.58	114.36	3.07	0.08	1.08
6.66	1.40	15.14	7.48	113.24	3.06	0.08	1.08
6.68	1.41	15.19	7.41	112.50	3.06	0.08	1.08
6.70	1.42	15.26	7.39	112.81	3.06	0.08	1.09
6.72	1.43	15.38	7.37	113.27	3.05	0.08	1.10
6.74	1.45	15.55	7.32	113.76	3.05	0.08	1.11
6.76	1.46	15.67	7.27	113.82	3.05	0.08	1.12
6.78	1.46	15.66	7.29	114.13	3.05	0.08	1.12
6.80	1.45	15.54	7.33	113.99	3.05	0.08	1.11
6.82	1.45	15.47	7.35	113.70	3.05	0.08	1.11
6.84	1.45	15.44	7.35	113.53	3.05	0.08	1.10
6.86	1.46	15.45	7.38	114.10	3.06	0.08	1.10
6.88	1.46	15.49	7.40	114.57	3.06	0.08	1.11
6.90	1.49	15.75	7.26	114.37	3.05	0.08	1.12

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

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
6.92	1.52	16.11	7.10	114.32	3.03	0.09	1.15
6.94	1.60	17.01	6.75	114.89	3.00	0.09	1.22
6.96	1.65	17.50	6.68	116.86	2.99	0.09	1.25
6.98	1.68	17.85	6.66	118.95	2.99	0.09	1.27
7.00	1.66	17.54	6.92	121.31	3.02	0.09	1.25
7.02	1.64	17.22	7.20	123.99	3.04	0.09	1.23
7.04	1.60	16.77	7.61	127.57	3.07	0.09	1.20
7.06	1.56	16.29	7.99	130.06	3.10	0.09	1.16
7.08	1.53	15.89	8.27	131.42	3.13	0.09	1.14
7.10	1.51	15.66	8.35	130.71	3.13	0.08	1.12
7.12	1.51	15.58	8.31	129.49	3.13	0.08	1.11
7.14	1.51	15.58	8.17	127.31	3.12	0.08	1.11
7.16	1.51	15.55	8.06	125.31	3.11	0.08	1.11
7.18	1.51	15.46	8.01	123.76	3.11	0.08	1.10
7.20	1.51	15.51	7.92	122.91	3.10	0.08	1.11
7.22	1.52	15.60	7.82	122.08	3.09	0.09	1.11
7.24	1.57	16.10	7.50	120.80	3.07	0.08	1.15
7.26	1.60	16.33	7.33	119.70	3.05	0.09	1.17
7.28	1.62	16.58	7.17	118.90	3.04	0.09	1.18
7.30	1.61	16.41	7.24	118.87	3.04	0.09	1.17
7.32	1.59	16.13	7.39	119.18	3.06	0.09	1.15
7.34	1.55	15.73	7.59	119.42	3.07	0.08	1.12
7.36	1.50	15.13	7.94	120.18	3.10	0.08	1.08
7.38	1.44	14.46	8.38	121.15	3.14	0.08	1.03
7.40	1.39	13.78	8.85	121.98	3.17	0.08	0.98
7.42	1.34	13.22	9.20	121.62	3.20	0.08	0.94
7.44	1.30	12.82	9.37	120.11	3.21	0.08	0.92
7.46	1.27	12.45	9.49	118.14	3.22	0.08	0.89
7.48	1.26	12.26	9.37	114.82	3.21	0.08	0.88
7.50	1.26	12.23	9.00	110.05	3.18	0.08	0.87
7.52	1.26	12.27	8.50	104.29	3.14	0.08	0.88
7.54	1.25	12.12	8.22	99.65	3.12	0.08	0.87
7.56	1.24	11.94	8.05	96.11	3.11	0.08	0.85
7.58	1.24	11.91	7.81	93.11	3.09	0.08	0.85
7.60	1.25	12.06	7.61	91.81	3.07	0.08	0.86
7.62	1.26	12.15	7.60	92.39	3.07	0.08	0.87
7.64	1.27	12.22	7.69	94.02	3.08	0.08	0.87
7.66	1.27	12.14	7.86	95.39	3.09	0.08	0.87
7.68	1.28	12.22	7.84	95.75	3.09	0.08	0.87
7.70	1.30	12.40	7.76	96.29	3.09	0.08	0.89
7.72	1.32	12.64	7.64	96.48	3.08	0.08	0.90
7.74	1.34	12.80	7.54	96.45	3.07	0.08	0.91
7.76	1.34	12.84	7.46	95.82	3.06	0.08	0.92
7.78	1.36	12.98	7.29	94.62	3.05	0.08	0.93
7.80	1.37	13.04	7.22	94.05	3.04	0.08	0.93
7.82	1.38	13.10	7.12	93.20	3.03	0.08	0.94
7.84	1.37	12.99	7.04	91.49	3.03	0.08	0.93
7.86	1.37	12.97	6.86	88.92	3.01	0.08	0.93

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

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
7.88	1.35	12.79	6.83	87.31	3.01	0.08	0.91
7.90	1.36	12.80	6.83	87.41	3.01	0.08	0.91
7.92	1.36	12.76	6.96	88.83	3.02	0.08	0.91
7.94	1.37	12.90	6.97	89.87	3.02	0.08	0.92
7.96	1.39	13.05	6.96	90.86	3.02	0.08	0.93
7.98	1.39	13.06	7.06	92.15	3.03	0.08	0.93
8.00	1.37	12.81	7.31	93.66	3.05	0.08	0.92
8.02	1.32	12.32	7.69	94.65	3.08	0.08	0.88
8.04	1.26	11.65	8.10	94.38	3.11	0.08	0.83
8.06	1.20	10.98	8.47	93.01	3.14	0.08	0.78
8.08	1.14	10.36	8.81	91.27	3.17	0.08	0.74
8.10	1.10	9.94	9.00	89.45	3.18	0.08	0.71
8.12	1.09	9.73	8.95	87.14	3.18	0.08	0.70
8.14	1.09	9.72	8.59	83.52	3.15	0.08	0.69
8.16	1.10	9.86	8.02	79.05	3.11	0.08	0.70
8.18	1.12	10.00	7.48	74.75	3.06	0.08	0.71
8.20	1.13	10.13	7.08	71.73	3.03	0.08	0.72
8.22	1.16	10.42	6.67	69.51	2.99	0.08	0.74
8.24	1.22	10.96	6.22	68.17	2.95	0.08	0.78
8.26	1.32	12.01	5.58	66.94	2.89	0.08	0.86
8.28	1.40	12.78	5.26	67.25	2.85	0.08	0.91
8.30	1.40	12.80	5.26	67.40	2.85	0.08	0.91
8.32	1.29	11.68	5.84	68.14	2.91	0.08	0.83
8.34	1.17	10.44	6.47	67.58	2.98	0.08	0.75
8.36	1.08	9.45	7.04	66.51	3.03	0.08	0.68
8.38	1.06	9.27	6.94	64.32	3.02	0.08	0.66
8.40	1.11	9.77	6.33	61.85	2.96	0.08	0.70
8.42	1.20	10.61	5.67	60.15	2.90	0.08	0.76
8.44	1.24	10.99	5.41	59.45	2.87	0.08	0.78
8.46	1.22	10.81	5.50	59.44	2.88	0.08	0.77
8.48	1.21	10.66	5.58	59.49	2.89	0.08	0.76
8.50	1.21	10.70	5.58	59.76	2.89	0.08	0.76
8.52	1.23	10.83	5.56	60.22	2.89	0.08	0.77
8.54	1.22	10.74	5.75	61.79	2.91	0.08	0.77
8.56	1.21	10.55	6.22	65.61	2.95	0.08	0.75
8.58	1.19	10.39	6.66	69.18	2.99	0.08	0.74
8.60	1.18	10.23	7.01	71.71	3.02	0.08	0.73
8.62	1.18	10.23	7.10	72.60	3.03	0.08	0.73
8.64	1.18	10.26	7.16	73.44	3.04	0.08	0.73
8.66	1.19	10.35	7.18	74.28	3.04	0.08	0.74
8.68	1.19	10.24	7.22	73.96	3.04	0.08	0.73
8.70	1.19	10.31	6.99	72.11	3.02	0.08	0.74
8.72	1.20	10.36	6.80	70.45	3.00	0.08	0.74
8.74	1.21	10.47	6.67	69.86	2.99	0.08	0.75
8.76	1.20	10.28	6.84	70.32	3.01	0.08	0.73
8.78	1.18	10.08	6.97	70.25	3.02	0.08	0.72
8.80	1.16	9.89	7.10	70.17	3.03	0.08	0.71
8.82	1.14	9.65	7.33	70.72	3.05	0.08	0.69

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

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
8.84	1.13	9.53	7.43	70.82	3.06	0.08	0.68
8.86	1.14	9.62	7.27	69.93	3.05	0.08	0.69
8.88	1.15	9.76	7.05	68.82	3.03	0.08	0.70
8.90	1.17	9.88	6.94	68.57	3.02	0.08	0.71
8.92	1.17	9.88	7.04	69.56	3.03	0.08	0.71
8.94	1.17	9.84	7.27	71.46	3.05	0.08	0.70
8.96	1.16	9.74	7.62	74.19	3.07	0.08	0.70
8.98	1.15	9.64	7.94	76.54	3.10	0.08	0.69
9.00	1.14	9.56	8.19	78.33	3.12	0.08	0.68
9.02	1.14	9.49	8.31	78.86	3.13	0.08	0.68
9.04	1.12	9.28	8.57	79.46	3.15	0.08	0.66
9.06	1.08	8.89	8.95	79.56	3.18	0.08	0.63
9.08	1.02	8.30	9.50	78.83	3.22	0.08	0.59
9.10	0.96	7.75	9.97	77.22	3.25	0.08	0.55
9.12	0.93	7.39	10.17	75.17	3.26	0.08	0.53
9.14	0.91	7.18	10.23	73.44	3.27	0.08	0.51
9.16	0.90	7.05	10.13	71.36	3.26	0.08	0.50
9.18	0.88	6.90	9.96	68.73	3.25	0.07	0.49
9.20	0.87	6.73	9.74	65.58	3.23	0.07	0.48
9.22	0.84	6.53	9.64	62.89	3.23	0.07	0.47
9.24	0.83	6.35	9.59	60.88	3.22	0.07	0.45
9.26	0.82	6.25	9.54	59.66	3.22	0.07	0.45
9.28	0.83	6.39	9.19	58.74	3.20	0.07	0.46
9.30	0.86	6.59	8.88	58.50	3.17	0.07	0.47
9.32	0.88	6.78	8.64	58.61	3.16	0.07	0.48
9.34	0.90	6.99	8.36	58.41	3.13	0.07	0.50
9.36	0.92	7.19	8.07	57.98	3.11	0.08	0.51
9.38	0.95	7.41	7.68	56.93	3.08	0.08	0.53
9.40	0.97	7.61	7.45	56.71	3.06	0.08	0.54
9.42	0.99	7.82	7.30	57.11	3.05	0.08	0.56
9.44	1.02	8.00	7.29	58.33	3.05	0.08	0.57
9.46	1.03	8.16	7.41	60.47	3.06	0.08	0.58
9.48	1.06	8.42	7.42	62.51	3.06	0.08	0.60
9.50	1.10	8.74	7.53	65.79	3.07	0.08	0.62
9.52	1.14	9.12	7.50	68.39	3.07	0.08	0.65
9.54	1.17	9.35	7.55	70.58	3.07	0.08	0.67
9.56	1.20	9.60	7.53	72.25	3.07	0.08	0.69
9.58	1.21	9.67	7.69	74.32	3.08	0.08	0.69
9.60	1.22	9.78	7.86	76.93	3.09	0.08	0.70
9.62	1.23	9.85	8.05	79.28	3.11	0.08	0.70
9.64	1.25	10.01	8.09	80.92	3.11	0.08	0.71
9.66	1.26	10.12	8.16	82.59	3.12	0.08	0.72
9.68	1.05	8.17	8.15	66.54	3.12	0.08	0.58
9.70	1.05	8.15	8.48	69.09	3.14	0.07	0.58
9.72	1.05	8.11	8.73	70.80	3.16	0.08	0.58
9.74	1.27	10.13	8.71	88.32	3.16	0.08	0.72
9.76	1.27	10.14	8.74	88.65	3.16	0.08	0.72
9.78	1.28	10.17	8.77	89.20	3.17	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	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
9.80	1.28	10.13	8.88	89.95	3.17	0.08	0.72
9.82	1.26	9.98	9.08	90.66	3.19	0.08	0.71
9.84	1.24	9.79	9.29	90.89	3.20	0.08	0.70
9.86	1.22	9.55	9.44	90.22	3.21	0.08	0.68
9.88	1.21	9.46	9.43	89.21	3.21	0.08	0.68
9.90	1.20	9.35	9.42	88.05	3.21	0.08	0.67
9.92	1.18	9.19	9.50	87.31	3.22	0.08	0.66
9.94	1.16	8.93	9.72	86.77	3.23	0.08	0.64
9.96	1.14	8.75	9.87	86.34	3.24	0.08	0.62
9.98	1.13	8.69	9.93	86.29	3.25	0.08	0.62
10.00	1.16	8.88	9.70	86.07	3.23	0.08	0.63
10.02	1.19	9.14	9.37	85.64	3.21	0.08	0.65
10.04	1.22	9.42	8.98	84.58	3.18	0.08	0.67
10.06	1.24	9.59	8.68	83.22	3.16	0.08	0.68
10.08	1.26	9.76	8.37	81.76	3.13	0.08	0.70
10.10	1.28	9.90	8.16	80.75	3.12	0.08	0.71
10.12	1.29	9.98	8.06	80.46	3.11	0.08	0.71
10.14	1.29	9.97	8.19	81.60	3.12	0.08	0.71
10.16	1.28	9.89	8.43	83.39	3.14	0.08	0.71
10.18	1.27	9.79	8.75	85.64	3.16	0.08	0.70
10.20	1.25	9.54	9.17	87.53	3.19	0.08	0.68
10.22	1.22	9.29	9.59	89.11	3.22	0.08	0.66
10.24	1.18	8.94	10.09	90.16	3.26	0.08	0.64
10.26	1.15	8.59	10.54	90.53	3.29	0.08	0.61
10.28	1.10	8.15	11.03	89.94	3.32	0.08	0.58
10.30	1.06	7.77	11.41	88.68	3.34	0.08	0.55
10.32	1.02	7.38	11.79	86.97	3.37	0.08	0.53
10.34	0.99	7.15	11.99	85.74	3.38	0.08	0.51
10.36	1.05	7.63	11.27	85.99	3.34	0.08	0.54
10.38	1.25	9.43	9.20	86.84	3.20	0.08	0.67
10.40	1.66	13.00	6.56	85.33	2.98	0.08	0.93
10.42	2.07	16.55	4.90	81.02	2.81	0.09	1.18
10.44	2.30	18.63	4.15	77.29	2.72	0.09	1.32
10.46	2.21	17.81	4.17	74.22	2.72	0.09	1.26
10.48	1.92	15.18	4.68	70.98	2.79	0.08	1.08
10.50	1.59	12.25	5.42	66.42	2.87	0.08	0.88
10.52	1.34	10.10	6.17	62.35	2.95	0.08	0.72
10.54	1.19	8.77	6.94	60.89	3.02	0.08	0.63
10.56	1.09	7.84	7.71	60.43	3.08	0.08	0.56
10.58	1.01	7.20	8.45	60.81	3.14	0.08	0.51
10.60	0.98	6.91	8.74	60.40	3.16	0.08	0.49
10.62	0.97	6.80	8.90	60.50	3.17	0.08	0.49
10.64	0.95	6.64	9.20	61.10	3.20	0.08	0.47
10.66	0.91	6.29	9.93	62.40	3.25	0.07	0.45
10.68	0.87	5.88	10.94	64.28	3.31	0.07	0.42
10.70	0.84	5.65	11.49	64.91	3.35	0.07	0.40
10.72	0.83	5.57	11.63	64.77	3.36	0.07	0.40
10.74	0.83	5.56	11.46	63.75	3.35	0.07	0.40

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

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
10.76	0.83	5.50	11.46	62.98	3.35	0.07	0.39
10.78	0.82	5.46	11.35	61.94	3.34	0.07	0.39
10.80	0.84	5.55	11.01	61.07	3.32	0.07	0.40
10.82	0.91	6.15	9.87	60.72	3.24	0.07	0.44
10.84	1.06	7.48	8.09	60.55	3.11	0.08	0.53
10.86	1.35	9.87	6.02	59.42	2.93	0.08	0.70
10.88	1.69	12.88	4.60	59.31	2.78	0.08	0.92
10.90	2.07	16.16	3.71	60.01	2.66	0.08	1.14
10.92	2.38	18.95	3.25	61.62	2.59	0.08	0.62
10.94	2.51	20.02	3.24	64.82	2.59	0.09	0.62
10.96	2.37	18.71	3.72	69.52	2.66	0.09	1.32
10.98	2.00	15.32	4.90	75.04	2.81	0.08	1.09
11.00	1.56	11.52	6.67	76.88	2.99	0.08	0.82
11.02	1.24	8.83	8.36	73.81	3.13	0.08	0.63
11.04	1.14	7.99	8.58	68.50	3.15	0.08	0.57
11.06	1.26	8.98	7.24	64.96	3.04	0.08	0.64
11.08	1.42	10.33	6.16	63.61	2.95	0.08	0.74
11.10	1.47	10.69	6.09	65.07	2.94	0.08	0.76
11.12	1.37	9.85	6.80	67.02	3.01	0.08	0.70
11.14	1.21	8.54	8.01	68.43	3.11	0.08	0.61
11.16	1.12	7.73	8.62	66.61	3.15	0.08	0.55
11.18	1.08	7.42	8.59	63.80	3.15	0.08	0.53
11.20	1.11	7.61	8.02	61.06	3.11	0.08	0.54
11.22	1.13	7.79	7.92	61.62	3.10	0.08	0.56
11.24	1.14	7.89	8.08	63.69	3.11	0.08	0.56
11.26	1.14	7.84	8.48	66.50	3.14	0.08	0.56
11.28	1.13	7.78	8.88	69.10	3.17	0.08	0.56
11.30	1.13	7.73	9.18	70.97	3.19	0.08	0.55
11.32	1.14	7.84	9.26	72.60	3.20	0.08	0.56
11.34	1.16	7.98	9.30	74.28	3.20	0.08	0.57
11.36	1.19	8.20	9.25	75.85	3.20	0.08	0.59
11.38	1.22	8.40	9.14	76.85	3.19	0.08	0.60
11.40	1.24	8.58	9.03	77.49	3.18	0.08	0.61
11.42	1.26	8.78	8.88	77.93	3.17	0.08	0.63
11.44	1.27	8.83	8.91	78.62	3.18	0.08	0.63
11.46	1.28	8.87	8.87	78.72	3.17	0.08	0.63
11.48	1.26	8.73	9.03	78.88	3.18	0.08	0.62
11.50	1.25	8.64	9.10	78.65	3.19	0.08	0.62
11.52	1.25	8.57	9.17	78.54	3.19	0.08	0.61
11.54	1.25	8.55	9.14	78.21	3.19	0.08	0.61
11.56	1.25	8.58	9.12	78.21	3.19	0.08	0.61
11.58	1.25	8.55	9.16	78.34	3.19	0.08	0.61
11.60	1.25	8.51	9.25	78.67	3.20	0.08	0.61
11.62	1.25	8.50	9.29	78.93	3.20	0.08	0.61
11.64	1.25	8.47	9.39	79.49	3.21	0.08	0.60
11.66	1.25	8.46	9.47	80.12	3.22	0.08	0.60
11.68	1.26	8.52	9.46	80.54	3.21	0.08	0.61
11.70	1.28	8.72	9.25	80.62	3.20	0.08	0.62

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

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
11.72	1.31	8.95	9.00	80.54	3.18	0.08	0.64
11.74	1.32	9.03	8.89	80.27	3.17	0.08	0.64
11.76	1.31	8.88	9.03	80.11	3.18	0.08	0.63
11.78	1.29	8.74	9.09	79.48	3.19	0.08	0.62
11.80	1.29	8.68	9.11	79.03	3.19	0.08	0.62
11.82	1.27	8.55	9.21	78.82	3.20	0.08	0.61
11.84	1.25	8.33	9.46	78.76	3.21	0.08	0.60
11.86	1.20	7.93	9.92	78.59	3.25	0.08	0.57
11.88	1.17	7.68	10.16	78.04	3.26	0.08	0.55
11.90	1.14	7.47	10.33	77.16	3.27	0.08	0.53
11.92	1.14	7.48	10.22	76.40	3.27	0.08	0.53
11.94	1.16	7.61	9.88	75.18	3.24	0.08	0.54
11.96	1.17	7.68	9.63	73.99	3.23	0.08	0.55
11.98	1.17	7.65	9.44	72.26	3.21	0.08	0.55
12.00	1.17	7.64	9.18	70.15	3.19	0.08	0.55
12.02	1.18	7.73	8.73	67.55	3.16	0.08	0.55
12.04	1.21	7.95	8.17	64.94	3.12	0.08	0.57
12.06	1.23	8.07	7.77	62.71	3.09	0.08	0.58
12.08	1.26	8.31	7.30	60.68	3.05	0.08	0.59
12.10	1.35	8.98	6.55	58.81	2.98	0.08	0.64
12.12	1.58	10.75	5.29	56.87	2.86	0.08	0.77
12.14	1.90	13.41	4.13	55.43	2.72	0.08	0.95
12.16	2.12	15.25	3.64	55.59	2.65	0.08	1.07
12.18	2.13	15.31	3.79	58.04	2.67	0.08	1.08
12.20	2.04	14.51	4.13	59.96	2.72	0.08	1.02
12.22	2.02	14.30	4.29	61.40	2.74	0.08	1.01
12.24	2.12	15.13	4.00	60.56	2.70	0.08	1.07
12.26	2.30	16.56	3.72	61.66	2.66	0.08	1.16
12.28	2.49	18.08	3.56	64.39	2.64	0.09	1.27
12.30	2.67	19.55	3.53	69.11	2.63	0.09	1.37
12.32	2.81	20.59	3.57	73.56	2.64	0.09	1.44
12.34	2.72	19.80	3.84	76.05	2.68	0.09	1.39
12.36	2.36	16.81	4.53	76.17	2.77	0.09	1.19
12.38	1.82	12.44	5.93	73.70	2.92	0.08	0.89
12.40	1.48	9.79	6.84	67.01	3.01	0.08	0.70
12.42	1.36	8.83	6.93	61.22	3.02	0.08	0.63
12.44	1.39	9.08	6.37	57.82	2.97	0.08	0.65
12.46	1.45	9.54	6.16	58.72	2.95	0.08	0.68
12.48	1.50	9.87	5.87	57.88	2.92	0.08	0.70
12.50	1.46	9.55	6.04	57.67	2.93	0.08	0.68
12.52	1.28	8.21	7.12	58.40	3.03	0.08	0.59
12.54	1.12	6.92	8.75	60.50	3.16	0.08	0.49
12.56	1.05	6.38	9.48	60.49	3.22	0.08	0.46
12.58	1.07	6.51	9.07	58.99	3.19	0.08	0.46
12.60	1.09	6.69	8.48	56.79	3.14	0.08	0.48
12.62	1.10	6.75	8.29	55.96	3.13	0.08	0.48
12.64	1.09	6.65	8.48	56.37	3.14	0.08	0.47
12.66	1.06	6.43	8.90	57.25	3.17	0.08	0.46

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

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
12.68	1.05	6.30	9.19	57.94	3.20	0.08	0.45
12.70	1.02	6.13	9.57	58.69	3.22	0.08	0.44
12.72	1.00	5.94	10.04	59.63	3.25	0.07	0.42
12.74	0.97	5.70	10.61	60.42	3.29	0.07	0.41
12.76	0.93	5.37	11.27	60.49	3.34	0.07	0.38
12.78	0.90	5.13	11.66	59.87	3.36	0.07	0.37
12.80	0.87	4.92	11.86	58.37	3.37	0.07	0.35
12.82	0.87	4.94	11.47	56.70	3.35	0.07	0.35
12.84	0.89	5.05	10.78	54.50	3.30	0.07	0.36
12.86	0.89	5.04	10.31	51.97	3.27	0.07	0.36
12.88	0.88	4.97	10.05	49.99	3.26	0.07	0.36
12.90	0.86	4.81	10.13	48.69	3.26	0.07	0.34
12.92	0.85	4.68	10.22	47.86	3.27	0.07	0.33
12.94	0.83	4.55	10.35	47.05	3.28	0.07	0.32
12.96	0.81	4.42	10.52	46.53	3.29	0.07	0.32
12.98	0.82	4.45	10.51	46.70	3.29	0.07	0.32
13.00	0.82	4.48	10.49	47.00	3.29	0.07	0.32
13.02	0.83	4.53	10.49	47.54	3.29	0.07	0.32
13.04	0.83	4.51	10.55	47.57	3.29	0.07	0.32
13.06	0.84	4.59	10.35	47.51	3.28	0.07	0.33
13.08	0.86	4.78	9.82	46.91	3.24	0.07	0.34
13.10	0.89	4.97	9.34	46.40	3.21	0.07	0.36
13.12	0.90	5.06	9.24	46.76	3.20	0.07	0.36
13.14	0.89	4.95	9.88	48.93	3.24	0.07	0.35
13.16	0.87	4.78	10.85	51.83	3.31	0.07	0.34
13.18	0.85	4.61	11.85	54.68	3.37	0.07	0.33
13.20	0.83	4.51	12.64	56.96	3.42	0.07	0.32
13.22	0.82	4.41	13.35	58.84	3.46	0.07	0.31
13.24	0.81	4.29	13.94	59.74	3.49	0.07	0.31
13.26	0.80	4.22	14.07	59.36	3.50	0.07	0.30
13.28	0.80	4.22	13.68	57.78	3.48	0.07	0.30
13.30	0.81	4.29	12.94	55.53	3.44	0.07	0.31
13.32	0.81	4.31	12.31	53.07	3.40	0.07	0.31
13.34	0.82	4.32	11.75	50.77	3.37	0.07	0.31
13.36	0.81	4.24	11.54	48.98	3.35	0.07	0.30
13.38	0.80	4.19	11.48	48.10	3.35	0.07	0.30
13.40	0.79	4.11	11.71	48.17	3.36	0.07	0.29
13.42	0.79	4.08	11.91	48.55	3.38	0.07	0.29
13.44	0.78	4.04	12.03	48.63	3.38	0.07	0.29
13.46	0.78	3.98	12.11	48.25	3.39	0.07	0.28
13.48	0.77	3.96	12.06	47.70	3.38	0.07	0.28
13.50	0.77	3.95	11.92	47.11	3.38	0.07	0.28
13.52	0.78	4.03	11.59	46.71	3.36	0.07	0.29
13.54	0.79	4.07	11.34	46.20	3.34	0.07	0.29
13.56	0.79	4.08	11.25	45.94	3.33	0.07	0.29
13.58	0.78	3.99	11.53	46.00	3.35	0.07	0.28
13.60	0.76	3.86	12.00	46.34	3.38	0.07	0.28
13.62	0.74	3.69	12.55	46.37	3.41	0.07	0.26

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

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
13.64	0.72	3.52	13.01	45.86	3.44	0.07	0.25
13.66	0.69	3.33	13.35	44.43	3.46	0.07	0.24
13.68	0.70	3.36	13.05	43.86	3.44	0.07	0.24
13.70	0.72	3.50	12.42	43.41	3.41	0.07	0.25
13.72	0.75	3.70	11.72	43.33	3.36	0.07	0.26
13.74	0.75	3.75	11.33	42.52	3.34	0.07	0.27
13.76	0.76	3.78	11.10	41.93	3.32	0.07	0.27
13.78	0.77	3.88	10.78	41.78	3.30	0.07	0.28
13.80	0.80	4.03	10.37	41.74	3.28	0.07	0.29
13.82	0.84	4.32	9.67	41.81	3.23	0.07	0.31
13.84	0.89	4.72	8.90	41.97	3.17	0.07	0.34
13.86	0.96	5.17	8.18	42.23	3.12	0.07	0.37
13.88	1.01	5.56	7.70	42.77	3.08	0.07	0.40
13.90	1.05	5.82	7.56	44.00	3.07	0.07	0.42
13.92	1.07	5.96	7.62	45.45	3.08	0.08	0.43
13.94	1.09	6.07	7.66	46.46	3.08	0.08	0.43
13.96	1.11	6.22	7.48	46.54	3.06	0.08	0.44
13.98	1.14	6.43	7.22	46.42	3.04	0.08	0.46
14.00	1.16	6.60	7.04	46.46	3.03	0.08	0.47
14.02	1.18	6.71	6.98	46.85	3.02	0.08	0.48
14.04	1.19	6.80	7.04	47.85	3.03	0.08	0.49
14.06	1.23	7.03	7.02	49.30	3.02	0.08	0.50
14.08	1.37	8.01	6.41	51.28	2.97	0.08	0.57
14.10	1.63	9.85	5.47	53.93	2.88	0.08	0.70
14.12	2.12	13.56	4.15	56.28	2.72	0.08	0.95
14.14	2.78	18.62	3.18	59.26	2.58	0.08	0.61
14.16	3.49	24.19	2.55	61.73	2.46	0.09	0.64
14.18	3.93	27.67	2.32	64.06	2.40	0.09	0.66
14.20	3.90	27.31	2.36	64.59	2.41	0.09	0.66
14.22	3.34	22.89	2.76	63.21	2.50	0.09	0.64
14.24	2.61	17.15	3.60	61.69	2.64	0.08	1.19
14.26	1.94	11.94	5.10	60.94	2.84	0.08	0.85
14.28	1.55	9.16	6.62	60.66	2.99	0.08	0.65
14.30	1.32	7.57	7.95	60.19	3.10	0.08	0.54
14.32	1.24	6.97	8.50	59.30	3.15	0.08	0.50
14.34	1.19	6.61	8.91	58.89	3.18	0.08	0.47
14.36	1.14	6.28	9.20	57.84	3.20	0.08	0.45
14.38	1.12	6.12	9.25	56.62	3.20	0.08	0.44
14.40	1.12	6.09	9.07	55.18	3.19	0.08	0.43
14.42	1.13	6.15	8.86	54.50	3.17	0.08	0.44
14.44	1.14	6.20	8.84	54.84	3.17	0.08	0.44
14.46	1.15	6.27	8.92	55.94	3.18	0.08	0.45
14.48	1.16	6.36	8.95	56.93	3.18	0.08	0.45
14.50	1.19	6.53	8.78	57.33	3.17	0.08	0.47
14.52	1.22	6.79	8.47	57.49	3.14	0.08	0.48
14.54	1.26	7.06	8.14	57.45	3.12	0.08	0.50
14.56	1.29	7.26	7.89	57.32	3.10	0.08	0.52
14.58	1.27	7.09	8.17	57.88	3.12	0.08	0.51

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

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
14.60	1.22	6.74	8.74	58.93	3.16	0.08	0.48
14.62	1.17	6.36	9.33	59.38	3.21	0.08	0.45
14.64	1.14	6.17	9.60	59.29	3.23	0.08	0.44
14.66	1.14	6.17	9.76	60.24	3.24	0.08	0.44
14.68	1.14	6.15	10.01	61.51	3.25	0.08	0.44
14.70	1.14	6.15	10.18	62.61	3.26	0.08	0.44
14.72	1.13	6.07	10.28	62.42	3.27	0.08	0.43
14.74	1.10	5.86	10.71	62.77	3.30	0.08	0.42
14.76	1.07	5.60	11.35	63.56	3.34	0.07	0.40
14.78	1.04	5.38	11.95	64.23	3.38	0.07	0.38
14.80	1.05	5.45	11.81	64.39	3.37	0.07	0.39
14.82	1.09	5.76	11.13	64.08	3.33	0.08	0.41
14.84	1.17	6.29	10.12	63.62	3.26	0.08	0.45
14.86	1.28	7.03	8.99	63.19	3.18	0.08	0.50
14.88	1.41	7.92	7.93	62.78	3.10	0.08	0.57
14.90	1.51	8.59	7.41	63.60	3.06	0.08	0.61
14.92	1.57	8.97	7.27	65.25	3.05	0.08	0.64
14.94	1.61	9.25	7.25	67.07	3.04	0.08	0.66
14.96	1.67	9.61	7.13	68.55	3.03	0.08	0.69
14.98	1.72	9.93	7.09	70.40	3.03	0.08	0.71
15.00	1.73	10.00	7.28	72.77	3.05	0.08	0.71
15.02	1.71	9.82	7.61	74.73	3.07	0.08	0.70
15.04	1.66	9.49	7.97	75.65	3.10	0.08	0.68
15.06	1.61	9.15	8.30	75.89	3.13	0.08	0.65
15.08	1.58	8.94	8.48	75.78	3.14	0.08	0.64
15.10	1.57	8.84	8.64	76.38	3.16	0.08	0.63
15.12	1.56	8.75	8.87	77.62	3.17	0.08	0.63
15.14	1.52	8.52	9.37	79.85	3.21	0.08	0.61
15.16	1.49	8.26	9.87	81.60	3.24	0.08	0.59
15.18	1.45	7.99	10.30	82.34	3.27	0.08	0.57
15.20	1.43	7.82	10.53	82.30	3.29	0.08	0.56
15.22	1.40	7.64	10.69	81.63	3.30	0.08	0.55
15.24	1.38	7.47	10.85	81.06	3.31	0.08	0.53
15.26	1.37	7.39	10.85	80.16	3.31	0.08	0.53
15.28	1.36	7.33	10.81	79.26	3.31	0.08	0.52
15.30	1.36	7.30	10.76	78.56	3.30	0.08	0.52
15.32	1.34	7.19	10.86	78.06	3.31	0.08	0.51
15.34	1.33	7.12	10.90	77.68	3.31	0.08	0.51
15.36	1.34	7.15	10.79	77.18	3.30	0.08	0.51
15.38	1.35	7.19	10.69	76.89	3.30	0.08	0.51
15.40	1.35	7.19	10.76	77.31	3.30	0.08	0.51
15.42	1.34	7.11	10.96	77.93	3.32	0.08	0.51
15.44	1.33	7.08	11.05	78.22	3.32	0.08	0.51
15.46	1.34	7.12	10.93	77.87	3.31	0.08	0.51
15.48	1.35	7.18	10.84	77.77	3.31	0.08	0.51
15.50	1.36	7.22	10.79	77.94	3.31	0.08	0.52
15.52	1.36	7.24	10.81	78.25	3.31	0.08	0.52
15.54	1.38	7.34	10.63	77.94	3.29	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	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
15.56	1.40	7.45	10.37	77.22	3.28	0.08	0.53
15.58	1.42	7.61	10.07	76.58	3.26	0.08	0.54
15.60	1.46	7.83	9.77	76.53	3.24	0.08	0.56
15.62	1.50	8.11	9.46	76.74	3.21	0.08	0.58
15.64	1.55	8.38	9.18	76.93	3.19	0.08	0.60
15.66	1.58	8.56	9.01	77.18	3.18	0.08	0.61
15.68	1.57	8.53	9.16	78.09	3.19	0.08	0.61
15.70	1.51	8.11	9.87	79.99	3.24	0.08	0.58
15.72	1.41	7.44	10.99	81.76	3.32	0.08	0.53
15.74	1.31	6.80	12.15	82.67	3.39	0.08	0.49
15.76	1.25	6.38	12.98	82.74	3.44	0.08	0.46
15.78	1.21	6.09	13.49	82.18	3.47	0.08	0.44
15.80	1.18	5.92	13.71	81.24	3.48	0.08	0.42
15.82	1.17	5.80	13.66	79.22	3.48	0.08	0.41
15.84	1.16	5.78	13.25	76.59	3.45	0.08	0.41
15.86	1.15	5.68	12.92	73.44	3.43	0.08	0.41
15.88	1.14	5.60	12.62	70.72	3.42	0.08	0.40
15.90	1.14	5.58	12.31	68.72	3.40	0.07	0.40
15.92	1.16	5.72	11.85	67.76	3.37	0.08	0.41
15.94	1.21	6.03	11.28	68.02	3.34	0.08	0.43
15.96	1.27	6.40	10.81	69.17	3.31	0.08	0.46
15.98	1.34	6.85	10.35	70.86	3.28	0.08	0.49
16.00	1.44	7.50	9.70	72.68	3.23	0.08	0.54
16.02	1.56	8.27	8.98	74.21	3.18	0.08	0.59
16.04	1.68	9.01	8.34	75.11	3.13	0.08	0.64
16.06	1.75	9.44	8.06	76.02	3.11	0.08	0.67
16.08	1.78	9.60	8.07	77.45	3.11	0.08	0.69
16.10	1.77	9.53	8.32	79.35	3.13	0.08	0.68
16.12	1.73	9.27	8.81	81.67	3.17	0.08	0.66
16.14	1.66	8.83	9.51	83.98	3.22	0.08	0.63
16.16	1.58	8.32	10.33	86.01	3.27	0.08	0.59
16.18	1.52	7.89	11.10	87.61	3.32	0.08	0.56
16.20	1.49	7.69	11.44	88.01	3.35	0.08	0.55
16.22	1.48	7.66	11.38	87.18	3.34	0.08	0.55
16.24	1.49	7.71	11.04	85.14	3.32	0.08	0.55
16.26	1.50	7.76	10.66	82.72	3.30	0.08	0.55
16.28	1.52	7.88	10.18	80.19	3.26	0.08	0.56
16.30	1.55	8.01	9.76	78.17	3.24	0.08	0.57
16.32	1.56	8.12	9.46	76.85	3.22	0.08	0.58
16.34	1.57	8.12	9.50	77.13	3.22	0.08	0.58
16.36	1.57	8.11	9.64	78.18	3.23	0.08	0.58
16.38	1.57	8.12	9.80	79.63	3.24	0.08	0.58
16.40	1.59	8.25	9.72	80.20	3.23	0.08	0.59
16.42	1.62	8.42	9.56	80.50	3.22	0.08	0.60
16.44	1.64	8.50	9.45	80.28	3.21	0.08	0.61
16.46	1.63	8.45	9.48	80.12	3.22	0.08	0.60
16.48	1.60	8.26	9.58	79.10	3.22	0.08	0.59
16.50	1.59	8.15	9.56	77.94	3.22	0.08	0.58

