COMUNE DI VIAREGGIO (LU)

INDAGINI GEOTECNICHE E GEOFISICHE A SUPPORTO DELLA REALIZZAZIONE DEL PIANO DEGLI ARENILI.

RELAZIONI SULLE INDAGINI

COMMITTENTE: *COMUNE DI VIAREGGIO (LU)*
Settore Pianificazione Urbanistica e Infrastrutture

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LUGLIO 2021

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Su incarico del Comune di Viareggio (*Settore Pianificazione Urbanistica e Infrastrutture DETERMINAZIONE DIRIGENZIALE N. 2033 DEL 11/12/2020)* è stata effettuata la seguente campagna d'indagini:

- n.5 misure di rumore sismico (HVSR)
- n.4 Cone Penetration Test with Porewater Pressure (CPTU)

Di seguito si riportano le relazioni tecniche relative alla campagna d'indagini sopracitata.

Le presenti note illustrano la metodologia delle indagini ed i risultati conseguiti.

Forte dei Marmi (LU), 30/07/2021

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COMUNE DI VIAREGGIO (LU)

HVSR (Horizontal to Vertical Spectral Ratio)

RELAZIONE TECNICA

COMMITTENTE: *COMUNE DI VIAREGGIO (LU)*
Settore Pianificazione Urbanistica e Infrastrutture

li

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LUGLIO 2021

Sommario

ALLEGATI

1 Premessa

Su incarico del Comune di Viareggio (*Settore Pianificazione Urbanistica e Infrastrutture*) è stata effettuata la seguente campagna d'indagini:

- n.5 misure di rumore (HVSR);

Le presenti note illustrano la metodologia delle indagini ed i risultati conseguiti.

2 Sistema di acquisizione

L'acquisizione dei dati in campagna è stata eseguita utilizzando un sistema composto dalle seguenti strumentazioni:

- Sismografo;
- Sistema energizzazione;
- Apparecchiatura di ricezione;
- Trigger;

2.1 SISMOGRAFO

Lo strumento utilizzato per la presente indagine è un prospettore simico ***DAQ Link III*** della Seismic Source a 24 canali avente le seguenti caratteristiche:

Impedenza di ingresso 100 kohm
Range dinamico 144 dB
Larghezza di bandada 0 a 15 kHz con filtro analogico a risposta piatta fino a 8000 Hz. Filtro digitale fino a 85% della frequenza di Nyquist
Conversione Analogico Digitale 24 bit
Filtri in acquisizione e in uscita
Intervallo di campionamento selezionabile0.065, 0.125, 0.500,1.00, 2.00, 4.00, 8.00, 16.00 millisecondi
Durata della registrazione 32000 campioni
Frequenza di campionamento 8000, 4000, 2000, 1000, 250, 125, 62.5 Hz
Ritardo Pre-trigger fino a 10 secondi
Precisione trigger ± 1microsecondo a qualsiasi frequenza di campionamento
Rumore di fondo 0.2 microVolt RMS (frequenza di campionamento 2 msec)
Crosstalk migliore di 125 dB
Common Mode Rejection maggiore di 100 dB
Ethernet da 100 Mb

2.2 SISTEMA DI ENERGIZZAZIONE

Come sorgente energizzante è stato utilizzato il rumore sismico ambientale.

2.3 APPARECCHIATURA DI RICEZIONE

L'acquisizione sismica passiva è stata realizzata utilizzando un geofono 3D con frequenza propria pari a 2 Hz.

3 HVSR

La tecnica di acquisizione ed analisi dei rapporti spettrali o HVSR (*Horizontal to Vertical Spectral Ratio*) è totalmente non invasiva, molto rapida, si può applicare ovunque e non necessita di nessun tipo di perforazione, né di stendimenti di cavi, ne di energizzazione esterna diversa dal rumore ambientale.
La conoscenza e le informazioni che si possono ottenere dall'analisi ed interpretazione di una registrazione di questo tipo sono:

- ove determinabile, la frequenza fondamentale di risonanza di un edificio, qualora la misura venga effettuata all'interno dello stesso, a seguito di analisi correlate sarà possibile confrontare le frequenze di sito e dell'edificio, e valutare se in caso di sisma la struttura potrà essere o meno a rischio;
- la velocità media delle onde di taglio Vs calcolata tramite uno specifico software di calcolo, pe r cui è possibile determinare la Vs_{30} e la relativa categoria del suolo di fondazione come richiesto dalle N.T.C. 2008;
- la stratigrafia del sottosuolo con un ampio range di profondità di indagine, e secondo il principio che in termini di stratigrafia del sottosuolo, uno strato è inteso come unità distinta, in termini di contrasto d'impedenza sismica.

Le basi teoriche della tecnica HVSR si rifanno in parte alla sismica tradizionale (riflessione, rifrazione, diffrazione) e in parte alla teoria dei microtremori. La forma di un'onda registrata in un sito oggetto di indagine è funzione di:

- dalla forma dell'onda prodotta dall'insieme delle sorgenti s dei microtremori;
- dal percorso dell'onda dalle sorgenti s fino alla posizione x del sito oggetto di indagine e funzione dei processi di attenuazione, riflessione, rifrazione e canalizzazione di guida d'onda;
- dalla modalità di acquisizione dello strumento in funzione dei parametri e delle caratteristiche strumentali.

Il rumore sismico ambientale, presente ovunque sulla superficie terrestre, è generato dai fenomeni atmosferici (onde oceaniche, vento) e dall'attività antropica oltre che, ovviamente, dall'attività dinamica terrestre.
Si chiama anche microtremore poiché riguarda oscillazioni con ampiezze minime, molto più piccole di quelle indotte dai terremoti.
I metodi che si basano sulla sua acquisizione si dicono passivi in quanto il segnale da acquisire non è generato con strumenti o tecniche attive, come ad esempio le esplosioni della sismica attiva.
Nel tragitto dalla sorgente s al sito x le onde elastiche (sia di origine sismiche che dovute al microtremore) subiscono riflessioni, rifrazioni, canalizzazioni per fenomeni di guida d'onda ed 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, è presente comunque una parte di informazioni correlata al contenuto frequenziale del segnale che può essere estratta e che permette di ottenere informazioni relative al percorso del segnale ed in particolare relative alla struttura locale vicino al sensore (figura 1).

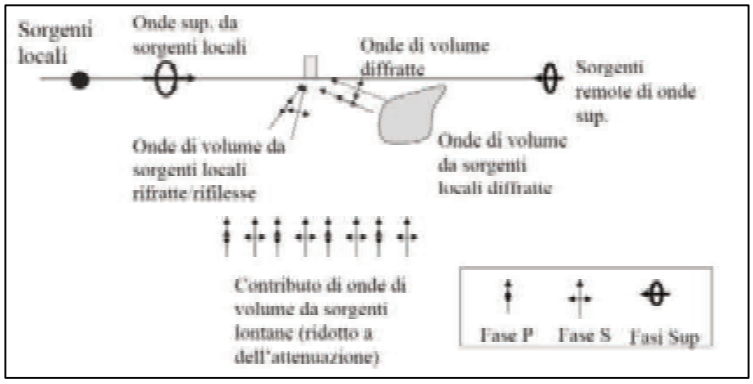


Figura 1 - Modalità di generazione e propagazione e propagazione di microtremore.

Dunque, anche il debole rumore sismico, che tradizionalmente costituisce la parte di segnale scartato dalla sismologia classica, contiene informazioni.
Questa informazione è però correlata alle caratteristiche frequenziale e spettrali del cosiddetto "rumore casuale" o microtremore, e può essere estratta attraverso tecniche opportune.

Una di queste tecniche è la tecnica di analisi dei rapporti spettrali o, semplicemente, HVSR che è in grado di fornire stime affidabili sul comportamento frequenziale dei sottosuoli, informazione di notevole importanza nell'ingegneria sismica.
L'ottenimento di una stratigrafia sismica da indagini a stazione singola, deriva dai primi studi di Kanai (1957) in poi, per cui diversi metodi sono stati proposti per estrarre l'informazione relativa al sottosuolo dal rumore sismico registrato 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 (Horizontal to Vertical Spectral Ratio, HVSR o H/V), proposta da Nogoshi e Igarashi (1970).
La tecnica è universalmente riconosciuta come efficace nel fornire stime affidabili della frequenza fondamentale di risonanza del sottosuolo.
Le basi teoriche del metodo HVSR sono relativamente semplici in un mezzo del tipo strato + bedrock (o strato assimilabile al bedrock) in cui i parametri sono costanti in ciascuno strato (1-D).
Consideriamo il sistema della figura seguente in cui gli strati 1 e 2 si distinguono per le diverse densità e le diverse velocità delle onde sismiche. Un'onda che viaggia nel mezzo 1 viene (parzialmente) riflessa dall'interfaccia che separa i due strati.

L'onda così riflessa interferisce con quelle incidenti, sommandosi e raggiungendo le ampiezze massime (condizione di risonanza) quando la lunghezza dell'onda incidente (l) è 4 volte (o suoi multipli dispari) lo spessore H del primo strato.
La frequenza fondamentale di risonanza (fr) dello strato 1 relativa alle onde S (o P) è pari a (equazione 1):

$$(fr) = Vs1/4H$$

$$(fr) = Vp1/4H$$

I microtremori sono 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.
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.
Questo effetto è sommabile, anche se non in modo lineare e senza una corrispondenza 1:1.
Ciò significa che la curva H/V relativa ad un sistema a più strati contiene l'informazione relativa alle frequenze di risonanza (e quindi allo spessore) di ciascuno di essi, ma non è interpretabile semplicemente applicando l'equazione 1.
L'interpretazione dei dati consente di correlare il valore di un eventuale picco dello spettro di risposta HVSR con la profondità del bedrock geofisico e di individuare una corrispondenza tra i valori di frequenza relativi alle discontinuità sismiche e i cambi litologici presenti nell'immediato sottosuolo.

Interpretando i minimi della componente verticale come risonanza del modo fondamentale dell'onda di Rayleigh e i picchi delle componenti orizzontali come contributo delle onde SH, si possono ricavare il valore di frequenza caratteristica del sito.

Sapendo che ad ogni picco in frequenza corrisponde una profondità dell'orizzonte che genera il contrasto d'impedenza si può estrapolare una stratigrafia geofisica del sottosuolo.

3.1 ELABORAZIONE HVSR

L'elaborazione dei dati raccolti impiega il software *winMASW Professional 6.1* in grado di consentire la determinazione delle frequenze di risonanza del sottosuolo mediante la tecnica dei rapporti spettrali

secondo le linee guida del progetto europeo SESAME (Site effects assessment using ambient excitations, 2005).
Il processing dei dati verte sul rapporto spettrale tra il segnale del sensore verticale e quelli orizzontali operando su finestre di selezione del segnale.
In fase di elaborazione vengono seguite le seguenti operazioni:

1. la registrazione viene suddivisa in intervalli della durata di qualche decina di secondi ciascuno,
2. per ogni segmento viene eseguita un'analisi spettrale del segmento nelle sue tre componenti,
3. per ciascun segmento si calcolano i rapporti spettrali fra le componenti del moto sui piani orizzontale e verticale,
4. vengono calcolati i rapporti spettrali medi su tutti i segmenti.

Per considerare la misura ottenuta come una stima dell'ellitticità delle onde di Rayleigh è necessario che i rapporti H/V ottenuti sperimentalmente siano "stabili" ovvero frutto di un campionamento statistico adeguato, che gli effetti di sorgente siano stati effettivamente mediati ovvero non ci siano state sorgenti "dominanti" e che la misura non contenga errori sistematici (per es. dovuti ad un cattivo accoppiamento dello strumento con il terreno).
Le risultanze dell'elaborazione sono presentate mediante rappresentazione grafica dei rapporti spettrali H/V delle varie componenti indicando il massimo del rapporto HVSR nel valore di f0 – Frequenza/e di risonanza e la sua deviazione standard.

HVSR1

Coordinate Roma Monte Mario (EPGS 3003): 1598833 – 4860071

Dataset: bfirenze.saf
Sampling frequency (Hz): 200
Window length (sec): 20
Length of analysed temporal sequence (min): 37.6
Tapering (%): 10

SPETTRI DELLE SINGOLE COMPONENTI – RAPPORTO SPETTRALE H/V

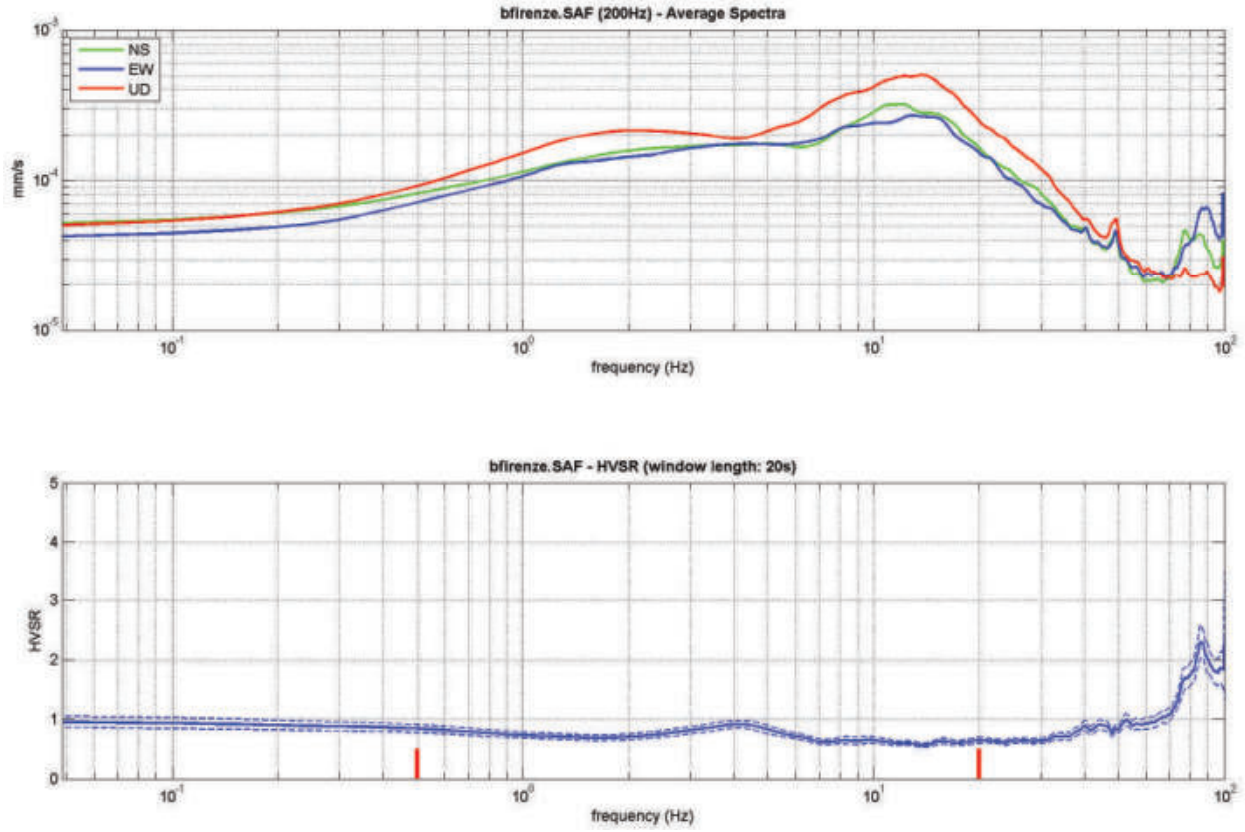
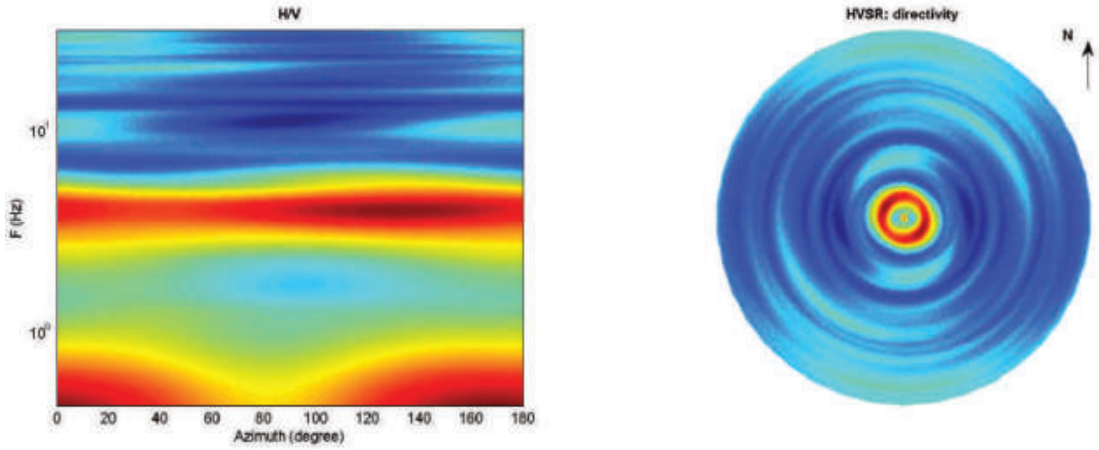
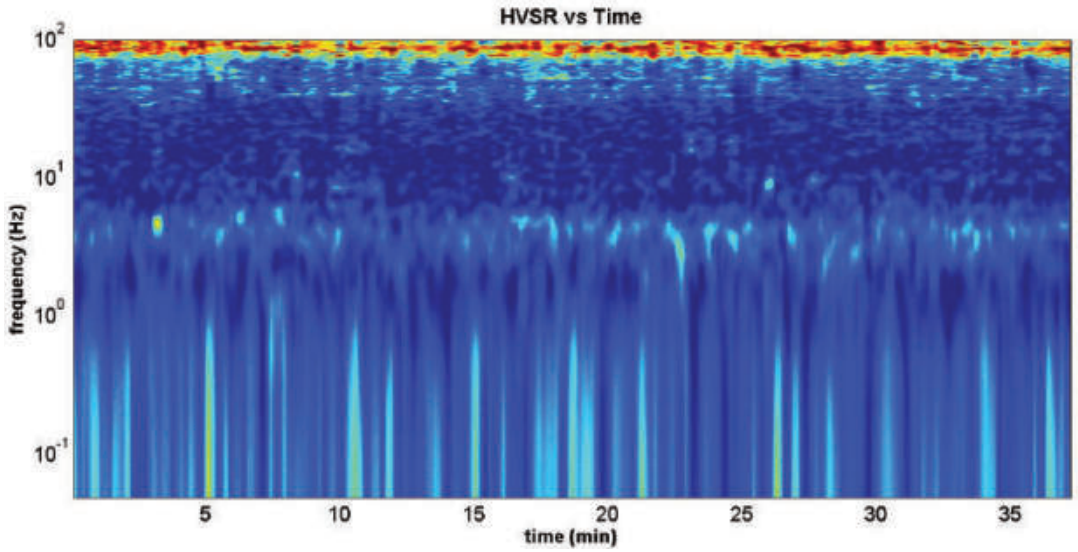


Figura 2 - Nel rettangolo rosso è indicato il picco a 4,2 Hz di frequenza Hz.

DIREZIONALITA' H/V



STAZIONARIETA' H/V



In the following the results considering the data in the 0.5 – 20.0 frequency range
Peak frequency (Hz): 4.2 (±3.3)
Peak HVSR value: 0.9 (±0.1)

Check-list corrispondenza analisi agli standard SESAME

Criteria for a reliable H/V curve
#1. [f0 > 10/Lw]: 4.2 > 0.5 (OK)
#2. [nc > 200]: 18822 > 200 (OK)
#3. [f0>0.5Hz; sigmaA(f) < 2 for 0.5f0 < f < 2f0] (OK)

Criteria for a clear H/V peak
#1. [exists f- in the range [f0/4, f0] | AH/V(f-) < A0/2]: (NO)
#2. [exists f+ in the range [f0, 4f0] | AH/V(f+) < A0/2]: (NO)
#3. [A0 > 2]: 0.9 < 2 (NO)
#4. [fpeak[Ah/v(f) ± sigmaA(f)] = f0 ± 5%]: (OK)
#5. [sigmaf < epsilon(f0)]: 3.333 > 0.210 (NO)
#6. [sigmaA(f0) < theta(f0)]: 0.062 < 1.58 (OK)

HVSR2

Coordinate Roma Monte Mario (EPGS 3003): 1599173 – 4859395

Dataset: principino.saf
Sampling frequency (Hz): 200
Window length (sec): 20
Length of analysed temporal sequence (min): 40.0
Tapering (%): 10

SPETTRI DELLE SINGOLE COMPONENTI – RAPPORTO SPETTRALE H/V

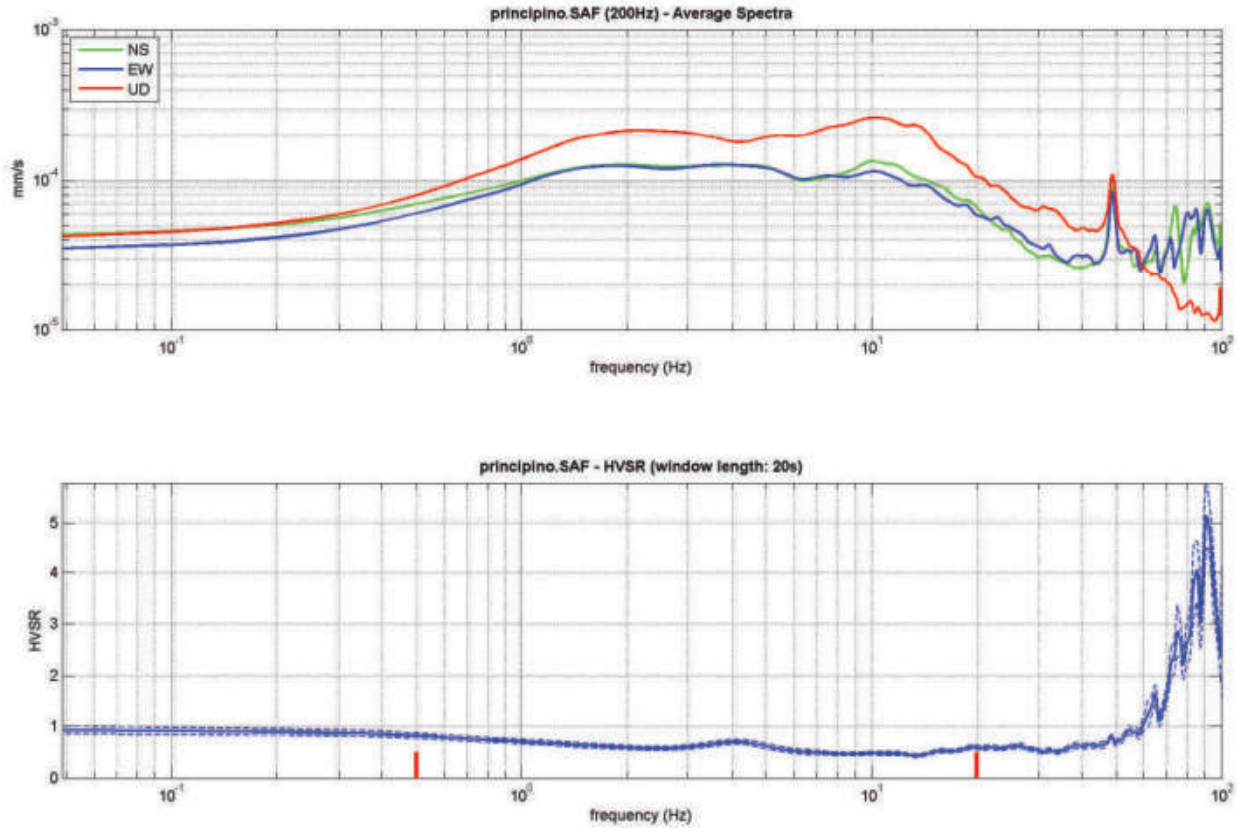
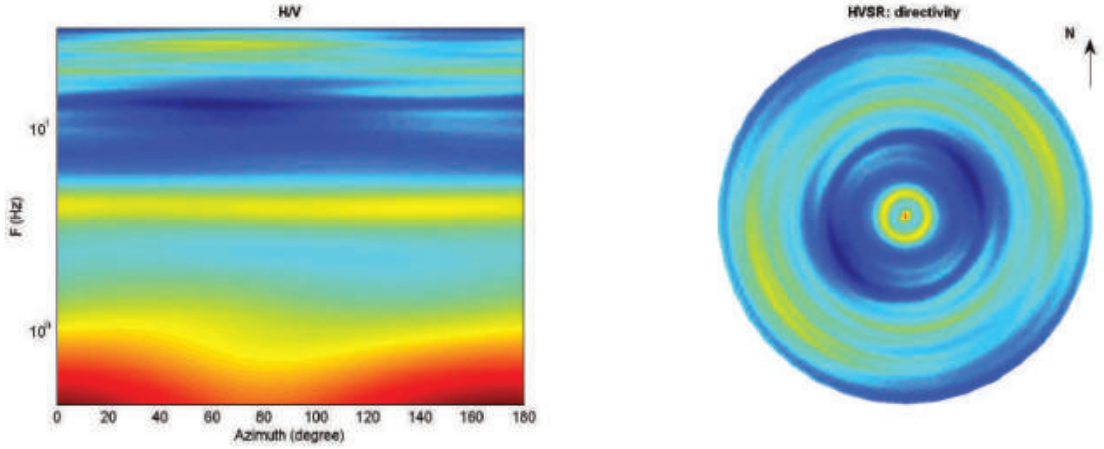
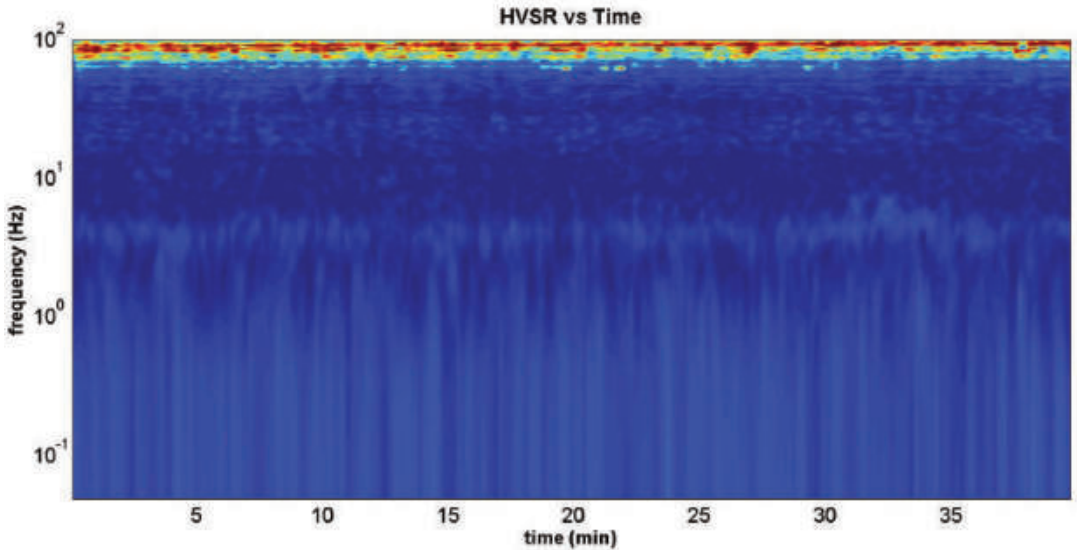


Figura 3 - Nel rettangolo rosso è indicato il picco a 0,5 Hz di frequenza Hz.

DIREZIONALITA' H/V



STAZIONARIETA' H/V



In the following the results considering the data in the 0.5 – 20.0 frequency range
Peak frequency (Hz): 0.5 (±4.4)
Peak HVSR value: 0.8 (±0.1)

Check-list corrispondenza analisi agli standard SESAME

Criteria for a reliable H/V curve
#1. [f0 > 10/Lw]: 0.5 > 0.5 (OK)
#2. [nc > 200]: 2569 > 200 (OK)
#3. [f0>0.5Hz; sigmaA(f) < 2 for 0.5f0 < f < 2f0] (OK)

Criteria for a clear H/V peak
#1. [exists f- in the range [f0/4, f0] | AH/V(f-) < A0/2]: (NO)
#2. [exists f+ in the range [f0, 4f0] | AH/V(f+) < A0/2]: (NO)
#3. [A0 > 2]: 0.8 < 2 (NO)
#4. [fpeak[Ah/v(f) ± sigmaA(f)] = f0 ± 5%]: (NO)
#5. [sigmaf < epsilon(f0)]: 4.432 > 0.081 (NO)
#6. [sigmaA(f0) < theta(f0)]: 0.053 < 2.00 (OK)

HVSR3

Coordinate Roma Monte Mario (EPGS 3003): 1599464 – 4858771

Dataset: ANITA.saf
Sampling frequency (Hz): 200
Window length (sec): 20
Length of analysed temporal sequence (min): 45.0
Tapering (%): 10

SPETTRI DELLE SINGOLE COMPONENTI – RAPPORTO SPETTRALE H/V

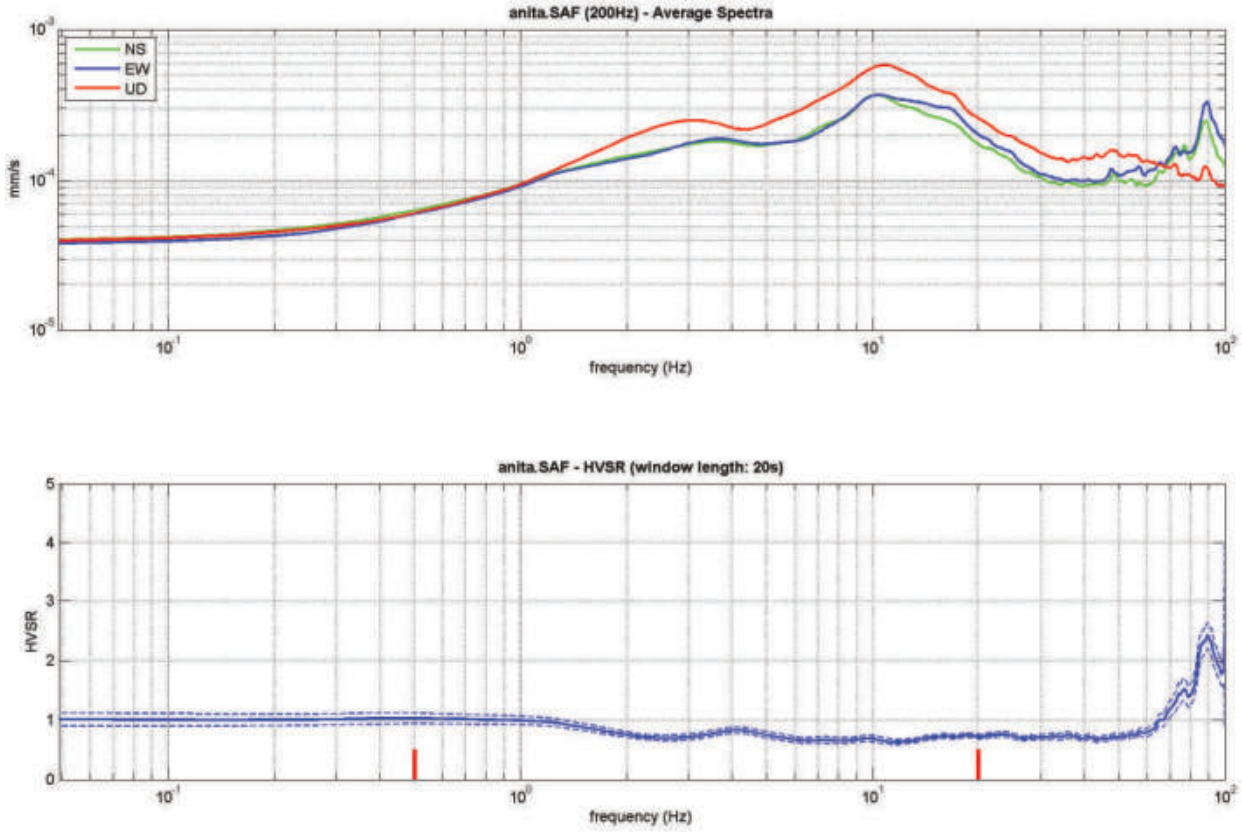
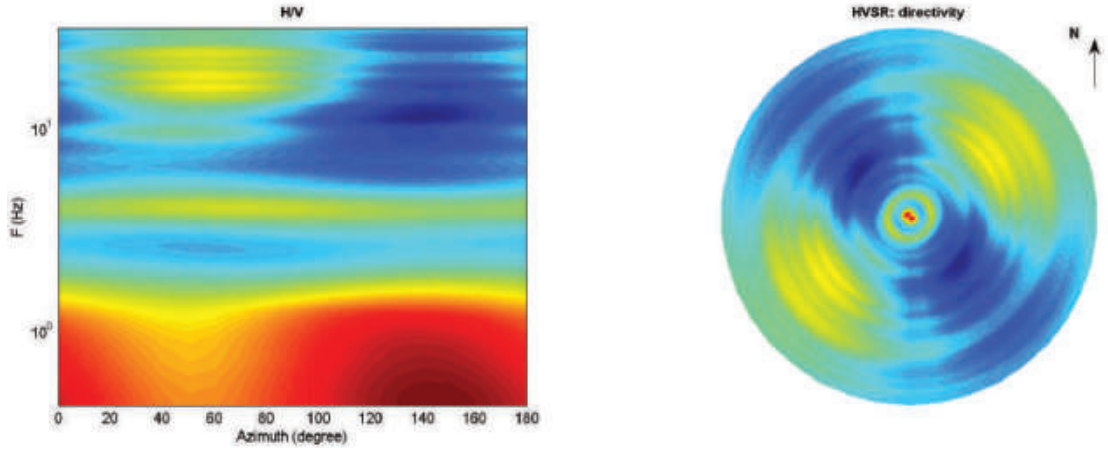
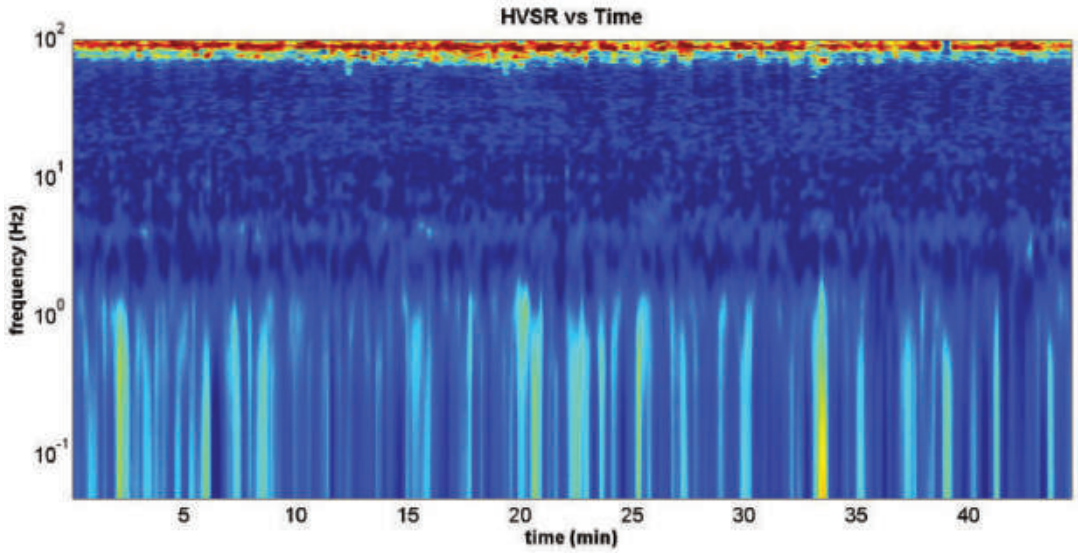


Figura 4 - Nel rettangolo rosso è indicato il picco a 0,5 Hz di frequenza Hz.

DIREZIONALITA' H/V



STAZIONARIETA' H/V



In the following the results considering the data in the 0.5 – 20.0 frequency range
Peak frequency (Hz): 0.5 (±3.7)
Peak HVSR value: 1.0 (±0.1)

Check-list corrispondenza analisi agli standard SESAME

Criteria for a reliable H/V curve
#1. [f0 > 10/Lw]: 0.5 > 0.5 (OK)
#2. [nc > 200]: 2880 > 200 (OK)
#3. [f0>0.5Hz; sigmaA(f) < 2 for 0.5f0 < f < 2f0] (OK)

Criteria for a clear H/V peak
#1. [exists f- in the range [f0/4, f0] | AH/V(f-) < A0/2]: (NO)
#2. [exists f+ in the range [f0, 4f0] | AH/V(f+) < A0/2]: (NO)
#3. [A0 > 2]: 1.0 < 2 (NO)
#4. [fpeak[Ah/v(f) ± sigmaA(f)] = f0 ± 5%]: (NO)
#5. [sigmaf < epsilon(f0)]: 3.727 > 0.081 (NO)
#6. [sigmaA(f0) < theta(f0)]: 0.089 < 2.00 (OK)

HVSR4

Coordinate Roma Monte Mario (EPGS 3003): 1599744 – 4858232

Dataset: martinelli.saf
Sampling frequency (Hz): 200
Window length (sec): 20
Length of analysed temporal sequence (min): 45.0
Tapering (%): 10

SPETTRI DELLE SINGOLE COMPONENTI – RAPPORTO SPETTRALE H/V

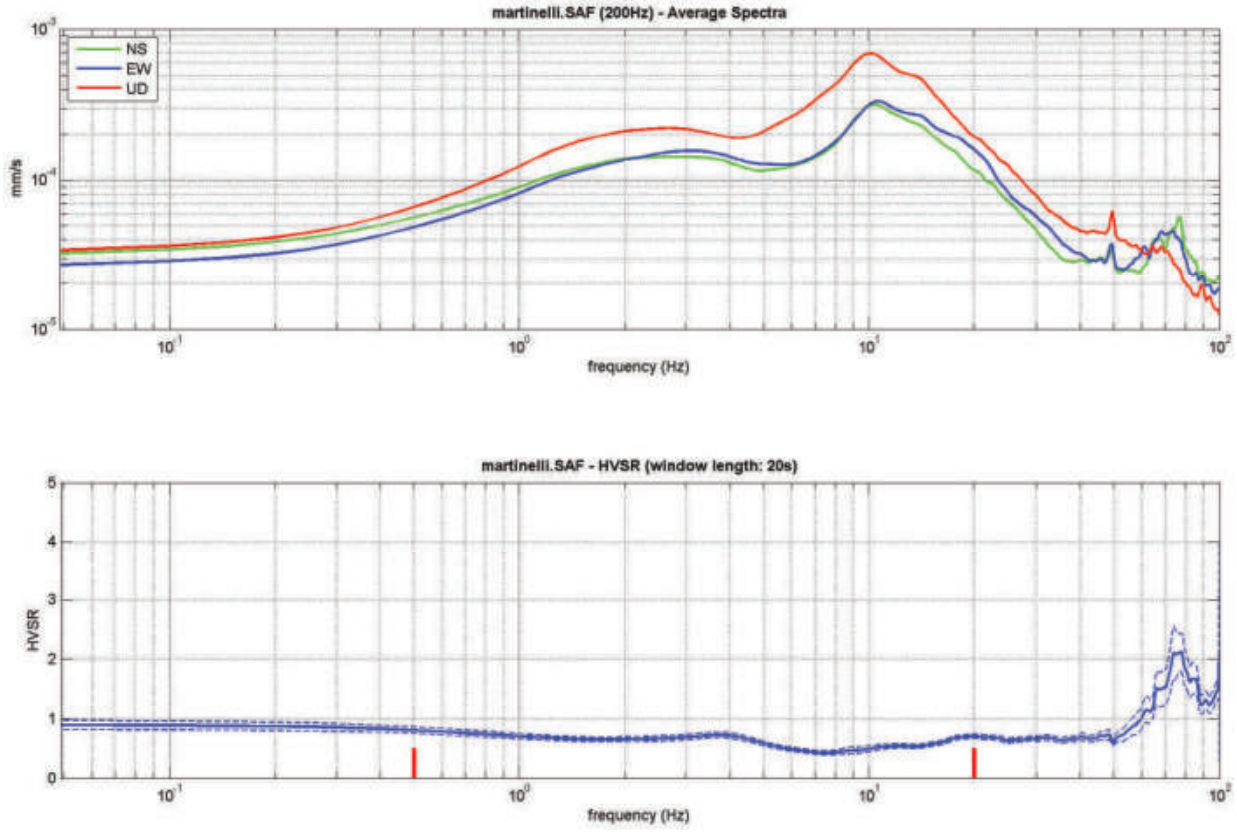
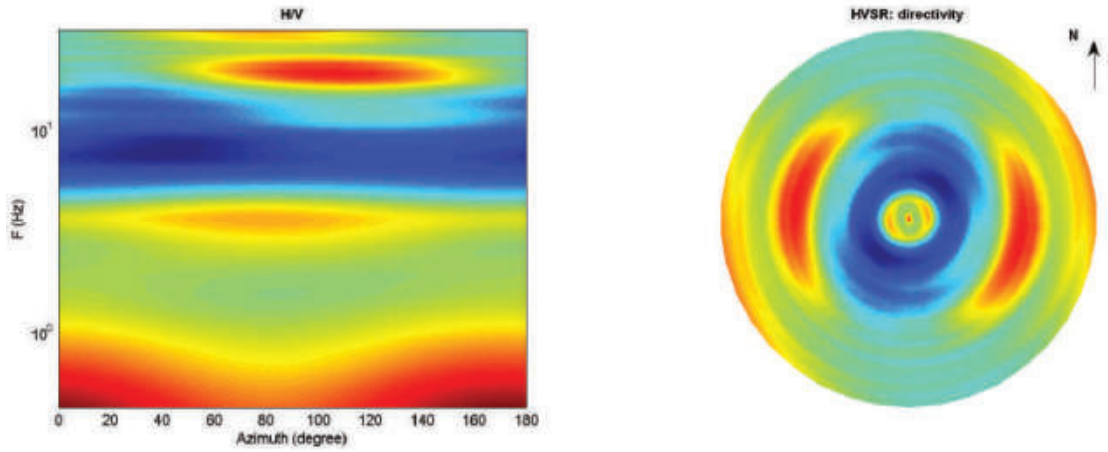
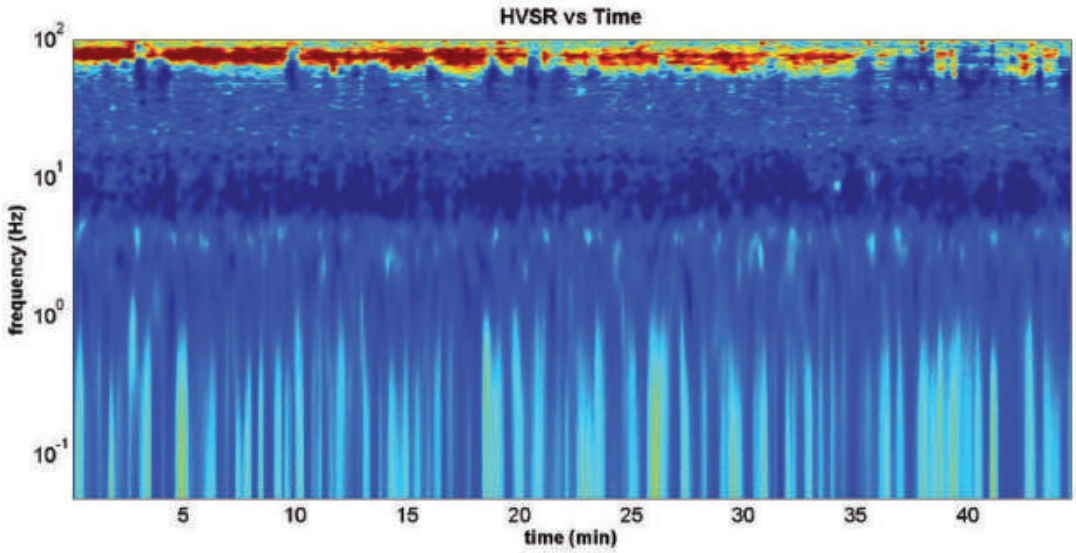


Figura 5 - Nel rettangolo rosso è indicato il picco a 0,5 Hz di frequenza Hz.

DIREZIONALITA' H/V



STAZIONARIETA' H/V



In the following the results considering the data in the 0.5 – 20.0 frequency range
Peak frequency (Hz): 0.5 (±7.6)
Peak HVSR value: 0.8 (±0.1)

Check-list corrispondenza analisi agli standard SESAME

Criteria for a reliable H/V curve
#1. [f0 > 10/Lw]: 0.5 > 0.5 (OK)
#2. [nc > 200]: 2880 > 200 (OK)
#3. [f0>0.5Hz; sigmaA(f) < 2 for 0.5f0 < f < 2f0] (OK)

Criteria for a clear H/V peak
#1. [exists f- in the range [f0/4, f0] | AH/V(f-) < A0/2]: (NO)
#2. [exists f+ in the range [f0, 4f0] | AH/V(f+) < A0/2]: (NO)
#3. [A0 > 2]: 0.8 < 2 (NO)
#4. [fpeak[Ah/v(f) ± sigmaA(f)] = f0 ± 5%]: (NO)
#5. [sigmaf < epsilon(f0)]: 7.561 > 0.081 (NO)
#6. [sigmaA(f0) < theta(f0)]: 0.057 < 2.00 (OK)

HVSR5

Coordinate Roma Monte Mario (EPGS 3003): 1599870 – 4857644

Dataset: flora.saf
Sampling frequency (Hz): 200
Window length (sec): 20
Length of analysed temporal sequence (min): 45.0
Tapering (%): 10

SPETTRI DELLE SINGOLE COMPONENTI – RAPPORTO SPETTRALE H/V

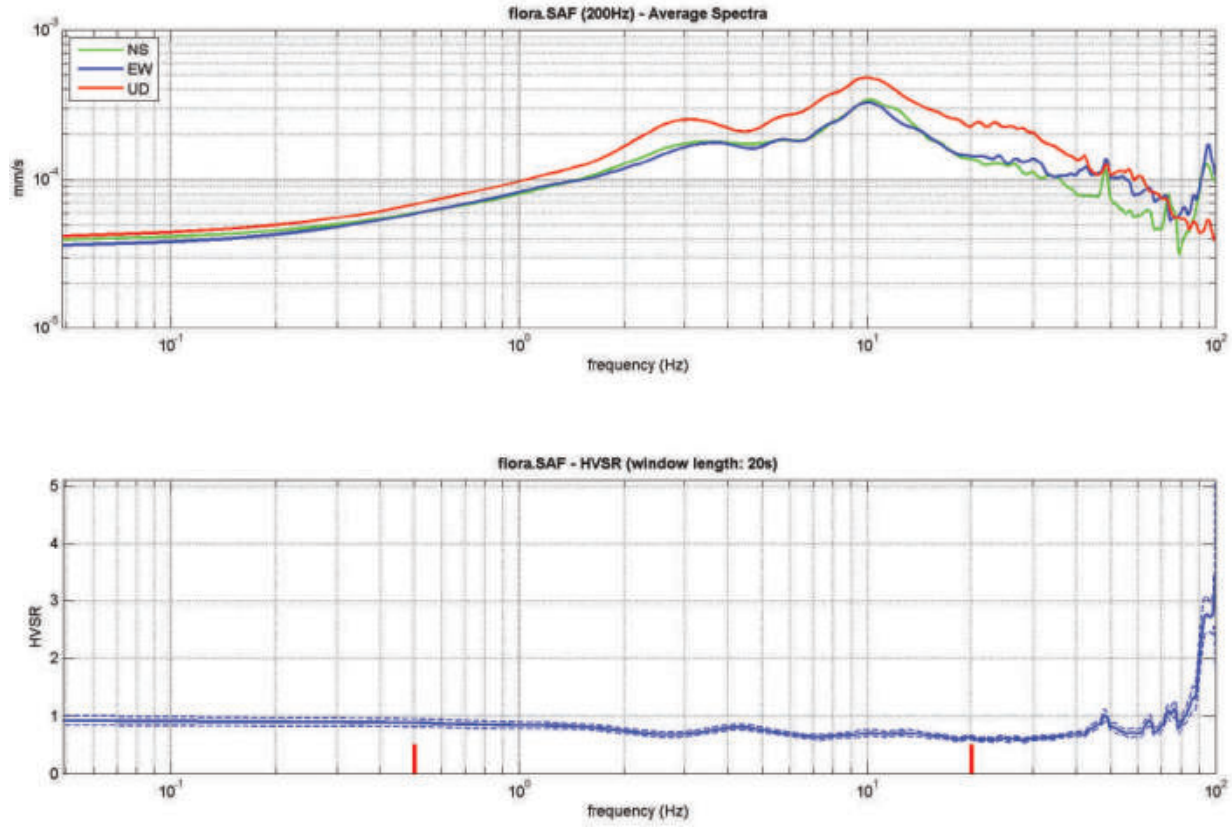
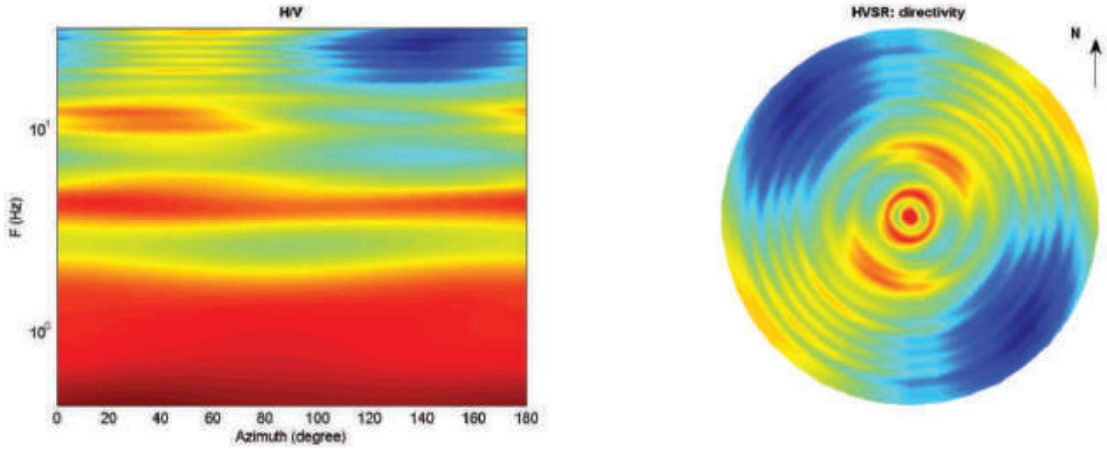
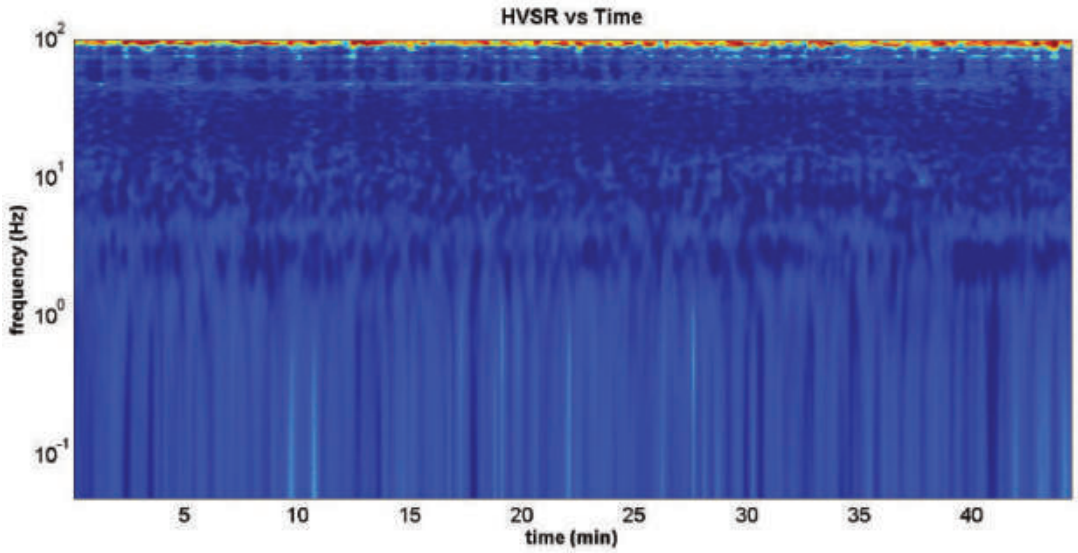


Figura 6 - Nel rettangolo rosso è indicato il picco a 0,5 Hz di frequenza Hz.

DIREZIONALITA' H/V



STAZIONARIETA' H/V



In the following the results considering the data in the 0.5 – 20.0 frequency range
Peak frequency (Hz): 0.5 (±4.5)
Peak HVSR value: 0.9 (±0.1)

Check-list corrispondenza analisi agli standard SESAME

Criteria for a reliable H/V curve
#1. [f0 > 10/Lw]: 0.5 > 0.5 (OK)
#2. [nc > 200]: 2870 > 200 (OK)
#3. [f0>0.5Hz; sigmaA(f) < 2 for 0.5f0 < f < 2f0] (OK)

Criteria for a clear H/V peak
#1. [exists f- in the range [f0/4, f0] | AH/V(f-) < A0/2]: (NO)
#2. [exists f+ in the range [f0, 4f0] | AH/V(f+) < A0/2]: (NO)
#3. [A0 > 2]: 0.9 < 2 (NO)
#4. [fpeak[Ah/v(f) ± sigmaA(f)] = f0 ± 5%]: (NO)
#5. [sigmaf < epsilon(f0)]: 4.519 > 0.081 (NO)
#6. [sigmaA(f0) < theta(f0)]: 0.067 < 2.00 (OK)

3.2 ANALISI DEI RISULTATI DELLE INDAGINI DI SISMICA PASSIVA HVSR

Le misure di rumore sismico sono state campionate come riportato nell'Allegato1.

Il sito non è risultato influenzato da fonti di rumore antropiche.

La durata totale dell'acquisizione è stata di 45 minuti per ogni registrazione.

Le misure effettuate presentano i seguenti picchi HVSR:

1) HVSR 1 4.2 Hz
2) HVSR 2 0.5 Hz
3) HVSR 3 0.5 Hz
4) HVSR 4 0.5 Hz
5) HVSR 5 0.5 Hz

Nella figura 7, di seguito riportata, vengono individuati i *range* di frequenze (f_0 Hz) e profondità (m):

f_0 (Hz)	h (m)
< 1	> 100
1 - 2	100 - 50
2 - 3	50 - 30
3 - 5	30 - 20
5 - 8	20 - 10
8 - 20	10 - 5
> 20	< 5

Figura 7 - Tabella Frequenze – Profondità (da Albarello et alii, 2010).

Nel caso in esame, non conoscendo la velocità dei sismo strati e solo possibile stimare la profondità del cambio litologico responsabile del contrasto sismico in base alla tabella sopra riportata.