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

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
16.52	1.57	8.07	9.55	77.11	3.22	0.08	0.58
16.54	1.58	8.12	9.45	76.80	3.21	0.08	0.58
16.56	1.60	8.24	9.32	76.77	3.21	0.08	0.59
16.58	1.63	8.41	9.12	76.69	3.19	0.08	0.60
16.60	1.68	8.70	8.77	76.26	3.16	0.08	0.62
16.62	1.75	9.10	8.30	75.51	3.13	0.08	0.65
16.64	1.77	9.23	8.00	73.84	3.11	0.08	0.66
16.66	1.84	9.65	7.67	74.01	3.08	0.08	0.69
16.68	1.88	9.86	7.63	75.21	3.08	0.08	0.70
16.70	1.94	10.26	7.58	77.75	3.07	0.08	0.73
16.72	1.94	10.22	7.74	79.14	3.09	0.08	0.73
16.74	1.92	10.10	7.96	80.45	3.10	0.08	0.72
16.76	1.89	9.93	8.23	81.76	3.12	0.08	0.71
16.78	1.86	9.70	8.50	82.47	3.14	0.08	0.69
16.80	1.82	9.43	8.76	82.57	3.16	0.08	0.67
16.82	1.78	9.15	8.93	81.72	3.18	0.08	0.65
16.84	1.71	8.74	9.22	80.62	3.20	0.08	0.62
16.86	1.66	8.42	9.38	78.97	3.21	0.08	0.60
16.88	1.61	8.11	9.50	77.03	3.22	0.08	0.58
16.90	1.59	7.96	9.40	74.81	3.21	0.08	0.57
16.92	1.58	7.88	9.24	72.78	3.20	0.08	0.56
16.94	1.59	7.97	8.87	70.71	3.17	0.08	0.57
16.96	1.64	8.23	8.36	68.85	3.13	0.08	0.59
16.98	1.69	8.54	7.84	66.90	3.09	0.08	0.61
17.00	1.70	8.58	7.61	65.31	3.07	0.08	0.61
17.02	1.65	8.27	7.71	63.73	3.08	0.08	0.59
17.04	1.57	7.78	8.02	62.41	3.11	0.08	0.56
17.06	1.52	7.47	8.19	61.19	3.12	0.08	0.53
17.08	1.54	7.55	7.98	60.28	3.10	0.08	0.54
17.10	1.63	8.13	7.34	59.69	3.05	0.08	0.58
17.12	1.83	9.32	6.46	60.17	2.97	0.08	0.67
17.14	2.15	11.23	5.52	62.02	2.88	0.08	0.80
17.16	2.55	13.71	4.64	63.61	2.78	0.09	0.98
17.18	3.00	16.69	3.95	65.89	2.69	0.09	1.17
17.20	3.36	19.15	3.55	67.97	2.64	0.09	1.33
17.22	3.50	19.97	3.54	70.61	2.63	0.09	1.38
17.24	3.27	18.32	3.99	73.05	2.70	0.09	1.28
17.26	2.77	14.89	5.15	76.68	2.84	0.09	1.06
17.28	2.21	11.51	6.77	77.93	3.00	0.08	0.82
17.30	1.79	9.00	8.31	74.77	3.13	0.08	0.64
17.32	1.54	7.48	9.26	69.22	3.20	0.08	0.53
17.34	1.39	6.53	10.04	65.55	3.25	0.08	0.47
17.36	1.29	5.93	10.77	63.91	3.30	0.08	0.42
17.38	1.24	5.63	11.02	62.08	3.32	0.08	0.40
17.40	1.24	5.64	10.53	59.43	3.29	0.08	0.40
17.42	1.27	5.81	9.84	57.11	3.24	0.08	0.41
17.44	1.33	6.13	9.08	55.73	3.19	0.08	0.44
17.46	1.39	6.49	8.70	56.49	3.16	0.08	0.46

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

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
17.48	1.46	6.91	8.50	58.76	3.14	0.08	0.49
17.50	1.53	7.30	8.51	62.17	3.15	0.08	0.52
17.52	1.60	7.71	8.50	65.54	3.14	0.08	0.55
17.54	1.65	8.04	8.57	68.90	3.15	0.08	0.57
17.56	1.69	8.27	8.67	71.73	3.16	0.08	0.59
17.58	1.72	8.43	8.76	73.92	3.16	0.08	0.60
17.61	1.74	8.51	8.91	75.81	3.18	0.08	0.61
17.62	1.75	8.57	9.04	77.52	3.19	0.08	0.61
17.64	1.67	8.07	9.64	77.81	3.23	0.08	0.58
17.66	1.65	7.98	9.96	79.50	3.25	0.08	0.57
17.68	1.62	7.80	10.39	81.02	3.28	0.08	0.56
17.70	1.68	8.10	10.31	83.51	3.27	0.08	0.58
17.72	1.64	7.86	10.66	83.83	3.30	0.08	0.56
17.74	1.59	7.57	11.03	83.52	3.32	0.08	0.54
17.76	1.53	7.18	11.55	82.97	3.35	0.08	0.51
17.78	1.46	6.81	12.05	82.04	3.38	0.08	0.49
17.80	1.40	6.42	12.56	80.62	3.41	0.08	0.46
17.82	1.33	6.02	13.07	78.73	3.44	0.08	0.43
17.84	1.27	5.65	13.55	76.57	3.47	0.08	0.40
17.86	1.23	5.38	13.83	74.46	3.49	0.08	0.38
17.88	1.19	5.16	13.94	71.99	3.49	0.08	0.37
17.90	1.17	5.01	13.83	69.29	3.49	0.07	0.36
17.92	1.14	4.85	13.64	66.17	3.48	0.07	0.35
17.94	1.12	4.72	13.34	63.02	3.46	0.07	0.34
17.96	1.09	4.56	13.11	59.83	3.45	0.07	0.33
17.98	1.07	4.43	12.86	56.92	3.43	0.07	0.32
18.00	1.05	4.30	12.67	54.41	3.42	0.07	0.31
18.02	1.03	4.19	12.52	52.51	3.41	0.07	0.30
18.04	1.03	4.17	12.23	51.00	3.39	0.07	0.30
18.06	1.05	4.29	11.73	50.30	3.36	0.07	0.31
18.08	1.10	4.56	10.91	49.71	3.31	0.07	0.33
18.10	1.16	4.89	10.12	49.52	3.26	0.07	0.35
18.12	1.23	5.33	9.24	49.29	3.20	0.08	0.38
18.14	1.33	5.91	8.37	49.45	3.13	0.08	0.42
18.16	1.44	6.53	7.71	50.34	3.08	0.08	0.47
18.18	1.54	7.06	7.37	51.99	3.05	0.08	0.50
18.20	1.62	7.52	7.27	54.68	3.05	0.08	0.54
18.22	1.71	8.07	7.14	57.56	3.03	0.08	0.58
18.24	1.83	8.75	6.88	60.16	3.01	0.08	0.62
18.26	1.94	9.36	6.71	62.81	3.00	0.08	0.67
18.28	2.00	9.70	6.82	66.19	3.01	0.08	0.69
18.30	2.02	9.81	7.17	70.37	3.04	0.08	0.70
18.32	2.03	9.82	7.62	74.84	3.08	0.08	0.70
18.34	2.03	9.84	8.01	78.77	3.11	0.08	0.70
18.36	2.02	9.78	8.46	82.79	3.14	0.08	0.70
18.38	2.02	9.78	8.77	85.79	3.17	0.08	0.70
18.40	2.03	9.82	9.01	88.47	3.18	0.08	0.70
18.42	2.08	10.04	8.94	89.79	3.18	0.08	0.72

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

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
18.44	2.10	10.20	8.94	91.12	3.18	0.08	0.73
18.46	2.14	10.40	8.85	92.00	3.17	0.08	0.74
18.48	2.16	10.51	8.87	93.20	3.17	0.08	0.75
18.50	2.19	10.62	8.88	94.31	3.17	0.08	0.76
18.52	2.19	10.64	9.02	95.99	3.18	0.08	0.76
18.54	2.18	10.55	9.26	97.68	3.20	0.08	0.75
18.56	2.16	10.46	9.47	99.09	3.22	0.08	0.75
18.58	2.16	10.40	9.58	99.59	3.22	0.08	0.74
18.60	2.16	10.39	9.61	99.89	3.23	0.08	0.74
18.62	2.17	10.43	9.61	100.24	3.23	0.08	0.75
18.64	2.16	10.38	9.67	100.41	3.23	0.08	0.74
18.66	2.20	10.57	9.53	100.78	3.22	0.08	0.76
18.68	2.23	10.74	9.40	100.98	3.21	0.08	0.77
18.70	2.27	10.98	9.23	101.32	3.20	0.08	0.78
18.72	2.29	11.09	9.13	101.29	3.19	0.08	0.79
18.74	2.33	11.26	8.96	100.91	3.18	0.09	0.80
18.76	2.36	11.45	8.77	100.36	3.16	0.09	0.82
18.78	2.37	11.49	8.68	99.75	3.16	0.09	0.82
18.80	2.37	11.49	8.67	99.55	3.16	0.09	0.82
18.82	2.36	11.41	8.75	99.83	3.16	0.09	0.82
18.84	2.37	11.42	8.80	100.53	3.17	0.09	0.82
18.86	2.38	11.48	8.84	101.57	3.17	0.09	0.82
18.88	2.41	11.62	8.86	102.88	3.17	0.09	0.83
18.90	2.42	11.70	8.90	104.06	3.17	0.09	0.84
18.92	2.43	11.72	8.93	104.68	3.18	0.09	0.84
18.94	2.44	11.73	8.93	104.72	3.18	0.09	0.84
18.96	2.43	11.69	8.95	104.61	3.18	0.09	0.83
18.98	2.40	11.52	9.09	104.69	3.19	0.09	0.82
19.00	2.39	11.41	9.16	104.48	3.19	0.09	0.81
19.02	2.40	11.49	9.04	103.89	3.18	0.09	0.82
19.04	2.42	11.57	8.93	103.40	3.18	0.09	0.83
19.06	2.38	11.34	9.16	103.94	3.19	0.09	0.81
19.08	2.31	10.93	9.54	104.30	3.22	0.08	0.78
19.10	2.24	10.52	9.92	104.32	3.25	0.08	0.75
19.12	2.18	10.17	10.22	103.84	3.27	0.08	0.73
19.14	2.09	9.71	10.67	103.57	3.30	0.08	0.69
19.16	1.99	9.14	11.29	103.22	3.34	0.08	0.65
19.18	1.90	8.63	11.86	102.34	3.37	0.08	0.62
19.20	1.86	8.40	12.02	101.07	3.38	0.08	0.60
19.22	1.88	8.49	11.70	99.41	3.36	0.08	0.61
19.24	1.94	8.83	11.01	97.17	3.32	0.08	0.63
19.26	1.98	9.03	10.52	94.91	3.29	0.08	0.64
19.28	2.02	9.22	10.00	92.20	3.25	0.08	0.66
19.30	2.05	9.40	9.57	89.91	3.22	0.08	0.67
19.32	2.10	9.66	9.12	88.05	3.19	0.08	0.69
19.34	2.13	9.80	8.98	87.97	3.18	0.08	0.70
19.36	2.15	9.90	8.99	89.05	3.18	0.08	0.71
19.38	2.19	10.08	8.95	90.18	3.18	0.08	0.72

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

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
19.40	2.22	10.23	8.92	91.24	3.18	0.08	0.73
19.42	2.24	10.32	8.92	92.05	3.18	0.08	0.74
19.44	2.22	10.19	9.14	93.16	3.19	0.08	0.73
19.46	2.19	10.06	9.35	94.00	3.21	0.08	0.72
19.48	2.16	9.86	9.58	94.45	3.22	0.08	0.70
19.50	2.14	9.76	9.67	94.36	3.23	0.08	0.70
19.52	2.12	9.63	9.79	94.28	3.24	0.08	0.69
19.54	2.10	9.49	9.98	94.69	3.25	0.08	0.68
19.56	2.07	9.32	10.23	95.40	3.27	0.08	0.67
19.58	2.04	9.16	10.48	96.01	3.28	0.08	0.65
19.60	2.05	9.21	10.45	96.27	3.28	0.08	0.66
19.62	2.08	9.36	10.30	96.37	3.27	0.08	0.67
19.64	2.12	9.57	10.01	95.77	3.25	0.08	0.68
19.66	2.16	9.76	9.73	94.96	3.23	0.08	0.70
19.68	2.17	9.83	9.54	93.77	3.22	0.08	0.70
19.70	2.20	9.95	9.33	92.83	3.21	0.08	0.71
19.72	2.21	10.02	9.20	92.23	3.20	0.08	0.72
19.74	2.27	10.33	8.87	91.63	3.17	0.08	0.74
19.76	2.32	10.56	8.68	91.65	3.16	0.08	0.75
19.78	2.37	10.79	8.50	91.69	3.14	0.08	0.77
19.80	2.36	10.76	8.57	92.24	3.15	0.08	0.77
19.82	2.34	10.61	8.71	92.41	3.16	0.08	0.76
19.84	2.30	10.40	8.85	92.09	3.17	0.08	0.74
19.86	2.24	10.08	9.13	91.98	3.19	0.08	0.72
19.88	2.17	9.68	9.56	92.57	3.22	0.08	0.69
19.90	2.09	9.25	10.09	93.39	3.26	0.08	0.66
19.92	2.03	8.91	10.53	93.85	3.29	0.08	0.64
19.94	1.97	8.60	10.89	93.67	3.31	0.08	0.61
19.96	1.93	8.40	11.02	92.55	3.32	0.08	0.60
19.98	1.89	8.18	11.15	91.21	3.33	0.08	0.58
20.00	1.88	8.10	11.01	89.18	3.32	0.08	0.58
20.02	1.89	8.11	10.77	87.33	3.30	0.08	0.58
20.04	1.95	8.45	10.08	85.16	3.26	0.08	0.60
20.06	2.01	8.76	9.45	82.80	3.21	0.08	0.63
20.08	2.08	9.12	8.85	80.69	3.17	0.08	0.65
20.10	2.12	9.28	8.48	78.69	3.14	0.08	0.66
20.12	2.13	9.35	8.34	77.94	3.13	0.08	0.67
20.14	2.10	9.18	8.52	78.19	3.15	0.08	0.66
20.16	2.03	8.78	9.07	79.67	3.19	0.08	0.63
20.18	1.97	8.46	9.55	80.83	3.22	0.08	0.60
20.20	1.92	8.21	9.97	81.88	3.25	0.08	0.59
20.22	1.90	8.10	10.26	83.15	3.27	0.08	0.58
20.24	1.87	7.95	10.60	84.25	3.29	0.08	0.57
20.26	1.86	7.89	10.68	84.29	3.30	0.08	0.56
20.28	1.85	7.80	10.64	82.97	3.30	0.08	0.56
20.30	1.84	7.77	10.48	81.41	3.28	0.08	0.55
20.32	1.82	7.61	10.58	80.57	3.29	0.08	0.54
20.34	1.81	7.55	10.60	80.08	3.29	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	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
20.36	1.81	7.55	10.52	79.43	3.29	0.08	0.54
20.38	1.82	7.61	10.36	78.77	3.28	0.08	0.54
20.40	1.82	7.62	10.31	78.56	3.27	0.08	0.54
20.42	1.83	7.62	10.31	78.56	3.27	0.08	0.54
20.44	1.82	7.58	10.38	78.66	3.28	0.08	0.54
20.46	1.83	7.61	10.30	78.33	3.27	0.08	0.54
20.48	1.84	7.68	10.18	78.20	3.26	0.08	0.55
20.50	1.87	7.83	9.96	78.02	3.25	0.08	0.56
20.52	1.90	7.94	9.82	78.00	3.24	0.08	0.57
20.54	1.91	7.97	9.77	77.93	3.24	0.08	0.57
20.56	1.90	7.95	9.76	77.63	3.24	0.08	0.57
20.58	1.90	7.91	9.77	77.33	3.24	0.08	0.57
20.60	1.89	7.89	9.75	76.92	3.24	0.08	0.56
20.62	1.89	7.88	9.74	76.70	3.23	0.08	0.56

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

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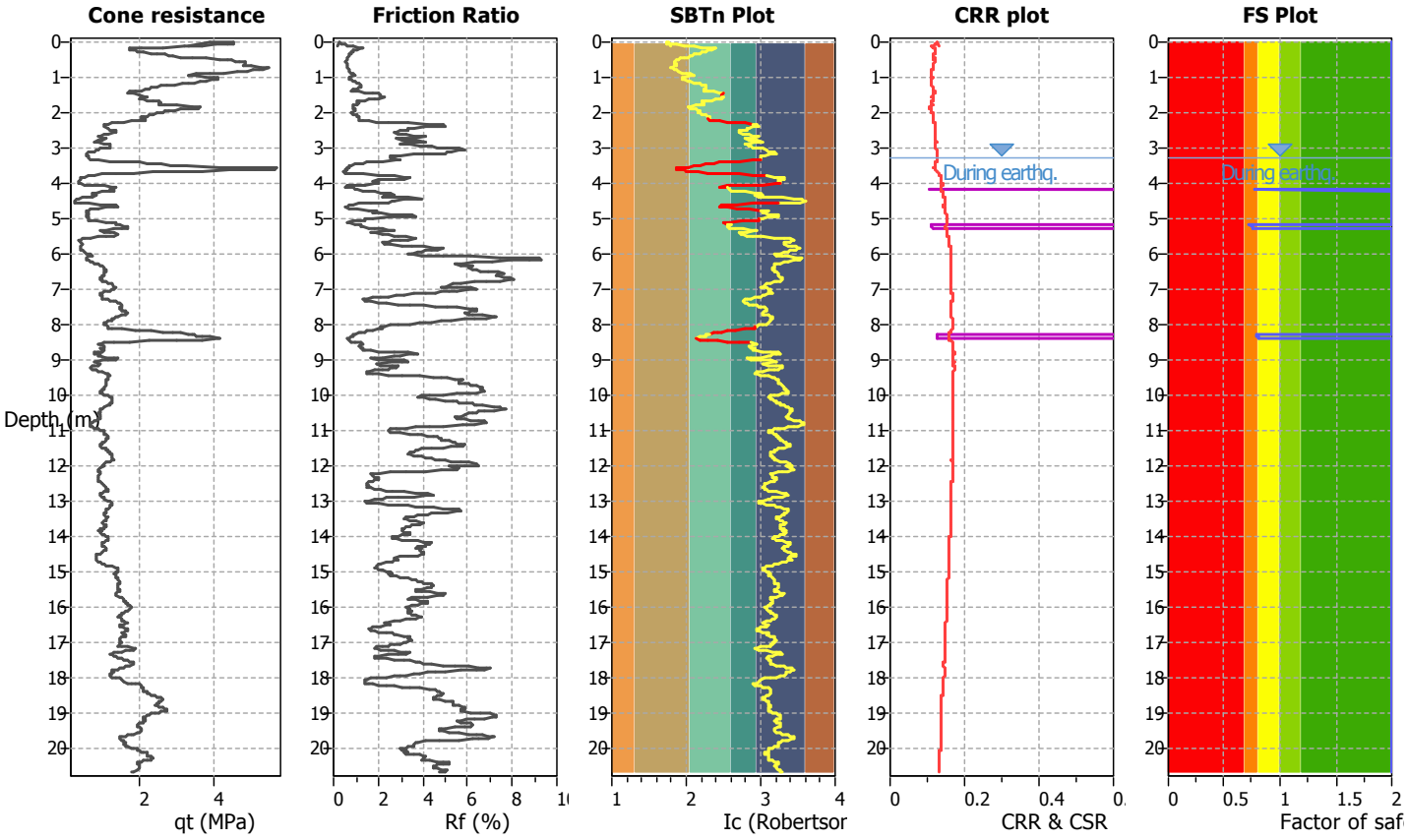
LIQUEFACTION ANALYSIS REPORT

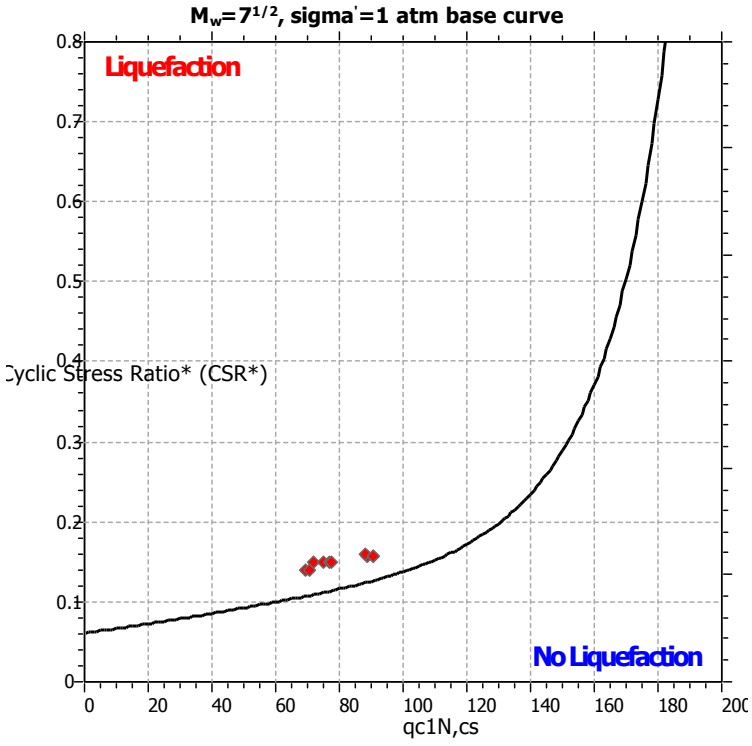
Project title : MARKET INGROSS srl **Location : Via Marco Emilio Lepido s.n.**

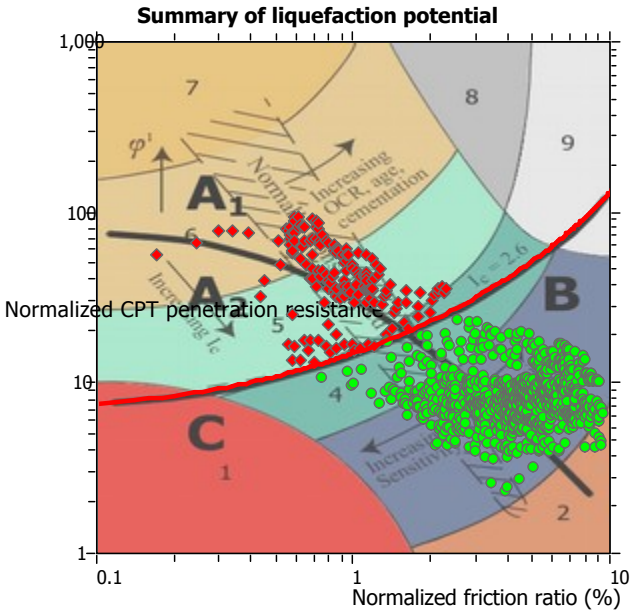
CPT file : CPTU 3

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	3.80 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	3.30 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:	5.00	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.25	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

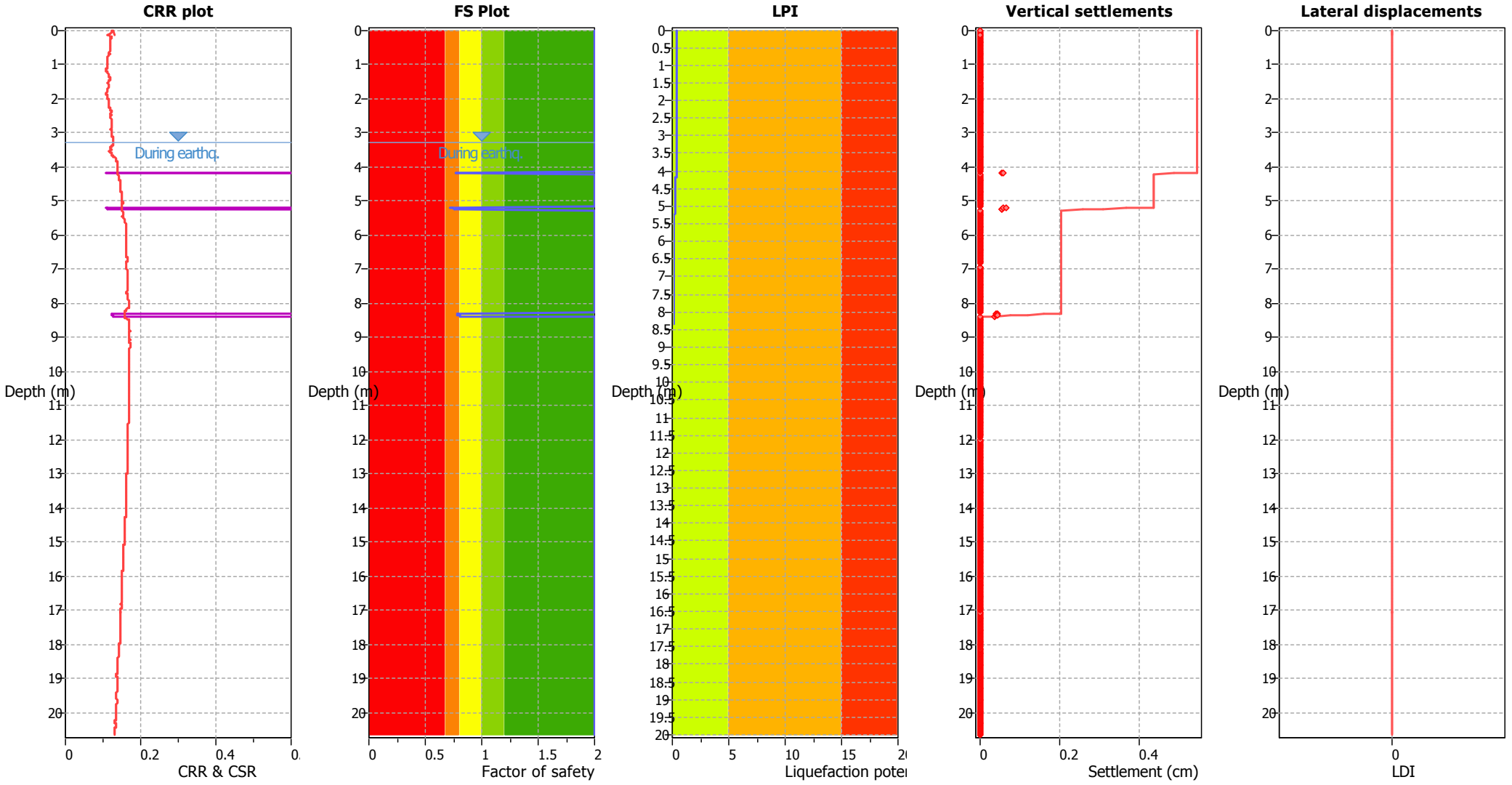






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and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

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	3.30 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	5.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.25	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	3.80 m	Fill height:	N/A	Limit depth:	N/A

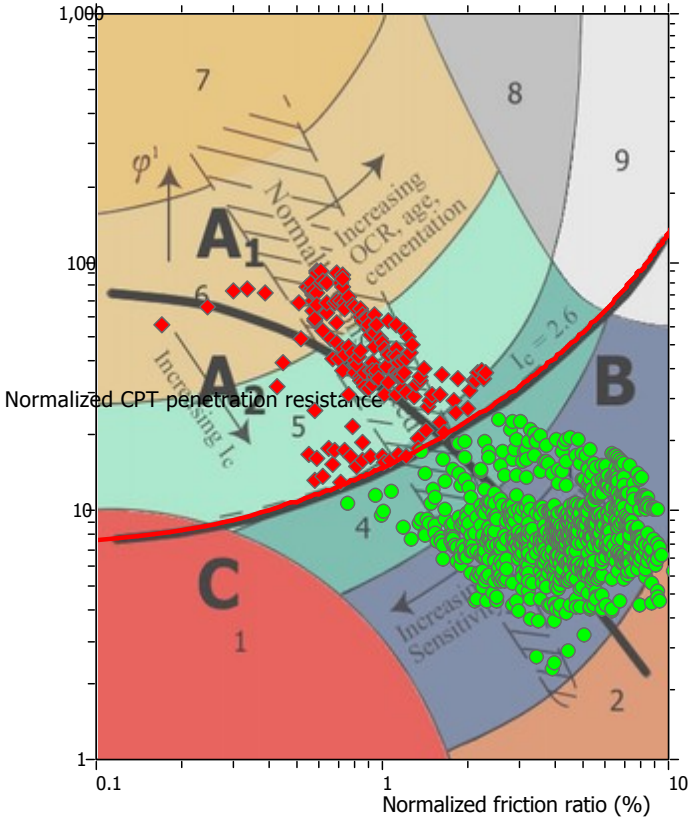
F.S. color scheme

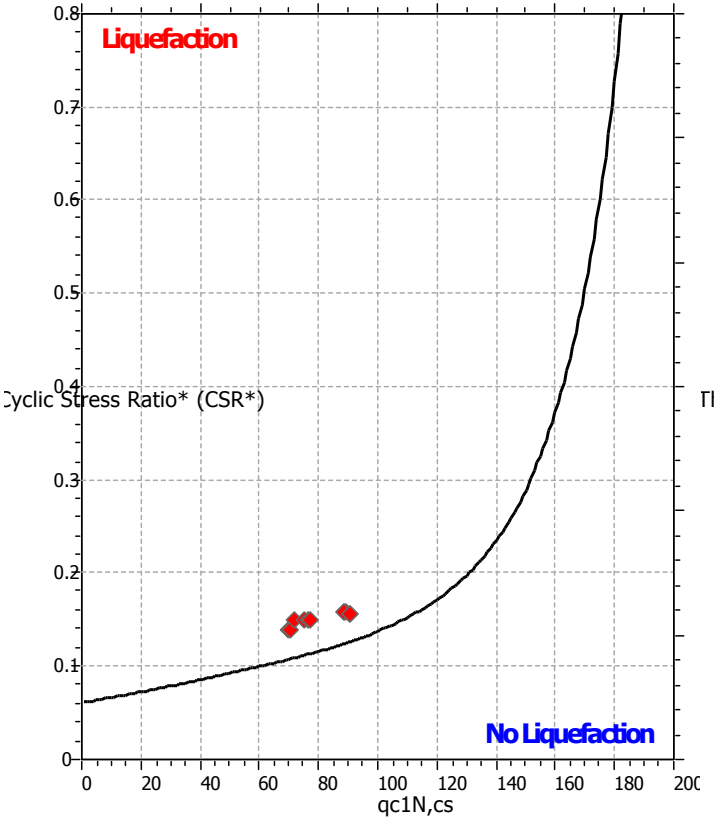
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

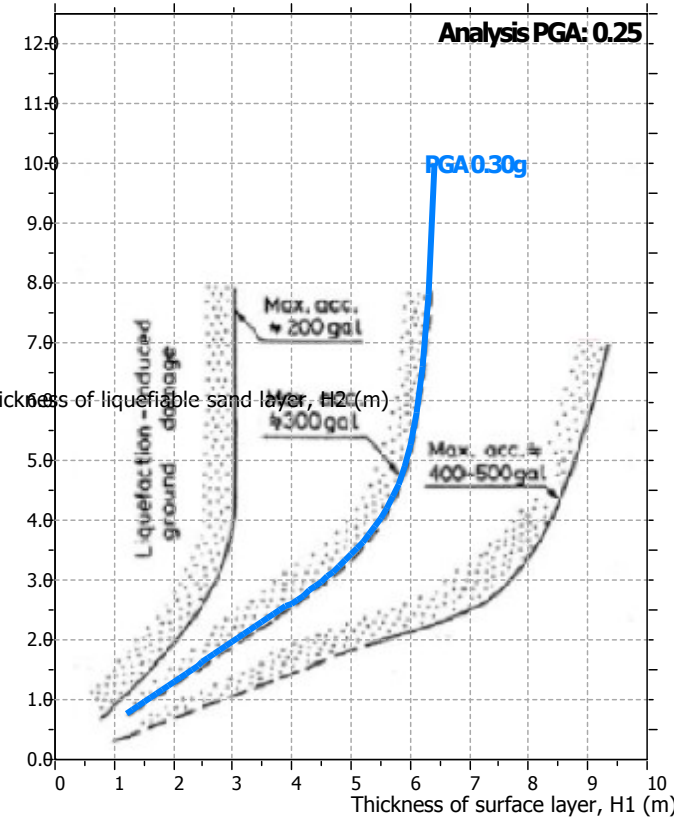
LPI color scheme

- Very high risk
- High risk
- Low risk

Liquefaction analysis summary plots



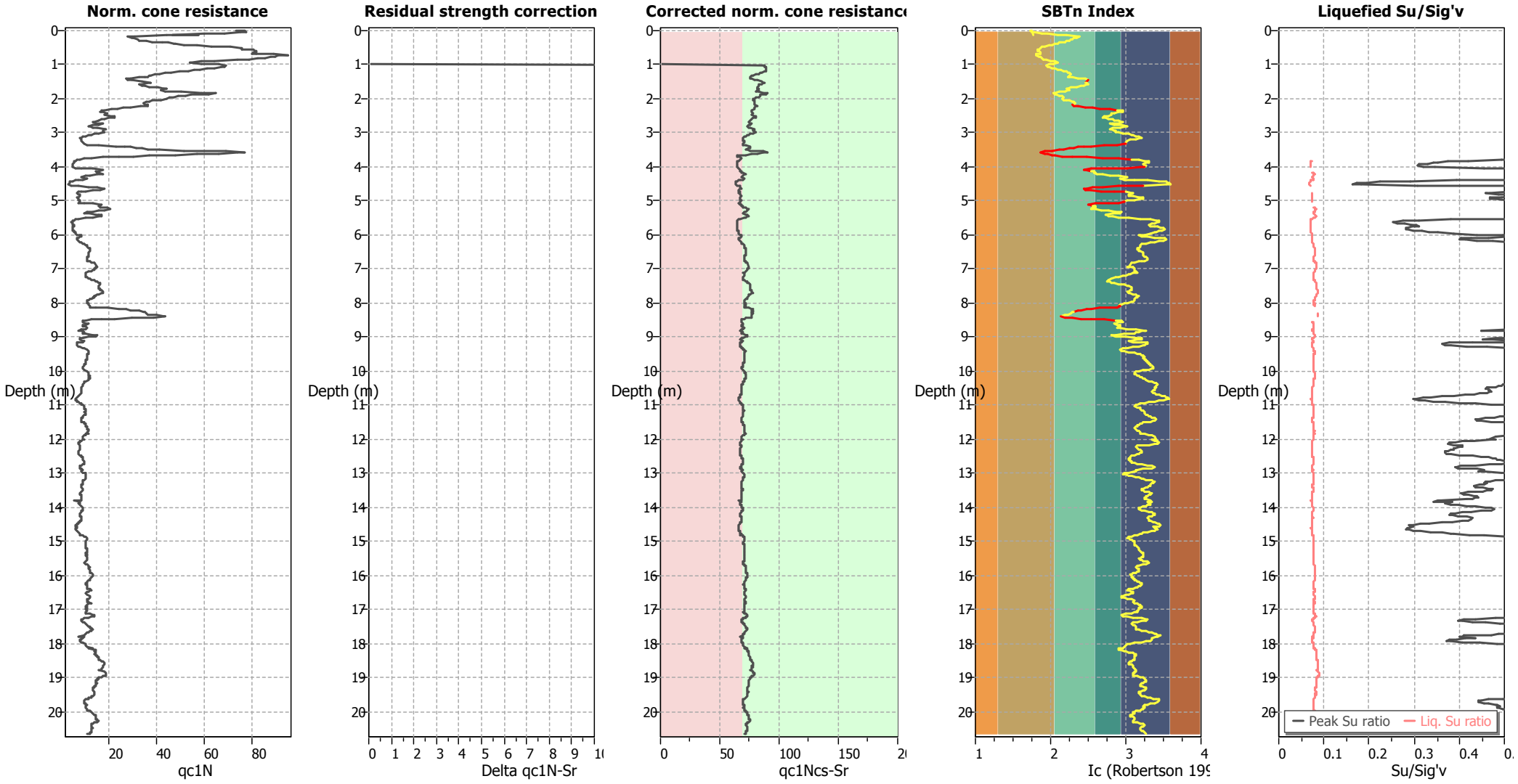




Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	3.30 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	5.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.25	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	3.80 m	Fill height:	N/A	Limit depth:	N/A

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



Input parameters and analysis data

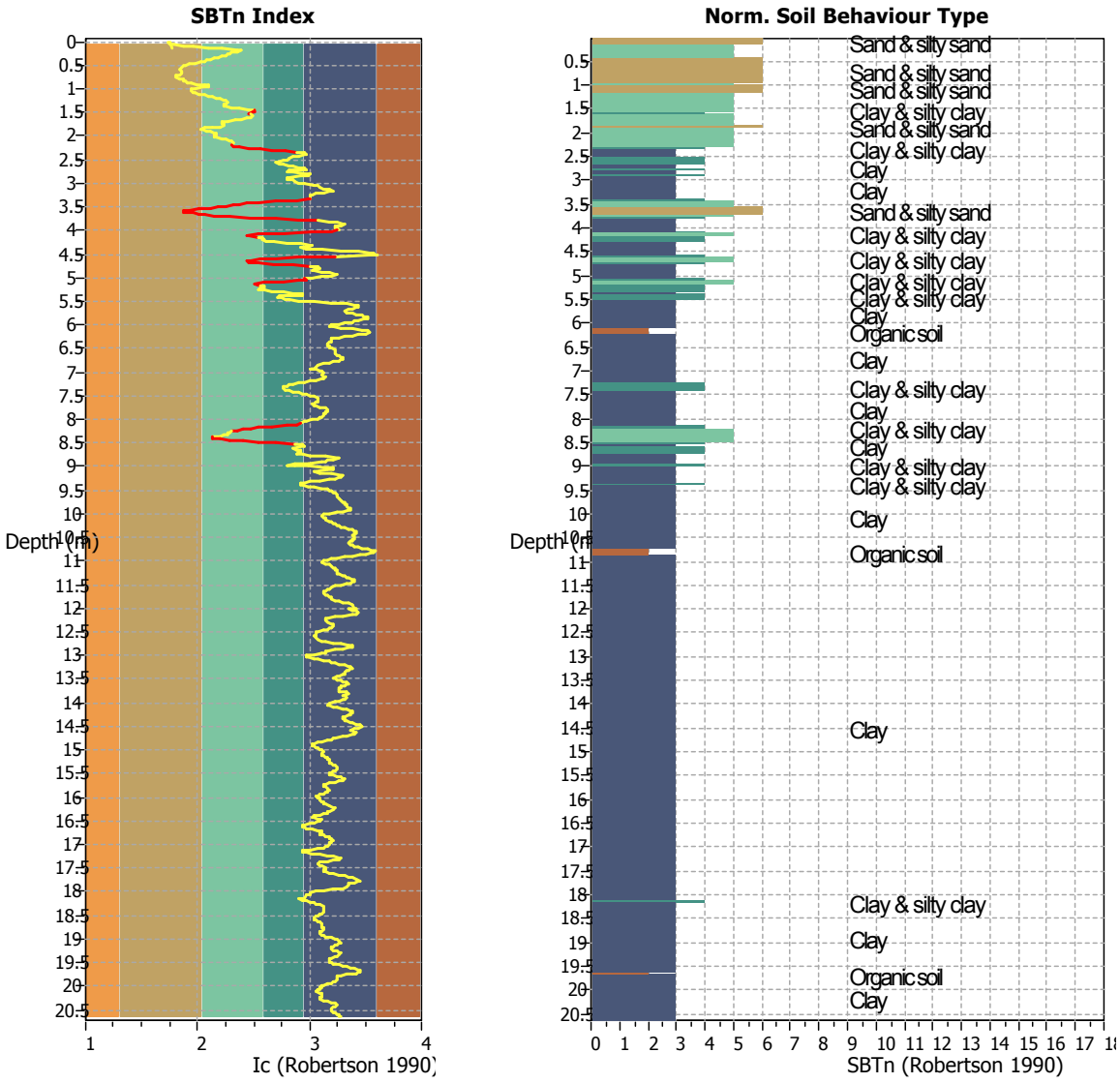
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	3.30 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	5.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.25	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	3.80 m	Fill height:	N/A	Limit depth:	N/A

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties	
I_c minimum check value:	1.50
I_c maximum check value:	3.20
I_c change ratio value:	0.0100
Minimum number of points in layer:	2

General statistics	
Total points in CPT file:	1033
Total points excluded:	83
Exclusion percentage:	8.03%
Number of layers detected:	13

Transition layer No	Number of points	Depth	SBT_n number	SBT_n description
Transition layer 1	2	Start depth: 1.48 (m)	4	Clay & silty clay
		End depth: 1.50 (m)	5	Silty sand & sandy silt
Transition layer 2	3	Start depth: 1.55 (m)	5	Silty sand & sandy silt
		End depth: 1.56 (m)	4	Clay & silty clay
Transition layer 3	8	Start depth: 2.22 (m)	5	Silty sand & sandy silt
		End depth: 2.36 (m)	3	Clay
Transition layer 4	13	Start depth: 3.34 (m)	3	Clay
		End depth: 3.58 (m)	6	Sand & silty sand
Transition layer 5	12	Start depth: 3.60 (m)	6	Sand & silty sand
		End depth: 3.82 (m)	3	Clay
Transition layer 6	5	Start depth: 4.02 (m)	3	Clay
		End depth: 4.10 (m)	5	Silty sand & sandy silt
Transition layer 7	3	Start depth: 4.12 (m)	5	Silty sand & sandy silt
		End depth: 4.16 (m)	4	Clay & silty clay
Transition layer 8	5	Start depth: 4.58 (m)	4	Clay & silty clay
		End depth: 4.66 (m)	5	Silty sand & sandy silt
Transition layer 9	6	Start depth: 4.68 (m)	5	Silty sand & sandy silt
		End depth: 4.78 (m)	3	Clay
Transition layer 10	5	Start depth: 5.04 (m)	3	Clay
		End depth: 5.12 (m)	5	Silty sand & sandy silt
Transition layer 11	3	Start depth: 5.14 (m)	5	Silty sand & sandy silt
		End depth: 5.18 (m)	4	Clay & silty clay
Transition layer 12	10	Start depth: 8.10 (m)	3	Clay
		End depth: 8.28 (m)	5	Silty sand & sandy silt
Transition layer 13	8	Start depth: 8.40 (m)	5	Silty sand & sandy silt
		End depth: 8.54 (m)	3	Clay

Start depth: Depth where the transition layer begins
End depth: Depth where the transition layer ends

:: Liquefaction Potential Index calculation data ::