Forte dei Marmi (LU), 30/07/2021

GEO CONSULTING RS
DOTT. GEOL. RICCARDO VAGLI
(n° 1679 Ordine dei Geologi della Toscana)
Studio Associato di Geologia
Geo Consulting RS
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55042 - Forte dei Marmi (LU)
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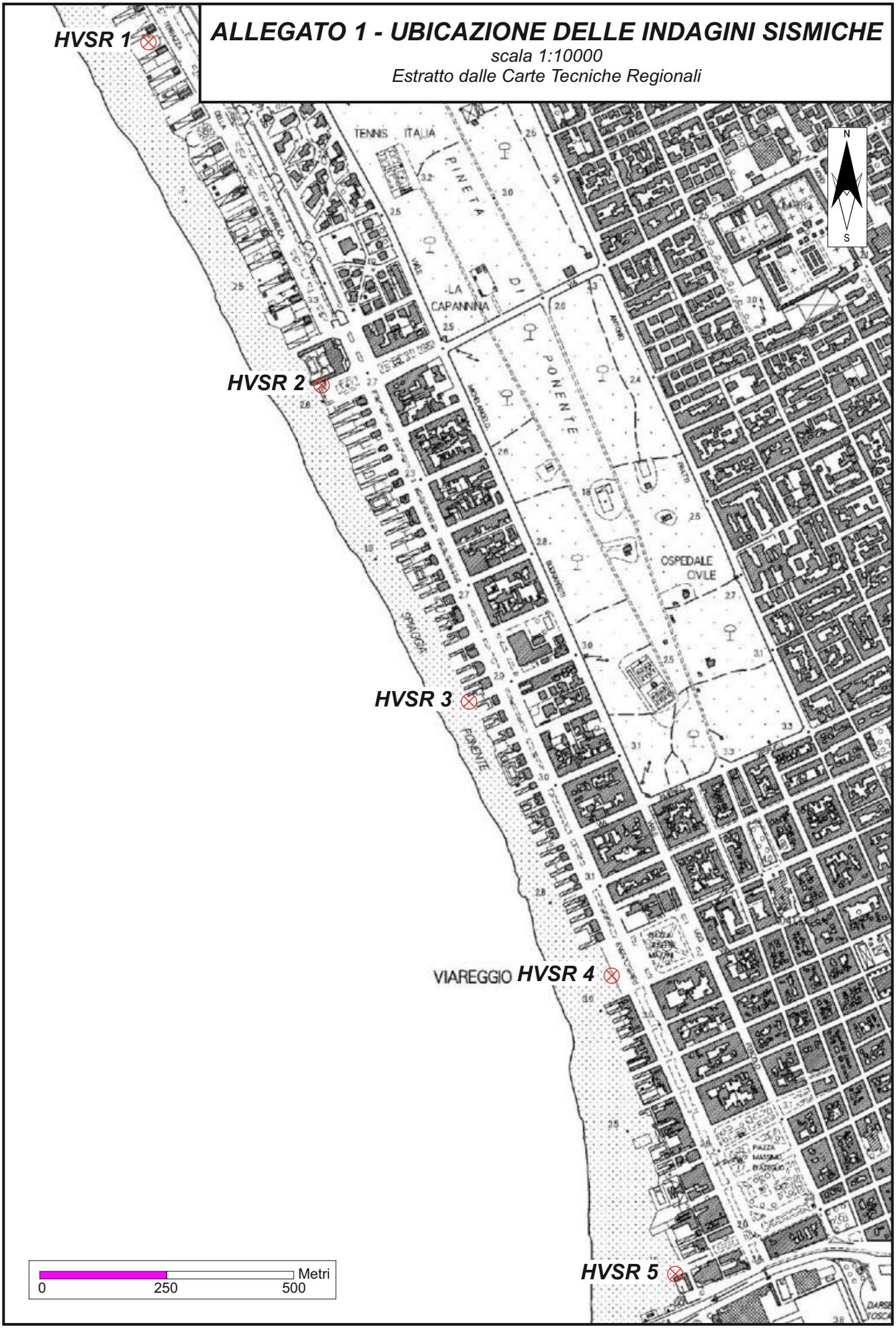
e-mail: geoconsultingrs@gmail.com

ALLEGATO 1 - UBICAZIONE DELLE INDAGINI SISMICHE

scala 1:10000

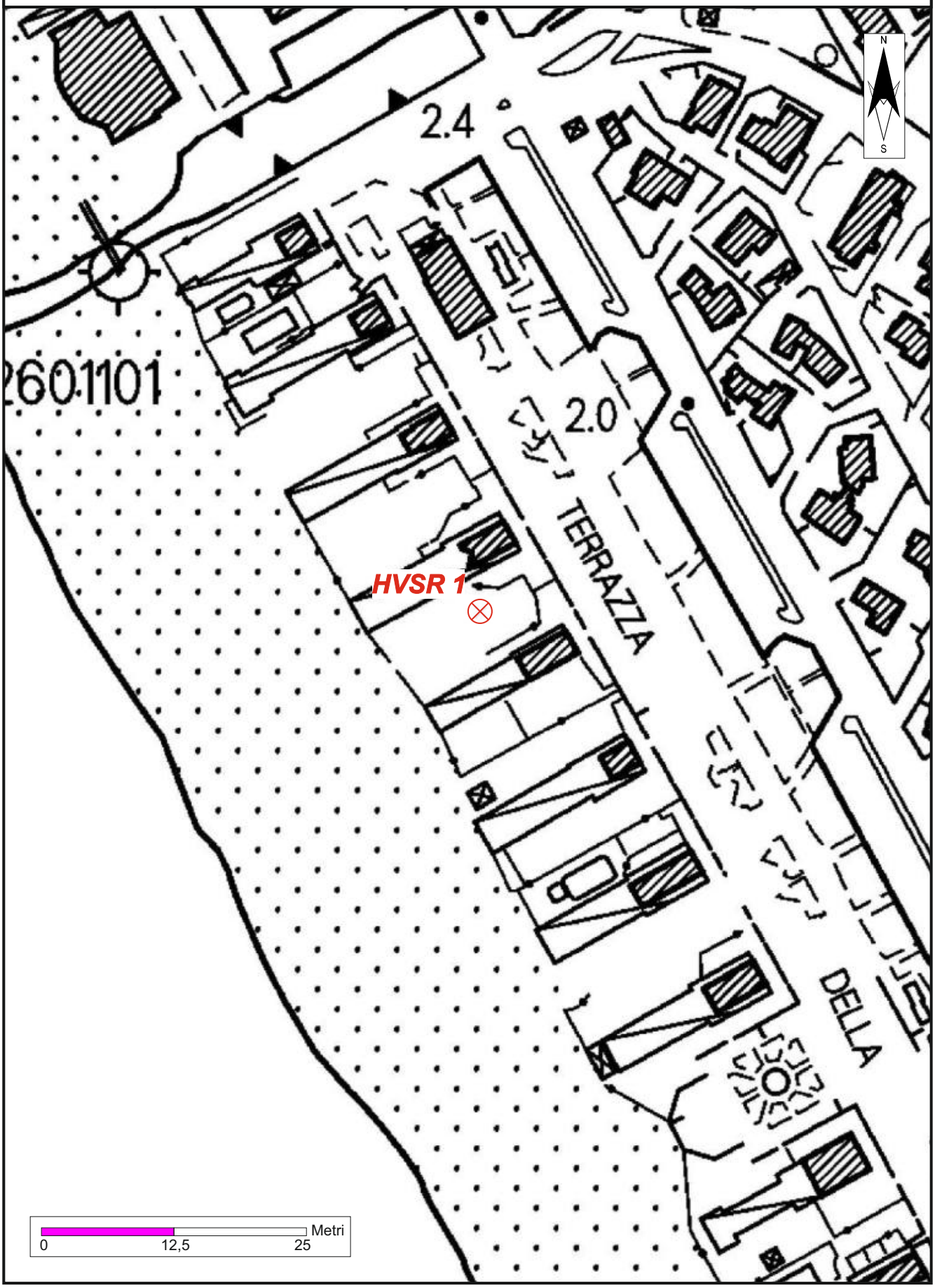
Estratto dalle Carte Tecniche Regionali



ALLEGATO 2 - UBICAZIONE DI DETTAGLIO DELLE INDAGINI SISMICHE

scala 1:2000

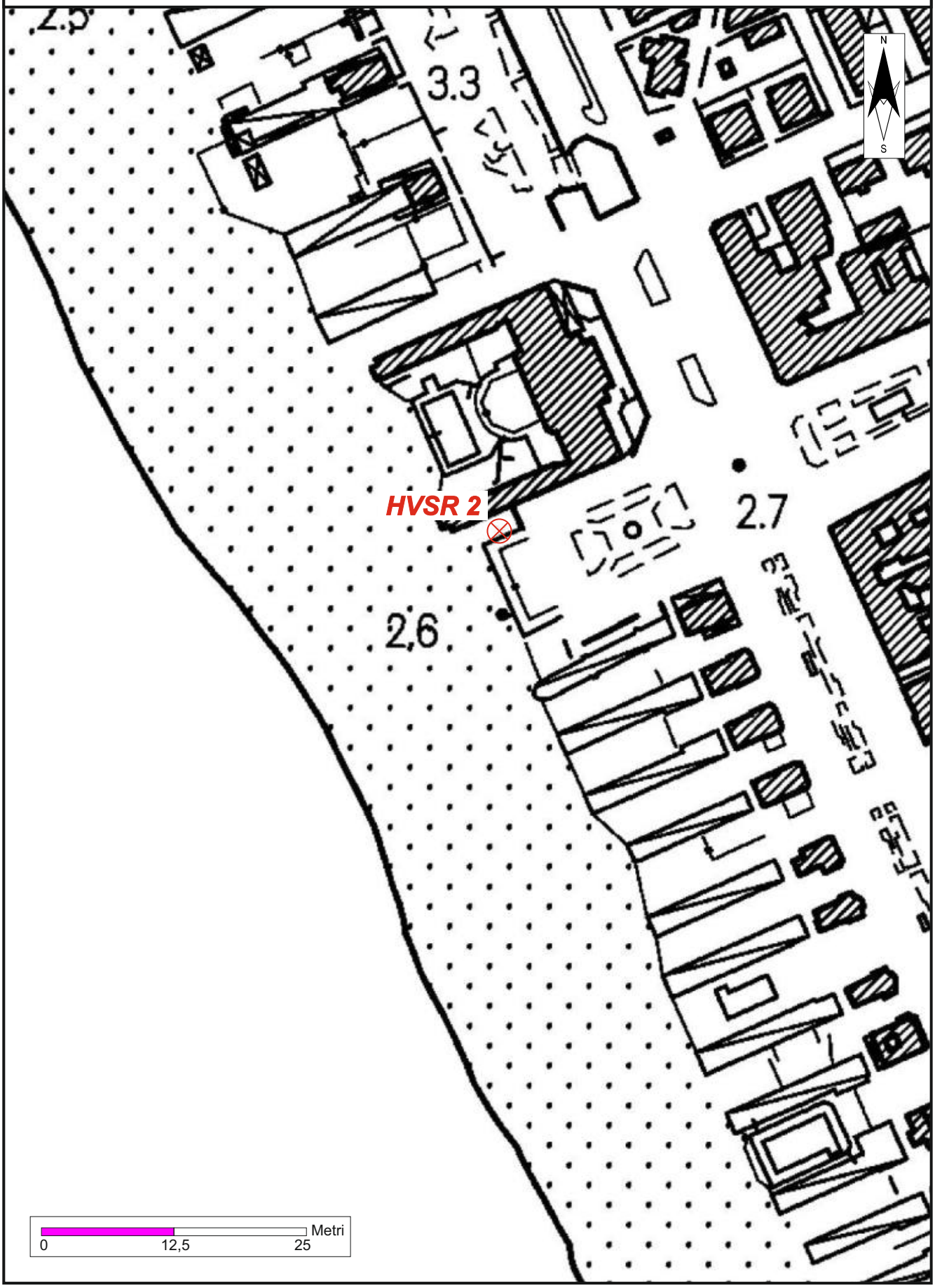
Estratto dalle Carte Tecniche Regionali



ALLEGATO 2 - UBICAZIONE DI DETTAGLIO DELLE INDAGINI SISMICHE

scala 1:2000

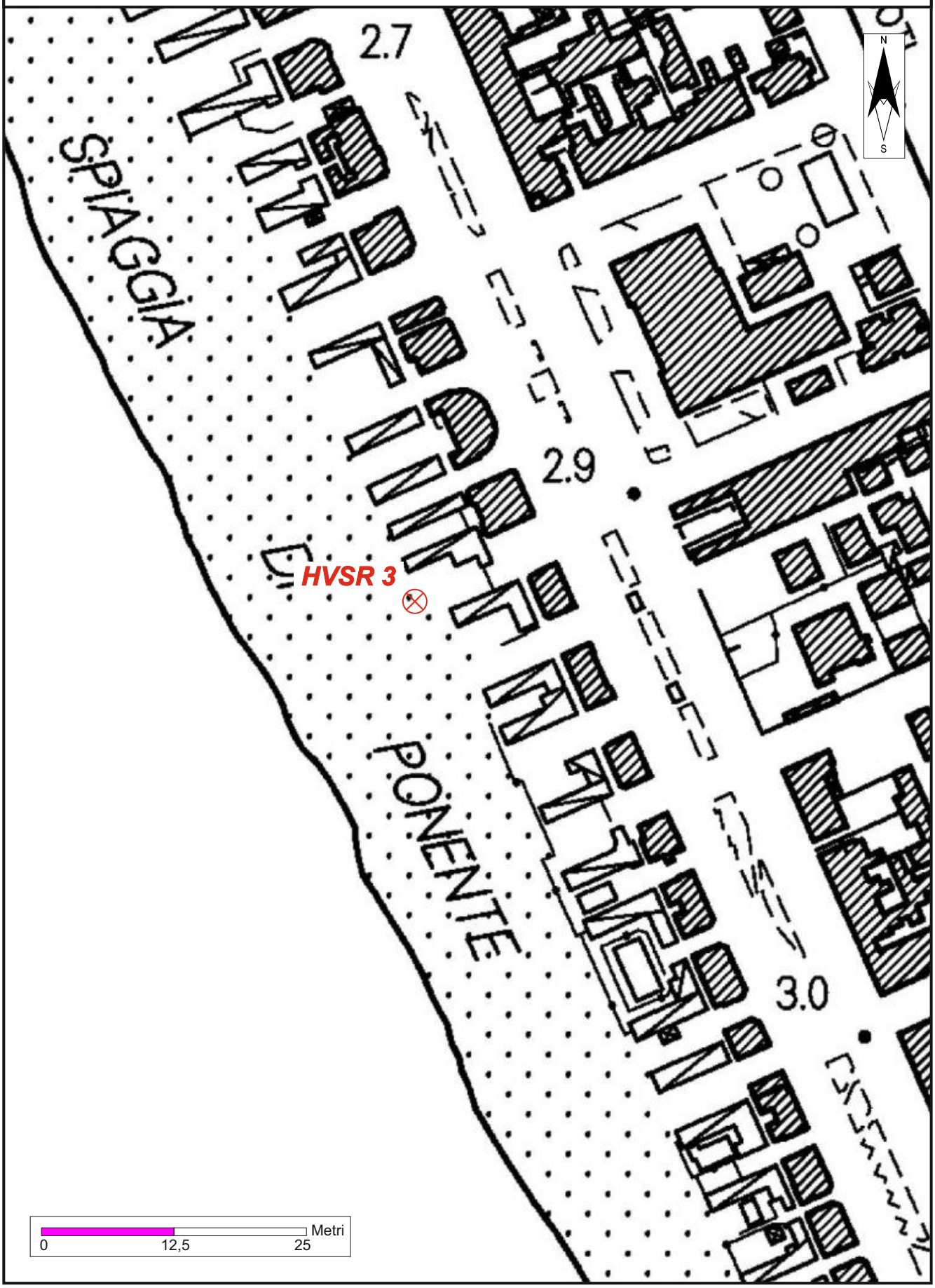
Estratto dalle Carte Tecniche Regionali



ALLEGATO 2 - UBICAZIONE DI DETTAGLIO DELLE INDAGINI SISMICHE

scala 1:2000

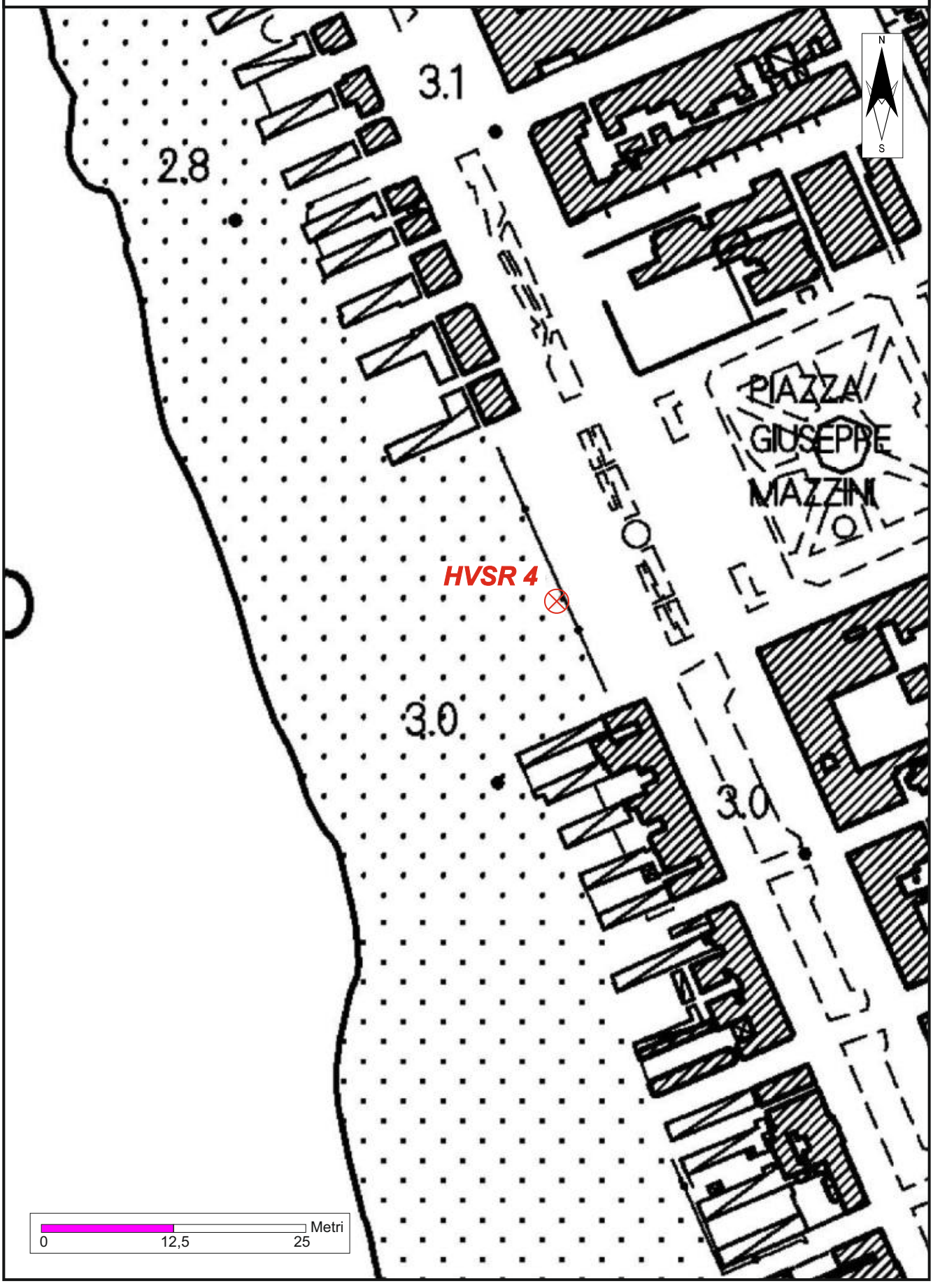
Estratto dalle Carte Tecniche Regionali



ALLEGATO 2 - UBICAZIONE DI DETTAGLIO DELLE INDAGINI SISMICHE

scala 1:2000

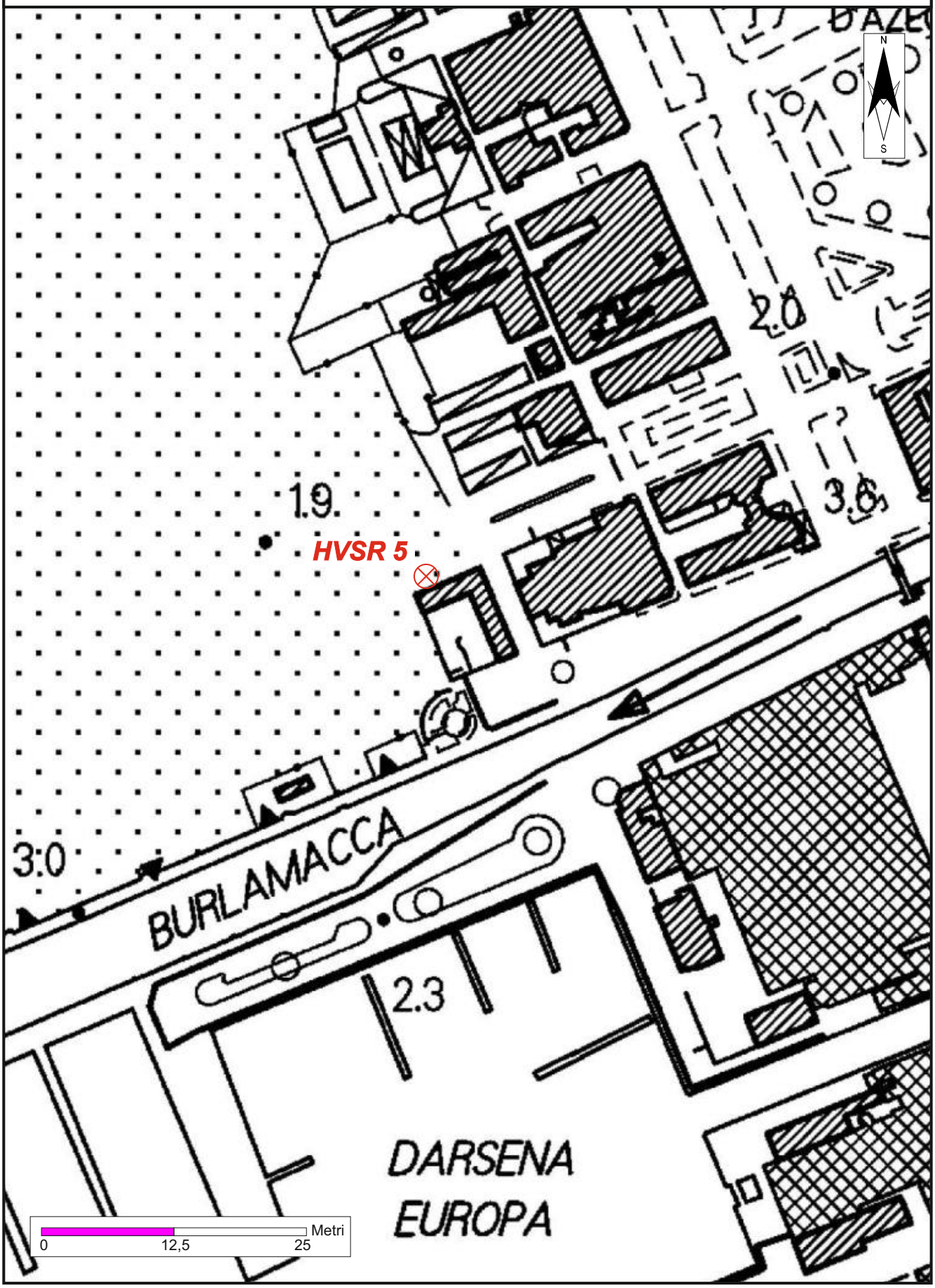
Estratto dalle Carte Tecniche Regionali



ALLEGATO 2 - UBICAZIONE DI DETTAGLIO DELLE INDAGINI SISMICHE

scala 1:2000

Estratto dalle Carte Tecniche Regionali



ALLEGATO 3 - DOCUMENTAZIONE FOTOGRAFICA

Foto 1 - HVSR 1

Foto 2 - HVSR 1

Foto 3 - HVSR 2

Foto 4 - HVSR 2

Foto 5 - HVSR 3

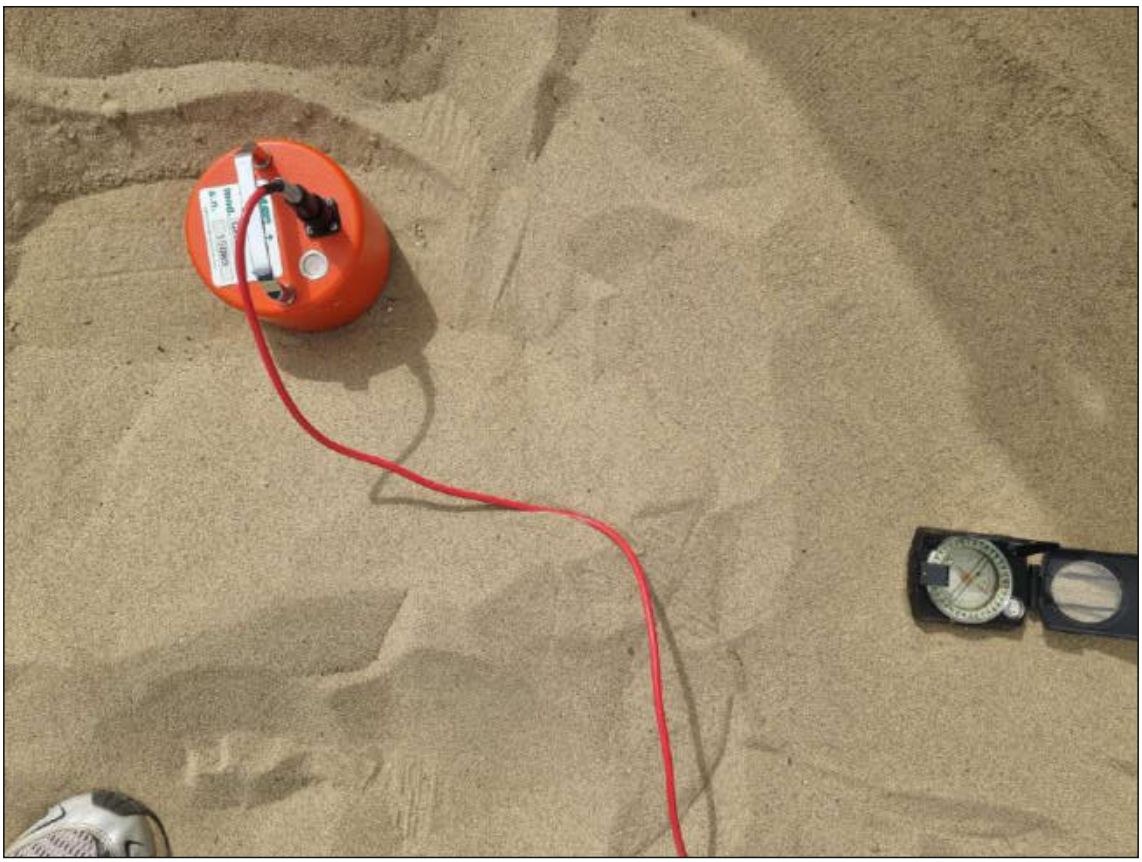


Foto 6 - HVSR 3

Foto 7 - HVSR 4

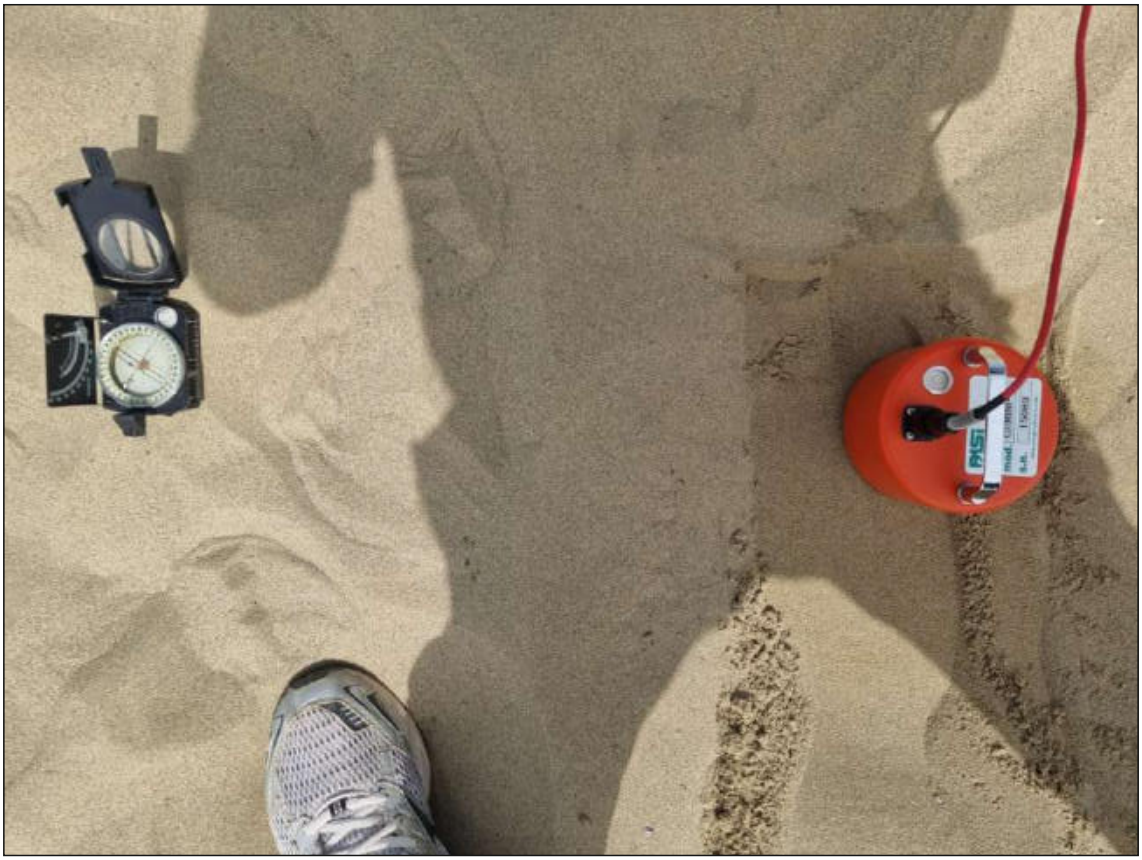


Foto 8 - HVSR 4

Foto 9 - HVSR 5

Foto 10 - HVSR 5

INDAGINI GEOGNOSTICHE
Relazione Tecnica

COMMITTENTE: GEO CONSULTING RS

OGGETTO: *"ESECUZIONE DI PROVE CPTu (Cone Penetration Test with Porewater Pressure) A SUPPORTO DELLA STESURA DEL PIANO PER L'UTILIZZO DEGLI ARENILI"*

CANTIERE: Arenili Bagno Firenze, Principe di Piemonte, Piazza Mazzini, Bagno Flora - Viareggio (LU)

RAPPORTO RELATIVO ALLA CAMPAGNA D'INDAGINE ESEGUITA MARTEDI' E MERCOLEDI' 13-14 LUGLIO 2021

BIERREGI s.r.l.
IL RESPONSABILE TECNICO
Dott. Geol. Francesco Rossi

I N D I C E

A L L E G A T I

1. - Premessa

Per incarico ricevuto dalla **GEO CONSULTING RS** e su richiesta del *Geol. Riccardo Vagli*, sono state eseguite prove penetrometriche statiche con Piezocono (CPTu) presso gli arenili del Bagno Firenze - Principe di Piemonte - Piazza Mazzini - Bagno Flora, a Viareggio (LU). Nelle aree sopra indicate sono state eseguite le seguenti indagini:

- n° 4 Prove penetrometriche statiche con piezocono (CPTu).

Lo scopo delle indagini geognostiche in sito è quello di fornire i dati necessari per la caratterizzazione geotecnica dei terreni indagati ad un livello di approfondimento consono alle necessità del progetto. La caratterizzazione geotecnica è intesa come l'insieme delle informazioni e dei dati ricavati dalle indagini svolte sul terreno, in modo tale da fornire un'adeguata e affidabile valutazione dei parametri geotecnici da impiegare nei calcoli di progetto. In sostanza, possiamo osservare che gli obiettivi primari delle indagini geotecniche sono:

- determinare la stratigrafia e la variabilità spaziale dei depositi in modo tale da poter tracciare i profili stratigrafici;
- determinare le principali caratteristiche fisiche e meccaniche medie di ciascun strato.

L'area e la relativa ubicazione delle indagini sono riportate rispettivamente in figura 1 (*Corografia*) e nelle figure 2a, 2b, 2c, 2d (*Ubicazione delle indagini*).

2. - Prove penetrometriche statiche con piezocono (CPTu)

Mediante le prove penetrometriche statiche con piezocono è possibile ottenere un maggior dettaglio nel rilevo stratigrafico e nella identificazione del tipo di terreno. Le variazioni della pressione nei pori colte dal sottile filtro poroso, non risentono infatti, al contrario di come avviene per la resistenza alla punta, della natura e consistenza degli strati anche prima che la punta li raggiunga. Lo spessore dei livelli più o meno permeabili viene quindi definito con notevole precisione dai valori della pressione nei pori, sempre che il filtro sia ben saturo (*Ferruccio Cestari - Prove geotecniche in sito 3° edizione 2009*).

Le prove sono state effettuate utilizzando un Penetrometro modello statico/dinamico TG-63/200 da 20 tonn di spinta della PAGANI GEOTECHNICAL EQUIPMENT S.R.L. di Piacenza, con maglio di 63,5 Kg.

Come accennato in premessa sono state eseguite n° 4 prove penetrometriche statiche con piezocono (CPTu), di cui a seguire si riporta una tabella di sintesi delle specifiche tecniche:

Prova n°	Data di esecuzione	Profondità (m)	Quota (m s.l.m.)	Coordinate Gauss-Boaga	
				X	Y
CPTu 01	13/07/2021	15,96	+1,70	1598830,7321	4860072,4706
CPTu 02	13/07/2021	15,18	+2,30	1599152,2258	4859377,2952
CPTu 03	13/07/2021	15,18	+2,00	1599743,6150	4858190,2473
CPTu 04	14/07/2021	15,48	+2,00	1599872,4166	4857648,6933

Le quote delle prove sono state ricavate dal dai fogli C.T.R. (2000) della Regione Toscana. Considerato che non è stato possibile effettuare misure di falda all'interno dei perfori delle prove, vista la vicinanza del mare, la falda è stata considerata alla profondità del livello del mare rispetto alla quota altimetrica indicata nella tabella soprastante.

Per le caratteristiche tecniche del penetrometro utilizzato e la visione dei tabulati, diagrammi e grafici delle prove si rimanda ai relativi allegati (All.A-B-C-D).

2.1 - Modalità di esecuzione, caratteristiche ed acquisizione dei dati

Le prove penetrometriche statiche con piezocono, ad ogni centimetro di profondità permettono di acquisire, durante il movimento continuo di spinta, le grandezze: qc (resistenza di punta) ed fs (attrito laterale). In aggiunta, mediante la collocazione di un filtro poroso posto subito dopo il cono (U_2), viene misurata la sovrappressione dell'acqua nei pori presente nel terreno durante la penetrazione. La pressione dei pori misurata è costituita dalla somma della pressione idrostatica preesistente la penetrazione e delle pressioni nei pori positive o negative che sono dovute alla compressione e/o dilatazione del terreno a seguito dell'infissione del cono. La scelta della posizione del filtro immediatamente sopra la base del cono (U_2) concorda con l'idea della maggioranza dei costruttori. Le prove CPTu rispetto alle prove penetrometriche statiche con punta meccanica (CPTm) presentano una migliore precisione di: lettura, frequenza di campionamento e definizione della litologia.

Durante l'esecuzione delle prove penetrometriche con piezocono i dati vengono acquisiti mediante il sistema d'acquisizione **TGAS07B** fornito dalla PAGANI GEOTECHNICAL EQUIPMENT S.R.L. di Piacenza. I dati vengono registrati istantaneamente sulla centralina integrata, collegata al penetrometro. Tale sistema è costituito dai seguenti componenti:

- ✓ TGAS07B → sistema d'acquisizione;
- ✓ ENCODER → misura la profondità e la velocità d'infissione;
- ✓ ALIMENTAZIONE → il sistema viene alimentato elettricamente dalla batteria del penetrometro, tramite una presa montata di serie.

Durante l'infissione vengono visualizzati, acquisiti e calcolati i seguenti parametri:

- ✓ q_C (Cone tip stress) - resistenza alla punta;
- ✓ f_S (Sleeve reistance) - resistenza unitaria di attrito laterale locale;
- ✓ u_2 (Porewater pressure) - pressione di poro;
- ✓ Inclinazione (tilt);
- ✓ Velocità;
- ✓ Distanza (scostamento dalla verticale).

Le caratteristiche del piezocono sono le seguenti (All.D - Certificati di taratura):

Canali di misura:		***Dimensioni:***	
Resistenza di punta (qc):	10; 50 o 100 MPa	Angolo di apertura cono:	60°
Attrito laterale (fs):	0,5 MPa	Diametro:	36 mm
Pressione nei pori (U):	2,5 MPa	Sezione di spinta:	10 cm²
Inclinazione:	0 - 40°	Superficie laterale:	150 cm²

La saturazione della punta è stata realizzata mediante l'utilizzo del grasso siliconico.

2.2 - Elaborazione dei dati

Il ruolo più importante delle prove CPTu (CPT) è quello di fornire profili stratigrafici dei suoli investigati e la loro classificazione. Tipicamente la resistenza totale alla punta corretta (q_t) è alta nelle sabbie e bassa nelle argille, mentre il rapporto di attrito (R_f) è basso nelle sabbie e alto nelle argille. La classificazione non pretende di fornire previsioni accurate del tipo di terreno in base alla distribuzione granulometrica, ma cerca di fornire una guida alle caratteristiche meccaniche del terreno. I dati forniti dalla prova CPTu forniscono il comportamento del suolo attraversato nelle immediate vicinanze della punta. Quindi al tipo di suolo investigato viene associato il suo comportamento durante la penetrazione.

Esistono numerosi metodi di classificazione di indagini CPTu tra cui i più noti sono quello di Begemann (1965), Schmertmann (1978) e Robertson (1986; 1990). Bisogna tenere presente che i primi due metodi utilizzano i parametri ottenuti da prove penetrometriche statiche meccaniche (qc e fs), mentre l'ultimo utilizza i parametri ottenuti da prove CPTu (qc, fs e u_2).

Robertson et al. 1986

Uno tra i diagrammi più diffusi per la classificazione dei terreni investigati, che utilizza i tre parametri rilevati con il piezocono (qt, fs, u_2), è quello SBT (Soil Behavior Type - Comportamento del tipo di terreno) suggerito da P. K. Robertson et al. (1986) mostrato in **Fig. A**, che prevede l'utilizzo sull'asse delle ordinate del rapporto q_c/p_a o q_t/p_a e sull'asse delle ordinate l'utilizzo di R_f (Rapporto d'attrito %) entrambi su scala logaritmica:

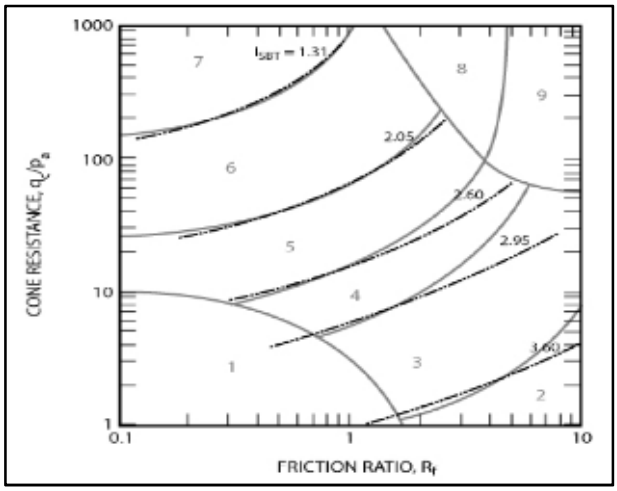


Fig.A: *Robertson et al. 1986 (SBT plot)*

dove i campi individuati nel grafico sono i seguenti:

1. Sensitive fine-grained (Argille sensitive);
2. Clay - Organic Soil (Terreni organici, torbe);
3. Clays: clay to silty clay (Argille - argille limose);
4. Silt mixtures: clayey silt & silty clay (Limi argillosi, argille limose);
5. Sand mixtures: silty sand to sandy silt (Sabbie limose, limi sabbiosi);
6. Sands: clean sands to silty sands (Sabbie limose, sabbie pulite);
7. Dense sand to gravelly sand (sabbie, sabbie ghiaiose);
8. Stiff sand to clayey sand (Sabbie cementate, sabbie argillose)*;
9. Stiff fine-grained (Terreni a grana fine, molto rigidi)*.

*Nota: le classi 8 e 9 rappresentano terreni sovraconsolidati o cementati.

Robertson 1990

Nella realtà bisogna però tenere conto delle tensioni geostatiche, totali ed efficaci, presenti alla profondità delle misure, in quanto potrebbe portare a degli errori nella valutazione sul tipo di terreno attraversato. Infatti, i valori di resistenza tendono ad aumentare con la profondità anche nel medesimo deposito, in quanto aumentano le tensioni che agiscono sull'elemento di terreno. Per tenere conto di questo, ovvero delle tensioni geostatiche verticali, occorre normalizzare i valori di q_c, f_s e u_2 introducendo la pressione idrostatica ed il peso di volume dei vari strati. È stato così realizzato un grafico più affidabile rispetto al precedente (*P. K. Robertson et al. 1990 - SBTn*) nel quale vengono utilizzati i parametri normalizzati di q_t, f_s e u_2 in termini di pressioni effettive ottenendo valori normalizzati (**Fig. B**) di seguito riportati:

- **Q (o Q_{t1} o Q_t)** - Normalized Cone Resistance (Resistenza alla punta normalizzata):

$$Q(o\ Q_{t1}\ o\ Q_t) = \frac{(q_t - \sigma_{v0})}{\sigma'_{v0}}$$

- **F (o Fr)** - Normalized Friction Ratio (Rapporto di attrito normalizzato):

$$F(o\ F_r) = \left(\frac{f_s}{q_t - \sigma_{v0}}\right) \cdot 100\%$$

- **Bq** - Normalized Pore Pressure Ratio (Rapporto della pressione nei pori normalizzato):

$$B_q = \frac{u_2 - u_0}{q_t - \sigma_{v0}} = \frac{\Delta u}{q_n}$$

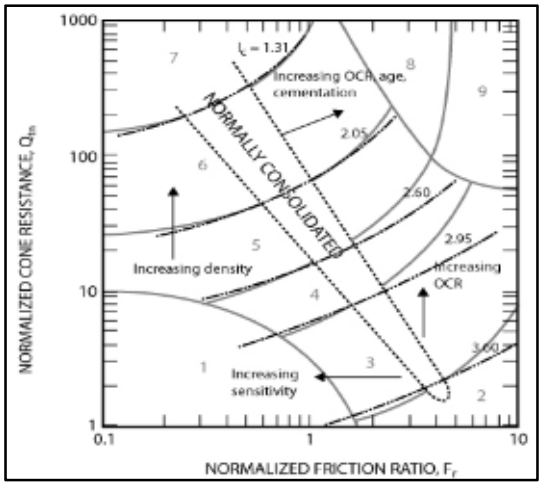


Fig. B: *Soil Behavior Type normalizzato - SBTn (Robertson 1990)*

Per utilizzare il grafico sopra riportato, sulla base dei dati ricavati dalla prova, e determinare in quale classe viene identificato il tipo di terreno attraversato, viene definito il seguente indice che si basa, a differenza dell'indice I_{SBT} (non-normalizzato), sui parametri della prova normalizzati (tengono conto delle pressioni effettive):

I_C - Soil Behaviour Type Index normalized (Indice di comportamento del terreno normalizzato):

$$I_C = I_{SBT_n} = \sqrt{\left[\left(3{,}47 - \log(Q_{t1})\right)^2 + \left(\log(F_r) + 1{,}22\right)^2\right]}$$

$$n = 0{,}381 \cdot I_c + 0{,}05 \cdot \left(\frac{\sigma'_{v0}}{p_a}\right) - 0{,}15 \qquad n \leq 1 \text{ (Robertson 2009)}$$

Q_{tn} - Normalized Cone Resistance - Resistenza alla punta normalizzata (n varia con I_C):

$$Q_{tn} = \left[\left(\frac{q_t - \sigma_{v0}}{p_a}\right)\right] \cdot \left(\frac{p_a}{\sigma'_{v0}}\right)^n$$

I dati acquisiti in campagna sono stati elaborati con il programma **CPeT-IT v.1.7.6.42 della Geologismiki Geotechnical Software**. Il software, a partire dai valori di qc (cone resistance - resistenza alla punta), fs (sleeve fiction - attrito laterale) e delle sovrappressioni interstiziali (u_2 - pore pressure), permette di ricavare i dettagli stratigrafici dei terreni attraversati e i parametri principali del terreno. Per la stratigrafia dei terreni viene riportato il grafico di P.K. Robertson et al. 1986 che utilizza i valori non-normalizzati (qc, fs e u_2) e il grafico di P.K. Robertson et al. 1990 che utilizza i valori normalizzati (Qt, Fs e Bq) in quanto quest'ultimo tiene conto delle tensioni geostatiche totali ed efficaci. Di seguito si riportano i dati di output ricavati dal software di elaborazione CPeT-IT:

- ✓ grafici delle resistenze;
- ✓ grafici di Robertson (SBT plot e SBTn plot) e relativi grafici ausiliari che utilizzano in ascissa il parametro Bq (per poter prendere in considerazione anche pressioni di poro negative);
- ✓ grafici delle resistenze e classificazione SBT;
- ✓ grafici dei parametri normalizzati e classificazione SBTn;
- ✓ grafici dei parametri geomeccanici del terreno;
- ✓ formulario;
- ✓ basic output data (parametri di base per l'elaborazione);
- ✓ estimations (parametri geomeccanici ricavati).

Per maggiori dettagli si rimanda al manuale del software reperibile all'indirizzo internet http://www.geologismiki.gr/.

3. - Conclusioni

Sulla base dei dati raccolti sul campo e le elaborazioni eseguite, è stato possibile evidenziare quanto segue:

- Le prove penetrometriche hanno permesso di ricostruire indirettamente la stratigrafia e di ricavare i parametri geomeccanici del terreno investigato;

- Le prove penetrometriche indicano una sostanziale omogeneità dal punto di vista litologico e dei valori registrati (Figg. C-D-E-F-G).

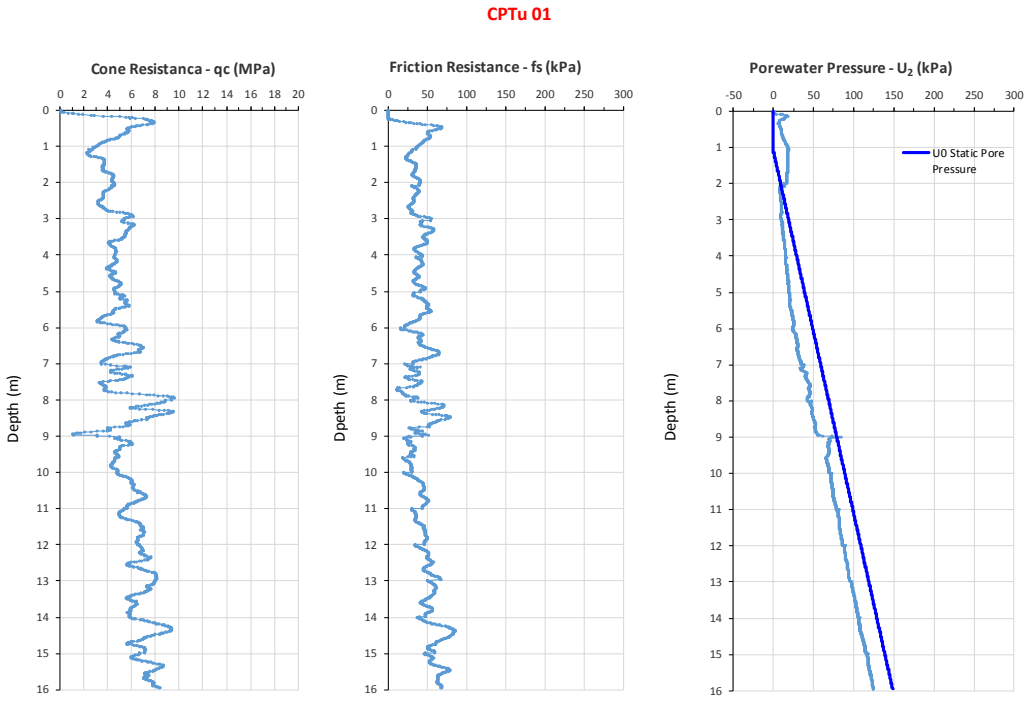


Fig. C: *Prova CPTu 01 - Andamento dei parametri qc, fs, u_2 registrati durante l'infissione del piezocono*

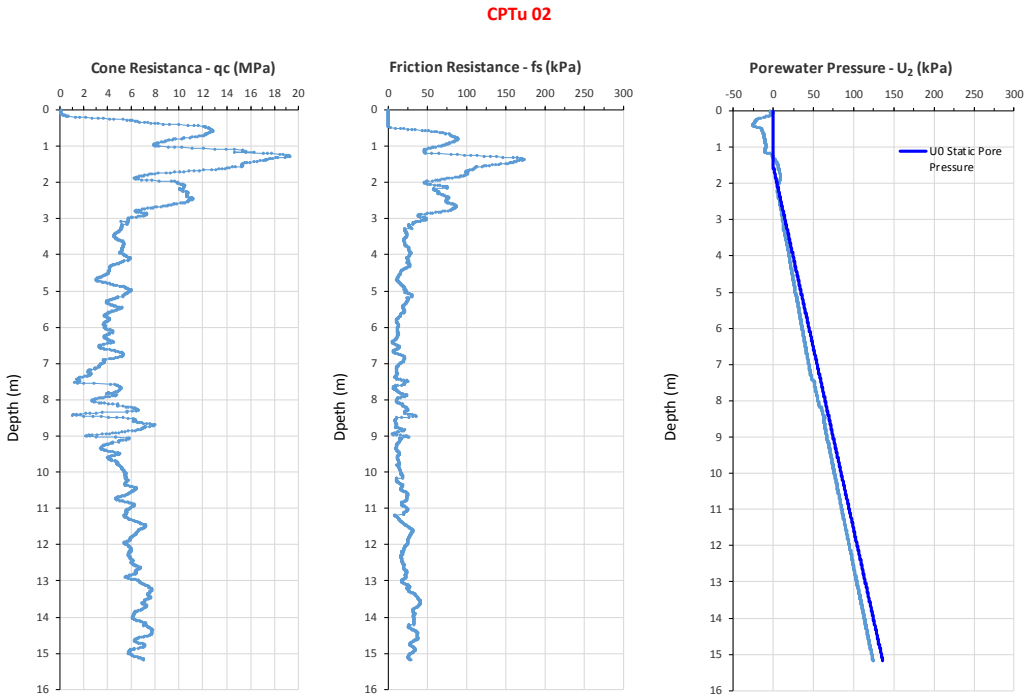


Fig. D: *Prova CPTu 02 - Andamento dei parametri qc, fs, u_2 registrati durante l'infissione del piezocono*

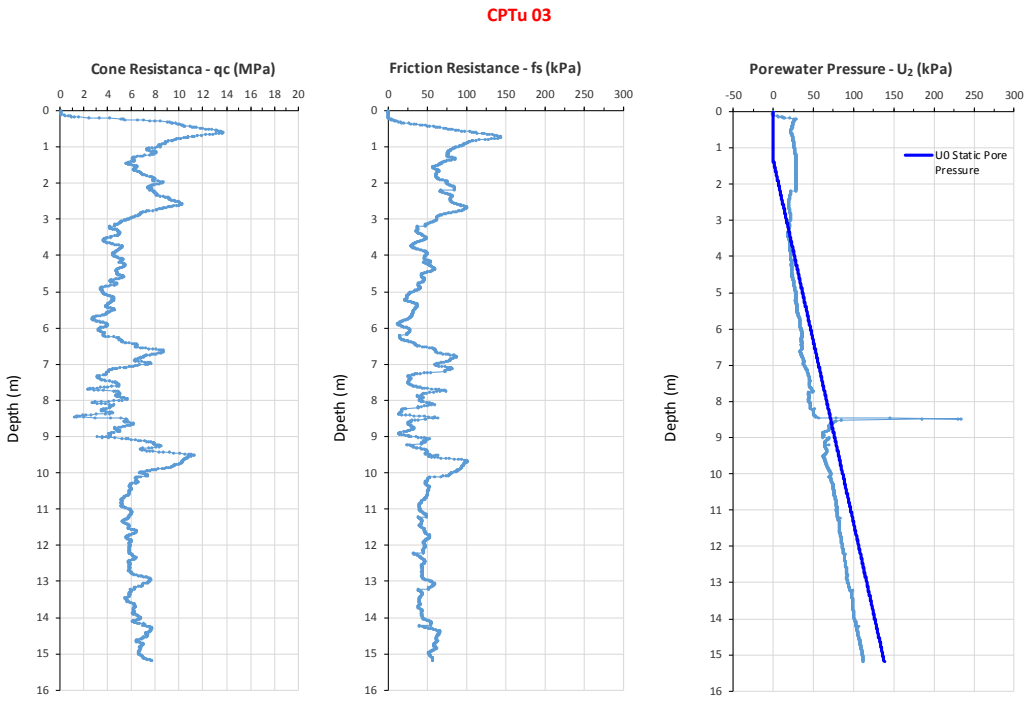


Fig. E: *Prova CPTu 03 - Andamento dei parametri qc, fs, u_2 registrati durante l'infissione del piezocono*

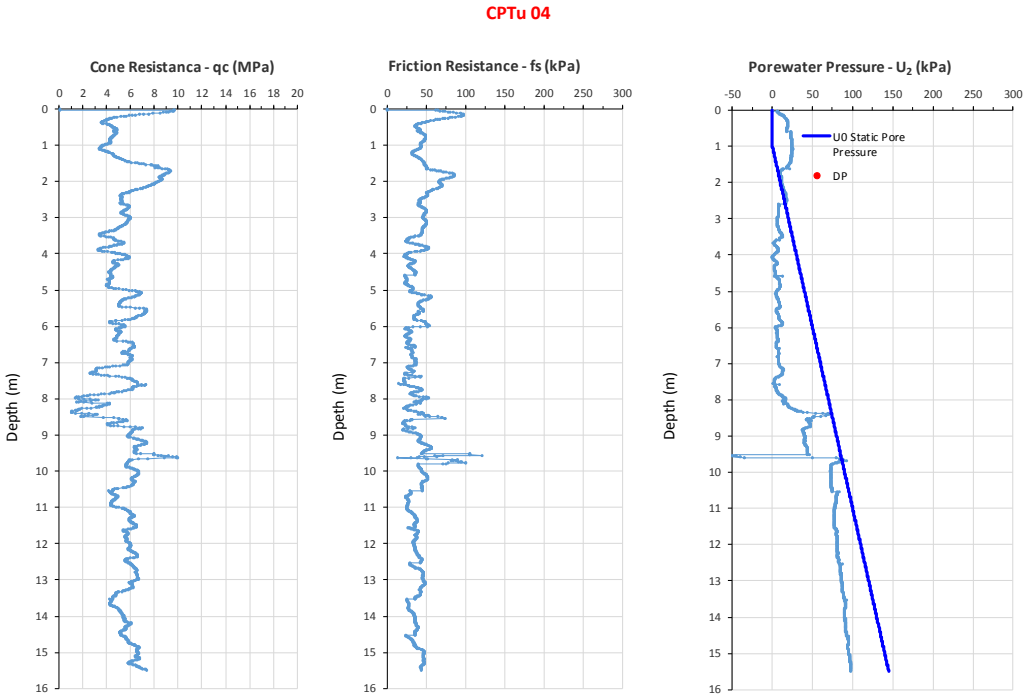


Fig. F: *Prova CPTu 04 - Andamento dei parametri qc, fs, u_2 registrati durante l'infissione del piezocono*

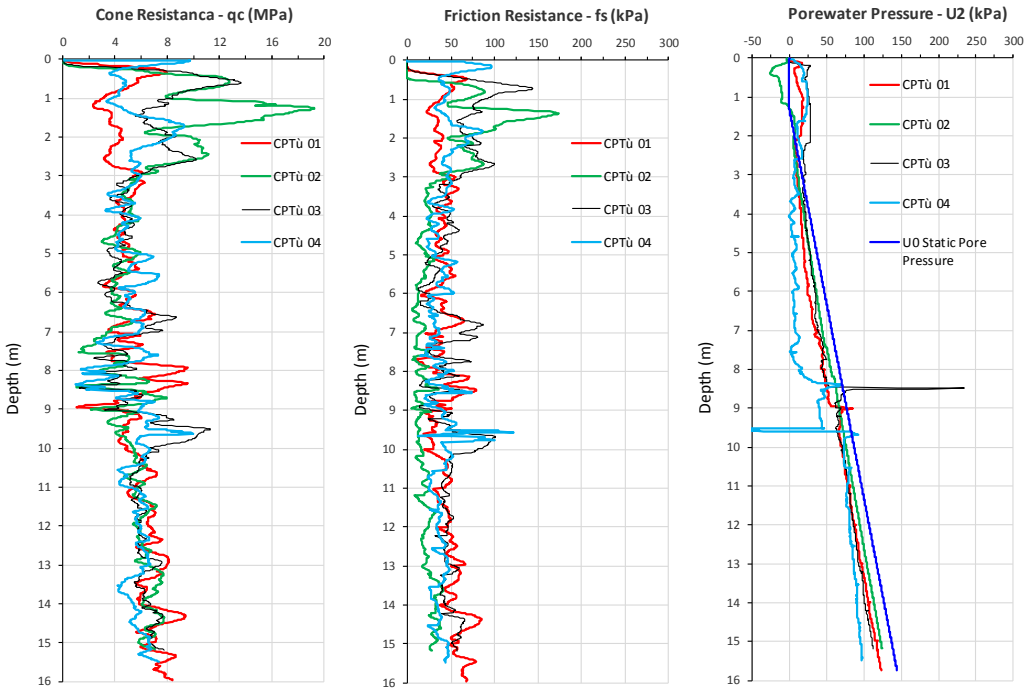


Fig. G: *Raffronto dei parametri rilevati relativi alle cinque prove eseguite*

Postazione Prova CPTu 01

Postazione Prova CPTu 02

Postazione Prova CPTu 03

Postazione Prova CPTu 04

Infine, nell'allegato D sono riportano i rapporti di taratura relativi ai sensori del piezocono, ovvero resistenza alla punta (q_c), resistenza laterale (f_s), pressione interstiziale (u_2) e inclinazione (tilt).

L'analisi specifica dei dati elaborati rimane comunque a carico del "geologo/ingegnere" responsabile delle indagini; le considerazioni sopra si devono intendere come mera interpretazione dei risultati ottenuti.

Per ulteriori dettagli sulle indagini svolte si rimanda ai relativi allegati (All.A - B - C - D).

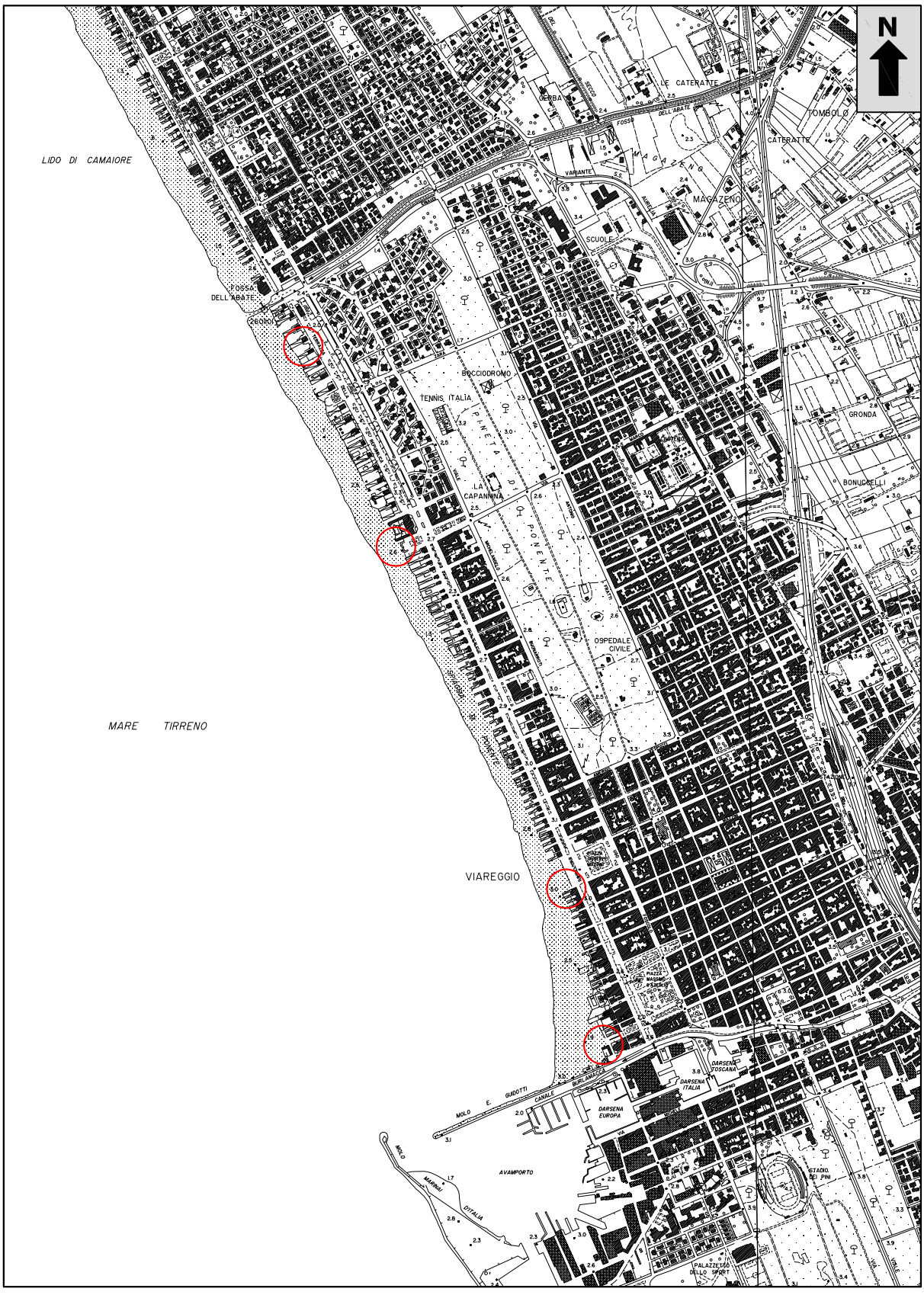
Lucca, Luglio 2021

BIERREGI srl
Il Responsabile Tecnico
Dott. Geol. Francesco Rossi

BIERREGI s.r.l.
IL RESPONSABILE TECNICO
Dott. Geol. Francesco Rossi

FIG.1 - COROGRAFIA

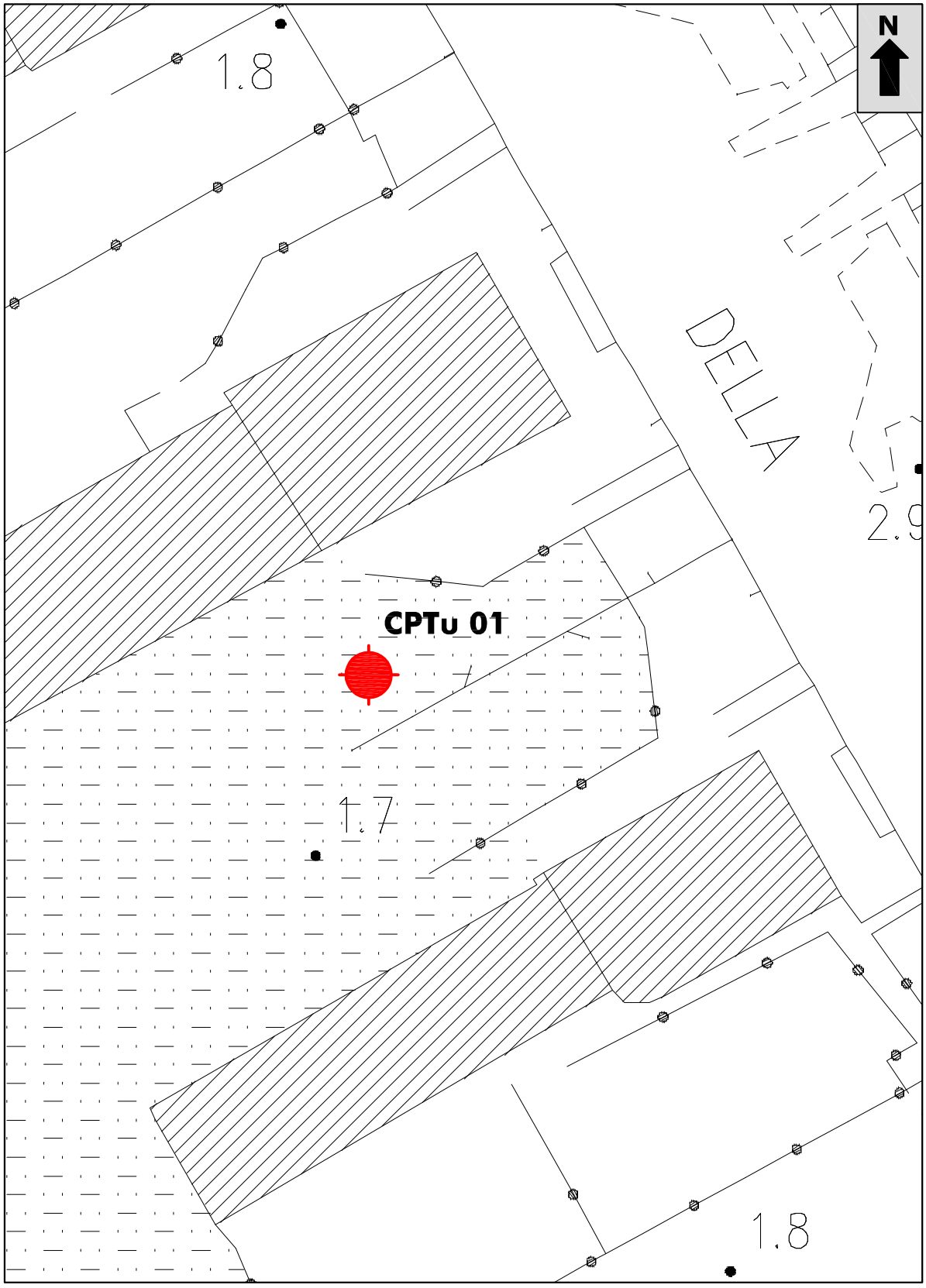
(C.T.R. Regione Toscana - Foglio 260110 - Scala 1:20'000)



- Aree oggetto d'indagine

FIG.2a - UBICAZIONE INDAGINE BAGNO FIRENZE

(C.T.R. Regione Toscana - Foglio 20E41 - Scala 1:500)

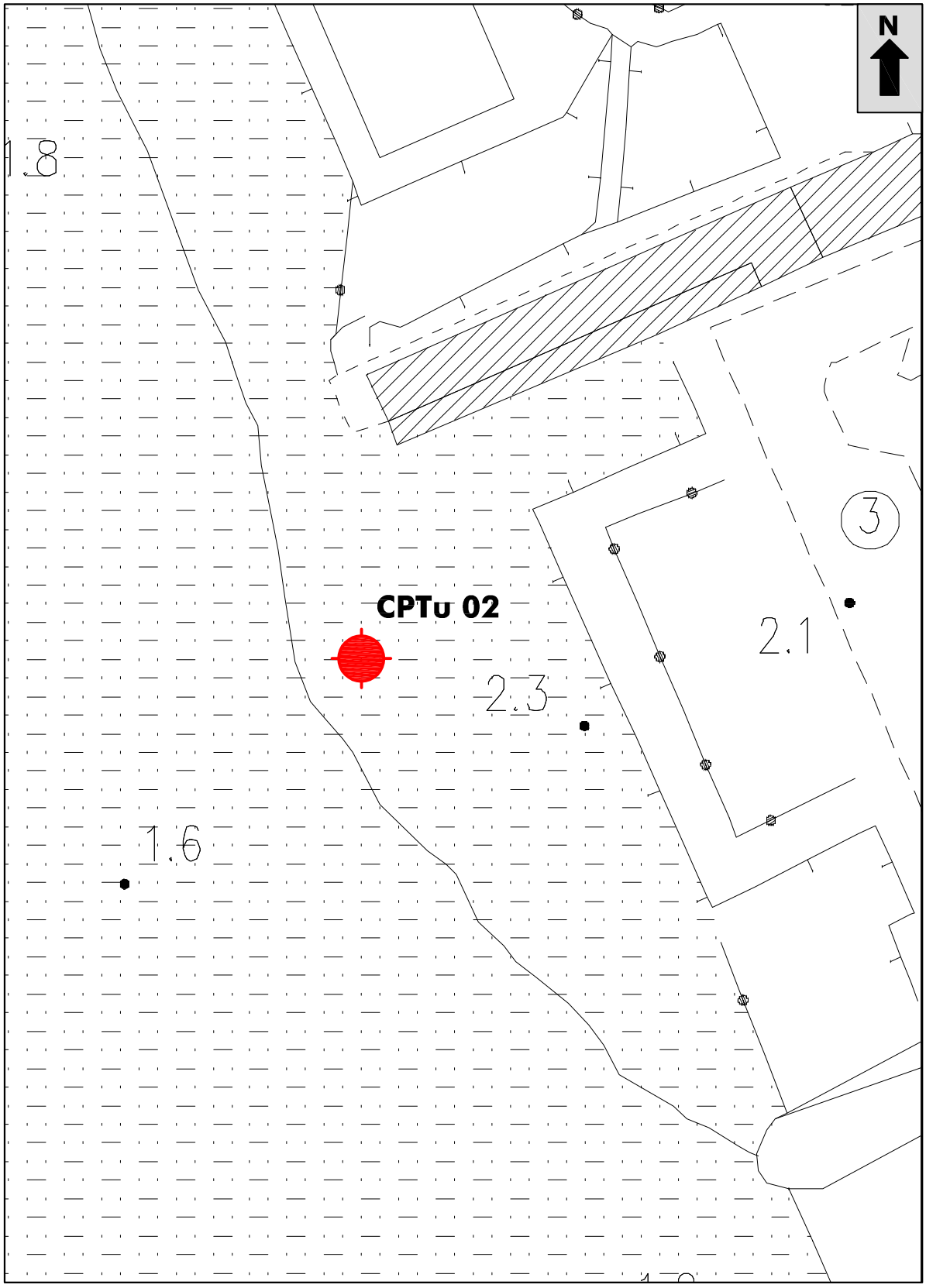


CPTu-01

- Prova statica con piezocono

FIG.2b - UBICAZIONE INDAGINE PRINCIPE DI PIEMONTE

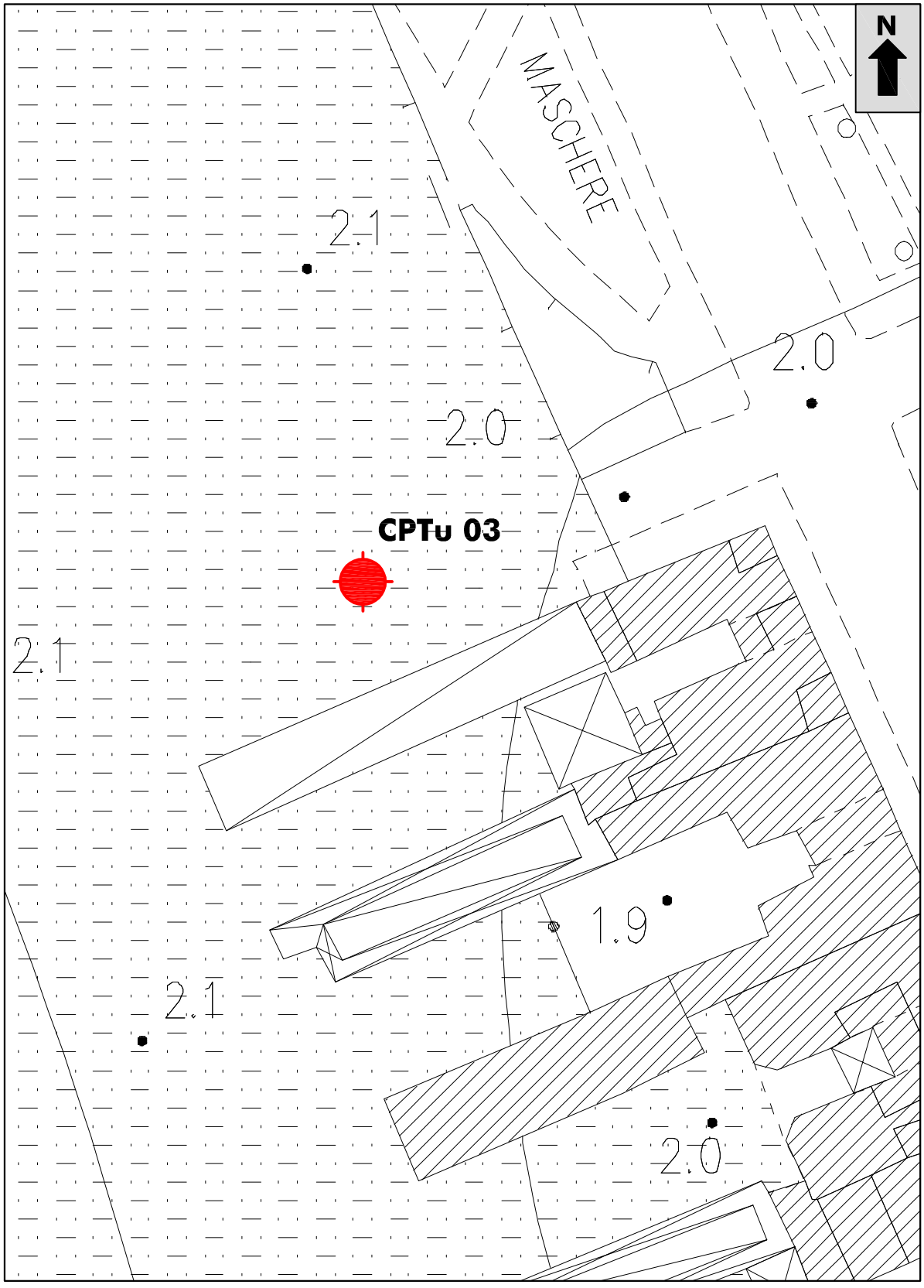
(C.T.R. Regione Toscana - Foglio 20E49 - Scala 1:500)



CPTu-02
- Prova statica con piezocono

FIG.2c - UBICAZIONE INDAGINE PIAZZA MAZZINI

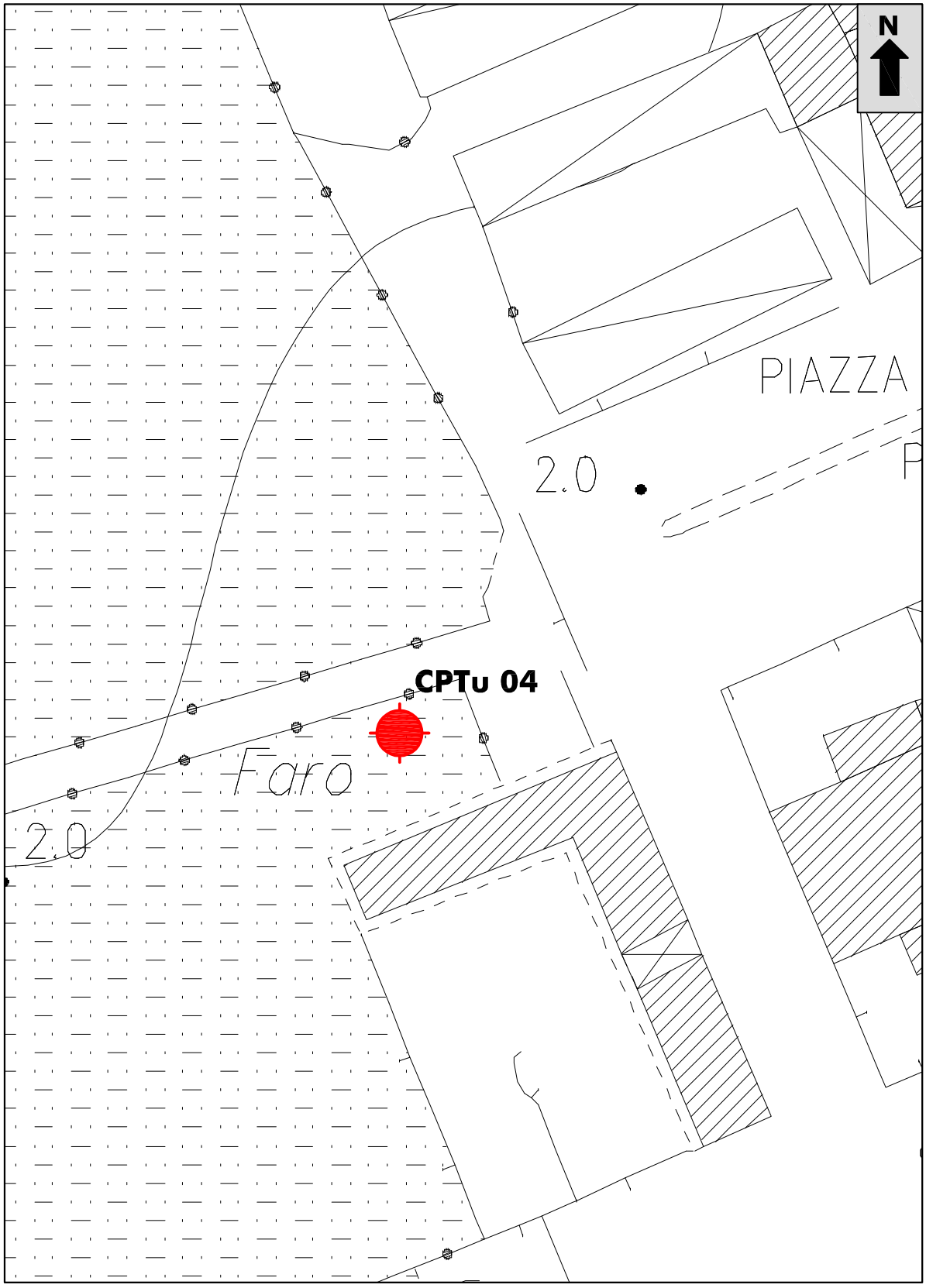
(C.T.R. Regione Toscana - Foglio 20E58 - Scala 1:500)



CPTu-03
- Prova statica con piezocono

FIG.2d - UBICAZIONE INDAGINE BAGNO FLORA

(C.T.R. Regione Toscana - Foglio 20E58 - Scala 1:500)



CPTu-04
- Prova statica con piezocono

Allegato A

Prove Penetrometriche Statiche con Piezocono (CPTu)
Basic Results

CPTu 01 ARENILE BAGNO FIRENZE - VIAREGGIO (LU)

qc cone resistance
fs sleeve friction
u_2 penetration pore pressure
qt total cone resistance
Rf friction ratio
SBT soil behavior type

γ soil unit weight
σ,v total overburden stress
u_0 in situ pore pressure
$\sigma'v_0$ effetive overburden stress
Qt1 normalized cone resistance
Fr normalized friction ratio

Bq normalized pore pressure
SBTn soil behavior type normalized
Ic soil behavior type index
Qtn normalized cone resistance based on the stress exponent n

In situ data **Basic output data**

Depth (m)	qc (MPa)	fs (kPa)	u_2 (kPa)	qt (MPa)	Rf (%)	SBT	γ kN/m³	σ,v (kPa)	u_0 (kPa)	$\sigma'v_0$ (kPa)	Qt1	Fr (%)	Bq	SBTn	Ic	Qtn
0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.02	0.110	0.00	0.35	0.110	0.00	1	19.00	0.38	0.00	0.38	288.66	0.00	0.00	0	0.00	0.00
0.04	0.090	0.00	-0.17	0.090	0.00	1	19.00	0.76	0.00	0.76	117.38	0.00	0.00	0	0.00	0.00
0.06	0.220	0.00	0.52	0.220	0.00	1	19.00	1.14	0.00	1.14	192.07	0.00	0.00	0	0.00	0.00
0.08	0.710	0.00	3.32	0.710	0.00	1	19.00	1.52	0.00	1.52	466.54	0.00	0.00	0	0.00	0.00
0.10	1.140	0.00	10.85	1.140	0.00	0	19.00	1.90	0.00	1.90	600.14	0.00	0.01	0	0.00	0.00
0.12	1.920	0.00	16.80	1.920	0.00	0	19.00	2.28	0.00	2.28	842.58	0.00	0.01	0	0.00	0.00
0.14	2.820	0.05	17.50	2.820	0.00	0	13.73	2.61	0.00	2.61	1081.90	0.00	0.01	0	1.89	226.06
0.16	3.620	0.05	15.75	3.620	0.00	0	13.73	2.88	0.00	2.88	1256.16	0.00	0.00	0	1.93	287.58
0.18	4.990	0.09	14.17	4.990	0.00	0	13.73	3.16	0.00	3.16	1580.66	0.00	0.00	0	1.80	319.85
0.20	5.850	0.18	13.47	5.850	0.00	0	13.73	3.43	0.00	3.43	1704.64	0.00	0.00	0	1.64	289.12
0.22	5.860	0.23	13.12	5.860	0.00	0	13.73	3.71	0.00	3.71	1580.90	0.00	0.00	0	1.59	260.68
0.24	7.050	1.09	9.45	7.050	0.02	0	13.84	3.98	0.00	3.98	1770.05	0.02	0.00	0	1.29	210.40
0.26	7.280	2.82	7.52	7.280	0.04	0	14.94	4.27	0.00	4.27	1704.86	0.04	0.00	0	1.20	195.02
0.28	7.450	7.75	7.17	7.450	0.10	6	16.11	4.59	0.00	4.59	1623.70	0.10	0.00	7	1.20	195.94
0.30	7.720	12.39	7.00	7.720	0.16	6	16.67	4.92	0.00	4.92	1569.29	0.16	0.00	7	1.24	202.47
0.32	7.880	20.23	7.00	7.880	0.26	6	17.24	5.26	0.00	5.26	1497.81	0.26	0.00	7	1.30	217.27
0.34	7.930	25.97	6.82	7.930	0.33	6	17.53	5.61	0.00	5.61	1413.41	0.33	0.00	6	1.34	226.56
0.36	7.800	33.03	7.00	7.800	0.42	6	17.80	5.96	0.00	5.96	1307.48	0.42	0.00	6	1.39	231.19
0.38	7.540	40.28	7.17	7.540	0.53	6	18.01	6.32	0.00	6.32	1191.99	0.53	0.00	6	1.46	230.67
0.40	7.260	47.48	7.35	7.260	0.65	6	18.19	6.68	0.00	6.68	1085.32	0.65	0.00	6	1.52	231.19
0.42	6.750	58.41	8.05	6.750	0.87	6	18.40	7.05	0.00	7.05	956.43	0.87	0.00	6	1.60	230.01
0.44	6.440	63.83	8.40	6.440	0.99	5	18.48	7.42	0.00	7.42	867.02	0.99	0.00	6	1.65	225.30
0.46	6.170	66.93	8.75	6.170	1.08	5	18.52	7.79	0.00	7.79	791.13	1.09	0.00	6	1.69	218.87
0.48	5.910	68.71	9.27	5.910	1.16	5	18.53	8.16	0.00	8.16	723.31	1.16	0.00	6	1.72	211.45
0.50	5.670	67.02	9.62	5.670	1.18	5	18.49	8.53	0.00	8.53	663.78	1.18	0.00	6	1.74	201.95
0.52	5.650	63.79	9.62	5.650	1.13	5	18.43	8.90	0.00	8.90	633.98	1.13	0.00	6	1.73	195.91
0.54	5.690	60.60	9.62	5.690	1.06	5	18.38	9.27	0.00	9.27	613.10	1.07	0.00	6	1.72	191.31
0.56	5.780	56.77	9.62	5.780	0.98	5	18.31	9.64	0.00	9.64	599.08	0.98	0.00	6	1.70	187.39
0.58	5.760	52.53	9.80	5.760	0.91	5	18.22	10.00	0.00	10.00	575.19	0.91	0.00	6	1.69	181.33
0.60	5.730	51.03	9.97	5.730	0.89	5	18.18	10.36	0.00	10.36	552.07	0.89	0.00	6	1.69	177.26
0.62	5.630	50.30	10.32	5.630	0.89	5	18.16	10.73	0.00	10.73	524.03	0.89	0.00	6	1.70	172.64
0.64	5.500	50.53	10.67	5.500	0.92	5	18.15	11.09	0.00	11.09	495.12	0.92	0.00	6	1.72	168.24
0.66	5.350	51.08	11.02	5.350	0.95	5	18.16	11.45	0.00	11.45	466.31	0.96	0.00	6	1.74	164.63
0.68	5.130	52.76	11.55	5.130	1.03	5	18.18	11.82	0.00	11.82	433.33	1.03	0.00	6	1.77	159.43
0.70	5.030	53.58	11.72	5.030	1.06	5	18.19	12.18	0.00	12.18	412.15	1.07	0.00	6	1.79	155.98
0.72	4.990	53.90	11.90	4.990	1.08	5	18.19	12.54	0.00	12.54	396.98	1.08	0.00	6	1.80	153.45
0.74	4.950	53.49	12.42	4.950	1.08	5	18.18	12.91	0.00	12.91	382.68	1.08	0.00	6	1.80	150.60
0.76	4.830	52.58	12.60	4.830	1.09	5	18.15	13.27	0.00	13.27	363.14	1.09	0.00	6	1.81	146.07
0.78	4.680	51.35	12.95	4.680	1.10	5	18.11	13.63	0.00	13.63	342.46	1.10	0.00	6	1.83	140.92
0.80	4.390	49.25	13.65	4.390	1.12	5	18.04	13.99	0.00	13.99	312.88	1.12	0.00	6	1.85	132.79
0.82	4.200	47.89	14.00	4.200	1.14	5	17.99	14.35	0.00	14.35	291.78	1.14	0.00	6	1.87	127.01
0.84	4.000	46.70	14.35	4.000	1.17	5	17.94	14.71	0.00	14.71	271.05	1.17	0.00	6	1.89	121.19
0.86	3.790	45.33	14.87	3.790	1.20	5	17.89	15.07	0.00	15.07	250.66	1.20	0.00	6	1.92	115.16
0.88	3.610	44.20	15.40	3.610	1.22	5	17.84	15.43	0.00	15.43	233.18	1.23	0.00	6	1.94	109.89
0.90	3.490	43.19	15.75	3.490	1.24	5	17.80	15.79	0.00	15.79	220.29	1.24	0.00	6	1.95	105.91

In situ data				Basic output data						ARENILE BAGNO FIRENZE - VIAREGGIO (LU)						CPTu 01	
Depth	qc	fs	u_2	qt	Rf	SBT	γ	σ,v	u_0	σ',v_0	Qt1	Fr	Bq	SBTn	Ic	Qtn
(m)	(MPa)	(kPa)	(kPa)	(MPa)	(%)		kN/m^3	(kPa)	(kPa)	(kPa)		(%)				
0.92	3.370	41.55	16.27	3.370	1.23	5	17.74	16.14	0.00	16.14	208.00	1.24	0.00	6	1.97	101.75
0.94	3.280	40.69	16.62	3.280	1.24	5	17.71	16.49	0.00	16.49	198.06	1.25	0.01	6	1.98	98.55
0.96	3.240	40.19	17.15	3.240	1.24	5	17.69	16.85	0.00	16.85	191.51	1.25	0.01	6	1.98	96.54
0.98	3.180	39.27	17.50	3.180	1.23	5	17.65	17.20	0.00	17.20	184.07	1.24	0.01	6	1.99	94.02
1.00	3.070	38.09	17.85	3.070	1.24	5	17.61	17.55	0.00	17.55	174.09	1.25	0.01	6	2.01	90.47
1.02	2.940	37.04	18.20	2.940	1.26	5	17.56	17.91	0.00	17.91	163.40	1.27	0.01	6	2.02	86.63
1.04	2.800	35.95	18.90	2.800	1.28	5	17.50	18.26	0.00	18.26	152.58	1.29	0.01	5	2.05	82.61
1.06	2.800	35.95	18.90	2.800	1.28	5	17.50	18.61	0.00	18.61	149.69	1.29	0.01	5	2.05	81.80
1.08	2.450	31.89	18.02	2.450	1.30	5	17.31	18.95	0.00	18.95	128.45	1.31	0.01	5	2.09	72.65
1.10	2.580	30.66	17.85	2.580	1.19	5	17.29	19.30	0.00	19.30	132.86	1.20	0.01	5	2.06	74.14
1.12	2.520	30.16	17.67	2.520	1.20	5	17.26	19.65	0.00	19.65	127.46	1.20	0.01	5	2.07	72.09
1.14	2.440	29.84	17.67	2.440	1.22	5	17.24	19.99	0.00	19.99	121.24	1.23	0.01	5	2.09	69.74
1.16	2.310	28.70	17.67	2.310	1.24	5	17.17	20.33	0.00	20.33	112.78	1.25	0.01	5	2.11	66.16
1.18	2.280	27.47	17.85	2.280	1.20	5	17.12	20.68	0.00	20.68	109.44	1.21	0.01	5	2.11	64.58
1.20	2.310	26.43	17.85	2.310	1.14	5	17.08	21.02	0.00	21.02	109.07	1.15	0.01	5	2.10	64.27
1.22	2.360	25.56	17.85	2.360	1.08	5	17.05	21.36	0.00	21.36	109.66	1.09	0.01	5	2.08	64.40
1.24	2.410	24.92	17.85	2.410	1.03	5	17.02	21.70	0.00	21.70	110.22	1.04	0.01	5	2.07	64.61
1.26	2.520	24.56	18.02	2.520	0.97	5	17.03	22.04	0.00	22.04	113.50	0.98	0.01	6	2.05	66.03
1.28	2.870	23.33	17.85	2.870	0.81	5	17.02	22.38	0.00	22.38	127.39	0.82	0.01	6	1.97	71.47
1.30	3.190	22.74	17.67	3.190	0.71	5	17.03	22.72	0.00	22.72	139.55	0.72	0.01	6	1.92	76.32
1.32	3.450	22.37	17.50	3.450	0.65	5	17.04	23.06	0.00	23.06	148.75	0.65	0.01	6	1.88	80.05
1.34	3.600	22.74	17.32	3.600	0.63	5	17.07	23.40	0.00	23.40	152.97	0.64	0.00	6	1.86	82.14
1.36	3.700	23.51	17.50	3.700	0.63	5	17.12	23.75	0.00	23.75	154.97	0.64	0.00	6	1.86	83.53
1.38	3.750	25.65	17.32	3.750	0.68	5	17.23	24.09	0.00	24.09	154.81	0.69	0.00	6	1.87	84.59
1.40	3.730	27.47	17.50	3.730	0.74	5	17.30	24.44	0.00	24.44	151.79	0.74	0.00	6	1.89	84.33
1.42	3.720	29.66	17.50	3.720	0.80	5	17.39	24.78	0.00	24.78	149.25	0.80	0.00	6	1.91	84.31
1.44	3.720	31.80	17.50	3.720	0.85	5	17.47	25.13	0.00	25.13	147.16	0.86	0.00	6	1.93	84.41
1.46	3.710	33.67	17.67	3.710	0.91	5	17.54	25.48	0.00	25.48	144.73	0.91	0.00	6	1.94	84.21
1.48	3.720	35.31	17.50	3.720	0.95	5	17.59	25.83	0.00	25.83	143.13	0.95	0.00	6	1.96	84.26
1.50	3.710	35.40	17.67	3.710	0.95	5	17.59	26.19	0.00	26.19	140.82	0.96	0.00	6	1.96	83.54
1.52	3.660	35.36	17.67	3.660	0.97	5	17.59	26.54	0.00	26.54	137.05	0.97	0.00	6	1.97	82.13
1.54	3.580	35.68	17.67	3.580	1.00	5	17.59	26.89	0.00	26.89	132.27	1.00	0.00	6	1.99	80.32
1.56	3.550	35.77	17.67	3.550	1.01	5	17.59	27.24	0.00	27.24	129.45	1.01	0.01	6	1.99	79.30
1.58	3.560	35.63	17.85	3.560	1.00	5	17.59	27.59	0.00	27.59	128.15	1.01	0.01	6	1.99	78.90
1.60	3.620	35.08	17.67	3.620	0.97	5	17.57	27.94	0.00	27.94	128.67	0.98	0.00	6	1.98	79.23
1.62	3.640	34.76	17.67	3.640	0.95	5	17.57	28.30	0.00	28.30	127.77	0.96	0.00	6	1.98	78.96
1.64	3.580	34.58	17.85	3.580	0.96	5	17.55	28.65	0.00	28.65	124.10	0.97	0.01	6	1.99	77.43
1.66	3.570	34.54	17.85	3.570	0.97	5	17.55	29.00	0.00	29.00	122.24	0.97	0.01	6	1.99	76.76
1.68	3.660	33.94	18.02	3.660	0.93	5	17.54	29.35	0.00	29.35	123.83	0.93	0.00	6	1.98	77.59
1.70	3.780	33.44	17.50	3.780	0.88	5	17.54	29.70	0.00	29.70	126.39	0.89	0.00	6	1.96	78.91
1.72	3.980	32.76	16.62	3.980	0.82	5	17.53	30.05	0.20	29.85	132.42	0.83	0.00	6	1.93	81.69
1.74	4.170	32.12	16.45	4.170	0.77	5	17.53	30.40	0.39	30.01	138.06	0.78	0.00	6	1.90	84.26
1.76	4.320	31.39	16.27	4.320	0.73	5	17.51	30.75	0.59	30.16	142.31	0.73	0.00	6	1.88	86.16
1.78	4.430	30.89	16.10	4.430	0.70	5	17.50	31.10	0.78	30.32	145.21	0.70	0.00	6	1.86	87.48
1.80	4.490	31.12	16.10	4.490	0.69	5	17.52	31.45	0.98	30.47	146.43	0.70	0.00	6	1.86	88.23
1.82	4.490	32.49	15.92	4.490	0.72	5	17.57	31.80	1.18	30.62	145.68	0.73	0.00	6	1.87	88.38
1.84	4.470	33.90	15.92	4.470	0.76	5	17.62	32.15	1.37	30.78	144.28	0.76	0.00	6	1.88	88.22
1.86	4.440	35.63	15.92	4.440	0.80	5	17.67	32.51	1.57	30.94	142.57	0.81	0.00	6	1.90	87.97
1.88	4.420	37.41	15.92	4.420	0.85	5	17.72	32.86	1.77	31.10	141.19	0.85	0.00	6	1.91	87.87
1.90	4.390	39.00	15.92	4.390	0.89	5	17.77	33.22	1.96	31.25	139.50	0.89	0.00	6	1.93	87.55
1.92	4.330	40.19	15.92	4.330	0.93	5	17.80	33.57	2.16	31.41	136.87	0.93	0.00	6	1.94	86.66
1.94	4.330	41.32	15.92	4.330	0.95	5	17.83	33.93	2.35	31.57	136.16	0.96	0.00	6	1.95	86.52
1.96	4.370	41.37	15.92	4.370	0.95	5	17.84	34.29	2.55	31.74	136.72	0.95	0.00	6	1.94	86.92
1.98	4.410	41.19	16.10	4.410	0.93	5	17.83	34.64	2.75	31.90	137.28	0.94	0.00	6	1.94	87.27
2.00	4.490	40.69	12.96	4.490	0.91	5	17.83	35.00	2.94	32.06	139.06	0.91	0.00	6	1.93	88.14

In situ data | **Basic output data** | **ARENILE BAGNO FIRENZE - VIAREGGIO (LU)** | **CPTu 01**

Depth (m)	qc (MPa)	fs (kPa)	u_2 (kPa)	qt (MPa)	Rf (%)	SBT	γ kN/m^3	σ,v (kPa)	u_0 (kPa)	$σ'_{v0}$ (kPa)	Qt1	Fr (%)	Bq	SBTn	Ic	Qtn
2.02	4.550	40.19	13.06	4.550	0.88	5	17.82	35.36	3.14	32.22	140.22	0.89	0.00	6	1.92	88.72
2.04	4.560	39.91	13.25	4.560	0.87	5	17.81	35.71	3.34	32.38	139.82	0.88	0.00	6	1.92	88.58
2.06	4.560	39.91	13.35	4.560	0.87	5	17.81	36.07	3.53	32.54	139.12	0.88	0.00	6	1.92	88.36
2.08	4.300	30.75	10.74	4.300	0.71	5	17.49	36.42	3.73	32.69	130.48	0.72	0.00	6	1.89	82.26
2.10	4.300	30.75	10.84	4.300	0.71	5	17.49	36.77	3.92	32.85	129.86	0.72	0.00	6	1.89	82.07
2.12	4.370	32.21	7.61	4.370	0.74	5	17.55	37.12	4.12	33.00	131.34	0.74	0.00	6	1.90	83.26
2.14	4.300	34.13	7.63	4.300	0.79	5	17.61	37.47	4.32	33.16	128.60	0.80	0.00	6	1.92	82.32
2.16	4.170	36.59	7.55	4.170	0.88	5	17.68	37.83	4.51	33.31	124.08	0.89	0.00	6	1.95	80.69
2.18	4.080	37.73	7.56	4.080	0.92	5	17.70	38.18	4.71	33.47	120.80	0.93	0.00	6	1.97	79.36
2.20	4.040	38.09	7.58	4.040	0.94	5	17.71	38.53	4.91	33.63	119.03	0.95	0.00	6	1.98	78.62
2.22	3.840	38.55	7.85	3.840	1.00	5	17.70	38.89	5.10	33.79	112.55	1.01	0.00	6	2.01	75.44
2.24	3.730	38.96	8.04	3.730	1.04	5	17.71	39.24	5.30	33.95	108.77	1.06	0.00	6	2.03	73.62
2.26	3.660	38.86	8.31	3.660	1.06	5	17.70	39.60	5.49	34.10	106.21	1.07	0.00	6	2.04	72.33
2.28	3.640	38.18	8.33	3.640	1.05	5	17.67	39.95	5.69	34.26	105.13	1.06	0.00	6	2.04	71.71
2.30	3.640	37.22	8.43	3.640	1.02	5	17.64	40.30	5.89	34.42	104.64	1.03	0.00	6	2.03	71.35
2.32	3.640	36.22	8.53	3.640	0.99	5	17.61	40.66	6.08	34.57	104.16	1.01	0.00	6	2.03	70.99
2.34	3.610	35.22	8.71	3.610	0.98	5	17.58	41.01	6.28	34.73	102.82	0.99	0.00	6	2.03	70.17
2.36	3.610	34.31	8.73	3.610	0.95	5	17.55	41.36	6.47	34.88	102.35	0.96	0.00	6	2.02	69.82
2.38	3.630	33.49	8.83	3.630	0.92	5	17.52	41.71	6.67	35.04	102.46	0.93	0.00	6	2.01	69.81
2.40	3.650	32.67	8.84	3.650	0.89	5	17.50	42.06	6.87	35.19	102.57	0.91	0.00	6	2.01	69.79
2.42	3.650	31.98	8.94	3.650	0.88	5	17.47	42.41	7.06	35.35	102.12	0.89	0.00	6	2.00	69.49
2.44	3.580	31.98	9.13	3.580	0.89	5	17.46	42.76	7.26	35.50	99.70	0.90	0.00	6	2.01	68.26
2.46	3.490	32.35	9.14	3.490	0.93	5	17.47	43.11	7.46	35.65	96.73	0.94	0.00	6	2.03	66.79
2.48	3.370	32.67	9.24	3.370	0.97	5	17.46	43.46	7.65	35.80	92.96	0.98	0.00	6	2.05	64.85
2.50	3.230	33.03	9.60	3.230	1.02	5	17.46	43.81	7.85	35.96	88.66	1.04	0.00	5	2.08	62.59
2.52	3.200	33.21	9.88	3.200	1.04	5	17.46	44.15	8.04	36.11	87.45	1.05	0.00	5	2.09	62.00
2.54	3.180	32.76	10.15	3.180	1.03	5	17.45	44.50	8.24	36.26	86.52	1.04	0.00	5	2.09	61.46
2.56	3.190	31.76	10.08	3.190	0.99	5	17.41	44.85	8.44	36.42	86.42	1.01	0.00	5	2.08	61.30
2.58	3.200	30.16	10.09	3.200	0.94	5	17.35	45.20	8.63	36.57	86.33	0.96	0.00	5	2.07	61.03
2.60	3.230	28.89	10.19	3.230	0.89	5	17.31	45.55	8.83	36.72	86.79	0.91	0.00	6	2.05	61.13
2.62	3.290	27.70	10.29	3.290	0.84	5	17.27	45.89	9.03	36.87	88.05	0.85	0.00	6	2.04	61.68
2.64	3.420	26.11	10.21	3.420	0.76	5	17.21	46.24	9.22	37.01	91.20	0.77	0.00	6	2.00	63.20
2.66	3.530	25.47	10.23	3.530	0.72	5	17.20	46.58	9.42	37.16	93.79	0.73	0.00	6	1.98	64.57
2.68	3.610	25.88	10.33	3.610	0.72	5	17.22	46.92	9.61	37.31	95.55	0.73	0.00	6	1.97	65.69
2.70	3.670	26.84	10.34	3.670	0.73	5	17.27	47.27	9.81	37.46	96.77	0.74	0.00	6	1.97	66.62
2.72	3.740	27.57	10.44	3.740	0.74	5	17.31	47.62	10.01	37.61	98.23	0.75	0.00	6	1.97	67.65
2.74	3.840	28.34	10.63	3.840	0.74	5	17.35	47.96	10.20	37.76	100.48	0.75	0.00	6	1.96	69.11
2.76	3.940	29.84	10.55	3.940	0.76	5	17.42	48.31	10.40	37.91	102.71	0.77	0.00	6	1.96	70.71
2.78	4.090	30.94	10.65	4.090	0.76	5	17.48	48.66	10.59	38.06	106.23	0.77	0.00	6	1.95	72.94
2.80	4.460	30.85	10.66	4.460	0.69	5	17.51	49.01	10.79	38.22	115.47	0.70	0.00	6	1.90	78.08
2.82	5.010	29.84	10.41	5.010	0.60	6	17.51	49.36	10.99	38.37	129.33	0.60	0.00	6	1.83	85.42
2.84	5.450	29.25	9.81	5.450	0.54	6	17.52	49.71	11.18	38.53	140.22	0.54	0.00	6	1.79	91.16
2.86	5.680	30.57	9.04	5.680	0.54	6	17.59	50.06	11.38	38.68	145.59	0.54	0.00	6	1.77	94.41
2.88	5.860	33.03	8.70	5.860	0.56	6	17.69	50.42	11.58	38.84	149.62	0.57	0.00	6	1.77	97.23
2.90	6.050	35.45	8.45	6.050	0.59	6	17.78	50.77	11.77	39.00	153.88	0.59	0.00	6	1.77	100.14
2.92	6.120	38.73	8.64	6.120	0.63	6	17.89	51.13	11.97	39.16	155.02	0.64	0.00	6	1.79	101.59
2.94	5.970	45.79	9.18	5.970	0.77	6	18.07	51.49	12.16	39.32	150.56	0.77	0.00	6	1.84	100.72
2.96	5.710	50.53	9.54	5.710	0.88	5	18.17	51.85	12.36	39.49	143.33	0.89	0.00	6	1.89	97.73
2.98	5.500	53.40	9.73	5.500	0.97	5	18.22	52.21	12.56	39.66	137.42	0.98	0.00	6	1.92	95.04
3.00	5.380	54.72	10.70	5.380	1.02	5	18.24	52.58	12.75	39.83	133.82	1.03	0.00	6	1.94	93.33
3.02	5.340	53.95	10.19	5.340	1.01	5	18.22	52.94	12.95	39.99	132.25	1.02	0.00	6	1.94	92.44
3.04	5.340	53.95	10.29	5.340	1.01	5	18.22	53.31	13.15	40.16	131.68	1.02	0.00	6	1.94	92.23
3.06	5.160	43.92	11.18	5.160	0.85	5	17.97	53.67	13.34	40.33	126.67	0.86	0.00	6	1.91	87.96
3.08	5.160	43.92	11.28	5.160	0.85	5	17.97	54.03	13.54	40.49	126.16	0.86	0.00	6	1.91	87.77
3.10	5.390	42.19	11.03	5.390	0.78	6	17.94	54.39	13.73	40.65	131.30	0.79	0.00	6	1.88	90.49

In situ data				Basic output data						ARENILE BAGNO FIRENZE - VIAREGGIO (LU)					CPTu 01	
Depth	qc	fs	u_2	qt	Rf	SBT	γ	σ,v	u_0	σ',v_0	Qt1	Fr	Bq	SBTn	Ic	Qtn
(m)	(MPa)	(kPa)	(kPa)	(MPa)	(%)		kN/m^3	(kPa)	(kPa)	(kPa)		(%)				
3.12	5.700	41.87	10.86	5.700	0.73	6	17.95	54.75	13.93	40.82	138.36	0.74	0.00	6	1.85	94.49
3.14	6.150	41.55	10.70	6.150	0.68	6	17.97	55.11	14.13	40.98	148.78	0.68	0.00	6	1.81	100.32
3.16	6.250	41.46	10.89	6.250	0.66	6	17.98	55.47	14.32	41.14	150.61	0.67	0.00	6	1.80	101.45
3.18	6.150	42.10	11.25	6.150	0.68	6	17.99	55.83	14.52	41.31	147.59	0.69	0.00	6	1.81	100.03
3.20	6.030	43.88	11.61	6.030	0.73	6	18.03	56.19	14.72	41.47	144.11	0.73	0.00	6	1.83	98.54
3.22	5.910	49.21	11.54	5.910	0.83	6	18.15	56.55	14.91	41.64	140.64	0.84	0.00	6	1.87	97.60
3.24	5.880	52.58	11.64	5.880	0.89	5	18.23	56.91	15.11	41.80	139.35	0.90	0.00	6	1.89	97.51
3.26	5.840	55.54	11.65	5.840	0.95	5	18.29	57.28	15.30	41.97	137.83	0.96	0.00	6	1.91	97.19
3.28	5.810	57.36	11.75	5.810	0.99	5	18.32	57.64	15.50	42.14	136.55	1.00	0.00	6	1.92	96.82
3.30	5.740	58.41	11.94	5.740	1.02	5	18.34	58.01	15.70	42.31	134.34	1.03	0.00	6	1.93	95.79
3.32	5.660	58.23	12.04	5.660	1.03	5	18.33	58.38	15.89	42.48	131.91	1.04	0.00	6	1.94	94.45
3.34	5.570	56.72	12.23	5.570	1.02	5	18.29	58.74	16.09	42.65	129.26	1.03	0.00	6	1.94	92.81
3.36	5.540	55.63	11.19	5.540	1.00	5	18.27	59.11	16.28	42.82	128.04	1.01	0.00	6	1.94	92.04
3.38	5.550	54.04	11.82	5.550	0.97	5	18.23	59.47	16.48	42.99	127.76	0.98	0.00	6	1.93	91.77
3.40	5.530	51.85	12.00	5.530	0.94	5	18.19	59.84	16.68	43.16	126.80	0.95	0.00	6	1.93	91.01
3.42	5.490	48.34	12.19	5.490	0.88	5	18.10	60.20	16.87	43.33	125.38	0.89	0.00	6	1.92	89.79
3.44	5.460	46.97	12.12	5.460	0.86	5	18.07	60.56	17.07	43.49	124.20	0.87	0.00	6	1.91	89.00
3.46	5.470	45.70	12.30	5.470	0.84	5	18.04	60.92	17.27	43.66	123.96	0.84	0.00	6	1.91	88.77
3.48	5.460	44.61	12.40	5.460	0.82	5	18.01	61.28	17.46	43.82	123.26	0.83	0.00	6	1.90	88.30
3.50	5.390	43.97	12.76	5.390	0.82	5	17.99	61.64	17.66	43.98	121.20	0.82	0.00	6	1.91	87.09
3.52	5.270	44.92	12.95	5.270	0.85	5	18.00	62.00	17.85	44.15	118.03	0.86	0.00	6	1.92	85.42
3.54	5.220	45.88	13.05	5.220	0.88	5	18.02	62.36	18.05	44.31	116.45	0.89	0.00	6	1.94	84.70
3.56	5.150	46.79	13.15	5.150	0.91	5	18.04	62.72	18.25	44.48	114.44	0.92	0.00	6	1.95	83.70
3.58	4.970	47.70	13.51	4.970	0.96	5	18.05	63.08	18.44	44.64	109.98	0.97	0.00	6	1.97	81.18
3.60	4.560	49.57	14.05	4.560	1.09	5	18.06	63.45	18.64	44.81	100.42	1.10	0.00	6	2.03	75.57
3.62	4.310	50.35	14.33	4.310	1.17	5	18.06	63.81	18.84	44.97	94.48	1.18	0.00	5	2.07	71.99
3.64	4.120	50.53	14.34	4.120	1.23	5	18.04	64.17	19.03	45.14	89.92	1.24	0.00	5	2.09	69.17
3.66	4.070	50.35	14.44	4.070	1.24	5	18.03	64.53	19.23	45.30	88.48	1.26	0.00	5	2.10	68.29
3.68	4.120	48.75	14.45	4.120	1.18	5	18.00	64.89	19.42	45.46	89.26	1.20	0.00	5	2.09	68.68
3.70	4.180	46.56	14.46	4.180	1.11	5	17.95	65.25	19.62	45.63	90.24	1.13	0.00	5	2.07	69.14
3.72	4.230	43.97	14.48	4.230	1.04	5	17.89	65.61	19.82	45.79	91.01	1.06	0.00	6	2.05	69.41
3.74	4.290	40.82	14.40	4.290	0.95	5	17.81	65.96	20.01	45.95	91.99	0.97	0.00	6	2.02	69.73
3.76	4.360	38.32	14.41	4.360	0.88	5	17.75	66.32	20.21	46.11	93.18	0.89	0.00	6	2.00	70.25
3.78	4.470	36.18	14.51	4.470	0.81	5	17.69	66.67	20.40	46.27	95.23	0.82	0.00	6	1.97	71.34
3.80	4.610	33.62	14.53	4.610	0.73	5	17.62	67.02	20.60	46.42	97.92	0.74	0.00	6	1.94	72.75
3.82	4.640	32.94	14.63	4.640	0.71	5	17.60	67.38	20.80	46.58	98.23	0.72	0.00	6	1.93	72.92
3.84	4.640	33.26	14.73	4.640	0.72	5	17.61	67.73	20.99	46.74	97.90	0.73	0.00	6	1.94	72.83
3.86	4.660	33.62	14.91	4.660	0.72	5	17.62	68.08	21.19	46.89	97.99	0.73	0.00	6	1.94	73.01
3.88	4.710	34.58	15.10	4.710	0.73	5	17.66	68.43	21.39	47.05	98.72	0.74	0.00	6	1.94	73.68
3.90	4.700	35.81	15.20	4.700	0.76	5	17.70	68.79	21.58	47.21	98.17	0.77	0.00	6	1.95	73.57
3.92	4.670	37.73	15.13	4.670	0.81	5	17.76	69.14	21.78	47.36	97.20	0.82	0.00	6	1.96	73.28
3.94	4.670	38.77	15.23	4.670	0.83	5	17.79	69.50	21.97	47.52	96.87	0.84	0.00	6	1.97	73.27
3.96	4.690	39.68	15.50	4.690	0.85	5	17.81	69.85	22.17	47.68	96.96	0.86	0.00	6	1.98	73.51
3.98	4.630	41.19	15.51	4.630	0.89	5	17.85	70.21	22.37	47.84	95.37	0.90	0.00	6	1.99	72.74
4.00	4.580	42.87	15.70	4.580	0.94	5	17.89	70.57	22.56	48.01	94.00	0.95	0.00	6	2.01	72.11
4.02	4.570	43.69	15.80	4.570	0.96	5	17.92	70.93	22.76	48.17	93.47	0.97	0.00	6	2.01	71.93
4.04	4.570	43.69	15.90	4.570	0.96	5	17.92	71.29	22.96	48.33	93.15	0.97	0.00	6	2.02	71.78
4.06	4.520	35.99	15.22	4.520	0.80	5	17.69	71.64	23.15	48.49	91.80	0.81	0.00	6	1.98	70.09
4.08	4.630	37.63	15.32	4.630	0.81	5	17.75	71.99	23.35	48.65	93.76	0.83	0.00	6	1.97	71.63
4.10	4.690	40.00	15.33	4.690	0.85	5	17.82	72.35	23.54	48.81	94.68	0.87	0.00	6	1.98	72.57
4.12	4.740	41.46	15.43	4.740	0.87	5	17.87	72.71	23.74	48.97	95.38	0.89	0.00	6	1.99	73.26
4.14	4.780	41.92	15.53	4.780	0.88	5	17.89	73.06	23.94	49.13	95.87	0.89	0.00	6	1.98	73.71
4.16	4.770	42.19	15.63	4.770	0.88	5	17.89	73.42	24.13	49.29	95.35	0.90	0.00	6	1.99	73.46
4.18	4.770	42.46	15.55	4.770	0.89	5	17.90	73.78	24.33	49.45	95.03	0.90	0.00	6	1.99	73.35
4.20	4.740	43.15	15.65	4.740	0.91	5	17.92	74.14	24.53	49.61	94.11	0.92	0.00	6	2.00	72.89

In situ data				Basic output data					ARENILE BAGNO FIRENZE - VIAREGGIO (LU)						CPTu 01	
Depth	qc	fs	u_2	qt	Rf	SBT	γ	σ,v	u_0	σ',v_0	Qt1	Fr	Bq	SBTn	Ic	Qtn
(m)	(MPa)	(kPa)	(kPa)	(MPa)	(%)		kN/m^3	(kPa)	(kPa)	(kPa)		(%)				
4.22	4.620	43.51	15.84	4.620	0.94	5	17.92	74.50	24.72	49.78	91.38	0.96	0.00	6	2.01	71.19
4.24	4.470	44.24	16.03	4.470	0.99	5	17.92	74.86	24.92	49.94	88.08	1.01	0.00	6	2.04	69.13
4.26	4.380	44.24	16.22	4.380	1.01	5	17.91	75.21	25.11	50.10	85.99	1.03	0.00	6	2.05	67.78
4.28	4.340	43.38	16.40	4.340	1.00	5	17.89	75.57	25.31	50.26	84.91	1.02	0.00	6	2.05	67.03
4.30	4.290	42.15	16.59	4.290	0.98	5	17.85	75.93	25.51	50.42	83.64	1.00	0.00	6	2.05	66.12
4.32	4.140	40.00	16.86	4.140	0.97	5	17.78	76.28	25.70	50.58	80.41	0.98	0.00	5	2.06	63.77
4.34	4.020	38.41	17.05	4.020	0.95	5	17.72	76.64	25.90	50.74	77.78	0.97	0.00	5	2.07	61.89
4.36	3.940	36.86	17.06	3.940	0.93	5	17.66	76.99	26.09	50.90	75.96	0.95	0.00	5	2.07	60.54
4.38	3.940	35.90	17.16	3.940	0.91	5	17.63	77.35	26.29	51.05	75.72	0.93	0.00	5	2.07	60.34
4.40	4.120	34.99	17.00	4.120	0.85	5	17.62	77.70	26.49	51.21	79.00	0.86	0.00	6	2.03	62.53
4.42	4.260	34.22	17.02	4.260	0.80	5	17.61	78.05	26.68	51.37	81.48	0.82	0.00	6	2.01	64.18
4.44	4.440	33.12	16.94	4.440	0.75	5	17.59	78.40	26.88	51.52	84.72	0.76	0.00	6	1.98	66.31
4.46	4.650	32.67	16.87	4.650	0.70	5	17.59	78.75	27.08	51.68	88.52	0.71	0.00	6	1.95	68.87
4.48	4.720	32.99	16.97	4.720	0.70	5	17.60	79.11	27.27	51.83	89.60	0.71	0.00	6	1.95	69.70
4.50	4.570	33.94	17.59	4.570	0.74	5	17.63	79.46	27.47	51.99	86.44	0.76	0.00	6	1.97	67.74
4.52	4.460	35.13	17.52	4.460	0.79	5	17.66	79.81	27.66	52.15	84.06	0.80	0.00	6	2.00	66.32
4.54	4.360	36.40	17.70	4.360	0.83	5	17.69	80.16	27.86	52.30	81.89	0.85	0.00	6	2.02	65.03
4.56	4.240	37.54	17.72	4.240	0.88	5	17.71	80.52	28.06	52.46	79.35	0.90	0.00	6	2.04	63.45
4.58	4.200	39.14	17.73	4.200	0.93	5	17.76	80.87	28.25	52.62	78.35	0.95	0.00	6	2.06	62.95
4.60	4.270	38.96	17.74	4.270	0.91	5	17.76	81.23	28.45	52.78	79.43	0.93	0.00	6	2.05	63.74
4.62	4.360	37.86	17.75	4.360	0.87	5	17.73	81.58	28.65	52.94	80.89	0.88	0.00	6	2.03	64.70
4.64	4.390	36.59	18.03	4.390	0.83	5	17.70	81.94	28.84	53.10	81.20	0.85	0.00	6	2.02	64.85
4.66	4.430	35.63	18.22	4.430	0.80	5	17.67	82.29	29.04	53.25	81.71	0.82	0.00	6	2.01	65.16
4.68	4.520	33.85	18.49	4.520	0.75	5	17.62	82.64	29.23	53.41	83.15	0.76	0.00	6	1.98	66.03
4.70	4.680	32.58	18.59	4.680	0.70	5	17.59	83.00	29.43	53.57	85.89	0.71	0.00	6	1.96	67.84
4.72	4.860	32.12	18.52	4.860	0.66	6	17.59	83.35	29.63	53.72	88.98	0.67	0.00	6	1.93	69.97
4.74	4.950	32.49	18.44	4.950	0.66	6	17.61	83.70	29.82	53.88	90.39	0.67	0.00	6	1.93	71.04
4.76	5.060	32.99	18.37	5.060	0.65	6	17.63	84.05	30.02	54.03	92.16	0.66	0.00	6	1.92	72.37
4.78	5.090	34.03	18.47	5.090	0.67	6	17.67	84.41	30.21	54.19	92.44	0.68	0.00	6	1.92	72.75
4.80	5.090	35.40	18.65	5.090	0.69	6	17.71	84.76	30.41	54.35	92.16	0.71	0.00	6	1.93	72.78
4.82	5.050	37.82	18.84	5.050	0.75	5	17.79	85.11	30.61	54.51	91.16	0.76	0.00	6	1.95	72.40
4.84	4.980	40.55	18.94	4.980	0.81	5	17.86	85.47	30.80	54.67	89.60	0.83	0.00	6	1.98	71.65
4.86	4.950	42.92	19.04	4.950	0.87	5	17.93	85.83	31.00	54.83	88.78	0.88	0.00	6	1.99	71.36
4.88	4.860	45.33	19.14	4.860	0.93	5	17.98	86.19	31.20	54.99	86.88	0.95	0.00	6	2.02	70.29
4.90	4.670	46.97	19.33	4.670	1.00	5	18.01	86.55	31.39	55.16	83.17	1.02	0.00	6	2.05	67.86
4.92	4.510	47.89	19.52	4.510	1.06	5	18.02	86.91	31.59	55.32	80.02	1.08	0.00	5	2.07	65.74
4.94	4.480	47.29	19.62	4.480	1.05	5	18.00	87.27	31.78	55.49	79.24	1.08	0.00	5	2.08	65.18
4.96	4.530	45.02	19.54	4.530	0.99	5	17.95	87.63	31.98	55.65	79.90	1.01	0.00	5	2.06	65.53
4.98	4.620	41.32	19.55	4.620	0.89	5	17.86	87.99	32.18	55.81	81.27	0.91	0.00	6	2.03	66.27
5.00	4.620	41.32	19.65	4.620	0.89	5	17.86	88.34	32.37	55.97	81.04	0.91	0.00	6	2.03	66.15
5.02	4.620	41.32	19.75	4.620	0.89	5	17.86	88.70	32.57	56.13	80.80	0.91	0.00	6	2.03	66.04
5.04	4.640	32.71	19.77	4.640	0.70	5	17.59	89.05	32.77	56.29	80.92	0.72	0.00	6	1.97	65.42
5.06	4.620	32.62	19.87	4.620	0.71	5	17.58	89.40	32.96	56.44	80.34	0.72	0.00	6	1.98	65.05
5.08	4.870	32.26	19.97	4.870	0.66	6	17.59	89.76	33.16	56.60	84.53	0.67	0.00	6	1.94	68.05
5.10	5.200	31.71	19.98	5.200	0.61	6	17.60	90.11	33.35	56.75	90.11	0.62	0.00	6	1.90	71.99
5.12	5.400	32.21	19.99	5.400	0.60	6	17.63	90.46	33.55	56.91	93.37	0.61	0.00	6	1.89	74.40
5.14	5.390	34.17	20.18	5.390	0.63	6	17.70	90.81	33.75	57.07	92.93	0.64	0.00	6	1.90	74.36
5.16	5.110	37.50	20.45	5.110	0.73	5	17.78	91.17	33.94	57.23	87.77	0.75	0.00	6	1.95	71.09
5.18	4.990	40.05	20.73	4.990	0.80	5	17.85	91.53	34.14	57.39	85.43	0.82	0.00	6	1.98	69.70
5.20	5.050	42.69	20.92	5.050	0.84	5	17.93	91.88	34.34	57.55	86.23	0.86	0.00	6	1.99	70.56
5.22	5.280	44.42	21.10	5.280	0.84	5	17.99	92.24	34.53	57.71	89.96	0.86	0.00	6	1.97	73.45
5.24	5.600	45.38	20.68	5.600	0.81	6	18.04	92.60	34.73	57.88	95.23	0.82	0.00	6	1.95	77.38
5.26	5.600	46.06	20.69	5.600	0.82	6	18.05	92.97	34.92	58.04	94.95	0.84	0.00	6	1.95	77.31
5.28	5.530	47.02	20.79	5.530	0.85	5	18.07	93.33	35.12	58.21	93.47	0.86	0.00	6	1.96	76.39
5.30	5.480	47.93	20.72	5.480	0.87	5	18.09	93.69	35.32	58.37	92.35	0.89	0.00	6	1.97	75.72

In situ data				Basic output data						ARENILE BAGNO FIRENZE - VIAREGGIO (LU)						CPTu 01	
Depth	qc	fs	u_2	qt	Rf	SBT	γ	σ,v	u_0	σ',v_0	Qt1	Fr	Bq	SBTn	Ic	Qtn
(m)	(MPa)	(kPa)	(kPa)	(MPa)	(%)		kN/m^3	(kPa)	(kPa)	(kPa)		(%)				
5.32	5.480	48.89	20.73	5.480	0.89	5	18.11	94.05	35.51	58.54	92.08	0.91	0.00	6	1.98	75.66
5.34	5.500	50.07	20.65	5.500	0.91	5	18.14	94.41	35.71	58.70	92.15	0.93	0.00	6	1.98	75.87
5.36	5.650	51.30	20.67	5.650	0.91	5	18.18	94.78	35.90	58.87	94.43	0.92	0.00	6	1.97	77.69
5.38	5.810	51.67	20.68	5.810	0.89	5	18.20	95.14	36.10	59.04	96.87	0.90	0.00	6	1.96	79.56
5.40	5.800	50.12	20.95	5.800	0.86	5	18.16	95.50	36.30	59.21	96.42	0.88	0.00	6	1.96	79.19
5.42	5.560	48.84	21.23	5.560	0.88	5	18.12	95.87	36.49	59.37	92.10	0.89	0.00	6	1.97	76.01
5.44	5.290	48.57	21.59	5.290	0.92	5	18.09	96.23	36.69	59.54	87.31	0.93	0.00	6	2.00	72.53
5.46	5.030	48.48	21.95	5.030	0.96	5	18.07	96.59	36.89	59.70	82.70	0.98	0.00	6	2.03	69.17
5.48	4.720	49.75	22.23	4.720	1.05	5	18.08	96.95	37.08	59.87	77.29	1.08	0.00	5	2.08	65.27
5.50	4.590	51.80	22.42	4.590	1.13	5	18.11	97.31	37.28	60.04	74.91	1.15	0.00	5	2.10	63.65
5.52	4.510	53.95	22.60	4.510	1.20	5	18.15	97.68	37.47	60.20	73.37	1.22	0.00	5	2.12	62.65
5.54	4.450	54.90	22.70	4.450	1.23	5	18.17	98.04	37.67	60.37	72.16	1.26	0.00	5	2.14	61.83
5.56	4.460	53.72	22.72	4.460	1.20	5	18.14	98.40	37.87	60.54	72.12	1.23	0.00	5	2.13	61.78
5.58	4.510	51.03	22.82	4.510	1.13	5	18.09	98.77	38.06	60.70	72.75	1.16	0.00	5	2.11	62.15
5.60	4.450	47.84	23.00	4.450	1.07	5	18.01	99.13	38.26	60.87	71.56	1.10	0.00	5	2.10	61.10
5.62	4.310	45.11	23.28	4.310	1.05	5	17.93	99.48	38.46	61.03	69.07	1.07	0.00	5	2.11	59.08
5.64	4.150	43.06	23.46	4.150	1.04	5	17.86	99.84	38.65	61.19	66.27	1.06	0.00	5	2.12	56.86
5.66	3.900	40.87	23.83	3.900	1.05	5	17.78	100.20	38.85	61.35	62.01	1.07	0.00	5	2.14	53.50
5.68	3.740	40.37	24.10	3.740	1.08	5	17.75	100.55	39.04	61.51	59.25	1.11	0.00	5	2.17	51.36
5.70	3.620	40.69	24.20	3.620	1.12	5	17.74	100.91	39.24	61.67	57.14	1.15	0.00	5	2.19	49.78
5.72	3.530	40.82	24.48	3.530	1.15	5	17.74	101.26	39.44	61.83	55.54	1.19	0.00	5	2.20	48.56
5.74	3.420	40.23	24.75	3.420	1.17	5	17.71	101.62	39.63	61.98	53.62	1.21	0.00	5	2.22	47.05
5.76	3.350	39.68	24.85	3.350	1.18	5	17.69	101.97	39.83	62.14	52.35	1.22	0.00	5	2.23	46.05
5.78	3.270	38.68	25.04	3.280	1.18	5	17.65	102.32	40.02	62.30	50.93	1.22	0.00	5	2.24	44.90
5.80	3.200	36.95	25.23	3.210	1.15	5	17.59	102.68	40.22	62.46	49.67	1.19	0.00	5	2.24	43.85
5.82	3.130	34.99	25.50	3.140	1.12	5	17.52	103.03	40.42	62.61	48.43	1.15	0.00	5	2.24	42.78
5.84	3.130	32.26	25.51	3.140	1.03	5	17.42	103.38	40.61	62.76	48.30	1.06	0.00	5	2.22	42.57
5.86	3.340	30.21	25.44	3.350	0.90	5	17.37	103.72	40.81	62.91	51.52	0.93	0.00	5	2.17	45.01
5.88	3.750	28.07	25.10	3.760	0.75	5	17.33	104.07	41.01	63.06	57.89	0.77	0.00	5	2.09	49.89
5.90	4.240	25.70	24.94	4.240	0.61	5	17.28	104.42	41.20	63.21	65.50	0.62	0.00	6	2.00	55.62
5.92	4.650	23.46	24.95	4.650	0.50	6	17.21	104.76	41.40	63.36	71.81	0.52	0.00	6	1.93	60.29
5.94	4.990	21.87	24.79	4.990	0.44	6	17.15	105.10	41.59	63.51	76.99	0.45	0.00	6	1.88	64.12
5.96	5.350	20.91	24.45	5.350	0.39	6	17.13	105.45	41.79	63.66	82.47	0.40	0.00	6	1.83	68.19
5.98	5.470	20.82	24.47	5.470	0.38	6	17.13	105.79	41.99	63.80	84.15	0.39	0.00	6	1.82	69.50
6.00	5.470	20.82	24.57	5.470	0.38	6	17.13	106.13	42.18	63.95	83.95	0.39	0.00	6	1.82	69.41
6.02	5.560	15.67	24.67	5.560	0.28	6	16.81	106.47	42.38	64.09	85.17	0.29	0.00	6	1.76	69.81
6.04	5.560	15.67	24.77	5.560	0.28	6	16.81	106.81	42.58	64.23	84.97	0.29	0.00	6	1.76	69.73
6.06	5.590	17.31	24.95	5.590	0.31	6	16.93	107.15	42.77	64.37	85.25	0.32	0.00	6	1.78	70.19
6.08	5.490	23.87	25.05	5.500	0.43	6	17.29	107.49	42.97	64.52	83.50	0.44	0.00	6	1.84	69.60
6.10	5.380	29.52	25.24	5.390	0.55	6	17.53	107.84	43.16	64.67	81.60	0.56	0.00	6	1.90	68.71
6.12	5.320	34.63	27.35	5.330	0.65	6	17.71	108.19	43.36	64.83	80.47	0.66	0.00	6	1.94	68.29
6.14	5.180	38.68	27.63	5.190	0.75	5	17.82	108.55	43.56	64.99	78.12	0.76	0.00	6	1.98	66.80
6.16	4.920	42.01	27.64	4.930	0.85	5	17.90	108.90	43.75	65.15	73.93	0.87	0.00	6	2.03	63.79
6.18	4.900	43.24	27.83	4.910	0.88	5	17.93	109.26	43.95	65.31	73.43	0.90	0.00	6	2.04	63.52
6.20	4.920	44.29	27.93	4.930	0.90	5	17.96	109.62	44.15	65.48	73.55	0.92	0.00	6	2.04	63.72
6.22	4.940	42.65	28.03	4.950	0.86	5	17.92	109.98	44.34	65.64	73.67	0.88	0.00	6	2.03	63.77
6.24	5.010	39.55	28.13	5.020	0.79	5	17.84	110.34	44.54	65.80	74.55	0.81	0.00	6	2.01	64.33
6.26	4.920	39.00	28.49	4.930	0.79	5	17.81	110.69	44.73	65.96	73.00	0.81	0.00	6	2.02	63.12
6.28	4.720	38.32	28.76	4.730	0.81	5	17.78	111.05	44.93	66.12	69.79	0.83	0.00	6	2.04	60.60
6.30	4.490	38.82	29.13	4.500	0.86	5	17.77	111.41	45.13	66.28	66.15	0.89	0.00	5	2.07	57.79
6.32	4.370	40.32	29.23	4.380	0.92	5	17.81	111.76	45.32	66.44	64.18	0.95	0.00	5	2.09	56.33
6.34	4.430	40.96	29.33	4.440	0.92	5	17.83	112.12	45.52	66.60	64.92	0.95	0.00	5	2.09	57.00
6.36	4.580	41.55	29.25	4.590	0.91	5	17.86	112.48	45.71	66.76	67.01	0.93	0.00	5	2.07	58.73
6.38	4.790	42.01	29.26	4.800	0.88	5	17.89	112.83	45.91	66.92	69.98	0.90	0.00	6	2.05	61.17
6.40	4.980	40.78	29.28	4.990	0.82	5	17.87	113.19	46.11	67.08	72.64	0.84	0.00	6	2.02	63.27