Depth (m)	FS	F_L	w_z	d_z	LPI	Depth (m)	FS	F_L	w_z	d_z	LPI
0.13	2.00	0.00	9.94	0.11	0.00	0.02	2.00	0.00	9.99	0.11	0.00
0.04	2.00	0.00	9.98	0.02	0.00	0.06	2.00	0.00	9.97	0.02	0.00
0.08	2.00	0.00	9.96	0.02	0.00	0.10	2.00	0.00	9.95	0.02	0.00
0.12	2.00	0.00	9.94	0.02	0.00	0.14	2.00	0.00	9.93	0.02	0.00
0.16	2.00	0.00	9.92	0.02	0.00	0.18	2.00	0.00	9.91	0.02	0.00
0.20	2.00	0.00	9.90	0.02	0.00	0.22	2.00	0.00	9.89	0.02	0.00
0.24	2.00	0.00	9.88	0.02	0.00	0.26	2.00	0.00	9.87	0.02	0.00
0.28	2.00	0.00	9.86	0.02	0.00	0.30	2.00	0.00	9.85	0.02	0.00
0.32	2.00	0.00	9.84	0.02	0.00	0.34	2.00	0.00	9.83	0.02	0.00
0.36	2.00	0.00	9.82	0.02	0.00	0.38	2.00	0.00	9.81	0.02	0.00
0.40	2.00	0.00	9.80	0.02	0.00	0.42	2.00	0.00	9.79	0.02	0.00
0.44	2.00	0.00	9.78	0.02	0.00	0.46	2.00	0.00	9.77	0.02	0.00
0.48	2.00	0.00	9.76	0.02	0.00	0.50	2.00	0.00	9.75	0.02	0.00
0.52	2.00	0.00	9.74	0.02	0.00	0.54	2.00	0.00	9.73	0.02	0.00
0.56	2.00	0.00	9.72	0.02	0.00	0.58	2.00	0.00	9.71	0.02	0.00
0.60	2.00	0.00	9.70	0.02	0.00	0.62	2.00	0.00	9.69	0.02	0.00
0.64	2.00	0.00	9.68	0.02	0.00	0.66	2.00	0.00	9.67	0.02	0.00
0.68	2.00	0.00	9.66	0.02	0.00	0.70	2.00	0.00	9.65	0.02	0.00
0.72	2.00	0.00	9.64	0.02	0.00	0.74	2.00	0.00	9.63	0.02	0.00
0.76	2.00	0.00	9.62	0.02	0.00	0.78	2.00	0.00	9.61	0.02	0.00
0.80	2.00	0.00	9.60	0.02	0.00	0.82	2.00	0.00	9.59	0.02	0.00
0.84	2.00	0.00	9.58	0.02	0.00	0.86	2.00	0.00	9.57	0.02	0.00
0.88	2.00	0.00	9.56	0.02	0.00	0.90	2.00	0.00	9.55	0.02	0.00
0.92	2.00	0.00	9.54	0.02	0.00	0.94	2.00	0.00	9.53	0.02	0.00
0.96	2.00	0.00	9.52	0.02	0.00	0.98	2.00	0.00	9.51	0.02	0.00
1.00	2.00	0.00	9.50	0.02	0.00	1.02	2.00	0.00	9.49	0.02	0.00
1.04	2.00	0.00	9.48	0.02	0.00	1.06	2.00	0.00	9.47	0.02	0.00
1.08	2.00	0.00	9.46	0.02	0.00	1.10	2.00	0.00	9.45	0.02	0.00
1.12	2.00	0.00	9.44	0.02	0.00	1.14	2.00	0.00	9.43	0.02	0.00
1.16	2.00	0.00	9.42	0.02	0.00	1.18	2.00	0.00	9.41	0.02	0.00
1.20	2.00	0.00	9.40	0.02	0.00	1.22	2.00	0.00	9.39	0.02	0.00
1.24	2.00	0.00	9.38	0.02	0.00	1.26	2.00	0.00	9.37	0.02	0.00
1.28	2.00	0.00	9.36	0.02	0.00	1.30	2.00	0.00	9.35	0.02	0.00
1.33	2.00	0.00	9.34	0.03	0.00	1.34	2.00	0.00	9.33	0.01	0.00
1.36	2.00	0.00	9.32	0.02	0.00	1.38	2.00	0.00	9.31	0.02	0.00
1.40	2.00	0.00	9.30	0.02	0.00	1.42	2.00	0.00	9.29	0.02	0.00
1.44	2.00	0.00	9.28	0.02	0.00	1.46	2.00	0.00	9.27	0.02	0.00
1.48	2.00	0.00	9.26	0.02	0.00	1.50	2.00	0.00	9.25	0.02	0.00
1.55	2.00	0.00	9.22	0.05	0.00	1.55	2.00	0.00	9.22	0.00	0.00
1.56	2.00	0.00	9.22	0.01	0.00	1.58	2.00	0.00	9.21	0.02	0.00
1.60	2.00	0.00	9.20	0.02	0.00	1.62	2.00	0.00	9.19	0.02	0.00
1.64	2.00	0.00	9.18	0.02	0.00	1.66	2.00	0.00	9.17	0.02	0.00
1.68	2.00	0.00	9.16	0.02	0.00	1.70	2.00	0.00	9.15	0.02	0.00
1.72	2.00	0.00	9.14	0.02	0.00	1.74	2.00	0.00	9.13	0.02	0.00
1.76	2.00	0.00	9.12	0.02	0.00	1.78	2.00	0.00	9.11	0.02	0.00
1.80	2.00	0.00	9.10	0.02	0.00	1.82	2.00	0.00	9.09	0.02	0.00
1.84	2.00	0.00	9.08	0.02	0.00	1.86	2.00	0.00	9.07	0.02	0.00
1.88	2.00	0.00	9.06	0.02	0.00	1.90	2.00	0.00	9.05	0.02	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (m)	FS	F_L	w_z	d_z	LPI	Depth (m)	FS	F_L	w_z	d_z	LPI
1.92	2.00	0.00	9.04	0.02	0.00	1.94	2.00	0.00	9.03	0.02	0.00
1.96	2.00	0.00	9.02	0.02	0.00	1.98	2.00	0.00	9.01	0.02	0.00
2.00	2.00	0.00	9.00	0.02	0.00	2.02	2.00	0.00	8.99	0.02	0.00
2.04	2.00	0.00	8.98	0.02	0.00	2.06	2.00	0.00	8.97	0.02	0.00
2.08	2.00	0.00	8.96	0.02	0.00	2.11	2.00	0.00	8.95	0.03	0.00
2.12	2.00	0.00	8.94	0.01	0.00	2.14	2.00	0.00	8.93	0.02	0.00
2.16	2.00	0.00	8.92	0.02	0.00	2.18	2.00	0.00	8.91	0.02	0.00
2.20	2.00	0.00	8.90	0.02	0.00	2.22	2.00	0.00	8.89	0.02	0.00
2.24	2.00	0.00	8.88	0.02	0.00	2.26	2.00	0.00	8.87	0.02	0.00
2.28	2.00	0.00	8.86	0.02	0.00	2.30	2.00	0.00	8.85	0.02	0.00
2.32	2.00	0.00	8.84	0.02	0.00	2.34	2.00	0.00	8.83	0.02	0.00
2.36	2.00	0.00	8.82	0.02	0.00	2.38	2.00	0.00	8.81	0.02	0.00
2.40	2.00	0.00	8.80	0.02	0.00	2.42	2.00	0.00	8.79	0.02	0.00
2.44	2.00	0.00	8.78	0.02	0.00	2.46	2.00	0.00	8.77	0.02	0.00
2.48	2.00	0.00	8.76	0.02	0.00	2.50	2.00	0.00	8.75	0.02	0.00
2.52	2.00	0.00	8.74	0.02	0.00	2.54	2.00	0.00	8.73	0.02	0.00
2.56	2.00	0.00	8.72	0.02	0.00	2.58	2.00	0.00	8.71	0.02	0.00
2.60	2.00	0.00	8.70	0.02	0.00	2.62	2.00	0.00	8.69	0.02	0.00
2.64	2.00	0.00	8.68	0.02	0.00	2.66	2.00	0.00	8.67	0.02	0.00
2.68	2.00	0.00	8.66	0.02	0.00	2.70	2.00	0.00	8.65	0.02	0.00
2.72	2.00	0.00	8.64	0.02	0.00	2.74	2.00	0.00	8.63	0.02	0.00
2.76	2.00	0.00	8.62	0.02	0.00	2.78	2.00	0.00	8.61	0.02	0.00
2.80	2.00	0.00	8.60	0.02	0.00	2.82	2.00	0.00	8.59	0.02	0.00
2.84	2.00	0.00	8.58	0.02	0.00	2.86	2.00	0.00	8.57	0.02	0.00
2.88	2.00	0.00	8.56	0.02	0.00	2.90	2.00	0.00	8.55	0.02	0.00
2.92	2.00	0.00	8.54	0.02	0.00	2.94	2.00	0.00	8.53	0.02	0.00
2.96	2.00	0.00	8.52	0.02	0.00	2.98	2.00	0.00	8.51	0.02	0.00
3.00	2.00	0.00	8.50	0.02	0.00	3.02	2.00	0.00	8.49	0.02	0.00
3.04	2.00	0.00	8.48	0.02	0.00	3.06	2.00	0.00	8.47	0.02	0.00
3.08	2.00	0.00	8.46	0.02	0.00	3.10	2.00	0.00	8.45	0.02	0.00
3.12	2.00	0.00	8.44	0.02	0.00	3.14	2.00	0.00	8.43	0.02	0.00
3.16	2.00	0.00	8.42	0.02	0.00	3.18	2.00	0.00	8.41	0.02	0.00
3.20	2.00	0.00	8.40	0.02	0.00	3.22	2.00	0.00	8.39	0.02	0.00
3.24	2.00	0.00	8.38	0.02	0.00	3.26	2.00	0.00	8.37	0.02	0.00
3.28	2.00	0.00	8.36	0.02	0.00	3.30	2.00	0.00	8.35	0.02	0.00
3.32	2.00	0.00	8.34	0.02	0.00	3.34	2.00	0.00	8.33	0.02	0.00
3.36	2.00	0.00	8.32	0.02	0.00	3.38	2.00	0.00	8.31	0.02	0.00
3.40	2.00	0.00	8.30	0.02	0.00	3.42	2.00	0.00	8.29	0.02	0.00
3.44	2.00	0.00	8.28	0.02	0.00	3.46	2.00	0.00	8.27	0.02	0.00
3.48	2.00	0.00	8.26	0.02	0.00	3.50	2.00	0.00	8.25	0.02	0.00
3.52	2.00	0.00	8.24	0.02	0.00	3.54	2.00	0.00	8.23	0.02	0.00
3.56	2.00	0.00	8.22	0.02	0.00	3.58	2.00	0.00	8.21	0.02	0.00
3.60	2.00	0.00	8.20	0.02	0.00	3.62	2.00	0.00	8.19	0.02	0.00
3.64	2.00	0.00	8.18	0.02	0.00	3.66	2.00	0.00	8.17	0.02	0.00
3.68	2.00	0.00	8.16	0.02	0.00	3.70	2.00	0.00	8.15	0.02	0.00
3.72	2.00	0.00	8.14	0.02	0.00	3.74	2.00	0.00	8.13	0.02	0.00
3.76	2.00	0.00	8.12	0.02	0.00	3.78	2.00	0.00	8.11	0.02	0.00
3.80	2.00	0.00	8.10	0.02	0.00	3.82	2.00	0.00	8.09	0.02	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (m)	FS	F_L	w_z	d_z	LPI	Depth (m)	FS	F_L	w_z	d_z	LPI
3.84	2.00	0.00	8.08	0.02	0.00	3.86	2.00	0.00	8.07	0.02	0.00
3.88	2.00	0.00	8.06	0.02	0.00	3.90	2.00	0.00	8.05	0.02	0.00
3.92	2.00	0.00	8.04	0.02	0.00	3.94	2.00	0.00	8.03	0.02	0.00
3.96	2.00	0.00	8.02	0.02	0.00	3.98	2.00	0.00	8.01	0.02	0.00
4.00	2.00	0.00	8.00	0.02	0.00	4.02	2.00	0.00	7.99	0.02	0.00
4.04	2.00	0.00	7.98	0.02	0.00	4.06	2.00	0.00	7.97	0.02	0.00
4.08	2.00	0.00	7.96	0.02	0.00	4.10	2.00	0.00	7.95	0.02	0.00
4.12	2.00	0.00	7.94	0.02	0.00	4.14	2.00	0.00	7.93	0.02	0.00
4.16	2.00	0.00	7.92	0.02	0.00	4.18	0.77	0.23	7.91	0.02	0.04
4.20	0.78	0.22	7.90	0.02	0.03	4.22	2.00	0.00	7.89	0.02	0.00
4.24	2.00	0.00	7.88	0.02	0.00	4.26	2.00	0.00	7.87	0.02	0.00
4.28	2.00	0.00	7.86	0.02	0.00	4.30	2.00	0.00	7.85	0.02	0.00
4.32	2.00	0.00	7.84	0.02	0.00	4.34	2.00	0.00	7.83	0.02	0.00
4.36	2.00	0.00	7.82	0.02	0.00	4.38	2.00	0.00	7.81	0.02	0.00
4.40	2.00	0.00	7.80	0.02	0.00	4.42	2.00	0.00	7.79	0.02	0.00
4.44	2.00	0.00	7.78	0.02	0.00	4.46	2.00	0.00	7.77	0.02	0.00
4.48	2.00	0.00	7.76	0.02	0.00	4.50	2.00	0.00	7.75	0.02	0.00
4.52	2.00	0.00	7.74	0.02	0.00	4.54	2.00	0.00	7.73	0.02	0.00
4.56	2.00	0.00	7.72	0.02	0.00	4.58	2.00	0.00	7.71	0.02	0.00
4.60	2.00	0.00	7.70	0.02	0.00	4.62	2.00	0.00	7.69	0.02	0.00
4.64	2.00	0.00	7.68	0.02	0.00	4.66	2.00	0.00	7.67	0.02	0.00
4.68	2.00	0.00	7.66	0.02	0.00	4.70	2.00	0.00	7.65	0.02	0.00
4.72	2.00	0.00	7.64	0.02	0.00	4.74	2.00	0.00	7.63	0.02	0.00
4.76	2.00	0.00	7.62	0.02	0.00	4.78	2.00	0.00	7.61	0.02	0.00
4.80	2.00	0.00	7.60	0.02	0.00	4.82	2.00	0.00	7.59	0.02	0.00
4.84	2.00	0.00	7.58	0.02	0.00	4.86	2.00	0.00	7.57	0.02	0.00
4.88	2.00	0.00	7.56	0.02	0.00	4.90	2.00	0.00	7.55	0.02	0.00
4.92	2.00	0.00	7.54	0.02	0.00	4.94	2.00	0.00	7.53	0.02	0.00
4.96	2.00	0.00	7.52	0.02	0.00	4.98	2.00	0.00	7.51	0.02	0.00
5.00	2.00	0.00	7.50	0.02	0.00	5.02	2.00	0.00	7.49	0.02	0.00
5.04	2.00	0.00	7.48	0.02	0.00	5.06	2.00	0.00	7.47	0.02	0.00
5.08	2.00	0.00	7.46	0.02	0.00	5.10	2.00	0.00	7.45	0.02	0.00
5.12	2.00	0.00	7.44	0.02	0.00	5.14	2.00	0.00	7.43	0.02	0.00
5.16	2.00	0.00	7.42	0.02	0.00	5.18	2.00	0.00	7.41	0.02	0.00
5.20	0.72	0.28	7.40	0.02	0.04	5.22	0.75	0.25	7.39	0.02	0.04
5.24	0.76	0.24	7.38	0.02	0.04	5.26	0.76	0.24	7.37	0.02	0.04
5.28	2.00	0.00	7.36	0.02	0.00	5.30	2.00	0.00	7.35	0.02	0.00
5.32	2.00	0.00	7.34	0.02	0.00	5.34	2.00	0.00	7.33	0.02	0.00
5.36	2.00	0.00	7.32	0.02	0.00	5.38	2.00	0.00	7.31	0.02	0.00
5.40	2.00	0.00	7.30	0.02	0.00	5.42	2.00	0.00	7.29	0.02	0.00
5.44	2.00	0.00	7.28	0.02	0.00	5.46	2.00	0.00	7.27	0.02	0.00
5.48	2.00	0.00	7.26	0.02	0.00	5.50	2.00	0.00	7.25	0.02	0.00
5.52	2.00	0.00	7.24	0.02	0.00	5.54	2.00	0.00	7.23	0.02	0.00
5.56	2.00	0.00	7.22	0.02	0.00	5.58	2.00	0.00	7.21	0.02	0.00
5.60	2.00	0.00	7.20	0.02	0.00	5.62	2.00	0.00	7.19	0.02	0.00
5.64	2.00	0.00	7.18	0.02	0.00	5.66	2.00	0.00	7.17	0.02	0.00
5.68	2.00	0.00	7.16	0.02	0.00	5.70	2.00	0.00	7.15	0.02	0.00
5.72	2.00	0.00	7.14	0.02	0.00	5.74	2.00	0.00	7.13	0.02	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (m)	FS	F_L	w_z	d_z	LPI	Depth (m)	FS	F_L	w_z	d_z	LPI
5.76	2.00	0.00	7.12	0.02	0.00	5.78	2.00	0.00	7.11	0.02	0.00
5.80	2.00	0.00	7.10	0.02	0.00	5.82	2.00	0.00	7.09	0.02	0.00
5.84	2.00	0.00	7.08	0.02	0.00	5.86	2.00	0.00	7.07	0.02	0.00
5.88	2.00	0.00	7.06	0.02	0.00	5.90	2.00	0.00	7.05	0.02	0.00
5.92	2.00	0.00	7.04	0.02	0.00	5.94	2.00	0.00	7.03	0.02	0.00
5.96	2.00	0.00	7.02	0.02	0.00	6.00	2.00	0.00	7.00	0.04	0.00
6.00	2.00	0.00	7.00	0.00	0.00	6.02	2.00	0.00	6.99	0.02	0.00
6.04	2.00	0.00	6.98	0.02	0.00	6.06	2.00	0.00	6.97	0.02	0.00
6.08	2.00	0.00	6.96	0.02	0.00	6.10	2.00	0.00	6.95	0.02	0.00
6.12	2.00	0.00	6.94	0.02	0.00	6.14	2.00	0.00	6.93	0.02	0.00
6.16	2.00	0.00	6.92	0.02	0.00	6.18	2.00	0.00	6.91	0.02	0.00
6.20	2.00	0.00	6.90	0.02	0.00	6.22	2.00	0.00	6.89	0.02	0.00
6.24	2.00	0.00	6.88	0.02	0.00	6.26	2.00	0.00	6.87	0.02	0.00
6.28	2.00	0.00	6.86	0.02	0.00	6.30	2.00	0.00	6.85	0.02	0.00
6.32	2.00	0.00	6.84	0.02	0.00	6.34	2.00	0.00	6.83	0.02	0.00
6.36	2.00	0.00	6.82	0.02	0.00	6.38	2.00	0.00	6.81	0.02	0.00
6.40	2.00	0.00	6.80	0.02	0.00	6.42	2.00	0.00	6.79	0.02	0.00
6.44	2.00	0.00	6.78	0.02	0.00	6.46	2.00	0.00	6.77	0.02	0.00
6.48	2.00	0.00	6.76	0.02	0.00	6.50	2.00	0.00	6.75	0.02	0.00
6.52	2.00	0.00	6.74	0.02	0.00	6.54	2.00	0.00	6.73	0.02	0.00
6.56	2.00	0.00	6.72	0.02	0.00	6.58	2.00	0.00	6.71	0.02	0.00
6.60	2.00	0.00	6.70	0.02	0.00	6.62	2.00	0.00	6.69	0.02	0.00
6.64	2.00	0.00	6.68	0.02	0.00	6.66	2.00	0.00	6.67	0.02	0.00
6.68	2.00	0.00	6.66	0.02	0.00	6.70	2.00	0.00	6.65	0.02	0.00
6.72	2.00	0.00	6.64	0.02	0.00	6.74	2.00	0.00	6.63	0.02	0.00
6.76	2.00	0.00	6.62	0.02	0.00	6.78	2.00	0.00	6.61	0.02	0.00
6.80	2.00	0.00	6.60	0.02	0.00	6.82	2.00	0.00	6.59	0.02	0.00
6.84	2.00	0.00	6.58	0.02	0.00	6.95	2.00	0.00	6.53	0.11	0.00
6.95	2.00	0.00	6.53	0.00	0.00	6.95	2.00	0.00	6.53	0.00	0.00
6.95	2.00	0.00	6.53	0.00	0.00	6.94	2.00	0.00	6.53	0.01	0.00
6.96	2.00	0.00	6.52	0.02	0.00	6.98	2.00	0.00	6.51	0.02	0.00
7.00	2.00	0.00	6.50	0.02	0.00	7.02	2.00	0.00	6.49	0.02	0.00
7.04	2.00	0.00	6.48	0.02	0.00	7.06	2.00	0.00	6.47	0.02	0.00
7.08	2.00	0.00	6.46	0.02	0.00	7.10	2.00	0.00	6.45	0.02	0.00
7.12	2.00	0.00	6.44	0.02	0.00	7.14	2.00	0.00	6.43	0.02	0.00
7.16	2.00	0.00	6.42	0.02	0.00	7.18	2.00	0.00	6.41	0.02	0.00
7.20	2.00	0.00	6.40	0.02	0.00	7.22	2.00	0.00	6.39	0.02	0.00
7.24	2.00	0.00	6.38	0.02	0.00	7.26	2.00	0.00	6.37	0.02	0.00
7.28	2.00	0.00	6.36	0.02	0.00	7.30	2.00	0.00	6.35	0.02	0.00
7.32	2.00	0.00	6.34	0.02	0.00	7.34	2.00	0.00	6.33	0.02	0.00
7.36	2.00	0.00	6.32	0.02	0.00	7.38	2.00	0.00	6.31	0.02	0.00
7.40	2.00	0.00	6.30	0.02	0.00	7.42	2.00	0.00	6.29	0.02	0.00
7.44	2.00	0.00	6.28	0.02	0.00	7.46	2.00	0.00	6.27	0.02	0.00
7.48	2.00	0.00	6.26	0.02	0.00	7.50	2.00	0.00	6.25	0.02	0.00
7.52	2.00	0.00	6.24	0.02	0.00	7.54	2.00	0.00	6.23	0.02	0.00
7.56	2.00	0.00	6.22	0.02	0.00	7.58	2.00	0.00	6.21	0.02	0.00
7.60	2.00	0.00	6.20	0.02	0.00	7.62	2.00	0.00	6.19	0.02	0.00
7.64	2.00	0.00	6.18	0.02	0.00	7.66	2.00	0.00	6.17	0.02	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (m)	FS	F_L	w_z	d_z	LPI	Depth (m)	FS	F_L	w_z	d_z	LPI
7.68	2.00	0.00	6.16	0.02	0.00	7.70	2.00	0.00	6.15	0.02	0.00
7.72	2.00	0.00	6.14	0.02	0.00	7.74	2.00	0.00	6.13	0.02	0.00
7.76	2.00	0.00	6.12	0.02	0.00	7.78	2.00	0.00	6.11	0.02	0.00
7.80	2.00	0.00	6.10	0.02	0.00	7.82	2.00	0.00	6.09	0.02	0.00
7.84	2.00	0.00	6.08	0.02	0.00	7.86	2.00	0.00	6.07	0.02	0.00
7.88	2.00	0.00	6.06	0.02	0.00	7.90	2.00	0.00	6.05	0.02	0.00
7.92	2.00	0.00	6.04	0.02	0.00	7.94	2.00	0.00	6.03	0.02	0.00
7.96	2.00	0.00	6.02	0.02	0.00	7.98	2.00	0.00	6.01	0.02	0.00
8.00	2.00	0.00	6.00	0.02	0.00	8.02	2.00	0.00	5.99	0.02	0.00
8.04	2.00	0.00	5.98	0.02	0.00	8.06	2.00	0.00	5.97	0.02	0.00
8.08	2.00	0.00	5.96	0.02	0.00	8.10	2.00	0.00	5.95	0.02	0.00
8.12	2.00	0.00	5.94	0.02	0.00	8.14	2.00	0.00	5.93	0.02	0.00
8.16	2.00	0.00	5.92	0.02	0.00	8.18	2.00	0.00	5.91	0.02	0.00
8.20	2.00	0.00	5.90	0.02	0.00	8.22	2.00	0.00	5.89	0.02	0.00
8.24	2.00	0.00	5.88	0.02	0.00	8.26	2.00	0.00	5.87	0.02	0.00
8.28	2.00	0.00	5.86	0.02	0.00	8.30	0.79	0.21	5.85	0.02	0.03
8.32	0.79	0.21	5.84	0.02	0.02	8.34	0.78	0.22	5.83	0.02	0.03
8.36	0.80	0.20	5.82	0.02	0.02	8.38	0.81	0.19	5.81	0.02	0.02
8.40	2.00	0.00	5.80	0.02	0.00	8.42	2.00	0.00	5.79	0.02	0.00
8.44	2.00	0.00	5.78	0.02	0.00	8.46	2.00	0.00	5.77	0.02	0.00
8.48	2.00	0.00	5.76	0.02	0.00	8.50	2.00	0.00	5.75	0.02	0.00
8.52	2.00	0.00	5.74	0.02	0.00	8.54	2.00	0.00	5.73	0.02	0.00
8.56	2.00	0.00	5.72	0.02	0.00	8.58	2.00	0.00	5.71	0.02	0.00
8.60	2.00	0.00	5.70	0.02	0.00	8.62	2.00	0.00	5.69	0.02	0.00
8.64	2.00	0.00	5.68	0.02	0.00	8.66	2.00	0.00	5.67	0.02	0.00
8.68	2.00	0.00	5.66	0.02	0.00	8.70	2.00	0.00	5.65	0.02	0.00
8.72	2.00	0.00	5.64	0.02	0.00	8.74	2.00	0.00	5.63	0.02	0.00
8.76	2.00	0.00	5.62	0.02	0.00	8.78	2.00	0.00	5.61	0.02	0.00
8.80	2.00	0.00	5.60	0.02	0.00	8.82	2.00	0.00	5.59	0.02	0.00
8.84	2.00	0.00	5.58	0.02	0.00	8.86	2.00	0.00	5.57	0.02	0.00
8.88	2.00	0.00	5.56	0.02	0.00	8.90	2.00	0.00	5.55	0.02	0.00
8.92	2.00	0.00	5.54	0.02	0.00	8.94	2.00	0.00	5.53	0.02	0.00
8.96	2.00	0.00	5.52	0.02	0.00	8.98	2.00	0.00	5.51	0.02	0.00
9.00	2.00	0.00	5.50	0.02	0.00	9.02	2.00	0.00	5.49	0.02	0.00
9.04	2.00	0.00	5.48	0.02	0.00	9.06	2.00	0.00	5.47	0.02	0.00
9.08	2.00	0.00	5.46	0.02	0.00	9.10	2.00	0.00	5.45	0.02	0.00
9.12	2.00	0.00	5.44	0.02	0.00	9.14	2.00	0.00	5.43	0.02	0.00
9.16	2.00	0.00	5.42	0.02	0.00	9.18	2.00	0.00	5.41	0.02	0.00
9.20	2.00	0.00	5.40	0.02	0.00	9.22	2.00	0.00	5.39	0.02	0.00
9.24	2.00	0.00	5.38	0.02	0.00	9.26	2.00	0.00	5.37	0.02	0.00
9.28	2.00	0.00	5.36	0.02	0.00	9.30	2.00	0.00	5.35	0.02	0.00
9.32	2.00	0.00	5.34	0.02	0.00	9.34	2.00	0.00	5.33	0.02	0.00
9.36	2.00	0.00	5.32	0.02	0.00	9.38	2.00	0.00	5.31	0.02	0.00
9.40	2.00	0.00	5.30	0.02	0.00	9.42	2.00	0.00	5.29	0.02	0.00
9.44	2.00	0.00	5.28	0.02	0.00	9.46	2.00	0.00	5.27	0.02	0.00
9.48	2.00	0.00	5.26	0.02	0.00	9.50	2.00	0.00	5.25	0.02	0.00
9.52	2.00	0.00	5.24	0.02	0.00	9.54	2.00	0.00	5.23	0.02	0.00
9.56	2.00	0.00	5.22	0.02	0.00	9.58	2.00	0.00	5.21	0.02	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (m)	FS	F_L	w_z	d_z	LPI	Depth (m)	FS	F_L	w_z	d_z	LPI
9.60	2.00	0.00	5.20	0.02	0.00	9.62	2.00	0.00	5.19	0.02	0.00
9.64	2.00	0.00	5.18	0.02	0.00	9.66	2.00	0.00	5.17	0.02	0.00
9.68	2.00	0.00	5.16	0.02	0.00	9.70	2.00	0.00	5.15	0.02	0.00
9.72	2.00	0.00	5.14	0.02	0.00	9.74	2.00	0.00	5.13	0.02	0.00
9.76	2.00	0.00	5.12	0.02	0.00	9.78	2.00	0.00	5.11	0.02	0.00
9.80	2.00	0.00	5.10	0.02	0.00	9.82	2.00	0.00	5.09	0.02	0.00
9.84	2.00	0.00	5.08	0.02	0.00	9.86	2.00	0.00	5.07	0.02	0.00
9.88	2.00	0.00	5.06	0.02	0.00	9.90	2.00	0.00	5.05	0.02	0.00
9.92	2.00	0.00	5.04	0.02	0.00	9.94	2.00	0.00	5.03	0.02	0.00
9.96	2.00	0.00	5.02	0.02	0.00	9.98	2.00	0.00	5.01	0.02	0.00
10.00	2.00	0.00	5.00	0.02	0.00	10.02	2.00	0.00	4.99	0.02	0.00
10.04	2.00	0.00	4.98	0.02	0.00	10.06	2.00	0.00	4.97	0.02	0.00
10.08	2.00	0.00	4.96	0.02	0.00	10.10	2.00	0.00	4.95	0.02	0.00
10.12	2.00	0.00	4.94	0.02	0.00	10.15	2.00	0.00	4.92	0.03	0.00
10.16	2.00	0.00	4.92	0.01	0.00	10.18	2.00	0.00	4.91	0.02	0.00
10.20	2.00	0.00	4.90	0.02	0.00	10.22	2.00	0.00	4.89	0.02	0.00
10.24	2.00	0.00	4.88	0.02	0.00	10.26	2.00	0.00	4.87	0.02	0.00
10.28	2.00	0.00	4.86	0.02	0.00	10.30	2.00	0.00	4.85	0.02	0.00
10.32	2.00	0.00	4.84	0.02	0.00	10.34	2.00	0.00	4.83	0.02	0.00
10.36	2.00	0.00	4.82	0.02	0.00	10.38	2.00	0.00	4.81	0.02	0.00
10.40	2.00	0.00	4.80	0.02	0.00	10.42	2.00	0.00	4.79	0.02	0.00
10.44	2.00	0.00	4.78	0.02	0.00	10.46	2.00	0.00	4.77	0.02	0.00
10.48	2.00	0.00	4.76	0.02	0.00	10.50	2.00	0.00	4.75	0.02	0.00
10.52	2.00	0.00	4.74	0.02	0.00	10.54	2.00	0.00	4.73	0.02	0.00
10.56	2.00	0.00	4.72	0.02	0.00	10.58	2.00	0.00	4.71	0.02	0.00
10.60	2.00	0.00	4.70	0.02	0.00	10.62	2.00	0.00	4.69	0.02	0.00
10.64	2.00	0.00	4.68	0.02	0.00	10.66	2.00	0.00	4.67	0.02	0.00
10.68	2.00	0.00	4.66	0.02	0.00	10.70	2.00	0.00	4.65	0.02	0.00
10.72	2.00	0.00	4.64	0.02	0.00	10.74	2.00	0.00	4.63	0.02	0.00
10.76	2.00	0.00	4.62	0.02	0.00	10.78	2.00	0.00	4.61	0.02	0.00
10.80	2.00	0.00	4.60	0.02	0.00	10.82	2.00	0.00	4.59	0.02	0.00
10.84	2.00	0.00	4.58	0.02	0.00	10.86	2.00	0.00	4.57	0.02	0.00
10.88	2.00	0.00	4.56	0.02	0.00	10.90	2.00	0.00	4.55	0.02	0.00
10.92	2.00	0.00	4.54	0.02	0.00	10.94	2.00	0.00	4.53	0.02	0.00
10.96	2.00	0.00	4.52	0.02	0.00	10.98	2.00	0.00	4.51	0.02	0.00
11.00	2.00	0.00	4.50	0.02	0.00	11.02	2.00	0.00	4.49	0.02	0.00
11.04	2.00	0.00	4.48	0.02	0.00	11.06	2.00	0.00	4.47	0.02	0.00
11.08	2.00	0.00	4.46	0.02	0.00	11.10	2.00	0.00	4.45	0.02	0.00
11.12	2.00	0.00	4.44	0.02	0.00	11.14	2.00	0.00	4.43	0.02	0.00
11.16	2.00	0.00	4.42	0.02	0.00	11.18	2.00	0.00	4.41	0.02	0.00
11.20	2.00	0.00	4.40	0.02	0.00	11.22	2.00	0.00	4.39	0.02	0.00
11.24	2.00	0.00	4.38	0.02	0.00	11.26	2.00	0.00	4.37	0.02	0.00
11.28	2.00	0.00	4.36	0.02	0.00	11.30	2.00	0.00	4.35	0.02	0.00
11.32	2.00	0.00	4.34	0.02	0.00	11.34	2.00	0.00	4.33	0.02	0.00
11.36	2.00	0.00	4.32	0.02	0.00	11.38	2.00	0.00	4.31	0.02	0.00
11.40	2.00	0.00	4.30	0.02	0.00	11.42	2.00	0.00	4.29	0.02	0.00
11.44	2.00	0.00	4.28	0.02	0.00	11.46	2.00	0.00	4.27	0.02	0.00
11.48	2.00	0.00	4.26	0.02	0.00	11.50	2.00	0.00	4.25	0.02	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (m)	FS	F_L	w_z	d_z	LPI	Depth (m)	FS	F_L	w_z	d_z	LPI
11.52	2.00	0.00	4.24	0.02	0.00	11.54	2.00	0.00	4.23	0.02	0.00
11.56	2.00	0.00	4.22	0.02	0.00	11.58	2.00	0.00	4.21	0.02	0.00
11.60	2.00	0.00	4.20	0.02	0.00	11.62	2.00	0.00	4.19	0.02	0.00
11.64	2.00	0.00	4.18	0.02	0.00	11.66	2.00	0.00	4.17	0.02	0.00
11.68	2.00	0.00	4.16	0.02	0.00	11.70	2.00	0.00	4.15	0.02	0.00
11.72	2.00	0.00	4.14	0.02	0.00	11.74	2.00	0.00	4.13	0.02	0.00
11.76	2.00	0.00	4.12	0.02	0.00	11.78	2.00	0.00	4.11	0.02	0.00
11.80	2.00	0.00	4.10	0.02	0.00	11.82	2.00	0.00	4.09	0.02	0.00
11.84	2.00	0.00	4.08	0.02	0.00	11.86	2.00	0.00	4.07	0.02	0.00
11.88	2.00	0.00	4.06	0.02	0.00	11.90	2.00	0.00	4.05	0.02	0.00
11.92	2.00	0.00	4.04	0.02	0.00	12.00	2.00	0.00	4.00	0.08	0.00
12.00	2.00	0.00	4.00	0.00	0.00	12.00	2.00	0.00	4.00	0.00	0.00
12.00	2.00	0.00	4.00	0.00	0.00	12.02	2.00	0.00	3.99	0.02	0.00
12.04	2.00	0.00	3.98	0.02	0.00	12.06	2.00	0.00	3.97	0.02	0.00
12.08	2.00	0.00	3.96	0.02	0.00	12.10	2.00	0.00	3.95	0.02	0.00
12.12	2.00	0.00	3.94	0.02	0.00	12.14	2.00	0.00	3.93	0.02	0.00
12.16	2.00	0.00	3.92	0.02	0.00	12.18	2.00	0.00	3.91	0.02	0.00
12.20	2.00	0.00	3.90	0.02	0.00	12.22	2.00	0.00	3.89	0.02	0.00
12.24	2.00	0.00	3.88	0.02	0.00	12.26	2.00	0.00	3.87	0.02	0.00
12.28	2.00	0.00	3.86	0.02	0.00	12.30	2.00	0.00	3.85	0.02	0.00
12.32	2.00	0.00	3.84	0.02	0.00	12.34	2.00	0.00	3.83	0.02	0.00
12.36	2.00	0.00	3.82	0.02	0.00	12.38	2.00	0.00	3.81	0.02	0.00
12.40	2.00	0.00	3.80	0.02	0.00	12.42	2.00	0.00	3.79	0.02	0.00
12.44	2.00	0.00	3.78	0.02	0.00	12.46	2.00	0.00	3.77	0.02	0.00
12.48	2.00	0.00	3.76	0.02	0.00	12.50	2.00	0.00	3.75	0.02	0.00
12.52	2.00	0.00	3.74	0.02	0.00	12.54	2.00	0.00	3.73	0.02	0.00
12.56	2.00	0.00	3.72	0.02	0.00	12.58	2.00	0.00	3.71	0.02	0.00
12.60	2.00	0.00	3.70	0.02	0.00	12.62	2.00	0.00	3.69	0.02	0.00
12.64	2.00	0.00	3.68	0.02	0.00	12.66	2.00	0.00	3.67	0.02	0.00
12.68	2.00	0.00	3.66	0.02	0.00	12.70	2.00	0.00	3.65	0.02	0.00
12.72	2.00	0.00	3.64	0.02	0.00	12.74	2.00	0.00	3.63	0.02	0.00
12.76	2.00	0.00	3.62	0.02	0.00	12.78	2.00	0.00	3.61	0.02	0.00
12.80	2.00	0.00	3.60	0.02	0.00	12.82	2.00	0.00	3.59	0.02	0.00
12.84	2.00	0.00	3.58	0.02	0.00	12.86	2.00	0.00	3.57	0.02	0.00
12.88	2.00	0.00	3.56	0.02	0.00	12.90	2.00	0.00	3.55	0.02	0.00
12.92	2.00	0.00	3.54	0.02	0.00	12.94	2.00	0.00	3.53	0.02	0.00
12.96	2.00	0.00	3.52	0.02	0.00	12.98	2.00	0.00	3.51	0.02	0.00
13.00	2.00	0.00	3.50	0.02	0.00	13.02	2.00	0.00	3.49	0.02	0.00
13.04	2.00	0.00	3.48	0.02	0.00	13.06	2.00	0.00	3.47	0.02	0.00
13.08	2.00	0.00	3.46	0.02	0.00	13.10	2.00	0.00	3.45	0.02	0.00
13.12	2.00	0.00	3.44	0.02	0.00	13.14	2.00	0.00	3.43	0.02	0.00
13.16	2.00	0.00	3.42	0.02	0.00	13.18	2.00	0.00	3.41	0.02	0.00
13.20	2.00	0.00	3.40	0.02	0.00	13.22	2.00	0.00	3.39	0.02	0.00
13.24	2.00	0.00	3.38	0.02	0.00	13.26	2.00	0.00	3.37	0.02	0.00
13.28	2.00	0.00	3.36	0.02	0.00	13.30	2.00	0.00	3.35	0.02	0.00
13.32	2.00	0.00	3.34	0.02	0.00	13.34	2.00	0.00	3.33	0.02	0.00
13.36	2.00	0.00	3.32	0.02	0.00	13.38	2.00	0.00	3.31	0.02	0.00
13.40	2.00	0.00	3.30	0.02	0.00	13.42	2.00	0.00	3.29	0.02	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (m)	FS	F_L	w_z	d_z	LPI	Depth (m)	FS	F_L	w_z	d_z	LPI
13.44	2.00	0.00	3.28	0.02	0.00	13.46	2.00	0.00	3.27	0.02	0.00
13.48	2.00	0.00	3.26	0.02	0.00	13.50	2.00	0.00	3.25	0.02	0.00
13.52	2.00	0.00	3.24	0.02	0.00	13.54	2.00	0.00	3.23	0.02	0.00
13.56	2.00	0.00	3.22	0.02	0.00	13.58	2.00	0.00	3.21	0.02	0.00
13.60	2.00	0.00	3.20	0.02	0.00	13.62	2.00	0.00	3.19	0.02	0.00
13.64	2.00	0.00	3.18	0.02	0.00	13.66	2.00	0.00	3.17	0.02	0.00
13.68	2.00	0.00	3.16	0.02	0.00	13.70	2.00	0.00	3.15	0.02	0.00
13.72	2.00	0.00	3.14	0.02	0.00	13.74	2.00	0.00	3.13	0.02	0.00
13.76	2.00	0.00	3.12	0.02	0.00	13.78	2.00	0.00	3.11	0.02	0.00
13.80	2.00	0.00	3.10	0.02	0.00	13.82	2.00	0.00	3.09	0.02	0.00
13.84	2.00	0.00	3.08	0.02	0.00	13.86	2.00	0.00	3.07	0.02	0.00
13.88	2.00	0.00	3.06	0.02	0.00	13.90	2.00	0.00	3.05	0.02	0.00
13.92	2.00	0.00	3.04	0.02	0.00	13.94	2.00	0.00	3.03	0.02	0.00
13.96	2.00	0.00	3.02	0.02	0.00	13.98	2.00	0.00	3.01	0.02	0.00
14.00	2.00	0.00	3.00	0.02	0.00	14.02	2.00	0.00	2.99	0.02	0.00
14.04	2.00	0.00	2.98	0.02	0.00	14.06	2.00	0.00	2.97	0.02	0.00
14.08	2.00	0.00	2.96	0.02	0.00	14.10	2.00	0.00	2.95	0.02	0.00
14.12	2.00	0.00	2.94	0.02	0.00	14.14	2.00	0.00	2.93	0.02	0.00
14.16	2.00	0.00	2.92	0.02	0.00	14.18	2.00	0.00	2.91	0.02	0.00
14.20	2.00	0.00	2.90	0.02	0.00	14.22	2.00	0.00	2.89	0.02	0.00
14.24	2.00	0.00	2.88	0.02	0.00	14.26	2.00	0.00	2.87	0.02	0.00
14.28	2.00	0.00	2.86	0.02	0.00	14.30	2.00	0.00	2.85	0.02	0.00
14.32	2.00	0.00	2.84	0.02	0.00	14.34	2.00	0.00	2.83	0.02	0.00
14.36	2.00	0.00	2.82	0.02	0.00	14.38	2.00	0.00	2.81	0.02	0.00
14.40	2.00	0.00	2.80	0.02	0.00	14.42	2.00	0.00	2.79	0.02	0.00
14.44	2.00	0.00	2.78	0.02	0.00	14.46	2.00	0.00	2.77	0.02	0.00
14.48	2.00	0.00	2.76	0.02	0.00	14.50	2.00	0.00	2.75	0.02	0.00
14.52	2.00	0.00	2.74	0.02	0.00	14.54	2.00	0.00	2.73	0.02	0.00
14.56	2.00	0.00	2.72	0.02	0.00	14.58	2.00	0.00	2.71	0.02	0.00
14.60	2.00	0.00	2.70	0.02	0.00	14.62	2.00	0.00	2.69	0.02	0.00
14.64	2.00	0.00	2.68	0.02	0.00	14.66	2.00	0.00	2.67	0.02	0.00
14.68	2.00	0.00	2.66	0.02	0.00	14.70	2.00	0.00	2.65	0.02	0.00
14.72	2.00	0.00	2.64	0.02	0.00	14.74	2.00	0.00	2.63	0.02	0.00
14.76	2.00	0.00	2.62	0.02	0.00	14.78	2.00	0.00	2.61	0.02	0.00
14.80	2.00	0.00	2.60	0.02	0.00	14.82	2.00	0.00	2.59	0.02	0.00
14.84	2.00	0.00	2.58	0.02	0.00	14.86	2.00	0.00	2.57	0.02	0.00
14.88	2.00	0.00	2.56	0.02	0.00	14.90	2.00	0.00	2.55	0.02	0.00
14.92	2.00	0.00	2.54	0.02	0.00	14.94	2.00	0.00	2.53	0.02	0.00
14.96	2.00	0.00	2.52	0.02	0.00	14.98	2.00	0.00	2.51	0.02	0.00
15.00	2.00	0.00	2.50	0.02	0.00	15.02	2.00	0.00	2.49	0.02	0.00
15.04	2.00	0.00	2.48	0.02	0.00	15.06	2.00	0.00	2.47	0.02	0.00
15.08	2.00	0.00	2.46	0.02	0.00	15.10	2.00	0.00	2.45	0.02	0.00
15.12	2.00	0.00	2.44	0.02	0.00	15.14	2.00	0.00	2.43	0.02	0.00
15.16	2.00	0.00	2.42	0.02	0.00	15.18	2.00	0.00	2.41	0.02	0.00
15.20	2.00	0.00	2.40	0.02	0.00	15.22	2.00	0.00	2.39	0.02	0.00
15.24	2.00	0.00	2.38	0.02	0.00	15.26	2.00	0.00	2.37	0.02	0.00
15.28	2.00	0.00	2.36	0.02	0.00	15.30	2.00	0.00	2.35	0.02	0.00
15.32	2.00	0.00	2.34	0.02	0.00	15.34	2.00	0.00	2.33	0.02	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (m)	FS	F_L	w_z	d_z	LPI	Depth (m)	FS	F_L	w_z	d_z	LPI
15.36	2.00	0.00	2.32	0.02	0.00	15.38	2.00	0.00	2.31	0.02	0.00
15.40	2.00	0.00	2.30	0.02	0.00	15.42	2.00	0.00	2.29	0.02	0.00
15.44	2.00	0.00	2.28	0.02	0.00	15.46	2.00	0.00	2.27	0.02	0.00
15.48	2.00	0.00	2.26	0.02	0.00	15.50	2.00	0.00	2.25	0.02	0.00
15.52	2.00	0.00	2.24	0.02	0.00	15.54	2.00	0.00	2.23	0.02	0.00
15.56	2.00	0.00	2.22	0.02	0.00	15.58	2.00	0.00	2.21	0.02	0.00
15.60	2.00	0.00	2.20	0.02	0.00	15.62	2.00	0.00	2.19	0.02	0.00
15.64	2.00	0.00	2.18	0.02	0.00	15.66	2.00	0.00	2.17	0.02	0.00
15.68	2.00	0.00	2.16	0.02	0.00	15.70	2.00	0.00	2.15	0.02	0.00
15.72	2.00	0.00	2.14	0.02	0.00	15.74	2.00	0.00	2.13	0.02	0.00
15.76	2.00	0.00	2.12	0.02	0.00	15.78	2.00	0.00	2.11	0.02	0.00
15.81	2.00	0.00	2.10	0.03	0.00	15.82	2.00	0.00	2.09	0.01	0.00
15.84	2.00	0.00	2.08	0.02	0.00	15.86	2.00	0.00	2.07	0.02	0.00
15.88	2.00	0.00	2.06	0.02	0.00	15.90	2.00	0.00	2.05	0.02	0.00
15.92	2.00	0.00	2.04	0.02	0.00	15.94	2.00	0.00	2.03	0.02	0.00
15.96	2.00	0.00	2.02	0.02	0.00	15.98	2.00	0.00	2.01	0.02	0.00
16.00	2.00	0.00	2.00	0.02	0.00	16.03	2.00	0.00	1.99	0.03	0.00
16.04	2.00	0.00	1.98	0.01	0.00	16.06	2.00	0.00	1.97	0.02	0.00
16.08	2.00	0.00	1.96	0.02	0.00	16.10	2.00	0.00	1.95	0.02	0.00
16.12	2.00	0.00	1.94	0.02	0.00	16.14	2.00	0.00	1.93	0.02	0.00
16.16	2.00	0.00	1.92	0.02	0.00	16.18	2.00	0.00	1.91	0.02	0.00
16.20	2.00	0.00	1.90	0.02	0.00	16.22	2.00	0.00	1.89	0.02	0.00
16.24	2.00	0.00	1.88	0.02	0.00	16.26	2.00	0.00	1.87	0.02	0.00
16.28	2.00	0.00	1.86	0.02	0.00	16.30	2.00	0.00	1.85	0.02	0.00
16.32	2.00	0.00	1.84	0.02	0.00	16.34	2.00	0.00	1.83	0.02	0.00
16.36	2.00	0.00	1.82	0.02	0.00	16.38	2.00	0.00	1.81	0.02	0.00
16.40	2.00	0.00	1.80	0.02	0.00	16.42	2.00	0.00	1.79	0.02	0.00
16.44	2.00	0.00	1.78	0.02	0.00	16.46	2.00	0.00	1.77	0.02	0.00
16.48	2.00	0.00	1.76	0.02	0.00	16.50	2.00	0.00	1.75	0.02	0.00
16.52	2.00	0.00	1.74	0.02	0.00	16.54	2.00	0.00	1.73	0.02	0.00
16.56	2.00	0.00	1.72	0.02	0.00	16.58	2.00	0.00	1.71	0.02	0.00
16.60	2.00	0.00	1.70	0.02	0.00	16.62	2.00	0.00	1.69	0.02	0.00
16.64	2.00	0.00	1.68	0.02	0.00	16.66	2.00	0.00	1.67	0.02	0.00
16.68	2.00	0.00	1.66	0.02	0.00	16.70	2.00	0.00	1.65	0.02	0.00
16.72	2.00	0.00	1.64	0.02	0.00	16.74	2.00	0.00	1.63	0.02	0.00
16.76	2.00	0.00	1.62	0.02	0.00	16.78	2.00	0.00	1.61	0.02	0.00
16.80	2.00	0.00	1.60	0.02	0.00	16.82	2.00	0.00	1.59	0.02	0.00
16.84	2.00	0.00	1.58	0.02	0.00	16.86	2.00	0.00	1.57	0.02	0.00
16.88	2.00	0.00	1.56	0.02	0.00	16.91	2.00	0.00	1.54	0.03	0.00
16.92	2.00	0.00	1.54	0.01	0.00	16.94	2.00	0.00	1.53	0.02	0.00
16.96	2.00	0.00	1.52	0.02	0.00	16.98	2.00	0.00	1.51	0.02	0.00
17.00	2.00	0.00	1.50	0.02	0.00	17.06	2.00	0.00	1.47	0.06	0.00
17.04	2.00	0.00	1.48	0.02	0.00	17.06	2.00	0.00	1.47	0.02	0.00
17.08	2.00	0.00	1.46	0.02	0.00	17.10	2.00	0.00	1.45	0.02	0.00
17.12	2.00	0.00	1.44	0.02	0.00	17.14	2.00	0.00	1.43	0.02	0.00
17.16	2.00	0.00	1.42	0.02	0.00	17.18	2.00	0.00	1.41	0.02	0.00
17.20	2.00	0.00	1.40	0.02	0.00	17.22	2.00	0.00	1.39	0.02	0.00
17.24	2.00	0.00	1.38	0.02	0.00	17.26	2.00	0.00	1.37	0.02	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (m)	FS	F_L	w_z	d_z	LPI	Depth (m)	FS	F_L	w_z	d_z	LPI
17.28	2.00	0.00	1.36	0.02	0.00	17.30	2.00	0.00	1.35	0.02	0.00
17.32	2.00	0.00	1.34	0.02	0.00	17.34	2.00	0.00	1.33	0.02	0.00
17.36	2.00	0.00	1.32	0.02	0.00	17.38	2.00	0.00	1.31	0.02	0.00
17.40	2.00	0.00	1.30	0.02	0.00	17.42	2.00	0.00	1.29	0.02	0.00
17.44	2.00	0.00	1.28	0.02	0.00	17.46	2.00	0.00	1.27	0.02	0.00
17.48	2.00	0.00	1.26	0.02	0.00	17.50	2.00	0.00	1.25	0.02	0.00
17.52	2.00	0.00	1.24	0.02	0.00	17.54	2.00	0.00	1.23	0.02	0.00
17.56	2.00	0.00	1.22	0.02	0.00	17.58	2.00	0.00	1.21	0.02	0.00
17.60	2.00	0.00	1.20	0.02	0.00	17.62	2.00	0.00	1.19	0.02	0.00
17.64	2.00	0.00	1.18	0.02	0.00	17.66	2.00	0.00	1.17	0.02	0.00
17.68	2.00	0.00	1.16	0.02	0.00	17.70	2.00	0.00	1.15	0.02	0.00
17.72	2.00	0.00	1.14	0.02	0.00	17.74	2.00	0.00	1.13	0.02	0.00
17.76	2.00	0.00	1.12	0.02	0.00	17.78	2.00	0.00	1.11	0.02	0.00
17.80	2.00	0.00	1.10	0.02	0.00	17.82	2.00	0.00	1.09	0.02	0.00
17.84	2.00	0.00	1.08	0.02	0.00	17.86	2.00	0.00	1.07	0.02	0.00
17.88	2.00	0.00	1.06	0.02	0.00	17.90	2.00	0.00	1.05	0.02	0.00
17.92	2.00	0.00	1.04	0.02	0.00	17.94	2.00	0.00	1.03	0.02	0.00
17.96	2.00	0.00	1.02	0.02	0.00	17.98	2.00	0.00	1.01	0.02	0.00
18.00	2.00	0.00	1.00	0.02	0.00	18.02	2.00	0.00	0.99	0.02	0.00
18.04	2.00	0.00	0.98	0.02	0.00	18.06	2.00	0.00	0.97	0.02	0.00
18.08	2.00	0.00	0.96	0.02	0.00	18.15	2.00	0.00	0.93	0.07	0.00
18.15	2.00	0.00	0.93	0.00	0.00	18.14	2.00	0.00	0.93	0.01	0.00
18.16	2.00	0.00	0.92	0.02	0.00	18.18	2.00	0.00	0.91	0.02	0.00
18.20	2.00	0.00	0.90	0.02	0.00	18.22	2.00	0.00	0.89	0.02	0.00
18.24	2.00	0.00	0.88	0.02	0.00	18.26	2.00	0.00	0.87	0.02	0.00
18.28	2.00	0.00	0.86	0.02	0.00	18.30	2.00	0.00	0.85	0.02	0.00
18.32	2.00	0.00	0.84	0.02	0.00	18.34	2.00	0.00	0.83	0.02	0.00
18.36	2.00	0.00	0.82	0.02	0.00	18.38	2.00	0.00	0.81	0.02	0.00
18.40	2.00	0.00	0.80	0.02	0.00	18.42	2.00	0.00	0.79	0.02	0.00
18.44	2.00	0.00	0.78	0.02	0.00	18.46	2.00	0.00	0.77	0.02	0.00
18.48	2.00	0.00	0.76	0.02	0.00	18.50	2.00	0.00	0.75	0.02	0.00
18.52	2.00	0.00	0.74	0.02	0.00	18.54	2.00	0.00	0.73	0.02	0.00
18.56	2.00	0.00	0.72	0.02	0.00	18.58	2.00	0.00	0.71	0.02	0.00
18.60	2.00	0.00	0.70	0.02	0.00	18.62	2.00	0.00	0.69	0.02	0.00
18.64	2.00	0.00	0.68	0.02	0.00	18.66	2.00	0.00	0.67	0.02	0.00
18.68	2.00	0.00	0.66	0.02	0.00	18.70	2.00	0.00	0.65	0.02	0.00
18.72	2.00	0.00	0.64	0.02	0.00	18.74	2.00	0.00	0.63	0.02	0.00
18.76	2.00	0.00	0.62	0.02	0.00	18.78	2.00	0.00	0.61	0.02	0.00
18.80	2.00	0.00	0.60	0.02	0.00	18.82	2.00	0.00	0.59	0.02	0.00
18.84	2.00	0.00	0.58	0.02	0.00	18.86	2.00	0.00	0.57	0.02	0.00
18.88	2.00	0.00	0.56	0.02	0.00	18.90	2.00	0.00	0.55	0.02	0.00
18.92	2.00	0.00	0.54	0.02	0.00	18.94	2.00	0.00	0.53	0.02	0.00
18.96	2.00	0.00	0.52	0.02	0.00	18.98	2.00	0.00	0.51	0.02	0.00
19.00	2.00	0.00	0.50	0.02	0.00	19.02	2.00	0.00	0.49	0.02	0.00
19.04	2.00	0.00	0.48	0.02	0.00	19.06	2.00	0.00	0.47	0.02	0.00
19.08	2.00	0.00	0.46	0.02	0.00	19.10	2.00	0.00	0.45	0.02	0.00
19.12	2.00	0.00	0.44	0.02	0.00	19.14	2.00	0.00	0.43	0.02	0.00
19.16	2.00	0.00	0.42	0.02	0.00	19.18	2.00	0.00	0.41	0.02	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (m)	FS	F_L	w_z	d_z	LPI	Depth (m)	FS	F_L	w_z	d_z	LPI
19.20	2.00	0.00	0.40	0.02	0.00	19.22	2.00	0.00	0.39	0.02	0.00
19.24	2.00	0.00	0.38	0.02	0.00	19.26	2.00	0.00	0.37	0.02	0.00
19.28	2.00	0.00	0.36	0.02	0.00	19.30	2.00	0.00	0.35	0.02	0.00
19.32	2.00	0.00	0.34	0.02	0.00	19.34	2.00	0.00	0.33	0.02	0.00
19.36	2.00	0.00	0.32	0.02	0.00	19.38	2.00	0.00	0.31	0.02	0.00
19.40	2.00	0.00	0.30	0.02	0.00	19.42	2.00	0.00	0.29	0.02	0.00
19.44	2.00	0.00	0.28	0.02	0.00	19.46	2.00	0.00	0.27	0.02	0.00
19.48	2.00	0.00	0.26	0.02	0.00	19.50	2.00	0.00	0.25	0.02	0.00
19.52	2.00	0.00	0.24	0.02	0.00	19.54	2.00	0.00	0.23	0.02	0.00
19.56	2.00	0.00	0.22	0.02	0.00	19.58	2.00	0.00	0.21	0.02	0.00
19.60	2.00	0.00	0.20	0.02	0.00	19.62	2.00	0.00	0.19	0.02	0.00
19.64	2.00	0.00	0.18	0.02	0.00	19.66	2.00	0.00	0.17	0.02	0.00
19.68	2.00	0.00	0.16	0.02	0.00	19.70	2.00	0.00	0.15	0.02	0.00
19.72	2.00	0.00	0.14	0.02	0.00	19.74	2.00	0.00	0.13	0.02	0.00
19.76	2.00	0.00	0.12	0.02	0.00	19.78	2.00	0.00	0.11	0.02	0.00
19.80	2.00	0.00	0.10	0.02	0.00	19.82	2.00	0.00	0.09	0.02	0.00
19.84	2.00	0.00	0.08	0.02	0.00	19.86	2.00	0.00	0.07	0.02	0.00
19.88	2.00	0.00	0.06	0.02	0.00	19.90	2.00	0.00	0.05	0.02	0.00
19.92	2.00	0.00	0.04	0.02	0.00	19.94	2.00	0.00	0.03	0.02	0.00
19.96	2.00	0.00	0.02	0.02	0.00	19.98	2.00	0.00	0.01	0.02	0.00
20.00	2.00	0.00	0.00	0.02	0.00	20.02	2.00	0.00	0.00	0.00	0.00
20.04	2.00	0.00	0.00	0.00	0.00	20.06	2.00	0.00	0.00	0.00	0.00
20.08	2.00	0.00	0.00	0.00	0.00	20.10	2.00	0.00	0.00	0.00	0.00
20.12	2.00	0.00	0.00	0.00	0.00	20.14	2.00	0.00	0.00	0.00	0.00
20.16	2.00	0.00	0.00	0.00	0.00	20.18	2.00	0.00	0.00	0.00	0.00
20.20	2.00	0.00	0.00	0.00	0.00	20.22	2.00	0.00	0.00	0.00	0.00
20.24	2.00	0.00	0.00	0.00	0.00	20.26	2.00	0.00	0.00	0.00	0.00
20.28	2.00	0.00	0.00	0.00	0.00	20.30	2.00	0.00	0.00	0.00	0.00
20.32	2.00	0.00	0.00	0.00	0.00	20.34	2.00	0.00	0.00	0.00	0.00
20.36	2.00	0.00	0.00	0.00	0.00	20.38	2.00	0.00	0.00	0.00	0.00
20.40	2.00	0.00	0.00	0.00	0.00	20.42	2.00	0.00	0.00	0.00	0.00
20.44	2.00	0.00	0.00	0.00	0.00	20.46	2.00	0.00	0.00	0.00	0.00
20.48	2.00	0.00	0.00	0.00	0.00	20.50	2.00	0.00	0.00	0.00	0.00
20.52	2.00	0.00	0.00	0.00	0.00	20.54	2.00	0.00	0.00	0.00	0.00
20.56	2.00	0.00	0.00	0.00	0.00	20.58	2.00	0.00	0.00	0.00	0.00
20.60	2.00	0.00	0.00	0.00	0.00	20.62	2.00	0.00	0.00	0.00	0.00
20.64	2.00	0.00	0.00	0.00	0.00						