In situ data				Basic output data						ARENILE BAGNO FIRENZE - VIAREGGIO (LU)					CPTu 01	
Depth	qc	fs	u_2	qt	Rf	SBT	γ	σ,v	u_0	σ',v_0	Qt1	Fr	Bq	SBTn	Ic	Qtn
(m)	(MPa)	(kPa)	(kPa)	(MPa)	(%)		kN/m^3	(kPa)	(kPa)	(kPa)		(%)				
6.42	5.430	38.77	30.34	5.440	0.71	6	17.84	113.55	46.30	67.24	79.15	0.73	0.00	6	1.96	68.36
6.44	5.830	39.68	31.14	5.840	0.68	6	17.90	113.90	46.50	67.41	84.89	0.69	0.00	6	1.93	73.00
6.46	6.240	40.05	31.15	6.250	0.64	6	17.94	114.26	46.70	67.57	90.75	0.65	0.00	6	1.89	77.68
6.48	6.640	41.23	30.38	6.650	0.62	6	17.99	114.62	46.89	67.73	96.43	0.63	0.00	6	1.86	82.27
6.50	6.790	43.24	30.13	6.800	0.64	6	18.06	114.98	47.09	67.90	98.40	0.65	0.00	6	1.86	84.01
6.52	6.820	45.52	30.05	6.830	0.67	6	18.12	115.35	47.28	68.06	98.60	0.68	0.00	6	1.87	84.39
6.54	6.950	47.25	29.98	6.960	0.68	6	18.17	115.71	47.48	68.23	100.26	0.69	0.00	6	1.87	85.87
6.56	7.010	50.21	29.81	7.020	0.72	6	18.24	116.07	47.68	68.40	100.88	0.73	0.00	6	1.88	86.62
6.58	6.870	52.99	29.74	6.880	0.77	6	18.29	116.44	47.87	68.57	98.58	0.78	0.00	6	1.90	85.05
6.60	6.660	55.63	29.84	6.670	0.83	6	18.34	116.81	48.07	68.74	95.28	0.85	0.00	6	1.93	82.64
6.62	6.570	58.37	30.20	6.580	0.89	6	18.39	117.17	48.27	68.91	93.73	0.90	0.00	6	1.95	81.61
6.64	6.550	62.33	30.48	6.560	0.95	6	18.46	117.54	48.46	69.08	93.20	0.97	0.00	6	1.97	81.45
6.66	6.720	64.15	30.40	6.730	0.95	6	18.51	117.91	48.66	69.25	95.42	0.97	0.00	6	1.96	83.38
6.68	6.640	65.06	30.50	6.650	0.98	6	18.52	118.28	48.85	69.43	94.02	1.00	0.00	6	1.97	82.36
6.70	6.200	64.93	30.78	6.210	1.05	5	18.49	118.65	49.05	69.60	87.46	1.07	0.00	6	2.02	77.12
6.72	5.760	64.65	31.14	5.770	1.12	5	18.46	119.02	49.25	69.78	80.93	1.14	0.00	5	2.06	71.85
6.74	5.330	64.06	31.41	5.340	1.20	5	18.42	119.39	49.44	69.95	74.58	1.23	0.00	5	2.10	66.67
6.76	4.850	61.42	31.78	4.860	1.26	5	18.33	119.76	49.64	70.12	67.55	1.30	0.00	5	2.15	60.81
6.78	4.640	58.50	31.96	4.650	1.26	5	18.26	120.12	49.83	70.29	64.40	1.29	0.00	5	2.16	58.13
6.80	4.470	56.22	32.24	4.480	1.26	5	18.20	120.49	50.03	70.46	61.83	1.29	0.00	5	2.18	55.94
6.82	4.310	54.40	32.34	4.320	1.26	5	18.15	120.85	50.23	70.62	59.41	1.30	0.00	5	2.19	53.89
6.84	4.040	50.98	32.70	4.050	1.26	5	18.05	121.21	50.42	70.79	55.45	1.30	0.00	5	2.21	50.49
6.86	3.900	47.11	33.24	3.910	1.21	5	17.94	121.57	50.62	70.95	53.35	1.24	0.00	5	2.22	48.62
6.88	3.780	43.47	33.60	3.790	1.15	5	17.84	121.93	50.82	71.11	51.54	1.19	0.00	5	2.22	47.00
6.90	3.720	40.00	33.96	3.730	1.07	5	17.74	122.28	51.01	71.27	50.57	1.11	0.00	5	2.21	46.09
6.92	3.640	35.13	34.33	3.650	0.96	5	17.58	122.63	51.21	71.43	49.34	1.00	0.00	5	2.19	44.90
6.94	3.510	32.67	34.34	3.520	0.93	5	17.48	122.98	51.40	71.58	47.41	0.96	-0.01	5	2.19	43.20
6.96	3.480	31.71	34.70	3.490	0.91	5	17.44	123.33	51.60	71.73	46.89	0.94	-0.01	5	2.19	42.74
6.98	3.480	31.71	34.80	3.490	0.91	5	17.44	123.68	51.80	71.89	46.79	0.94	-0.01	5	2.19	42.68
7.00	3.480	31.71	38.66	3.490	0.91	5	17.44	124.03	51.99	72.04	46.69	0.94	0.00	5	2.19	42.62
7.02	3.780	21.46	37.45	3.790	0.57	5	17.03	124.38	52.19	72.19	50.74	0.59	0.00	6	2.06	45.60
7.04	4.260	23.42	37.64	4.270	0.55	5	17.17	124.72	52.39	72.33	57.27	0.57	0.00	6	2.01	51.18
7.06	5.350	27.29	36.95	5.360	0.51	6	17.44	125.07	52.58	72.48	72.18	0.52	0.00	6	1.91	63.76
7.08	5.750	33.08	35.56	5.760	0.57	6	17.68	125.42	52.78	72.64	77.53	0.59	0.00	6	1.91	68.53
7.10	5.900	40.78	33.74	5.910	0.69	6	17.93	125.78	52.97	72.80	79.41	0.71	0.00	6	1.94	70.52
7.12	5.530	31.76	34.19	5.540	0.57	6	17.62	126.13	53.17	72.96	74.16	0.59	0.00	6	1.93	65.79
7.14	5.160	28.16	34.90	5.170	0.54	6	17.46	126.48	53.37	73.11	68.94	0.56	0.00	6	1.94	61.32
7.16	4.780	29.34	36.14	4.790	0.61	6	17.48	126.83	53.56	73.27	63.61	0.63	0.00	6	1.99	56.98
7.18	4.360	31.21	38.43	4.370	0.71	5	17.51	127.18	53.76	73.42	57.76	0.74	0.00	6	2.06	52.20
7.20	4.220	34.86	39.75	4.230	0.82	5	17.63	127.53	53.96	73.58	55.73	0.85	0.00	5	2.11	50.66
7.22	4.240	39.50	40.81	4.250	0.93	5	17.77	127.89	54.15	73.74	55.88	0.96	0.00	5	2.13	50.99
7.24	4.350	39.96	41.70	4.360	0.92	5	17.79	128.24	54.35	73.90	57.24	0.94	0.00	5	2.12	52.20
7.26	4.780	39.64	41.01	4.790	0.83	5	17.82	128.60	54.54	74.06	62.92	0.85	0.00	6	2.06	57.04
7.28	5.210	39.05	40.50	5.220	0.75	5	17.84	128.96	54.74	74.22	68.57	0.77	0.00	6	2.01	61.83
7.30	5.570	37.77	40.34	5.580	0.68	6	17.82	129.31	54.94	74.38	73.26	0.69	0.00	6	1.96	65.76
7.32	6.010	35.40	39.65	6.020	0.59	6	17.78	129.67	55.13	74.54	79.00	0.60	0.00	6	1.90	70.51
7.34	6.060	30.94	40.01	6.070	0.51	6	17.63	130.02	55.33	74.69	79.50	0.52	0.00	6	1.87	70.75
7.36	5.820	22.23	40.46	5.830	0.38	6	17.23	130.37	55.52	74.84	76.13	0.39	0.00	6	1.83	67.50
7.38	5.680	22.60	41.00	5.690	0.40	6	17.24	130.71	55.72	74.99	74.11	0.41	0.00	6	1.85	65.89
7.40	5.560	24.65	41.45	5.570	0.44	6	17.33	131.06	55.92	75.14	72.36	0.45	0.00	6	1.88	64.59
7.42	5.350	26.56	41.99	5.360	0.50	6	17.40	131.41	56.11	75.29	69.42	0.51	0.00	6	1.91	62.27
7.44	5.010	31.26	42.35	5.020	0.62	6	17.57	131.76	56.31	75.45	64.77	0.64	0.00	6	1.99	58.60
7.46	4.660	37.45	43.06	4.670	0.80	5	17.75	132.11	56.51	75.61	60.00	0.83	0.00	5	2.07	54.82
7.48	4.040	42.51	43.69	4.050	1.05	5	17.84	132.47	56.70	75.77	51.69	1.09	0.00	5	2.19	47.84
7.50	3.630	42.87	43.96	3.640	1.18	5	17.81	132.82	56.90	75.93	46.18	1.22	0.00	5	2.25	43.07

In situ data				Basic output data						ARENILE BAGNO FIRENZE - VIAREGGIO (LU)						CPTu 01	
Depth	qc	fs	u_2	qt	Rf	SBT	γ	σ,v	u_0	σ',v_0	Qt1	Fr	Bq	SBTn	Ic	Qtn
(m)	(MPa)	(kPa)	(kPa)	(MPa)	(%)		kN/m^3	(kPa)	(kPa)	(kPa)		(%)				
7.52	3.370	41.69	44.94	3.380	1.23	5	17.75	133.18	57.09	76.09	42.66	1.28	0.00	5	2.29	39.97
7.54	3.350	40.46	45.56	3.360	1.20	5	17.71	133.53	57.29	76.24	42.31	1.25	0.00	5	2.29	39.65
7.56	3.500	38.50	45.84	3.510	1.10	5	17.67	133.89	57.49	76.40	44.18	1.14	0.00	5	2.25	41.26
7.58	3.660	36.86	45.85	3.670	1.00	5	17.64	134.24	57.68	76.56	46.17	1.04	0.00	5	2.22	42.99
7.60	3.750	35.54	45.25	3.760	0.95	5	17.60	134.59	57.88	76.71	47.25	0.98	0.00	5	2.19	43.91
7.62	3.830	33.17	44.48	3.840	0.86	5	17.53	134.94	58.08	76.87	48.19	0.90	0.00	5	2.16	44.68
7.64	3.880	28.11	43.96	3.890	0.72	5	17.35	135.29	58.27	77.02	48.73	0.75	0.00	5	2.12	45.02
7.66	3.800	14.26	44.06	3.810	0.37	6	16.56	135.63	58.47	77.16	47.60	0.39	0.00	6	2.00	43.49
7.68	3.780	11.34	44.25	3.790	0.30	6	16.29	135.95	58.66	77.29	47.26	0.31	0.00	6	1.97	43.06
7.70	3.750	11.47	44.70	3.760	0.31	6	16.30	136.28	58.86	77.42	46.79	0.32	0.00	6	1.98	42.69
7.72	3.720	11.43	45.15	3.730	0.31	6	16.29	136.61	59.06	77.55	46.32	0.32	0.00	6	1.98	42.31
7.74	3.730	12.21	45.34	3.740	0.33	6	16.37	136.93	59.25	77.68	46.37	0.34	0.00	6	1.99	42.41
7.76	3.900	15.31	45.44	3.910	0.39	6	16.65	137.26	59.45	77.82	48.47	0.41	0.00	6	2.00	44.42
7.78	4.310	17.77	45.54	4.320	0.41	6	16.86	137.60	59.64	77.96	53.64	0.42	0.00	6	1.97	49.04
7.80	5.130	18.22	45.46	5.140	0.35	6	16.95	137.94	59.84	78.10	64.04	0.36	0.00	6	1.88	58.06
7.82	6.040	18.32	45.30	6.050	0.30	6	17.02	138.28	60.04	78.24	75.54	0.31	0.00	6	1.79	67.97
7.84	6.700	19.14	45.31	6.710	0.29	6	17.11	138.62	60.23	78.39	83.82	0.29	0.00	6	1.73	75.12
7.86	7.540	21.46	45.33	7.550	0.28	6	17.29	138.97	60.43	78.54	94.35	0.29	0.00	6	1.69	84.27
7.88	8.270	22.83	45.25	8.280	0.28	6	17.40	139.31	60.63	78.69	103.44	0.28	0.00	6	1.65	92.13
7.90	8.990	26.75	42.73	9.000	0.30	6	17.61	139.67	60.82	78.84	112.36	0.30	0.00	6	1.63	100.00
7.92	9.390	33.94	41.95	9.400	0.36	6	17.90	140.02	61.02	79.00	117.19	0.37	0.00	6	1.65	104.60
7.94	9.600	38.86	41.61	9.610	0.40	6	18.07	140.38	61.21	79.17	119.59	0.41	0.00	6	1.66	107.00
7.96	9.340	33.40	42.15	9.350	0.36	6	17.88	140.74	61.41	79.33	116.07	0.36	0.00	6	1.65	103.81
7.98	9.340	33.40	42.25	9.350	0.36	6	17.88	141.10	61.61	79.49	115.83	0.36	0.00	6	1.65	103.71
8.00	9.340	33.40	47.86	9.350	0.36	6	17.88	141.46	61.80	79.65	115.60	0.36	0.00	6	1.65	103.61
8.02	8.860	29.21	47.00	8.870	0.33	6	17.71	141.81	62.00	79.81	109.35	0.33	0.00	6	1.66	98.14
8.04	8.830	33.26	45.44	8.840	0.38	6	17.85	142.17	62.20	79.97	108.75	0.38	0.00	6	1.68	97.93
8.06	8.630	42.15	45.71	8.640	0.49	6	18.12	142.53	62.39	80.14	106.03	0.50	0.00	6	1.75	96.09
8.08	8.390	49.85	46.08	8.400	0.59	6	18.30	142.89	62.59	80.31	102.81	0.60	0.00	6	1.80	93.69
8.10	8.130	59.00	46.35	8.140	0.72	6	18.48	143.26	62.78	80.48	99.36	0.74	0.00	6	1.86	91.08
8.12	7.740	68.80	46.71	7.750	0.89	6	18.64	143.63	62.98	80.65	94.30	0.90	0.00	6	1.93	87.01
8.14	7.350	70.85	47.16	7.360	0.96	6	18.65	144.01	63.18	80.83	89.27	0.98	0.00	6	1.97	82.70
8.16	6.850	70.62	47.53	6.860	1.03	6	18.62	144.38	63.37	81.01	82.90	1.05	0.00	6	2.01	77.12
8.18	6.380	70.12	47.89	6.390	1.10	5	18.59	144.75	63.57	81.18	76.92	1.12	0.00	5	2.05	71.86
8.20	5.990	69.03	48.34	6.000	1.15	5	18.55	145.12	63.76	81.36	71.96	1.18	0.00	5	2.09	67.45
8.22	5.920	65.79	48.44	5.930	1.11	5	18.49	145.49	63.96	81.53	70.94	1.14	0.00	5	2.08	66.52
8.24	6.340	61.92	48.54	6.350	0.98	5	18.44	145.86	64.16	81.70	75.93	1.00	0.00	6	2.03	70.94
8.26	7.210	57.64	48.46	7.220	0.80	6	18.41	146.23	64.35	81.88	86.39	0.81	0.00	6	1.93	80.18
8.28	8.350	52.58	48.13	8.360	0.63	6	18.36	146.60	64.55	82.05	100.10	0.64	0.00	6	1.82	92.21
8.30	9.080	46.75	47.79	9.090	0.51	6	18.26	146.96	64.75	82.22	108.77	0.52	0.00	6	1.75	99.71
8.32	9.480	43.51	47.71	9.490	0.46	6	18.19	147.33	64.94	82.39	113.40	0.47	0.00	6	1.70	103.73
8.34	9.470	42.87	47.81	9.480	0.45	6	18.17	147.69	65.14	82.55	113.04	0.46	0.00	6	1.70	103.49
8.36	9.160	46.75	48.09	9.170	0.51	6	18.26	148.06	65.33	82.72	109.06	0.52	0.00	6	1.74	100.23
8.38	9.030	49.34	48.36	9.040	0.55	6	18.32	148.42	65.53	82.89	107.26	0.55	0.00	6	1.76	98.82
8.40	8.470	60.23	48.81	8.480	0.71	6	18.52	148.79	65.73	83.06	100.30	0.72	0.00	6	1.85	93.05
8.42	8.130	68.48	49.18	8.140	0.84	6	18.65	149.16	65.92	83.24	95.99	0.86	0.00	6	1.91	89.50
8.44	7.890	74.86	49.36	7.900	0.95	6	18.74	149.54	66.12	83.42	92.91	0.97	0.00	6	1.95	86.95
8.46	7.650	78.41	49.73	7.660	1.02	6	18.79	149.91	66.32	83.60	89.83	1.04	0.00	6	1.98	84.32
8.48	7.420	78.96	49.91	7.430	1.06	6	18.78	150.29	66.51	83.78	86.89	1.08	0.00	6	2.00	81.73
8.50	7.290	77.68	50.19	7.300	1.06	6	18.76	150.66	66.71	83.96	85.16	1.09	0.00	6	2.01	80.20
8.52	7.340	73.99	50.55	7.350	1.01	6	18.70	151.04	66.90	84.13	85.57	1.03	0.00	6	1.99	80.56
8.54	6.850	67.48	51.00	6.860	0.98	6	18.57	151.41	67.10	84.31	79.57	1.01	0.00	6	2.01	75.06
8.56	6.470	64.79	51.28	6.480	1.00	5	18.50	151.78	67.30	84.49	74.91	1.02	0.00	6	2.03	70.82
8.58	6.220	62.88	51.73	6.230	1.01	5	18.45	152.15	67.49	84.66	71.80	1.03	0.00	6	2.05	68.00
8.60	5.910	61.01	52.00	5.920	1.03	5	18.40	152.52	67.69	84.83	67.99	1.06	0.00	5	2.07	64.54

In situ data				Basic output data						ARENILE BAGNO FIRENZE - VIAREGGIO (LU)						CPTu 01	
Depth	qc	fs	u_2	qt	Rf	SBT	γ	σ,v	u_0	σ',v_0	Qt1	Fr	Bq	SBTn	Ic	Qtn
(m)	(MPa)	(kPa)	(kPa)	(MPa)	(%)		kN/m^3	(kPa)	(kPa)	(kPa)		(%)				
8.62	5.680	59.37	52.28	5.690	1.04	5	18.35	152.89	67.89	85.00	65.15	1.07	0.00	5	2.09	61.95
8.64	5.530	56.72	52.46	5.540	1.02	5	18.29	153.25	68.08	85.17	63.25	1.05	0.00	5	2.10	60.20
8.66	5.570	53.76	52.56	5.580	0.96	5	18.23	153.62	68.28	85.34	63.59	0.99	0.00	5	2.08	60.50
8.68	5.810	51.21	52.49	5.820	0.88	5	18.19	153.98	68.47	85.51	66.27	0.90	0.00	6	2.04	62.95
8.70	5.840	52.21	51.98	5.850	0.89	5	18.22	154.35	68.67	85.68	66.48	0.92	0.00	6	2.05	63.20
8.72	5.590	50.98	51.38	5.600	0.91	5	18.17	154.71	68.87	85.84	63.44	0.94	0.00	5	2.07	60.42
8.74	5.000	49.62	51.48	5.010	0.99	5	18.10	155.07	69.06	86.01	56.45	1.02	0.00	5	2.13	53.99
8.76	4.250	28.66	52.28	4.260	0.67	5	17.40	155.42	69.26	86.17	47.64	0.70	0.00	5	2.10	45.52
8.78	3.980	27.88	52.11	3.990	0.70	5	17.35	155.77	69.45	86.32	44.43	0.73	0.00	5	2.14	42.55
8.80	3.980	30.39	52.30	3.990	0.76	5	17.45	156.12	69.65	86.47	44.34	0.79	0.00	5	2.15	42.54
8.82	4.180	33.62	52.58	4.190	0.80	5	17.58	156.47	69.85	86.62	46.57	0.83	0.00	5	2.15	44.68
8.84	4.290	37.86	52.59	4.300	0.88	5	17.73	156.82	70.04	86.78	47.75	0.91	0.00	5	2.16	45.87
8.86	3.620	42.83	53.13	3.630	1.18	5	17.80	157.18	70.24	86.94	39.95	1.23	0.00	5	2.29	38.67
8.88	2.580	36.27	53.93	2.590	1.40	5	17.48	157.53	70.44	87.10	27.94	1.49	-0.01	5	2.47	27.30
8.90	1.740	34.76	54.55	1.750	1.99	4	17.28	157.88	70.63	87.25	18.26	2.18	-0.01	4	2.71	18.07
8.92	1.390	37.91	55.00	1.400	2.71	4	17.30	158.22	70.83	87.40	14.22	3.05	-0.01	3	2.88	14.20
8.94	1.150	44.42	56.15	1.160	3.83	3	17.41	158.57	71.02	87.55	11.45	4.43	-0.01	3	3.05	11.45
8.96	1.090	50.80	61.59	1.100	4.61	3	17.54	158.92	71.22	87.70	10.76	5.38	-0.01	3	3.12	10.76
8.98	3.140	43.38	72.54	3.150	1.38	5	17.77	159.28	71.42	87.86	34.09	1.45	0.00	5	2.39	33.24
9.00	3.140	43.38	84.71	3.160	1.37	5	17.77	159.63	71.61	88.02	34.05	1.45	0.00	5	2.39	33.21
9.02	4.910	28.34	79.56	4.930	0.58	6	17.45	159.98	71.81	88.17	54.05	0.59	0.00	6	2.02	51.81
9.04	4.970	24.28	70.12	4.980	0.49	6	17.27	160.33	72.01	88.32	54.62	0.50	0.00	6	1.98	52.28
9.06	4.620	19.14	69.70	4.630	0.41	6	16.97	160.67	72.20	88.47	50.57	0.43	0.00	6	1.98	48.43
9.08	4.820	22.10	70.32	4.830	0.46	6	17.15	161.01	72.40	88.61	52.74	0.47	0.00	6	1.98	50.54
9.10	5.140	24.56	71.04	5.150	0.48	6	17.30	161.35	72.59	88.76	56.25	0.49	0.00	6	1.96	53.90
9.12	5.570	24.28	70.17	5.580	0.43	6	17.32	161.70	72.79	88.91	60.99	0.45	0.00	6	1.91	58.35
9.14	5.850	26.93	68.61	5.860	0.46	6	17.45	162.05	72.99	89.06	64.02	0.47	0.00	6	1.91	61.27
9.16	5.830	28.75	68.54	5.840	0.49	6	17.53	162.40	73.18	89.22	63.68	0.51	0.00	6	1.92	61.02
9.18	5.950	25.33	68.64	5.960	0.42	6	17.39	162.75	73.38	89.37	64.91	0.44	0.00	6	1.88	62.15
9.20	6.020	25.24	68.74	6.030	0.42	6	17.39	163.10	73.57	89.52	65.58	0.43	0.00	6	1.88	62.81
9.22	6.060	25.83	68.57	6.070	0.43	6	17.42	163.44	73.77	89.67	65.91	0.44	0.00	6	1.88	63.17
9.24	5.870	25.61	68.15	5.880	0.44	6	17.40	163.79	73.97	89.82	63.68	0.45	0.00	6	1.90	61.12
9.26	5.360	30.03	68.25	5.370	0.56	6	17.55	164.14	74.16	89.98	57.90	0.58	0.00	6	1.98	55.80
9.28	5.090	32.76	68.52	5.100	0.64	6	17.63	164.49	74.36	90.13	54.80	0.66	0.00	6	2.03	52.95
9.30	4.990	33.90	68.80	5.000	0.68	6	17.66	164.85	74.56	90.29	53.59	0.70	0.00	6	2.05	51.86
9.32	5.010	34.58	68.99	5.020	0.69	6	17.68	165.20	74.75	90.45	53.72	0.71	0.00	6	2.06	52.01
9.34	5.060	33.03	69.00	5.070	0.65	6	17.63	165.55	74.95	90.60	54.17	0.67	0.00	6	2.04	52.45
9.36	5.030	32.62	69.01	5.040	0.65	6	17.62	165.91	75.14	90.76	53.74	0.67	0.00	6	2.04	52.07
9.38	4.940	33.72	69.11	4.950	0.68	6	17.65	166.26	75.34	90.92	52.66	0.70	0.00	6	2.06	51.08
9.40	4.780	33.17	69.30	4.790	0.69	5	17.62	166.61	75.54	91.07	50.81	0.72	0.00	5	2.08	49.34
9.42	4.620	31.48	69.22	4.630	0.68	5	17.54	166.96	75.73	91.23	48.96	0.70	0.00	5	2.09	47.59
9.44	4.610	29.11	68.97	4.620	0.63	5	17.45	167.31	75.93	91.38	48.77	0.65	0.00	6	2.07	47.40
9.46	4.640	28.39	68.64	4.650	0.61	6	17.43	167.66	76.13	91.53	49.01	0.63	0.00	6	2.06	47.65
9.48	4.730	28.93	68.04	4.740	0.61	6	17.46	168.01	76.32	91.69	49.90	0.63	0.00	6	2.06	48.53
9.50	4.760	28.11	67.87	4.770	0.59	6	17.42	168.36	76.52	91.84	50.14	0.61	0.00	6	2.05	48.78
9.52	4.860	29.25	67.62	4.870	0.60	6	17.48	168.71	76.71	91.99	51.14	0.62	0.00	6	2.04	49.77
9.54	4.870	32.67	66.50	4.880	0.67	6	17.61	169.06	76.91	92.15	51.16	0.69	0.00	6	2.07	49.85
9.56	4.970	32.85	65.72	4.980	0.66	6	17.62	169.41	77.11	92.30	52.15	0.68	0.00	6	2.05	50.83
9.58	4.920	25.51	65.56	4.930	0.52	6	17.33	169.76	77.30	92.46	51.52	0.54	0.00	6	2.01	50.17
9.60	4.680	18.09	65.92	4.690	0.39	6	16.91	170.10	77.50	92.60	48.85	0.40	0.00	6	1.97	47.54
9.62	4.610	19.23	66.20	4.620	0.42	6	16.98	170.44	77.70	92.74	48.01	0.43	0.00	6	1.99	46.78
9.64	4.570	19.96	66.47	4.580	0.44	6	17.02	170.78	77.89	92.89	47.50	0.45	0.00	6	2.01	46.33
9.66	4.570	21.78	66.66	4.580	0.48	6	17.12	171.12	78.09	93.03	47.43	0.49	0.00	6	2.02	46.30
9.68	4.570	24.01	66.85	4.580	0.52	6	17.23	171.46	78.28	93.18	47.35	0.54	0.00	6	2.04	46.27
9.70	4.520	26.38	67.12	4.530	0.58	6	17.33	171.81	78.48	93.33	46.73	0.60	0.00	6	2.07	45.73

In situ data			Basic output data					ARENILE BAGNO FIRENZE - VIAREGGIO (LU)								CPTu 01	
Depth	qc	fs	u_2	qt	Rf	SBT	γ	σ,v	u_0	σ',v_0	Qt1	Fr	Bq	SBTn	Ic	Qtn
(m)	(MPa)	(kPa)	(kPa)	(MPa)	(%)		kN/m^3	(kPa)	(kPa)	(kPa)		(%)				
9.72	4.450	26.97	67.40	4.460	0.60	5	17.35	172.16	78.68	93.48	45.91	0.63	0.00	5	2.08	44.96
9.74	4.420	27.66	67.76	4.430	0.62	5	17.38	172.50	78.87	93.63	45.51	0.65	0.00	5	2.09	44.60
9.76	4.400	28.61	67.86	4.410	0.65	5	17.42	172.85	79.07	93.78	45.22	0.67	0.00	5	2.10	44.35
9.78	4.350	28.93	68.05	4.360	0.66	5	17.42	173.20	79.26	93.94	44.61	0.69	0.00	5	2.11	43.79
9.80	4.290	28.43	68.32	4.300	0.66	5	17.40	173.55	79.46	94.09	43.90	0.69	0.00	5	2.12	43.11
9.82	4.260	29.02	68.69	4.270	0.68	5	17.42	173.90	79.66	94.24	43.50	0.71	0.00	5	2.13	42.76
9.84	4.310	29.62	68.79	4.320	0.69	5	17.45	174.25	79.85	94.39	43.96	0.71	0.00	5	2.13	43.22
9.86	4.350	30.03	68.89	4.360	0.69	5	17.47	174.59	80.05	94.54	44.31	0.72	0.00	5	2.12	43.58
9.88	4.440	30.30	69.07	4.450	0.68	5	17.48	174.94	80.25	94.70	45.18	0.71	0.00	5	2.11	44.46
9.90	4.660	29.52	69.17	4.670	0.63	5	17.47	175.29	80.44	94.85	47.43	0.66	0.00	5	2.08	46.65
9.92	4.780	29.43	69.19	4.790	0.61	6	17.48	175.64	80.64	95.01	48.61	0.64	0.00	6	2.06	47.83
9.94	4.880	29.75	69.29	4.890	0.61	6	17.50	175.99	80.83	95.16	49.58	0.63	0.00	6	2.05	48.80
9.96	4.890	29.89	69.47	4.900	0.61	6	17.51	176.34	81.03	95.31	49.60	0.63	0.00	6	2.05	48.84
9.98	4.890	29.89	69.57	4.900	0.61	6	17.51	176.69	81.23	95.47	49.52	0.63	0.00	6	2.05	48.79
10.00	4.790	19.27	72.04	4.800	0.40	6	16.99	177.04	81.42	95.62	48.40	0.42	0.00	6	1.98	47.65
10.02	4.790	19.27	71.09	4.800	0.40	6	16.99	177.38	81.62	95.76	48.32	0.42	0.00	6	1.98	47.59
10.04	4.880	22.96	71.27	4.890	0.47	6	17.20	177.72	81.82	95.91	49.18	0.49	0.00	6	2.00	48.49
10.06	4.940	25.56	71.46	4.950	0.52	6	17.33	178.07	82.01	96.06	49.72	0.54	0.00	6	2.02	49.06
10.08	5.070	27.84	71.56	5.080	0.55	6	17.44	178.42	82.21	96.21	50.99	0.57	0.00	6	2.02	50.34
10.10	5.290	29.89	71.57	5.300	0.56	6	17.54	178.77	82.40	96.36	53.19	0.58	0.00	6	2.01	52.53
10.12	5.540	31.30	71.59	5.550	0.56	6	17.61	179.12	82.60	96.52	55.69	0.58	0.00	6	1.99	55.02
10.14	5.740	33.08	71.69	5.750	0.57	6	17.68	179.47	82.80	96.67	57.67	0.59	0.00	6	1.98	56.99
10.16	5.770	34.86	71.79	5.780	0.60	6	17.75	179.83	82.99	96.83	57.88	0.62	0.00	6	1.99	57.24
10.18	5.910	36.40	71.89	5.920	0.61	6	17.80	180.18	83.19	96.99	59.22	0.63	0.00	6	1.99	58.60
10.20	5.990	37.63	71.99	6.000	0.63	6	17.85	180.54	83.39	97.15	59.95	0.65	0.00	6	1.98	59.35
10.22	6.050	38.82	72.09	6.060	0.64	6	17.89	180.90	83.58	97.31	60.46	0.66	0.00	6	1.99	59.89
10.24	6.070	40.46	72.19	6.080	0.66	6	17.94	181.25	83.78	97.48	60.56	0.69	0.00	6	1.99	60.03
10.26	6.020	42.10	72.55	6.030	0.70	6	17.98	181.61	83.97	97.64	59.94	0.72	0.00	6	2.01	59.46
10.28	5.970	43.74	72.56	5.980	0.73	6	18.02	181.97	84.17	97.80	59.33	0.75	0.00	6	2.02	58.89
10.30	6.020	44.20	72.57	6.030	0.73	6	18.04	182.33	84.37	97.97	59.74	0.76	0.00	6	2.02	59.33
10.32	6.170	44.15	72.59	6.180	0.71	6	18.04	182.70	84.56	98.13	61.16	0.74	0.00	6	2.01	60.77
10.34	6.220	44.33	73.04	6.230	0.71	6	18.05	183.06	84.76	98.30	61.56	0.73	0.00	6	2.00	61.21
10.36	6.180	44.74	73.22	6.190	0.72	6	18.06	183.42	84.95	98.46	61.05	0.74	0.00	6	2.01	60.73
10.38	6.140	45.24	73.41	6.150	0.74	6	18.07	183.78	85.15	98.63	60.54	0.76	0.00	6	2.02	60.26
10.40	6.120	45.88	73.60	6.130	0.75	6	18.08	184.14	85.35	98.79	60.23	0.77	0.00	6	2.02	59.99
10.42	6.110	45.84	73.79	6.120	0.75	6	18.08	184.50	85.54	98.96	60.03	0.77	0.00	6	2.02	59.82
10.44	6.140	45.88	73.89	6.150	0.75	6	18.09	184.86	85.74	99.12	60.23	0.77	0.00	6	2.02	60.05
10.46	6.190	46.34	73.99	6.200	0.75	6	18.10	185.23	85.94	99.29	60.63	0.77	0.00	6	2.02	60.48
10.48	6.220	45.74	74.17	6.230	0.73	6	18.09	185.59	86.13	99.46	60.82	0.76	0.00	6	2.01	60.71
10.50	6.400	44.65	74.36	6.410	0.70	6	18.07	185.95	86.33	99.62	62.53	0.72	0.00	6	1.99	62.44
10.52	6.570	43.19	74.37	6.580	0.66	6	18.04	186.31	86.52	99.79	64.12	0.67	0.00	6	1.97	64.07
10.54	6.730	41.55	74.30	6.740	0.62	6	18.01	186.67	86.72	99.95	65.61	0.63	0.00	6	1.94	65.60
10.56	6.800	40.87	74.49	6.810	0.60	6	17.99	187.03	86.92	100.11	66.20	0.62	0.00	6	1.93	66.23
10.58	6.910	40.60	74.59	6.920	0.59	6	17.99	187.39	87.11	100.28	67.19	0.60	0.00	6	1.92	67.26
10.60	7.040	40.87	74.60	7.050	0.58	6	18.01	187.75	87.31	100.44	68.37	0.60	0.00	6	1.91	68.48
10.62	7.200	41.46	74.70	7.210	0.57	6	18.03	188.11	87.51	100.61	69.85	0.59	0.00	6	1.90	70.00
10.64	7.210	42.74	74.80	7.220	0.59	6	18.07	188.47	87.70	100.77	69.83	0.61	0.00	6	1.91	70.03
10.66	7.240	44.06	74.99	7.250	0.61	6	18.10	188.83	87.90	100.94	70.01	0.62	0.00	6	1.91	70.25
10.68	7.230	46.02	75.09	7.250	0.64	6	18.15	189.20	88.09	101.10	69.79	0.65	0.00	6	1.93	70.07
10.70	7.180	47.29	75.27	7.200	0.66	6	18.18	189.56	88.29	101.27	69.18	0.68	0.00	6	1.94	69.49
10.72	7.090	48.34	75.46	7.110	0.68	6	18.20	189.92	88.49	101.44	68.17	0.70	0.00	6	1.95	68.52
10.74	6.970	49.30	75.74	6.990	0.71	6	18.22	190.29	88.68	101.61	66.87	0.73	0.00	6	1.97	67.25
10.76	6.720	50.76	76.01	6.740	0.75	6	18.24	190.65	88.88	101.77	64.30	0.78	0.00	6	2.00	64.69
10.78	6.560	50.94	76.37	6.580	0.77	6	18.23	191.02	89.07	101.94	62.63	0.80	0.00	6	2.01	63.03
10.80	6.450	50.94	76.65	6.470	0.79	6	18.23	191.38	89.27	102.11	61.44	0.81	0.00	6	2.02	61.87

In situ data				Basic output data						ARENILE BAGNO FIRENZE - VIAREGGIO (LU)					CPTu 01	
Depth	qc	fs	u_2	qt	Rf	SBT	γ	σ,v	u_0	σ',v_0	Qt1	Fr	Bq	SBTn	Ic	Qtn
(m)	(MPa)	(kPa)	(kPa)	(MPa)	(%)		kN/m^3	(kPa)	(kPa)	(kPa)		(%)				
10.82	6.330	50.12	76.84	6.350	0.79	6	18.20	191.75	89.47	102.28	60.17	0.81	0.00	6	2.03	60.61
10.84	6.220	49.07	77.02	6.240	0.79	6	18.17	192.11	89.66	102.45	58.99	0.81	0.00	6	2.04	59.45
10.86	6.010	48.34	77.21	6.030	0.80	6	18.14	192.47	89.86	102.61	56.84	0.83	0.00	6	2.06	57.31
10.88	5.760	46.88	77.66	5.780	0.81	6	18.09	192.83	90.06	102.78	54.32	0.84	0.00	5	2.08	54.78
10.90	5.710	45.97	77.76	5.730	0.80	6	18.06	193.20	90.25	102.94	53.74	0.83	0.00	5	2.08	54.22
10.92	5.670	44.92	77.95	5.690	0.79	6	18.03	193.56	90.45	103.11	53.26	0.82	0.00	5	2.08	53.77
10.94	5.630	44.06	78.22	5.650	0.78	6	18.01	193.92	90.64	103.27	52.79	0.81	0.00	5	2.08	53.31
10.96	5.600	43.51	78.32	5.620	0.77	6	17.99	194.28	90.84	103.44	52.41	0.80	0.00	5	2.08	52.96
10.98	5.600	43.51	78.42	5.620	0.77	6	17.99	194.64	91.04	103.60	52.33	0.80	0.00	5	2.08	52.90
11.00	5.390	29.71	81.41	5.410	0.55	6	17.54	194.99	91.23	103.76	50.23	0.57	0.00	6	2.02	50.84
11.02	5.390	29.71	79.94	5.410	0.55	6	17.54	195.34	91.43	103.91	50.14	0.57	0.00	6	2.02	50.78
11.04	5.330	30.89	80.12	5.350	0.58	6	17.58	195.69	91.63	104.07	49.49	0.60	0.00	6	2.03	50.13
11.06	5.200	32.08	80.31	5.220	0.62	6	17.61	196.05	91.82	104.22	48.17	0.64	0.00	6	2.06	48.80
11.08	5.120	33.44	80.41	5.140	0.65	6	17.65	196.40	92.02	104.38	47.32	0.68	0.00	5	2.07	47.95
11.10	5.020	34.31	80.77	5.040	0.68	6	17.67	196.75	92.21	104.54	46.29	0.71	0.00	5	2.09	46.91
11.12	4.970	34.86	80.87	4.990	0.70	5	17.69	197.11	92.41	104.70	45.74	0.73	0.00	5	2.10	46.37
11.14	4.960	34.95	81.06	4.980	0.70	5	17.69	197.46	92.61	104.85	45.58	0.73	0.00	5	2.11	46.22
11.16	4.980	35.58	81.16	5.000	0.71	5	17.71	197.81	92.80	105.01	45.69	0.74	0.00	5	2.11	46.36
11.18	5.000	35.90	81.26	5.020	0.72	5	17.73	198.17	93.00	105.17	45.81	0.75	0.00	5	2.11	46.50
11.20	5.020	35.31	81.45	5.040	0.70	6	17.71	198.52	93.20	105.33	45.93	0.73	0.00	5	2.10	46.64
11.22	5.070	35.54	81.46	5.090	0.70	6	17.72	198.88	93.39	105.49	46.33	0.73	0.00	5	2.10	47.08
11.24	5.140	35.17	81.65	5.160	0.68	6	17.71	199.23	93.59	105.64	46.92	0.71	0.00	5	2.09	47.71
11.26	5.290	35.08	81.75	5.310	0.66	6	17.72	199.59	93.78	105.80	48.27	0.69	0.00	6	2.07	49.12
11.28	5.510	34.67	81.76	5.530	0.63	6	17.72	199.94	93.98	105.96	50.27	0.65	0.00	6	2.04	51.21
11.30	5.640	34.35	81.77	5.660	0.61	6	17.72	200.29	94.18	106.12	51.41	0.63	0.00	6	2.03	52.42
11.32	5.880	34.40	81.79	5.900	0.58	6	17.74	200.65	94.37	106.28	53.59	0.60	0.00	6	2.00	54.70
11.34	6.190	34.72	81.71	6.210	0.56	6	17.77	201.00	94.57	106.44	56.42	0.58	0.00	6	1.97	57.65
11.36	6.430	35.27	81.72	6.450	0.55	6	17.80	201.36	94.76	106.60	58.59	0.56	0.00	6	1.95	59.92
11.38	6.560	37.63	81.82	6.580	0.57	6	17.88	201.72	94.96	106.76	59.71	0.59	0.00	6	1.95	61.10
11.40	6.640	39.14	81.92	6.660	0.59	6	17.93	202.08	95.16	106.92	60.37	0.61	0.00	6	1.96	61.80
11.42	6.730	40.91	81.94	6.750	0.61	6	17.99	202.44	95.35	107.08	61.11	0.63	0.00	6	1.96	62.60
11.44	6.740	42.28	82.12	6.760	0.63	6	18.03	202.80	95.55	107.25	61.11	0.65	0.00	6	1.96	62.61
11.46	6.740	43.65	82.31	6.760	0.65	6	18.06	203.16	95.75	107.41	61.01	0.67	0.00	6	1.97	62.53
11.48	6.750	45.52	82.50	6.770	0.67	6	18.11	203.52	95.94	107.58	61.01	0.69	0.00	6	1.98	62.55
11.50	6.950	46.06	82.60	6.970	0.66	6	18.14	203.88	96.14	107.74	62.77	0.68	0.00	6	1.97	64.41
11.52	7.050	45.15	82.70	7.070	0.64	6	18.12	204.24	96.33	107.91	63.59	0.66	0.00	6	1.95	65.32
11.54	7.030	45.43	82.71	7.050	0.64	6	18.13	204.61	96.53	108.08	63.31	0.66	0.00	6	1.96	65.05
11.56	6.900	46.02	82.99	6.920	0.67	6	18.13	204.97	96.73	108.24	62.01	0.69	0.00	6	1.97	63.72
11.58	6.790	46.75	83.17	6.810	0.69	6	18.15	205.33	96.92	108.41	60.89	0.71	0.00	6	1.99	62.58
11.60	6.910	46.56	83.36	6.930	0.67	6	18.15	205.69	97.12	108.58	61.90	0.69	0.00	6	1.97	63.67
11.62	6.990	46.97	83.46	7.010	0.67	6	18.16	206.06	97.32	108.74	62.54	0.69	0.00	6	1.97	64.37
11.64	7.050	47.89	83.56	7.070	0.68	6	18.19	206.42	97.51	108.91	62.99	0.70	0.00	6	1.97	64.87
11.66	7.090	47.75	83.66	7.110	0.67	6	18.19	206.79	97.71	109.08	63.26	0.69	0.00	6	1.97	65.19
11.68	7.040	47.89	83.85	7.060	0.68	6	18.19	207.15	97.90	109.25	62.70	0.70	0.00	6	1.97	64.64
11.70	7.010	47.48	84.04	7.030	0.68	6	18.18	207.51	98.10	109.41	62.33	0.70	0.00	6	1.97	64.28
11.72	7.010	47.29	84.22	7.030	0.67	6	18.17	207.88	98.30	109.58	62.23	0.69	0.00	6	1.97	64.22
11.74	6.910	47.79	84.41	6.930	0.69	6	18.18	208.24	98.49	109.75	61.22	0.71	0.00	6	1.98	63.18
11.76	6.790	48.39	84.60	6.810	0.71	6	18.19	208.60	98.69	109.91	60.03	0.73	0.00	6	2.00	61.95
11.78	6.620	49.48	84.96	6.640	0.75	6	18.20	208.97	98.88	110.08	58.39	0.77	0.00	6	2.02	60.25
11.80	6.510	50.03	85.15	6.530	0.77	6	18.21	209.33	99.08	110.25	57.30	0.79	0.00	6	2.03	59.12
11.82	6.520	49.30	85.34	6.540	0.75	6	18.19	209.70	99.28	110.42	57.30	0.78	0.00	6	2.03	59.16
11.84	6.510	49.30	85.44	6.530	0.76	6	18.19	210.06	99.47	110.59	57.12	0.78	0.00	6	2.03	59.00
11.86	6.560	48.52	85.54	6.580	0.74	6	18.18	210.42	99.67	110.75	57.49	0.76	0.00	6	2.02	59.42
11.88	6.530	47.57	85.72	6.550	0.73	6	18.15	210.79	99.87	110.92	57.13	0.75	0.00	6	2.02	59.08
11.90	6.460	47.11	85.91	6.480	0.73	6	18.14	211.15	100.06	111.09	56.41	0.75	0.00	6	2.03	58.35

In situ data				Basic output data						ARENILE BAGNO FIRENZE - VIAREGGIO (LU)						CPTu 01	
Depth	qc	fs	u_2	qt	Rf	SBT	γ	σ,v	u_0	σ',v_0	Qt1	Fr	Bq	SBTn	Ic	Qtn
(m)	(MPa)	(kPa)	(kPa)	(MPa)	(%)		kN/m^3	(kPa)	(kPa)	(kPa)		(%)				
11.92	6.410	46.38	86.10	6.430	0.72	6	18.11	211.51	100.26	111.25	55.87	0.75	0.00	6	2.03	57.82
11.94	6.470	46.06	86.20	6.490	0.71	6	18.11	211.87	100.45	111.42	56.32	0.73	0.00	6	2.02	58.33
11.96	6.530	45.88	86.30	6.550	0.70	6	18.11	212.24	100.65	111.58	56.77	0.72	0.00	6	2.01	58.84
11.98	6.530	45.88	86.40	6.550	0.70	6	18.11	212.60	100.85	111.75	56.69	0.72	0.00	6	2.01	58.78
12.00	6.700	33.85	89.65	6.720	0.50	6	17.77	212.96	101.04	111.91	58.12	0.52	0.00	6	1.93	60.52
12.02	6.700	33.85	88.17	6.720	0.50	6	17.77	213.31	101.24	112.07	58.04	0.52	0.00	6	1.93	60.46
12.04	6.760	35.08	88.10	6.780	0.52	6	17.81	213.67	101.44	112.23	58.49	0.53	0.00	6	1.93	60.95
12.06	6.800	38.14	88.20	6.820	0.56	6	17.91	214.03	101.63	112.39	58.75	0.58	0.00	6	1.95	61.22
12.08	6.860	40.23	88.30	6.880	0.58	6	17.98	214.38	101.83	112.56	59.20	0.60	0.00	6	1.96	61.69
12.10	6.880	42.05	88.40	6.900	0.61	6	18.03	214.75	102.02	112.72	59.29	0.63	0.00	6	1.96	61.79
12.12	6.930	43.56	88.59	6.950	0.63	6	18.07	215.11	102.22	112.89	59.64	0.65	0.00	6	1.97	62.18
12.14	6.940	45.70	88.69	6.960	0.66	6	18.13	215.47	102.42	113.05	59.64	0.68	0.00	6	1.98	62.17
12.16	7.000	47.29	88.79	7.020	0.67	6	18.17	215.83	102.61	113.22	60.08	0.70	0.00	6	1.98	62.65
12.18	6.820	49.71	89.06	6.840	0.73	6	18.22	216.20	102.81	113.39	58.40	0.75	0.00	6	2.01	60.85
12.20	6.750	50.67	89.25	6.770	0.75	6	18.24	216.56	103.01	113.56	57.69	0.77	0.00	6	2.02	60.11
12.22	6.650	51.30	89.44	6.670	0.77	6	18.24	216.93	103.20	113.72	56.72	0.80	0.00	6	2.03	59.09
12.24	6.720	51.94	89.54	6.740	0.77	6	18.26	217.29	103.40	113.89	57.25	0.80	0.00	6	2.03	59.68
12.26	6.890	51.94	89.72	6.910	0.75	6	18.27	217.66	103.59	114.06	58.65	0.78	0.00	6	2.02	61.21
12.28	7.070	51.44	89.74	7.090	0.73	6	18.27	218.02	103.79	114.23	60.14	0.75	0.00	6	2.00	62.85
12.30	7.210	50.76	89.84	7.230	0.70	6	18.26	218.39	103.99	114.40	61.27	0.72	0.00	6	1.98	64.12
12.32	7.400	49.71	89.94	7.420	0.67	6	18.25	218.75	104.18	114.57	62.84	0.69	0.00	6	1.96	65.86
12.34	7.620	49.25	90.04	7.640	0.64	6	18.25	219.12	104.38	114.74	64.66	0.66	0.00	6	1.94	67.87
12.36	7.580	49.30	90.22	7.600	0.65	6	18.25	219.48	104.57	114.91	64.21	0.67	0.00	6	1.95	67.42
12.38	7.450	50.62	90.41	7.470	0.68	6	18.27	219.85	104.77	115.08	62.99	0.70	0.00	6	1.96	66.11
12.40	7.400	51.99	90.69	7.420	0.70	6	18.30	220.21	104.97	115.25	62.46	0.72	0.00	6	1.97	65.54
12.42	7.260	52.94	90.96	7.280	0.73	6	18.31	220.58	105.16	115.42	61.15	0.75	0.00	6	1.99	64.14
12.44	6.880	54.54	91.41	6.900	0.79	6	18.33	220.95	105.36	115.59	57.77	0.82	0.00	6	2.03	60.49
12.46	6.450	56.68	91.77	6.470	0.88	6	18.35	221.31	105.56	115.76	53.97	0.91	0.00	5	2.08	56.37
12.48	6.020	56.77	91.96	6.040	0.94	5	18.32	221.68	105.75	115.93	50.18	0.98	0.00	5	2.13	52.30
12.50	5.820	56.22	92.24	5.840	0.96	5	18.30	222.05	105.95	116.10	48.38	1.00	0.00	5	2.15	50.39
12.52	5.680	55.13	92.42	5.700	0.97	5	18.27	222.41	106.14	116.27	47.10	1.01	0.00	5	2.16	49.05
12.54	5.640	54.40	92.61	5.660	0.96	5	18.25	222.78	106.34	116.44	46.68	1.00	0.00	5	2.16	48.63
12.56	5.670	53.13	92.71	5.690	0.93	5	18.22	223.14	106.54	116.60	46.87	0.97	0.00	5	2.15	48.87
12.58	5.800	50.48	92.81	5.820	0.87	5	18.17	223.50	106.73	116.77	47.91	0.90	0.00	5	2.13	50.05
12.60	6.040	48.16	92.82	6.060	0.79	6	18.14	223.87	106.93	116.94	49.90	0.83	0.00	5	2.09	52.26
12.62	6.270	47.25	92.92	6.290	0.75	6	18.13	224.23	107.13	117.10	51.79	0.78	0.00	6	2.06	54.35
12.64	6.630	45.56	92.94	6.650	0.69	6	18.11	224.59	107.32	117.27	54.78	0.71	0.00	6	2.02	57.67
12.66	6.800	45.06	93.04	6.820	0.66	6	18.10	224.95	107.52	117.44	56.15	0.68	0.00	6	2.00	59.20
12.68	6.970	45.20	93.22	6.990	0.65	6	18.12	225.32	107.71	117.60	57.51	0.67	0.00	6	1.98	60.72
12.70	7.150	45.43	93.32	7.170	0.63	6	18.13	225.68	107.91	117.77	58.95	0.65	0.00	6	1.97	62.33
12.72	7.250	46.38	93.42	7.270	0.64	6	18.16	226.04	108.11	117.94	59.72	0.66	0.00	6	1.97	63.18
12.74	7.450	47.89	93.44	7.470	0.64	6	18.21	226.41	108.30	118.10	61.32	0.66	0.00	6	1.96	64.95
12.76	7.860	50.35	93.36	7.880	0.64	6	18.29	226.77	108.50	118.27	64.70	0.66	0.00	6	1.94	68.65
12.78	7.960	52.17	93.46	7.980	0.65	6	18.33	227.14	108.69	118.44	65.45	0.67	0.00	6	1.94	69.47
12.80	8.030	53.95	93.65	8.050	0.67	6	18.38	227.51	108.89	118.61	65.94	0.69	0.00	6	1.94	70.02
12.82	8.070	54.81	93.84	8.090	0.68	6	18.40	227.87	109.09	118.79	66.18	0.70	0.00	6	1.94	70.30
12.84	8.070	56.95	94.02	8.090	0.70	6	18.44	228.24	109.28	118.96	66.08	0.72	0.00	6	1.95	70.19
12.86	8.110	58.68	94.12	8.130	0.72	6	18.48	228.61	109.48	119.13	66.32	0.74	0.00	6	1.95	70.45
12.88	8.070	62.92	94.31	8.090	0.78	6	18.55	228.98	109.68	119.31	65.88	0.80	0.00	6	1.98	69.92
12.90	8.040	64.79	94.59	8.060	0.80	6	18.59	229.35	109.87	119.48	65.53	0.83	0.00	6	1.99	69.54
12.92	8.090	65.66	94.69	8.110	0.81	6	18.60	229.73	110.07	119.66	65.85	0.83	0.00	6	1.99	69.91
12.94	8.110	66.29	94.79	8.130	0.82	6	18.62	230.10	110.26	119.83	65.92	0.84	0.00	6	1.99	70.01
12.96	8.060	66.66	94.80	8.080	0.83	6	18.62	230.47	110.46	120.01	65.40	0.85	0.00	6	1.99	69.46
12.98	7.950	50.48	97.96	7.970	0.63	6	18.29	230.84	110.66	120.18	64.39	0.65	0.00	6	1.93	68.71
13.00	7.950	49.98	96.75	7.970	0.63	6	18.28	231.21	110.85	120.35	64.30	0.65	0.00	6	1.93	68.65

In situ data				Basic output data					ARENILE BAGNO FIRENZE - VIAREGGIO (LU)						CPTu 01	
Depth	qc	fs	u_2	qt	Rf	SBT	γ	σ,v	u_0	σ',v_0	Qt1	Fr	Bq	SBTn	Ic	Qtn
(m)	(MPa)	(kPa)	(kPa)	(MPa)	(%)		kN/m^3	(kPa)	(kPa)	(kPa)		(%)				
13.02	7.950	53.08	96.94	7.970	0.67	6	18.35	231.57	111.05	120.52	64.20	0.69	0.00	6	1.95	68.51
13.04	7.900	54.72	97.12	7.920	0.69	6	18.39	231.94	111.25	120.69	63.69	0.71	0.00	6	1.96	67.95
13.06	7.860	56.22	97.31	7.880	0.71	6	18.41	232.31	111.44	120.87	63.27	0.74	0.00	6	1.97	67.48
13.08	7.830	57.41	97.41	7.850	0.73	6	18.44	232.68	111.64	121.04	62.93	0.75	0.00	6	1.98	67.10
13.10	7.700	59.37	97.69	7.720	0.77	6	18.47	233.05	111.83	121.21	61.76	0.79	0.00	6	2.00	65.80
13.12	7.470	59.50	97.87	7.490	0.79	6	18.46	233.41	112.03	121.38	59.78	0.82	0.00	6	2.02	63.62
13.14	7.270	60.60	98.06	7.290	0.83	6	18.47	233.78	112.23	121.56	58.05	0.86	0.00	6	2.04	61.70
13.16	7.260	61.05	98.34	7.280	0.84	6	18.48	234.15	112.42	121.73	57.88	0.87	0.00	6	2.04	61.53
13.18	7.460	61.28	98.44	7.480	0.82	6	18.49	234.52	112.62	121.90	59.43	0.85	0.00	6	2.03	63.29
13.20	7.600	60.60	98.45	7.620	0.80	6	18.49	234.89	112.82	122.08	60.49	0.82	0.00	6	2.01	64.51
13.22	7.590	60.28	98.72	7.610	0.79	6	18.48	235.26	113.01	122.25	60.32	0.82	0.00	6	2.01	64.36
13.24	7.500	59.32	99.00	7.520	0.79	6	18.46	235.63	113.21	122.42	59.50	0.81	0.00	6	2.01	63.49
13.26	7.380	58.59	99.19	7.400	0.79	6	18.44	236.00	113.40	122.60	58.43	0.82	0.00	6	2.02	62.35
13.28	7.280	58.59	99.46	7.300	0.80	6	18.43	236.37	113.60	122.77	57.53	0.83	0.00	6	2.03	61.37
13.30	7.140	59.14	99.65	7.160	0.83	6	18.44	236.74	113.80	122.94	56.31	0.85	0.00	6	2.05	60.02
13.32	7.000	58.82	99.84	7.020	0.84	6	18.42	237.11	113.99	123.11	55.09	0.87	0.00	6	2.06	58.69
13.34	6.780	58.64	100.02	6.800	0.86	6	18.41	237.48	114.19	123.29	53.23	0.89	0.00	5	2.08	56.64
13.36	6.530	58.00	100.39	6.550	0.89	6	18.38	237.84	114.38	123.46	51.13	0.92	0.00	5	2.10	54.33
13.38	6.200	57.14	100.66	6.220	0.92	6	18.34	238.21	114.58	123.63	48.39	0.96	0.00	5	2.13	51.31
13.40	6.020	55.36	100.85	6.040	0.92	5	18.29	238.58	114.78	123.80	46.86	0.95	0.00	5	2.14	49.66
13.42	5.860	54.22	101.04	5.880	0.92	5	18.26	238.94	114.97	123.97	45.51	0.96	0.00	5	2.15	48.19
13.44	5.740	53.22	101.31	5.760	0.92	5	18.23	239.31	115.17	124.14	44.47	0.96	0.00	5	2.16	47.08
13.46	5.590	52.62	101.50	5.610	0.94	5	18.21	239.67	115.37	124.30	43.21	0.98	0.00	5	2.18	45.70
13.48	5.630	49.80	101.86	5.650	0.88	5	18.15	240.03	115.56	124.47	43.47	0.92	0.00	5	2.16	46.06
13.50	5.730	48.43	101.96	5.750	0.84	6	18.12	240.40	115.76	124.64	44.21	0.88	0.00	5	2.14	46.93
13.52	5.860	46.84	101.97	5.880	0.80	6	18.09	240.76	115.95	124.80	45.19	0.83	0.00	5	2.12	48.08
13.54	6.010	45.52	102.16	6.030	0.75	6	18.07	241.12	116.15	124.97	46.33	0.79	0.00	5	2.10	49.40
13.56	6.230	43.60	102.26	6.250	0.70	6	18.03	241.48	116.35	125.13	48.02	0.73	0.00	6	2.06	51.37
13.58	6.450	42.01	102.27	6.470	0.65	6	18.00	241.84	116.54	125.30	49.71	0.67	0.00	6	2.03	53.33
13.60	6.420	41.46	102.37	6.440	0.64	6	17.99	242.20	116.74	125.46	49.40	0.67	0.00	6	2.03	53.02
13.62	6.440	42.97	102.56	6.460	0.67	6	18.03	242.56	116.94	125.63	49.50	0.69	0.00	6	2.04	53.11
13.64	6.430	43.97	102.66	6.450	0.68	6	18.05	242.92	117.13	125.79	49.35	0.71	0.00	6	2.05	52.94
13.66	6.340	45.79	103.02	6.360	0.72	6	18.10	243.28	117.33	125.96	48.57	0.75	0.00	6	2.07	52.04
13.68	6.330	47.79	103.12	6.350	0.75	6	18.14	243.65	117.52	126.12	48.42	0.78	0.00	5	2.08	51.85
13.70	6.210	50.71	103.40	6.230	0.81	6	18.21	244.01	117.72	126.29	47.40	0.85	0.00	5	2.11	50.66
13.72	6.070	53.13	103.67	6.090	0.87	6	18.25	244.37	117.92	126.46	46.23	0.91	0.00	5	2.13	49.30
13.74	5.970	55.18	103.86	5.990	0.92	5	18.29	244.74	118.11	126.63	45.38	0.96	0.00	5	2.15	48.32
13.76	5.900	56.59	104.13	5.920	0.96	5	18.31	245.11	118.31	126.80	44.76	1.00	0.00	5	2.17	47.62
13.78	5.930	56.86	104.32	5.950	0.96	5	18.32	245.47	118.50	126.97	44.94	1.00	0.00	5	2.17	47.83
13.80	5.900	56.50	104.42	5.920	0.95	5	18.31	245.84	118.70	127.14	44.64	1.00	0.00	5	2.17	47.52
13.82	5.940	56.41	104.52	5.960	0.95	5	18.31	246.21	118.90	127.31	44.89	0.99	0.00	5	2.16	47.82
13.84	5.850	53.95	104.71	5.870	0.92	5	18.25	246.57	119.09	127.48	44.12	0.96	0.00	5	2.16	47.02
13.86	5.700	52.21	104.90	5.720	0.91	5	18.21	246.93	119.29	127.65	42.88	0.95	0.00	5	2.17	45.68
13.88	5.710	49.62	105.17	5.730	0.87	5	18.15	247.30	119.49	127.81	42.90	0.90	0.00	5	2.16	45.77
13.90	5.870	48.11	105.27	5.890	0.82	6	18.12	247.66	119.68	127.98	44.10	0.85	0.00	5	2.13	47.17
13.92	5.880	47.29	105.37	5.900	0.80	6	18.10	248.02	119.88	128.14	44.11	0.84	0.00	5	2.13	47.22
13.94	5.830	46.79	105.47	5.850	0.80	6	18.09	248.38	120.07	128.31	43.67	0.84	0.00	5	2.13	46.74
13.96	5.830	46.79	105.57	5.850	0.80	6	18.09	248.75	120.27	128.48	43.61	0.84	0.00	5	2.13	46.69
13.98	5.830	46.79	108.21	5.850	0.80	6	18.09	249.11	120.47	128.64	43.55	0.84	0.00	5	2.13	46.65
14.00	5.890	36.95	106.86	5.910	0.63	6	17.82	249.47	120.66	128.80	43.96	0.65	0.00	6	2.07	47.38
14.02	5.940	38.68	106.57	5.960	0.65	6	17.88	249.82	120.86	128.96	44.29	0.68	0.00	5	2.08	47.73
14.04	6.210	41.14	106.23	6.230	0.66	6	17.97	250.18	121.06	129.13	46.32	0.69	0.00	6	2.06	50.01
14.06	6.740	43.33	106.16	6.760	0.64	6	18.06	250.54	121.25	129.29	50.36	0.67	0.00	6	2.02	54.60
14.08	7.010	43.38	106.35	7.030	0.62	6	18.07	250.90	121.45	129.46	52.38	0.64	0.00	6	2.00	56.95
14.10	7.250	45.47	106.62	7.270	0.63	6	18.14	251.27	121.64	129.62	54.16	0.65	0.00	6	1.99	58.97

In situ data				Basic output data						ARENILE BAGNO FIRENZE - VIAREGGIO (LU)						CPTu 01	
Depth	qc	fs	u_2	qt	Rf	SBT	γ	σ,v	u_0	σ',v_0	Qt1	Fr	Bq	SBTn	Ic	Qtn
(m)	(MPa)	(kPa)	(kPa)	(MPa)	(%)		kN/m^3	(kPa)	(kPa)	(kPa)		(%)				
14.12	7.470	47.20	106.90	7.490	0.63	6	18.19	251.63	121.84	129.79	55.78	0.65	0.00	6	1.98	60.82
14.14	7.800	50.57	107.00	7.820	0.65	6	18.29	251.99	122.04	129.96	58.24	0.67	0.00	6	1.97	63.60
14.16	7.960	53.90	107.18	7.980	0.68	6	18.37	252.36	122.23	130.13	59.40	0.70	0.00	6	1.97	64.86
14.18	8.180	56.91	107.28	8.200	0.69	6	18.44	252.73	122.43	130.30	61.00	0.72	0.00	6	1.97	66.67
14.20	8.580	62.28	107.38	8.600	0.72	6	18.57	253.10	122.63	130.48	63.98	0.75	0.00	6	1.96	70.02
14.22	8.770	65.93	107.48	8.790	0.75	6	18.64	253.47	122.82	130.65	65.35	0.77	0.00	6	1.96	71.54
14.24	9.000	72.08	107.58	9.020	0.80	6	18.75	253.85	123.02	130.83	67.02	0.82	0.00	6	1.97	73.34
14.26	9.130	74.95	107.68	9.150	0.82	6	18.80	254.22	123.21	131.01	67.91	0.84	0.00	6	1.97	74.35
14.28	9.290	77.14	107.78	9.310	0.83	6	18.84	254.60	123.41	131.19	69.04	0.85	0.00	6	1.96	75.64
14.30	9.370	78.55	107.97	9.390	0.84	6	18.87	254.98	123.61	131.37	69.55	0.86	0.00	6	1.96	76.23
14.32	9.320	82.06	108.16	9.340	0.88	6	18.91	255.35	123.80	131.55	69.07	0.90	0.00	6	1.98	75.62
14.34	9.320	83.56	108.26	9.340	0.89	6	18.94	255.73	124.00	131.74	68.97	0.92	0.00	6	1.98	75.50
14.36	9.330	85.06	108.45	9.350	0.91	6	18.96	256.11	124.19	131.92	68.95	0.94	0.00	6	1.99	75.48
14.38	9.270	85.20	108.72	9.290	0.92	6	18.96	256.49	124.39	132.10	68.40	0.94	0.00	6	1.99	74.86
14.40	9.020	84.61	109.08	9.040	0.94	6	18.94	256.87	124.59	132.28	66.41	0.96	0.00	6	2.01	72.59
14.42	8.820	83.29	109.36	8.840	0.94	6	18.91	257.25	124.78	132.47	64.81	0.97	0.00	6	2.02	70.79
14.44	8.610	82.56	109.63	8.630	0.96	6	18.89	257.63	124.98	132.65	63.13	0.99	0.00	6	2.03	68.89
14.46	8.420	82.38	109.91	8.440	0.98	6	18.88	258.00	125.18	132.83	61.61	1.01	0.00	6	2.05	67.15
14.48	8.000	81.65	110.27	8.020	1.02	6	18.85	258.38	125.37	133.01	58.37	1.05	0.00	5	2.08	63.43
14.50	7.730	80.01	110.55	7.750	1.03	6	18.81	258.76	125.57	133.19	56.26	1.07	0.00	5	2.10	61.04
14.52	7.500	78.55	110.82	7.520	1.04	6	18.78	259.13	125.76	133.37	54.46	1.08	0.00	5	2.11	59.01
14.54	7.250	77.36	111.01	7.270	1.06	6	18.75	259.51	125.96	133.55	52.51	1.10	0.00	5	2.13	56.80
14.56	7.140	76.18	111.28	7.160	1.06	6	18.73	259.88	126.16	133.73	51.62	1.10	0.00	5	2.14	55.81
14.58	7.040	73.22	111.56	7.060	1.04	6	18.68	260.26	126.35	133.90	50.80	1.08	0.00	5	2.14	54.95
14.60	6.970	70.21	111.75	6.990	1.00	6	18.62	260.63	126.55	134.08	50.21	1.04	0.00	5	2.13	54.36
14.62	6.810	68.12	111.93	6.830	1.00	6	18.58	261.00	126.75	134.26	48.95	1.04	0.00	5	2.14	52.97
14.64	6.660	66.25	112.21	6.680	0.99	6	18.54	261.37	126.94	134.43	47.76	1.03	0.00	5	2.15	51.66
14.66	6.470	64.47	112.57	6.490	0.99	5	18.50	261.74	127.14	134.61	46.29	1.03	0.00	5	2.16	50.01
14.68	5.980	61.69	113.02	6.000	1.03	5	18.42	262.11	127.33	134.78	42.59	1.07	0.00	5	2.20	45.81
14.70	5.760	61.24	113.21	5.780	1.06	5	18.39	262.48	127.53	134.95	40.91	1.11	0.00	5	2.22	43.89
14.72	5.640	60.51	113.40	5.660	1.07	5	18.37	262.85	127.73	135.12	39.96	1.12	0.00	5	2.23	42.84
14.74	5.650	60.01	113.58	5.670	1.06	5	18.36	263.21	127.92	135.29	39.98	1.11	0.00	5	2.23	42.89
14.76	6.040	56.09	113.68	6.060	0.93	5	18.31	263.58	128.12	135.46	42.81	0.97	0.00	5	2.17	46.26
14.78	6.380	54.40	113.78	6.400	0.85	6	18.30	263.95	128.31	135.63	45.26	0.89	0.00	5	2.13	49.17
14.80	6.640	52.12	113.80	6.660	0.78	6	18.26	264.31	128.51	135.80	47.12	0.81	0.00	5	2.09	51.42
14.82	6.870	50.62	113.90	6.890	0.73	6	18.24	264.68	128.71	135.97	48.75	0.76	0.00	6	2.06	53.39
14.84	7.100	49.53	114.00	7.120	0.70	6	18.23	265.04	128.90	136.14	50.37	0.72	0.00	6	2.04	55.36
14.86	7.130	49.89	114.10	7.150	0.70	6	18.24	265.41	129.10	136.31	50.53	0.72	0.00	6	2.04	55.56
14.88	7.140	51.76	114.46	7.160	0.72	6	18.28	265.77	129.30	136.48	50.54	0.75	0.00	6	2.04	55.53
14.90	7.170	54.63	114.65	7.190	0.76	6	18.35	266.14	129.49	136.65	50.69	0.79	0.00	6	2.05	55.65
14.92	7.120	57.45	114.83	7.140	0.80	6	18.40	266.51	129.69	136.82	50.26	0.84	0.00	5	2.07	55.08
14.94	7.080	58.82	115.02	7.100	0.83	6	18.43	266.88	129.88	136.99	49.90	0.86	0.00	5	2.08	54.64
14.96	7.080	58.82	115.12	7.100	0.83	6	18.43	267.24	130.08	137.16	49.84	0.86	0.00	5	2.08	54.59
14.98	7.080	58.82	118.46	7.100	0.83	6	18.43	267.61	130.28	137.34	49.78	0.86	0.00	5	2.08	54.54
15.00	6.640	47.98	116.90	6.660	0.72	6	18.17	267.98	130.47	137.50	46.51	0.75	0.00	5	2.07	51.02
15.02	6.640	46.02	117.08	6.660	0.69	6	18.12	268.34	130.67	137.67	46.45	0.72	0.00	6	2.07	51.03
15.04	6.470	50.03	117.27	6.490	0.77	6	18.21	268.70	130.87	137.84	45.16	0.80	0.00	5	2.10	49.41
15.06	6.240	52.94	117.46	6.260	0.85	6	18.26	269.07	131.06	138.01	43.44	0.88	0.00	5	2.14	47.31
15.08	6.010	55.90	117.56	6.030	0.93	5	18.31	269.43	131.26	138.17	41.72	0.97	0.00	5	2.18	45.24
15.10	5.960	57.04	117.66	5.980	0.95	5	18.33	269.80	131.45	138.35	41.30	1.00	0.00	5	2.19	44.74
15.12	6.020	57.36	117.76	6.040	0.95	5	18.34	270.17	131.65	138.52	41.68	0.99	0.00	5	2.19	45.19
15.14	6.140	57.09	117.95	6.160	0.93	5	18.34	270.53	131.85	138.69	42.49	0.97	0.00	5	2.17	46.16
15.16	6.420	55.49	117.96	6.440	0.86	6	18.32	270.90	132.04	138.86	44.45	0.90	0.00	5	2.14	48.52
15.18	6.580	53.90	118.06	6.600	0.82	6	18.30	271.27	132.24	139.03	45.55	0.85	0.00	5	2.11	49.88
15.20	6.820	53.13	118.16	6.840	0.78	6	18.30	271.63	132.44	139.20	47.21	0.81	0.00	5	2.09	51.89

In situ data				Basic output data					ARENILE BAGNO FIRENZE - VIAREGGIO (LU)					CPTu 01		
Depth	qc	fs	u_2	qt	Rf	SBT	γ	σ,v	u_0	σ',v_0	Qt1	Fr	Bq	SBTn	Ic	Qtn
(m)	(MPa)	(kPa)	(kPa)	(MPa)	(%)		kN/m^3	(kPa)	(kPa)	(kPa)		(%)				
15.22	7.220	52.67	118.08	7.240	0.73	6	18.31	272.00	132.63	139.37	50.02	0.76	0.00	6	2.05	55.27
15.24	7.480	52.72	118.18	7.500	0.70	6	18.32	272.36	132.83	139.54	51.82	0.73	0.00	6	2.02	57.44
15.26	7.760	53.03	118.28	7.780	0.68	6	18.34	272.73	133.02	139.71	53.76	0.71	0.00	6	2.00	59.78
15.28	8.120	54.63	118.38	8.140	0.67	6	18.39	273.10	133.22	139.88	56.27	0.69	0.00	6	1.98	62.76
15.30	8.430	56.18	118.48	8.450	0.66	6	18.44	273.47	133.42	140.05	58.41	0.69	0.00	6	1.96	65.32
15.32	8.630	59.14	118.76	8.650	0.68	6	18.51	273.84	133.61	140.22	59.76	0.71	0.00	6	1.96	66.87
15.34	8.650	62.88	118.86	8.670	0.72	6	18.58	274.21	133.81	140.40	59.83	0.75	0.00	6	1.98	66.85
15.36	8.600	66.25	119.05	8.620	0.77	6	18.64	274.58	134.00	140.58	59.39	0.79	0.00	6	1.99	66.24
15.38	8.510	69.03	119.23	8.530	0.81	6	18.68	274.95	134.20	140.75	58.68	0.84	0.00	6	2.01	65.31
15.40	8.330	73.67	119.60	8.350	0.88	6	18.75	275.33	134.40	140.93	57.32	0.91	0.00	6	2.04	63.57
15.42	8.230	76.04	119.70	8.250	0.92	6	18.78	275.70	134.59	141.11	56.54	0.95	0.00	5	2.06	62.58
15.44	8.070	78.00	119.88	8.090	0.96	6	18.80	276.08	134.79	141.29	55.33	1.00	0.00	5	2.08	61.11
15.46	7.960	78.50	120.25	7.980	0.98	6	18.80	276.46	134.99	141.47	54.48	1.02	0.00	5	2.09	60.10
15.48	7.840	77.36	120.43	7.860	0.98	6	18.78	276.83	135.18	141.65	53.56	1.02	0.00	5	2.10	59.06
15.50	7.540	74.36	120.71	7.560	0.98	6	18.72	277.21	135.38	141.83	51.38	1.02	0.00	5	2.11	56.55
15.52	7.320	71.58	120.98	7.340	0.97	6	18.67	277.58	135.57	142.01	49.76	1.01	0.00	5	2.12	54.72
15.54	7.160	69.71	121.17	7.180	0.97	6	18.63	277.95	135.77	142.18	48.57	1.01	0.00	5	2.13	53.37
15.56	7.100	67.89	121.36	7.120	0.95	6	18.59	278.32	135.97	142.36	48.09	0.99	0.00	5	2.13	52.86
15.58	7.170	66.34	121.46	7.190	0.92	6	18.57	278.70	136.16	142.53	48.52	0.96	0.00	5	2.12	53.43
15.60	7.440	64.52	121.56	7.460	0.86	6	18.55	279.07	136.36	142.71	50.35	0.90	0.00	5	2.09	55.70
15.62	7.400	63.51	121.57	7.420	0.86	6	18.53	279.44	136.56	142.88	50.01	0.89	0.00	5	2.09	55.34
15.64	7.260	63.29	121.76	7.280	0.87	6	18.52	279.81	136.75	143.06	48.96	0.90	0.00	5	2.10	54.11
15.66	7.070	63.15	122.03	7.090	0.89	6	18.51	280.18	136.95	143.23	47.58	0.93	0.00	5	2.11	52.47
15.68	6.980	63.19	122.31	7.000	0.90	6	18.50	280.55	137.14	143.40	46.89	0.94	0.00	5	2.12	51.67
15.70	7.120	63.19	122.58	7.140	0.88	6	18.51	280.92	137.34	143.58	47.80	0.92	0.00	5	2.11	52.78
15.72	7.260	62.92	122.77	7.280	0.86	6	18.51	281.29	137.54	143.75	48.72	0.90	0.00	5	2.10	53.91
15.74	7.440	63.47	122.87	7.460	0.85	6	18.53	281.66	137.73	143.93	49.91	0.88	0.00	5	2.08	55.35
15.76	7.620	63.24	122.97	7.640	0.83	6	18.54	282.03	137.93	144.10	51.09	0.86	0.00	5	2.07	56.81
15.78	7.770	62.37	123.07	7.790	0.80	6	18.53	282.40	138.12	144.28	52.07	0.83	0.00	6	2.05	58.04
15.80	7.890	62.33	123.26	7.910	0.79	6	18.53	282.77	138.32	144.45	52.83	0.82	0.00	6	2.04	58.99
15.82	7.850	63.01	123.53	7.870	0.80	6	18.55	283.14	138.52	144.63	52.49	0.83	0.00	6	2.05	58.58
15.84	7.810	64.56	123.63	7.830	0.82	6	18.57	283.51	138.71	144.80	52.15	0.85	0.00	6	2.06	58.13
15.86	7.780	66.25	123.82	7.800	0.85	6	18.60	283.89	138.91	144.98	51.88	0.88	0.00	5	2.07	57.77
15.88	7.770	67.48	124.01	7.790	0.87	6	18.62	284.26	139.11	145.15	51.74	0.90	0.00	5	2.07	57.59
15.90	7.950	69.03	124.11	7.970	0.87	6	18.66	284.63	139.30	145.33	52.92	0.90	0.00	5	2.06	58.99
15.92	8.120	68.89	124.21	8.140	0.85	6	18.66	285.00	139.50	145.51	54.02	0.88	0.00	6	2.05	60.36
15.94	8.290	68.43	124.40	8.310	0.82	6	18.66	285.38	139.69	145.68	55.12	0.85	0.00	6	2.04	61.74
15.96	8.420	67.39	124.50	8.440	0.80	6	18.65	285.75	139.89	145.86	55.94	0.83	0.00	6	2.02	62.80

CPTu 02 ARENILE PRINCIPE DI PIEMONTE - VIAREGGIO (LU)

qc cone resistance
fs sleeve friction
u_2 penetration pore pressure
qt total cone resistance
Rf friction ratio
SBT soil behavior type

γ soil unit weight
σ,v total overburden stress
u_0 in situ pore pressure
$\sigma'v_0$ effetive overburden stress
Qt1 normalized cone resistance
Fr normalized friction ratio

Bq normalized pore pressure
SBTn soil behavior type normalized
Ic soil behavior type index
Qtn normalized cone resistance based on the stress exponent n

In situ data **Basic output data**

Depth (m)	qc (MPa)	fs (kPa)	u_2 (kPa)	qt (MPa)	Rf (%)	SBT	γ kN/m^3	σ,v (kPa)	u_0 (kPa)	σ',v_0 (kPa)	Qt1	Fr (%)	Bq	SBTn	Ic	Qtn
0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.02	0.090	0.00	-3.67	0.090	0.00	1	19.00	0.38	0.00	0.38	233.91	0.00	-0.04	0	0.00	0.00
0.04	0.090	0.00	-3.67	0.090	0.00	1	19.00	0.76	0.00	0.76	116.46	0.00	-0.04	0	0.00	0.00
0.06	0.090	0.00	-3.15	0.090	0.00	1	19.00	1.14	0.00	1.14	77.39	0.00	-0.04	0	0.00	0.00
0.08	0.070	0.00	-0.87	0.070	0.00	1	19.00	1.52	0.00	1.52	44.94	0.00	-0.01	0	0.00	0.00
0.10	0.080	0.00	-1.22	0.080	0.00	1	19.00	1.90	0.00	1.90	40.98	0.00	-0.02	0	0.00	0.00
0.12	0.190	0.00	-4.02	0.190	0.00	1	19.00	2.28	0.00	2.28	81.98	0.00	-0.02	0	0.00	0.00
0.14	0.310	0.00	-7.00	0.310	0.00	1	19.00	2.66	0.00	2.66	115.02	0.00	-0.02	0	0.00	0.00
0.16	0.490	0.00	-10.50	0.490	0.00	1	19.00	3.04	0.00	3.04	159.49	0.00	-0.02	0	0.00	0.00
0.18	0.700	0.00	-11.72	0.700	0.00	1	19.00	3.42	0.00	3.42	202.99	0.00	-0.02	0	0.00	0.00
0.20	1.630	0.05	-16.97	1.630	0.00	0	13.73	3.75	0.00	3.75	433.07	0.00	-0.01	0	1.92	111.32
0.22	2.710	0.00	-19.60	2.710	0.00	0	19.00	4.13	0.00	4.13	654.65	0.00	-0.01	0	0.00	0.00
0.24	3.660	0.00	-21.17	3.660	0.00	0	19.00	4.51	0.00	4.51	810.07	0.00	-0.01	0	0.00	0.00
0.26	4.550	0.00	-21.70	4.550	0.00	0	19.00	4.89	0.00	4.89	929.09	0.00	0.00	0	0.00	0.00
0.28	5.610	0.00	-22.57	5.610	0.00	0	19.00	5.27	0.00	5.27	1063.20	0.00	0.00	0	0.00	0.00
0.30	6.110	0.00	-22.75	6.110	0.00	0	19.00	5.65	0.00	5.65	1080.12	0.00	0.00	0	0.00	0.00
0.32	6.490	0.00	-23.45	6.490	0.00	0	19.00	6.03	0.00	6.03	1074.98	0.00	0.00	0	0.00	0.00
0.34	7.100	0.00	-24.50	7.100	0.00	0	19.00	6.41	0.00	6.41	1106.34	0.00	0.00	0	0.00	0.00
0.36	7.630	0.00	-25.02	7.620	0.00	0	19.00	6.79	0.00	6.79	1122.41	0.00	0.00	0	0.00	0.00
0.38	8.260	0.00	-25.55	8.250	0.00	0	19.00	7.17	0.00	7.17	1150.74	0.00	0.00	0	0.00	0.00
0.40	9.180	0.00	-25.37	9.170	0.00	0	19.00	7.55	0.00	7.55	1214.65	0.00	0.00	0	0.00	0.00
0.42	10.720	0.00	-24.50	10.720	0.00	0	19.00	7.93	0.00	7.93	1350.66	0.00	0.00	0	0.00	0.00
0.44	11.650	0.00	-22.05	11.650	0.00	0	19.00	8.31	0.00	8.31	1400.84	0.00	0.00	0	0.00	0.00
0.46	12.160	0.00	-20.12	12.160	0.00	0	19.00	8.69	0.00	8.69	1398.27	0.00	0.00	0	0.00	0.00
0.48	12.250	2.96	-15.05	12.250	0.02	0	15.20	8.98	0.00	8.98	1363.32	0.02	0.00	0	1.15	248.28
0.50	12.470	9.66	-14.00	12.470	0.08	0	16.56	9.29	0.00	9.29	1340.69	0.08	0.00	0	1.10	239.82
0.52	12.600	20.32	-13.82	12.600	0.16	6	17.42	9.64	0.00	9.64	1306.12	0.16	0.00	7	1.15	251.38
0.54	12.670	30.48	-13.82	12.670	0.24	6	17.89	9.99	0.00	9.99	1266.60	0.24	0.00	7	1.21	260.94
0.56	12.750	43.10	-13.65	12.750	0.34	6	18.29	10.36	0.00	10.36	1229.86	0.34	0.00	7	1.27	274.72
0.58	12.800	51.58	-13.47	12.800	0.40	6	18.50	10.73	0.00	10.73	1192.17	0.40	0.00	7	1.31	281.84
0.60	12.750	59.28	-12.95	12.750	0.47	6	18.66	11.10	0.00	11.10	1147.64	0.47	0.00	6	1.35	285.98
0.62	12.610	65.34	-12.60	12.610	0.52	6	18.77	11.47	0.00	11.47	1097.91	0.52	0.00	6	1.38	286.77
0.64	12.440	70.07	-12.25	12.440	0.56	6	18.84	11.85	0.00	11.85	1048.65	0.56	0.00	6	1.40	285.63
0.66	12.330	74.40	-12.25	12.330	0.60	6	18.91	12.23	0.00	12.23	1007.21	0.60	0.00	6	1.42	286.17
0.68	12.180	78.55	-12.07	12.180	0.65	6	18.97	12.61	0.00	12.61	964.99	0.65	0.00	6	1.45	284.20
0.70	12.040	79.96	-12.07	12.040	0.66	6	18.98	12.99	0.00	12.99	925.98	0.66	0.00	6	1.46	280.41
0.72	11.740	81.92	-11.55	11.740	0.70	6	19.00	13.37	0.00	13.37	877.19	0.70	0.00	6	1.48	274.68
0.74	11.340	84.02	-11.37	11.340	0.74	6	19.02	13.75	0.00	13.75	823.80	0.74	0.00	6	1.51	267.54
0.76	10.880	86.16	-11.02	10.880	0.79	6	19.03	14.13	0.00	14.13	769.02	0.79	0.00	6	1.54	259.44
0.78	10.420	87.80	-10.85	10.420	0.84	6	19.03	14.51	0.00	14.51	717.11	0.84	0.00	6	1.57	250.95
0.80	9.740	88.94	-10.50	9.740	0.91	6	19.02	14.89	0.00	14.89	653.09	0.91	0.00	6	1.61	238.71
0.82	9.410	88.53	-10.32	9.410	0.94	6	19.00	15.27	0.00	15.27	615.19	0.94	0.00	6	1.63	231.08
0.84	9.100	87.21	-10.15	9.100	0.96	6	18.97	15.65	0.00	15.65	580.43	0.96	0.00	6	1.64	223.38
0.86	8.840	84.97	-10.15	8.840	0.96	6	18.93	16.03	0.00	16.03	550.46	0.96	0.00	6	1.65	216.15
0.88	8.620	82.79	-9.97	8.620	0.96	6	18.89	16.40	0.00	16.40	524.34	0.96	0.00	6	1.66	209.69
0.90	8.260	79.14	-9.62	8.260	0.96	6	18.83	16.78	0.00	16.78	491.09	0.96	0.00	6	1.68	200.47

In situ data				Basic output data						ARENILE PRINCIPE DI PIEMONTE - VIAREGGIO (LU)					CPTu 02	
Depth	qc	fs	u_2	qt	Rf	SBT	γ	σ,v	u_0	σ',v_0	Qt1	Fr	Bq	SBTn	Ic	Qtn
(m)	(MPa)	(kPa)	(kPa)	(MPa)	(%)		kN/m^3	(kPa)	(kPa)	(kPa)		(%)				
0.92	8.110	77.14	-9.62	8.110	0.95	6	18.79	17.16	0.00	17.16	471.57	0.95	0.00	6	1.68	195.43
0.94	7.940	74.77	-9.45	7.940	0.94	6	18.75	17.53	0.00	17.53	451.76	0.94	0.00	6	1.69	190.01
0.96	7.860	72.76	-9.10	7.860	0.93	6	18.71	17.91	0.00	17.91	437.83	0.93	0.00	6	1.69	186.26
0.98	7.890	69.98	-9.27	7.890	0.89	6	18.67	18.28	0.00	18.28	430.50	0.89	0.00	6	1.68	183.99
1.00	8.120	66.84	-9.27	8.120	0.82	6	18.62	18.65	0.00	18.65	434.21	0.83	0.00	6	1.66	184.71
1.02	9.070	60.55	-9.62	9.070	0.67	6	18.55	19.02	0.00	19.02	475.64	0.67	0.00	6	1.58	194.62
1.04	10.240	56.41	-9.97	10.240	0.55	6	18.52	19.40	0.00	19.40	526.86	0.55	0.00	6	1.50	207.81
1.06	12.060	51.67	-10.15	12.060	0.43	6	18.48	19.77	0.00	19.77	609.06	0.43	0.00	6	1.40	228.38
1.08	13.930	47.70	-10.15	13.930	0.34	6	18.44	20.13	0.00	20.13	690.76	0.34	0.00	7	1.31	248.49
1.10	15.350	46.47	-10.32	15.350	0.30	6	18.45	20.50	0.00	20.50	747.57	0.30	0.00	7	1.26	263.81
1.12	15.350	46.47	-10.32	15.350	0.30	6	18.45	20.87	0.00	20.87	734.34	0.30	0.00	7	1.26	262.52
1.14	15.350	46.20	-10.32	15.350	0.30	6	18.44	21.24	0.00	21.24	721.56	0.30	0.00	7	1.26	261.08
1.16	15.560	46.43	-7.87	15.560	0.30	6	18.46	21.61	0.00	21.61	718.96	0.30	0.00	7	1.26	262.52
1.18	14.680	47.00	-3.50	14.680	0.32	6	18.45	21.98	0.00	21.98	666.87	0.32	0.00	7	1.29	251.01
1.20	17.430	55.72	-1.57	17.430	0.32	6	18.71	22.35	0.00	22.35	778.80	0.32	0.00	7	1.24	288.10
1.22	18.440	80.78	-1.05	18.440	0.44	6	19.16	22.73	0.00	22.73	810.19	0.44	0.00	7	1.30	312.94
1.24	19.000	97.14	-0.70	19.000	0.51	6	19.38	23.12	0.00	23.12	820.85	0.51	0.00	7	1.33	326.34
1.26	19.240	113.81	-1.05	19.240	0.59	6	19.57	23.51	0.00	23.51	817.41	0.59	0.00	6	1.37	335.19
1.28	19.210	130.99	-0.52	19.210	0.68	6	19.73	23.90	0.00	23.90	802.67	0.68	0.00	6	1.41	340.13
1.30	18.900	145.84	0.00	18.900	0.77	6	19.85	24.30	0.00	24.30	776.81	0.77	0.00	6	1.45	339.88
1.32	18.080	164.21	1.40	18.080	0.91	6	19.97	24.70	0.00	24.70	731.06	0.91	0.00	6	1.51	333.46
1.34	17.710	170.22	2.10	17.710	0.96	6	20.00	25.10	0.00	25.10	704.66	0.96	0.00	6	1.54	328.42
1.36	17.440	172.73	2.80	17.440	0.99	6	20.01	25.50	0.00	25.50	683.00	0.99	0.00	6	1.55	323.59
1.38	17.270	172.91	2.97	17.270	1.00	6	20.01	25.90	0.00	25.90	665.86	1.00	0.00	6	1.56	319.43
1.40	17.050	167.26	3.50	17.050	0.98	6	19.96	26.30	0.00	26.30	647.37	0.98	0.00	6	1.56	313.01
1.42	16.560	163.25	4.20	16.560	0.99	6	19.93	26.70	0.00	26.70	619.34	0.99	0.00	6	1.57	303.53
1.44	15.950	159.65	4.55	15.950	1.00	6	19.89	27.09	0.00	27.09	587.72	1.00	0.00	6	1.58	292.63
1.46	15.490	155.09	4.37	15.490	1.00	6	19.84	27.49	0.00	27.49	562.48	1.00	0.00	6	1.59	283.55
1.48	15.340	150.36	4.90	15.340	0.98	6	19.80	27.89	0.00	27.89	549.10	0.98	0.00	6	1.59	278.68
1.50	15.300	140.65	5.95	15.300	0.92	6	19.72	28.28	0.00	28.28	540.01	0.92	0.00	6	1.57	274.03
1.52	15.220	133.18	6.30	15.220	0.87	6	19.66	28.68	0.00	28.68	529.80	0.88	0.00	6	1.56	269.47
1.54	15.370	125.66	6.47	15.370	0.82	6	19.60	29.07	0.00	29.07	527.80	0.82	0.00	6	1.54	267.94
1.56	15.250	119.83	6.47	15.250	0.79	6	19.54	29.46	0.00	29.46	516.71	0.79	0.00	6	1.53	263.38
1.58	14.440	112.17	6.82	14.440	0.78	6	19.44	29.85	0.00	29.85	482.83	0.78	0.00	6	1.54	249.42
1.60	14.020	110.03	6.82	14.020	0.78	6	19.41	30.24	0.00	30.24	462.72	0.79	0.00	6	1.56	242.12
1.62	13.620	109.17	7.00	13.620	0.80	6	19.39	30.62	0.00	30.62	443.79	0.80	0.00	6	1.57	235.47
1.64	13.080	108.16	7.35	13.080	0.83	6	19.36	31.01	0.00	31.01	420.82	0.83	0.00	6	1.59	226.94
1.66	12.050	104.29	7.52	12.050	0.87	6	19.29	31.40	0.00	31.40	382.83	0.87	0.00	6	1.63	210.86
1.68	11.260	101.83	7.52	11.260	0.90	6	19.23	31.78	0.00	31.78	353.32	0.91	0.00	6	1.66	198.64
1.70	10.420	99.87	7.52	10.420	0.96	6	19.18	32.17	0.00	32.17	322.98	0.96	0.00	6	1.70	185.79
1.72	9.660	99.42	8.05	9.660	1.03	6	19.15	32.55	0.00	32.55	295.82	1.03	0.00	6	1.74	174.28
1.74	8.940	100.69	8.57	8.940	1.13	6	19.13	32.93	0.00	32.93	270.51	1.13	0.00	6	1.79	163.54
1.76	7.970	102.10	8.75	7.970	1.28	5	19.11	33.32	0.00	33.32	238.28	1.29	0.00	6	1.86	149.06
1.78	7.530	100.15	8.75	7.530	1.33	5	19.06	33.70	0.00	33.70	222.52	1.34	0.00	6	1.88	141.52
1.80	7.150	97.37	8.75	7.150	1.36	5	19.01	34.08	0.00	34.08	208.87	1.37	0.00	6	1.91	134.72
1.82	6.840	94.18	8.57	6.840	1.38	5	18.95	34.46	0.00	34.46	197.56	1.38	0.00	6	1.92	128.92
1.84	6.600	90.26	8.40	6.600	1.37	5	18.89	34.83	0.00	34.83	188.52	1.37	0.00	6	1.93	124.07
1.86	6.410	85.25	8.22	6.410	1.33	5	18.81	35.21	0.00	35.21	181.09	1.34	0.00	6	1.94	119.83
1.88	6.260	77.32	8.22	6.260	1.23	5	18.69	35.59	0.00	35.59	174.96	1.24	0.00	6	1.92	115.77
1.90	6.330	72.72	8.22	6.330	1.15	5	18.63	35.96	0.00	35.96	175.08	1.16	0.00	6	1.90	115.43
1.92	6.590	68.80	8.05	6.590	1.04	5	18.58	36.33	0.00	36.33	180.44	1.05	0.00	6	1.87	117.89
1.94	7.240	63.42	7.70	7.240	0.88	6	18.52	36.70	0.00	36.70	196.31	0.88	0.00	6	1.80	125.41
1.96	8.330	56.91	7.35	8.330	0.68	6	18.45	37.07	0.00	37.07	223.75	0.69	0.00	6	1.70	138.19
1.98	9.620	48.11	7.00	9.620	0.50	6	18.31	37.44	0.00	37.44	256.00	0.50	0.00	6	1.58	152.36
2.00	9.880	45.56	7.17	9.880	0.46	6	18.26	37.80	0.00	37.80	260.40	0.46	0.00	6	1.56	154.37

In situ data				Basic output data						ARENILE PRINCIPE DI PIEMONTE - VIAREGGIO (LU)					CPTu 02	
Depth	qc	fs	u_2	qt	Rf	SBT	γ	σ,v	u_0	σ',v_0	Qt1	Fr	Bq	SBTn	Ic	Qtn
(m)	(MPa)	(kPa)	(kPa)	(MPa)	(%)		kN/m^3	(kPa)	(kPa)	(kPa)		(%)				
2.02	9.910	47.38	5.03	9.910	0.48	6	18.31	38.17	0.00	38.17	258.67	0.48	0.00	6	1.57	154.45
2.04	10.160	50.44	5.17	10.160	0.50	6	18.39	38.54	0.00	38.54	262.68	0.50	0.00	6	1.57	157.80
2.06	10.350	54.49	5.33	10.350	0.53	6	18.48	38.90	0.00	38.90	265.06	0.53	0.00	6	1.58	160.60
2.08	10.480	62.74	5.50	10.480	0.60	6	18.65	39.28	0.00	39.28	265.85	0.60	0.00	6	1.60	163.55
2.10	10.390	69.62	5.67	10.390	0.67	6	18.77	39.65	0.00	39.65	261.06	0.67	0.00	6	1.64	163.24
2.12	10.410	74.90	5.80	10.410	0.72	6	18.85	40.03	0.00	40.03	259.09	0.72	0.00	6	1.66	163.90
2.14	10.410	74.90	5.97	10.410	0.72	6	18.85	40.41	0.00	40.41	256.67	0.72	0.00	6	1.66	163.23
2.16	10.410	74.90	5.97	10.410	0.72	6	18.85	40.78	0.00	40.78	254.29	0.72	0.00	6	1.66	162.57
2.18	10.070	57.68	5.06	10.070	0.57	6	18.54	41.15	0.00	41.15	243.72	0.58	0.00	6	1.61	154.20
2.20	10.200	58.41	5.11	10.200	0.57	6	18.56	41.52	0.00	41.52	244.66	0.57	0.00	6	1.61	155.40
2.22	10.280	60.60	5.28	10.280	0.59	6	18.60	41.90	0.00	41.90	244.39	0.59	0.00	6	1.62	156.27
2.24	10.350	63.10	5.41	10.350	0.61	6	18.65	42.27	0.00	42.27	243.89	0.61	0.00	6	1.62	157.07
2.26	10.660	63.70	5.58	10.660	0.60	6	18.67	42.64	0.00	42.64	249.01	0.60	0.00	6	1.61	160.46
2.28	10.740	63.24	5.72	10.740	0.59	6	18.67	43.02	0.00	43.02	248.70	0.59	0.00	6	1.61	160.77
2.30	10.730	63.60	5.91	10.730	0.59	6	18.67	43.39	0.00	43.39	246.32	0.60	0.00	6	1.61	160.13
2.32	10.650	65.61	6.08	10.650	0.62	6	18.71	43.76	0.20	43.57	243.47	0.62	0.00	6	1.62	159.25
2.34	10.630	68.71	6.25	10.630	0.65	6	18.76	44.14	0.39	43.75	242.01	0.65	0.00	6	1.63	159.29
2.36	10.640	70.89	6.41	10.640	0.67	6	18.80	44.51	0.59	43.93	241.24	0.67	0.00	6	1.64	159.52
2.38	10.620	74.04	6.55	10.620	0.70	6	18.85	44.89	0.78	44.11	239.80	0.70	0.00	6	1.66	159.53
2.40	10.690	75.91	6.72	10.690	0.71	6	18.88	45.27	0.98	44.29	240.39	0.71	0.00	6	1.66	160.43
2.42	10.970	77.09	6.86	10.970	0.70	6	18.90	45.65	1.18	44.47	245.69	0.71	0.00	6	1.65	163.82
2.44	11.140	76.32	7.02	11.140	0.69	6	18.90	46.02	1.37	44.65	248.49	0.69	0.00	6	1.64	165.50
2.46	11.100	75.45	7.19	11.100	0.68	6	18.88	46.40	1.57	44.83	246.59	0.68	0.00	6	1.64	164.56
2.48	11.020	74.63	7.33	11.020	0.68	6	18.87	46.78	1.77	45.01	243.81	0.68	0.00	6	1.64	163.15
2.50	10.810	74.27	7.41	10.810	0.69	6	18.86	47.16	1.96	45.19	238.18	0.69	0.00	6	1.65	160.20
2.52	10.750	73.67	7.54	10.750	0.69	6	18.84	47.53	2.16	45.38	235.90	0.69	0.00	6	1.65	159.08
2.54	10.640	74.13	7.74	10.640	0.70	6	18.85	47.91	2.35	45.56	232.54	0.70	0.00	6	1.66	157.51
2.56	10.330	76.13	7.91	10.330	0.74	6	18.87	48.29	2.55	45.74	224.84	0.74	0.00	6	1.68	153.70
2.58	9.820	80.46	8.10	9.820	0.82	6	18.91	48.67	2.75	45.92	212.83	0.82	0.00	6	1.73	147.67
2.60	9.520	83.24	8.30	9.520	0.87	6	18.94	49.04	2.94	46.10	205.47	0.88	0.00	6	1.75	143.98
2.62	9.260	85.34	8.49	9.260	0.92	6	18.96	49.42	3.14	46.28	199.04	0.93	0.00	6	1.78	140.68
2.64	9.000	86.39	8.66	9.000	0.96	6	18.96	49.80	3.34	46.47	192.65	0.97	0.00	6	1.80	137.21
2.66	8.710	87.16	8.83	8.710	1.00	6	18.96	50.18	3.53	46.65	185.67	1.01	0.00	6	1.82	133.31
2.68	8.180	86.70	9.02	8.180	1.06	6	18.93	50.56	3.73	46.83	173.62	1.07	0.00	6	1.85	126.14
2.70	7.800	85.34	9.22	7.800	1.09	6	18.89	50.94	3.92	47.01	164.86	1.10	0.00	6	1.88	120.79
2.72	7.370	83.65	9.41	7.370	1.13	5	18.85	51.32	4.12	47.20	155.11	1.14	0.00	6	1.90	114.73
2.74	6.910	81.88	9.58	6.910	1.18	5	18.80	51.69	4.32	47.38	144.81	1.19	0.00	6	1.93	108.24
2.76	6.560	79.96	9.75	6.560	1.22	5	18.75	52.07	4.51	47.55	136.89	1.23	0.00	6	1.96	103.18
2.78	6.360	77.00	9.94	6.360	1.21	5	18.69	52.44	4.71	47.73	132.19	1.22	0.00	6	1.97	100.01
2.80	6.370	70.21	10.08	6.370	1.10	5	18.59	52.81	4.91	47.91	131.90	1.11	0.00	6	1.94	99.26
2.82	6.560	64.24	10.25	6.560	0.98	6	18.50	53.18	5.10	48.08	135.37	0.99	0.00	6	1.90	100.92
2.84	6.930	57.27	10.38	6.930	0.83	6	18.39	53.55	5.30	48.25	142.55	0.83	0.00	6	1.84	104.70
2.86	7.240	50.12	10.52	7.240	0.69	6	18.25	53.92	5.49	48.42	148.44	0.70	0.00	6	1.79	107.53
2.88	7.300	41.51	10.69	7.300	0.57	6	18.04	54.28	5.69	48.59	149.16	0.57	0.00	6	1.74	106.82
2.90	7.230	38.36	10.83	7.230	0.53	6	17.94	54.64	5.89	48.75	147.22	0.53	0.00	6	1.73	105.27
2.92	6.980	37.95	10.99	6.980	0.54	6	17.92	55.00	6.08	48.92	141.62	0.55	0.00	6	1.75	101.92
2.94	6.600	39.64	11.16	6.600	0.60	6	17.94	55.36	6.28	49.08	133.40	0.61	0.00	6	1.79	97.24
2.96	6.080	44.38	11.33	6.080	0.73	6	18.04	55.72	6.47	49.24	122.39	0.74	0.00	6	1.86	91.10
2.98	5.820	47.02	11.49	5.820	0.81	6	18.09	56.08	6.67	49.41	116.71	0.82	0.00	6	1.90	87.91
3.00	5.720	48.61	11.63	5.720	0.85	5	18.12	56.44	6.87	49.57	114.29	0.86	0.00	6	1.92	86.64
3.02	5.720	49.30	11.80	5.720	0.86	5	18.14	56.80	7.06	49.74	113.90	0.87	0.00	6	1.92	86.55
3.04	5.710	47.70	11.93	5.710	0.84	6	18.10	57.17	7.26	49.91	113.32	0.84	0.00	6	1.92	86.08
3.06	5.760	42.42	12.07	5.760	0.74	6	17.97	57.53	7.46	50.07	113.94	0.74	0.00	6	1.88	85.95
3.08	5.750	38.14	12.24	5.750	0.66	6	17.85	57.88	7.65	50.23	113.37	0.67	0.00	6	1.86	85.13
3.10	5.690	33.62	12.38	5.690	0.59	6	17.70	58.24	7.85	50.39	111.81	0.60	0.00	6	1.84	83.61

In situ data				Basic output data						ARENILE PRINCIPE DI PIEMONTE - VIAREGGIO (LU)					CPTu 02	
Depth	qc	fs	u_2	qt	Rf	SBT	γ	σ,v	u_0	σ',v_0	Qt1	Fr	Bq	SBTn	Ic	Qtn
(m)	(MPa)	(kPa)	(kPa)	(MPa)	(%)		kN/m^3	(kPa)	(kPa)	(kPa)		(%)				
3.12	5.660	32.21	12.51	5.660	0.57	6	17.65	58.59	8.04	50.55	110.87	0.57	0.00	6	1.83	82.90
3.14	5.660	32.21	12.60	5.660	0.57	6	17.65	58.94	8.24	50.70	110.52	0.57	0.00	6	1.84	82.77
3.16	5.230	26.13	12.23	5.230	0.50	6	17.38	59.29	8.44	50.86	101.72	0.51	0.00	6	1.84	76.30
3.18	5.230	26.13	12.23	5.230	0.50	6	17.38	59.64	8.63	51.01	101.41	0.51	0.00	6	1.84	76.18
3.20	5.230	26.31	12.31	5.230	0.50	6	17.38	59.99	8.83	51.16	101.11	0.51	0.00	6	1.84	76.09
3.22	5.190	26.90	12.51	5.190	0.52	6	17.41	60.34	9.03	51.31	100.02	0.52	0.00	6	1.85	75.55
3.24	5.160	27.72	12.68	5.160	0.54	6	17.44	60.68	9.22	51.46	99.14	0.54	0.00	6	1.86	75.17
3.26	5.110	29.09	12.87	5.110	0.57	6	17.49	61.03	9.42	51.62	97.87	0.58	0.00	6	1.87	74.60
3.28	5.100	20.87	13.04	5.100	0.41	6	17.11	61.38	9.61	51.77	97.38	0.41	0.00	6	1.81	73.15
3.30	5.100	21.10	13.21	5.100	0.41	6	17.12	61.72	9.81	51.91	97.10	0.42	0.00	6	1.81	73.08
3.32	5.070	21.46	13.37	5.070	0.42	6	17.14	62.07	10.01	52.06	96.25	0.43	0.00	6	1.82	72.65
3.34	4.980	22.33	13.51	4.980	0.45	6	17.18	62.41	10.20	52.21	94.25	0.45	0.00	6	1.84	71.55
3.36	4.900	22.55	13.68	4.900	0.46	6	17.18	62.75	10.40	52.35	92.45	0.47	0.00	6	1.85	70.46
3.38	4.810	22.60	13.84	4.810	0.47	6	17.18	63.10	10.59	52.50	90.47	0.48	0.00	6	1.86	69.23
3.40	4.690	23.19	14.01	4.690	0.49	6	17.20	63.44	10.79	52.65	87.93	0.50	0.00	6	1.88	67.69
3.42	4.600	24.10	14.32	4.600	0.52	6	17.23	63.78	10.99	52.80	85.97	0.53	0.00	6	1.90	66.57
3.44	4.600	24.06	14.52	4.600	0.52	6	17.23	64.13	11.18	52.95	85.73	0.53	0.00	6	1.90	66.46
3.46	4.550	23.74	14.68	4.550	0.52	6	17.21	64.47	11.38	53.09	84.54	0.53	0.00	6	1.90	65.68
3.48	4.520	23.37	14.88	4.520	0.52	6	17.19	64.82	11.58	53.24	83.73	0.52	0.00	6	1.90	65.15
3.50	4.580	22.78	15.05	4.580	0.50	6	17.17	65.16	11.77	53.39	84.62	0.50	0.00	6	1.89	65.73
3.52	4.680	21.78	15.24	4.680	0.47	6	17.12	65.50	11.97	53.54	86.25	0.47	0.00	6	1.87	66.75
3.54	4.740	20.96	15.41	4.740	0.44	6	17.08	65.85	12.16	53.68	87.13	0.45	0.00	6	1.86	67.29
3.56	4.740	20.50	15.72	4.740	0.43	6	17.06	66.19	12.36	53.83	86.89	0.44	0.00	6	1.86	67.13
3.58	4.880	20.28	15.95	4.880	0.42	6	17.06	66.53	12.56	53.97	89.25	0.42	0.00	6	1.84	68.75
3.60	5.050	19.73	16.14	5.050	0.39	6	17.04	66.87	12.75	54.12	92.14	0.40	0.00	6	1.82	70.68
3.62	5.210	19.82	16.34	5.210	0.38	6	17.06	67.21	12.95	54.26	94.84	0.39	0.00	6	1.80	72.58
3.64	5.260	20.59	16.53	5.260	0.39	6	17.10	67.55	13.15	54.41	95.50	0.40	0.00	6	1.80	73.21
3.66	5.310	21.14	16.70	5.310	0.40	6	17.14	67.89	13.34	54.55	96.15	0.40	0.00	6	1.80	73.81
3.68	5.370	21.19	16.90	5.370	0.39	6	17.15	68.24	13.54	54.70	96.99	0.40	0.00	6	1.80	74.45
3.70	5.390	21.14	17.09	5.390	0.39	6	17.14	68.58	13.73	54.85	97.09	0.40	0.00	6	1.79	74.58
3.72	5.360	21.69	17.26	5.360	0.40	6	17.17	68.92	13.93	54.99	96.28	0.41	0.00	6	1.80	74.19
3.74	5.310	22.33	17.43	5.310	0.42	6	17.20	69.27	14.13	55.14	95.11	0.43	0.00	6	1.81	73.56
3.76	5.300	23.28	17.62	5.300	0.44	6	17.25	69.61	14.32	55.29	94.66	0.44	0.00	6	1.82	73.47
3.78	5.280	24.56	17.82	5.280	0.46	6	17.31	69.96	14.52	55.44	94.04	0.47	0.00	6	1.84	73.29
3.80	5.250	25.70	17.98	5.250	0.49	6	17.36	70.30	14.72	55.59	93.24	0.50	0.00	6	1.85	72.95
3.82	5.240	26.20	18.18	5.240	0.50	6	17.38	70.65	14.91	55.74	92.80	0.51	0.00	6	1.85	72.79
3.84	5.240	26.33	18.38	5.240	0.50	6	17.39	71.00	15.11	55.89	92.55	0.51	0.00	6	1.86	72.69
3.86	5.220	26.38	18.54	5.220	0.51	6	17.39	71.35	15.30	56.04	91.93	0.51	0.00	6	1.86	72.35
3.88	5.190	26.75	18.74	5.190	0.52	6	17.40	71.70	15.50	56.20	91.15	0.52	0.00	6	1.87	71.91
3.90	5.140	27.29	18.88	5.140	0.53	6	17.42	72.04	15.70	56.35	90.01	0.54	0.00	6	1.88	71.25
3.92	5.070	27.93	19.04	5.070	0.55	6	17.44	72.39	15.89	56.50	88.52	0.56	0.00	6	1.89	70.36
3.94	5.030	28.75	19.24	5.030	0.57	6	17.47	72.74	16.09	56.65	87.57	0.58	0.00	6	1.90	69.84
3.96	5.160	29.07	19.26	5.160	0.56	6	17.49	73.09	16.28	56.81	89.62	0.57	0.00	6	1.89	71.38
3.98	5.290	28.25	19.40	5.290	0.53	6	17.47	73.44	16.48	56.96	91.65	0.54	0.00	6	1.87	72.78
4.00	5.380	27.43	19.56	5.380	0.51	6	17.44	73.79	16.68	57.11	92.98	0.52	0.00	6	1.85	73.69
4.02	5.450	27.02	19.76	5.450	0.50	6	17.43	74.14	16.87	57.27	93.95	0.50	0.00	6	1.84	74.39
4.04	5.560	26.38	19.96	5.560	0.47	6	17.41	74.49	17.07	57.42	95.61	0.48	0.00	6	1.83	75.54
4.06	5.770	24.51	20.06	5.770	0.42	6	17.34	74.83	17.27	57.57	99.00	0.43	0.00	6	1.80	77.75
4.08	5.890	24.10	20.23	5.890	0.41	6	17.33	75.18	17.46	57.72	100.81	0.41	0.00	6	1.78	79.04
4.10	5.890	24.42	20.40	5.890	0.41	6	17.34	75.53	17.66	57.87	100.55	0.42	0.00	6	1.78	78.97
4.12	5.820	25.06	20.68	5.820	0.43	6	17.37	75.87	17.85	58.02	99.07	0.44	0.00	6	1.80	78.10
4.14	5.760	25.65	20.73	5.760	0.44	6	17.39	76.22	18.05	58.17	97.78	0.45	0.00	6	1.81	77.35
4.16	5.350	24.44	20.72	5.350	0.46	6	17.31	76.57	18.25	58.32	90.49	0.46	0.00	6	1.84	72.14
4.18	5.330	25.77	20.89	5.330	0.48	6	17.37	76.92	18.44	58.47	89.91	0.49	0.00	6	1.85	71.95
4.20	5.210	24.42	21.03	5.210	0.47	6	17.30	77.26	18.64	58.62	87.62	0.48	0.00	6	1.85	70.24

In situ data				Basic output data				ARENILE PRINCIPE DI PIEMONTE - VIAREGGIO (LU)								CPTu 02
Depth	qc	fs	u_2	qt	Rf	SBT	γ	σ,v	u_0	σ',v_0	Qt1	Fr	Bq	SBTn	Ic	Qtn
(m)	(MPa)	(kPa)	(kPa)	(MPa)	(%)		kN/m^3	(kPa)	(kPa)	(kPa)		(%)				
4.22	5.070	24.51	21.19	5.070	0.48	6	17.29	77.61	18.84	58.77	85.01	0.49	0.00	6	1.87	68.45
4.24	4.850	26.43	21.33	4.850	0.54	6	17.36	77.96	19.03	58.92	81.06	0.55	0.00	6	1.91	65.87
4.26	4.600	27.61	21.50	4.600	0.60	6	17.39	78.30	19.23	59.08	76.61	0.61	0.00	6	1.95	62.81
4.28	4.380	28.07	21.63	4.380	0.64	5	17.39	78.65	19.42	59.23	72.70	0.65	0.00	6	1.98	60.04
4.30	4.260	28.29	21.83	4.260	0.66	5	17.39	79.00	19.62	59.38	70.49	0.68	0.00	6	2.00	58.48
4.32	4.210	27.52	21.97	4.210	0.65	5	17.35	79.35	19.82	59.53	69.46	0.67	0.00	6	2.00	57.70
4.34	4.150	25.06	22.13	4.150	0.60	5	17.24	79.69	20.01	59.68	68.28	0.62	0.00	6	1.99	56.65
4.36	4.140	23.28	22.30	4.140	0.56	5	17.15	80.03	20.21	59.83	67.94	0.57	0.00	6	1.98	56.28
4.38	4.160	21.51	22.47	4.160	0.52	5	17.06	80.38	20.40	59.97	68.10	0.53	0.00	6	1.96	56.27
4.40	4.180	19.36	22.63	4.180	0.46	6	16.95	80.72	20.60	60.12	68.27	0.47	0.00	6	1.94	56.22
4.42	4.150	17.40	22.80	4.150	0.42	6	16.82	81.05	20.80	60.26	67.60	0.43	0.00	6	1.92	55.56
4.44	4.080	16.54	22.97	4.080	0.40	6	16.75	81.39	20.99	60.40	66.28	0.41	0.00	6	1.92	54.54
4.46	4.050	16.36	23.11	4.050	0.40	6	16.74	81.72	21.19	60.53	65.63	0.41	0.00	6	1.93	54.08
4.48	4.050	16.17	23.24	4.050	0.40	6	16.73	82.06	21.39	60.67	65.48	0.41	0.00	6	1.93	53.99
4.50	4.060	16.08	23.44	4.060	0.40	6	16.72	82.39	21.58	60.81	65.49	0.40	0.00	6	1.92	54.03
4.52	4.000	15.72	23.58	4.000	0.39	6	16.69	82.73	21.78	60.95	64.35	0.40	0.00	6	1.93	53.18
4.54	3.900	15.04	23.77	3.900	0.39	6	16.63	83.06	21.97	61.09	62.56	0.39	0.00	6	1.94	51.82
4.56	3.770	14.03	23.91	3.770	0.37	6	16.54	83.39	22.17	61.22	60.30	0.38	0.00	6	1.94	50.06
4.58	3.620	13.12	24.08	3.620	0.36	6	16.44	83.72	22.37	61.35	57.72	0.37	0.00	6	1.95	48.06
4.60	3.480	12.53	24.21	3.480	0.36	6	16.37	84.05	22.56	61.48	55.31	0.37	0.00	6	1.97	46.22
4.62	3.290	12.30	24.38	3.290	0.37	5	16.33	84.37	22.76	61.62	52.11	0.38	0.00	6	2.00	43.80
4.64	3.130	12.03	24.55	3.130	0.38	5	16.29	84.70	22.96	61.75	49.40	0.39	0.00	6	2.02	41.75
4.66	3.040	11.80	24.68	3.040	0.39	5	16.25	85.03	23.15	61.87	47.84	0.40	0.00	6	2.03	40.56
4.68	3.010	11.16	24.88	3.010	0.37	5	16.19	85.35	23.35	62.00	47.25	0.38	0.00	6	2.03	40.07
4.70	3.020	11.24	25.02	3.030	0.37	5	16.20	85.67	23.54	62.13	47.31	0.38	0.00	6	2.03	40.15
4.72	3.130	11.65	25.18	3.140	0.37	5	16.25	86.00	23.74	62.26	48.97	0.38	0.00	6	2.02	41.49
4.74	3.370	12.55	25.35	3.380	0.37	5	16.36	86.32	23.94	62.39	52.71	0.38	0.00	6	1.99	44.47
4.76	3.670	13.66	25.52	3.680	0.37	6	16.49	86.65	24.13	62.52	57.40	0.38	0.00	6	1.96	48.18
4.78	3.990	14.86	25.71	4.000	0.37	6	16.62	86.99	24.33	62.66	62.37	0.38	0.00	6	1.93	52.11
4.80	4.280	15.94	25.88	4.290	0.37	6	16.73	87.32	24.53	62.79	66.85	0.38	0.00	6	1.90	55.64
4.82	4.450	16.57	26.08	4.460	0.37	6	16.79	87.65	24.72	62.93	69.40	0.38	0.00	6	1.89	57.67
4.84	4.670	17.39	26.21	4.680	0.37	6	16.86	87.99	24.92	63.07	72.73	0.38	0.00	6	1.87	60.30
4.86	4.990	18.58	26.38	5.000	0.37	6	16.97	88.33	25.11	63.22	77.62	0.38	0.00	6	1.84	64.15
4.88	5.350	19.92	26.49	5.360	0.37	6	17.07	88.67	25.31	63.36	83.12	0.38	0.00	6	1.82	68.45
4.90	5.500	20.48	26.68	5.510	0.37	6	17.12	89.01	25.51	63.51	85.29	0.38	0.00	6	1.81	70.19
4.92	5.540	20.63	26.85	5.550	0.37	6	17.13	89.36	25.70	63.65	85.71	0.38	0.00	6	1.81	70.59
4.94	5.720	21.30	27.02	5.730	0.37	6	17.18	89.70	25.90	63.80	88.33	0.38	0.00	6	1.80	72.67
4.96	5.900	21.97	27.07	5.910	0.37	6	17.22	90.04	26.09	63.95	90.94	0.38	0.00	6	1.78	74.75
4.98	5.980	21.44	27.15	5.990	0.36	6	17.20	90.39	26.29	64.10	91.97	0.36	0.00	6	1.77	75.54
5.00	5.930	24.35	27.28	5.940	0.41	6	17.34	90.73	26.49	64.25	90.97	0.42	0.00	6	1.80	75.16
5.02	5.760	22.14	27.42	5.770	0.38	6	17.22	91.08	26.68	64.39	88.12	0.39	0.00	6	1.80	72.86
5.04	5.670	21.82	27.59	5.680	0.38	6	17.20	91.42	26.88	64.54	86.52	0.39	0.00	6	1.81	71.69
5.06	5.600	24.69	28.22	5.610	0.44	6	17.34	91.77	27.08	64.69	85.23	0.45	0.00	6	1.84	71.06
5.08	5.500	27.98	28.39	5.510	0.51	6	17.47	92.12	27.27	64.84	83.49	0.52	0.00	6	1.87	70.09
5.10	5.430	30.03	28.56	5.440	0.55	6	17.55	92.47	27.47	65.00	82.21	0.56	0.00	6	1.90	69.33
5.12	5.330	30.21	28.72	5.340	0.57	6	17.55	92.82	27.66	65.15	80.47	0.58	0.00	6	1.91	68.07
5.14	5.330	30.21	28.89	5.340	0.57	6	17.55	93.17	27.86	65.31	80.27	0.58	0.00	6	1.91	67.98
5.16	4.850	30.62	29.00	4.860	0.63	6	17.53	93.52	28.06	65.46	72.75	0.64	0.00	6	1.97	62.24
5.18	4.790	23.85	29.16	4.800	0.50	6	17.24	93.87	28.25	65.61	71.66	0.51	0.00	6	1.92	60.93
5.20	4.600	25.67	29.33	4.610	0.56	6	17.31	94.21	28.45	65.76	68.61	0.57	0.00	6	1.96	58.75
5.22	4.410	25.63	29.38	4.420	0.58	5	17.29	94.56	28.65	65.91	65.56	0.59	0.00	6	1.98	56.41
5.24	4.240	25.26	29.78	4.250	0.59	5	17.26	94.90	28.84	66.06	62.84	0.61	0.00	6	2.01	54.28
5.26	4.060	24.85	29.95	4.070	0.61	5	17.22	95.25	29.04	66.21	59.97	0.63	0.00	6	2.03	52.03
5.28	3.940	24.08	30.14	3.950	0.61	5	17.17	95.59	29.23	66.36	58.03	0.63	0.00	6	2.04	50.47
5.30	3.880	23.40	30.34	3.890	0.60	5	17.13	95.93	29.43	66.50	56.99	0.62	0.00	6	2.04	49.63

In situ data				Basic output data						ARENILE PRINCIPE DI PIEMONTE - VIAREGGIO (LU)					CPTu 02	
Depth	qc	fs	u_2	qt	Rf	SBT	γ	σ,v	u_0	σ',v_0	Qt1	Fr	Bq	SBTn	Ic	Qtn
(m)	(MPa)	(kPa)	(kPa)	(MPa)	(%)		kN/m^3	(kPa)	(kPa)	(kPa)		(%)				
5.32	3.870	22.80	30.51	3.880	0.59	5	17.10	96.28	29.63	66.65	56.71	0.60	0.00	6	2.04	49.40
5.34	3.990	22.44	30.64	4.000	0.56	5	17.10	96.62	29.82	66.80	58.38	0.58	0.00	6	2.02	50.74
5.36	4.160	22.71	30.78	4.170	0.55	5	17.13	96.96	30.02	66.94	60.79	0.56	0.00	6	2.00	52.70
5.38	4.340	20.11	31.01	4.350	0.46	6	17.00	97.30	30.21	67.09	63.33	0.47	0.00	6	1.95	54.57
5.40	4.540	19.11	31.14	4.550	0.42	6	16.96	97.64	30.41	67.23	66.17	0.43	0.00	6	1.92	56.76
5.42	4.710	18.66	31.31	4.720	0.40	6	16.95	97.98	30.61	67.37	68.55	0.40	0.00	6	1.89	58.63
5.44	4.950	18.20	31.48	4.960	0.37	6	16.94	98.32	30.80	67.51	71.95	0.37	0.00	6	1.86	61.31
5.46	5.170	19.39	31.61	5.180	0.37	6	17.03	98.66	31.00	67.66	75.05	0.38	0.00	6	1.85	63.88
5.48	5.080	19.07	31.78	5.090	0.37	6	17.00	99.00	31.20	67.80	73.56	0.38	0.00	6	1.86	62.74
5.50	4.960	19.48	31.83	4.970	0.39	6	17.02	99.34	31.39	67.95	71.63	0.40	0.00	6	1.87	61.31
5.52	4.800	20.85	32.00	4.810	0.43	6	17.08	99.68	31.59	68.09	69.12	0.44	0.00	6	1.90	59.49
5.54	4.550	20.72	32.16	4.560	0.45	6	17.06	100.02	31.78	68.24	65.31	0.46	0.00	6	1.93	56.50
5.56	4.330	20.67	32.36	4.340	0.48	6	17.03	100.36	31.98	68.38	61.95	0.49	0.00	6	1.96	53.85
5.58	4.150	20.90	32.53	4.160	0.50	6	17.03	100.70	32.18	68.53	59.19	0.52	0.00	6	1.99	51.69
5.60	4.050	20.31	32.69	4.060	0.50	5	16.99	101.04	32.37	68.67	57.60	0.51	0.00	6	2.00	50.41
5.62	3.990	16.54	32.89	4.000	0.41	6	16.75	101.38	32.57	68.81	56.61	0.42	0.00	6	1.97	49.38
5.64	3.940	15.81	33.03	3.950	0.40	6	16.69	101.71	32.77	68.95	55.77	0.41	0.00	6	1.97	48.68
5.66	3.780	15.90	33.16	3.790	0.42	6	16.68	102.05	32.96	69.08	53.33	0.43	0.00	6	1.99	46.75
5.68	3.740	15.76	33.33	3.750	0.42	6	16.67	102.38	33.16	69.22	52.65	0.43	0.00	6	2.00	46.21
5.70	3.800	14.94	33.50	3.810	0.39	6	16.61	102.71	33.35	69.36	53.40	0.40	0.00	6	1.98	46.80
5.72	3.930	13.67	33.66	3.940	0.35	6	16.52	103.04	33.55	69.49	55.17	0.36	0.00	6	1.95	48.16
5.74	4.090	12.67	33.83	4.100	0.31	6	16.45	103.37	33.75	69.63	57.36	0.32	0.00	6	1.91	49.87
5.76	4.190	11.57	34.00	4.200	0.28	6	16.35	103.70	33.94	69.76	58.68	0.28	0.00	6	1.89	50.87
5.78	4.160	10.93	34.19	4.170	0.26	6	16.29	104.02	34.14	69.89	58.13	0.27	0.00	6	1.88	50.41
5.80	4.080	10.34	34.36	4.090	0.25	6	16.21	104.35	34.34	70.01	56.88	0.26	0.00	6	1.89	49.39
5.82	4.000	10.62	34.56	4.010	0.27	6	16.24	104.67	34.53	70.14	55.63	0.27	0.00	6	1.90	48.44
5.84	3.900	10.56	34.69	3.910	0.27	6	16.22	105.00	34.73	70.27	54.10	0.28	0.00	6	1.91	47.22
5.86	3.780	10.56	34.83	3.790	0.28	6	16.21	105.32	34.92	70.40	52.30	0.29	0.00	6	1.93	45.79
5.88	3.730	11.43	35.00	3.740	0.31	6	16.30	105.65	35.12	70.53	51.49	0.31	0.00	6	1.95	45.23
5.90	3.700	12.29	35.13	3.710	0.33	6	16.38	105.98	35.32	70.66	50.96	0.34	0.00	6	1.97	44.90
5.92	3.650	13.02	35.30	3.660	0.36	6	16.44	106.30	35.51	70.79	50.16	0.37	0.00	6	1.98	44.32
5.94	3.720	13.39	35.47	3.730	0.36	6	16.48	106.63	35.71	70.92	51.05	0.37	0.00	6	1.98	45.10
5.96	3.830	13.11	35.63	3.840	0.34	6	16.46	106.96	35.90	71.06	52.49	0.35	0.00	6	1.96	46.30
5.98	3.810	12.70	35.83	3.820	0.33	6	16.43	107.29	36.10	71.19	52.11	0.34	0.00	6	1.96	45.98
6.00	3.750	12.29	35.97	3.760	0.33	6	16.38	107.62	36.30	71.32	51.17	0.34	0.00	6	1.96	45.21
6.02	3.750	12.16	36.13	3.760	0.32	6	16.37	107.95	36.49	71.45	51.07	0.33	0.00	6	1.96	45.14
6.04	3.840	11.75	36.30	3.850	0.31	6	16.34	108.27	36.69	71.58	52.23	0.31	0.00	6	1.94	46.10
6.06	4.010	11.47	36.50	4.020	0.29	6	16.33	108.60	36.89	71.71	54.50	0.29	0.00	6	1.92	47.97
6.08	4.290	11.61	36.66	4.300	0.27	6	16.37	108.93	37.08	71.85	58.30	0.28	0.00	6	1.88	51.12
6.10	4.460	11.75	36.86	4.470	0.26	6	16.40	109.25	37.28	71.98	60.55	0.27	0.00	6	1.86	53.01
6.12	4.380	12.52	37.03	4.390	0.29	6	16.46	109.58	37.47	72.11	59.32	0.29	0.00	6	1.88	52.11
6.14	4.380	12.52	37.11	4.390	0.29	6	16.46	109.91	37.67	72.24	59.21	0.29	0.00	6	1.88	52.05
6.16	4.130	12.58	37.13	4.140	0.30	6	16.45	110.24	37.87	72.38	55.64	0.31	0.00	6	1.92	49.15
6.18	4.150	12.28	37.33	4.160	0.30	6	16.42	110.57	38.06	72.51	55.81	0.30	0.00	6	1.91	49.30
6.20	4.010	12.24	37.52	4.020	0.30	6	16.40	110.90	38.26	72.64	53.78	0.31	0.00	6	1.93	47.65
6.22	3.860	12.34	37.72	3.870	0.32	6	16.40	111.23	38.46	72.77	51.62	0.33	0.00	6	1.95	45.89
6.24	3.740	12.48	37.88	3.750	0.33	6	16.40	111.56	38.65	72.91	49.87	0.34	0.00	6	1.97	44.48
6.26	3.690	11.25	38.05	3.700	0.30	6	16.27	111.88	38.85	73.03	49.10	0.31	0.00	6	1.96	43.77
6.28	3.720	11.53	38.25	3.730	0.31	6	16.30	112.21	39.04	73.16	49.42	0.32	0.00	6	1.96	44.09
6.30	3.820	10.80	38.41	3.830	0.28	6	16.24	112.53	39.24	73.29	50.69	0.29	0.00	6	1.94	45.12
6.32	3.950	10.16	38.55	3.960	0.26	6	16.18	112.86	39.44	73.42	52.37	0.26	0.00	6	1.91	46.50
6.34	4.060	9.02	38.72	4.070	0.22	6	16.06	113.18	39.63	73.55	53.77	0.23	0.00	6	1.88	47.61
6.36	4.160	7.43	38.88	4.170	0.18	6	15.84	113.50	39.83	73.67	55.03	0.18	0.00	6	1.85	48.57
6.38	4.350	6.11	39.02	4.360	0.14	6	15.63	113.81	40.02	73.79	57.52	0.14	0.00	6	1.81	50.55
6.40	4.490	5.33	39.19	4.500	0.12	6	15.49	114.12	40.22	73.90	59.32	0.12	0.00	6	1.78	52.01