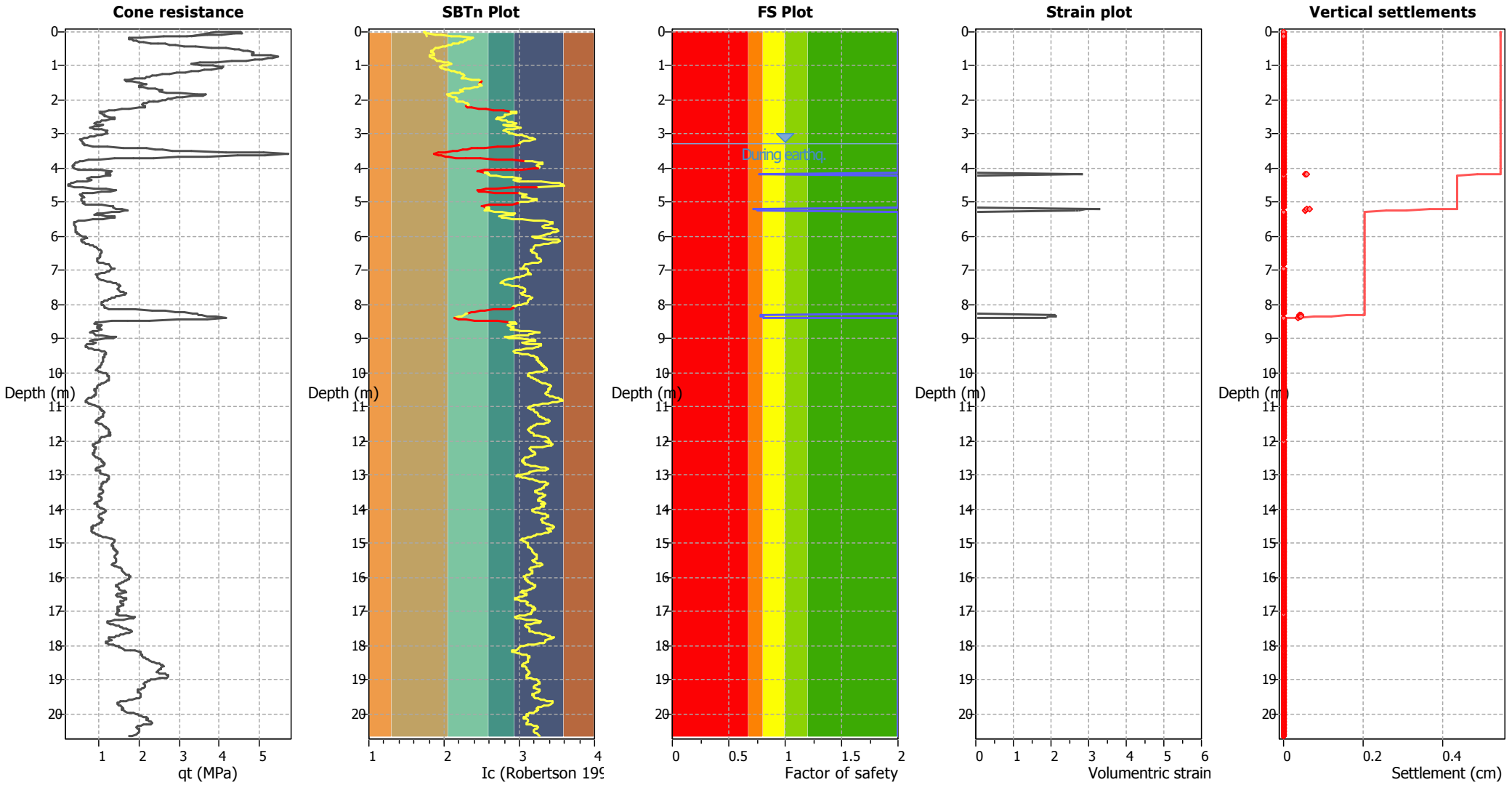
Overall liquefaction potential: 0.34

LPI = 0.00 - Liquefaction risk very low
LPI between 0.00 and 5.00 - Liquefaction risk low
LPI between 5.00 and 15.00 - Liquefaction risk high
LPI > 15.00 - Liquefaction risk very high

Abbreviations

FS: Calculated factor of safety for test point
F_L: 1 - FS
w_z: Function value of the extend of soil liquefaction according to depth
d_z: Layer thickness (m)
LPI: Liquefaction potential index value for test point

Estimation of post-earthquake settlements



Abbreviations

q_t:	Total cone resistance (cone resistance q_c corrected for pore water effects)
I_c:	Soil Behaviour Type Index
FS:	Calculated Factor of Safety against liquefaction
Volumentric strain:	Post-liquefaction volumentric strain

:: 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)
3.30	8.88	2.00	0.00	1.00	0.00	3.32	9.19	2.00	0.00	1.00	0.00
3.34	9.18	2.00	0.00	1.00	0.00	3.36	10.78	2.00	0.00	1.00	0.00
3.38	15.69	2.00	0.00	1.00	0.00	3.40	79.54	2.00	0.00	1.00	0.00
3.42	82.23	2.00	0.00	1.00	0.00	3.44	83.93	2.00	0.00	1.00	0.00
3.46	85.19	2.00	0.00	1.00	0.00	3.48	85.57	2.00	0.00	1.00	0.00
3.50	84.89	2.00	0.00	1.00	0.00	3.52	87.43	2.00	0.00	1.00	0.00
3.54	89.35	2.00	0.00	1.00	0.00	3.56	95.65	2.00	0.00	1.00	0.00
3.58	91.98	2.00	0.00	1.00	0.00	3.60	88.40	2.00	0.00	1.00	0.00
3.62	89.08	2.00	0.00	1.00	0.00	3.64	88.60	2.00	0.00	1.00	0.00
3.66	84.33	2.00	0.00	1.00	0.00	3.68	77.64	2.00	0.00	1.00	0.00
3.70	76.08	2.00	0.00	1.00	0.00	3.72	74.66	2.00	0.00	1.00	0.00
3.74	71.01	2.00	0.00	1.00	0.00	3.76	12.31	2.00	0.00	1.00	0.00
3.78	9.29	2.00	0.00	1.00	0.00	3.80	7.55	2.00	0.00	1.00	0.00
3.82	6.70	2.00	0.00	1.00	0.00	3.84	5.95	2.00	0.00	1.00	0.00
3.86	5.08	2.00	0.00	1.00	0.00	3.88	5.01	2.00	0.00	1.00	0.00
3.90	5.06	2.00	0.00	1.00	0.00	3.92	4.70	2.00	0.00	1.00	0.00
3.94	4.57	2.00	0.00	1.00	0.00	3.96	4.47	2.00	0.00	1.00	0.00
3.98	4.59	2.00	0.00	1.00	0.00	4.00	4.62	2.00	0.00	1.00	0.00
4.02	4.82	2.00	0.00	1.00	0.00	4.04	5.57	2.00	0.00	1.00	0.00
4.06	8.46	2.00	0.00	1.00	0.00	4.08	67.12	2.00	0.00	1.00	0.00
4.10	70.59	2.00	0.00	1.00	0.00	4.12	70.96	2.00	0.00	1.00	0.00
4.14	69.79	2.00	0.00	1.00	0.00	4.16	69.00	2.00	0.00	1.00	0.00
4.18	69.65	0.77	2.83	1.00	0.06	4.20	70.76	0.78	2.71	1.00	0.05
4.22	17.48	2.00	0.00	1.00	0.00	4.24	15.04	2.00	0.00	1.00	0.00
4.26	11.81	2.00	0.00	1.00	0.00	4.28	10.03	2.00	0.00	1.00	0.00
4.30	8.27	2.00	0.00	1.00	0.00	4.32	8.10	2.00	0.00	1.00	0.00
4.34	10.29	2.00	0.00	1.00	0.00	4.36	10.78	2.00	0.00	1.00	0.00
4.38	8.96	2.00	0.00	1.00	0.00	4.40	7.19	2.00	0.00	1.00	0.00
4.42	5.69	2.00	0.00	1.00	0.00	4.44	4.30	2.00	0.00	1.00	0.00
4.46	3.58	2.00	0.00	1.00	0.00	4.48	3.33	2.00	0.00	1.00	0.00
4.50	3.23	2.00	0.00	1.00	0.00	4.52	2.78	2.00	0.00	1.00	0.00
4.54	3.01	2.00	0.00	1.00	0.00	4.56	4.04	2.00	0.00	1.00	0.00
4.58	7.19	2.00	0.00	1.00	0.00	4.60	11.46	2.00	0.00	1.00	0.00
4.62	69.25	2.00	0.00	1.00	0.00	4.64	71.42	2.00	0.00	1.00	0.00
4.66	71.79	2.00	0.00	1.00	0.00	4.68	69.36	2.00	0.00	1.00	0.00
4.70	66.94	2.00	0.00	1.00	0.00	4.72	10.07	2.00	0.00	1.00	0.00
4.74	8.19	2.00	0.00	1.00	0.00	4.76	7.19	2.00	0.00	1.00	0.00
4.78	6.36	2.00	0.00	1.00	0.00	4.80	6.65	2.00	0.00	1.00	0.00
4.82	6.82	2.00	0.00	1.00	0.00	4.84	7.36	2.00	0.00	1.00	0.00
4.86	7.75	2.00	0.00	1.00	0.00	4.88	7.74	2.00	0.00	1.00	0.00
4.90	6.80	2.00	0.00	1.00	0.00	4.92	6.60	2.00	0.00	1.00	0.00
4.94	6.83	2.00	0.00	1.00	0.00	4.96	6.75	2.00	0.00	1.00	0.00
4.98	7.14	2.00	0.00	1.00	0.00	5.00	7.81	2.00	0.00	1.00	0.00
5.02	7.54	2.00	0.00	1.00	0.00	5.04	7.43	2.00	0.00	1.00	0.00
5.06	7.14	2.00	0.00	1.00	0.00	5.08	9.57	2.00	0.00	1.00	0.00
5.10	67.22	2.00	0.00	1.00	0.00	5.12	70.19	2.00	0.00	1.00	0.00
5.14	70.77	2.00	0.00	1.00	0.00	5.16	70.65	2.00	0.00	1.00	0.00
5.18	71.47	2.00	0.00	1.00	0.00	5.20	71.64	0.72	3.29	1.00	0.07