In situ data				Basic output data						ARENILE PRINCIPE DI PIEMONTE - VIAREGGIO (LU)					CPTu 02	
Depth	qc	fs	u_2	qt	Rf	SBT	γ	σ,v	u_0	σ',v_0	Qt1	Fr	Bq	SBTn	Ic	Qtn
(m)	(MPa)	(kPa)	(kPa)	(MPa)	(%)		kN/m^3	(kPa)	(kPa)	(kPa)		(%)				
6.42	4.360	5.33	39.36	4.370	0.12	6	15.48	114.43	40.42	74.01	57.47	0.13	0.00	6	1.80	50.51
6.44	4.000	6.88	39.52	4.010	0.17	6	15.74	114.74	40.61	74.13	52.52	0.18	0.00	6	1.86	46.54
6.46	3.730	8.34	39.72	3.740	0.22	6	15.93	115.06	40.81	74.25	48.79	0.23	0.00	6	1.92	43.56
6.48	3.490	9.93	39.88	3.500	0.28	6	16.11	115.38	41.01	74.38	45.48	0.29	0.00	6	1.98	40.91
6.50	3.320	12.12	40.08	3.330	0.36	5	16.32	115.71	41.20	74.51	43.12	0.38	0.00	6	2.04	39.06
6.52	3.260	13.58	40.25	3.270	0.42	5	16.44	116.04	41.40	74.64	42.23	0.43	0.00	6	2.07	38.41
6.54	3.270	13.94	40.38	3.280	0.43	5	16.47	116.36	41.59	74.77	42.29	0.44	0.00	6	2.07	38.50
6.56	3.350	13.62	40.58	3.360	0.41	5	16.46	116.69	41.79	74.90	43.27	0.42	0.00	6	2.06	39.35
6.58	3.510	12.85	40.75	3.520	0.37	6	16.41	117.02	41.99	75.04	45.33	0.38	0.00	6	2.02	41.08
6.60	3.770	11.62	40.88	3.780	0.31	6	16.32	117.35	42.18	75.17	48.70	0.32	0.00	6	1.96	43.90
6.62	4.140	9.57	41.05	4.150	0.23	6	16.13	117.67	42.38	75.29	53.53	0.24	0.00	6	1.89	47.87
6.64	4.470	7.84	41.19	4.480	0.18	6	15.93	117.99	42.58	75.42	57.81	0.18	0.00	6	1.82	51.38
6.66	4.720	6.93	41.36	4.730	0.15	6	15.81	118.31	42.77	75.54	61.03	0.15	0.00	6	1.78	54.04
6.68	5.070	7.11	41.49	5.080	0.14	6	15.87	118.63	42.97	75.66	65.55	0.14	0.00	6	1.75	57.88
6.70	5.230	7.84	41.66	5.240	0.15	6	15.99	118.95	43.16	75.78	67.55	0.15	0.00	6	1.74	59.66
6.72	5.280	9.84	41.86	5.290	0.19	6	16.26	119.27	43.36	75.91	68.10	0.19	0.00	6	1.76	60.31
6.74	5.300	12.80	41.99	5.310	0.24	6	16.56	119.60	43.56	76.04	68.24	0.25	0.00	6	1.79	60.68
6.76	5.310	16.04	42.16	5.320	0.30	6	16.82	119.93	43.75	76.18	68.24	0.31	0.00	6	1.83	60.95
6.78	5.300	18.00	42.30	5.310	0.34	6	16.95	120.27	43.95	76.32	67.98	0.35	0.00	6	1.85	60.89
6.80	5.220	19.46	42.46	5.230	0.37	6	17.04	120.61	44.15	76.47	66.80	0.38	0.00	6	1.87	60.02
6.82	5.040	20.46	42.63	5.050	0.41	6	17.08	120.95	44.34	76.61	64.32	0.42	0.00	6	1.90	58.01
6.84	4.690	21.32	42.83	4.700	0.45	6	17.10	121.30	44.54	76.76	59.63	0.47	0.00	6	1.95	54.10
6.86	4.310	21.46	43.02	4.320	0.50	6	17.08	121.64	44.73	76.90	54.57	0.51	0.00	6	2.00	49.79
6.88	3.840	19.91	43.19	3.850	0.52	5	16.95	121.98	44.93	77.05	48.37	0.53	0.00	6	2.05	44.39
6.90	3.680	19.87	43.38	3.690	0.54	5	16.93	122.32	45.13	77.19	46.20	0.56	0.00	5	2.08	42.54
6.92	3.660	20.32	43.49	3.670	0.55	5	16.95	122.66	45.32	77.33	45.85	0.57	0.00	5	2.09	42.28
6.94	3.740	19.82	43.66	3.750	0.53	5	16.93	122.99	45.52	77.48	46.80	0.55	0.00	6	2.07	43.10
6.96	3.760	18.04	43.86	3.770	0.48	5	16.82	123.33	45.71	77.62	46.97	0.49	0.00	6	2.05	43.20
6.98	3.670	16.27	44.05	3.680	0.44	5	16.70	123.67	45.91	77.75	45.72	0.46	0.00	6	2.05	42.06
7.00	3.530	15.35	44.22	3.540	0.43	5	16.61	124.00	46.11	77.89	43.84	0.45	0.00	6	2.06	40.40
7.02	3.410	14.17	44.41	3.420	0.41	5	16.51	124.33	46.30	78.03	42.22	0.43	0.00	6	2.06	38.96
7.04	3.340	13.21	44.55	3.350	0.39	5	16.42	124.66	46.50	78.16	41.25	0.41	0.00	6	2.06	38.08
7.06	3.320	12.48	44.72	3.330	0.37	5	16.35	124.99	46.70	78.29	40.92	0.39	0.00	6	2.06	37.78
7.08	3.320	11.76	44.88	3.330	0.35	5	16.28	125.31	46.89	78.42	40.85	0.37	0.00	6	2.05	37.71
7.10	3.220	10.43	45.08	3.230	0.32	5	16.13	125.63	47.09	78.55	39.51	0.34	0.00	6	2.05	36.48
7.12	2.980	10.88	45.25	2.990	0.36	5	16.15	125.96	47.28	78.67	36.39	0.38	0.00	5	2.10	33.78
7.14	2.980	10.88	45.41	2.990	0.36	5	16.15	126.28	47.48	78.80	36.33	0.38	0.00	5	2.10	33.74
7.16	2.980	10.88	45.58	2.990	0.36	5	16.15	126.60	47.68	78.93	36.27	0.38	0.00	5	2.10	33.70
7.18	2.530	11.06	45.72	2.540	0.44	5	16.11	126.93	47.87	79.05	30.51	0.46	0.00	5	2.20	28.62
7.20	2.400	10.49	45.92	2.410	0.44	5	16.03	127.25	48.07	79.18	28.82	0.46	0.00	5	2.22	27.10
7.22	2.370	10.36	46.08	2.380	0.44	5	16.01	127.57	48.27	79.30	28.39	0.46	0.00	5	2.23	26.72
7.24	2.410	10.54	46.25	2.420	0.44	5	16.04	127.89	48.46	79.43	28.85	0.46	0.00	5	2.22	27.14
7.26	2.520	11.02	46.39	2.530	0.44	5	16.10	128.21	48.66	79.55	30.18	0.46	0.00	5	2.20	28.37
7.28	2.600	11.37	46.58	2.610	0.44	5	16.15	128.53	48.85	79.68	31.13	0.46	0.00	5	2.19	29.24
7.30	2.570	11.23	46.75	2.580	0.44	5	16.13	128.86	49.05	79.81	30.71	0.46	0.00	5	2.19	28.87
7.32	2.500	10.93	46.95	2.510	0.44	5	16.09	129.18	49.25	79.93	29.78	0.46	0.00	5	2.21	28.04
7.34	2.380	10.40	47.14	2.390	0.44	5	16.02	129.50	49.44	80.06	28.23	0.46	0.00	5	2.23	26.64
7.36	2.090	9.14	47.34	2.100	0.44	5	15.82	129.82	49.64	80.18	24.57	0.46	0.00	5	2.28	23.30
7.38	1.750	7.65	47.59	1.760	0.43	5	15.55	130.13	49.83	80.29	20.29	0.47	0.00	5	2.36	19.37
7.40	1.590	10.69	47.76	1.600	0.67	5	15.89	130.45	50.03	80.41	18.27	0.73	0.00	5	2.47	17.61
7.42	1.520	10.07	48.68	1.530	0.66	5	15.81	130.76	50.23	80.54	17.37	0.72	0.00	5	2.49	16.78
7.44	1.430	15.72	49.75	1.440	1.09	4	16.30	131.09	50.42	80.66	16.23	1.20	0.00	4	2.62	15.84
7.46	1.570	19.55	50.83	1.580	1.24	4	16.58	131.42	50.62	80.80	17.93	1.35	0.00	4	2.60	17.49
7.48	1.680	25.06	51.14	1.690	1.48	4	16.89	131.75	50.82	80.94	19.26	1.61	0.00	4	2.62	18.81
7.50	1.550	23.05	51.28	1.560	1.48	4	16.77	132.09	51.01	81.08	17.61	1.61	0.00	4	2.65	17.25

In situ data				Basic output data				ARENILE PRINCIPE DI PIEMONTE - VIAREGGIO (LU)								CPTu 02
Depth	qc	fs	u_2	qt	Rf	SBT	γ	σ,v	u_0	σ',v_0	Qt1	Fr	Bq	SBTn	Ic	Qtn
(m)	(MPa)	(kPa)	(kPa)	(MPa)	(%)		kN/m^3	(kPa)	(kPa)	(kPa)		(%)				
7.52	1.350	20.55	51.56	1.360	1.51	4	16.58	132.42	51.21	81.21	15.12	1.67	0.00	4	2.71	14.88
7.54	1.510	21.02	51.64	1.520	1.38	4	16.65	132.75	51.40	81.35	17.06	1.51	0.00	4	2.65	16.71
7.56	2.880	20.39	51.60	2.890	0.71	5	16.86	133.09	51.60	81.49	33.84	0.74	0.00	5	2.24	32.12
7.58	4.590	20.14	51.59	4.600	0.44	6	17.03	133.43	51.80	81.63	54.72	0.45	0.00	6	1.97	50.87
7.60	4.810	11.89	51.73	4.820	0.25	6	16.44	133.76	51.99	81.77	57.31	0.25	0.00	6	1.86	52.86
7.62	4.940	7.61	51.93	4.950	0.15	6	15.94	134.09	52.19	81.90	58.81	0.16	0.00	6	1.79	53.99
7.64	5.030	8.06	52.18	5.040	0.16	6	16.01	134.40	52.39	82.02	59.82	0.16	0.00	6	1.78	54.94
7.66	5.080	9.20	52.43	5.090	0.18	6	16.16	134.73	52.58	82.15	60.33	0.19	0.00	6	1.79	55.49
7.68	5.110	6.61	52.63	5.120	0.13	6	15.79	135.05	52.78	82.27	60.60	0.13	0.00	6	1.76	55.62
7.70	5.090	6.33	52.85	5.100	0.12	6	15.74	135.36	52.97	82.39	60.27	0.13	0.00	6	1.76	55.35
7.72	5.040	9.70	53.11	5.050	0.19	6	16.22	135.68	53.17	82.51	59.57	0.20	0.00	6	1.81	54.94
7.74	4.980	10.57	52.93	4.990	0.21	6	16.32	136.01	53.37	82.64	58.74	0.22	0.00	6	1.82	54.28
7.76	4.910	11.44	53.24	4.920	0.23	6	16.40	136.34	53.56	82.77	57.80	0.24	0.00	6	1.84	53.52
7.78	4.710	12.89	53.46	4.720	0.27	6	16.52	136.67	53.76	82.91	55.29	0.28	0.00	6	1.88	51.38
7.80	4.070	13.94	53.80	4.080	0.34	6	16.56	137.00	53.96	83.04	47.49	0.35	0.00	6	1.98	44.46
7.82	3.920	16.17	54.12	3.930	0.41	6	16.71	137.33	54.15	83.18	45.61	0.43	0.00	6	2.02	42.86
7.84	4.320	17.86	54.31	4.330	0.41	6	16.87	137.67	54.35	83.32	50.33	0.43	0.00	6	1.99	47.20
7.86	4.580	22.42	54.42	4.590	0.49	6	17.15	138.01	54.54	83.46	53.35	0.50	0.00	6	2.00	50.10
7.88	4.700	23.24	54.56	4.710	0.49	6	17.20	138.35	54.74	83.61	54.69	0.51	0.00	6	1.99	51.36
7.90	4.400	22.01	54.46	4.410	0.50	6	17.11	138.69	54.94	83.76	51.01	0.52	0.00	6	2.02	48.03
7.92	3.960	20.28	54.66	3.970	0.51	5	16.98	139.03	55.13	83.90	45.67	0.53	0.00	6	2.06	43.16
7.94	3.610	15.35	54.88	3.620	0.42	5	16.62	139.37	55.33	84.04	41.43	0.44	0.00	6	2.07	39.18
7.96	3.280	12.48	55.17	3.290	0.38	5	16.35	139.70	55.52	84.17	37.44	0.40	0.00	5	2.09	35.48
7.98	2.980	11.30	55.39	2.990	0.38	5	16.20	140.02	55.72	84.30	33.82	0.40	0.00	5	2.13	32.14
8.00	2.770	10.47	55.59	2.780	0.38	5	16.08	140.34	55.92	84.43	31.28	0.40	0.00	5	2.16	29.80
8.02	2.680	10.13	55.78	2.690	0.38	5	16.03	140.66	56.11	84.55	30.17	0.40	0.00	5	2.17	28.78
8.04	2.720	10.28	56.01	2.730	0.38	5	16.05	140.99	56.31	84.68	30.59	0.40	0.00	5	2.17	29.19
8.06	2.860	10.81	56.20	2.870	0.38	5	16.13	141.31	56.51	84.80	32.19	0.40	0.00	5	2.14	30.69
8.08	3.270	12.36	56.43	3.280	0.38	5	16.34	141.63	56.70	84.93	36.97	0.39	0.00	5	2.09	35.14
8.10	3.730	14.10	56.60	3.740	0.38	6	16.54	141.96	56.90	85.06	42.31	0.39	0.00	6	2.04	40.10
8.12	4.410	16.67	56.82	4.420	0.38	6	16.79	142.30	57.09	85.20	50.22	0.39	0.00	6	1.97	47.43
8.14	4.820	18.22	57.02	4.830	0.38	6	16.93	142.64	57.29	85.35	54.94	0.39	0.00	6	1.93	51.81
8.16	4.820	18.22	57.10	4.830	0.38	6	16.93	142.97	57.49	85.49	54.84	0.39	0.00	6	1.93	51.75
8.18	5.280	19.96	60.07	5.290	0.38	6	17.07	143.31	57.68	85.63	60.13	0.39	0.00	6	1.90	56.65
8.20	5.760	21.78	60.23	5.770	0.38	6	17.20	143.66	57.88	85.78	65.62	0.39	0.00	6	1.86	61.74
8.22	6.150	23.25	60.43	6.160	0.38	6	17.30	144.00	58.08	85.93	70.04	0.39	0.00	6	1.84	65.85
8.24	6.290	23.78	60.63	6.300	0.38	6	17.34	144.35	58.27	86.08	71.54	0.39	0.00	6	1.83	67.28
8.26	6.420	24.27	60.73	6.430	0.38	6	17.37	144.70	58.47	86.23	72.92	0.39	0.00	6	1.82	68.59
8.28	6.590	24.92	60.87	6.600	0.38	6	17.41	145.05	58.66	86.38	74.75	0.39	0.00	6	1.81	70.33
8.30	6.520	24.65	61.04	6.530	0.38	6	17.39	145.39	58.86	86.53	73.81	0.39	0.00	6	1.82	69.51
8.32	6.040	22.84	61.06	6.050	0.38	6	17.28	145.74	59.06	86.68	68.14	0.39	0.00	6	1.85	64.33
8.34	5.610	21.21	61.28	5.620	0.38	6	17.16	146.08	59.25	86.83	63.07	0.39	0.00	6	1.88	59.68
8.36	3.030	20.85	61.28	3.040	0.69	5	16.91	146.42	59.45	86.97	33.30	0.72	0.00	5	2.24	32.14
8.38	2.130	21.60	62.03	2.140	1.01	5	16.81	146.76	59.64	87.11	22.91	1.08	0.00	5	2.46	22.38
8.40	1.410	27.84	62.54	1.420	1.96	4	16.95	147.10	59.84	87.26	14.62	2.18	0.00	4	2.79	14.53
8.42	1.020	33.44	62.94	1.030	3.24	3	17.04	147.44	60.04	87.40	10.13	3.78	0.00	3	3.05	10.13
8.44	1.360	34.03	62.99	1.370	2.48	4	17.17	147.78	60.23	87.55	13.99	2.78	0.00	4	2.86	13.96
8.46	2.760	36.04	63.51	2.770	1.30	5	17.50	148.13	60.43	87.70	29.93	1.37	0.00	5	2.42	29.21
8.48	4.090	26.79	63.56	4.100	0.65	5	17.31	148.48	60.63	87.85	45.01	0.68	0.00	5	2.11	43.29
8.50	5.300	10.89	63.38	5.310	0.20	6	16.38	148.81	60.82	87.99	58.69	0.21	0.00	6	1.81	55.64
8.52	6.130	10.64	63.16	6.140	0.17	6	16.40	149.14	61.02	88.12	68.02	0.18	0.00	6	1.73	64.27
8.54	6.220	8.64	63.18	6.230	0.14	6	16.17	149.46	61.21	88.24	68.94	0.14	0.00	6	1.70	65.09
8.56	6.230	8.65	63.03	6.240	0.14	6	16.17	149.78	61.41	88.37	68.95	0.14	0.00	6	1.70	65.14
8.58	6.130	8.52	63.20	6.140	0.14	6	16.15	150.11	61.61	88.50	67.71	0.14	0.00	6	1.70	64.04
8.60	6.290	8.74	63.33	6.300	0.14	6	16.19	150.43	61.80	88.63	69.42	0.14	0.00	6	1.69	65.67

In situ data				Basic output data						ARENILE PRINCIPE DI PIEMONTE - VIAREGGIO (LU)					CPTu 02	
Depth	qc	fs	u_2	qt	Rf	SBT	γ	σ,v	u_0	σ',v_0	Qt1	Fr	Bq	SBTn	Ic	Qtn
(m)	(MPa)	(kPa)	(kPa)	(MPa)	(%)		kN/m^3	(kPa)	(kPa)	(kPa)		(%)				
8.62	6.520	9.06	63.47	6.530	0.14	6	16.24	150.75	62.00	88.75	71.91	0.14	0.00	6	1.68	68.02
8.64	6.870	9.54	63.64	6.880	0.14	6	16.32	151.08	62.20	88.88	75.73	0.14	0.00	6	1.66	71.62
8.66	7.260	10.09	63.80	7.270	0.14	6	16.41	151.41	62.39	89.02	80.00	0.14	0.00	6	1.63	75.63
8.68	7.750	10.77	63.91	7.760	0.14	6	16.51	151.74	62.59	89.15	85.37	0.14	0.00	6	1.61	80.67
8.70	7.960	11.06	63.96	7.970	0.14	6	16.55	152.07	62.78	89.28	87.59	0.14	0.00	6	1.60	82.79
8.72	7.770	10.79	64.07	7.780	0.14	6	16.51	152.40	62.98	89.42	85.33	0.14	0.00	6	1.61	80.75
8.74	7.180	9.97	64.41	7.190	0.14	6	16.39	152.73	63.18	89.55	78.62	0.14	0.00	6	1.64	74.56
8.76	7.070	9.82	64.58	7.080	0.14	6	16.37	153.05	63.37	89.68	77.27	0.14	0.00	6	1.65	73.36
8.78	6.960	13.44	64.78	6.970	0.19	6	16.72	153.39	63.57	89.82	75.93	0.20	0.00	6	1.69	72.26
8.80	6.850	15.31	65.03	6.860	0.22	6	16.87	153.72	63.77	89.96	74.58	0.23	0.00	6	1.72	71.11
8.82	6.760	18.59	65.11	6.770	0.27	6	17.08	154.06	63.96	90.10	73.46	0.28	0.00	6	1.76	70.20
8.84	6.500	21.51	65.04	6.510	0.33	6	17.24	154.41	64.16	90.25	70.45	0.34	0.00	6	1.80	67.50
8.86	6.070	18.82	65.18	6.080	0.31	6	17.06	154.75	64.35	90.40	65.58	0.32	0.00	6	1.82	62.91
8.88	5.430	13.71	65.43	5.440	0.25	6	16.65	155.09	64.55	90.54	58.41	0.26	0.00	6	1.83	56.10
8.90	4.940	10.39	65.72	4.950	0.21	6	16.29	155.41	64.75	90.67	52.91	0.22	0.00	6	1.85	50.88
8.92	4.450	8.02	65.97	4.460	0.18	6	15.96	155.74	64.94	90.79	47.44	0.19	0.00	6	1.88	45.69
8.94	3.890	5.01	66.23	3.900	0.13	6	15.36	156.05	65.14	90.91	41.22	0.13	0.00	6	1.90	39.75
8.96	3.130	6.61	66.57	3.140	0.21	6	15.60	156.36	65.33	91.02	32.82	0.22	0.00	6	2.05	31.83
8.98	2.430	15.72	66.97	2.440	0.64	5	16.50	156.68	65.53	91.15	25.09	0.69	0.00	5	2.33	24.59
9.00	2.160	22.64	67.28	2.170	1.04	5	16.87	157.02	65.73	91.29	22.09	1.12	0.00	5	2.48	21.77
9.02	3.070	24.60	67.21	3.080	0.80	5	17.10	157.36	65.92	91.43	32.00	0.84	0.00	5	2.28	31.34
9.04	4.710	26.75	67.15	4.720	0.57	6	17.36	157.71	66.12	91.59	49.85	0.59	0.00	6	2.04	48.44
9.06	5.780	14.26	66.99	5.790	0.25	6	16.72	158.04	66.32	91.73	61.44	0.25	0.00	6	1.81	59.27
9.08	5.810	16.69	67.16	5.820	0.29	6	16.90	158.38	66.51	91.87	61.67	0.29	0.00	6	1.83	59.57
9.10	5.530	15.88	67.41	5.540	0.29	6	16.83	158.72	66.71	92.01	58.53	0.29	0.00	6	1.85	56.61
9.12	5.120	14.70	67.67	5.130	0.29	6	16.71	159.05	66.90	92.15	53.99	0.30	0.00	6	1.88	52.30
9.14	4.950	14.22	67.86	4.960	0.29	6	16.66	159.38	67.10	92.28	52.06	0.30	0.00	6	1.90	50.49
9.16	4.950	14.22	67.95	4.960	0.29	6	16.66	159.72	67.30	92.42	51.98	0.30	0.00	6	1.90	50.44
9.18	4.410	12.67	68.70	4.420	0.29	6	16.48	160.05	67.49	92.55	46.07	0.30	0.00	6	1.95	44.79
9.20	4.350	12.49	68.89	4.360	0.29	6	16.46	160.38	67.69	92.69	45.35	0.30	0.00	6	1.95	44.13
9.22	4.110	11.80	69.12	4.120	0.29	6	16.37	160.70	67.89	92.82	42.70	0.30	0.00	6	1.98	41.60
9.24	3.870	11.11	69.28	3.880	0.29	6	16.28	161.03	68.08	92.95	40.05	0.30	0.00	6	2.00	39.07
9.26	3.700	10.63	69.48	3.710	0.29	6	16.21	161.35	68.28	93.08	38.17	0.30	0.00	6	2.02	37.27
9.28	3.570	10.25	69.65	3.580	0.29	6	16.15	161.68	68.47	93.20	36.72	0.30	0.00	6	2.04	35.88
9.30	3.500	10.05	69.81	3.510	0.29	6	16.12	162.00	68.67	93.33	35.92	0.30	0.00	6	2.05	35.12
9.32	3.450	9.91	70.01	3.460	0.29	6	16.10	162.32	68.87	93.46	35.33	0.30	0.00	6	2.05	34.57
9.34	3.420	9.82	70.18	3.430	0.29	6	16.09	162.64	69.06	93.58	34.96	0.30	0.00	6	2.06	34.23
9.36	3.460	9.94	70.31	3.470	0.29	6	16.11	162.97	69.26	93.71	35.33	0.30	0.00	6	2.05	34.61
9.38	3.630	10.43	70.51	3.640	0.29	6	16.18	163.29	69.45	93.83	37.10	0.30	0.00	6	2.03	36.33
9.40	3.830	11.00	70.65	3.840	0.29	6	16.26	163.61	69.65	93.96	39.17	0.30	0.00	6	2.01	38.36
9.42	4.060	11.66	70.78	4.070	0.29	6	16.35	163.94	69.85	94.09	41.56	0.30	0.00	6	1.99	40.69
9.44	4.400	12.64	70.92	4.410	0.29	6	16.48	164.27	70.04	94.23	45.10	0.30	0.00	6	1.95	44.15
9.46	4.840	13.90	71.12	4.850	0.29	6	16.62	164.60	70.24	94.36	49.70	0.30	0.00	6	1.91	48.63
9.48	5.030	14.45	71.37	5.040	0.29	6	16.68	164.93	70.44	94.50	51.63	0.30	0.00	6	1.90	50.54
9.50	4.970	14.27	71.60	4.980	0.29	6	16.66	165.27	70.63	94.64	50.92	0.30	0.00	6	1.90	49.87
9.52	4.690	13.47	71.79	4.700	0.29	6	16.57	165.60	70.83	94.77	47.89	0.30	0.00	6	1.93	46.95
9.54	4.430	12.72	71.99	4.440	0.29	6	16.49	165.93	71.02	94.91	45.08	0.30	0.00	6	1.95	44.24
9.56	4.260	12.24	72.18	4.270	0.29	6	16.43	166.26	71.22	95.04	43.23	0.30	0.00	6	1.97	42.46
9.58	4.090	11.75	72.41	4.100	0.29	6	16.36	166.59	71.42	95.17	41.38	0.30	0.00	6	1.99	40.68
9.60	4.010	11.52	72.55	4.020	0.29	6	16.33	166.91	71.61	95.30	40.48	0.30	0.00	6	1.99	39.82
9.62	4.050	11.63	72.71	4.060	0.29	6	16.35	167.24	71.81	95.43	40.84	0.30	0.00	6	1.99	40.19
9.64	4.170	11.98	72.85	4.180	0.29	6	16.39	167.57	72.01	95.56	42.04	0.30	0.00	6	1.98	41.38
9.66	4.370	12.55	72.99	4.380	0.29	6	16.46	167.90	72.20	95.69	44.06	0.30	0.00	6	1.96	43.38
9.68	4.560	13.10	73.15	4.570	0.29	6	16.53	168.23	72.40	95.83	45.98	0.30	0.00	6	1.94	45.28
9.70	4.720	13.56	73.32	4.730	0.29	6	16.58	168.56	72.59	95.96	47.58	0.30	0.00	6	1.93	46.87

In situ data				Basic output data						ARENILE PRINCIPE DI PIEMONTE - VIAREGGIO (LU)						CPTu 02	
Depth	qc	fs	u_2	qt	Rf	SBT	γ	σ,v	u_0	σ',v_0	Qt1	Fr	Bq	SBTn	Ic	Qtn
(m)	(MPa)	(kPa)	(kPa)	(MPa)	(%)		kN/m^3	(kPa)	(kPa)	(kPa)		(%)				
9.72	4.810	13.81	73.52	4.820	0.29	6	16.61	168.89	72.79	96.10	48.45	0.30	0.00	6	1.92	47.74
9.74	4.830	13.87	73.71	4.840	0.29	6	16.62	169.22	72.99	96.23	48.58	0.30	0.00	6	1.92	47.90
9.76	4.790	13.76	73.91	4.800	0.29	6	16.61	169.55	73.18	96.37	48.10	0.30	0.00	6	1.92	47.45
9.78	4.810	13.81	74.05	4.820	0.29	6	16.61	169.89	73.38	96.51	48.23	0.30	0.00	6	1.92	47.60
9.80	4.900	10.89	74.18	4.910	0.22	6	16.35	170.22	73.58	96.64	49.10	0.23	0.00	6	1.88	48.45
9.82	4.990	11.94	74.35	5.000	0.24	6	16.46	170.54	73.77	96.77	49.96	0.25	0.00	6	1.88	49.33
9.84	5.100	12.53	74.55	5.110	0.24	6	16.52	170.87	73.97	96.91	51.02	0.25	0.00	6	1.87	50.40
9.86	5.150	13.40	74.74	5.160	0.26	6	16.60	171.21	74.16	97.04	51.46	0.27	0.00	6	1.88	50.87
9.88	5.170	14.08	74.94	5.180	0.27	6	16.66	171.54	74.36	97.18	51.59	0.28	0.00	6	1.88	51.03
9.90	5.180	14.72	75.16	5.200	0.28	6	16.71	171.87	74.56	97.32	51.62	0.29	0.00	6	1.89	51.08
9.92	5.230	14.67	75.30	5.250	0.28	6	16.71	172.21	74.75	97.45	52.05	0.29	0.00	6	1.89	51.54
9.94	5.310	15.04	75.47	5.330	0.28	6	16.75	172.54	74.95	97.59	52.80	0.29	0.00	6	1.88	52.30
9.96	5.390	15.35	75.63	5.410	0.28	6	16.78	172.88	75.14	97.73	53.54	0.29	0.00	6	1.88	53.06
9.98	5.390	15.81	75.86	5.410	0.29	6	16.81	173.21	75.34	97.87	53.46	0.30	0.00	6	1.88	53.02
10.00	5.410	16.36	76.05	5.430	0.30	6	16.85	173.55	75.54	98.01	53.58	0.31	0.00	6	1.88	53.17
10.02	5.520	16.45	76.19	5.540	0.30	6	16.87	173.89	75.73	98.15	54.62	0.31	0.00	6	1.87	54.23
10.04	5.540	16.45	76.42	5.560	0.30	6	16.87	174.22	75.93	98.30	54.74	0.31	0.00	6	1.87	54.38
10.06	5.470	16.81	76.64	5.490	0.31	6	16.89	174.56	76.13	98.44	53.95	0.32	0.00	6	1.88	53.63
10.08	5.440	17.45	76.81	5.460	0.32	6	16.93	174.90	76.32	98.58	53.57	0.33	0.00	6	1.89	53.28
10.10	5.460	17.91	77.00	5.480	0.33	6	16.96	175.24	76.52	98.72	53.69	0.34	0.00	6	1.90	53.43
10.12	5.510	18.36	77.14	5.530	0.33	6	16.99	175.58	76.71	98.87	54.11	0.34	0.00	6	1.90	53.88
10.14	5.580	18.18	77.31	5.600	0.32	6	16.98	175.92	76.91	99.01	54.74	0.34	0.00	6	1.89	54.53
10.16	5.580	18.18	77.48	5.600	0.32	6	16.98	176.26	77.11	99.15	54.66	0.34	0.00	6	1.89	54.48
10.18	5.420	10.01	77.96	5.440	0.18	6	16.29	176.59	77.30	99.28	52.97	0.19	0.00	6	1.82	52.81
10.20	5.660	10.61	78.10	5.680	0.19	6	16.37	176.91	77.50	99.41	55.31	0.19	0.00	6	1.80	55.18
10.22	5.710	10.11	78.30	5.730	0.18	6	16.32	177.24	77.70	99.54	55.74	0.18	0.00	6	1.79	55.63
10.24	5.670	10.57	78.46	5.690	0.19	6	16.37	177.57	77.89	99.68	55.26	0.19	0.00	6	1.80	55.19
10.26	5.570	11.85	78.66	5.590	0.21	6	16.49	177.90	78.09	99.81	54.18	0.22	0.00	6	1.82	54.14
10.28	5.520	13.08	78.88	5.540	0.24	6	16.60	178.23	78.28	99.94	53.61	0.24	0.00	6	1.84	53.59
10.30	5.490	14.22	79.08	5.510	0.26	6	16.70	178.56	78.48	100.08	53.23	0.27	0.00	6	1.86	53.25
10.32	5.460	15.31	79.22	5.480	0.28	6	16.78	178.90	78.68	100.22	52.85	0.29	0.00	6	1.87	52.90
10.34	5.430	16.95	79.35	5.450	0.31	6	16.89	179.23	78.87	100.36	52.48	0.32	0.00	6	1.89	52.55
10.36	5.430	18.50	79.49	5.450	0.34	6	16.99	179.57	79.07	100.50	52.40	0.35	0.00	6	1.91	52.50
10.38	5.700	18.50	79.63	5.720	0.32	6	17.01	179.91	79.26	100.65	55.00	0.33	0.00	6	1.88	55.14
10.40	6.040	17.68	79.74	6.060	0.29	6	16.98	180.25	79.46	100.79	58.30	0.30	0.00	6	1.84	58.48
10.42	6.340	17.27	79.87	6.360	0.27	6	16.97	180.59	79.66	100.93	61.18	0.28	0.00	6	1.81	61.42
10.44	6.450	16.22	80.10	6.470	0.25	6	16.91	180.93	79.85	101.08	62.18	0.26	0.00	6	1.79	62.46
10.46	6.410	16.22	80.27	6.430	0.25	6	16.91	181.27	80.05	101.22	61.70	0.26	0.00	6	1.79	62.01
10.48	6.330	16.45	80.49	6.350	0.26	6	16.92	181.61	80.25	101.36	60.82	0.27	0.00	6	1.80	61.16
10.50	6.200	17.18	80.72	6.220	0.28	6	16.96	181.95	80.44	101.50	59.45	0.28	0.00	6	1.82	59.81
10.52	6.090	18.91	80.91	6.110	0.31	6	17.06	182.29	80.64	101.65	58.28	0.32	0.00	6	1.85	58.66
10.54	5.980	21.23	81.08	6.000	0.35	6	17.19	182.63	80.83	101.80	57.11	0.37	0.00	6	1.88	57.50
10.56	5.870	23.46	81.25	5.890	0.40	6	17.30	182.98	81.03	101.94	55.94	0.41	0.00	6	1.91	56.35
10.58	5.780	24.28	81.47	5.800	0.42	6	17.33	183.32	81.23	102.09	54.98	0.43	0.00	6	1.93	55.40
10.60	5.680	24.69	81.64	5.700	0.43	6	17.34	183.67	81.42	102.25	53.92	0.45	0.00	6	1.94	54.35
10.62	5.610	24.92	81.83	5.630	0.44	6	17.35	184.02	81.62	102.40	53.15	0.46	0.00	6	1.95	53.60
10.64	5.470	24.56	82.03	5.490	0.45	6	17.32	184.36	81.82	102.55	51.70	0.46	0.00	6	1.96	52.16
10.66	5.240	24.15	82.25	5.260	0.46	6	17.29	184.71	82.01	102.70	49.39	0.48	0.00	6	1.99	49.84
10.68	4.980	23.97	82.42	5.000	0.48	6	17.26	185.05	82.21	102.85	46.78	0.50	0.00	6	2.02	47.22
10.70	4.800	24.06	82.62	4.820	0.50	6	17.25	185.40	82.40	102.99	44.96	0.52	0.00	6	2.04	45.39
10.72	4.700	24.01	82.81	4.720	0.51	6	17.24	185.74	82.60	103.14	43.93	0.53	0.00	6	2.05	44.36
10.74	4.680	23.60	83.01	4.700	0.50	6	17.22	186.09	82.80	103.29	43.67	0.52	0.00	6	2.05	44.12
10.76	4.790	23.37	83.15	4.810	0.49	6	17.22	186.43	82.99	103.44	44.67	0.51	0.00	6	2.04	45.16
10.78	5.020	22.60	83.25	5.040	0.45	6	17.19	186.78	83.19	103.59	46.82	0.47	0.00	6	2.00	47.38
10.80	5.300	20.64	83.45	5.320	0.39	6	17.11	187.12	83.39	103.73	49.45	0.40	0.00	6	1.95	50.10

In situ data				Basic output data						ARENILE PRINCIPE DI PIEMONTE - VIAREGGIO (LU)					CPTu 02	
Depth	qc	fs	u_2	qt	Rf	SBT	γ	σ,v	u_0	σ',v_0	Qt1	Fr	Bq	SBTn	Ic	Qtn
(m)	(MPa)	(kPa)	(kPa)	(MPa)	(%)		kN/m^3	(kPa)	(kPa)	(kPa)		(%)				
10.82	5.600	18.41	83.62	5.620	0.33	6	17.00	187.46	83.58	103.88	52.27	0.34	0.00	6	1.90	53.02
10.84	5.800	17.50	83.78	5.820	0.30	6	16.96	187.80	83.78	104.02	54.11	0.31	0.00	6	1.87	54.94
10.86	5.990	17.22	83.95	6.010	0.29	6	16.95	188.14	83.97	104.16	55.86	0.30	0.00	6	1.85	56.76
10.88	6.150	17.13	84.15	6.170	0.28	6	16.95	188.48	84.17	104.31	57.32	0.29	0.00	6	1.83	58.29
10.90	6.260	17.36	84.31	6.280	0.28	6	16.98	188.82	84.37	104.45	58.29	0.29	0.00	6	1.83	59.32
10.92	6.260	18.36	84.54	6.280	0.29	6	17.04	189.16	84.56	104.59	58.20	0.30	0.00	6	1.84	59.25
10.94	6.190	19.68	84.73	6.210	0.32	6	17.12	189.50	84.76	104.74	57.45	0.33	0.00	6	1.85	58.50
10.96	5.990	22.01	84.96	6.010	0.37	6	17.23	189.84	84.95	104.89	55.46	0.38	0.00	6	1.89	56.46
10.98	5.890	23.37	85.12	5.910	0.40	6	17.29	190.19	85.15	105.04	54.43	0.41	0.00	6	1.92	55.42
11.00	5.860	24.15	85.32	5.880	0.41	6	17.33	190.53	85.35	105.19	54.06	0.42	0.00	6	1.93	55.06
11.02	5.720	24.51	85.57	5.740	0.43	6	17.34	190.88	85.54	105.34	52.65	0.44	0.00	6	1.94	53.64
11.04	5.600	24.65	85.74	5.620	0.44	6	17.34	191.23	85.74	105.49	51.44	0.45	0.00	6	1.96	52.41
11.06	5.550	24.10	85.91	5.570	0.43	6	17.31	191.57	85.94	105.64	50.89	0.45	0.00	6	1.96	51.87
11.08	5.570	23.19	86.10	5.590	0.42	6	17.26	191.92	86.13	105.79	51.00	0.43	0.00	6	1.95	52.03
11.10	5.610	21.23	86.30	5.630	0.38	6	17.17	192.26	86.33	105.94	51.30	0.39	0.00	6	1.93	52.39
11.12	5.590	20.14	86.50	5.610	0.36	6	17.10	192.61	86.52	106.08	51.04	0.37	0.00	6	1.92	52.15
11.14	5.550	19.64	86.66	5.570	0.35	6	17.07	192.95	86.72	106.23	50.59	0.37	0.00	6	1.92	51.72
11.16	5.550	19.64	86.83	5.570	0.35	6	17.07	193.29	86.92	106.37	50.52	0.37	0.00	6	1.92	51.67
11.18	5.380	8.29	87.23	5.400	0.15	6	16.07	193.62	87.11	106.51	48.86	0.16	0.00	6	1.82	50.12
11.20	5.390	9.16	87.28	5.410	0.17	6	16.18	193.94	87.31	106.63	48.89	0.18	0.00	6	1.83	50.16
11.22	5.420	10.66	87.45	5.440	0.20	6	16.36	194.27	87.51	106.76	49.11	0.20	0.00	6	1.84	50.39
11.24	5.480	11.48	87.62	5.500	0.21	6	16.45	194.60	87.70	106.90	49.61	0.22	0.00	6	1.85	50.92
11.26	5.620	12.03	87.78	5.640	0.21	6	16.51	194.93	87.90	107.03	50.85	0.22	0.00	6	1.84	52.24
11.28	5.730	13.12	87.98	5.750	0.23	6	16.62	195.26	88.09	107.17	51.81	0.24	0.00	6	1.84	53.25
11.30	5.810	13.94	88.15	5.830	0.24	6	16.69	195.59	88.29	107.30	52.49	0.25	0.00	6	1.84	53.97
11.32	6.010	13.67	88.31	6.030	0.23	6	16.68	195.93	88.49	107.44	54.28	0.23	0.00	6	1.82	55.87
11.34	6.260	15.72	88.45	6.280	0.25	6	16.86	196.26	88.68	107.58	56.53	0.26	0.00	6	1.82	58.22
11.36	6.430	16.68	88.62	6.450	0.26	6	16.94	196.60	88.88	107.72	58.03	0.27	0.00	6	1.81	59.81
11.38	6.590	17.40	88.75	6.610	0.26	6	17.00	196.94	89.07	107.87	59.43	0.27	0.00	6	1.81	61.30
11.40	6.700	18.54	88.89	6.720	0.28	6	17.08	197.28	89.27	108.01	60.37	0.28	0.00	6	1.81	62.30
11.42	6.790	19.82	89.09	6.810	0.29	6	17.16	197.63	89.47	108.16	61.12	0.30	0.00	6	1.81	63.10
11.44	6.990	20.46	89.25	7.010	0.29	6	17.21	197.97	89.66	108.31	62.88	0.30	0.00	6	1.80	64.97
11.46	7.180	22.64	89.45	7.200	0.31	6	17.33	198.31	89.86	108.46	64.54	0.32	0.00	6	1.80	66.72
11.48	7.220	23.42	89.62	7.240	0.32	6	17.37	198.66	90.06	108.61	64.81	0.33	0.00	6	1.80	67.04
11.50	7.160	24.97	89.81	7.180	0.35	6	17.44	199.01	90.25	108.76	64.17	0.36	0.00	6	1.82	66.37
11.52	7.080	26.88	90.04	7.100	0.38	6	17.53	199.36	90.45	108.91	63.34	0.39	0.00	6	1.84	65.51
11.54	7.000	27.93	90.23	7.020	0.40	6	17.57	199.71	90.64	109.07	62.52	0.41	0.00	6	1.86	64.66
11.56	6.810	29.16	90.46	6.830	0.43	6	17.60	200.06	90.84	109.22	60.68	0.44	0.00	6	1.88	62.74
11.58	6.650	30.53	90.65	6.670	0.46	6	17.65	200.42	91.04	109.38	59.13	0.47	0.00	6	1.91	61.12
11.60	6.590	31.21	90.88	6.610	0.47	6	17.67	200.77	91.23	109.54	58.50	0.49	0.00	6	1.92	60.47
11.62	6.580	31.71	91.05	6.600	0.48	6	17.69	201.12	91.43	109.69	58.32	0.50	0.00	6	1.92	60.31
11.64	6.530	31.07	91.24	6.550	0.47	6	17.66	201.48	91.63	109.85	57.78	0.49	0.00	6	1.92	59.78
11.66	6.470	30.75	91.44	6.490	0.47	6	17.65	201.83	91.82	110.01	57.15	0.49	0.00	6	1.93	59.15
11.68	6.440	29.84	91.66	6.460	0.46	6	17.61	202.18	92.02	110.16	56.79	0.48	0.00	6	1.92	58.82
11.70	6.400	28.89	91.83	6.420	0.45	6	17.57	202.53	92.21	110.32	56.34	0.46	0.00	6	1.92	58.39
11.72	6.320	28.39	92.00	6.340	0.45	6	17.54	202.88	92.41	110.47	55.54	0.46	0.00	6	1.93	57.57
11.74	6.220	28.25	92.19	6.240	0.45	6	17.53	203.24	92.61	110.63	54.55	0.47	0.00	6	1.93	56.56
11.76	6.140	27.98	92.36	6.160	0.45	6	17.52	203.59	92.80	110.78	53.75	0.47	0.00	6	1.94	55.74
11.78	6.030	27.66	92.55	6.050	0.46	6	17.50	203.94	93.00	110.94	52.68	0.47	0.00	6	1.95	54.64
11.80	5.950	26.56	92.75	5.970	0.44	6	17.45	204.28	93.20	111.09	51.89	0.46	0.00	6	1.95	53.84
11.82	5.900	26.15	92.92	5.920	0.44	6	17.42	204.63	93.39	111.24	51.37	0.46	0.00	6	1.95	53.32
11.84	5.900	25.61	93.14	5.920	0.43	6	17.40	204.98	93.59	111.39	51.29	0.45	0.00	6	1.95	53.28
11.86	5.880	25.42	93.31	5.900	0.43	6	17.39	205.33	93.78	111.55	51.04	0.45	0.00	6	1.95	53.04
11.88	5.850	24.65	93.47	5.870	0.42	6	17.35	205.68	93.98	111.70	50.70	0.44	0.00	6	1.95	52.71
11.90	5.690	24.74	93.70	5.710	0.43	6	17.35	206.02	94.18	111.85	49.20	0.45	0.00	6	1.97	51.14

In situ data				Basic output data						ARENILE PRINCIPE DI PIEMONTE - VIAREGGIO (LU)					CPTu 02	
Depth	qc	fs	u_2	qt	Rf	SBT	γ	σ,v	u_0	σ',v_0	Qt1	Fr	Bq	SBTn	Ic	Qtn
(m)	(MPa)	(kPa)	(kPa)	(MPa)	(%)		kN/m^3	(kPa)	(kPa)	(kPa)		(%)				
11.92	5.540	24.74	93.92	5.560	0.45	6	17.34	206.37	94.37	112.00	47.79	0.46	0.00	6	1.98	49.66
11.94	5.410	24.74	94.15	5.430	0.46	6	17.33	206.72	94.57	112.15	46.56	0.47	0.00	6	2.00	48.38
11.96	5.390	24.47	94.29	5.410	0.45	6	17.31	207.06	94.76	112.30	46.32	0.47	0.00	6	2.00	48.14
11.98	5.490	24.56	94.40	5.510	0.45	6	17.32	207.41	94.96	112.45	47.15	0.46	0.00	6	1.99	49.04
12.00	5.630	23.78	94.59	5.650	0.42	6	17.30	207.76	95.16	112.60	48.32	0.44	0.00	6	1.97	50.34
12.02	5.690	22.92	94.82	5.710	0.40	6	17.26	208.10	95.35	112.75	48.79	0.42	0.00	6	1.95	50.88
12.04	5.700	22.37	94.95	5.720	0.39	6	17.23	208.45	95.55	112.90	48.81	0.41	0.00	6	1.95	50.94
12.06	5.850	21.05	95.12	5.870	0.36	6	17.17	208.79	95.75	113.04	50.07	0.37	0.00	6	1.92	52.34
12.08	5.890	20.82	95.29	5.910	0.35	6	17.16	209.13	95.94	113.19	50.36	0.37	0.00	6	1.92	52.68
12.10	5.940	20.14	95.48	5.960	0.34	6	17.13	209.48	96.14	113.34	50.73	0.35	0.00	6	1.90	53.12
12.12	5.930	20.09	95.65	5.950	0.34	6	17.12	209.82	96.33	113.48	50.57	0.35	0.00	6	1.91	52.98
12.14	5.940	20.05	95.87	5.960	0.34	6	17.12	210.16	96.53	113.63	50.59	0.35	0.00	6	1.90	53.03
12.16	5.940	20.05	96.04	5.960	0.34	6	17.12	210.50	96.73	113.78	50.53	0.35	0.00	6	1.91	52.98
12.18	5.940	20.05	96.65	5.960	0.34	6	17.12	210.85	96.92	113.92	50.46	0.35	0.00	6	1.91	52.93
12.20	5.840	16.61	96.64	5.860	0.28	6	16.90	211.18	97.12	114.06	49.52	0.29	0.00	6	1.88	52.02
12.22	5.880	17.47	96.72	5.900	0.30	6	16.96	211.52	97.32	114.21	49.80	0.31	0.00	6	1.89	52.33
12.24	5.820	18.16	96.89	5.840	0.31	6	17.00	211.86	97.51	114.35	49.21	0.32	0.00	6	1.90	51.70
12.26	5.730	18.12	97.06	5.750	0.32	6	16.99	212.20	97.71	114.49	48.36	0.33	0.00	6	1.91	50.81
12.28	5.680	18.76	97.25	5.700	0.33	6	17.03	212.54	97.90	114.64	47.86	0.34	0.00	6	1.92	50.28
12.30	5.760	16.13	97.42	5.780	0.28	6	16.86	212.88	98.10	114.78	48.50	0.29	0.00	6	1.89	51.05
12.32	5.840	15.49	97.59	5.860	0.26	6	16.82	213.22	98.30	114.92	49.13	0.27	0.00	6	1.88	51.78
12.34	5.890	15.95	97.75	5.910	0.27	6	16.85	213.55	98.49	115.06	49.50	0.28	0.00	6	1.88	52.20
12.36	5.880	16.54	97.95	5.900	0.28	6	16.90	213.89	98.69	115.20	49.35	0.29	0.00	6	1.88	52.04
12.38	5.890	16.86	98.12	5.910	0.29	6	16.92	214.23	98.88	115.35	49.38	0.30	0.00	6	1.88	52.09
12.40	5.960	16.90	98.25	5.980	0.28	6	16.93	214.57	99.08	115.49	49.92	0.29	0.00	6	1.88	52.70
12.42	6.040	16.90	98.42	6.060	0.28	6	16.93	214.91	99.28	115.63	50.55	0.29	0.00	6	1.87	53.41
12.44	6.120	17.18	98.59	6.140	0.28	6	16.95	215.25	99.47	115.77	51.17	0.29	0.00	6	1.87	54.11
12.46	6.100	17.50	98.78	6.120	0.29	6	16.97	215.59	99.67	115.92	50.94	0.30	0.00	6	1.87	53.87
12.48	6.010	17.95	98.95	6.030	0.30	6	17.00	215.93	99.87	116.06	50.09	0.31	0.00	6	1.88	52.96
12.50	5.990	18.13	99.15	6.010	0.30	6	17.01	216.27	100.06	116.20	49.86	0.31	0.00	6	1.89	52.72
12.52	6.070	18.63	99.28	6.090	0.31	6	17.05	216.61	100.26	116.35	50.48	0.32	0.00	6	1.89	53.41
12.54	6.130	19.41	99.48	6.150	0.32	6	17.10	216.95	100.45	116.49	50.93	0.33	0.00	6	1.89	53.91
12.56	6.250	20.37	99.65	6.270	0.32	6	17.16	217.29	100.65	116.64	51.89	0.34	0.00	6	1.88	54.96
12.58	6.370	20.37	99.84	6.390	0.32	6	17.17	217.63	100.85	116.79	52.85	0.33	0.00	6	1.87	56.04
12.60	6.540	19.82	100.01	6.560	0.30	6	17.14	217.98	101.04	116.93	54.24	0.31	0.00	6	1.85	57.61
12.62	6.700	19.18	100.17	6.720	0.29	6	17.12	218.32	101.24	117.08	55.53	0.29	0.00	6	1.83	59.08
12.64	6.760	19.50	100.34	6.780	0.29	6	17.14	218.66	101.44	117.23	55.97	0.30	0.00	6	1.83	59.58
12.66	6.710	20.00	100.54	6.730	0.30	6	17.16	219.00	101.63	117.37	55.47	0.31	0.00	6	1.84	59.05
12.68	6.540	20.50	100.85	6.560	0.31	6	17.18	219.35	101.83	117.52	53.95	0.32	0.00	6	1.86	57.39
12.70	6.440	21.19	101.05	6.460	0.33	6	17.22	219.69	102.02	117.67	53.03	0.34	0.00	6	1.88	56.38
12.72	6.390	22.64	101.15	6.410	0.35	6	17.29	220.04	102.22	117.82	52.54	0.37	0.00	6	1.89	55.82
12.74	6.370	23.87	101.32	6.390	0.37	6	17.35	220.38	102.42	117.97	52.30	0.39	0.00	6	1.90	55.55
12.76	6.370	24.19	101.46	6.390	0.38	6	17.36	220.73	102.61	118.12	52.23	0.39	0.00	6	1.91	55.49
12.78	6.390	23.51	101.62	6.410	0.37	6	17.33	221.08	102.81	118.27	52.33	0.38	0.00	6	1.90	55.65
12.80	6.370	22.78	101.85	6.390	0.36	6	17.29	221.42	103.01	118.42	52.09	0.37	0.00	6	1.90	55.43
12.82	6.140	21.96	102.05	6.160	0.36	6	17.24	221.77	103.20	118.57	50.09	0.37	0.00	6	1.91	53.27
12.84	5.900	21.92	102.27	5.920	0.37	6	17.22	222.11	103.40	118.72	48.00	0.38	0.00	6	1.94	50.99
12.86	5.660	21.87	102.47	5.680	0.39	6	17.20	222.46	103.59	118.87	45.92	0.40	0.00	6	1.96	48.72
12.88	5.510	22.10	102.66	5.530	0.40	6	17.20	222.80	103.79	119.01	44.60	0.42	0.00	6	1.98	47.28
12.90	5.540	22.01	102.83	5.560	0.40	6	17.20	223.15	103.99	119.16	44.79	0.41	0.00	6	1.98	47.51
12.92	5.680	21.82	103.00	5.700	0.38	6	17.20	223.49	104.18	119.31	45.91	0.40	0.00	6	1.96	48.77
12.94	5.840	21.00	103.22	5.860	0.36	6	17.17	223.83	104.38	119.46	47.19	0.37	0.00	6	1.94	50.23
12.96	6.160	19.23	103.42	6.180	0.31	6	17.09	224.18	104.57	119.60	49.80	0.32	0.00	6	1.89	53.21
12.98	6.520	17.36	103.55	6.540	0.27	6	16.99	224.52	104.77	119.75	52.75	0.27	0.00	6	1.84	56.58
13.00	6.610	16.90	103.72	6.630	0.25	6	16.97	224.86	104.97	119.89	53.43	0.26	0.00	6	1.83	57.39

In situ data				Basic output data					ARENILE PRINCIPE DI PIEMONTE - VIAREGGIO (LU)						CPTu 02	
Depth	qc	fs	u_2	qt	Rf	SBT	γ	σ,v	u_0	σ',v_0	Qt1	Fr	Bq	SBTn	Ic	Qtn
(m)	(MPa)	(kPa)	(kPa)	(MPa)	(%)		kN/m^3	(kPa)	(kPa)	(kPa)		(%)				
13.02	6.650	17.22	103.92	6.670	0.26	6	16.99	225.20	105.16	120.03	53.70	0.27	0.00	6	1.83	57.70
13.04	6.720	18.18	104.08	6.740	0.27	6	17.06	225.54	105.36	120.18	54.21	0.28	0.00	6	1.83	58.27
13.06	6.830	19.55	104.28	6.850	0.29	6	17.15	225.88	105.56	120.32	55.06	0.30	0.00	6	1.83	59.20
13.08	6.920	21.41	104.47	6.940	0.31	6	17.26	226.22	105.75	120.47	55.74	0.32	0.00	6	1.84	59.92
13.10	7.070	23.74	104.67	7.090	0.33	6	17.38	226.57	105.95	120.62	56.91	0.35	0.00	6	1.85	61.18
13.12	7.190	25.20	104.81	7.210	0.35	6	17.46	226.92	106.14	120.78	57.83	0.36	0.00	6	1.85	62.19
13.14	7.340	26.47	104.97	7.360	0.36	6	17.52	227.27	106.34	120.93	58.99	0.37	0.00	6	1.84	63.49
13.16	7.470	27.57	105.17	7.490	0.37	6	17.58	227.62	106.54	121.08	59.99	0.38	0.00	6	1.84	64.60
13.18	7.470	27.57	105.34	7.490	0.37	6	17.58	227.97	106.73	121.24	59.91	0.38	0.00	6	1.84	64.55
13.20	7.660	23.90	105.91	7.680	0.31	6	17.42	228.32	106.93	121.39	61.40	0.32	0.00	6	1.80	66.39
13.22	7.730	26.63	106.08	7.750	0.34	6	17.55	228.67	107.13	121.55	61.89	0.35	0.00	6	1.82	66.88
13.24	7.700	25.55	106.22	7.720	0.33	6	17.50	229.02	107.32	121.70	61.56	0.34	0.00	6	1.81	66.59
13.26	7.720	26.87	106.41	7.740	0.35	6	17.56	229.37	107.52	121.85	61.65	0.36	0.00	6	1.82	66.67
13.28	7.620	26.28	106.61	7.640	0.34	6	17.53	229.72	107.71	122.01	60.75	0.35	0.00	6	1.82	65.71
13.30	7.540	26.29	106.80	7.560	0.35	6	17.52	230.07	107.91	122.16	60.01	0.36	0.00	6	1.83	64.91
13.32	7.540	29.30	106.94	7.560	0.39	6	17.65	230.43	108.11	122.32	59.93	0.40	0.00	6	1.85	64.75
13.34	7.500	31.16	107.14	7.520	0.41	6	17.72	230.78	108.30	122.48	59.53	0.43	0.00	6	1.87	64.26
13.36	7.360	33.08	107.33	7.380	0.45	6	17.78	231.13	108.50	122.64	58.31	0.46	0.00	6	1.89	62.85
13.38	7.340	34.31	107.47	7.360	0.47	6	17.82	231.49	108.69	122.80	58.06	0.48	0.00	6	1.90	62.57
13.40	7.460	35.45	107.61	7.480	0.47	6	17.86	231.85	108.89	122.96	58.96	0.49	0.00	6	1.90	63.58
13.42	7.470	35.81	107.80	7.490	0.48	6	17.88	232.21	109.09	123.12	58.96	0.49	0.00	6	1.90	63.61
13.44	7.550	36.36	107.97	7.570	0.48	6	17.90	232.56	109.28	123.28	59.53	0.50	0.00	6	1.90	64.26
13.46	7.590	37.63	108.20	7.610	0.49	6	17.94	232.92	109.48	123.44	59.77	0.51	0.00	6	1.90	64.53
13.48	7.480	38.18	108.45	7.500	0.51	6	17.95	233.28	109.68	123.61	58.80	0.53	0.00	6	1.91	63.45
13.50	7.350	37.82	108.65	7.370	0.51	6	17.93	233.64	109.87	123.77	57.67	0.53	0.00	6	1.92	62.21
13.52	7.190	39.14	108.81	7.210	0.54	6	17.96	234.00	110.07	123.93	56.30	0.56	0.00	6	1.95	60.65
13.54	7.140	40.28	109.01	7.160	0.56	6	17.99	234.36	110.26	124.09	55.82	0.58	0.00	6	1.96	60.11
13.56	7.140	40.28	109.23	7.160	0.56	6	17.99	234.72	110.46	124.26	55.75	0.58	0.00	6	1.96	60.05
13.58	7.080	40.60	109.46	7.100	0.57	6	18.00	235.08	110.66	124.42	55.19	0.59	0.00	6	1.96	59.44
13.60	6.950	40.46	109.68	6.970	0.58	6	17.99	235.44	110.85	124.59	54.07	0.60	0.00	6	1.98	58.20
13.62	6.880	40.96	109.82	6.900	0.59	6	18.00	235.80	111.05	124.75	53.44	0.61	0.00	6	1.99	57.50
13.64	7.020	40.73	109.96	7.040	0.58	6	18.00	236.16	111.25	124.91	54.48	0.60	0.00	6	1.97	58.72
13.66	7.220	39.73	110.10	7.240	0.55	6	17.98	236.52	111.44	125.08	56.01	0.57	0.00	6	1.95	60.50
13.68	7.260	39.18	110.32	7.280	0.54	6	17.97	236.88	111.64	125.24	56.25	0.56	0.00	6	1.94	60.83
13.70	7.250	38.50	110.55	7.270	0.53	6	17.95	237.24	111.83	125.40	56.10	0.55	0.00	6	1.94	60.70
13.72	7.170	37.41	110.71	7.190	0.52	6	17.91	237.59	112.03	125.56	55.39	0.54	0.00	6	1.94	59.95
13.74	7.110	35.17	110.94	7.130	0.49	6	17.84	237.95	112.23	125.73	54.84	0.51	0.00	6	1.93	59.42
13.76	6.980	32.85	111.07	7.000	0.47	6	17.75	238.31	112.42	125.88	53.73	0.49	0.00	6	1.93	58.26
13.78	6.880	31.16	111.24	6.900	0.45	6	17.68	238.66	112.62	126.04	52.87	0.47	0.00	6	1.93	57.36
13.80	6.780	31.35	111.44	6.800	0.46	6	17.69	239.01	112.82	126.20	52.01	0.48	0.00	6	1.94	56.39
13.82	6.570	31.26	111.69	6.590	0.47	6	17.67	239.37	113.01	126.36	50.28	0.49	0.00	6	1.96	54.44
13.84	6.410	31.44	111.89	6.430	0.49	6	17.67	239.72	113.21	126.51	48.95	0.51	0.00	6	1.98	52.95
13.86	6.340	31.35	112.08	6.360	0.49	6	17.66	240.08	113.40	126.67	48.33	0.51	0.00	6	1.98	52.27
13.88	6.280	32.99	112.25	6.300	0.52	6	17.72	240.43	113.60	126.83	47.80	0.54	0.00	6	2.00	51.63
13.90	6.220	33.62	112.42	6.240	0.54	6	17.73	240.78	113.80	126.99	47.26	0.56	0.00	6	2.01	51.02
13.92	6.220	33.81	112.61	6.240	0.54	6	17.74	241.14	113.99	127.15	47.20	0.56	0.00	6	2.01	50.97
13.94	6.190	33.03	112.78	6.210	0.53	6	17.71	241.49	114.19	127.30	46.90	0.55	0.00	6	2.01	50.67
13.96	6.150	31.94	112.97	6.170	0.52	6	17.67	241.85	114.38	127.46	46.53	0.54	0.00	6	2.01	50.30
13.98	6.120	32.12	113.20	6.140	0.52	6	17.67	242.20	114.58	127.62	46.23	0.54	0.00	6	2.01	49.98
14.00	6.060	33.21	113.37	6.080	0.55	6	17.71	242.55	114.78	127.78	45.71	0.57	0.00	6	2.03	49.36
14.02	6.060	32.80	113.56	6.080	0.54	6	17.70	242.91	114.97	127.93	45.65	0.56	0.00	6	2.02	49.33
14.04	6.120	32.49	113.76	6.140	0.53	6	17.69	243.26	115.17	128.09	46.06	0.55	0.00	6	2.02	49.83
14.06	6.220	32.49	113.92	6.240	0.52	6	17.69	243.62	115.37	128.25	46.78	0.54	0.00	6	2.01	50.67
14.08	6.350	32.53	114.09	6.370	0.51	6	17.70	243.97	115.56	128.41	47.73	0.53	0.00	6	1.99	51.78
14.10	6.530	33.03	114.26	6.550	0.50	6	17.73	244.32	115.76	128.57	49.07	0.52	0.00	6	1.98	53.33

In situ data				Basic output data						ARENILE PRINCIPE DI PIEMONTE - VIAREGGIO (LU)					CPTu 02	
Depth	qc	fs	u_2	qt	Rf	SBT	γ	σ,v	u_0	σ',v_0	Qt1	Fr	Bq	SBTn	Ic	Qtn
(m)	(MPa)	(kPa)	(kPa)	(MPa)	(%)		kN/m^3	(kPa)	(kPa)	(kPa)		(%)				
14.12	6.750	32.90	114.45	6.770	0.49	6	17.74	244.68	115.95	128.72	50.71	0.50	0.00	6	1.96	55.25
14.14	6.980	32.67	114.62	7.000	0.47	6	17.74	245.03	116.15	128.88	52.43	0.48	0.00	6	1.94	57.27
14.16	7.200	32.35	114.79	7.220	0.45	6	17.75	245.39	116.35	129.04	54.07	0.46	0.00	6	1.91	59.21
14.18	7.200	32.35	114.95	7.220	0.45	6	17.75	245.74	116.54	129.20	54.00	0.46	0.00	6	1.92	59.15
14.20	7.200	32.35	115.56	7.220	0.45	6	17.75	246.10	116.74	129.36	53.94	0.46	0.00	6	1.92	59.10
14.22	7.030	26.99	115.55	7.050	0.38	6	17.53	246.45	116.94	129.51	52.56	0.40	0.00	6	1.89	57.74
14.24	7.240	27.59	115.64	7.260	0.38	6	17.56	246.80	117.13	129.67	54.11	0.39	0.00	6	1.88	59.55
14.26	7.350	26.73	115.75	7.370	0.36	6	17.53	247.15	117.33	129.82	54.89	0.38	0.00	6	1.87	60.52
14.28	7.430	25.88	115.91	7.450	0.35	6	17.50	247.50	117.52	129.98	55.44	0.36	0.00	6	1.85	61.23
14.30	7.510	26.65	116.08	7.530	0.35	6	17.54	247.85	117.72	130.13	55.98	0.37	0.00	6	1.85	61.86
14.32	7.640	28.57	116.22	7.660	0.37	6	17.62	248.20	117.92	130.29	56.91	0.39	0.00	6	1.86	62.90
14.34	7.760	30.53	116.38	7.780	0.39	6	17.71	248.56	118.11	130.44	57.76	0.41	0.00	6	1.86	63.84
14.36	7.690	33.17	116.58	7.710	0.43	6	17.80	248.91	118.31	130.60	57.15	0.44	0.00	6	1.88	63.05
14.38	7.680	34.76	116.72	7.700	0.45	6	17.85	249.27	118.50	130.76	57.00	0.47	0.00	6	1.89	62.84
14.40	7.680	36.22	116.91	7.700	0.47	6	17.90	249.63	118.70	130.93	56.93	0.49	0.00	6	1.90	62.73
14.42	7.680	37.54	117.08	7.700	0.49	6	17.94	249.99	118.90	131.09	56.86	0.50	0.00	6	1.91	62.62
14.44	7.700	37.54	117.22	7.720	0.49	6	17.94	250.34	119.09	131.25	56.94	0.50	0.00	6	1.91	62.74
14.46	7.730	37.09	117.41	7.750	0.48	6	17.93	250.70	119.29	131.41	57.09	0.49	0.00	6	1.90	62.97
14.48	7.650	37.50	117.61	7.670	0.49	6	17.94	251.06	119.49	131.58	56.41	0.51	0.00	6	1.91	62.18
14.50	7.580	37.27	117.83	7.600	0.49	6	17.93	251.42	119.68	131.74	55.81	0.51	0.00	6	1.92	61.51
14.52	7.260	36.91	118.03	7.280	0.51	6	17.90	251.78	119.88	131.90	53.31	0.52	0.00	6	1.94	58.63
14.54	6.990	36.59	118.25	7.010	0.52	6	17.88	252.14	120.07	132.06	51.20	0.54	0.00	6	1.97	56.19
14.56	6.690	37.32	118.45	6.710	0.56	6	17.88	252.49	120.27	132.22	48.87	0.58	0.00	6	2.00	53.47
14.58	6.560	37.91	118.65	6.580	0.58	6	17.89	252.85	120.47	132.38	47.82	0.60	0.00	6	2.02	52.25
14.60	6.390	38.14	118.84	6.410	0.59	6	17.89	253.21	120.66	132.55	46.48	0.62	0.00	6	2.03	50.70
14.62	6.290	36.09	119.07	6.310	0.57	6	17.82	253.57	120.86	132.71	45.67	0.60	0.00	6	2.03	49.84
14.64	6.280	33.99	119.26	6.300	0.54	6	17.75	253.92	121.06	132.87	45.53	0.56	0.00	6	2.02	49.78
14.66	6.280	32.67	119.43	6.300	0.52	6	17.70	254.28	121.25	133.02	45.48	0.54	0.00	6	2.01	49.78
14.68	6.340	31.07	119.62	6.360	0.49	6	17.65	254.63	121.45	133.18	45.87	0.51	0.00	6	2.00	50.32
14.70	6.510	29.25	119.79	6.530	0.45	6	17.59	254.98	121.64	133.34	47.09	0.47	0.00	6	1.97	51.84
14.72	6.780	28.43	119.93	6.800	0.42	6	17.57	255.33	121.84	133.49	49.06	0.43	0.00	6	1.94	54.21
14.74	7.010	27.20	120.12	7.030	0.39	6	17.54	255.68	122.04	133.65	50.72	0.40	0.00	6	1.91	56.25
14.76	7.070	27.75	120.29	7.090	0.39	6	17.56	256.03	122.23	133.80	51.11	0.41	0.00	6	1.91	56.70
14.78	7.070	28.66	120.40	7.090	0.40	6	17.60	256.39	122.43	133.96	51.04	0.42	0.00	6	1.91	56.61
14.80	7.070	29.84	120.60	7.090	0.42	6	17.65	256.74	122.63	134.11	50.98	0.44	0.00	6	1.92	56.51
14.82	7.030	31.03	120.79	7.050	0.44	6	17.69	257.09	122.82	134.27	50.62	0.46	0.00	6	1.93	56.06
14.84	6.910	32.39	120.99	6.930	0.47	6	17.73	257.45	123.02	134.43	49.67	0.49	0.00	6	1.95	54.90
14.86	6.590	33.26	121.24	6.610	0.50	6	17.74	257.80	123.21	134.59	47.23	0.52	0.00	6	1.99	52.01
14.88	6.230	34.86	121.47	6.250	0.56	6	17.78	258.16	123.41	134.75	44.50	0.58	0.00	6	2.04	48.77
14.90	5.910	34.76	121.63	5.930	0.59	6	17.75	258.51	123.61	134.91	42.07	0.61	0.00	6	2.07	45.95
14.92	5.830	34.40	121.83	5.850	0.59	6	17.74	258.87	123.80	135.07	41.43	0.61	0.00	5	2.08	45.22
14.94	5.830	33.35	122.00	5.850	0.57	6	17.70	259.22	124.00	135.22	41.38	0.60	0.00	6	2.07	45.21
14.96	5.870	32.21	122.19	5.890	0.55	6	17.66	259.57	124.19	135.38	41.62	0.57	0.00	6	2.06	45.56
14.98	5.800	31.07	122.42	5.820	0.53	6	17.62	259.93	124.39	135.54	41.06	0.56	0.00	6	2.06	44.95
15.00	5.740	29.34	122.61	5.760	0.51	6	17.55	260.28	124.59	135.69	40.56	0.53	0.00	6	2.05	44.45
15.02	5.910	27.66	122.78	5.930	0.47	6	17.49	260.63	124.78	135.85	41.77	0.49	0.00	6	2.02	45.95
15.04	6.010	26.97	122.97	6.030	0.45	6	17.47	260.98	124.98	136.00	42.45	0.47	0.00	6	2.01	46.80
15.06	6.050	25.97	123.14	6.070	0.43	6	17.43	261.33	125.18	136.15	42.70	0.45	0.00	6	2.00	47.15
15.08	6.210	25.88	123.31	6.230	0.42	6	17.43	261.68	125.37	136.30	43.82	0.43	0.00	6	1.98	48.50
15.10	6.460	25.51	123.47	6.480	0.39	6	17.43	262.02	125.57	136.46	45.60	0.41	0.00	6	1.95	50.65
15.12	6.680	25.56	123.64	6.700	0.38	6	17.45	262.37	125.76	136.61	47.16	0.40	0.00	6	1.93	52.53
15.14	6.870	25.97	123.78	6.890	0.38	6	17.47	262.72	125.96	136.76	48.49	0.39	0.00	6	1.92	54.13
15.16	7.000	27.57	124.00	7.020	0.39	6	17.55	263.07	126.16	136.92	49.39	0.41	0.00	6	1.92	55.14
15.18	7.000	29.02	124.23	7.020	0.41	6	17.61	263.42	126.35	137.07	49.33	0.43	0.00	6	1.93	55.03

CPTu 03 ARENILE PIAZZA MAZZINI - VIAREGGIO (LU)

qc cone resistance
fs sleeve friction
u_2 penetration pore pressure
qt total cone resistance
Rf friction ratio
SBT soil behavior type

γ soil unit weight
σ,v total overburden stress
u_0 in situ pore pressure
$\sigma'v_0$ effetive overburden stress
Qt1 normalized cone resistance
Fr normalized friction ratio

Bq normalized pore pressure
SBTn soil behavior type normalized
Ic soil behavior type index
Qtn normalized cone resistance based on the stress exponent n

In situ data **Basic output data**

Depth (m)	qc (MPa)	fs (kPa)	u_2 (kPa)	qt (MPa)	Rf (%)	SBT	γ kN/m³	σ,v (kPa)	u_0 (kPa)	$\sigma'v_0$ (kPa)	Qt1	Fr (%)	Bq	SBTn	Ic	Qtn
0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.02	0.100	0.00	-0.70	0.100	0.00	1	19.00	0.38	0.00	0.38	261.79	0.00	-0.01	0	0.00	0.00
0.04	0.110	0.00	-0.52	0.110	0.00	1	19.00	0.76	0.00	0.76	143.60	0.00	0.00	0	0.00	0.00
0.06	0.090	0.00	-1.05	0.090	0.00	1	19.00	1.14	0.00	1.14	77.76	0.00	-0.01	0	0.00	0.00
0.08	0.100	0.00	-0.17	0.100	0.00	1	19.00	1.52	0.00	1.52	64.77	0.00	0.00	0	0.00	0.00
0.10	0.100	0.00	0.00	0.100	0.00	1	19.00	1.90	0.00	1.90	51.63	0.00	0.00	0	0.00	0.00
0.12	0.360	0.00	4.55	0.360	0.00	1	19.00	2.28	0.00	2.28	157.29	0.00	0.01	0	0.00	0.00
0.14	0.670	0.00	9.62	0.670	0.00	1	19.00	2.66	0.00	2.66	251.60	0.00	0.01	0	0.00	0.00
0.16	0.940	0.05	13.12	0.940	0.01	1	13.73	2.99	0.00	2.99	314.54	0.01	0.01	0	1.92	72.31
0.18	1.590	0.14	20.12	1.590	0.01	0	13.73	3.26	0.00	3.26	487.66	0.01	0.01	0	1.72	91.50
0.20	3.280	0.46	27.65	3.290	0.01	0	13.73	3.54	0.00	3.54	927.98	0.01	0.01	0	1.49	133.88
0.22	5.080	1.73	26.95	5.090	0.03	0	14.24	3.82	0.00	3.82	1331.49	0.03	0.01	0	1.30	156.28
0.24	5.330	3.60	25.90	5.340	0.07	0	15.10	4.11	0.00	4.11	1295.55	0.07	0.00	0	1.28	155.74
0.26	6.510	5.88	25.55	6.520	0.09	0	15.74	4.42	0.00	4.42	1471.40	0.09	0.00	0	1.23	179.37
0.28	7.540	7.97	25.20	7.550	0.11	6	16.15	4.75	0.00	4.75	1588.81	0.11	0.00	7	1.20	196.26
0.30	8.390	10.75	24.67	8.390	0.13	6	16.54	5.07	0.00	5.07	1653.24	0.13	0.00	7	1.19	210.81
0.32	9.160	15.49	24.15	9.160	0.17	6	16.99	5.41	0.00	5.41	1692.06	0.17	0.00	7	1.20	225.13
0.34	9.470	19.87	23.97	9.470	0.21	6	17.29	5.76	0.00	5.76	1644.66	0.21	0.00	7	1.23	234.68
0.36	9.840	28.98	23.62	9.840	0.29	6	17.74	6.11	0.00	6.11	1610.02	0.29	0.00	7	1.27	253.82
0.38	10.020	35.45	23.62	10.020	0.35	6	17.98	6.47	0.00	6.47	1548.58	0.35	0.00	7	1.30	262.09
0.40	10.250	43.88	23.45	10.250	0.43	6	18.23	6.83	0.00	6.83	1499.73	0.43	0.00	6	1.34	270.51
0.42	10.360	50.21	23.62	10.360	0.48	6	18.39	7.20	0.00	7.20	1438.52	0.48	0.00	6	1.37	276.52
0.44	10.920	58.14	23.10	10.920	0.53	6	18.58	7.57	0.00	7.57	1442.06	0.53	0.00	6	1.38	290.04
0.46	11.270	63.47	23.10	11.270	0.56	6	18.69	7.94	0.00	7.94	1418.31	0.56	0.00	6	1.39	297.00
0.48	11.780	71.26	22.40	11.780	0.60	6	18.84	8.32	0.00	8.32	1415.47	0.61	0.00	6	1.40	308.38
0.50	12.240	76.13	21.87	12.240	0.62	6	18.93	8.70	0.00	8.70	1406.76	0.62	0.00	6	1.40	315.70
0.52	12.700	81.19	21.52	12.700	0.64	6	19.02	9.08	0.00	9.08	1398.51	0.64	0.00	6	1.41	322.97
0.54	13.070	86.80	21.35	13.070	0.66	6	19.11	9.46	0.00	9.46	1381.09	0.66	0.00	6	1.41	329.25
0.56	13.310	93.49	21.70	13.310	0.70	6	19.20	9.84	0.00	9.84	1351.63	0.70	0.00	6	1.42	336.27
0.58	13.490	104.16	22.22	13.490	0.77	6	19.33	10.23	0.00	10.23	1318.22	0.77	0.00	6	1.45	342.94
0.60	13.620	109.26	22.40	13.620	0.80	6	19.39	10.62	0.00	10.62	1282.32	0.80	0.00	6	1.46	344.38
0.62	13.650	113.91	22.75	13.650	0.83	6	19.44	11.01	0.00	11.01	1239.75	0.83	0.00	6	1.47	343.95
0.64	13.110	122.88	23.27	13.110	0.94	6	19.51	11.40	0.00	11.40	1149.91	0.94	0.00	6	1.52	337.67
0.66	12.530	129.12	23.45	12.530	1.03	6	19.55	11.79	0.00	11.79	1062.54	1.03	0.00	6	1.56	328.50
0.68	11.860	135.73	23.80	11.860	1.14	6	19.59	12.18	0.00	12.18	973.33	1.15	0.00	6	1.60	317.67
0.70	11.280	141.24	23.80	11.280	1.25	6	19.61	12.57	0.00	12.57	896.79	1.25	0.00	6	1.64	307.26
0.72	10.790	143.84	24.15	10.790	1.33	6	19.62	12.96	0.00	12.96	831.82	1.33	0.00	6	1.67	296.69
0.74	10.580	142.70	24.15	10.580	1.35	6	19.60	13.35	0.00	13.35	791.64	1.35	0.00	6	1.69	289.11
0.76	10.180	139.01	24.32	10.180	1.36	6	19.55	13.75	0.00	13.75	739.98	1.37	0.00	6	1.70	277.42
0.78	9.830	131.90	24.67	9.830	1.34	6	19.48	14.14	0.00	14.14	694.78	1.34	0.00	6	1.71	265.34
0.80	9.690	123.97	24.85	9.690	1.28	6	19.40	14.52	0.00	14.52	666.53	1.28	0.00	6	1.70	256.69
0.82	9.480	111.99	25.02	9.490	1.18	6	19.28	14.91	0.00	14.91	635.17	1.18	0.00	6	1.68	245.36
0.84	9.130	106.25	25.20	9.140	1.16	6	19.20	15.29	0.00	15.29	596.29	1.17	0.00	6	1.69	234.64
0.86	8.870	102.93	25.37	8.880	1.16	6	19.16	15.68	0.00	15.68	565.11	1.16	0.00	6	1.70	226.62
0.88	8.810	100.83	25.37	8.820	1.14	6	19.13	16.06	0.00	16.06	547.88	1.15	0.00	6	1.70	222.52
0.90	8.820	98.32	25.55	8.830	1.11	6	19.10	16.44	0.00	16.44	535.73	1.12	0.00	6	1.70	219.49

In situ data				Basic output data						ARENILE PIAZZA MAZZINI - VIAREGGIO (LU)						CPTu 03	
Depth	qc	fs	u_2	qt	Rf	SBT	γ	σ,v	u_0	σ',v_0	Qt1	Fr	Bq	SBTn	Ic	Qtn
(m)	(MPa)	(kPa)	(kPa)	(MPa)	(%)		kN/m^3	(kPa)	(kPa)	(kPa)		(%)				
0.92	8.620	96.14	25.55	8.630	1.11	6	19.07	16.82	0.00	16.82	511.67	1.12	0.00	6	1.71	213.31
0.94	8.350	95.77	25.90	8.360	1.15	6	19.05	17.20	0.00	17.20	484.63	1.15	0.00	6	1.72	206.81
0.96	8.320	94.04	25.90	8.330	1.13	6	19.03	17.59	0.00	17.59	472.41	1.13	0.00	6	1.72	203.75
0.98	8.430	90.90	25.90	8.440	1.08	6	18.99	17.97	0.00	17.97	468.52	1.08	0.00	6	1.71	202.49
1.00	8.410	87.48	26.07	8.420	1.04	6	18.95	18.34	0.00	18.34	457.73	1.04	0.00	6	1.70	199.10
1.02	7.960	85.06	26.42	7.970	1.07	6	18.89	18.72	0.00	18.72	424.43	1.07	0.00	6	1.73	189.34
1.04	7.480	83.47	26.60	7.490	1.12	6	18.85	19.10	0.00	19.10	390.90	1.12	0.00	6	1.76	179.45
1.06	7.250	81.69	26.60	7.260	1.13	5	18.81	19.48	0.00	19.48	371.52	1.13	0.00	6	1.77	173.58
1.08	7.330	79.64	26.77	7.340	1.09	6	18.79	19.85	0.00	19.85	368.50	1.09	0.00	6	1.76	172.71
1.10	7.530	78.73	26.77	7.540	1.04	6	18.78	20.23	0.00	20.23	371.52	1.05	0.00	6	1.75	174.18
1.12	7.950	77.00	26.60	7.960	0.97	6	18.78	20.60	0.00	20.60	385.11	0.97	0.00	6	1.71	178.76
1.14	8.070	76.04	26.77	8.080	0.94	6	18.77	20.98	0.00	20.98	383.92	0.94	0.00	6	1.71	178.91
1.16	8.070	76.04	26.77	8.080	0.94	6	18.77	21.35	0.00	21.35	377.16	0.94	0.00	6	1.71	177.58
1.18	7.740	75.95	27.30	7.750	0.98	6	18.75	21.73	0.00	21.73	355.45	0.98	0.00	6	1.73	171.17
1.20	7.820	76.09	27.65	7.830	0.97	6	18.76	22.10	0.00	22.10	353.02	0.98	0.00	6	1.73	171.19
1.22	7.530	75.51	27.47	7.540	1.00	6	18.74	22.48	0.00	22.48	334.22	1.01	0.00	6	1.75	165.30
1.24	6.930	75.71	27.65	6.940	1.09	5	18.71	22.85	0.00	22.85	302.47	1.10	0.00	6	1.80	154.79
1.26	6.540	76.86	28.00	6.550	1.17	5	18.70	23.23	0.00	23.23	280.80	1.18	0.00	6	1.83	147.78
1.28	6.250	79.83	28.00	6.260	1.28	5	18.73	23.60	0.00	23.60	264.04	1.28	0.00	6	1.87	142.78
1.30	6.130	83.70	28.35	6.140	1.36	5	18.78	23.98	0.00	23.98	254.89	1.37	0.00	6	1.89	140.71
1.32	6.060	85.38	28.35	6.070	1.41	5	18.79	24.35	0.00	24.35	248.07	1.41	0.00	6	1.91	138.88
1.34	6.110	83.79	28.35	6.120	1.37	5	18.78	24.73	0.00	24.73	246.31	1.38	0.00	6	1.90	138.28
1.36	6.230	79.87	28.17	6.240	1.28	5	18.73	25.10	0.00	25.10	247.39	1.29	0.00	6	1.88	138.27
1.38	6.260	75.59	28.17	6.270	1.21	5	18.67	25.48	0.00	25.48	244.93	1.21	0.00	6	1.87	136.73
1.40	6.120	72.31	28.17	6.130	1.18	5	18.61	25.85	0.00	25.85	235.97	1.19	0.00	6	1.87	132.76
1.42	5.830	69.98	28.17	5.840	1.20	5	18.55	26.22	0.00	26.22	221.55	1.20	0.00	6	1.89	126.69
1.44	5.580	68.25	28.17	5.590	1.22	5	18.51	26.59	0.00	26.59	209.05	1.23	0.01	6	1.91	121.43
1.46	5.640	66.20	28.35	5.650	1.17	5	18.47	26.96	0.00	26.96	208.40	1.18	0.01	6	1.89	121.08
1.48	5.870	65.02	28.52	5.880	1.11	5	18.47	27.33	0.00	27.33	213.99	1.11	0.00	6	1.87	123.61
1.50	6.140	63.29	28.35	6.150	1.03	5	18.46	27.70	0.00	27.70	220.87	1.03	0.00	6	1.84	126.55
1.52	6.390	61.05	28.35	6.400	0.95	6	18.43	28.07	0.00	28.07	226.86	0.96	0.00	6	1.81	128.99
1.54	6.470	58.50	28.35	6.480	0.90	6	18.38	28.44	0.00	28.44	226.73	0.91	0.00	6	1.80	128.76
1.56	6.420	56.41	28.35	6.430	0.88	6	18.34	28.80	0.00	28.80	222.09	0.88	0.00	6	1.80	126.71
1.58	6.310	57.18	28.17	6.320	0.91	6	18.35	29.17	0.00	29.17	215.51	0.91	0.00	6	1.81	124.53
1.60	6.220	59.32	28.17	6.230	0.95	5	18.39	29.54	0.00	29.54	209.77	0.96	0.00	6	1.83	122.98
1.62	6.150	62.33	28.17	6.160	1.01	5	18.44	29.91	0.00	29.91	204.83	1.02	0.00	6	1.85	121.90
1.64	6.200	64.33	28.17	6.210	1.04	5	18.48	30.28	0.00	30.28	203.97	1.04	0.00	6	1.86	122.36
1.66	6.390	64.84	28.00	6.400	1.01	5	18.50	30.65	0.00	30.65	207.70	1.02	0.00	6	1.84	124.58
1.68	6.600	64.06	28.00	6.610	0.97	6	18.50	31.02	0.00	31.02	211.98	0.97	0.00	6	1.82	126.78
1.70	6.720	62.47	28.00	6.730	0.93	6	18.47	31.38	0.00	31.38	213.29	0.93	0.00	6	1.81	127.46
1.72	6.780	61.92	28.00	6.790	0.91	6	18.47	31.75	0.00	31.75	212.69	0.92	0.00	6	1.81	127.51
1.74	6.840	61.46	28.00	6.850	0.90	6	18.46	32.12	0.00	32.12	212.10	0.90	0.00	6	1.80	127.57
1.76	6.950	60.78	28.00	6.960	0.87	6	18.46	32.49	0.00	32.49	213.07	0.88	0.00	6	1.79	128.11
1.78	7.140	60.42	27.82	7.150	0.85	6	18.46	32.86	0.00	32.86	216.44	0.85	0.00	6	1.78	130.04
1.80	7.320	60.69	27.82	7.330	0.83	6	18.47	33.23	0.00	33.23	219.44	0.83	0.00	6	1.77	131.96
1.82	7.600	61.01	27.82	7.610	0.80	6	18.49	33.60	0.00	33.60	225.35	0.81	0.00	6	1.75	135.27
1.84	7.760	61.78	27.82	7.770	0.80	6	18.52	33.97	0.00	33.97	227.59	0.80	0.00	6	1.74	136.98
1.86	7.880	62.65	27.82	7.890	0.79	6	18.54	34.34	0.00	34.34	228.62	0.80	0.00	6	1.74	138.16
1.88	7.970	63.79	27.65	7.980	0.80	6	18.56	34.71	0.00	34.71	228.75	0.80	0.00	6	1.74	138.97
1.90	7.920	66.20	27.82	7.930	0.84	6	18.60	35.09	0.00	35.09	224.90	0.84	0.00	6	1.75	138.13
1.92	7.810	69.98	27.82	7.820	0.90	6	18.66	35.46	0.00	35.46	219.42	0.90	0.00	6	1.78	136.72
1.94	7.870	73.31	27.82	7.880	0.93	6	18.72	35.83	0.00	35.83	218.79	0.94	0.00	6	1.79	137.52
1.96	8.450	74.72	27.82	8.460	0.88	6	18.77	36.21	0.00	36.21	232.53	0.89	0.00	6	1.75	145.05
1.98	8.670	74.36	27.65	8.680	0.86	6	18.77	36.58	0.00	36.58	236.15	0.86	0.00	6	1.74	147.26
2.00	8.500	74.63	27.65	8.510	0.88	6	18.77	36.96	0.00	36.96	229.14	0.88	0.00	6	1.75	144.34

In situ data				Basic output data						ARENILE PIAZZA MAZZINI - VIAREGGIO (LU)						CPTu 03	
Depth	qc	fs	u_2	qt	Rf	SBT	γ	σ,v	u_0	σ',v_0	Qt1	Fr	Bq	SBTn	Ic	Qtn
(m)	(MPa)	(kPa)	(kPa)	(MPa)	(%)		kN/m^3	(kPa)	(kPa)	(kPa)		(%)				
2.02	8.140	76.09	27.82	8.150	0.93	6	18.78	37.33	0.20	37.14	218.33	0.94	0.00	6	1.78	139.40
2.04	7.890	77.46	27.82	7.900	0.98	6	18.78	37.71	0.39	37.32	210.57	0.99	0.00	6	1.81	135.90
2.06	7.680	79.14	27.82	7.690	1.03	6	18.80	38.09	0.59	37.50	203.95	1.03	0.00	6	1.83	132.97
2.08	7.560	81.60	27.82	7.570	1.08	6	18.83	38.46	0.78	37.68	199.78	1.08	0.00	6	1.84	131.40
2.10	7.450	83.79	27.65	7.460	1.12	6	18.85	38.84	0.98	37.86	195.91	1.13	0.00	6	1.86	129.89
2.12	7.330	84.65	27.82	7.340	1.15	5	18.86	39.22	1.18	38.04	191.81	1.16	0.00	6	1.87	128.03
2.14	7.500	84.61	27.82	7.510	1.13	6	18.87	39.59	1.37	38.22	195.34	1.13	0.00	6	1.86	130.09
2.16	7.690	84.06	27.82	7.700	1.09	6	18.87	39.97	1.57	38.40	199.36	1.10	0.00	6	1.85	132.32
2.18	7.690	84.06	27.82	7.700	1.09	6	18.87	40.35	1.77	38.58	198.41	1.10	0.00	6	1.85	132.01
2.20	7.560	66.70	21.87	7.560	0.88	6	18.60	40.72	1.96	38.76	194.12	0.89	0.00	6	1.80	127.10
2.22	7.850	66.25	21.87	7.850	0.84	6	18.60	41.09	2.16	38.93	200.68	0.85	0.00	6	1.78	130.65
2.24	7.880	68.43	21.70	7.880	0.87	6	18.64	41.46	2.35	39.11	200.54	0.87	0.00	6	1.78	131.16
2.26	7.970	70.21	21.52	7.970	0.88	6	18.67	41.84	2.55	39.29	201.91	0.89	0.00	6	1.78	132.39
2.28	8.030	73.31	21.35	8.030	0.91	6	18.73	42.21	2.75	39.47	202.51	0.92	0.00	6	1.79	133.43
2.30	8.120	75.77	20.65	8.120	0.93	6	18.77	42.59	2.94	39.64	203.85	0.94	0.00	6	1.79	134.75
2.32	8.110	78.46	20.65	8.110	0.97	6	18.81	42.96	3.14	39.82	202.67	0.97	0.00	6	1.80	134.75
2.34	8.120	80.65	20.47	8.120	0.99	6	18.84	43.34	3.34	40.00	202.00	1.00	0.00	6	1.81	134.92
2.36	8.400	81.47	20.30	8.400	0.97	6	18.87	43.72	3.53	40.19	208.04	0.97	0.00	6	1.80	138.51
2.38	8.850	80.96	19.95	8.850	0.91	6	18.88	44.09	3.73	40.37	218.25	0.92	0.00	6	1.77	144.11
2.40	9.090	79.87	19.77	9.090	0.88	6	18.87	44.47	3.92	40.55	223.18	0.88	0.00	6	1.75	146.78
2.42	9.170	79.10	19.60	9.170	0.86	6	18.87	44.85	4.12	40.73	224.14	0.87	0.00	6	1.74	147.40
2.44	9.180	79.19	19.60	9.180	0.86	6	18.87	45.23	4.32	40.91	223.38	0.87	0.00	6	1.74	147.23
2.46	9.290	78.96	19.42	9.290	0.85	6	18.87	45.60	4.51	41.09	225.07	0.85	0.00	6	1.74	148.33
2.48	9.500	79.28	19.07	9.500	0.83	6	18.88	45.98	4.71	41.27	229.15	0.84	0.00	6	1.72	150.80
2.50	9.750	80.51	18.90	9.750	0.83	6	18.91	46.36	4.91	41.45	234.17	0.83	0.00	6	1.72	153.93
2.52	9.940	80.83	18.90	9.940	0.81	6	18.92	46.74	5.10	41.64	237.70	0.82	0.00	6	1.71	156.12
2.54	10.090	82.65	18.72	10.090	0.82	6	18.95	47.12	5.30	41.82	240.24	0.82	0.00	6	1.70	158.04
2.56	10.190	85.84	18.72	10.190	0.84	6	19.00	47.50	5.49	42.00	241.56	0.85	0.00	6	1.71	159.53
2.58	10.210	88.85	18.55	10.210	0.87	6	19.04	47.88	5.69	42.19	240.97	0.87	0.00	6	1.72	159.94
2.60	10.050	91.63	18.72	10.050	0.91	6	19.07	48.26	5.89	42.37	236.13	0.92	0.00	6	1.74	157.99
2.62	9.790	94.09	18.90	9.790	0.96	6	19.09	48.64	6.08	42.56	228.99	0.97	0.00	6	1.76	154.66
2.64	9.360	97.41	19.25	9.360	1.04	6	19.11	49.02	6.28	42.74	217.92	1.05	0.00	6	1.79	149.19
2.66	9.070	99.51	19.42	9.070	1.10	6	19.13	49.40	6.47	42.93	210.21	1.10	0.00	6	1.82	145.33
2.68	8.770	100.01	19.60	8.770	1.14	6	19.12	49.79	6.67	43.12	202.34	1.15	0.00	6	1.84	141.11
2.70	8.550	99.01	19.77	8.550	1.16	6	19.10	50.17	6.87	43.30	196.38	1.16	0.00	6	1.85	137.75
2.72	8.320	97.50	19.77	8.320	1.17	6	19.07	50.55	7.06	43.49	190.25	1.18	0.00	6	1.86	134.21
2.74	8.020	95.36	20.12	8.020	1.19	6	19.03	50.93	7.26	43.67	182.57	1.20	0.00	6	1.88	129.65
2.76	7.490	91.17	20.65	7.490	1.22	5	18.95	51.31	7.46	43.86	169.71	1.22	0.00	6	1.90	121.76
2.78	7.190	87.39	20.82	7.190	1.21	5	18.89	51.69	7.65	44.04	162.19	1.22	0.00	6	1.92	117.02
2.80	6.950	82.42	21.00	6.950	1.19	5	18.81	52.07	7.85	44.22	156.09	1.19	0.00	6	1.92	112.96
2.82	6.790	77.96	21.17	6.790	1.15	5	18.73	52.44	8.04	44.40	151.85	1.16	0.00	6	1.92	110.04
2.84	6.750	74.31	21.17	6.750	1.10	5	18.68	52.81	8.24	44.57	150.34	1.11	0.00	6	1.91	108.84
2.86	6.720	70.89	21.17	6.720	1.05	5	18.62	53.19	8.44	44.75	149.07	1.06	0.00	6	1.90	107.79
2.88	6.630	67.25	21.35	6.630	1.01	5	18.55	53.56	8.63	44.93	146.48	1.02	0.00	6	1.90	105.92
2.90	6.460	64.61	21.35	6.460	1.00	5	18.50	53.93	8.83	45.10	142.14	1.01	0.00	6	1.90	103.11
2.92	6.210	62.19	21.52	6.210	1.00	5	18.44	54.30	9.03	45.27	136.06	1.01	0.00	6	1.92	99.26
2.94	6.080	61.60	21.70	6.080	1.01	5	18.42	54.67	9.22	45.45	132.68	1.02	0.00	6	1.93	97.24
2.96	5.960	61.33	21.70	5.960	1.03	5	18.41	55.03	9.42	45.62	129.54	1.04	0.00	6	1.94	95.39
2.98	5.800	61.33	21.70	5.800	1.06	5	18.40	55.40	9.61	45.79	125.55	1.07	0.00	6	1.95	93.04
3.00	5.630	61.46	21.87	5.630	1.09	5	18.39	55.77	9.81	45.96	121.38	1.10	0.00	6	1.97	90.56
3.02	5.450	61.05	19.24	5.450	1.12	5	18.37	56.14	10.01	46.13	117.01	1.13	0.00	6	1.99	87.88
3.04	5.220	58.96	19.43	5.220	1.13	5	18.31	56.50	10.20	46.30	111.60	1.14	0.00	6	2.00	84.34
3.06	5.150	57.45	19.53	5.150	1.11	5	18.28	56.87	10.40	46.47	109.68	1.13	0.00	6	2.01	83.05
3.08	5.100	55.18	19.63	5.100	1.08	5	18.23	57.24	10.59	46.64	108.20	1.09	0.00	6	2.00	81.95
3.10	5.010	52.31	19.73	5.010	1.04	5	18.16	57.60	10.79	46.81	105.89	1.06	0.00	6	2.00	80.25

In situ data **Basic output data** **ARENILE PIAZZA MAZZINI - VIAREGGIO (LU)** **CPTu 03**

Depth (m)	qc (MPa)	fs (kPa)	u_2 (kPa)	qt (MPa)	Rf (%)	SBT	γ kN/m^3	σ,v (kPa)	u_0 (kPa)	σ',v_0 (kPa)	Qt1	Fr (%)	Bq	SBTn	Ic	Qtn
3.12	4.850	49.71	20.00	4.850	1.02	5	18.09	57.96	10.99	46.97	102.10	1.04	0.00	6	2.01	77.63
3.14	4.630	47.93	20.19	4.630	1.03	5	18.03	58.32	11.18	47.14	97.07	1.05	0.00	6	2.02	74.28
3.16	4.630	47.93	20.29	4.630	1.03	5	18.03	58.68	11.38	47.30	96.73	1.05	0.00	6	2.02	74.13
3.18	4.630	47.93	20.39	4.630	1.03	5	18.03	59.04	11.58	47.47	96.38	1.05	0.00	6	2.03	73.98
3.20	4.140	36.50	19.00	4.140	0.88	5	17.67	59.40	11.77	47.62	85.76	0.89	0.00	6	2.02	65.89
3.22	4.130	36.36	19.01	4.130	0.88	5	17.67	59.75	11.97	47.78	85.26	0.89	0.00	6	2.03	65.61
3.24	4.170	37.09	19.11	4.170	0.89	5	17.69	60.10	12.16	47.94	85.81	0.90	0.00	6	2.03	66.11
3.26	4.340	37.59	19.13	4.340	0.87	5	17.72	60.46	12.36	48.10	89.06	0.88	0.00	6	2.01	68.34
3.28	4.580	37.41	18.96	4.580	0.82	5	17.74	60.81	12.56	48.26	93.73	0.83	0.00	6	1.98	71.41
3.30	4.820	36.31	18.89	4.820	0.75	5	17.72	61.17	12.75	48.41	98.37	0.76	0.00	6	1.94	74.33
3.32	4.870	35.90	18.55	4.870	0.74	5	17.71	61.52	12.95	48.57	99.07	0.75	0.00	6	1.93	74.80
3.34	4.960	36.68	18.04	4.960	0.74	5	17.75	61.88	13.15	48.73	100.59	0.75	0.00	6	1.93	75.95
3.36	5.010	37.54	17.88	5.010	0.75	5	17.78	62.23	13.34	48.89	101.28	0.76	0.00	6	1.93	76.58
3.38	5.030	38.36	17.89	5.030	0.76	5	17.80	62.59	13.54	49.05	101.35	0.77	0.00	6	1.93	76.80
3.40	4.960	40.73	17.73	4.960	0.82	5	17.87	62.94	13.73	49.21	99.58	0.83	0.00	6	1.96	76.02
3.42	4.930	42.51	17.83	4.930	0.86	5	17.91	63.30	13.93	49.37	98.64	0.87	0.00	6	1.97	75.69
3.44	4.830	43.88	18.10	4.830	0.91	5	17.94	63.66	14.13	49.53	96.30	0.92	0.00	6	1.99	74.37
3.46	4.620	45.33	18.38	4.620	0.98	5	17.96	64.02	14.32	49.70	91.75	0.99	0.00	6	2.02	71.59
3.48	4.230	47.25	19.00	4.230	1.12	5	17.98	64.38	14.52	49.86	83.62	1.13	0.00	5	2.08	66.39
3.50	4.000	48.16	19.19	4.000	1.20	5	17.98	64.74	14.72	50.02	78.74	1.22	0.00	5	2.12	63.20
3.52	3.820	48.43	19.46	3.820	1.27	5	17.97	65.10	14.91	50.19	74.90	1.29	0.00	5	2.15	60.63
3.54	3.710	47.38	19.74	3.710	1.28	5	17.93	65.46	15.11	50.35	72.46	1.30	0.00	5	2.16	58.90
3.56	3.640	45.70	19.93	3.640	1.25	5	17.88	65.82	15.30	50.51	70.84	1.28	0.00	5	2.16	57.68
3.58	3.610	43.74	20.03	3.610	1.21	5	17.83	66.17	15.50	50.67	70.02	1.23	0.00	5	2.16	56.99
3.60	3.640	40.73	20.13	3.640	1.12	5	17.75	66.53	15.70	50.83	70.38	1.14	0.00	5	2.14	57.04
3.62	3.740	38.32	20.14	3.740	1.02	5	17.69	66.88	15.89	50.99	72.12	1.04	0.00	5	2.11	58.07
3.64	3.930	35.90	20.24	3.930	0.91	5	17.63	67.23	16.09	51.15	75.60	0.93	0.00	5	2.07	60.28
3.66	4.170	33.76	20.16	4.170	0.81	5	17.58	67.59	16.28	51.30	80.04	0.82	0.00	6	2.02	63.14
3.68	4.440	32.12	20.09	4.440	0.72	5	17.55	67.94	16.48	51.46	85.04	0.73	0.00	6	1.97	66.39
3.70	4.750	30.71	19.84	4.750	0.65	5	17.53	68.29	16.68	51.61	90.79	0.66	0.00	6	1.93	70.12
3.72	5.160	29.25	19.94	5.160	0.57	6	17.50	68.64	16.87	51.77	98.43	0.57	0.00	6	1.87	75.07
3.74	5.240	29.25	20.04	5.240	0.56	6	17.51	68.99	17.07	51.92	99.67	0.57	0.00	6	1.86	75.96
3.76	5.220	30.25	20.14	5.220	0.58	6	17.54	69.34	17.27	52.07	98.99	0.59	0.00	6	1.87	75.72
3.78	5.150	31.85	20.33	5.150	0.62	6	17.60	69.69	17.46	52.23	97.35	0.63	0.00	6	1.89	74.91
3.80	5.060	33.94	20.60	5.060	0.67	6	17.66	70.04	17.66	52.39	95.33	0.68	0.00	6	1.92	73.89
3.82	4.960	37.04	20.70	4.960	0.75	5	17.76	70.40	17.85	52.54	93.14	0.76	0.00	6	1.95	72.84
3.84	4.860	40.73	20.80	4.860	0.84	5	17.86	70.75	18.05	52.70	90.95	0.85	0.00	6	1.98	71.80
3.86	4.770	44.88	21.08	4.770	0.94	5	17.96	71.11	18.25	52.87	88.96	0.95	0.00	6	2.02	70.90
3.88	4.720	46.79	21.18	4.720	0.99	5	18.01	71.47	18.44	53.03	87.74	1.01	0.00	6	2.03	70.29
3.90	4.610	48.16	21.28	4.610	1.04	5	18.03	71.83	18.64	53.19	85.39	1.06	0.00	5	2.05	68.84
3.92	4.500	49.25	21.38	4.500	1.09	5	18.05	72.19	18.84	53.36	83.06	1.11	0.00	5	2.07	67.35
3.94	4.420	49.71	21.48	4.420	1.12	5	18.05	72.56	19.03	53.52	81.30	1.14	0.00	5	2.09	66.21
3.96	4.410	49.16	21.75	4.410	1.11	5	18.04	72.92	19.23	53.69	80.86	1.13	0.00	5	2.09	65.91
3.98	4.440	48.11	21.94	4.440	1.08	5	18.02	73.28	19.42	53.85	81.17	1.10	0.00	5	2.08	66.09
4.00	4.490	47.66	22.04	4.490	1.06	5	18.01	73.64	19.62	54.02	81.84	1.08	0.00	5	2.07	66.59
4.02	4.580	47.07	22.23	4.580	1.03	5	18.00	74.00	19.82	54.18	83.25	1.04	0.00	5	2.06	67.59
4.04	4.750	46.06	22.15	4.750	0.97	5	17.99	74.36	20.01	54.34	86.12	0.98	0.00	6	2.03	69.58
4.06	4.980	45.79	21.99	4.980	0.92	5	18.00	74.72	20.21	54.51	90.07	0.93	0.00	6	2.00	72.39
4.08	5.190	45.93	22.18	5.190	0.88	5	18.02	75.08	20.40	54.67	93.64	0.90	0.00	6	1.98	74.96
4.10	5.300	46.34	22.28	5.300	0.87	5	18.04	75.44	20.60	54.84	95.36	0.89	0.00	6	1.97	76.26
4.12	5.230	48.84	22.55	5.230	0.93	5	18.10	75.80	20.80	55.00	93.79	0.95	0.00	6	1.99	75.45
4.14	5.130	51.30	22.83	5.130	1.00	5	18.14	76.16	20.99	55.17	91.69	1.01	0.00	6	2.02	74.25
4.16	5.140	53.44	23.01	5.140	1.04	5	18.19	76.53	21.19	55.34	91.59	1.05	0.00	6	2.02	74.41
4.18	5.140	53.44	23.11	5.140	1.04	5	18.19	76.89	21.39	55.50	91.30	1.05	0.00	6	2.03	74.27
4.20	5.180	46.15	22.43	5.180	0.89	5	18.03	77.25	21.58	55.67	91.74	0.90	0.00	6	1.99	74.06

In situ data				Basic output data						ARENILE PIAZZA MAZZINI - VIAREGGIO (LU)						CPTu 03	
Depth	qc	fs	u_2	qt	Rf	SBT	γ	σ,v	u_0	σ',v_0	Qt1	Fr	Bq	SBTn	Ic	Qtn
(m)	(MPa)	(kPa)	(kPa)	(MPa)	(%)		kN/m^3	(kPa)	(kPa)	(kPa)		(%)				
4.22	5.410	48.48	22.26	5.410	0.90	5	18.10	77.61	21.78	55.83	95.58	0.91	0.00	6	1.97	77.03
4.24	5.500	50.94	22.28	5.500	0.93	5	18.16	77.97	21.97	56.00	96.90	0.94	0.00	6	1.98	78.24
4.26	5.480	52.58	22.46	5.480	0.96	5	18.20	78.34	22.17	56.17	96.25	0.97	0.00	6	1.99	77.98
4.28	5.420	54.36	22.65	5.420	1.00	5	18.23	78.70	22.37	56.34	94.89	1.02	0.00	6	2.00	77.22
4.30	5.350	55.36	22.93	5.350	1.03	5	18.25	79.07	22.56	56.50	93.36	1.05	0.00	6	2.02	76.27
4.32	5.210	56.59	22.33	5.210	1.09	5	18.26	79.43	22.76	56.67	90.61	1.10	0.00	6	2.04	74.45
4.34	5.050	58.59	22.69	5.050	1.16	5	18.29	79.80	22.96	56.84	87.52	1.18	0.00	5	2.06	72.41
4.36	4.890	59.87	22.88	4.890	1.22	5	18.30	80.16	23.15	57.01	84.44	1.24	0.00	5	2.09	70.32
4.38	4.790	59.69	22.89	4.790	1.24	5	18.29	80.53	23.35	57.18	82.44	1.27	0.00	5	2.10	68.89
4.40	4.740	58.27	23.08	4.740	1.23	5	18.26	80.90	23.54	57.35	81.32	1.25	0.00	5	2.10	68.03
4.42	4.720	55.08	23.00	4.720	1.17	5	18.19	81.26	23.74	57.52	80.73	1.19	0.00	5	2.09	67.44
4.44	4.760	52.12	22.93	4.760	1.09	5	18.13	81.62	23.94	57.69	81.18	1.11	0.00	5	2.07	67.63
4.46	4.760	48.89	23.11	4.760	1.03	5	18.06	81.98	24.13	57.85	80.94	1.04	0.00	5	2.06	67.29
4.48	4.760	45.97	23.39	4.760	0.96	5	17.99	82.35	24.33	58.02	80.71	0.98	0.00	6	2.04	66.96
4.50	4.810	43.28	23.58	4.810	0.90	5	17.92	82.70	24.53	58.18	81.34	0.91	0.00	6	2.02	67.28
4.52	4.840	42.10	23.50	4.840	0.87	5	17.90	83.06	24.72	58.34	81.62	0.88	0.00	6	2.01	67.45
4.54	5.070	41.78	23.51	5.070	0.82	5	17.90	83.42	24.92	58.50	85.32	0.84	0.00	6	1.99	70.18
4.56	5.280	41.78	23.53	5.280	0.79	5	17.92	83.78	25.11	58.66	88.66	0.80	0.00	6	1.96	72.67
4.58	5.340	42.69	23.71	5.340	0.80	5	17.95	84.14	25.31	58.83	89.42	0.81	0.00	6	1.96	73.36
4.60	5.230	43.79	24.08	5.230	0.84	5	17.97	84.50	25.51	58.99	87.31	0.85	0.00	6	1.98	71.97
4.62	5.010	45.84	24.26	5.010	0.91	5	18.01	84.86	25.70	59.15	83.34	0.93	0.00	6	2.02	69.27
4.64	4.800	46.43	24.63	4.800	0.97	5	18.00	85.22	25.90	59.32	79.57	0.98	0.00	6	2.05	66.58
4.66	4.530	46.47	24.90	4.530	1.02	5	17.98	85.58	26.09	59.48	74.80	1.04	0.00	5	2.08	63.08
4.68	4.260	45.43	25.18	4.270	1.07	5	17.93	85.93	26.29	59.64	70.07	1.09	0.00	5	2.11	59.50
4.70	4.190	45.38	25.28	4.200	1.08	5	17.93	86.29	26.49	59.81	68.70	1.10	0.00	5	2.12	58.51
4.72	4.260	44.29	25.29	4.270	1.04	5	17.90	86.65	26.68	59.97	69.68	1.06	0.00	5	2.11	59.22
4.74	4.440	41.69	25.21	4.450	0.94	5	17.85	87.01	26.88	60.13	72.48	0.96	0.00	5	2.07	61.21
4.76	4.670	39.46	25.05	4.680	0.84	5	17.81	87.37	27.08	60.29	76.09	0.86	0.00	6	2.03	63.81
4.78	4.760	38.55	25.24	4.770	0.81	5	17.79	87.72	27.27	60.45	77.38	0.82	0.00	6	2.01	64.75
4.80	4.620	38.50	25.51	4.630	0.83	5	17.77	88.08	27.47	60.61	74.86	0.85	0.00	6	2.03	62.91
4.82	4.230	38.55	26.05	4.240	0.91	5	17.74	88.43	27.66	60.77	68.24	0.93	0.00	5	2.08	57.97
4.84	3.940	38.96	26.50	3.950	0.99	5	17.73	88.79	27.86	60.93	63.30	1.01	0.00	5	2.12	54.27
4.86	3.660	39.82	26.86	3.670	1.09	5	17.72	89.14	28.06	61.08	58.55	1.11	0.00	5	2.17	50.70
4.88	3.490	40.73	27.05	3.500	1.17	5	17.73	89.50	28.25	61.24	55.61	1.20	0.00	5	2.21	48.51
4.90	3.400	40.82	27.24	3.410	1.20	5	17.72	89.85	28.45	61.40	54.00	1.23	0.00	5	2.22	47.28
4.92	3.400	39.73	27.25	3.410	1.17	5	17.69	90.20	28.65	61.56	53.85	1.20	0.00	5	2.22	47.14
4.94	3.460	38.09	27.35	3.470	1.10	5	17.65	90.56	28.84	61.72	54.68	1.13	0.00	5	2.20	47.72
4.96	3.520	35.86	27.54	3.530	1.02	5	17.59	90.91	29.04	61.87	55.51	1.04	0.00	5	2.17	48.27
4.98	3.530	33.58	27.64	3.540	0.95	5	17.51	91.26	29.23	62.03	55.53	0.97	0.00	5	2.16	48.19
5.00	3.570	29.75	27.74	3.580	0.83	5	17.38	91.61	29.43	62.18	56.03	0.85	0.00	5	2.12	48.37
5.02	3.600	28.25	27.84	3.610	0.78	5	17.32	91.96	29.63	62.33	56.37	0.80	0.00	5	2.11	48.56
5.04	3.620	27.38	27.85	3.630	0.76	5	17.29	92.30	29.82	62.48	56.55	0.77	0.00	5	2.10	48.67
5.06	3.710	26.38	28.04	3.720	0.71	5	17.26	92.65	30.02	62.63	57.85	0.73	0.00	5	2.08	49.64
5.08	3.870	25.38	27.96	3.880	0.65	5	17.23	92.99	30.21	62.78	60.26	0.67	0.00	6	2.05	51.46
5.10	4.050	24.33	27.98	4.060	0.60	5	17.20	93.34	30.41	62.92	62.97	0.61	0.00	6	2.01	53.50
5.12	4.240	23.56	27.90	4.250	0.55	5	17.18	93.68	30.61	63.07	65.83	0.57	0.00	6	1.98	55.66
5.14	4.410	23.37	27.56	4.420	0.53	6	17.18	94.02	30.80	63.22	68.36	0.54	0.00	6	1.96	57.62
5.16	4.470	23.33	27.66	4.480	0.52	6	17.19	94.37	31.00	63.37	69.14	0.53	0.00	6	1.95	58.25
5.18	4.470	23.33	27.76	4.480	0.52	6	17.19	94.71	31.20	63.51	68.97	0.53	0.00	6	1.95	58.17
5.20	4.360	22.13	27.43	4.370	0.51	6	17.12	95.05	31.39	63.66	67.08	0.52	0.00	6	1.95	56.67
5.22	4.480	20.95	27.61	4.490	0.47	6	17.06	95.39	31.59	63.81	68.80	0.48	0.00	6	1.93	57.92
5.24	4.420	21.87	27.89	4.430	0.49	6	17.11	95.74	31.78	63.95	67.71	0.51	0.00	6	1.95	57.21
5.26	4.350	25.29	28.16	4.360	0.58	5	17.27	96.08	31.98	64.10	66.45	0.59	0.00	6	1.98	56.57
5.28	4.270	28.70	28.44	4.280	0.67	5	17.41	96.43	32.18	64.25	65.05	0.69	0.00	6	2.02	55.77
5.30	4.180	31.48	28.63	4.190	0.75	5	17.50	96.78	32.37	64.40	63.49	0.77	0.00	6	2.05	54.79

In situ data				Basic output data						ARENILE PIAZZA MAZZINI - VIAREGGIO (LU)						CPTu 03	
Depth	qc	fs	u_2	qt	Rf	SBT	γ	σ,v	u_0	σ',v_0	Qt1	Fr	Bq	SBTn	Ic	Qtn
(m)	(MPa)	(kPa)	(kPa)	(MPa)	(%)		kN/m^3	(kPa)	(kPa)	(kPa)		(%)				
5.32	4.110	33.62	28.90	4.120	0.82	5	17.57	97.13	32.57	64.56	62.25	0.84	0.00	5	2.08	53.99
5.34	4.010	36.50	29.26	4.020	0.91	5	17.66	97.48	32.77	64.72	60.55	0.93	0.00	5	2.11	52.85
5.36	3.950	37.50	29.36	3.960	0.95	5	17.68	97.84	32.96	64.87	59.47	0.97	0.00	5	2.13	52.08
5.38	3.880	37.41	29.55	3.890	0.96	5	17.67	98.19	33.16	65.03	58.24	0.99	0.00	5	2.14	51.14
5.40	3.850	37.00	29.65	3.860	0.96	5	17.66	98.54	33.35	65.19	57.64	0.98	0.00	5	2.14	50.67
5.42	3.940	36.13	29.66	3.950	0.92	5	17.64	98.89	33.55	65.34	58.87	0.94	0.00	5	2.12	51.64
5.44	4.090	35.54	29.59	4.100	0.87	5	17.64	99.25	33.75	65.50	61.02	0.89	0.00	5	2.10	53.34
5.46	4.380	34.54	29.43	4.390	0.79	5	17.63	99.60	33.94	65.66	65.28	0.81	0.00	6	2.05	56.70
5.48	4.550	33.76	29.44	4.560	0.74	5	17.62	99.95	34.14	65.81	67.71	0.76	0.00	6	2.03	58.60
5.50	4.550	32.90	29.45	4.560	0.72	5	17.59	100.30	34.34	65.97	67.54	0.74	0.00	6	2.02	58.46
5.52	4.360	32.12	29.73	4.370	0.74	5	17.54	100.66	34.53	66.12	64.50	0.75	0.00	6	2.04	56.06
5.54	4.130	31.71	30.00	4.140	0.77	5	17.51	101.01	34.73	66.28	60.88	0.79	0.00	5	2.07	53.19
5.56	3.990	31.89	30.19	4.000	0.80	5	17.50	101.36	34.92	66.43	58.63	0.82	0.00	5	2.09	51.44
5.58	3.940	31.80	30.29	3.950	0.81	5	17.49	101.71	35.12	66.59	57.74	0.83	0.00	5	2.10	50.75
5.60	3.900	30.85	30.56	3.910	0.79	5	17.45	102.06	35.32	66.74	57.00	0.81	0.00	5	2.10	50.14
5.62	3.820	30.30	30.93	3.830	0.79	5	17.43	102.40	35.51	66.89	55.67	0.81	0.00	5	2.11	49.08
5.64	3.650	30.16	31.29	3.660	0.82	5	17.40	102.75	35.71	67.04	53.00	0.85	0.00	5	2.13	46.95
5.66	3.370	30.25	31.74	3.380	0.90	5	17.38	103.10	35.90	67.20	48.71	0.92	0.00	5	2.18	43.49
5.68	3.060	29.48	32.01	3.070	0.96	5	17.31	103.45	36.10	67.35	44.00	0.99	0.00	5	2.23	39.61
5.70	2.850	28.57	32.46	2.860	1.00	5	17.25	103.79	36.30	67.49	40.78	1.04	0.00	5	2.27	36.94
5.72	2.740	27.06	32.83	2.750	0.99	5	17.17	104.14	36.49	67.64	39.06	1.02	0.00	5	2.28	35.46
5.74	2.710	25.61	33.10	2.720	0.94	5	17.10	104.48	36.69	67.79	38.53	0.98	0.00	5	2.28	34.98
5.76	2.750	24.19	33.29	2.760	0.88	5	17.04	104.82	36.89	67.93	39.04	0.91	0.00	5	2.26	35.35
5.78	2.850	21.10	33.56	2.860	0.74	5	16.90	105.16	37.08	68.08	40.42	0.77	0.00	5	2.21	36.36
5.80	3.010	18.68	33.58	3.020	0.62	5	16.78	105.49	37.28	68.22	42.68	0.64	0.00	5	2.15	38.10
5.82	3.260	16.58	33.50	3.270	0.51	5	16.67	105.83	37.47	68.35	46.24	0.52	0.00	5	2.08	40.90
5.84	3.540	14.81	33.43	3.550	0.42	5	16.57	106.16	37.67	68.49	50.23	0.43	0.00	6	2.02	44.04
5.86	3.800	13.21	33.35	3.810	0.35	6	16.47	106.49	37.87	68.62	53.92	0.36	0.00	6	1.96	46.91
5.88	3.930	12.21	33.36	3.940	0.31	6	16.39	106.82	38.06	68.75	55.70	0.32	0.00	6	1.93	48.29
5.90	3.950	12.48	33.38	3.960	0.32	6	16.42	107.15	38.26	68.89	55.88	0.32	0.00	6	1.93	48.49
5.92	3.950	14.26	33.56	3.960	0.36	6	16.57	107.48	38.46	69.02	55.77	0.37	0.00	6	1.95	48.57
5.94	3.940	16.49	33.66	3.950	0.42	6	16.74	107.81	38.65	69.16	55.51	0.43	0.00	6	1.98	48.57
5.96	3.790	17.95	33.85	3.800	0.47	5	16.82	108.15	38.85	69.30	53.23	0.49	0.00	6	2.02	46.86
5.98	3.480	22.01	34.13	3.490	0.63	5	17.02	108.49	39.04	69.44	48.65	0.65	0.00	5	2.10	43.39
6.00	3.360	24.88	34.40	3.370	0.74	5	17.15	108.83	39.24	69.59	46.82	0.76	0.00	5	2.15	42.06
6.02	3.280	26.97	34.59	3.290	0.82	5	17.23	109.17	39.44	69.74	45.57	0.85	0.00	5	2.18	41.14
6.04	3.240	27.84	34.95	3.250	0.86	5	17.27	109.52	39.63	69.88	44.89	0.89	0.00	5	2.20	40.64
6.06	3.230	27.43	35.23	3.240	0.85	5	17.25	109.86	39.83	70.03	44.65	0.88	0.00	5	2.20	40.44
6.08	3.320	27.38	35.33	3.330	0.82	5	17.26	110.21	40.02	70.18	45.84	0.85	0.00	5	2.18	41.45
6.10	3.510	27.16	35.34	3.520	0.77	5	17.27	110.55	40.22	70.33	48.44	0.80	0.00	5	2.15	43.63
6.12	3.690	26.20	35.35	3.700	0.71	5	17.25	110.90	40.42	70.48	50.88	0.73	0.00	5	2.11	45.64
6.14	3.720	24.51	35.45	3.730	0.66	5	17.17	111.24	40.61	70.63	51.20	0.68	0.00	5	2.09	45.84
6.16	3.680	23.46	35.64	3.690	0.64	5	17.12	111.58	40.81	70.77	50.52	0.66	0.00	5	2.09	45.25
6.18	3.680	23.46	35.74	3.690	0.64	5	17.12	111.93	41.01	70.92	50.41	0.66	0.00	5	2.09	45.19
6.20	3.680	15.13	35.66	3.690	0.41	5	16.61	112.26	41.20	71.06	50.31	0.42	0.00	6	2.01	44.64
6.22	3.680	15.13	35.76	3.690	0.41	5	16.61	112.60	41.40	71.20	50.21	0.42	0.00	6	2.01	44.59
6.24	4.040	14.76	35.43	4.050	0.36	6	16.62	112.93	41.59	71.33	55.15	0.38	0.00	6	1.95	48.66
6.26	4.740	14.72	34.74	4.750	0.31	6	16.68	113.26	41.79	71.47	64.83	0.32	0.00	6	1.86	56.60
6.28	4.960	15.31	34.75	4.970	0.31	6	16.74	113.60	41.99	71.61	67.78	0.32	0.00	6	1.84	59.07
6.30	4.950	16.31	34.94	4.960	0.33	6	16.81	113.93	42.18	71.75	67.50	0.34	0.00	6	1.86	58.97
6.32	4.990	18.41	35.04	5.000	0.37	6	16.96	114.27	42.38	71.89	67.92	0.38	0.00	6	1.87	59.51
6.34	5.160	21.51	35.14	5.170	0.42	6	17.15	114.61	42.58	72.04	70.14	0.43	0.00	6	1.88	61.58
6.36	5.160	25.10	35.15	5.170	0.49	6	17.32	114.96	42.77	72.19	69.99	0.50	0.00	6	1.91	61.73
6.38	5.210	28.39	35.25	5.220	0.54	6	17.47	115.31	42.97	72.34	70.53	0.56	0.00	6	1.93	62.41
6.40	5.430	31.21	35.26	5.440	0.57	6	17.60	115.66	43.16	72.49	73.41	0.59	0.00	6	1.93	64.99