:: 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)
5.22	74.95	0.75	2.91	1.00	0.06	5.24	76.66	0.76	2.72	1.00	0.05
5.26	77.23	0.76	2.66	1.00	0.05	5.28	17.71	2.00	0.00	1.00	0.00
5.30	15.58	2.00	0.00	1.00	0.00	5.32	13.19	2.00	0.00	1.00	0.00
5.34	10.69	2.00	0.00	1.00	0.00	5.36	9.71	2.00	0.00	1.00	0.00
5.38	11.81	2.00	0.00	1.00	0.00	5.40	14.62	2.00	0.00	1.00	0.00
5.42	15.62	2.00	0.00	1.00	0.00	5.44	16.53	2.00	0.00	1.00	0.00
5.46	16.96	2.00	0.00	1.00	0.00	5.48	15.53	2.00	0.00	1.00	0.00
5.50	13.17	2.00	0.00	1.00	0.00	5.52	10.29	2.00	0.00	1.00	0.00
5.54	7.06	2.00	0.00	1.00	0.00	5.56	5.66	2.00	0.00	1.00	0.00
5.58	4.94	2.00	0.00	1.00	0.00	5.60	4.56	2.00	0.00	1.00	0.00
5.62	4.31	2.00	0.00	1.00	0.00	5.64	4.26	2.00	0.00	1.00	0.00
5.66	4.45	2.00	0.00	1.00	0.00	5.68	4.64	2.00	0.00	1.00	0.00
5.70	4.87	2.00	0.00	1.00	0.00	5.72	5.11	2.00	0.00	1.00	0.00
5.74	5.05	2.00	0.00	1.00	0.00	5.76	5.10	2.00	0.00	1.00	0.00
5.78	4.79	2.00	0.00	1.00	0.00	5.80	4.76	2.00	0.00	1.00	0.00
5.82	4.71	2.00	0.00	1.00	0.00	5.84	4.80	2.00	0.00	1.00	0.00
5.86	4.63	2.00	0.00	1.00	0.00	5.88	4.89	2.00	0.00	1.00	0.00
5.90	5.24	2.00	0.00	1.00	0.00	5.92	5.35	2.00	0.00	1.00	0.00
5.94	5.53	2.00	0.00	1.00	0.00	5.96	5.99	2.00	0.00	1.00	0.00
6.00	6.65	2.00	0.00	1.00	0.00	6.00	7.53	2.00	0.00	1.00	0.00
6.02	8.08	2.00	0.00	1.00	0.00	6.04	8.02	2.00	0.00	1.00	0.00
6.06	7.67	2.00	0.00	1.00	0.00	6.08	6.97	2.00	0.00	1.00	0.00
6.10	6.47	2.00	0.00	1.00	0.00	6.12	6.31	2.00	0.00	1.00	0.00
6.14	6.13	2.00	0.00	1.00	0.00	6.16	6.38	2.00	0.00	1.00	0.00
6.18	6.76	2.00	0.00	1.00	0.00	6.20	7.14	2.00	0.00	1.00	0.00
6.22	7.70	2.00	0.00	1.00	0.00	6.24	8.22	2.00	0.00	1.00	0.00
6.26	8.86	2.00	0.00	1.00	0.00	6.28	9.58	2.00	0.00	1.00	0.00
6.30	10.25	2.00	0.00	1.00	0.00	6.32	10.62	2.00	0.00	1.00	0.00
6.34	10.59	2.00	0.00	1.00	0.00	6.36	10.89	2.00	0.00	1.00	0.00
6.38	11.28	2.00	0.00	1.00	0.00	6.40	11.83	2.00	0.00	1.00	0.00
6.42	11.97	2.00	0.00	1.00	0.00	6.44	11.77	2.00	0.00	1.00	0.00
6.46	11.82	2.00	0.00	1.00	0.00	6.48	12.07	2.00	0.00	1.00	0.00
6.50	11.83	2.00	0.00	1.00	0.00	6.52	11.56	2.00	0.00	1.00	0.00
6.54	11.45	2.00	0.00	1.00	0.00	6.56	11.55	2.00	0.00	1.00	0.00
6.58	11.51	2.00	0.00	1.00	0.00	6.60	11.49	2.00	0.00	1.00	0.00
6.62	11.31	2.00	0.00	1.00	0.00	6.64	11.01	2.00	0.00	1.00	0.00
6.66	10.65	2.00	0.00	1.00	0.00	6.68	10.44	2.00	0.00	1.00	0.00
6.70	10.40	2.00	0.00	1.00	0.00	6.72	10.58	2.00	0.00	1.00	0.00
6.74	10.70	2.00	0.00	1.00	0.00	6.76	10.81	2.00	0.00	1.00	0.00
6.78	11.33	2.00	0.00	1.00	0.00	6.80	12.15	2.00	0.00	1.00	0.00
6.82	12.42	2.00	0.00	1.00	0.00	6.84	13.63	2.00	0.00	1.00	0.00
6.95	14.73	2.00	0.00	1.00	0.00	6.95	14.73	2.00	0.00	1.00	0.00
6.95	14.97	2.00	0.00	1.00	0.00	6.95	14.97	2.00	0.00	1.00	0.00
6.94	14.84	2.00	0.00	1.00	0.00	6.96	14.50	2.00	0.00	1.00	0.00
6.98	14.09	2.00	0.00	1.00	0.00	7.00	13.65	2.00	0.00	1.00	0.00
7.02	13.50	2.00	0.00	1.00	0.00	7.04	12.98	2.00	0.00	1.00	0.00
7.06	12.38	2.00	0.00	1.00	0.00	7.08	11.38	2.00	0.00	1.00	0.00
7.10	10.27	2.00	0.00	1.00	0.00	7.12	9.81	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)
7.14	10.14	2.00	0.00	1.00	0.00	7.16	10.15	2.00	0.00	1.00	0.00
7.18	10.25	2.00	0.00	1.00	0.00	7.20	10.35	2.00	0.00	1.00	0.00
7.22	10.30	2.00	0.00	1.00	0.00	7.24	10.32	2.00	0.00	1.00	0.00
7.26	10.73	2.00	0.00	1.00	0.00	7.28	11.28	2.00	0.00	1.00	0.00
7.30	12.08	2.00	0.00	1.00	0.00	7.32	12.46	2.00	0.00	1.00	0.00
7.34	14.03	2.00	0.00	1.00	0.00	7.36	14.54	2.00	0.00	1.00	0.00
7.38	15.13	2.00	0.00	1.00	0.00	7.40	15.70	2.00	0.00	1.00	0.00
7.42	16.30	2.00	0.00	1.00	0.00	7.44	15.97	2.00	0.00	1.00	0.00
7.46	16.00	2.00	0.00	1.00	0.00	7.48	15.94	2.00	0.00	1.00	0.00
7.50	15.86	2.00	0.00	1.00	0.00	7.52	15.59	2.00	0.00	1.00	0.00
7.54	15.41	2.00	0.00	1.00	0.00	7.56	15.45	2.00	0.00	1.00	0.00
7.58	15.71	2.00	0.00	1.00	0.00	7.60	15.96	2.00	0.00	1.00	0.00
7.62	16.09	2.00	0.00	1.00	0.00	7.64	16.72	2.00	0.00	1.00	0.00
7.66	17.39	2.00	0.00	1.00	0.00	7.68	17.35	2.00	0.00	1.00	0.00
7.70	17.45	2.00	0.00	1.00	0.00	7.72	16.60	2.00	0.00	1.00	0.00
7.74	15.81	2.00	0.00	1.00	0.00	7.76	14.76	2.00	0.00	1.00	0.00
7.78	14.02	2.00	0.00	1.00	0.00	7.80	14.22	2.00	0.00	1.00	0.00
7.82	13.80	2.00	0.00	1.00	0.00	7.84	13.02	2.00	0.00	1.00	0.00
7.86	13.48	2.00	0.00	1.00	0.00	7.88	12.63	2.00	0.00	1.00	0.00
7.90	11.70	2.00	0.00	1.00	0.00	7.92	11.29	2.00	0.00	1.00	0.00
7.94	10.92	2.00	0.00	1.00	0.00	7.96	10.81	2.00	0.00	1.00	0.00
7.98	10.80	2.00	0.00	1.00	0.00	8.00	10.93	2.00	0.00	1.00	0.00
8.02	11.51	2.00	0.00	1.00	0.00	8.04	11.56	2.00	0.00	1.00	0.00
8.06	11.43	2.00	0.00	1.00	0.00	8.08	12.03	2.00	0.00	1.00	0.00
8.10	11.73	2.00	0.00	1.00	0.00	8.12	11.78	2.00	0.00	1.00	0.00
8.14	14.52	2.00	0.00	1.00	0.00	8.16	19.40	2.00	0.00	1.00	0.00
8.18	81.38	2.00	0.00	1.00	0.00	8.20	83.81	2.00	0.00	1.00	0.00
8.22	84.95	2.00	0.00	1.00	0.00	8.24	87.60	2.00	0.00	1.00	0.00
8.26	88.44	2.00	0.00	1.00	0.00	8.28	88.47	2.00	0.00	1.00	0.00
8.30	88.65	0.79	2.11	1.00	0.04	8.32	88.95	0.79	2.08	1.00	0.04
8.34	88.33	0.78	2.15	1.00	0.04	8.36	90.42	0.80	1.92	1.00	0.04
8.38	90.71	0.81	1.89	1.00	0.04	8.40	91.38	2.00	0.00	1.00	0.00
8.42	89.28	2.00	0.00	1.00	0.00	8.44	81.68	2.00	0.00	1.00	0.00
8.46	76.07	2.00	0.00	1.00	0.00	8.48	71.79	2.00	0.00	1.00	0.00
8.50	12.55	2.00	0.00	1.00	0.00	8.52	10.04	2.00	0.00	1.00	0.00
8.54	8.78	2.00	0.00	1.00	0.00	8.56	8.69	2.00	0.00	1.00	0.00
8.58	9.09	2.00	0.00	1.00	0.00	8.60	10.16	2.00	0.00	1.00	0.00
8.62	11.21	2.00	0.00	1.00	0.00	8.64	10.29	2.00	0.00	1.00	0.00
8.66	9.03	2.00	0.00	1.00	0.00	8.68	9.15	2.00	0.00	1.00	0.00
8.70	10.04	2.00	0.00	1.00	0.00	8.72	10.88	2.00	0.00	1.00	0.00
8.74	10.51	2.00	0.00	1.00	0.00	8.76	9.89	2.00	0.00	1.00	0.00
8.78	8.51	2.00	0.00	1.00	0.00	8.80	7.26	2.00	0.00	1.00	0.00
8.82	7.22	2.00	0.00	1.00	0.00	8.84	8.75	2.00	0.00	1.00	0.00
8.86	9.32	2.00	0.00	1.00	0.00	8.88	8.63	2.00	0.00	1.00	0.00
8.90	8.64	2.00	0.00	1.00	0.00	8.92	9.93	2.00	0.00	1.00	0.00
8.94	12.98	2.00	0.00	1.00	0.00	8.96	14.76	2.00	0.00	1.00	0.00
8.98	14.05	2.00	0.00	1.00	0.00	9.00	11.32	2.00	0.00	1.00	0.00
9.02	8.96	2.00	0.00	1.00	0.00	9.04	7.91	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)
9.06	7.60	2.00	0.00	1.00	0.00	9.08	7.78	2.00	0.00	1.00	0.00
9.10	8.83	2.00	0.00	1.00	0.00	9.12	9.56	2.00	0.00	1.00	0.00
9.14	8.60	2.00	0.00	1.00	0.00	9.16	7.17	2.00	0.00	1.00	0.00
9.18	6.58	2.00	0.00	1.00	0.00	9.20	6.44	2.00	0.00	1.00	0.00
9.22	6.60	2.00	0.00	1.00	0.00	9.24	6.55	2.00	0.00	1.00	0.00
9.26	6.69	2.00	0.00	1.00	0.00	9.28	7.18	2.00	0.00	1.00	0.00
9.30	7.95	2.00	0.00	1.00	0.00	9.32	8.66	2.00	0.00	1.00	0.00
9.34	9.45	2.00	0.00	1.00	0.00	9.36	10.46	2.00	0.00	1.00	0.00
9.38	10.93	2.00	0.00	1.00	0.00	9.40	11.27	2.00	0.00	1.00	0.00
9.42	11.52	2.00	0.00	1.00	0.00	9.44	11.26	2.00	0.00	1.00	0.00
9.46	11.13	2.00	0.00	1.00	0.00	9.48	11.02	2.00	0.00	1.00	0.00
9.50	11.07	2.00	0.00	1.00	0.00	9.52	11.00	2.00	0.00	1.00	0.00
9.54	10.83	2.00	0.00	1.00	0.00	9.56	10.66	2.00	0.00	1.00	0.00
9.58	10.51	2.00	0.00	1.00	0.00	9.60	10.56	2.00	0.00	1.00	0.00
9.62	10.70	2.00	0.00	1.00	0.00	9.64	10.47	2.00	0.00	1.00	0.00
9.66	10.48	2.00	0.00	1.00	0.00	9.68	10.28	2.00	0.00	1.00	0.00
9.70	10.31	2.00	0.00	1.00	0.00	9.72	10.31	2.00	0.00	1.00	0.00
9.74	10.16	2.00	0.00	1.00	0.00	9.76	10.07	2.00	0.00	1.00	0.00
9.78	9.86	2.00	0.00	1.00	0.00	9.80	9.67	2.00	0.00	1.00	0.00
9.82	9.43	2.00	0.00	1.00	0.00	9.84	9.65	2.00	0.00	1.00	0.00
9.86	9.33	2.00	0.00	1.00	0.00	9.88	9.16	2.00	0.00	1.00	0.00
9.90	8.84	2.00	0.00	1.00	0.00	9.92	8.68	2.00	0.00	1.00	0.00
9.94	8.78	2.00	0.00	1.00	0.00	9.96	9.18	2.00	0.00	1.00	0.00
9.98	9.75	2.00	0.00	1.00	0.00	10.00	10.51	2.00	0.00	1.00	0.00
10.02	10.96	2.00	0.00	1.00	0.00	10.04	11.34	2.00	0.00	1.00	0.00
10.06	11.31	2.00	0.00	1.00	0.00	10.08	11.47	2.00	0.00	1.00	0.00
10.10	11.56	2.00	0.00	1.00	0.00	10.12	11.51	2.00	0.00	1.00	0.00
10.15	11.62	2.00	0.00	1.00	0.00	10.16	11.45	2.00	0.00	1.00	0.00
10.18	11.53	2.00	0.00	1.00	0.00	10.20	11.90	2.00	0.00	1.00	0.00
10.22	11.66	2.00	0.00	1.00	0.00	10.24	11.01	2.00	0.00	1.00	0.00
10.26	11.02	2.00	0.00	1.00	0.00	10.28	11.00	2.00	0.00	1.00	0.00
10.30	10.25	2.00	0.00	1.00	0.00	10.32	9.77	2.00	0.00	1.00	0.00
10.34	9.42	2.00	0.00	1.00	0.00	10.36	9.21	2.00	0.00	1.00	0.00
10.38	8.90	2.00	0.00	1.00	0.00	10.40	8.66	2.00	0.00	1.00	0.00
10.42	8.66	2.00	0.00	1.00	0.00	10.44	8.77	2.00	0.00	1.00	0.00
10.46	8.47	2.00	0.00	1.00	0.00	10.48	8.31	2.00	0.00	1.00	0.00
10.50	8.16	2.00	0.00	1.00	0.00	10.52	8.23	2.00	0.00	1.00	0.00
10.54	8.22	2.00	0.00	1.00	0.00	10.56	8.40	2.00	0.00	1.00	0.00
10.58	8.30	2.00	0.00	1.00	0.00	10.60	8.45	2.00	0.00	1.00	0.00
10.62	8.52	2.00	0.00	1.00	0.00	10.64	8.21	2.00	0.00	1.00	0.00
10.66	8.07	2.00	0.00	1.00	0.00	10.68	7.95	2.00	0.00	1.00	0.00
10.70	7.61	2.00	0.00	1.00	0.00	10.72	7.19	2.00	0.00	1.00	0.00
10.74	6.84	2.00	0.00	1.00	0.00	10.76	6.48	2.00	0.00	1.00	0.00
10.78	6.20	2.00	0.00	1.00	0.00	10.80	6.10	2.00	0.00	1.00	0.00
10.82	5.82	2.00	0.00	1.00	0.00	10.84	5.91	2.00	0.00	1.00	0.00
10.86	6.04	2.00	0.00	1.00	0.00	10.88	6.26	2.00	0.00	1.00	0.00
10.90	6.52	2.00	0.00	1.00	0.00	10.92	6.98	2.00	0.00	1.00	0.00
10.94	7.40	2.00	0.00	1.00	0.00	10.96	7.96	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)
10.98	8.51	2.00	0.00	1.00	0.00	11.00	8.99	2.00	0.00	1.00	0.00
11.02	9.30	2.00	0.00	1.00	0.00	11.04	9.49	2.00	0.00	1.00	0.00
11.06	9.29	2.00	0.00	1.00	0.00	11.08	9.27	2.00	0.00	1.00	0.00
11.10	9.60	2.00	0.00	1.00	0.00	11.12	9.95	2.00	0.00	1.00	0.00
11.14	10.09	2.00	0.00	1.00	0.00	11.16	10.03	2.00	0.00	1.00	0.00
11.18	10.13	2.00	0.00	1.00	0.00	11.20	9.99	2.00	0.00	1.00	0.00
11.22	9.78	2.00	0.00	1.00	0.00	11.24	9.97	2.00	0.00	1.00	0.00
11.26	9.89	2.00	0.00	1.00	0.00	11.28	9.79	2.00	0.00	1.00	0.00
11.30	9.54	2.00	0.00	1.00	0.00	11.32	9.10	2.00	0.00	1.00	0.00
11.34	8.91	2.00	0.00	1.00	0.00	11.36	8.62	2.00	0.00	1.00	0.00
11.38	8.47	2.00	0.00	1.00	0.00	11.40	8.07	2.00	0.00	1.00	0.00
11.42	8.01	2.00	0.00	1.00	0.00	11.44	8.18	2.00	0.00	1.00	0.00
11.46	8.21	2.00	0.00	1.00	0.00	11.48	8.38	2.00	0.00	1.00	0.00
11.50	9.16	2.00	0.00	1.00	0.00	11.52	9.43	2.00	0.00	1.00	0.00
11.54	9.71	2.00	0.00	1.00	0.00	11.56	9.81	2.00	0.00	1.00	0.00
11.58	9.91	2.00	0.00	1.00	0.00	11.60	10.14	2.00	0.00	1.00	0.00
11.62	10.37	2.00	0.00	1.00	0.00	11.64	10.56	2.00	0.00	1.00	0.00
11.66	10.88	2.00	0.00	1.00	0.00	11.68	10.98	2.00	0.00	1.00	0.00
11.70	10.98	2.00	0.00	1.00	0.00	11.72	11.00	2.00	0.00	1.00	0.00
11.74	11.03	2.00	0.00	1.00	0.00	11.76	11.13	2.00	0.00	1.00	0.00
11.78	10.89	2.00	0.00	1.00	0.00	11.80	10.90	2.00	0.00	1.00	0.00
11.82	11.48	2.00	0.00	1.00	0.00	11.84	11.07	2.00	0.00	1.00	0.00
11.86	10.25	2.00	0.00	1.00	0.00	11.88	10.11	2.00	0.00	1.00	0.00
11.90	9.18	2.00	0.00	1.00	0.00	11.92	8.70	2.00	0.00	1.00	0.00
12.00	8.59	2.00	0.00	1.00	0.00	12.00	8.59	2.00	0.00	1.00	0.00
12.00	8.59	2.00	0.00	1.00	0.00	12.00	9.44	2.00	0.00	1.00	0.00
12.02	8.64	2.00	0.00	1.00	0.00	12.04	8.05	2.00	0.00	1.00	0.00
12.06	7.76	2.00	0.00	1.00	0.00	12.08	7.53	2.00	0.00	1.00	0.00
12.10	7.33	2.00	0.00	1.00	0.00	12.12	7.18	2.00	0.00	1.00	0.00
12.14	7.28	2.00	0.00	1.00	0.00	12.16	7.40	2.00	0.00	1.00	0.00
12.18	7.73	2.00	0.00	1.00	0.00	12.20	7.80	2.00	0.00	1.00	0.00
12.22	7.85	2.00	0.00	1.00	0.00	12.24	7.72	2.00	0.00	1.00	0.00
12.26	7.42	2.00	0.00	1.00	0.00	12.28	7.54	2.00	0.00	1.00	0.00
12.30	7.47	2.00	0.00	1.00	0.00	12.32	7.45	2.00	0.00	1.00	0.00
12.34	7.27	2.00	0.00	1.00	0.00	12.36	7.23	2.00	0.00	1.00	0.00
12.38	7.11	2.00	0.00	1.00	0.00	12.40	7.26	2.00	0.00	1.00	0.00
12.42	7.26	2.00	0.00	1.00	0.00	12.44	7.28	2.00	0.00	1.00	0.00
12.46	7.63	2.00	0.00	1.00	0.00	12.48	8.23	2.00	0.00	1.00	0.00
12.50	8.49	2.00	0.00	1.00	0.00	12.52	8.58	2.00	0.00	1.00	0.00
12.54	8.72	2.00	0.00	1.00	0.00	12.56	8.77	2.00	0.00	1.00	0.00
12.58	9.02	2.00	0.00	1.00	0.00	12.60	9.01	2.00	0.00	1.00	0.00
12.62	8.94	2.00	0.00	1.00	0.00	12.64	9.39	2.00	0.00	1.00	0.00
12.66	9.51	2.00	0.00	1.00	0.00	12.68	9.58	2.00	0.00	1.00	0.00
12.70	9.56	2.00	0.00	1.00	0.00	12.72	9.24	2.00	0.00	1.00	0.00
12.74	8.78	2.00	0.00	1.00	0.00	12.76	8.24	2.00	0.00	1.00	0.00
12.78	7.80	2.00	0.00	1.00	0.00	12.80	7.41	2.00	0.00	1.00	0.00
12.82	7.67	2.00	0.00	1.00	0.00	12.84	7.61	2.00	0.00	1.00	0.00
12.86	7.73	2.00	0.00	1.00	0.00	12.88	8.26	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)
12.90	8.88	2.00	0.00	1.00	0.00	12.92	8.49	2.00	0.00	1.00	0.00
12.94	8.14	2.00	0.00	1.00	0.00	12.96	8.46	2.00	0.00	1.00	0.00
12.98	9.02	2.00	0.00	1.00	0.00	13.00	10.01	2.00	0.00	1.00	0.00
13.02	10.28	2.00	0.00	1.00	0.00	13.04	10.22	2.00	0.00	1.00	0.00
13.06	10.36	2.00	0.00	1.00	0.00	13.08	10.26	2.00	0.00	1.00	0.00
13.10	10.19	2.00	0.00	1.00	0.00	13.12	9.89	2.00	0.00	1.00	0.00
13.14	9.83	2.00	0.00	1.00	0.00	13.16	9.87	2.00	0.00	1.00	0.00
13.18	9.53	2.00	0.00	1.00	0.00	13.20	9.26	2.00	0.00	1.00	0.00
13.22	9.05	2.00	0.00	1.00	0.00	13.24	8.74	2.00	0.00	1.00	0.00
13.26	8.58	2.00	0.00	1.00	0.00	13.28	8.64	2.00	0.00	1.00	0.00
13.30	8.68	2.00	0.00	1.00	0.00	13.32	8.74	2.00	0.00	1.00	0.00
13.34	8.38	2.00	0.00	1.00	0.00	13.36	8.29	2.00	0.00	1.00	0.00
13.38	8.14	2.00	0.00	1.00	0.00	13.40	8.35	2.00	0.00	1.00	0.00
13.42	8.53	2.00	0.00	1.00	0.00	13.44	8.80	2.00	0.00	1.00	0.00
13.46	8.98	2.00	0.00	1.00	0.00	13.48	8.99	2.00	0.00	1.00	0.00
13.50	8.76	2.00	0.00	1.00	0.00	13.52	8.54	2.00	0.00	1.00	0.00
13.54	8.45	2.00	0.00	1.00	0.00	13.56	8.07	2.00	0.00	1.00	0.00
13.58	7.79	2.00	0.00	1.00	0.00	13.60	7.88	2.00	0.00	1.00	0.00
13.62	7.91	2.00	0.00	1.00	0.00	13.64	8.08	2.00	0.00	1.00	0.00
13.66	8.35	2.00	0.00	1.00	0.00	13.68	8.45	2.00	0.00	1.00	0.00
13.70	8.37	2.00	0.00	1.00	0.00	13.72	8.50	2.00	0.00	1.00	0.00
13.74	8.18	2.00	0.00	1.00	0.00	13.76	8.05	2.00	0.00	1.00	0.00
13.78	8.01	2.00	0.00	1.00	0.00	13.80	5.28	2.00	0.00	1.00	0.00
13.82	7.70	2.00	0.00	1.00	0.00	13.84	7.53	2.00	0.00	1.00	0.00
13.86	7.37	2.00	0.00	1.00	0.00	13.88	7.25	2.00	0.00	1.00	0.00
13.90	7.22	2.00	0.00	1.00	0.00	13.92	7.42	2.00	0.00	1.00	0.00
13.94	7.74	2.00	0.00	1.00	0.00	13.96	7.97	2.00	0.00	1.00	0.00
13.98	8.37	2.00	0.00	1.00	0.00	14.00	8.69	2.00	0.00	1.00	0.00
14.02	9.05	2.00	0.00	1.00	0.00	14.04	8.98	2.00	0.00	1.00	0.00
14.06	9.07	2.00	0.00	1.00	0.00	14.08	9.08	2.00	0.00	1.00	0.00
14.10	8.55	2.00	0.00	1.00	0.00	14.12	8.14	2.00	0.00	1.00	0.00
14.14	8.02	2.00	0.00	1.00	0.00	14.16	7.64	2.00	0.00	1.00	0.00
14.18	7.42	2.00	0.00	1.00	0.00	14.20	7.53	2.00	0.00	1.00	0.00
14.22	7.49	2.00	0.00	1.00	0.00	14.24	7.59	2.00	0.00	1.00	0.00
14.26	7.65	2.00	0.00	1.00	0.00	14.28	8.06	2.00	0.00	1.00	0.00
14.30	8.55	2.00	0.00	1.00	0.00	14.32	8.25	2.00	0.00	1.00	0.00
14.34	8.12	2.00	0.00	1.00	0.00	14.36	8.33	2.00	0.00	1.00	0.00
14.38	8.26	2.00	0.00	1.00	0.00	14.40	7.84	2.00	0.00	1.00	0.00
14.42	7.73	2.00	0.00	1.00	0.00	14.44	7.19	2.00	0.00	1.00	0.00
14.46	6.79	2.00	0.00	1.00	0.00	14.48	6.47	2.00	0.00	1.00	0.00
14.50	6.20	2.00	0.00	1.00	0.00	14.52	6.04	2.00	0.00	1.00	0.00
14.54	6.04	2.00	0.00	1.00	0.00	14.56	6.28	2.00	0.00	1.00	0.00
14.58	6.20	2.00	0.00	1.00	0.00	14.60	6.19	2.00	0.00	1.00	0.00
14.62	5.91	2.00	0.00	1.00	0.00	14.64	5.96	2.00	0.00	1.00	0.00
14.66	6.10	2.00	0.00	1.00	0.00	14.68	6.27	2.00	0.00	1.00	0.00
14.70	6.44	2.00	0.00	1.00	0.00	14.72	6.94	2.00	0.00	1.00	0.00
14.74	7.28	2.00	0.00	1.00	0.00	14.76	7.61	2.00	0.00	1.00	0.00
14.78	7.85	2.00	0.00	1.00	0.00	14.80	7.64	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)
14.82	9.15	2.00	0.00	1.00	0.00	14.84	9.46	2.00	0.00	1.00	0.00
14.86	10.12	2.00	0.00	1.00	0.00	14.88	10.56	2.00	0.00	1.00	0.00
14.90	10.66	2.00	0.00	1.00	0.00	14.92	10.58	2.00	0.00	1.00	0.00
14.94	10.46	2.00	0.00	1.00	0.00	14.96	10.47	2.00	0.00	1.00	0.00
14.98	10.38	2.00	0.00	1.00	0.00	15.00	10.13	2.00	0.00	1.00	0.00
15.02	10.02	2.00	0.00	1.00	0.00	15.04	9.87	2.00	0.00	1.00	0.00
15.06	9.84	2.00	0.00	1.00	0.00	15.08	10.20	2.00	0.00	1.00	0.00
15.10	10.24	2.00	0.00	1.00	0.00	15.12	10.15	2.00	0.00	1.00	0.00
15.14	10.19	2.00	0.00	1.00	0.00	15.16	10.25	2.00	0.00	1.00	0.00
15.18	10.33	2.00	0.00	1.00	0.00	15.20	10.60	2.00	0.00	1.00	0.00
15.22	10.67	2.00	0.00	1.00	0.00	15.24	10.78	2.00	0.00	1.00	0.00
15.26	10.87	2.00	0.00	1.00	0.00	15.28	10.87	2.00	0.00	1.00	0.00
15.30	10.99	2.00	0.00	1.00	0.00	15.32	10.74	2.00	0.00	1.00	0.00
15.34	10.36	2.00	0.00	1.00	0.00	15.36	10.35	2.00	0.00	1.00	0.00
15.38	10.44	2.00	0.00	1.00	0.00	15.40	10.41	2.00	0.00	1.00	0.00
15.42	10.29	2.00	0.00	1.00	0.00	15.44	10.41	2.00	0.00	1.00	0.00
15.46	10.61	2.00	0.00	1.00	0.00	15.48	10.47	2.00	0.00	1.00	0.00
15.50	10.64	2.00	0.00	1.00	0.00	15.52	10.82	2.00	0.00	1.00	0.00
15.54	10.57	2.00	0.00	1.00	0.00	15.56	10.15	2.00	0.00	1.00	0.00
15.58	9.98	2.00	0.00	1.00	0.00	15.60	9.79	2.00	0.00	1.00	0.00
15.62	9.67	2.00	0.00	1.00	0.00	15.64	9.68	2.00	0.00	1.00	0.00
15.66	9.93	2.00	0.00	1.00	0.00	15.68	10.68	2.00	0.00	1.00	0.00
15.70	11.12	2.00	0.00	1.00	0.00	15.72	11.33	2.00	0.00	1.00	0.00
15.74	11.54	2.00	0.00	1.00	0.00	15.76	11.62	2.00	0.00	1.00	0.00
15.78	11.36	2.00	0.00	1.00	0.00	15.81	11.40	2.00	0.00	1.00	0.00
15.82	11.65	2.00	0.00	1.00	0.00	15.84	11.89	2.00	0.00	1.00	0.00
15.86	11.82	2.00	0.00	1.00	0.00	15.88	12.02	2.00	0.00	1.00	0.00
15.90	12.11	2.00	0.00	1.00	0.00	15.92	12.44	2.00	0.00	1.00	0.00
15.94	12.64	2.00	0.00	1.00	0.00	15.96	13.03	2.00	0.00	1.00	0.00
15.98	13.18	2.00	0.00	1.00	0.00	16.00	12.99	2.00	0.00	1.00	0.00
16.03	12.61	2.00	0.00	1.00	0.00	16.04	12.52	2.00	0.00	1.00	0.00
16.06	12.75	2.00	0.00	1.00	0.00	16.08	12.16	2.00	0.00	1.00	0.00
16.10	11.80	2.00	0.00	1.00	0.00	16.12	11.68	2.00	0.00	1.00	0.00
16.14	11.48	2.00	0.00	1.00	0.00	16.16	10.75	2.00	0.00	1.00	0.00
16.18	10.74	2.00	0.00	1.00	0.00	16.20	10.44	2.00	0.00	1.00	0.00
16.22	10.18	2.00	0.00	1.00	0.00	16.24	10.08	2.00	0.00	1.00	0.00
16.26	10.08	2.00	0.00	1.00	0.00	16.28	10.43	2.00	0.00	1.00	0.00
16.30	10.60	2.00	0.00	1.00	0.00	16.32	10.70	2.00	0.00	1.00	0.00
16.34	10.60	2.00	0.00	1.00	0.00	16.36	10.43	2.00	0.00	1.00	0.00
16.38	10.85	2.00	0.00	1.00	0.00	16.40	11.81	2.00	0.00	1.00	0.00
16.42	12.45	2.00	0.00	1.00	0.00	16.44	11.85	2.00	0.00	1.00	0.00
16.46	11.19	2.00	0.00	1.00	0.00	16.48	10.58	2.00	0.00	1.00	0.00
16.50	10.29	2.00	0.00	1.00	0.00	16.52	10.25	2.00	0.00	1.00	0.00
16.54	10.48	2.00	0.00	1.00	0.00	16.56	10.91	2.00	0.00	1.00	0.00
16.58	11.71	2.00	0.00	1.00	0.00	16.60	11.91	2.00	0.00	1.00	0.00
16.62	11.84	2.00	0.00	1.00	0.00	16.64	12.12	2.00	0.00	1.00	0.00
16.66	11.90	2.00	0.00	1.00	0.00	16.68	11.18	2.00	0.00	1.00	0.00
16.70	10.83	2.00	0.00	1.00	0.00	16.72	10.59	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)
16.74	10.82	2.00	0.00	1.00	0.00	16.76	11.32	2.00	0.00	1.00	0.00
16.78	10.84	2.00	0.00	1.00	0.00	16.80	12.35	2.00	0.00	1.00	0.00
16.82	11.03	2.00	0.00	1.00	0.00	16.84	10.79	2.00	0.00	1.00	0.00
16.86	10.44	2.00	0.00	1.00	0.00	16.88	10.35	2.00	0.00	1.00	0.00
16.91	10.40	2.00	0.00	1.00	0.00	16.92	10.27	2.00	0.00	1.00	0.00
16.94	10.44	2.00	0.00	1.00	0.00	16.96	10.65	2.00	0.00	1.00	0.00
16.98	10.50	2.00	0.00	1.00	0.00	17.00	10.27	2.00	0.00	1.00	0.00
17.06	10.31	2.00	0.00	1.00	0.00	17.04	10.41	2.00	0.00	1.00	0.00
17.06	9.96	2.00	0.00	1.00	0.00	17.08	9.80	2.00	0.00	1.00	0.00
17.10	10.31	2.00	0.00	1.00	0.00	17.12	11.75	2.00	0.00	1.00	0.00
17.14	13.09	2.00	0.00	1.00	0.00	17.16	13.81	2.00	0.00	1.00	0.00
17.18	13.66	2.00	0.00	1.00	0.00	17.20	12.52	2.00	0.00	1.00	0.00
17.22	11.59	2.00	0.00	1.00	0.00	17.24	10.66	2.00	0.00	1.00	0.00
17.26	9.68	2.00	0.00	1.00	0.00	17.28	9.02	2.00	0.00	1.00	0.00
17.30	8.48	2.00	0.00	1.00	0.00	17.32	8.19	2.00	0.00	1.00	0.00
17.34	8.39	2.00	0.00	1.00	0.00	17.36	8.87	2.00	0.00	1.00	0.00
17.38	9.32	2.00	0.00	1.00	0.00	17.40	9.85	2.00	0.00	1.00	0.00
17.42	10.39	2.00	0.00	1.00	0.00	17.44	10.88	2.00	0.00	1.00	0.00
17.46	10.90	2.00	0.00	1.00	0.00	17.48	11.46	2.00	0.00	1.00	0.00
17.50	11.70	2.00	0.00	1.00	0.00	17.52	12.20	2.00	0.00	1.00	0.00
17.54	12.65	2.00	0.00	1.00	0.00	17.56	12.93	2.00	0.00	1.00	0.00
17.58	13.08	2.00	0.00	1.00	0.00	17.60	12.79	2.00	0.00	1.00	0.00
17.62	12.47	2.00	0.00	1.00	0.00	17.64	11.62	2.00	0.00	1.00	0.00
17.66	11.30	2.00	0.00	1.00	0.00	17.68	10.77	2.00	0.00	1.00	0.00
17.70	10.17	2.00	0.00	1.00	0.00	17.72	10.01	2.00	0.00	1.00	0.00
17.74	9.55	2.00	0.00	1.00	0.00	17.76	9.28	2.00	0.00	1.00	0.00
17.78	6.78	2.00	0.00	1.00	0.00	17.80	9.20	2.00	0.00	1.00	0.00
17.82	8.92	2.00	0.00	1.00	0.00	17.84	8.49	2.00	0.00	1.00	0.00
17.86	8.18	2.00	0.00	1.00	0.00	17.88	7.86	2.00	0.00	1.00	0.00
17.90	7.72	2.00	0.00	1.00	0.00	17.92	7.80	2.00	0.00	1.00	0.00
17.94	7.89	2.00	0.00	1.00	0.00	17.96	8.20	2.00	0.00	1.00	0.00
17.98	9.00	2.00	0.00	1.00	0.00	18.00	9.91	2.00	0.00	1.00	0.00
18.02	10.08	2.00	0.00	1.00	0.00	18.04	10.01	2.00	0.00	1.00	0.00
18.06	10.04	2.00	0.00	1.00	0.00	18.08	10.49	2.00	0.00	1.00	0.00
18.15	11.48	2.00	0.00	1.00	0.00	18.15	11.48	2.00	0.00	1.00	0.00
18.14	13.26	2.00	0.00	1.00	0.00	18.16	13.67	2.00	0.00	1.00	0.00
18.18	14.07	2.00	0.00	1.00	0.00	18.20	14.05	2.00	0.00	1.00	0.00
18.22	13.68	2.00	0.00	1.00	0.00	18.24	14.12	2.00	0.00	1.00	0.00
18.26	14.18	2.00	0.00	1.00	0.00	18.28	14.29	2.00	0.00	1.00	0.00
18.30	14.02	2.00	0.00	1.00	0.00	18.32	14.17	2.00	0.00	1.00	0.00
18.34	14.48	2.00	0.00	1.00	0.00	18.36	14.76	2.00	0.00	1.00	0.00
18.38	15.08	2.00	0.00	1.00	0.00	18.40	15.31	2.00	0.00	1.00	0.00
18.42	15.42	2.00	0.00	1.00	0.00	18.44	15.30	2.00	0.00	1.00	0.00
18.46	15.77	2.00	0.00	1.00	0.00	18.48	16.46	2.00	0.00	1.00	0.00
18.50	16.69	2.00	0.00	1.00	0.00	18.52	17.15	2.00	0.00	1.00	0.00
18.54	17.72	2.00	0.00	1.00	0.00	18.56	17.85	2.00	0.00	1.00	0.00
18.58	18.16	2.00	0.00	1.00	0.00	18.60	18.09	2.00	0.00	1.00	0.00
18.62	17.75	2.00	0.00	1.00	0.00	18.64	17.53	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)
18.66	17.37	2.00	0.00	1.00	0.00	18.68	17.55	2.00	0.00	1.00	0.00
18.70	17.30	2.00	0.00	1.00	0.00	18.72	17.09	2.00	0.00	1.00	0.00
18.74	16.97	2.00	0.00	1.00	0.00	18.76	17.09	2.00	0.00	1.00	0.00
18.78	15.86	2.00	0.00	1.00	0.00	18.80	17.84	2.00	0.00	1.00	0.00
18.82	17.84	2.00	0.00	1.00	0.00	18.84	18.59	2.00	0.00	1.00	0.00
18.86	18.65	2.00	0.00	1.00	0.00	18.88	18.88	2.00	0.00	1.00	0.00
18.90	18.74	2.00	0.00	1.00	0.00	18.92	18.49	2.00	0.00	1.00	0.00
18.94	18.12	2.00	0.00	1.00	0.00	18.96	17.15	2.00	0.00	1.00	0.00
18.98	16.57	2.00	0.00	1.00	0.00	19.00	15.76	2.00	0.00	1.00	0.00
19.02	15.25	2.00	0.00	1.00	0.00	19.04	15.34	2.00	0.00	1.00	0.00
19.06	14.76	2.00	0.00	1.00	0.00	19.08	14.55	2.00	0.00	1.00	0.00
19.10	14.29	2.00	0.00	1.00	0.00	19.12	14.39	2.00	0.00	1.00	0.00
19.14	14.52	2.00	0.00	1.00	0.00	19.16	14.66	2.00	0.00	1.00	0.00
19.18	14.55	2.00	0.00	1.00	0.00	19.20	14.58	2.00	0.00	1.00	0.00
19.22	14.46	2.00	0.00	1.00	0.00	19.24	13.99	2.00	0.00	1.00	0.00
19.26	13.71	2.00	0.00	1.00	0.00	19.28	13.11	2.00	0.00	1.00	0.00
19.30	13.00	2.00	0.00	1.00	0.00	19.32	13.18	2.00	0.00	1.00	0.00
19.34	13.10	2.00	0.00	1.00	0.00	19.36	12.98	2.00	0.00	1.00	0.00
19.38	13.30	2.00	0.00	1.00	0.00	19.40	13.64	2.00	0.00	1.00	0.00
19.42	13.89	2.00	0.00	1.00	0.00	19.44	13.58	2.00	0.00	1.00	0.00
19.46	13.44	2.00	0.00	1.00	0.00	19.48	13.54	2.00	0.00	1.00	0.00
19.50	13.63	2.00	0.00	1.00	0.00	19.52	13.21	2.00	0.00	1.00	0.00
19.54	12.81	2.00	0.00	1.00	0.00	19.56	12.23	2.00	0.00	1.00	0.00
19.58	11.43	2.00	0.00	1.00	0.00	19.60	11.06	2.00	0.00	1.00	0.00
19.62	10.56	2.00	0.00	1.00	0.00	19.64	9.88	2.00	0.00	1.00	0.00
19.66	9.41	2.00	0.00	1.00	0.00	19.68	9.73	2.00	0.00	1.00	0.00
19.70	9.49	2.00	0.00	1.00	0.00	19.72	9.50	2.00	0.00	1.00	0.00
19.74	9.67	2.00	0.00	1.00	0.00	19.76	10.02	2.00	0.00	1.00	0.00
19.78	9.88	2.00	0.00	1.00	0.00	19.80	10.41	2.00	0.00	1.00	0.00
19.82	10.18	2.00	0.00	1.00	0.00	19.84	10.20	2.00	0.00	1.00	0.00
19.86	10.01	2.00	0.00	1.00	0.00	19.88	10.21	2.00	0.00	1.00	0.00
19.90	10.43	2.00	0.00	1.00	0.00	19.92	10.48	2.00	0.00	1.00	0.00
19.94	10.89	2.00	0.00	1.00	0.00	19.96	11.20	2.00	0.00	1.00	0.00
19.98	11.96	2.00	0.00	1.00	0.00	20.00	12.51	2.00	0.00	1.00	0.00
20.02	12.55	2.00	0.00	1.00	0.00	20.04	12.95	2.00	0.00	1.00	0.00
20.06	12.99	2.00	0.00	1.00	0.00	20.08	13.67	2.00	0.00	1.00	0.00
20.10	14.43	2.00	0.00	1.00	0.00	20.12	14.49	2.00	0.00	1.00	0.00
20.14	14.19	2.00	0.00	1.00	0.00	20.16	14.08	2.00	0.00	1.00	0.00
20.18	14.31	2.00	0.00	1.00	0.00	20.20	14.52	2.00	0.00	1.00	0.00
20.22	15.04	2.00	0.00	1.00	0.00	20.24	15.15	2.00	0.00	1.00	0.00
20.26	15.43	2.00	0.00	1.00	0.00	20.28	14.85	2.00	0.00	1.00	0.00
20.30	14.24	2.00	0.00	1.00	0.00	20.32	13.53	2.00	0.00	1.00	0.00
20.34	13.22	2.00	0.00	1.00	0.00	20.36	12.40	2.00	0.00	1.00	0.00
20.38	12.26	2.00	0.00	1.00	0.00	20.40	12.51	2.00	0.00	1.00	0.00
20.42	12.59	2.00	0.00	1.00	0.00	20.44	12.79	2.00	0.00	1.00	0.00
20.46	13.16	2.00	0.00	1.00	0.00	20.48	12.73	2.00	0.00	1.00	0.00
20.50	12.67	2.00	0.00	1.00	0.00	20.52	12.79	2.00	0.00	1.00	0.00
20.54	12.71	2.00	0.00	1.00	0.00	20.56	12.37	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)
20.58	12.42	2.00	0.00	1.00	0.00	20.60	12.19	2.00	0.00	1.00	0.00
20.62	11.92	2.00	0.00	1.00	0.00	20.64	10.71	2.00	0.00	1.00	0.00

Total estimated settlement: 0.55

Abbreviations

$Q_{tn,cs}$: Equivalent clean 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	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
0.13	3.31	56.28	1.00	56.28	1.78	N/A	N/A
0.02	3.92	66.59	1.00	66.59	1.76	N/A	N/A
0.04	4.53	77.05	1.00	77.05	1.73	N/A	N/A
0.06	4.58	77.76	1.00	77.76	1.75	N/A	N/A
0.08	4.40	74.78	1.00	74.78	1.79	N/A	N/A
0.10	4.05	68.79	1.17	80.40	1.88	N/A	N/A
0.12	3.69	62.65	1.25	78.47	1.96	N/A	N/A
0.14	3.20	54.37	1.44	78.54	2.09	N/A	N/A
0.16	2.62	44.51	1.72	76.41	2.22	N/A	N/A
0.18	2.03	34.47	2.15	74.05	2.36	N/A	N/A
0.20	1.75	29.73	2.25	66.90	2.38	N/A	N/A
0.22	1.74	29.57	2.10	62.25	2.35	N/A	N/A
0.24	1.83	31.06	1.95	60.43	2.30	N/A	N/A
0.26	1.87	31.79	1.89	60.14	2.28	N/A	N/A
0.28	1.92	32.60	1.86	60.63	2.27	N/A	N/A
0.30	1.99	33.73	1.81	61.17	2.26	N/A	N/A
0.32	2.11	35.75	1.72	61.41	2.22	N/A	N/A
0.34	2.30	39.05	1.63	63.84	2.19	N/A	N/A
0.36	2.49	42.23	1.54	64.94	2.14	N/A	N/A
0.38	2.67	45.26	1.48	66.91	2.11	N/A	N/A
0.40	2.78	47.11	1.43	67.41	2.09	N/A	N/A
0.42	2.92	49.45	1.38	68.42	2.06	N/A	N/A
0.44	3.11	52.74	1.33	70.04	2.02	N/A	N/A
0.46	3.41	57.84	1.26	73.17	1.97	N/A	N/A
0.48	3.79	64.34	1.22	78.26	1.93	N/A	N/A
0.50	4.15	70.49	1.18	83.38	1.89	N/A	N/A
0.52	4.40	74.68	1.16	86.95	1.87	N/A	N/A
0.54	4.50	76.27	1.16	88.32	1.87	N/A	N/A
0.56	4.61	78.26	1.15	89.62	1.85	N/A	N/A
0.58	4.73	80.19	1.13	90.89	1.84	N/A	N/A
0.60	4.85	82.24	1.13	93.13	1.83	N/A	N/A
0.62	4.87	82.68	1.14	94.62	1.85	N/A	N/A
0.64	4.86	82.43	1.15	95.16	1.86	N/A	N/A
0.66	4.83	81.93	1.16	94.87	1.87	N/A	N/A
0.68	4.83	81.87	1.16	94.72	1.86	N/A	N/A
0.70	5.00	84.88	1.14	96.81	1.84	N/A	N/A
0.72	5.30	89.93	1.11	100.22	1.81	N/A	N/A
0.74	5.48	92.92	1.11	102.72	1.80	N/A	N/A
0.76	5.49	93.07	1.11	103.56	1.81	N/A	N/A
0.78	5.34	90.54	1.14	103.44	1.85	N/A	N/A
0.80	5.23	88.67	1.16	102.72	1.87	N/A	N/A
0.82	5.08	86.14	1.17	100.69	1.88	N/A	N/A
0.84	4.90	83.07	1.18	97.68	1.89	N/A	N/A
0.86	4.67	79.11	1.20	94.64	1.91	N/A	N/A
0.88	4.31	72.97	1.24	90.39	1.95	N/A	N/A
0.90	3.91	66.14	1.30	85.69	2.00	N/A	N/A
0.92	3.52	59.56	1.38	82.13	2.06	N/A	N/A
0.94	3.31	56.05	1.45	81.17	2.10	N/A	N/A

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

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
0.96	3.31	56.07	1.45	81.30	2.10	N/A	N/A
0.98	3.54	59.94	1.36	81.55	2.04	N/A	N/A
1.00	3.83	64.78	1.28	82.94	1.98	N/A	N/A
1.02	4.03	68.29	1.24	84.42	1.95	N/A	N/A
1.04	4.10	69.48	1.23	85.54	1.94	N/A	N/A
1.06	4.11	69.52	1.24	86.15	1.95	N/A	N/A
1.08	4.07	68.92	1.25	86.38	1.96	N/A	N/A
1.10	3.97	67.23	1.28	86.06	1.98	N/A	N/A
1.12	3.83	64.74	1.32	85.52	2.02	N/A	N/A
1.14	3.64	61.62	1.39	85.59	2.06	N/A	N/A
1.16	3.47	58.65	1.46	85.79	2.10	N/A	N/A
1.18	3.32	56.03	1.53	85.75	2.14	N/A	N/A
1.20	3.15	53.20	1.60	85.12	2.17	N/A	N/A
1.22	2.95	49.85	1.68	83.70	2.21	N/A	N/A
1.24	2.75	46.42	1.76	81.78	2.24	N/A	N/A
1.26	2.58	43.45	1.82	79.06	2.26	N/A	N/A
1.28	2.45	41.32	1.84	76.17	2.27	N/A	N/A
1.30	2.34	39.37	1.84	72.57	2.27	N/A	N/A
1.33	2.26	38.05	1.81	69.04	2.26	N/A	N/A
1.34	2.20	36.99	1.77	65.65	2.24	N/A	N/A
1.36	2.15	36.14	1.76	63.43	2.23	N/A	N/A
1.38	2.06	34.61	1.78	61.68	2.24	N/A	N/A
1.40	1.91	32.02	1.94	61.97	2.30	N/A	N/A
1.42	1.75	29.31	2.20	64.52	2.37	N/A	N/A
1.44	1.65	27.60	2.56	70.61	2.46	N/A	N/A
1.46	1.67	27.98	2.78	77.80	2.50	N/A	N/A
1.48	1.81	30.32	2.81	85.14	2.51	N/A	N/A
1.50	2.00	33.58	2.70	90.63	2.49	N/A	N/A
1.55	2.15	36.07	2.60	93.67	2.46	N/A	N/A
1.55	2.19	36.85	2.60	95.86	2.47	N/A	N/A
1.56	2.13	35.70	2.69	96.06	2.48	N/A	N/A
1.58	2.04	34.21	2.75	94.10	2.50	N/A	N/A
1.60	1.99	33.37	2.67	89.26	2.48	N/A	N/A
1.62	2.01	33.77	2.49	84.21	2.44	N/A	N/A
1.64	2.10	35.21	2.30	80.89	2.40	N/A	N/A
1.66	2.23	37.36	2.07	77.42	2.34	N/A	N/A
1.68	2.39	40.11	1.86	74.51	2.27	N/A	N/A
1.70	2.52	42.41	1.72	73.14	2.22	N/A	N/A
1.72	2.57	43.22	1.70	73.63	2.21	N/A	N/A
1.74	2.55	42.88	1.74	74.53	2.23	N/A	N/A
1.76	2.51	42.09	1.77	74.65	2.24	N/A	N/A
1.78	2.52	42.27	1.76	74.29	2.24	N/A	N/A
1.80	2.67	44.92	1.65	74.24	2.19	N/A	N/A
1.82	3.01	50.70	1.50	76.03	2.12	N/A	N/A
1.84	3.44	57.95	1.39	80.38	2.06	N/A	N/A
1.86	3.67	61.88	1.35	83.44	2.03	N/A	N/A
1.88	3.59	60.49	1.37	82.88	2.05	N/A	N/A
1.90	3.34	56.16	1.42	80.01	2.08	N/A	N/A

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

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
1.92	3.09	51.89	1.50	77.70	2.12	N/A	N/A
1.94	2.94	49.37	1.56	76.88	2.15	N/A	N/A
1.96	2.80	47.09	1.60	75.30	2.17	N/A	N/A
1.98	2.71	45.51	1.59	72.41	2.17	N/A	N/A
2.00	2.65	44.42	1.55	69.05	2.15	N/A	N/A
2.02	2.58	43.20	1.55	66.76	2.15	N/A	N/A
2.04	2.48	41.61	1.60	66.55	2.17	N/A	N/A
2.06	2.37	39.62	1.71	67.60	2.22	N/A	N/A
2.08	2.27	38.00	1.82	69.05	2.26	N/A	N/A
2.11	2.19	36.57	1.91	70.01	2.29	N/A	N/A
2.12	2.12	35.38	1.99	70.25	2.31	N/A	N/A
2.14	2.07	34.57	2.03	70.08	2.32	N/A	N/A
2.16	2.06	34.41	2.02	69.37	2.32	N/A	N/A
2.18	2.10	35.12	1.97	69.22	2.31	N/A	N/A
2.20	2.16	36.03	1.94	69.75	2.30	N/A	N/A
2.22	2.14	35.68	2.00	71.20	2.31	N/A	N/A
2.24	1.99	33.12	2.20	72.78	2.37	N/A	N/A
2.26	1.77	29.35	2.56	75.03	2.46	N/A	N/A
2.28	1.56	25.80	3.09	79.63	2.56	N/A	N/A
2.30	1.40	23.12	3.72	86.04	2.66	N/A	N/A
2.32	1.24	20.46	4.63	94.81	2.78	N/A	N/A
2.34	1.12	18.36	5.56	102.05	2.89	N/A	N/A
2.36	1.04	17.02	6.23	106.05	2.95	N/A	N/A
2.38	1.01	16.51	6.40	105.68	2.97	N/A	N/A
2.40	1.02	16.60	6.16	102.27	2.95	N/A	N/A
2.42	1.06	17.26	5.70	98.44	2.90	N/A	N/A
2.44	1.12	18.30	5.19	94.92	2.85	N/A	N/A
2.46	1.15	18.84	4.92	92.73	2.82	N/A	N/A
2.48	1.14	18.73	4.93	92.40	2.82	N/A	N/A
2.50	1.18	19.38	4.82	93.32	2.80	N/A	N/A
2.52	1.28	21.03	4.50	94.59	2.77	N/A	N/A
2.54	1.38	22.69	4.11	93.31	2.72	N/A	N/A
2.56	1.38	22.64	3.99	90.41	2.70	N/A	N/A
2.58	1.28	20.95	4.17	87.38	2.72	N/A	N/A
2.60	1.16	19.03	4.53	86.26	2.77	N/A	N/A
2.62	1.07	17.49	4.95	86.64	2.82	N/A	N/A
2.64	1.02	16.58	5.27	87.38	2.85	N/A	N/A
2.66	0.95	15.39	5.77	88.76	2.91	N/A	N/A
2.68	0.90	14.51	6.21	90.05	2.95	N/A	N/A
2.70	0.89	14.27	6.39	91.12	2.97	N/A	N/A
2.72	0.97	15.63	5.71	89.27	2.90	N/A	N/A
2.74	1.06	17.23	4.97	85.70	2.82	N/A	N/A
2.76	1.08	17.61	4.72	83.03	2.79	N/A	N/A
2.78	0.99	16.09	5.22	83.94	2.85	N/A	N/A
2.80	0.87	13.91	6.22	86.48	2.95	N/A	N/A
2.82	0.79	12.63	6.89	87.03	3.01	N/A	N/A
2.84	0.80	12.75	6.68	85.21	2.99	N/A	N/A
2.86	0.89	14.23	5.87	83.50	2.92	N/A	N/A

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

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
2.88	1.05	17.08	4.98	85.03	2.82	N/A	N/A
2.90	1.17	19.03	4.74	90.21	2.79	N/A	N/A
2.92	1.22	19.88	4.83	96.10	2.81	N/A	N/A
2.94	1.19	19.30	5.22	100.80	2.85	N/A	N/A
2.96	1.19	19.28	5.43	104.67	2.87	N/A	N/A
2.98	1.21	19.70	5.45	107.31	2.87	N/A	N/A
3.00	1.17	19.03	5.75	109.45	2.91	N/A	N/A
3.02	1.08	17.44	6.29	109.76	2.96	N/A	N/A
3.04	0.95	15.24	7.13	108.64	3.03	N/A	N/A
3.06	0.87	13.86	7.65	106.10	3.08	N/A	N/A
3.08	0.82	13.02	7.78	101.32	3.09	N/A	N/A
3.10	0.77	12.12	7.91	95.82	3.10	N/A	N/A
3.12	0.69	10.85	8.26	89.63	3.13	N/A	N/A
3.14	0.61	9.51	8.90	84.63	3.17	N/A	N/A
3.16	0.55	8.49	9.39	79.75	3.21	N/A	N/A
3.18	0.54	8.26	9.02	74.48	3.18	N/A	N/A
3.20	0.55	8.43	8.28	69.77	3.13	N/A	N/A
3.22	0.57	8.80	7.48	65.82	3.06	N/A	N/A
3.24	0.59	9.02	7.03	63.46	3.03	N/A	N/A
3.26	0.60	9.21	6.87	63.26	3.01	N/A	N/A
3.28	0.61	9.46	6.77	64.03	3.00	N/A	N/A
3.30	0.63	9.79	6.72	65.83	3.00	N/A	N/A
3.32	0.65	10.04	6.81	68.39	3.01	0.08	0.74
3.34	0.70	10.88	6.60	71.85	2.99	0.08	0.80
3.36	0.86	13.68	5.55	75.86	2.88	0.08	1.00
3.38	1.21	18.99	4.01	76.18	2.70	0.08	1.43
3.40	1.62	24.72	3.02	74.69	2.55	0.08	0.65
3.42	1.97	29.46	2.48	73.16	2.44	0.08	0.67
3.44	2.20	32.43	2.21	71.53	2.37	0.08	0.68
3.46	2.39	34.77	1.99	69.16	2.31	0.08	0.69
3.48	2.57	36.85	1.80	66.39	2.25	0.08	0.70
3.50	2.83	39.96	1.62	64.75	2.18	0.08	0.71
3.52	3.30	45.88	1.49	68.17	2.12	0.08	0.72
3.54	4.18	57.05	1.32	75.44	2.02	0.08	0.75
3.56	5.13	68.77	1.22	83.75	1.93	0.10	0.78
3.58	5.72	75.80	1.16	88.24	1.87	0.10	0.79
3.60	5.64	74.49	1.16	86.70	1.87	0.10	0.79
3.62	5.13	67.94	1.20	81.70	1.91	0.09	0.77
3.64	4.46	59.21	1.25	74.29	1.96	0.09	0.76
3.66	3.69	49.17	1.31	64.55	2.01	0.08	0.73
3.68	2.98	39.82	1.00	39.82	2.07	0.07	0.71
3.70	2.36	31.65	1.00	31.65	2.15	0.07	0.68
3.72	1.85	25.13	1.92	48.21	2.29	0.07	0.65
3.74	1.38	19.02	2.65	50.38	2.48	0.07	0.62
3.76	1.00	13.98	3.99	55.84	2.70	0.08	1.04
3.78	0.75	10.53	5.77	60.78	2.91	0.08	0.76
3.80	0.60	8.27	7.54	62.31	3.07	0.07	0.59
3.82	0.51	6.91	8.90	61.46	3.17	0.07	0.49

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

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
3.84	0.45	5.90	9.99	58.95	3.25	0.07	0.42
3.86	0.41	5.25	10.77	56.50	3.30	0.07	0.37
3.88	0.39	4.92	10.85	53.37	3.31	0.07	0.35
3.90	0.38	4.79	10.29	49.30	3.27	0.07	0.34
3.92	0.37	4.61	9.73	44.82	3.23	0.07	0.33
3.94	0.35	4.36	9.64	42.06	3.23	0.07	0.31
3.96	0.35	4.32	9.97	43.02	3.25	0.07	0.31
3.98	0.35	4.33	10.17	44.05	3.26	0.07	0.31
4.00	0.36	4.47	10.01	44.72	3.25	0.07	0.32
4.02	0.39	4.85	9.24	44.84	3.20	0.07	0.35
4.04	0.49	6.39	7.04	44.98	3.03	0.07	0.46
4.06	0.72	9.53	4.56	43.43	2.77	0.07	0.70
4.08	1.03	13.66	3.01	41.09	2.55	0.07	0.58
4.10	1.27	16.76	2.50	41.93	2.44	0.07	0.60
4.12	1.33	17.59	2.58	45.43	2.46	0.07	0.61
4.14	1.25	16.61	2.98	49.57	2.54	0.07	0.60
4.16	1.18	15.69	3.23	50.73	2.58	0.07	0.59
4.18	1.19	15.82	3.27	51.68	2.59	0.08	0.60
4.20	1.28	17.02	3.18	54.22	2.58	0.08	0.60
4.22	1.29	17.24	3.41	58.71	2.61	0.08	1.29
4.24	1.18	15.90	3.89	61.81	2.68	0.08	1.18
4.26	0.98	13.20	4.74	62.61	2.80	0.08	0.96
4.28	0.80	10.71	5.82	62.38	2.91	0.08	0.77
4.30	0.70	9.24	6.86	63.40	3.01	0.08	0.66
4.32	0.71	9.34	7.04	65.72	3.03	0.07	0.67
4.34	0.78	10.33	6.39	65.99	2.97	0.08	0.74
4.36	0.80	10.66	5.98	63.69	2.93	0.08	0.76
4.38	0.72	9.41	6.44	60.59	2.97	0.08	0.67
4.40	0.58	7.37	8.10	59.69	3.11	0.07	0.53
4.42	0.45	5.52	10.43	57.56	3.28	0.07	0.39
4.44	0.36	4.09	13.02	53.22	3.44	0.07	0.29
4.46	0.29	3.15	14.87	46.90	3.54	0.07	0.23
4.48	0.26	2.73	15.29	41.72	3.56	0.07	0.19
4.50	0.24	2.41	15.73	37.93	3.59	0.07	0.17
4.52	0.23	2.28	16.06	36.64	3.60	0.07	0.16
4.54	0.25	2.58	14.65	37.76	3.53	0.07	0.18
4.56	0.37	4.30	9.68	41.61	3.23	0.07	0.31
4.58	0.60	7.60	5.77	43.81	2.91	0.07	0.54
4.60	0.90	11.49	3.93	45.18	2.69	0.07	0.85
4.62	1.19	15.14	3.06	46.32	2.55	0.07	0.59
4.64	1.37	17.51	2.66	46.50	2.48	0.07	0.61
4.66	1.41	17.90	2.51	44.89	2.45	0.07	0.61
4.68	1.29	16.31	2.59	42.31	2.46	0.07	0.60
4.70	1.07	13.39	2.98	39.95	2.54	0.07	0.58
4.72	0.85	10.62	3.85	40.88	2.68	0.07	0.78
4.74	0.69	8.55	5.21	44.56	2.85	0.07	0.62
4.76	0.58	7.18	6.75	48.46	3.00	0.07	0.51
4.78	0.54	6.57	7.68	50.47	3.08	0.07	0.47

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

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
4.80	0.53	6.42	7.85	50.44	3.09	0.07	0.46
4.82	0.56	6.81	7.45	50.74	3.06	0.07	0.49
4.84	0.59	7.23	7.08	51.23	3.03	0.07	0.52
4.86	0.62	7.59	7.26	55.09	3.05	0.07	0.54
4.88	0.60	7.37	7.99	58.87	3.11	0.07	0.53
4.90	0.57	6.92	9.01	62.31	3.18	0.07	0.49
4.92	0.55	6.56	9.65	63.28	3.23	0.07	0.47
4.94	0.55	6.53	9.79	63.91	3.24	0.07	0.47
4.96	0.56	6.73	9.18	61.84	3.20	0.07	0.48
4.98	0.59	7.11	8.10	57.54	3.11	0.07	0.51
5.00	0.61	7.40	6.95	51.43	3.02	0.07	0.53
5.02	0.62	7.51	6.33	47.55	2.96	0.07	0.54
5.04	0.60	7.24	6.52	47.17	2.98	0.07	0.52
5.06	0.66	8.00	5.81	46.47	2.91	0.07	0.57
5.08	0.81	9.91	4.46	44.15	2.76	0.07	0.72
5.10	1.07	13.03	3.25	42.37	2.59	0.07	0.57
5.12	1.26	15.47	2.81	43.52	2.51	0.07	0.59
5.14	1.35	16.57	2.82	46.75	2.51	0.07	0.60
5.16	1.35	16.63	3.08	51.19	2.56	0.08	0.60
5.18	1.34	16.57	3.32	55.07	2.60	0.08	0.60
5.20	1.43	17.79	3.31	58.89	2.60	0.08	0.61
5.22	1.57	19.45	3.11	60.52	2.56	0.08	0.62
5.24	1.70	21.06	3.01	63.45	2.55	0.08	0.63
5.26	1.66	20.62	3.25	67.10	2.59	0.08	0.63
5.28	1.52	18.87	3.75	70.81	2.67	0.08	1.39
5.30	1.31	16.25	4.51	73.21	2.77	0.08	1.18
5.32	1.11	13.71	5.31	72.83	2.86	0.08	0.99
5.34	0.94	11.52	6.13	70.62	2.94	0.08	0.82
5.36	0.90	10.98	6.01	65.97	2.93	0.08	0.78
5.38	1.01	12.35	5.02	61.99	2.83	0.08	0.89
5.40	1.18	14.45	4.30	62.07	2.74	0.08	1.05
5.42	1.32	16.19	4.15	67.26	2.72	0.08	1.18
5.44	1.39	17.11	4.34	74.27	2.75	0.08	1.25
5.46	1.39	17.12	4.57	78.28	2.77	0.08	1.24
5.48	1.29	15.91	4.98	79.21	2.82	0.08	1.15
5.50	1.10	13.48	5.76	77.69	2.91	0.08	0.96
5.52	0.86	10.24	7.13	73.05	3.03	0.08	0.73
5.54	0.65	7.36	9.09	66.91	3.19	0.07	0.53
5.56	0.49	5.32	11.14	59.27	3.33	0.07	0.38
5.58	0.42	4.36	12.45	54.33	3.41	0.07	0.31
5.60	0.38	3.85	12.92	49.77	3.43	0.07	0.28
5.62	0.37	3.59	12.99	46.63	3.44	0.07	0.26
5.64	0.36	3.55	12.57	44.56	3.41	0.07	0.25
5.66	0.37	3.66	12.11	44.36	3.39	0.07	0.26
5.68	0.39	3.89	11.43	44.43	3.35	0.07	0.28
5.70	0.41	4.13	10.87	44.89	3.31	0.07	0.29
5.72	0.42	4.28	10.81	46.27	3.31	0.07	0.31
5.74	0.43	4.36	11.08	48.34	3.32	0.07	0.31

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

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
5.76	0.42	4.24	11.94	50.57	3.38	0.07	0.30
5.78	0.41	4.12	12.65	52.12	3.42	0.07	0.29
5.80	0.40	3.97	13.53	53.75	3.47	0.07	0.28
5.82	0.40	3.97	13.96	55.41	3.49	0.07	0.28
5.84	0.40	3.93	14.41	56.63	3.52	0.07	0.28
5.86	0.41	4.00	14.31	57.31	3.51	0.07	0.29
5.88	0.42	4.17	13.81	57.63	3.48	0.07	0.30
5.90	0.44	4.43	13.04	57.81	3.44	0.07	0.32
5.92	0.46	4.66	12.46	58.11	3.41	0.07	0.33
5.94	0.48	4.94	11.92	58.82	3.38	0.07	0.35
5.96	0.52	5.42	11.07	59.95	3.32	0.07	0.39
6.00	0.58	6.15	10.05	61.81	3.26	0.07	0.44
6.00	0.64	6.95	9.21	63.95	3.20	0.07	0.50
6.02	0.68	7.46	8.96	66.83	3.18	0.07	0.53
6.04	0.69	7.50	9.36	70.27	3.21	0.07	0.54
6.06	0.66	7.08	10.50	74.35	3.29	0.07	0.51
6.08	0.61	6.49	11.99	77.78	3.38	0.07	0.46
6.10	0.57	5.97	13.44	80.20	3.46	0.07	0.43
6.12	0.55	5.65	14.50	81.95	3.52	0.07	0.40
6.14	0.54	5.61	14.94	83.78	3.55	0.07	0.40
6.16	0.56	5.77	14.78	85.34	3.54	0.07	0.41
6.18	0.59	6.14	14.05	86.30	3.50	0.07	0.44
6.20	0.63	6.63	13.03	86.39	3.44	0.07	0.47
6.22	0.67	7.16	12.01	86.01	3.38	0.07	0.51
6.24	0.72	7.80	11.01	85.81	3.32	0.07	0.56
6.26	0.78	8.49	10.16	86.21	3.26	0.08	0.61
6.28	0.84	9.23	9.47	87.48	3.22	0.08	0.66
6.30	0.90	9.88	9.10	89.85	3.19	0.08	0.71
6.32	0.93	10.24	9.08	92.94	3.19	0.08	0.73
6.34	0.95	10.46	9.18	96.05	3.20	0.08	0.75
6.36	0.97	10.70	9.19	98.30	3.20	0.08	0.76
6.38	1.01	11.14	8.95	99.70	3.18	0.08	0.80
6.40	1.04	11.53	8.71	100.49	3.16	0.08	0.82
6.42	1.06	11.70	8.66	101.36	3.16	0.08	0.84
6.44	1.06	11.69	8.78	102.56	3.17	0.08	0.83
6.46	1.06	11.71	8.85	103.68	3.17	0.08	0.84
6.48	1.06	11.72	8.96	105.00	3.18	0.08	0.84
6.50	1.06	11.61	9.20	106.77	3.20	0.08	0.83
6.52	1.04	11.37	9.56	108.71	3.22	0.08	0.81
6.54	1.03	11.25	9.75	109.76	3.24	0.08	0.80
6.56	1.03	11.22	9.75	109.35	3.23	0.08	0.80
6.58	1.03	11.22	9.66	108.40	3.23	0.08	0.80
6.60	1.03	11.12	9.65	107.39	3.23	0.08	0.79
6.62	1.01	10.93	9.74	106.48	3.23	0.08	0.78
6.64	0.99	10.61	9.96	105.66	3.25	0.08	0.76
6.66	0.96	10.28	10.26	105.41	3.27	0.08	0.73
6.68	0.95	10.04	10.54	105.80	3.29	0.08	0.72
6.70	0.95	10.00	10.66	106.59	3.30	0.08	0.71

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

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
6.72	0.95	10.09	10.60	106.90	3.29	0.08	0.72
6.74	0.97	10.23	10.42	106.63	3.28	0.08	0.73
6.76	0.99	10.49	10.06	105.51	3.26	0.08	0.75
6.78	1.04	11.01	9.44	103.95	3.21	0.08	0.79
6.80	1.09	11.58	8.86	102.68	3.17	0.08	0.83
6.82	1.16	12.41	8.20	101.73	3.12	0.08	0.89
6.84	1.24	13.37	7.60	101.67	3.07	0.08	0.96
6.95	1.32	14.09	7.17	100.94	3.04	0.08	1.01
6.95	1.36	14.61	6.92	101.11	3.02	0.08	1.04
6.95	1.37	14.69	6.89	101.20	3.01	0.08	1.05
6.95	1.37	14.73	7.07	104.08	3.03	0.08	1.05
6.94	1.36	14.58	7.37	107.49	3.05	0.08	1.04
6.96	1.33	14.23	7.81	111.06	3.09	0.08	1.02
6.98	1.30	13.78	8.11	111.79	3.11	0.08	0.98
7.00	1.27	13.41	8.23	110.42	3.12	0.08	0.96
7.02	1.24	13.00	8.20	106.58	3.12	0.08	0.93
7.04	1.20	12.53	8.03	100.55	3.11	0.08	0.89
7.06	1.13	11.75	8.06	94.67	3.11	0.08	0.84
7.08	1.05	10.77	8.24	88.76	3.13	0.08	0.77
7.10	0.97	9.83	8.51	83.68	3.15	0.08	0.70
7.12	0.93	9.38	8.36	78.44	3.13	0.08	0.67
7.14	0.93	9.33	7.97	74.36	3.10	0.08	0.67
7.16	0.95	9.49	7.46	70.78	3.06	0.08	0.68
7.18	0.95	9.55	7.12	68.04	3.03	0.08	0.68
7.20	0.96	9.60	6.73	64.65	3.00	0.08	0.69
7.22	0.96	9.62	6.33	60.89	2.96	0.08	0.69
7.24	0.97	9.74	5.78	56.31	2.91	0.08	0.70
7.26	1.01	10.06	5.30	53.27	2.86	0.08	0.72
7.28	1.06	10.66	4.89	52.14	2.81	0.08	0.76
7.30	1.12	11.26	4.78	53.85	2.80	0.08	0.81
7.32	1.20	12.20	4.49	54.82	2.76	0.08	0.88
7.34	1.28	13.06	4.46	58.26	2.76	0.08	0.94
7.36	1.37	14.00	4.45	62.27	2.76	0.08	1.01
7.38	1.42	14.60	4.69	68.42	2.79	0.08	1.05
7.40	1.48	15.23	4.90	74.56	2.81	0.08	1.09
7.42	1.51	15.54	5.24	81.44	2.85	0.08	1.11
7.44	1.52	15.67	5.66	88.68	2.90	0.08	1.12
7.46	1.51	15.53	6.14	95.40	2.94	0.08	1.11
7.48	1.51	15.48	6.52	100.86	2.98	0.08	1.11
7.50	1.50	15.32	6.89	105.48	3.01	0.08	1.09
7.52	1.48	15.11	7.24	109.45	3.04	0.08	1.08
7.54	1.47	14.95	7.55	112.89	3.07	0.08	1.07
7.56	1.47	14.98	7.69	115.20	3.08	0.08	1.07
7.58	1.49	15.16	7.70	116.69	3.08	0.08	1.08
7.60	1.52	15.37	7.65	117.62	3.08	0.08	1.10
7.62	1.55	15.72	7.54	118.45	3.07	0.09	1.12
7.64	1.60	16.21	7.31	118.42	3.05	0.09	1.16
7.66	1.64	16.63	7.11	118.33	3.03	0.09	1.19

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

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
7.68	1.66	16.87	7.00	118.18	3.02	0.09	1.21
7.70	1.64	16.57	7.15	118.45	3.04	0.09	1.18
7.72	1.59	16.02	7.41	118.76	3.06	0.09	1.14
7.74	1.51	15.06	7.91	119.12	3.10	0.08	1.08
7.76	1.43	14.14	8.45	119.52	3.14	0.08	1.01
7.78	1.38	13.57	8.72	118.25	3.16	0.08	0.97
7.80	1.35	13.22	8.75	115.71	3.16	0.08	0.94
7.82	1.32	12.86	8.69	111.80	3.16	0.08	0.92
7.84	1.30	12.61	8.51	107.26	3.15	0.08	0.90
7.86	1.26	12.20	8.39	102.34	3.14	0.08	0.87
7.88	1.22	11.74	8.19	96.10	3.12	0.08	0.84
7.90	1.15	10.96	8.20	89.90	3.12	0.08	0.78
7.92	1.10	10.36	8.15	84.43	3.12	0.08	0.74
7.94	1.07	10.04	8.04	80.72	3.11	0.08	0.72
7.96	1.05	9.86	7.90	77.95	3.10	0.08	0.70
7.98	1.06	9.86	7.55	74.42	3.07	0.08	0.70
8.00	1.08	10.10	6.95	70.20	3.02	0.08	0.72
8.02	1.11	10.35	6.47	66.96	2.97	0.08	0.74
8.04	1.12	10.52	6.17	64.92	2.95	0.08	0.75
8.06	1.14	10.69	5.91	63.18	2.92	0.08	0.76
8.08	1.15	10.74	5.82	62.56	2.91	0.08	0.77
8.10	1.16	10.85	5.86	63.58	2.92	0.08	0.78
8.12	1.24	11.71	5.63	65.91	2.89	0.08	0.84
8.14	1.49	14.32	4.74	67.88	2.79	0.08	1.03
8.16	1.91	18.58	3.69	68.56	2.66	0.08	1.33
8.18	2.32	22.86	3.01	68.75	2.55	0.09	0.64
8.20	2.64	26.12	2.63	68.81	2.47	0.09	0.65
8.22	2.90	28.78	2.36	67.96	2.41	0.09	0.67
8.24	3.13	31.10	2.15	66.93	2.36	0.09	0.68
8.26	3.33	33.07	1.98	65.52	2.31	0.09	0.68
8.28	3.44	34.14	1.89	64.56	2.28	0.09	0.69
8.30	3.50	34.69	1.85	64.23	2.27	0.09	0.69
8.32	3.54	35.09	1.85	64.89	2.27	0.09	0.69
8.34	3.68	36.51	1.77	64.68	2.24	0.09	0.69
8.36	3.92	38.83	1.65	64.02	2.19	0.09	0.70
8.38	4.16	41.26	1.53	63.04	2.14	0.09	0.71
8.40	4.13	40.92	1.52	62.18	2.13	0.09	0.71
8.42	3.69	36.40	1.65	60.03	2.19	0.09	0.69
8.44	2.99	29.19	1.91	55.84	2.29	0.08	0.67
8.46	2.26	21.73	2.35	51.03	2.41	0.08	0.63
8.48	1.70	16.01	2.99	47.91	2.54	0.08	0.60
8.50	1.30	11.88	4.02	47.70	2.70	0.08	0.85
8.52	1.03	9.13	5.36	48.87	2.86	0.08	0.65
8.54	0.91	7.82	6.15	48.11	2.95	0.08	0.56
8.56	0.88	7.49	6.28	47.03	2.96	0.08	0.54
8.58	0.92	7.96	5.83	46.41	2.91	0.08	0.57
8.60	1.01	8.82	5.35	47.14	2.86	0.08	0.63
8.62	1.05	9.22	5.23	48.25	2.85	0.08	0.66

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

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
8.64	1.01	8.84	5.51	48.71	2.88	0.08	0.63
8.66	0.94	8.14	5.91	48.09	2.92	0.08	0.58
8.68	0.94	8.05	5.96	48.00	2.93	0.08	0.58
8.70	1.00	8.68	5.68	49.26	2.90	0.08	0.62
8.72	1.05	9.14	5.64	51.50	2.89	0.08	0.65
8.74	1.04	9.09	6.00	54.52	2.93	0.08	0.65
8.76	0.97	8.28	6.90	57.12	3.01	0.08	0.59
8.78	0.86	7.18	8.40	60.29	3.14	0.08	0.51
8.80	0.77	6.27	9.84	61.68	3.24	0.07	0.45
8.82	0.78	6.36	10.24	65.15	3.27	0.07	0.45
8.84	0.85	7.07	9.43	66.66	3.21	0.08	0.51
8.86	0.90	7.56	8.82	66.62	3.17	0.08	0.54
8.88	0.90	7.51	8.48	63.73	3.14	0.08	0.54
8.90	0.92	7.71	8.07	62.21	3.11	0.08	0.55
8.92	1.07	9.17	6.60	60.53	2.99	0.08	0.66
8.94	1.27	11.22	5.35	60.05	2.86	0.08	0.80
8.96	1.41	12.59	4.82	60.72	2.80	0.08	0.90
8.98	1.36	12.02	5.39	64.73	2.87	0.08	0.86
9.00	1.16	10.05	6.68	67.15	2.99	0.08	0.72
9.02	0.96	7.98	8.35	66.64	3.13	0.08	0.57
9.04	0.83	6.73	9.49	63.92	3.22	0.07	0.48
9.06	0.79	6.33	9.48	60.04	3.22	0.07	0.45
9.08	0.82	6.64	8.61	57.22	3.15	0.07	0.47
9.10	0.89	7.30	7.46	54.45	3.06	0.08	0.52
9.12	0.92	7.57	7.11	53.82	3.03	0.08	0.54
9.14	0.86	7.01	7.83	54.87	3.09	0.08	0.50
9.16	0.76	6.00	9.28	55.71	3.20	0.07	0.43
9.18	0.69	5.28	10.45	55.17	3.28	0.07	0.38
9.20	0.67	5.09	10.55	53.67	3.29	0.07	0.36
9.22	0.67	5.07	10.29	52.20	3.27	0.07	0.36
9.24	0.68	5.15	10.09	52.01	3.26	0.07	0.37
9.26	0.70	5.35	9.71	51.91	3.23	0.07	0.38
9.28	0.75	5.81	8.88	51.60	3.17	0.07	0.42
9.30	0.82	6.47	7.84	50.73	3.09	0.07	0.46
9.32	0.90	7.22	6.89	49.76	3.01	0.08	0.52
9.34	0.98	8.05	6.23	50.11	2.95	0.08	0.57
9.36	1.06	8.79	5.92	52.10	2.92	0.08	0.63
9.38	1.12	9.39	5.94	55.77	2.92	0.08	0.67
9.40	1.16	9.74	6.14	59.84	2.94	0.08	0.70
9.42	1.17	9.84	6.60	64.96	2.99	0.08	0.70
9.44	1.17	9.78	7.24	70.83	3.04	0.08	0.70
9.46	1.15	9.61	8.08	77.65	3.11	0.08	0.69
9.48	1.15	9.54	8.61	82.13	3.15	0.08	0.68
9.50	1.15	9.49	8.96	85.00	3.18	0.08	0.68
9.52	1.14	9.42	9.16	86.23	3.19	0.08	0.67
9.54	1.13	9.27	9.47	87.80	3.22	0.08	0.66
9.56	1.11	9.10	9.75	88.80	3.24	0.08	0.65
9.58	1.10	9.01	9.89	89.04	3.24	0.08	0.64

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

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
9.60	1.10	9.01	9.80	88.33	3.24	0.08	0.64
9.62	1.10	8.99	9.78	87.93	3.24	0.08	0.64
9.64	1.10	8.96	9.83	88.07	3.24	0.08	0.64
9.66	1.09	8.81	10.10	88.98	3.26	0.08	0.63
9.68	1.08	8.75	10.24	89.63	3.27	0.08	0.63
9.70	1.08	8.69	10.37	90.16	3.28	0.08	0.62
9.72	1.08	8.65	10.46	90.42	3.28	0.08	0.62
9.74	1.07	8.56	10.60	90.77	3.29	0.08	0.61
9.76	1.05	8.41	10.82	90.93	3.31	0.08	0.60
9.78	1.04	8.24	10.98	90.46	3.32	0.08	0.59
9.80	1.02	8.02	11.13	89.30	3.33	0.08	0.57
9.82	1.01	7.95	11.16	88.72	3.33	0.08	0.57
9.84	1.00	7.83	11.30	88.51	3.34	0.08	0.56
9.86	0.99	7.74	11.41	88.38	3.34	0.08	0.55
9.88	0.97	7.47	11.65	87.05	3.36	0.08	0.53
9.90	0.94	7.25	11.76	85.31	3.37	0.08	0.52
9.92	0.93	7.12	11.74	83.64	3.36	0.08	0.51
9.94	0.94	7.23	11.38	82.30	3.34	0.08	0.52
9.96	0.98	7.57	10.72	81.18	3.30	0.08	0.54
9.98	1.04	8.13	9.82	79.90	3.24	0.08	0.58
10.00	1.11	8.71	8.97	78.14	3.18	0.08	0.62
10.02	1.16	9.22	8.34	76.88	3.13	0.08	0.66
10.04	1.19	9.47	8.10	76.73	3.11	0.08	0.68
10.06	1.21	9.62	8.11	78.09	3.11	0.08	0.69
10.08	1.22	9.69	8.24	79.80	3.12	0.08	0.69
10.10	1.23	9.74	8.37	81.55	3.13	0.08	0.70
10.12	1.24	9.79	8.58	83.97	3.15	0.08	0.70
10.15	1.23	9.74	8.91	86.74	3.18	0.08	0.70
10.16	1.23	9.74	9.18	89.43	3.19	0.08	0.70
10.18	1.24	9.82	9.25	90.91	3.20	0.08	0.70
10.20	1.25	9.88	9.32	92.12	3.21	0.08	0.71
10.22	1.24	9.71	9.61	93.30	3.23	0.08	0.69
10.24	1.21	9.41	9.98	93.92	3.25	0.08	0.67
10.26	1.18	9.19	10.17	93.47	3.26	0.08	0.66
10.28	1.16	8.94	10.37	92.68	3.28	0.08	0.64
10.30	1.11	8.53	10.82	92.26	3.31	0.08	0.61
10.32	1.06	8.01	11.49	92.09	3.35	0.08	0.57
10.34	1.02	7.67	11.93	91.54	3.38	0.08	0.55
10.36	0.99	7.39	12.28	90.66	3.40	0.08	0.53
10.38	0.97	7.13	12.56	89.64	3.41	0.08	0.51
10.40	0.95	6.95	12.68	88.14	3.42	0.08	0.50
10.42	0.94	6.91	12.47	86.11	3.41	0.08	0.49
10.44	0.94	6.84	12.25	83.79	3.40	0.08	0.49
10.46	0.93	6.72	12.17	81.84	3.39	0.08	0.48
10.48	0.91	6.53	12.32	80.38	3.40	0.08	0.47
10.50	0.90	6.44	12.27	79.06	3.40	0.07	0.46
10.52	0.90	6.41	12.19	78.15	3.39	0.07	0.46
10.54	0.91	6.49	11.97	77.66	3.38	0.07	0.46

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

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
10.56	0.91	6.50	11.92	77.51	3.38	0.08	0.46
10.58	0.92	6.57	11.73	77.08	3.36	0.08	0.47
10.60	0.92	6.60	11.58	76.47	3.35	0.08	0.47
10.62	0.92	6.57	11.56	75.93	3.35	0.08	0.47
10.64	0.91	6.44	11.75	75.69	3.37	0.07	0.46
10.66	0.89	6.25	12.06	75.41	3.38	0.07	0.45
10.68	0.87	6.06	12.41	75.16	3.40	0.07	0.43
10.70	0.84	5.77	12.94	74.66	3.44	0.07	0.41
10.72	0.80	5.41	13.66	73.95	3.48	0.07	0.39
10.74	0.76	5.05	14.36	72.53	3.51	0.07	0.36
10.76	0.72	4.73	14.96	70.79	3.55	0.07	0.34
10.78	0.69	4.49	15.35	68.92	3.57	0.07	0.32
10.80	0.67	4.27	15.72	67.18	3.59	0.07	0.31
10.82	0.66	4.19	15.52	65.09	3.58	0.07	0.30
10.84	0.66	4.18	15.08	63.11	3.55	0.07	0.30
10.86	0.68	4.33	14.05	60.89	3.50	0.07	0.31
10.88	0.70	4.52	13.12	59.30	3.45	0.07	0.32
10.90	0.74	4.81	12.01	57.79	3.38	0.07	0.34
10.92	0.78	5.17	10.96	56.69	3.32	0.07	0.37
10.94	0.83	5.63	9.92	55.80	3.25	0.07	0.40
10.96	0.89	6.11	9.14	55.80	3.19	0.07	0.44
10.98	0.95	6.60	8.60	56.82	3.15	0.08	0.47
11.00	1.00	7.02	8.27	58.07	3.13	0.08	0.50
11.02	1.03	7.33	8.03	58.83	3.11	0.08	0.52
11.04	1.05	7.42	8.12	60.21	3.12	0.08	0.53
11.06	1.04	7.40	8.55	63.24	3.15	0.08	0.53
11.08	1.05	7.43	9.02	67.04	3.18	0.08	0.53
11.10	1.07	7.63	9.20	70.21	3.20	0.08	0.55
11.12	1.11	7.88	9.23	72.78	3.20	0.08	0.56
11.14	1.12	8.01	9.36	75.01	3.21	0.08	0.57
11.16	1.13	8.06	9.55	76.95	3.22	0.08	0.58
11.18	1.13	8.02	9.72	77.96	3.23	0.08	0.57
11.20	1.12	7.94	9.87	78.34	3.24	0.08	0.57
11.22	1.11	7.88	9.92	78.19	3.25	0.08	0.56
11.24	1.11	7.85	9.97	78.23	3.25	0.08	0.56
11.26	1.11	7.84	10.00	78.41	3.25	0.08	0.56
11.28	1.10	7.70	10.23	78.82	3.27	0.08	0.55
11.30	1.07	7.45	10.58	78.80	3.29	0.08	0.53
11.32	1.04	7.17	10.92	78.30	3.31	0.08	0.51
11.34	1.00	6.88	11.25	77.38	3.33	0.08	0.49
11.36	0.98	6.67	11.52	76.86	3.35	0.08	0.48
11.38	0.95	6.41	11.93	76.46	3.38	0.08	0.46
11.40	0.93	6.21	12.25	76.06	3.40	0.07	0.44
11.42	0.92	6.12	12.28	75.11	3.40	0.07	0.44
11.44	0.93	6.16	12.05	74.22	3.38	0.07	0.44
11.46	0.94	6.27	11.73	73.57	3.36	0.07	0.45
11.48	0.98	6.57	11.10	72.95	3.32	0.08	0.47
11.50	1.02	6.95	10.37	72.04	3.28	0.08	0.50

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

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
11.52	1.07	7.36	9.64	70.91	3.23	0.08	0.53
11.54	1.10	7.56	9.28	70.16	3.20	0.08	0.54
11.56	1.12	7.70	9.09	69.99	3.19	0.08	0.55
11.58	1.14	7.83	8.90	69.68	3.17	0.08	0.56
11.60	1.16	8.00	8.71	69.70	3.16	0.08	0.57
11.62	1.18	8.20	8.50	69.64	3.14	0.08	0.59
11.64	1.21	8.42	8.31	70.01	3.13	0.08	0.60
11.66	1.23	8.60	8.19	70.49	3.12	0.08	0.61
11.68	1.25	8.73	8.20	71.52	3.12	0.08	0.62
11.70	1.26	8.76	8.32	72.87	3.13	0.08	0.63
11.72	1.26	8.77	8.49	74.38	3.14	0.08	0.63
11.74	1.27	8.81	8.60	75.77	3.15	0.08	0.63
11.76	1.26	8.77	8.83	77.42	3.17	0.08	0.63
11.78	1.26	8.72	9.07	79.04	3.19	0.08	0.62
11.80	1.27	8.83	9.16	80.89	3.19	0.08	0.63
11.82	1.28	8.88	9.23	82.00	3.20	0.08	0.63
11.84	1.26	8.68	9.55	82.88	3.22	0.08	0.62
11.86	1.21	8.25	10.05	82.94	3.26	0.08	0.59
11.88	1.14	7.66	10.79	82.67	3.30	0.08	0.55
11.90	1.08	7.18	11.45	82.18	3.35	0.08	0.51
11.92	1.02	6.71	12.13	81.35	3.39	0.08	0.48
12.00	1.00	6.49	12.45	80.82	3.41	0.08	0.46
12.00	1.00	6.46	12.48	80.64	3.41	0.08	0.46
12.00	1.03	6.73	11.79	79.30	3.37	0.08	0.48
12.00	1.03	6.75	11.45	77.27	3.35	0.08	0.48
12.02	1.02	6.58	11.37	74.82	3.34	0.08	0.47
12.04	0.95	6.06	12.13	73.50	3.39	0.07	0.43
12.06	0.91	5.72	12.65	72.30	3.42	0.07	0.41
12.08	0.88	5.49	12.87	70.67	3.43	0.07	0.39
12.10	0.86	5.31	12.93	68.71	3.44	0.07	0.38
12.12	0.86	5.23	12.62	66.06	3.42	0.07	0.37
12.14	0.86	5.26	11.92	62.64	3.38	0.07	0.38
12.16	0.88	5.43	10.76	58.35	3.30	0.07	0.39
12.18	0.90	5.58	9.66	53.93	3.23	0.07	0.40
12.20	0.92	5.72	8.75	50.03	3.16	0.07	0.41
12.22	0.92	5.71	8.37	47.84	3.13	0.07	0.41
12.24	0.91	5.59	8.41	47.06	3.14	0.07	0.40
12.26	0.90	5.50	8.55	47.00	3.15	0.07	0.39
12.28	0.89	5.42	8.74	47.35	3.16	0.07	0.39
12.30	0.89	5.42	8.81	47.79	3.17	0.07	0.39
12.32	0.88	5.34	9.11	48.62	3.19	0.07	0.38
12.34	0.87	5.27	9.29	48.94	3.20	0.07	0.38
12.36	0.86	5.16	9.44	48.70	3.21	0.07	0.37
12.38	0.86	5.16	9.34	48.21	3.21	0.07	0.37
12.40	0.86	5.17	9.16	47.34	3.19	0.07	0.37
12.42	0.87	5.22	8.91	46.48	3.18	0.07	0.37
12.44	0.88	5.33	8.62	45.96	3.15	0.07	0.38
12.46	0.92	5.62	8.19	46.04	3.12	0.07	0.40

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

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
12.48	0.97	5.99	7.70	46.14	3.08	0.07	0.43
12.50	1.01	6.28	7.41	46.54	3.06	0.08	0.45
12.52	1.03	6.42	7.38	47.43	3.06	0.08	0.46
12.54	1.04	6.50	7.42	48.27	3.06	0.08	0.46
12.56	1.05	6.63	7.30	48.44	3.05	0.08	0.47
12.58	1.07	6.72	7.18	48.25	3.04	0.08	0.48
12.60	1.07	6.77	7.21	48.83	3.04	0.08	0.48
12.62	1.09	6.88	7.32	50.35	3.05	0.08	0.49
12.64	1.11	7.03	7.47	52.52	3.06	0.08	0.50
12.66	1.14	7.22	7.53	54.42	3.07	0.08	0.52
12.68	1.14	7.27	7.70	55.94	3.08	0.08	0.52
12.70	1.13	7.18	8.00	57.47	3.11	0.08	0.51
12.72	1.10	6.93	8.58	59.50	3.15	0.08	0.50
12.74	1.05	6.53	9.49	61.96	3.22	0.08	0.47
12.76	1.00	6.09	10.51	64.05	3.29	0.07	0.44
12.78	0.95	5.68	11.50	65.25	3.35	0.07	0.41
12.80	0.93	5.52	11.92	65.77	3.38	0.07	0.39
12.82	0.92	5.47	11.91	65.22	3.38	0.07	0.39
12.84	0.94	5.58	11.45	63.93	3.35	0.07	0.40
12.86	0.96	5.76	10.71	61.65	3.30	0.07	0.41
12.88	1.01	6.14	9.58	58.84	3.22	0.07	0.44
12.90	1.04	6.37	8.75	55.71	3.16	0.08	0.45
12.92	1.04	6.33	8.45	53.52	3.14	0.08	0.45
12.94	1.02	6.20	8.43	52.28	3.14	0.07	0.44
12.96	1.04	6.36	8.01	50.97	3.11	0.08	0.45
12.98	1.12	6.92	7.14	49.41	3.03	0.08	0.49
13.00	1.19	7.46	6.52	48.65	2.98	0.08	0.53
13.02	1.24	7.82	6.39	50.01	2.97	0.08	0.56
13.04	1.25	7.92	6.69	52.96	2.99	0.08	0.57
13.06	1.25	7.91	7.18	56.84	3.04	0.08	0.57
13.08	1.25	7.90	7.70	60.78	3.08	0.08	0.56
13.10	1.23	7.75	8.33	64.55	3.13	0.08	0.55
13.12	1.22	7.62	8.88	67.60	3.17	0.08	0.54
13.14	1.21	7.52	9.29	69.78	3.20	0.08	0.54
13.16	1.19	7.40	9.70	71.80	3.23	0.08	0.53
13.18	1.17	7.23	10.20	73.72	3.27	0.08	0.52
13.20	1.14	6.98	10.81	75.46	3.31	0.08	0.50
13.22	1.11	6.74	11.34	76.47	3.34	0.08	0.48
13.24	1.09	6.53	11.75	76.76	3.36	0.08	0.47
13.26	1.07	6.41	11.93	76.50	3.38	0.08	0.46
13.28	1.07	6.39	11.82	75.56	3.37	0.08	0.46
13.30	1.08	6.44	11.43	73.61	3.35	0.08	0.46
13.32	1.07	6.36	11.18	71.12	3.33	0.08	0.45
13.34	1.05	6.24	11.01	68.73	3.32	0.08	0.45
13.36	1.03	6.06	11.06	67.02	3.32	0.08	0.43
13.38	1.03	6.05	10.88	65.82	3.31	0.07	0.43
13.40	1.04	6.12	10.60	64.90	3.29	0.08	0.44
13.42	1.07	6.32	10.19	64.34	3.26	0.08	0.45

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

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
13.44	1.09	6.50	9.81	63.78	3.24	0.08	0.46
13.46	1.11	6.63	9.51	63.05	3.22	0.08	0.47
13.48	1.11	6.61	9.45	62.52	3.21	0.08	0.47
13.50	1.10	6.48	9.69	62.81	3.23	0.08	0.46
13.52	1.08	6.32	9.98	63.09	3.25	0.08	0.45
13.54	1.05	6.11	10.35	63.25	3.28	0.08	0.44
13.56	1.02	5.88	10.74	63.19	3.30	0.07	0.42
13.58	1.00	5.71	11.15	63.71	3.33	0.07	0.41
13.60	0.99	5.67	11.36	64.38	3.34	0.07	0.40
13.62	1.01	5.75	11.25	64.72	3.33	0.07	0.41
13.64	1.02	5.89	10.90	64.19	3.31	0.07	0.42
13.66	1.05	6.04	10.54	63.71	3.29	0.08	0.43
13.68	1.06	6.13	10.28	63.04	3.27	0.08	0.44
13.70	1.07	6.17	10.11	62.39	3.26	0.08	0.44
13.72	1.06	6.09	10.06	61.31	3.26	0.08	0.44
13.74	1.05	6.00	10.03	60.15	3.25	0.07	0.43
13.76	1.03	5.85	10.12	59.17	3.26	0.07	0.42
13.78	0.91	5.01	11.15	55.85	3.33	0.07	0.36
13.80	0.90	4.92	11.14	54.83	3.33	0.07	0.35
13.82	0.89	4.79	11.38	54.49	3.34	0.07	0.34
13.84	0.97	5.39	10.56	56.94	3.29	0.07	0.39
13.86	0.95	5.25	10.90	57.27	3.31	0.07	0.38
13.88	0.94	5.16	11.18	57.72	3.33	0.07	0.37
13.90	0.94	5.18	11.24	58.19	3.33	0.07	0.37
13.92	0.96	5.32	11.06	58.87	3.32	0.07	0.38
13.94	1.00	5.54	10.65	59.03	3.30	0.07	0.40
13.96	1.03	5.82	10.11	58.90	3.26	0.07	0.42
13.98	1.07	6.10	9.59	58.52	3.22	0.08	0.44
14.00	1.12	6.42	9.05	58.06	3.19	0.08	0.46
14.02	1.14	6.59	8.83	58.14	3.17	0.08	0.47
14.04	1.16	6.70	8.75	58.61	3.16	0.08	0.48
14.06	1.16	6.70	8.93	59.86	3.18	0.08	0.48
14.08	1.15	6.58	9.36	61.55	3.21	0.08	0.47
14.10	1.11	6.30	10.02	63.09	3.25	0.08	0.45
14.12	1.07	5.98	10.71	64.04	3.30	0.07	0.43
14.14	1.03	5.71	11.31	64.53	3.34	0.07	0.41
14.16	1.00	5.49	11.77	64.65	3.37	0.07	0.39
14.18	0.98	5.35	12.06	64.47	3.38	0.07	0.38
14.20	0.98	5.30	12.05	63.91	3.38	0.07	0.38
14.22	0.98	5.35	11.84	63.31	3.37	0.07	0.38
14.24	0.99	5.38	11.75	63.23	3.37	0.07	0.38
14.26	1.01	5.55	11.42	63.35	3.34	0.07	0.40
14.28	1.05	5.83	10.89	63.49	3.31	0.07	0.42
14.30	1.08	6.00	10.61	63.69	3.29	0.08	0.43
14.32	1.08	6.02	10.68	64.24	3.30	0.07	0.43
14.34	1.08	5.95	10.90	64.85	3.31	0.07	0.42
14.36	1.08	5.95	10.89	64.77	3.31	0.08	0.43
14.38	1.07	5.86	10.93	64.09	3.31	0.07	0.42

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

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
14.40	1.04	5.68	11.16	63.41	3.33	0.07	0.41
14.42	1.00	5.37	11.63	62.43	3.36	0.07	0.38
14.44	0.96	5.06	12.11	61.23	3.39	0.07	0.36
14.46	0.90	4.68	12.69	59.41	3.42	0.07	0.33
14.48	0.86	4.39	13.13	57.58	3.45	0.07	0.31
14.50	0.83	4.17	13.40	55.83	3.46	0.07	0.30
14.52	0.82	4.04	13.44	54.32	3.46	0.07	0.29
14.54	0.82	4.07	12.92	52.58	3.43	0.07	0.29
14.56	0.83	4.12	12.33	50.77	3.40	0.07	0.29
14.58	0.84	4.16	11.86	49.35	3.37	0.07	0.30
14.60	0.82	4.05	12.13	49.14	3.39	0.07	0.29
14.62	0.81	3.98	12.42	49.40	3.41	0.07	0.28
14.64	0.81	3.95	12.57	49.65	3.41	0.07	0.28
14.66	0.82	4.04	12.29	49.70	3.40	0.07	0.29
14.68	0.84	4.18	11.94	49.91	3.38	0.07	0.30
14.70	0.88	4.42	11.31	49.98	3.34	0.07	0.32
14.72	0.92	4.72	10.56	49.81	3.29	0.07	0.34
14.74	0.97	5.05	9.76	49.32	3.24	0.07	0.36
14.76	1.01	5.32	9.33	49.61	3.21	0.07	0.38
14.78	1.03	5.44	9.08	49.38	3.19	0.07	0.39
14.80	1.10	5.90	8.59	50.75	3.15	0.07	0.42
14.82	1.17	6.39	8.12	51.88	3.12	0.08	0.46
14.84	1.27	7.10	7.56	53.63	3.07	0.08	0.51
14.86	1.33	7.50	7.22	54.19	3.04	0.08	0.54
14.88	1.38	7.85	6.97	54.68	3.02	0.08	0.56
14.90	1.40	7.98	6.99	55.73	3.02	0.08	0.57
14.92	1.40	7.95	7.15	56.83	3.04	0.08	0.57
14.94	1.39	7.89	7.40	58.37	3.06	0.08	0.56
14.96	1.38	7.83	7.60	59.56	3.07	0.08	0.56
14.98	1.37	7.74	7.85	60.75	3.09	0.08	0.55
15.00	1.35	7.61	8.03	61.06	3.11	0.08	0.54
15.02	1.33	7.46	8.18	61.01	3.12	0.08	0.53
15.04	1.32	7.38	8.20	60.48	3.12	0.08	0.53
15.06	1.33	7.43	8.07	59.89	3.11	0.08	0.53
15.08	1.35	7.53	8.01	60.31	3.11	0.08	0.54
15.10	1.36	7.62	8.09	61.63	3.11	0.08	0.54
15.12	1.36	7.61	8.33	63.44	3.13	0.08	0.54
15.14	1.36	7.61	8.52	64.84	3.15	0.08	0.54
15.16	1.37	7.66	8.64	66.21	3.16	0.08	0.55
15.18	1.39	7.77	8.76	68.05	3.16	0.08	0.56
15.20	1.41	7.89	8.88	70.01	3.17	0.08	0.56
15.22	1.43	8.01	8.92	71.46	3.18	0.08	0.57
15.24	1.44	8.09	8.96	72.46	3.18	0.08	0.58
15.26	1.45	8.14	9.00	73.25	3.18	0.08	0.58
15.28	1.46	8.19	9.04	74.05	3.18	0.08	0.59
15.30	1.46	8.15	9.16	74.62	3.19	0.08	0.58
15.32	1.44	8.00	9.40	75.20	3.21	0.08	0.57
15.34	1.41	7.81	9.68	75.65	3.23	0.08	0.56

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

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
15.36	1.40	7.73	9.81	75.81	3.24	0.08	0.55
15.38	1.40	7.74	9.79	75.77	3.24	0.08	0.55
15.40	1.40	7.72	9.80	75.60	3.24	0.08	0.55
15.42	1.40	7.71	9.79	75.41	3.24	0.08	0.55
15.44	1.41	7.76	9.60	74.46	3.22	0.08	0.55
15.46	1.42	7.81	9.34	72.89	3.21	0.08	0.56
15.48	1.43	7.87	9.10	71.56	3.19	0.08	0.56
15.50	1.44	7.92	8.96	70.97	3.18	0.08	0.57
15.52	1.44	7.94	9.01	71.60	3.18	0.08	0.57
15.54	1.42	7.80	9.30	72.53	3.20	0.08	0.56
15.56	1.39	7.56	9.79	74.01	3.24	0.08	0.54
15.58	1.36	7.33	10.30	75.50	3.27	0.08	0.52
15.60	1.34	7.20	10.64	76.55	3.29	0.08	0.51
15.62	1.33	7.11	10.82	76.90	3.31	0.08	0.51
15.64	1.33	7.15	10.71	76.56	3.30	0.08	0.51
15.66	1.38	7.44	10.22	75.99	3.27	0.08	0.53
15.68	1.44	7.85	9.57	75.09	3.22	0.08	0.56
15.70	1.50	8.24	8.93	73.59	3.18	0.08	0.59
15.72	1.54	8.46	8.50	71.93	3.14	0.08	0.60
15.74	1.56	8.57	8.28	70.95	3.13	0.08	0.61
15.76	1.56	8.56	8.35	71.44	3.13	0.08	0.61
15.78	1.55	8.54	8.57	73.12	3.15	0.08	0.61
15.81	1.56	8.58	8.76	75.17	3.16	0.08	0.61
15.82	1.59	8.76	8.79	77.03	3.17	0.08	0.63
15.84	1.61	8.88	8.84	78.49	3.17	0.08	0.63
15.86	1.63	8.98	8.79	78.86	3.17	0.08	0.64
15.88	1.64	9.04	8.69	78.57	3.16	0.08	0.65
15.90	1.67	9.21	8.43	77.66	3.14	0.08	0.66
15.92	1.69	9.38	8.20	76.92	3.12	0.08	0.67
15.94	1.73	9.64	7.85	75.61	3.09	0.08	0.69
15.96	1.77	9.84	7.57	74.47	3.07	0.08	0.70
15.98	1.78	9.94	7.42	73.76	3.06	0.08	0.71
16.00	1.77	9.82	7.57	74.28	3.07	0.08	0.70
16.03	1.74	9.62	7.72	74.26	3.08	0.08	0.69
16.04	1.73	9.56	7.72	73.85	3.08	0.08	0.68
16.06	1.72	9.44	7.79	73.52	3.09	0.08	0.67
16.08	1.69	9.23	7.95	73.45	3.10	0.08	0.66
16.10	1.64	8.93	8.18	73.02	3.12	0.08	0.64
16.12	1.61	8.73	8.18	71.43	3.12	0.08	0.62
16.14	1.57	8.43	8.36	70.48	3.13	0.08	0.60
16.16	1.53	8.17	8.57	69.96	3.15	0.08	0.58
16.18	1.49	7.88	8.87	69.86	3.17	0.08	0.56
16.20	1.46	7.72	9.05	69.83	3.19	0.08	0.55
16.22	1.44	7.53	9.29	69.97	3.20	0.08	0.54
16.24	1.42	7.44	9.54	70.94	3.22	0.08	0.53
16.26	1.44	7.51	9.51	71.41	3.22	0.08	0.54
16.28	1.46	7.66	9.32	71.40	3.21	0.08	0.55
16.30	1.49	7.83	9.03	70.67	3.18	0.08	0.56

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

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
16.32	1.50	7.87	8.81	69.37	3.17	0.08	0.56
16.34	1.49	7.82	8.68	67.91	3.16	0.08	0.56
16.36	1.50	7.86	8.36	65.76	3.13	0.08	0.56
16.38	1.55	8.20	7.78	63.86	3.09	0.08	0.59
16.40	1.64	8.76	7.13	62.41	3.03	0.08	0.63
16.42	1.67	8.94	6.93	61.98	3.02	0.08	0.64
16.44	1.63	8.66	7.19	62.26	3.04	0.08	0.62
16.46	1.54	8.07	7.71	62.20	3.08	0.08	0.58
16.48	1.48	7.65	7.97	60.97	3.10	0.08	0.55
16.50	1.44	7.42	7.90	58.57	3.10	0.08	0.53
16.52	1.44	7.41	7.59	56.19	3.07	0.08	0.53
16.54	1.47	7.59	7.20	54.69	3.04	0.08	0.54
16.56	1.54	8.01	6.72	53.86	3.00	0.08	0.57
16.58	1.60	8.42	6.33	53.33	2.96	0.08	0.60
16.60	1.65	8.70	6.12	53.20	2.94	0.08	0.62
16.62	1.67	8.82	6.09	53.70	2.94	0.08	0.63
16.64	1.67	8.82	6.20	54.73	2.95	0.08	0.63
16.66	1.64	8.64	6.50	56.19	2.98	0.08	0.62
16.68	1.59	8.28	7.00	57.90	3.02	0.08	0.59
16.70	1.53	7.91	7.62	60.27	3.07	0.08	0.57
16.72	1.52	7.82	8.00	62.54	3.11	0.08	0.56
16.74	1.54	7.97	8.03	63.93	3.11	0.08	0.57
16.76	1.56	8.04	7.92	63.64	3.10	0.08	0.57
16.78	1.61	8.39	7.79	65.41	3.09	0.08	0.60
16.80	1.59	8.25	8.23	67.92	3.12	0.08	0.59
16.82	1.59	8.19	8.53	69.83	3.15	0.08	0.58
16.84	1.50	7.67	8.97	68.77	3.18	0.08	0.55
16.86	1.48	7.48	9.02	67.45	3.18	0.08	0.53
16.88	1.46	7.37	9.15	67.44	3.19	0.08	0.53
16.91	1.46	7.33	9.31	68.20	3.20	0.08	0.52
16.92	1.46	7.36	9.28	68.34	3.20	0.08	0.53
16.94	1.47	7.43	9.10	67.65	3.19	0.08	0.53
16.96	1.49	7.50	8.91	66.78	3.18	0.08	0.54
16.98	1.48	7.46	8.85	65.96	3.17	0.08	0.53
17.00	1.47	7.37	8.89	65.49	3.17	0.08	0.53
17.06	1.47	7.33	8.69	63.75	3.16	0.08	0.52
17.04	1.46	7.27	8.50	61.80	3.14	0.08	0.52
17.06	1.43	7.13	8.40	59.84	3.14	0.08	0.51
17.08	1.43	7.10	8.22	58.37	3.12	0.08	0.51
17.10	1.51	7.60	7.60	57.77	3.07	0.08	0.54
17.12	1.66	8.51	6.73	57.28	3.00	0.08	0.61
17.14	1.81	9.41	6.11	57.45	2.94	0.08	0.67
17.16	1.88	9.83	6.03	59.32	2.93	0.08	0.70
17.18	1.84	9.60	6.42	61.58	2.97	0.08	0.69
17.20	1.74	8.98	7.06	63.40	3.03	0.08	0.64
17.22	1.62	8.17	7.81	63.86	3.09	0.08	0.58
17.24	1.49	7.41	8.63	63.90	3.15	0.08	0.53
17.26	1.38	6.71	9.52	63.90	3.22	0.08	0.48

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

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
17.28	1.29	6.12	10.22	62.58	3.27	0.08	0.44
17.30	1.23	5.73	10.48	60.08	3.28	0.08	0.41
17.32	1.20	5.57	10.19	56.78	3.27	0.07	0.40
17.34	1.22	5.69	9.47	53.94	3.22	0.08	0.41
17.36	1.28	6.02	8.61	51.78	3.15	0.08	0.43
17.38	1.34	6.43	7.89	50.73	3.10	0.08	0.46
17.40	1.41	6.85	7.61	52.09	3.07	0.08	0.49
17.42	1.48	7.28	7.56	55.01	3.07	0.08	0.52
17.44	1.53	7.57	7.83	59.29	3.09	0.08	0.54
17.46	1.58	7.86	8.07	63.45	3.11	0.08	0.56
17.48	1.62	8.09	8.39	67.81	3.14	0.08	0.58
17.50	1.68	8.44	8.46	71.43	3.14	0.08	0.60
17.52	1.74	8.76	8.46	74.10	3.14	0.08	0.63
17.54	1.79	9.09	8.34	75.78	3.13	0.08	0.65
17.56	1.83	9.32	8.30	77.35	3.13	0.08	0.67
17.58	1.84	9.34	8.48	79.20	3.14	0.08	0.67
17.60	1.82	9.21	8.84	81.41	3.17	0.08	0.66
17.62	1.75	8.80	9.51	83.69	3.22	0.08	0.63
17.64	1.69	8.39	10.18	85.41	3.26	0.08	0.60
17.66	1.61	7.92	10.93	86.61	3.31	0.08	0.57
17.68	1.55	7.52	11.58	87.14	3.36	0.08	0.54
17.70	1.49	7.17	12.13	86.93	3.39	0.08	0.51
17.72	1.43	6.84	12.52	85.61	3.41	0.08	0.49
17.74	1.40	6.59	12.62	83.17	3.42	0.08	0.47
17.76	1.26	5.75	13.30	76.44	3.46	0.08	0.41
17.78	1.25	5.69	12.83	73.00	3.43	0.07	0.41
17.80	1.24	5.63	12.35	69.53	3.40	0.08	0.40
17.82	1.32	6.09	11.40	69.46	3.34	0.08	0.44
17.84	1.27	5.81	11.37	66.02	3.34	0.08	0.41
17.86	1.22	5.51	11.38	62.72	3.34	0.07	0.39
17.88	1.19	5.30	11.34	60.12	3.34	0.07	0.38
17.90	1.17	5.20	11.15	57.97	3.33	0.07	0.37
17.92	1.18	5.22	10.79	56.29	3.31	0.07	0.37
17.94	1.20	5.35	10.24	54.84	3.27	0.07	0.38
17.96	1.26	5.69	9.37	53.34	3.21	0.07	0.41
17.98	1.36	6.25	8.24	51.52	3.12	0.08	0.45
18.00	1.44	6.77	7.36	49.82	3.05	0.08	0.48
18.02	1.49	7.05	6.89	48.55	3.01	0.08	0.50
18.04	1.50	7.08	6.81	48.25	3.01	0.08	0.51
18.06	1.52	7.21	6.76	48.73	3.00	0.08	0.51
18.08	1.59	7.62	6.50	49.55	2.98	0.08	0.54
18.15	1.66	8.00	6.27	50.17	2.96	0.08	0.57
18.15	1.79	8.76	5.92	51.82	2.92	0.08	0.63
18.14	1.89	9.35	5.79	54.17	2.91	0.08	0.67
18.16	2.01	10.03	5.74	57.58	2.90	0.08	0.72
18.18	2.04	10.23	6.00	61.40	2.93	0.08	0.73
18.20	2.04	10.21	6.44	65.69	2.97	0.08	0.73
18.22	2.04	10.20	6.84	69.75	3.01	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	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
18.24	2.05	10.22	7.16	73.18	3.04	0.08	0.73
18.26	2.07	10.37	7.41	76.91	3.06	0.08	0.74
18.28	2.07	10.36	7.83	81.16	3.09	0.08	0.74
18.30	2.08	10.37	8.19	84.87	3.12	0.08	0.74
18.32	2.09	10.43	8.36	87.18	3.13	0.08	0.74
18.34	2.12	10.60	8.31	88.14	3.13	0.08	0.76
18.36	2.16	10.83	8.22	89.06	3.12	0.08	0.77
18.38	2.20	11.04	8.16	90.10	3.12	0.08	0.79
18.40	2.23	11.20	8.17	91.45	3.12	0.08	0.80
18.42	2.24	11.25	8.21	92.41	3.12	0.08	0.80
18.44	2.26	11.37	8.19	93.13	3.12	0.08	0.81
18.46	2.31	11.64	8.03	93.41	3.11	0.08	0.83
18.48	2.38	12.00	7.81	93.69	3.09	0.09	0.86
18.50	2.44	12.35	7.61	93.98	3.07	0.09	0.88
18.52	2.50	12.67	7.44	94.24	3.06	0.09	0.90
18.54	2.55	12.96	7.28	94.40	3.05	0.09	0.93
18.56	2.59	13.21	7.16	94.63	3.04	0.09	0.94
18.58	2.61	13.29	7.19	95.52	3.04	0.09	0.95
18.60	2.61	13.24	7.35	97.35	3.05	0.09	0.95
18.62	2.58	13.07	7.61	99.47	3.07	0.09	0.93
18.64	2.55	12.88	7.86	101.26	3.09	0.09	0.92
18.66	2.54	12.83	7.94	101.83	3.10	0.09	0.92
18.68	2.53	12.75	7.97	101.58	3.10	0.09	0.91
18.70	2.51	12.63	7.99	100.95	3.11	0.09	0.90
18.72	2.49	12.45	8.07	100.46	3.11	0.09	0.89
18.74	2.48	12.38	8.09	100.15	3.11	0.09	0.88
18.76	2.43	12.09	8.27	100.01	3.13	0.09	0.86
18.78	2.47	12.33	8.25	101.70	3.13	0.08	0.88
18.80	2.51	12.54	8.32	104.34	3.13	0.09	0.90
18.82	2.64	13.24	8.08	107.00	3.11	0.09	0.95
18.84	2.68	13.45	8.04	108.13	3.11	0.09	0.96
18.86	2.72	13.70	7.89	108.13	3.10	0.09	0.98
18.88	2.73	13.72	7.86	107.84	3.09	0.09	0.98
18.90	2.72	13.65	7.84	107.01	3.09	0.09	0.97
18.92	2.68	13.40	7.93	106.19	3.10	0.09	0.96
18.94	2.60	12.93	8.18	105.83	3.12	0.09	0.92
18.96	2.50	12.37	8.58	106.13	3.15	0.09	0.88
18.98	2.39	11.73	9.12	107.02	3.19	0.09	0.84
19.00	2.31	11.23	9.58	107.60	3.22	0.08	0.80
19.02	2.25	10.91	9.86	107.51	3.24	0.08	0.78
19.04	2.21	10.65	10.05	107.03	3.26	0.08	0.76
19.06	2.18	10.47	10.14	106.17	3.26	0.08	0.75
19.08	2.14	10.21	10.29	105.00	3.27	0.08	0.73
19.10	2.12	10.12	10.21	103.31	3.27	0.08	0.72
19.12	2.12	10.12	10.00	101.11	3.25	0.08	0.72
19.14	2.14	10.21	9.69	98.99	3.23	0.08	0.73
19.16	2.15	10.26	9.45	96.96	3.21	0.08	0.73
19.18	2.16	10.27	9.26	95.10	3.20	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	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
19.20	2.15	10.21	9.17	93.68	3.19	0.08	0.73
19.22	2.13	10.06	9.24	92.91	3.20	0.08	0.72
19.24	2.09	9.82	9.48	93.09	3.22	0.08	0.70
19.26	2.02	9.47	9.86	93.36	3.24	0.08	0.68
19.28	1.98	9.20	10.16	93.50	3.26	0.08	0.66
19.30	1.96	9.06	10.30	93.32	3.27	0.08	0.65
19.32	1.96	9.06	10.27	93.05	3.27	0.08	0.65
19.34	1.96	9.06	10.20	92.37	3.27	0.08	0.65
19.36	1.97	9.09	10.01	91.04	3.25	0.08	0.65
19.38	2.00	9.24	9.65	89.23	3.23	0.08	0.66
19.40	2.04	9.47	9.18	87.01	3.20	0.08	0.68
19.42	2.05	9.54	8.99	85.82	3.18	0.08	0.68
19.44	2.05	9.48	8.96	85.00	3.18	0.08	0.68
19.46	2.03	9.39	9.03	84.81	3.18	0.08	0.67
19.48	2.03	9.40	9.02	84.79	3.18	0.08	0.67
19.50	2.02	9.33	9.18	85.61	3.19	0.08	0.67
19.52	1.99	9.13	9.51	86.80	3.22	0.08	0.65
19.54	1.92	8.75	10.05	87.92	3.26	0.08	0.63
19.56	1.84	8.27	10.67	88.26	3.30	0.08	0.59
19.58	1.75	7.80	11.29	88.05	3.34	0.08	0.56
19.60	1.67	7.35	11.84	87.10	3.37	0.08	0.53
19.62	1.60	6.94	12.39	85.98	3.40	0.08	0.50
19.64	1.52	6.51	12.99	84.58	3.44	0.08	0.46
19.66	1.49	6.29	13.19	83.05	3.45	0.08	0.45
19.68	1.47	6.20	13.15	81.49	3.45	0.08	0.44
19.70	1.48	6.22	12.86	80.03	3.43	0.08	0.44
19.72	1.48	6.21	12.63	78.51	3.42	0.08	0.44
19.74	1.50	6.36	12.01	76.36	3.38	0.08	0.45
19.76	1.53	6.49	11.20	72.69	3.33	0.08	0.46
19.78	1.57	6.71	10.40	69.77	3.28	0.08	0.48
19.80	1.58	6.78	10.01	67.85	3.25	0.08	0.48
19.82	1.60	6.86	9.82	67.39	3.24	0.08	0.49
19.84	1.58	6.76	9.88	66.80	3.24	0.08	0.48
19.86	1.59	6.77	9.83	66.54	3.24	0.08	0.48
19.88	1.60	6.83	9.81	67.02	3.24	0.08	0.49
19.90	1.62	6.96	9.67	67.27	3.23	0.08	0.50
19.92	1.66	7.14	9.43	67.28	3.21	0.08	0.51
19.94	1.70	7.34	9.14	67.06	3.19	0.08	0.52
19.96	1.77	7.73	8.72	67.34	3.16	0.08	0.55
19.98	1.85	8.15	8.28	67.42	3.13	0.08	0.58
20.00	1.92	8.49	8.01	67.99	3.11	0.08	0.61
20.02	1.96	8.74	7.88	68.89	3.10	0.08	0.62
20.04	1.99	8.86	8.01	71.03	3.11	0.08	0.63
20.06	2.04	9.15	7.92	72.50	3.10	0.08	0.65
20.08	2.11	9.52	7.65	72.86	3.08	0.08	0.68
20.10	2.18	9.88	7.38	72.92	3.06	0.08	0.71
20.12	2.21	9.99	7.46	74.50	3.06	0.08	0.71
20.14	2.19	9.90	7.83	77.46	3.09	0.08	0.71

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

Depth (m)	q_t (MPa)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
20.16	2.18	9.85	8.07	79.52	3.11	0.08	0.70
20.18	2.20	9.95	8.13	80.83	3.12	0.08	0.71
20.20	2.25	10.20	8.04	81.97	3.11	0.08	0.73
20.22	2.30	10.41	8.02	83.51	3.11	0.08	0.74
20.24	2.34	10.64	7.87	83.69	3.10	0.08	0.76
20.26	2.33	10.58	7.83	82.86	3.09	0.08	0.76
20.28	2.29	10.33	7.91	81.76	3.10	0.08	0.74
20.30	2.20	9.83	8.32	81.84	3.13	0.08	0.70
20.32	2.12	9.40	8.69	81.70	3.16	0.08	0.67
20.34	2.03	8.91	9.20	81.99	3.20	0.08	0.64
20.36	1.97	8.58	9.62	82.55	3.23	0.08	0.61
20.38	1.94	8.41	9.94	83.62	3.25	0.08	0.60
20.40	1.95	8.47	9.91	83.93	3.25	0.08	0.60
20.42	1.98	8.61	9.65	83.10	3.23	0.08	0.62
20.44	2.01	8.78	9.33	81.88	3.21	0.08	0.63
20.46	2.02	8.81	9.20	81.00	3.20	0.08	0.63
20.48	2.01	8.77	9.19	80.61	3.20	0.08	0.63
20.50	2.00	8.67	9.27	80.34	3.20	0.08	0.62
20.52	2.00	8.66	9.27	80.24	3.20	0.08	0.62
20.54	1.98	8.58	9.42	80.84	3.21	0.08	0.61
20.56	1.96	8.48	9.64	81.72	3.23	0.08	0.61
20.58	1.94	8.34	9.91	82.60	3.25	0.08	0.60
20.60	1.92	8.21	10.06	82.62	3.26	0.08	0.59
20.62	1.83	7.76	10.27	79.73	3.27	0.08	0.55
20.64	1.76	7.37	10.39	76.59	3.28	0.08	0.53

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