In situ data				Basic output data						ARENILE PIAZZA MAZZINI - VIAREGGIO (LU)						CPTu 03	
Depth	qc	fs	u_2	qt	Rf	SBT	γ	σ,v	u_0	σ',v_0	Qt1	Fr	Bq	SBTn	Ic	Qtn
(m)	(MPa)	(kPa)	(kPa)	(MPa)	(%)		kN/m^3	(kPa)	(kPa)	(kPa)		(%)				
6.42	5.790	33.21	35.19	5.800	0.57	6	17.69	116.01	43.36	72.65	78.20	0.58	0.00	6	1.91	69.09
6.44	6.260	33.85	35.11	6.270	0.54	6	17.74	116.37	43.56	72.81	84.48	0.55	0.00	6	1.87	74.34
6.46	6.460	34.67	35.21	6.470	0.54	6	17.78	116.72	43.75	72.97	87.03	0.55	0.00	6	1.85	76.53
6.48	6.420	36.27	35.49	6.430	0.56	6	17.83	117.08	43.95	73.13	86.29	0.57	0.00	6	1.87	76.08
6.50	6.370	38.91	35.85	6.380	0.61	6	17.91	117.44	44.15	73.29	85.41	0.62	0.00	6	1.89	75.56
6.52	6.380	46.52	35.95	6.390	0.73	6	18.12	117.80	44.34	73.46	85.35	0.74	0.00	6	1.93	75.93
6.54	6.720	52.12	35.79	6.730	0.77	6	18.27	118.16	44.54	73.62	89.77	0.79	0.00	6	1.92	79.91
6.56	7.220	56.68	35.89	7.230	0.78	6	18.39	118.53	44.73	73.79	96.33	0.80	0.00	6	1.90	85.61
6.58	7.770	59.14	34.15	7.780	0.76	6	18.47	118.90	44.93	73.97	103.53	0.77	0.00	6	1.87	91.76
6.60	8.330	59.73	33.81	8.340	0.72	6	18.51	119.27	45.13	74.14	110.84	0.73	0.00	6	1.83	97.90
6.62	8.670	60.46	33.56	8.680	0.70	6	18.53	119.64	45.32	74.32	115.14	0.71	0.00	6	1.81	101.57
6.64	8.620	60.42	33.75	8.630	0.70	6	18.53	120.01	45.52	74.49	114.20	0.71	0.00	6	1.82	100.89
6.66	8.630	61.10	33.94	8.640	0.71	6	18.55	120.38	45.71	74.66	114.06	0.72	0.00	6	1.82	100.89
6.68	8.510	63.70	34.21	8.520	0.75	6	18.59	120.75	45.91	74.84	112.19	0.76	0.00	6	1.84	99.55
6.70	8.200	67.43	34.66	8.210	0.82	6	18.64	121.12	46.11	75.02	107.79	0.83	0.00	6	1.87	96.13
6.72	7.860	73.22	35.11	7.870	0.93	6	18.72	121.50	46.30	75.19	103.01	0.95	0.00	6	1.92	92.42
6.74	7.530	79.55	35.56	7.540	1.06	6	18.80	121.87	46.50	75.37	98.38	1.07	0.00	6	1.97	88.81
6.76	7.180	83.70	36.10	7.190	1.16	5	18.84	122.25	46.70	75.55	93.51	1.18	0.00	6	2.01	84.87
6.78	7.060	85.75	36.29	7.070	1.21	5	18.86	122.63	46.89	75.73	91.70	1.23	0.00	6	2.03	83.45
6.80	6.980	87.16	36.56	6.990	1.25	5	18.87	123.00	47.09	75.92	90.42	1.27	0.00	5	2.04	82.46
6.82	6.800	85.70	36.93	6.810	1.26	5	18.84	123.38	47.28	76.10	87.84	1.28	0.00	5	2.05	80.27
6.84	6.630	81.65	37.29	6.640	1.23	5	18.78	123.76	47.48	76.28	85.40	1.25	0.00	5	2.06	78.12
6.86	6.440	79.23	37.56	6.450	1.23	5	18.73	124.13	47.68	76.46	82.71	1.25	0.00	5	2.07	75.80
6.88	6.310	79.51	37.93	6.320	1.26	5	18.73	124.51	47.87	76.63	80.81	1.28	0.00	5	2.08	74.23
6.90	6.290	78.18	38.03	6.300	1.24	5	18.71	124.88	48.07	76.81	80.36	1.27	0.00	5	2.08	73.85
6.92	6.550	75.09	37.78	6.560	1.15	5	18.68	125.25	48.27	76.99	83.55	1.17	0.00	6	2.04	76.57
6.94	7.110	71.21	37.53	7.120	1.00	6	18.65	125.63	48.46	77.17	90.61	1.02	0.00	6	1.98	82.60
6.96	7.550	66.57	37.36	7.560	0.88	6	18.59	126.00	48.66	77.34	96.09	0.90	0.00	6	1.93	87.21
6.98	7.640	63.42	37.55	7.650	0.83	6	18.54	126.37	48.85	77.52	97.03	0.84	0.00	6	1.91	87.98
7.00	7.360	61.87	38.09	7.370	0.84	6	18.50	126.74	49.05	77.69	93.20	0.85	0.00	6	1.92	84.72
7.02	6.700	59.69	38.80	6.710	0.89	6	18.42	127.11	49.25	77.86	84.52	0.91	0.00	6	1.97	77.24
7.04	6.340	61.96	39.25	6.350	0.98	5	18.44	127.48	49.44	78.04	79.71	1.00	0.00	6	2.02	73.21
7.06	6.020	68.21	39.70	6.030	1.13	5	18.53	127.85	49.64	78.21	75.44	1.16	0.00	5	2.07	69.71
7.08	5.590	75.50	40.33	5.600	1.35	5	18.62	128.22	49.83	78.39	69.78	1.38	0.00	5	2.14	64.96
7.10	5.070	80.01	40.95	5.080	1.58	5	18.65	128.59	50.03	78.56	63.00	1.62	0.00	5	2.22	59.10
7.12	4.610	80.96	41.40	4.620	1.75	5	18.63	128.97	50.23	78.74	57.02	1.80	0.00	5	2.28	53.82
7.14	4.310	78.96	41.85	4.320	1.83	5	18.57	129.34	50.42	78.91	53.08	1.88	0.00	5	2.32	50.29
7.16	4.120	75.27	42.13	4.130	1.82	5	18.50	129.71	50.62	79.09	50.56	1.88	0.00	5	2.33	47.99
7.18	4.080	72.63	42.31	4.090	1.78	5	18.46	130.08	50.82	79.26	49.94	1.83	0.00	5	2.33	47.42
7.20	4.080	72.63	42.41	4.090	1.78	5	18.46	130.45	51.01	79.43	49.83	1.84	0.00	5	2.33	47.34
7.22	3.930	53.76	43.30	3.940	1.36	5	18.10	130.81	51.21	79.60	47.83	1.41	0.00	5	2.27	45.25
7.24	3.930	45.52	43.49	3.940	1.16	5	17.91	131.17	51.40	79.77	47.73	1.20	0.00	5	2.23	45.02
7.26	3.910	37.32	43.59	3.920	0.95	5	17.68	131.53	51.60	79.93	47.38	0.99	0.00	5	2.19	44.54
7.28	3.830	32.58	43.78	3.840	0.85	5	17.51	131.88	51.80	80.08	46.29	0.88	0.00	5	2.17	43.47
7.30	3.610	29.71	44.14	3.620	0.82	5	17.38	132.23	51.99	80.23	43.46	0.85	0.00	5	2.19	40.89
7.32	3.320	26.56	44.50	3.330	0.80	5	17.22	132.57	52.19	80.38	39.76	0.83	0.00	5	2.21	37.51
7.34	3.120	25.20	44.69	3.130	0.81	5	17.14	132.91	52.39	80.53	37.21	0.84	0.00	5	2.24	35.19
7.36	3.150	26.65	44.88	3.160	0.84	5	17.21	133.26	52.58	80.67	37.51	0.88	0.00	5	2.25	35.51
7.38	3.230	28.11	44.98	3.240	0.87	5	17.28	133.60	52.78	80.82	38.42	0.91	0.00	5	2.24	36.39
7.40	3.350	28.48	45.34	3.360	0.85	5	17.31	133.95	52.97	80.97	39.83	0.88	0.00	5	2.22	37.69
7.42	3.490	27.47	45.44	3.500	0.79	5	17.28	134.29	53.17	81.12	41.48	0.82	0.00	5	2.19	39.17
7.44	3.700	26.56	45.36	3.710	0.72	5	17.26	134.64	53.37	81.27	43.98	0.74	0.00	5	2.15	41.42
7.46	4.130	25.92	45.03	4.140	0.63	5	17.28	134.98	53.56	81.42	49.18	0.65	0.00	5	2.08	46.08
7.48	4.430	25.61	44.86	4.440	0.58	5	17.29	135.33	53.76	81.57	52.76	0.60	0.00	6	2.04	49.30
7.50	4.650	24.97	44.88	4.660	0.54	6	17.28	135.68	53.96	81.72	55.35	0.55	0.00	6	2.00	51.62

In situ data				Basic output data						ARENILE PIAZZA MAZZINI - VIAREGGIO (LU)						CPTu 03	
Depth	qc	fs	u_2	qt	Rf	SBT	γ	σ,v	u_0	σ',v_0	Qt1	Fr	Bq	SBTn	Ic	Qtn
(m)	(MPa)	(kPa)	(kPa)	(MPa)	(%)		kN/m^3	(kPa)	(kPa)	(kPa)		(%)				
7.52	4.760	24.74	44.89	4.770	0.52	6	17.28	136.02	54.15	81.87	56.59	0.53	0.00	6	1.99	52.75
7.54	4.830	26.11	44.99	4.840	0.54	6	17.35	136.37	54.35	82.02	57.34	0.56	0.00	6	1.99	53.49
7.56	4.910	28.07	44.91	4.920	0.57	6	17.43	136.72	54.54	82.17	58.20	0.59	0.00	6	2.00	54.35
7.58	4.960	30.07	45.01	4.970	0.61	6	17.52	137.07	54.74	82.33	58.69	0.62	0.00	6	2.01	54.89
7.60	4.780	32.58	45.46	4.790	0.68	5	17.60	137.42	54.94	82.48	56.40	0.70	0.00	6	2.05	52.93
7.62	3.990	37.45	46.44	4.000	0.94	5	17.69	137.77	55.13	82.64	46.73	0.97	0.00	5	2.19	44.34
7.64	3.410	41.23	46.98	3.420	1.21	5	17.74	138.12	55.33	82.80	39.63	1.26	0.00	5	2.31	37.95
7.66	2.800	46.70	47.69	2.810	1.66	5	17.81	138.48	55.52	82.96	32.20	1.75	0.00	5	2.46	31.18
7.68	2.380	55.36	48.14	2.390	2.32	4	17.94	138.84	55.72	83.12	27.08	2.46	0.00	4	2.60	26.50
7.70	2.480	64.56	48.15	2.490	2.59	4	18.13	139.20	55.92	83.28	28.22	2.75	0.00	4	2.62	27.66
7.72	3.240	70.62	49.39	3.250	2.17	4	18.34	139.57	56.11	83.45	37.27	2.27	0.00	5	2.48	36.18
7.74	4.540	73.13	49.23	4.550	1.61	5	18.51	139.94	56.31	83.63	52.73	1.66	0.00	5	2.28	50.52
7.76	4.850	62.42	43.73	4.860	1.28	5	18.35	140.30	56.51	83.80	56.31	1.32	0.00	5	2.20	53.68
7.78	4.950	52.85	43.56	4.960	1.07	5	18.17	140.67	56.70	83.97	57.38	1.10	0.00	5	2.14	54.53
7.80	5.050	46.20	43.66	5.060	0.91	5	18.02	141.03	56.90	84.13	58.45	0.94	0.00	5	2.10	55.42
7.82	5.010	43.69	43.94	5.020	0.87	5	17.95	141.39	57.09	84.29	57.86	0.90	0.00	5	2.09	54.87
7.84	4.790	43.92	44.39	4.800	0.92	5	17.94	141.75	57.29	84.46	55.14	0.94	0.00	5	2.12	52.42
7.86	4.640	42.19	44.75	4.650	0.91	5	17.88	142.10	57.49	84.62	53.26	0.94	0.00	5	2.13	50.69
7.88	4.740	37.54	44.76	4.750	0.79	5	17.76	142.46	57.68	84.78	54.34	0.81	0.00	5	2.09	51.61
7.90	5.000	42.24	44.51	5.010	0.84	5	17.91	142.82	57.88	84.94	57.29	0.87	0.00	5	2.09	54.44
7.92	5.260	44.20	44.26	5.270	0.84	5	17.98	143.18	58.08	85.10	60.23	0.86	0.00	5	2.07	57.20
7.94	5.510	43.69	43.49	5.520	0.79	6	17.99	143.54	58.27	85.26	63.04	0.81	0.00	6	2.04	59.80
7.96	5.660	41.37	43.33	5.670	0.73	6	17.94	143.89	58.47	85.43	64.67	0.75	0.00	6	2.01	61.28
7.98	5.580	39.78	43.60	5.590	0.71	6	17.88	144.25	58.66	85.59	63.61	0.73	0.00	6	2.01	60.31
8.00	4.920	40.64	44.40	4.930	0.82	5	17.86	144.61	58.86	85.75	55.79	0.85	0.00	5	2.09	53.19
8.02	4.070	41.51	45.03	4.080	1.02	5	17.81	144.97	59.06	85.91	45.79	1.06	0.00	5	2.21	43.99
8.04	2.990	45.43	45.65	3.000	1.51	5	17.80	145.32	59.25	86.07	33.16	1.59	0.00	5	2.42	32.25
8.06	2.720	49.71	46.01	2.730	1.82	4	17.87	145.68	59.45	86.23	29.96	1.92	-0.01	4	2.51	29.29
8.08	3.090	53.63	46.55	3.100	1.73	5	18.00	146.04	59.64	86.39	34.18	1.82	0.00	5	2.45	33.32
8.10	3.820	57.14	46.21	3.830	1.49	5	18.16	146.40	59.84	86.56	42.55	1.55	0.00	5	2.33	41.22
8.12	4.470	54.90	45.44	4.480	1.23	5	18.17	146.76	60.04	86.73	49.95	1.27	0.00	5	2.22	48.14
8.14	4.430	49.53	45.80	4.440	1.12	5	18.05	147.13	60.23	86.89	49.39	1.15	0.00	5	2.20	47.58
8.16	4.280	41.83	46.16	4.290	0.98	5	17.84	147.48	60.43	87.05	47.58	1.01	0.00	5	2.18	45.80
8.18	4.200	37.73	46.44	4.210	0.90	5	17.72	147.84	60.63	87.21	46.57	0.93	0.00	5	2.17	44.83
8.20	4.200	37.73	46.54	4.210	0.90	5	17.72	148.19	60.82	87.37	46.48	0.93	0.00	5	2.17	44.77
8.22	3.800	22.14	49.00	3.810	0.58	5	17.06	148.54	61.02	87.52	41.83	0.60	0.00	5	2.12	40.20
8.24	3.640	18.13	49.71	3.650	0.50	5	16.82	148.88	61.21	87.66	39.94	0.52	0.00	5	2.10	38.37
8.26	3.480	17.50	49.99	3.490	0.50	5	16.76	149.21	61.41	87.80	38.05	0.52	0.00	5	2.13	36.61
8.28	3.490	16.86	50.18	3.500	0.48	5	16.72	149.55	61.61	87.94	38.10	0.50	0.00	5	2.12	36.66
8.30	3.710	16.99	50.10	3.720	0.46	5	16.75	149.88	61.80	88.08	40.53	0.48	0.00	5	2.08	38.96
8.32	4.160	16.31	49.85	4.170	0.39	6	16.75	150.22	62.00	88.22	45.57	0.41	0.00	6	2.01	43.66
8.34	4.420	14.67	49.78	4.430	0.33	6	16.65	150.55	62.20	88.36	48.43	0.34	0.00	6	1.96	46.32
8.36	4.120	13.76	50.23	4.130	0.33	6	16.55	150.88	62.39	88.49	44.97	0.35	0.00	6	1.99	43.09
8.38	3.050	15.04	51.29	3.060	0.49	5	16.53	151.21	62.59	88.63	32.82	0.52	0.00	5	2.18	31.75
8.40	2.210	22.37	52.09	2.220	1.01	5	16.87	151.55	62.78	88.77	23.31	1.08	-0.01	5	2.46	22.84
8.42	1.620	32.99	52.54	1.630	2.02	4	17.20	151.89	62.98	88.91	16.63	2.23	-0.01	4	2.74	16.51
8.44	1.350	45.74	53.16	1.360	3.36	3	17.50	152.24	63.18	89.06	13.57	3.79	-0.01	3	2.95	13.57
8.46	1.380	58.82	78.37	1.400	4.21	3	17.80	152.59	63.37	89.22	13.93	4.73	0.01	3	3.00	13.93
8.48	2.990	56.04	229.75	3.040	1.85	5	18.04	152.95	63.57	89.39	32.25	1.94	0.06	5	2.48	31.68
8.50	5.080	58.18	185.13	5.120	1.14	5	18.29	153.32	63.77	89.56	55.43	1.17	0.02	5	2.17	53.74
8.52	5.580	47.61	85.04	5.600	0.85	5	18.09	153.68	63.96	89.72	60.67	0.87	0.00	6	2.06	58.60
8.54	5.600	33.76	77.34	5.620	0.60	6	17.70	154.04	64.16	89.88	60.76	0.62	0.00	6	1.98	58.53
8.56	5.430	28.70	75.77	5.450	0.53	6	17.50	154.39	64.35	90.03	58.76	0.54	0.00	6	1.96	56.61
8.58	5.410	28.43	74.72	5.420	0.52	6	17.49	154.74	64.55	90.19	58.44	0.54	0.00	6	1.97	56.33
8.60	5.630	26.79	73.32	5.640	0.47	6	17.43	155.09	64.75	90.34	60.76	0.49	0.00	6	1.93	58.53

In situ data				Basic output data					ARENILE PIAZZA MAZZINI - VIAREGGIO (LU)						CPTu 03	
Depth	qc	fs	u_2	qt	Rf	SBT	γ	σ,v	u_0	σ',v_0	Qt1	Fr	Bq	SBTn	Ic	Qtn
(m)	(MPa)	(kPa)	(kPa)	(MPa)	(%)		kN/m^3	(kPa)	(kPa)	(kPa)		(%)				
8.62	5.950	24.83	71.92	5.960	0.42	6	17.37	155.43	64.94	90.49	64.19	0.43	0.00	6	1.88	61.76
8.64	6.120	25.92	70.87	6.130	0.42	6	17.43	155.78	65.14	90.64	65.95	0.43	0.00	6	1.87	63.47
8.66	6.080	26.43	69.99	6.090	0.43	6	17.45	156.13	65.33	90.80	65.40	0.45	0.00	6	1.88	63.00
8.68	5.930	27.75	69.64	5.940	0.47	6	17.49	156.48	65.53	90.95	63.63	0.48	0.00	6	1.91	61.39
8.70	5.670	28.93	69.64	5.680	0.51	6	17.52	156.83	65.73	91.10	60.67	0.52	0.00	6	1.94	58.65
8.72	5.290	30.34	69.99	5.300	0.57	6	17.55	157.18	65.92	91.26	56.40	0.59	0.00	6	2.00	54.65
8.74	4.910	31.85	70.17	4.920	0.65	6	17.58	157.53	66.12	91.41	52.14	0.67	0.00	6	2.05	50.65
8.76	4.560	33.03	69.82	4.570	0.72	5	17.59	157.89	66.32	91.57	48.23	0.75	0.00	5	2.10	46.96
8.78	4.600	32.99	68.94	4.610	0.72	5	17.60	158.24	66.51	91.73	48.57	0.74	0.00	5	2.10	47.32
8.80	4.760	31.03	68.07	4.770	0.65	5	17.54	158.59	66.71	91.88	50.23	0.67	0.00	6	2.07	48.90
8.82	4.920	27.57	66.49	4.930	0.56	6	17.42	158.94	66.90	92.03	51.88	0.58	0.00	6	2.02	50.46
8.84	5.000	25.38	64.04	5.010	0.51	6	17.33	159.28	67.10	92.18	52.65	0.52	0.00	6	2.00	51.20
8.86	4.980	22.14	61.59	4.990	0.44	6	17.17	159.63	67.30	92.33	52.34	0.46	0.00	6	1.97	50.89
8.88	4.530	15.49	61.59	4.540	0.34	6	16.72	159.97	67.49	92.47	47.39	0.35	0.00	6	1.96	46.09
8.90	4.230	13.35	62.12	4.240	0.31	6	16.52	160.30	67.69	92.61	44.08	0.33	0.00	6	1.98	42.91
8.92	4.110	13.53	62.64	4.120	0.33	6	16.53	160.63	67.89	92.74	42.72	0.34	0.00	6	2.00	41.63
8.94	4.170	16.77	62.82	4.180	0.40	6	16.78	160.96	68.08	92.88	43.30	0.42	0.00	6	2.03	42.25
8.96	4.290	22.69	62.12	4.300	0.53	6	17.14	161.30	68.28	93.03	44.52	0.55	0.00	6	2.07	43.51
8.98	4.150	26.06	61.77	4.160	0.63	5	17.29	161.65	68.47	93.17	42.94	0.65	0.00	5	2.12	42.05
9.00	3.550	28.66	69.44	3.560	0.80	5	17.34	161.99	68.67	93.32	36.45	0.84	0.00	5	2.23	35.82
9.02	3.540	38.86	68.75	3.550	1.09	5	17.68	162.35	68.87	93.48	36.28	1.15	0.00	5	2.30	35.73
9.04	4.630	45.65	67.80	4.640	0.98	5	17.97	162.71	69.06	93.64	47.85	1.02	0.00	5	2.18	47.00
9.06	5.550	52.08	67.20	5.560	0.94	5	18.19	163.07	69.26	93.81	57.57	0.96	0.00	5	2.10	56.46
9.08	5.980	48.84	65.72	5.990	0.81	6	18.15	163.43	69.45	93.98	62.03	0.84	0.00	6	2.04	60.79
9.10	6.620	47.57	64.51	6.630	0.72	6	18.16	163.79	69.65	94.14	68.72	0.74	0.00	6	1.97	67.27
9.12	7.090	45.20	64.17	7.100	0.64	6	18.12	164.16	69.85	94.31	73.57	0.65	0.00	6	1.92	71.98
9.14	7.470	47.61	63.49	7.480	0.64	6	18.20	164.52	70.04	94.48	77.46	0.65	0.00	6	1.90	75.80
9.16	7.790	44.83	63.59	7.800	0.57	6	18.15	164.88	70.24	94.64	80.70	0.59	0.00	6	1.86	78.96
9.18	7.920	42.37	63.60	7.930	0.53	6	18.09	165.25	70.44	94.81	81.93	0.55	0.00	6	1.84	80.18
9.20	7.920	42.37	63.70	7.930	0.53	6	18.09	165.61	70.63	94.98	81.78	0.55	0.00	6	1.84	80.10
9.22	8.010	23.87	64.24	8.020	0.30	6	17.44	165.96	70.83	95.13	82.59	0.30	0.00	6	1.71	80.76
9.24	8.310	27.43	64.60	8.320	0.33	6	17.61	166.31	71.02	95.29	85.60	0.34	0.00	6	1.72	83.77
9.26	8.510	30.85	64.52	8.520	0.36	6	17.75	166.67	71.22	95.45	87.55	0.37	0.00	6	1.73	85.75
9.28	8.290	31.80	64.89	8.300	0.38	6	17.78	167.02	71.42	95.61	85.10	0.39	0.00	6	1.75	83.45
9.30	7.750	34.95	65.42	7.760	0.45	6	17.86	167.38	71.61	95.77	79.31	0.46	0.00	6	1.81	77.91
9.32	6.900	40.73	66.22	6.910	0.59	6	17.99	167.74	71.81	95.93	70.32	0.60	0.00	6	1.91	69.23
9.34	6.720	43.24	66.59	6.730	0.64	6	18.05	168.10	72.01	96.10	68.32	0.66	0.00	6	1.94	67.34
9.36	6.850	47.16	66.69	6.860	0.69	6	18.16	168.46	72.20	96.26	69.55	0.70	0.00	6	1.95	68.61
9.38	7.090	48.48	66.52	7.100	0.68	6	18.20	168.83	72.40	96.43	71.91	0.70	0.00	6	1.94	70.97
9.40	7.570	49.07	66.19	7.580	0.65	6	18.24	169.19	72.59	96.60	76.75	0.66	0.00	6	1.90	75.76
9.42	8.330	49.62	65.76	8.340	0.59	6	18.29	169.56	72.79	96.77	84.47	0.61	0.00	6	1.85	83.37
9.44	9.150	48.93	65.25	9.160	0.53	6	18.31	169.92	72.99	96.94	92.77	0.54	0.00	6	1.79	91.56
9.46	10.020	47.34	64.56	10.030	0.47	6	18.31	170.29	73.18	97.11	101.56	0.48	0.00	6	1.72	100.25
9.48	10.810	48.43	63.26	10.820	0.45	6	18.36	170.66	73.38	97.28	109.50	0.45	0.00	6	1.68	108.12
9.50	11.140	54.22	62.31	11.150	0.49	6	18.51	171.03	73.58	97.45	112.69	0.49	0.00	6	1.69	111.36
9.52	11.250	62.60	62.15	11.260	0.56	6	18.67	171.40	73.77	97.63	113.60	0.56	0.00	6	1.72	112.40
9.54	10.860	51.58	62.95	10.870	0.47	6	18.44	171.77	73.97	97.80	109.41	0.48	0.00	6	1.70	108.31
9.56	10.790	55.36	63.22	10.800	0.51	6	18.52	172.14	74.16	97.98	108.50	0.52	0.00	6	1.72	107.51
9.58	10.690	62.74	63.50	10.700	0.59	6	18.66	172.51	74.36	98.15	107.28	0.60	0.00	6	1.75	106.42
9.60	10.550	74.04	63.95	10.560	0.70	6	18.84	172.89	74.56	98.33	105.66	0.71	0.00	6	1.80	104.93
9.62	10.460	83.79	64.31	10.470	0.80	6	18.98	173.27	74.75	98.51	104.55	0.81	0.00	6	1.84	103.93
9.64	10.360	93.81	64.59	10.370	0.90	6	19.11	173.65	74.95	98.70	103.34	0.92	0.00	6	1.88	102.82
9.66	10.310	100.51	64.86	10.320	0.97	6	19.19	174.03	75.14	98.89	102.63	0.99	0.00	6	1.90	102.20
9.68	10.270	100.92	65.05	10.280	0.98	6	19.19	174.42	75.34	99.07	102.03	1.00	0.00	6	1.90	101.68
9.70	10.230	100.10	65.32	10.240	0.98	6	19.18	174.80	75.54	99.26	101.43	0.99	0.00	6	1.90	101.15

In situ data				Basic output data						ARENILE PIAZZA MAZZINI - VIAREGGIO (LU)						CPTu 03	
Depth	qc	fs	u_2	qt	Rf	SBT	γ	σ,v	u_0	σ',v_0	Qt1	Fr	Bq	SBTn	Ic	Qtn
(m)	(MPa)	(kPa)	(kPa)	(MPa)	(%)		kN/m^3	(kPa)	(kPa)	(kPa)		(%)				
9.72	10.190	97.82	65.69	10.200	0.96	6	19.15	175.18	75.73	99.45	100.84	0.98	0.00	6	1.90	100.63
9.74	10.080	97.00	65.96	10.090	0.96	6	19.14	175.56	75.93	99.64	99.54	0.98	0.00	6	1.91	99.40
9.76	9.960	95.95	66.32	9.970	0.96	6	19.12	175.95	76.13	99.82	98.15	0.98	0.00	6	1.91	98.08
9.78	9.650	95.95	66.86	9.660	0.99	6	19.11	176.33	76.32	100.01	94.86	1.01	0.00	6	1.93	94.87
9.80	9.570	94.77	67.14	9.580	0.99	6	19.09	176.71	76.52	100.19	93.89	1.01	0.00	6	1.93	93.95
9.82	9.480	93.81	67.41	9.490	0.99	6	19.07	177.09	76.71	100.38	92.81	1.01	0.00	6	1.94	92.94
9.84	9.290	93.04	67.77	9.300	1.00	6	19.06	177.47	76.91	100.56	90.75	1.02	0.00	6	1.95	90.93
9.86	8.940	93.17	68.40	8.950	1.04	6	19.04	177.86	77.11	100.75	87.11	1.06	0.00	6	1.97	87.33
9.88	8.550	92.45	68.85	8.560	1.08	6	19.02	178.24	77.30	100.93	83.08	1.10	0.00	6	2.00	83.34
9.90	8.040	90.58	69.47	8.050	1.12	6	18.97	178.62	77.50	101.12	77.88	1.15	0.00	6	2.03	78.17
9.92	7.700	88.66	69.92	7.710	1.15	6	18.93	178.99	77.70	101.30	74.38	1.18	0.00	5	2.05	74.69
9.94	7.400	87.80	70.37	7.410	1.18	5	18.90	179.37	77.89	101.48	71.29	1.21	0.00	5	2.08	71.62
9.96	7.100	86.70	70.74	7.110	1.22	5	18.87	179.75	78.09	101.66	68.21	1.25	0.00	5	2.10	68.55
9.98	6.760	84.79	71.19	6.770	1.25	5	18.83	180.13	78.28	101.84	64.75	1.29	0.00	5	2.12	65.09
10.00	6.710	80.46	71.46	6.720	1.20	5	18.77	180.50	78.48	102.02	64.14	1.23	0.00	5	2.11	64.52
10.02	6.910	80.01	71.47	6.920	1.16	5	18.77	180.88	78.68	102.20	65.98	1.19	0.00	5	2.10	66.41
10.04	7.280	77.32	71.14	7.290	1.06	6	18.75	181.25	78.87	102.38	69.48	1.09	0.00	5	2.05	69.99
10.06	7.330	77.68	70.27	7.340	1.06	6	18.76	181.63	79.07	102.56	69.84	1.08	0.00	5	2.05	70.40
10.08	7.310	73.45	69.85	7.320	1.00	6	18.69	182.00	79.26	102.74	69.52	1.03	0.00	6	2.04	70.12
10.10	6.790	67.30	70.65	6.800	0.99	6	18.56	182.37	79.46	102.91	64.34	1.02	0.00	5	2.06	64.92
10.12	6.450	53.31	71.19	6.460	0.82	6	18.28	182.74	79.66	103.08	60.94	0.85	0.00	6	2.04	61.54
10.14	6.360	52.03	71.55	6.370	0.82	6	18.24	183.11	79.85	103.25	59.96	0.84	0.00	6	2.04	60.58
10.16	6.390	49.98	71.74	6.400	0.78	6	18.20	183.47	80.05	103.42	60.15	0.80	0.00	6	2.03	60.81
10.18	6.410	49.80	71.84	6.420	0.78	6	18.20	183.83	80.25	103.59	60.24	0.80	0.00	6	2.02	60.94
10.20	6.410	49.80	71.94	6.420	0.78	6	18.20	184.20	80.44	103.76	60.14	0.80	0.00	6	2.02	60.87
10.22	6.350	48.55	73.35	6.360	0.76	6	18.16	184.56	80.64	103.92	59.47	0.79	0.00	6	2.03	60.22
10.24	6.540	48.28	73.36	6.550	0.74	6	18.17	184.93	80.83	104.09	61.19	0.76	0.00	6	2.01	62.02
10.26	6.510	48.11	73.64	6.520	0.74	6	18.16	185.29	81.03	104.26	60.81	0.76	0.00	6	2.01	61.65
10.28	6.320	47.43	73.91	6.330	0.75	6	18.14	185.65	81.23	104.42	58.89	0.77	0.00	6	2.02	59.72
10.30	5.990	47.98	74.36	6.000	0.80	6	18.13	186.01	81.42	104.59	55.63	0.82	0.00	6	2.06	56.42
10.32	5.910	48.84	74.46	5.920	0.82	6	18.14	186.38	81.62	104.76	54.78	0.85	0.00	5	2.07	55.57
10.34	5.890	49.89	74.56	5.900	0.84	6	18.17	186.74	81.82	104.92	54.50	0.87	0.00	5	2.08	55.30
10.36	5.850	50.98	74.75	5.860	0.87	6	18.19	187.10	82.01	105.09	54.03	0.90	0.00	5	2.09	54.84
10.38	5.870	52.40	74.85	5.880	0.89	5	18.22	187.47	82.21	105.26	54.13	0.92	0.00	5	2.10	54.96
10.40	5.890	51.94	74.95	5.900	0.88	5	18.21	187.83	82.40	105.43	54.23	0.91	0.00	5	2.09	55.10
10.42	5.960	51.03	74.96	5.970	0.85	6	18.20	188.20	82.60	105.60	54.80	0.88	0.00	5	2.08	55.72
10.44	5.980	51.26	75.15	6.000	0.86	6	18.20	188.56	82.80	105.76	54.90	0.88	0.00	5	2.08	55.85
10.46	5.940	51.71	75.25	5.960	0.87	6	18.21	188.92	82.99	105.93	54.43	0.90	0.00	5	2.09	55.39
10.48	5.820	51.03	75.52	5.840	0.87	5	18.19	189.29	83.19	106.10	53.21	0.90	0.00	5	2.10	54.16
10.50	5.790	50.03	75.62	5.810	0.86	5	18.16	189.65	83.39	106.27	52.84	0.89	0.00	5	2.10	53.81
10.52	5.830	50.07	75.72	5.850	0.86	6	18.17	190.01	83.58	106.43	53.13	0.89	0.00	5	2.09	54.13
10.54	5.830	50.30	75.82	5.850	0.86	6	18.17	190.38	83.78	106.60	53.05	0.89	0.00	5	2.09	54.07
10.56	5.810	50.62	76.01	5.830	0.87	5	18.18	190.74	83.97	106.77	52.77	0.90	0.00	5	2.10	53.81
10.58	5.770	50.26	76.20	5.790	0.87	5	18.17	191.11	84.17	106.94	52.31	0.90	0.00	5	2.10	53.36
10.60	5.750	49.75	76.30	5.770	0.86	5	18.15	191.47	84.37	107.10	52.04	0.89	0.00	5	2.10	53.11
10.62	5.660	49.30	76.57	5.680	0.87	5	18.14	191.83	84.56	107.27	51.12	0.90	0.00	5	2.11	52.18
10.64	5.490	49.12	76.85	5.510	0.89	5	18.12	192.19	84.76	107.44	49.45	0.92	0.00	5	2.13	50.48
10.66	5.350	48.57	77.12	5.370	0.91	5	18.10	192.56	84.95	107.60	48.07	0.94	0.00	5	2.14	49.07
10.68	5.360	47.48	77.22	5.380	0.88	5	18.07	192.92	85.15	107.77	48.09	0.92	0.00	5	2.14	49.12
10.70	5.300	46.93	77.41	5.320	0.88	5	18.06	193.28	85.35	107.93	47.46	0.92	0.00	5	2.14	48.49
10.72	5.170	46.52	77.69	5.190	0.90	5	18.04	193.64	85.54	108.10	46.18	0.93	0.00	5	2.15	47.18
10.74	5.120	45.56	77.79	5.140	0.89	5	18.01	194.00	85.74	108.26	45.65	0.92	0.00	5	2.16	46.65
10.76	5.210	43.42	77.80	5.230	0.83	5	17.96	194.36	85.94	108.42	46.40	0.86	0.00	5	2.13	47.48
10.78	5.190	42.42	77.99	5.210	0.81	5	17.93	194.72	86.13	108.59	46.15	0.85	0.00	5	2.13	47.24
10.80	5.160	42.01	78.17	5.180	0.81	5	17.92	195.08	86.33	108.75	45.80	0.84	0.00	5	2.13	46.90

In situ data				Basic output data						ARENILE PIAZZA MAZZINI - VIAREGGIO (LU)						CPTu 03	
Depth	qc	fs	u_2	qt	Rf	SBT	γ	σ,v	u_0	σ',v_0	Qt1	Fr	Bq	SBTn	Ic	Qtn
(m)	(MPa)	(kPa)	(kPa)	(MPa)	(%)		kN/m^3	(kPa)	(kPa)	(kPa)		(%)				
10.82	5.120	41.60	78.27	5.140	0.81	5	17.90	195.43	86.52	108.91	45.36	0.84	0.00	5	2.14	46.46
10.84	5.170	40.55	78.46	5.190	0.78	5	17.88	195.79	86.72	109.07	45.75	0.81	0.00	5	2.12	46.90
10.86	5.230	39.55	78.47	5.250	0.75	5	17.85	196.15	86.92	109.23	46.23	0.78	0.00	5	2.11	47.43
10.88	5.200	39.14	78.57	5.220	0.75	5	17.84	196.51	87.11	109.39	45.88	0.78	0.00	5	2.11	47.09
10.90	5.140	39.00	78.76	5.160	0.76	5	17.83	196.86	87.31	109.55	45.26	0.79	0.00	5	2.12	46.47
10.92	5.140	39.27	78.95	5.160	0.76	5	17.84	197.22	87.51	109.71	45.20	0.79	0.00	5	2.12	46.41
10.94	5.240	39.05	78.96	5.260	0.74	6	17.84	197.58	87.70	109.87	46.04	0.77	0.00	5	2.11	47.32
10.96	5.480	39.82	78.89	5.500	0.72	6	17.88	197.93	87.90	110.04	48.15	0.75	0.00	5	2.09	49.55
10.98	5.690	40.32	78.81	5.710	0.71	6	17.91	198.29	88.09	110.20	49.98	0.73	0.00	6	2.07	51.49
11.00	5.880	40.28	78.82	5.900	0.68	6	17.92	198.65	88.29	110.36	51.62	0.71	0.00	6	2.05	53.25
11.02	5.930	40.09	78.92	5.950	0.67	6	17.92	199.01	88.49	110.52	52.00	0.70	0.00	6	2.04	53.68
11.04	5.940	41.14	79.02	5.960	0.69	6	17.95	199.37	88.68	110.68	52.01	0.71	0.00	6	2.04	53.70
11.06	6.010	42.15	79.12	6.030	0.70	6	17.98	199.73	88.88	110.85	52.56	0.72	0.00	6	2.04	54.30
11.08	6.020	43.69	79.22	6.040	0.72	6	18.02	200.09	89.07	111.01	52.57	0.75	0.00	6	2.05	54.32
11.10	6.020	44.38	79.41	6.040	0.74	6	18.04	200.45	89.27	111.18	52.49	0.76	0.00	6	2.06	54.25
11.12	6.010	45.70	79.51	6.030	0.76	6	18.07	200.81	89.47	111.34	52.32	0.78	0.00	6	2.06	54.08
11.14	5.950	48.11	79.70	5.970	0.81	6	18.13	201.17	89.66	111.51	51.70	0.83	0.00	5	2.08	53.42
11.16	5.880	48.07	79.97	5.900	0.82	6	18.12	201.53	89.86	111.67	50.99	0.84	0.00	5	2.09	52.70
11.18	5.850	48.16	80.07	5.870	0.82	6	18.12	201.90	90.06	111.84	50.64	0.85	0.00	5	2.09	52.35
11.20	5.850	48.16	80.17	5.870	0.82	6	18.12	202.26	90.25	112.01	50.57	0.85	0.00	5	2.10	52.29
11.22	5.760	37.91	80.62	5.780	0.66	6	17.84	202.62	90.45	112.17	49.69	0.68	0.00	6	2.05	51.51
11.24	5.700	38.96	80.90	5.720	0.68	6	17.87	202.98	90.64	112.33	49.08	0.71	0.00	6	2.06	50.87
11.26	5.670	40.32	81.00	5.690	0.71	6	17.91	203.33	90.84	112.49	48.74	0.74	0.00	5	2.07	50.51
11.28	5.580	41.64	81.19	5.600	0.74	6	17.94	203.69	91.04	112.65	47.87	0.77	0.00	5	2.09	49.59
11.30	5.400	42.46	81.46	5.420	0.78	6	17.95	204.05	91.23	112.82	46.20	0.81	0.00	5	2.12	47.83
11.32	5.280	42.87	81.65	5.300	0.81	5	17.95	204.41	91.43	112.98	45.07	0.84	0.00	5	2.13	46.64
11.34	5.300	42.33	81.75	5.320	0.80	5	17.94	204.77	91.63	113.14	45.18	0.83	0.00	5	2.13	46.78
11.36	5.360	42.51	81.76	5.380	0.79	5	17.95	205.13	91.82	113.31	45.64	0.82	0.00	5	2.12	47.29
11.38	5.440	41.96	81.86	5.460	0.77	6	17.94	205.49	92.02	113.47	46.28	0.80	0.00	5	2.11	47.99
11.40	5.580	41.60	81.79	5.600	0.74	6	17.94	205.84	92.21	113.63	47.44	0.77	0.00	5	2.09	49.26
11.42	5.680	40.87	81.89	5.700	0.72	6	17.92	206.20	92.41	113.79	48.25	0.74	0.00	5	2.08	50.16
11.44	5.740	40.14	81.90	5.760	0.70	6	17.91	206.56	92.61	113.96	48.70	0.72	0.00	6	2.07	50.68
11.46	5.800	40.05	82.00	5.820	0.69	6	17.91	206.92	92.80	114.12	49.16	0.71	0.00	6	2.06	51.19
11.48	5.790	41.05	82.19	5.810	0.71	6	17.94	207.28	93.00	114.28	49.00	0.73	0.00	6	2.07	51.03
11.50	5.740	42.28	82.37	5.760	0.73	6	17.97	207.64	93.20	114.44	48.49	0.76	0.00	5	2.08	50.48
11.52	5.710	44.29	82.47	5.730	0.77	6	18.02	208.00	93.39	114.61	48.15	0.80	0.00	5	2.10	50.12
11.54	5.820	45.47	82.57	5.840	0.78	6	18.06	208.36	93.59	114.77	49.04	0.81	0.00	5	2.09	51.08
11.56	6.090	45.61	82.41	6.110	0.75	6	18.08	208.72	93.78	114.94	51.31	0.77	0.00	6	2.06	53.55
11.58	6.330	45.84	82.34	6.350	0.72	6	18.10	209.08	93.98	115.10	53.32	0.75	0.00	6	2.04	55.73
11.60	6.420	46.47	82.44	6.440	0.72	6	18.12	209.44	94.18	115.27	54.02	0.75	0.00	6	2.04	56.51
11.62	6.380	47.02	82.62	6.400	0.74	6	18.13	209.81	94.37	115.43	53.60	0.76	0.00	6	2.04	56.06
11.64	6.340	46.97	82.90	6.360	0.74	6	18.13	210.17	94.57	115.60	53.17	0.76	0.00	6	2.05	55.63
11.66	6.290	47.75	83.09	6.310	0.76	6	18.14	210.53	94.76	115.77	52.66	0.78	0.00	6	2.06	55.09
11.68	6.190	48.57	83.27	6.210	0.78	6	18.15	210.89	94.96	115.93	51.72	0.81	0.00	5	2.07	54.08
11.70	5.990	50.62	83.64	6.010	0.84	6	18.19	211.26	95.16	116.10	49.92	0.87	0.00	5	2.10	52.13
11.72	5.780	52.62	84.00	5.800	0.91	5	18.22	211.62	95.35	116.27	48.04	0.94	0.00	5	2.14	50.09
11.74	5.660	53.03	84.27	5.680	0.93	5	18.22	211.99	95.55	116.44	46.93	0.97	0.00	5	2.15	48.92
11.76	5.590	52.94	84.55	5.610	0.94	5	18.21	212.35	95.75	116.61	46.26	0.98	0.00	5	2.16	48.22
11.78	5.540	53.35	84.65	5.560	0.96	5	18.22	212.72	95.94	116.77	45.77	1.00	0.00	5	2.17	47.69
11.80	5.610	51.85	84.66	5.630	0.92	5	18.19	213.08	96.14	116.94	46.30	0.96	0.00	5	2.15	48.30
11.82	5.700	50.16	84.85	5.720	0.88	5	18.16	213.44	96.33	117.11	46.99	0.91	0.00	5	2.13	49.10
11.84	5.810	48.30	84.86	5.830	0.83	6	18.12	213.81	96.53	117.28	47.86	0.86	0.00	5	2.11	50.09
11.86	5.940	47.11	84.87	5.960	0.79	6	18.10	214.17	96.73	117.44	48.90	0.82	0.00	5	2.09	51.26
11.88	5.980	46.56	84.97	6.000	0.78	6	18.09	214.53	96.92	117.61	49.17	0.81	0.00	5	2.09	51.58
11.90	5.910	44.88	85.25	5.930	0.76	6	18.05	214.89	97.12	117.77	48.50	0.79	0.00	5	2.09	50.91

In situ data				Basic output data					ARENILE PIAZZA MAZZINI - VIAREGGIO (LU)						CPTu 03	
Depth	qc	fs	u_2	qt	Rf	SBT	γ	σ,v	u_0	σ',v_0	Qt1	Fr	Bq	SBTn	Ic	Qtn
(m)	(MPa)	(kPa)	(kPa)	(MPa)	(%)		kN/m^3	(kPa)	(kPa)	(kPa)		(%)				
11.92	5.850	44.33	85.44	5.870	0.76	6	18.03	215.25	97.32	117.94	47.92	0.78	0.00	5	2.09	50.31
11.94	5.810	45.02	85.62	5.830	0.77	6	18.04	215.61	97.51	118.10	47.51	0.80	0.00	5	2.10	49.87
11.96	5.830	45.84	85.81	5.850	0.78	6	18.07	215.97	97.71	118.27	47.61	0.81	0.00	5	2.10	49.99
11.98	5.860	46.25	85.91	5.880	0.79	6	18.08	216.34	97.90	118.43	47.80	0.82	0.00	5	2.10	50.20
12.00	5.860	46.84	86.10	5.880	0.80	6	18.09	216.70	98.10	118.60	47.73	0.83	0.00	5	2.10	50.14
12.02	5.850	46.61	86.20	5.870	0.79	6	18.09	217.06	98.30	118.76	47.58	0.82	0.00	5	2.10	50.00
12.04	5.830	46.97	86.39	5.850	0.80	6	18.09	217.42	98.49	118.93	47.34	0.83	0.00	5	2.11	49.75
12.06	5.770	46.25	86.57	5.790	0.80	6	18.07	217.78	98.69	119.09	46.77	0.83	0.00	5	2.11	49.16
12.08	5.770	45.56	86.67	5.790	0.79	6	18.05	218.14	98.88	119.26	46.70	0.82	0.00	5	2.11	49.12
12.10	5.800	44.74	86.86	5.820	0.77	6	18.04	218.50	99.08	119.42	46.88	0.80	0.00	5	2.10	49.35
12.12	5.810	44.01	87.05	5.830	0.76	6	18.02	218.86	99.28	119.59	46.90	0.78	0.00	5	2.10	49.41
12.14	5.800	44.29	87.15	5.820	0.76	6	18.02	219.23	99.47	119.75	46.75	0.79	0.00	5	2.10	49.26
12.16	5.810	45.29	87.34	5.830	0.78	6	18.05	219.59	99.67	119.92	46.76	0.81	0.00	5	2.10	49.28
12.18	5.810	45.20	87.35	5.830	0.78	6	18.05	219.95	99.87	120.08	46.70	0.81	0.00	5	2.10	49.22
12.20	5.810	45.20	87.45	5.830	0.78	6	18.05	220.31	100.06	120.25	46.63	0.81	0.00	5	2.11	49.17
12.22	5.850	32.03	87.99	5.870	0.55	6	17.65	220.67	100.26	120.41	46.90	0.57	0.00	6	2.02	49.76
12.24	5.970	33.21	88.09	5.990	0.55	6	17.70	221.02	100.45	120.56	47.83	0.58	0.00	6	2.02	50.78
12.26	6.050	36.31	88.10	6.070	0.60	6	17.81	221.37	100.65	120.72	48.43	0.62	0.00	6	2.03	51.40
12.28	6.100	38.09	88.20	6.120	0.62	6	17.87	221.73	100.85	120.88	48.77	0.65	0.00	6	2.04	51.76
12.30	6.190	39.82	88.30	6.210	0.64	6	17.93	222.09	101.04	121.05	49.45	0.67	0.00	6	2.04	52.50
12.32	6.310	40.73	88.22	6.330	0.64	6	17.96	222.45	101.24	121.21	50.37	0.67	0.00	6	2.03	53.52
12.34	6.390	41.37	88.32	6.410	0.65	6	17.98	222.81	101.44	121.37	50.96	0.67	0.00	6	2.03	54.18
12.36	6.320	42.97	88.51	6.340	0.68	6	18.02	223.17	101.63	121.54	50.31	0.70	0.00	6	2.04	53.45
12.38	6.200	44.38	88.79	6.220	0.71	6	18.05	223.53	101.83	121.70	49.25	0.74	0.00	6	2.06	52.27
12.40	6.030	45.47	89.06	6.050	0.75	6	18.07	223.89	102.02	121.87	47.79	0.78	0.00	5	2.09	50.65
12.42	5.850	46.47	89.34	5.870	0.79	6	18.08	224.25	102.22	122.03	46.25	0.82	0.00	5	2.11	48.94
12.44	5.720	47.07	89.52	5.740	0.82	6	18.09	224.61	102.42	122.20	45.12	0.85	0.00	5	2.13	47.70
12.46	5.750	46.38	89.62	5.770	0.80	6	18.07	224.98	102.61	122.36	45.30	0.84	0.00	5	2.12	47.93
12.48	5.810	46.43	89.72	5.830	0.80	6	18.08	225.34	102.81	122.53	45.72	0.83	0.00	5	2.12	48.42
12.50	5.880	45.29	89.82	5.900	0.77	6	18.05	225.70	103.01	122.69	46.23	0.80	0.00	5	2.10	49.02
12.52	5.870	43.83	90.01	5.890	0.74	6	18.02	226.06	103.20	122.86	46.09	0.77	0.00	5	2.10	48.91
12.54	5.820	42.69	90.20	5.840	0.73	6	17.98	226.42	103.40	123.02	45.61	0.76	0.00	5	2.10	48.43
12.56	5.830	42.37	90.30	5.850	0.72	6	17.97	226.78	103.59	123.18	45.63	0.75	0.00	5	2.09	48.48
12.58	5.830	42.24	90.49	5.850	0.72	6	17.97	227.14	103.79	123.35	45.57	0.75	0.00	5	2.09	48.43
12.60	5.840	42.83	90.67	5.860	0.73	6	17.99	227.50	103.99	123.51	45.59	0.76	0.00	5	2.10	48.46
12.62	5.850	42.97	90.77	5.870	0.73	6	17.99	227.86	104.18	123.68	45.61	0.76	0.00	5	2.10	48.49
12.64	5.850	43.15	90.87	5.870	0.74	6	18.00	228.22	104.38	123.84	45.54	0.77	0.00	5	2.10	48.44
12.66	5.810	43.19	91.06	5.830	0.74	6	18.00	228.58	104.57	124.00	45.16	0.77	0.00	5	2.10	48.03
12.68	5.770	43.33	91.34	5.790	0.75	6	18.00	228.94	104.77	124.17	44.77	0.78	0.00	5	2.11	47.61
12.70	5.770	43.42	91.44	5.790	0.75	6	18.00	229.30	104.97	124.33	44.71	0.78	0.00	5	2.11	47.56
12.72	5.860	42.69	91.54	5.880	0.73	6	17.99	229.66	105.16	124.49	45.37	0.76	0.00	5	2.10	48.34
12.74	5.940	43.15	91.55	5.960	0.72	6	18.00	230.02	105.36	124.66	45.95	0.75	0.00	5	2.09	48.99
12.76	5.980	43.74	91.74	6.000	0.73	6	18.02	230.38	105.56	124.82	46.21	0.76	0.00	5	2.09	49.29
12.78	6.050	43.74	91.75	6.070	0.72	6	18.03	230.74	105.75	124.99	46.71	0.75	0.00	5	2.08	49.87
12.80	6.140	43.42	91.85	6.160	0.71	6	18.02	231.10	105.95	125.15	47.36	0.73	0.00	5	2.07	50.63
12.82	6.390	42.92	91.77	6.410	0.67	6	18.02	231.46	106.14	125.31	49.29	0.69	0.00	6	2.04	52.84
12.84	6.740	42.78	91.70	6.760	0.63	6	18.04	231.82	106.34	125.48	52.01	0.66	0.00	6	2.01	55.95
12.86	7.040	43.01	91.54	7.060	0.61	6	18.06	232.18	106.54	125.64	54.33	0.63	0.00	6	1.98	58.60
12.88	7.270	43.19	91.46	7.290	0.59	6	18.08	232.54	106.73	125.81	56.08	0.61	0.00	6	1.96	60.61
12.90	7.490	43.92	91.56	7.510	0.58	6	18.11	232.90	106.93	125.98	57.75	0.60	0.00	6	1.95	62.53
12.92	7.570	45.15	91.84	7.590	0.59	6	18.15	233.27	107.13	126.14	58.31	0.61	0.00	6	1.95	63.16
12.94	7.570	46.75	92.11	7.590	0.62	6	18.19	233.63	107.32	126.31	58.23	0.64	0.00	6	1.96	63.05
12.96	7.600	49.21	92.30	7.620	0.65	6	18.25	234.00	107.52	126.48	58.39	0.67	0.00	6	1.97	63.19
12.98	7.500	53.13	92.57	7.520	0.71	6	18.33	234.36	107.71	126.65	57.52	0.73	0.00	6	2.00	62.12
13.00	7.480	54.86	92.67	7.500	0.73	6	18.37	234.73	107.91	126.82	57.28	0.76	0.00	6	2.01	61.84

In situ data				Basic output data						ARENILE PIAZZA MAZZINI - VIAREGGIO (LU)						CPTu 03	
Depth	qc	fs	u_2	qt	Rf	SBT	γ	σ,v	u_0	σ',v_0	Qt1	Fr	Bq	SBTn	Ic	Qtn
(m)	(MPa)	(kPa)	(kPa)	(MPa)	(%)		kN/m^3	(kPa)	(kPa)	(kPa)		(%)				
13.02	7.390	56.41	93.04	7.410	0.76	6	18.39	235.10	108.11	126.99	56.49	0.79	0.00	6	2.02	60.93
13.04	7.230	58.09	93.40	7.250	0.80	6	18.42	235.46	108.30	127.16	55.15	0.83	0.00	6	2.04	59.39
13.06	6.960	59.19	93.67	6.980	0.85	6	18.43	235.83	108.50	127.33	52.95	0.88	0.00	5	2.07	56.89
13.08	6.910	58.46	93.86	6.930	0.84	6	18.41	236.20	108.69	127.51	52.49	0.87	0.00	5	2.07	56.40
13.10	6.940	57.41	93.96	6.960	0.82	6	18.39	236.57	108.89	127.68	52.65	0.85	0.00	5	2.07	56.63
13.12	6.890	56.18	94.24	6.910	0.81	6	18.36	236.94	109.09	127.85	52.19	0.84	0.00	5	2.07	56.15
13.14	6.620	55.49	94.69	6.640	0.84	6	18.33	237.30	109.28	128.02	50.00	0.87	0.00	5	2.09	53.71
13.16	6.290	52.76	95.14	6.310	0.84	6	18.26	237.67	109.48	128.19	47.36	0.87	0.00	5	2.11	50.79
13.18	6.210	51.67	95.24	6.230	0.83	6	18.23	238.03	109.68	128.36	46.67	0.86	0.00	5	2.11	50.05
13.20	6.210	51.67	95.34	6.230	0.83	6	18.23	238.40	109.87	128.53	46.61	0.86	0.00	5	2.11	50.00
13.22	5.870	38.18	96.66	5.890	0.65	6	17.86	238.76	110.07	128.69	43.91	0.68	0.00	5	2.08	47.28
13.24	5.970	38.77	96.94	5.990	0.65	6	17.88	239.12	110.26	128.85	44.63	0.67	0.00	5	2.07	48.10
13.26	5.940	40.78	96.95	5.960	0.68	6	17.94	239.48	110.46	129.01	44.34	0.71	0.00	5	2.09	47.73
13.28	5.950	41.83	97.05	5.970	0.70	6	17.97	239.83	110.66	129.18	44.35	0.73	0.00	5	2.09	47.75
13.30	5.870	42.42	97.24	5.890	0.72	6	17.98	240.19	110.85	129.34	43.68	0.75	0.00	5	2.11	46.97
13.32	5.830	43.15	97.42	5.850	0.74	6	18.00	240.55	111.05	129.50	43.31	0.77	0.00	5	2.11	46.55
13.34	5.790	43.69	97.52	5.810	0.75	6	18.01	240.91	111.25	129.67	42.94	0.78	0.00	5	2.12	46.14
13.36	5.850	43.24	97.62	5.870	0.74	6	18.00	241.27	111.44	129.83	43.35	0.77	0.00	5	2.11	46.63
13.38	5.820	42.24	97.81	5.840	0.72	6	17.97	241.63	111.64	130.00	43.06	0.75	0.00	5	2.11	46.35
13.40	5.810	41.19	97.91	5.830	0.71	6	17.94	241.99	111.83	130.16	42.93	0.74	0.00	5	2.11	46.24
13.42	5.720	40.96	98.10	5.740	0.71	6	17.93	242.35	112.03	130.32	42.18	0.75	0.00	5	2.12	45.41
13.44	5.500	40.41	98.46	5.520	0.73	6	17.90	242.71	112.23	130.48	40.44	0.77	0.00	5	2.14	43.45
13.46	5.500	39.82	98.56	5.520	0.72	6	17.88	243.07	112.42	130.64	40.39	0.75	0.00	5	2.14	43.42
13.48	5.530	39.50	98.66	5.550	0.71	6	17.87	243.42	112.62	130.81	40.57	0.74	0.00	5	2.13	43.65
13.50	5.610	39.87	98.67	5.630	0.71	6	17.89	243.78	112.82	130.97	41.12	0.74	0.00	5	2.12	44.29
13.52	5.620	40.19	98.86	5.640	0.71	6	17.90	244.14	113.01	131.13	41.15	0.74	0.00	5	2.13	44.33
13.54	5.600	39.91	99.05	5.620	0.71	6	17.89	244.50	113.21	131.29	40.94	0.74	0.00	5	2.13	44.12
13.56	5.680	39.73	99.15	5.700	0.70	6	17.89	244.86	113.40	131.45	41.50	0.73	0.00	5	2.12	44.77
13.58	5.890	39.87	99.07	5.910	0.67	6	17.91	245.21	113.60	131.61	43.04	0.70	0.00	5	2.09	46.56
13.60	6.170	40.50	98.74	6.190	0.65	6	17.94	245.57	113.80	131.78	45.11	0.68	0.00	6	2.07	48.95
13.62	6.230	40.55	98.57	6.250	0.65	6	17.95	245.93	113.99	131.94	45.50	0.68	0.00	6	2.06	49.42
13.64	6.220	39.96	98.67	6.240	0.64	6	17.93	246.29	114.19	132.10	45.37	0.67	0.00	6	2.06	49.30
13.66	6.250	38.82	98.69	6.270	0.62	6	17.90	246.65	114.38	132.26	45.54	0.64	0.00	6	2.05	49.55
13.68	6.320	38.41	98.70	6.340	0.61	6	17.89	247.01	114.58	132.43	46.01	0.63	0.00	6	2.04	50.13
13.70	6.350	37.73	98.80	6.370	0.59	6	17.87	247.36	114.78	132.59	46.18	0.62	0.00	6	2.04	50.37
13.72	6.250	38.23	99.07	6.270	0.61	6	17.88	247.72	114.97	132.75	45.36	0.63	0.00	6	2.05	49.43
13.74	6.140	38.86	99.35	6.160	0.63	6	17.90	248.08	115.17	132.91	44.48	0.66	0.00	6	2.06	48.40
13.76	6.130	41.28	99.45	6.150	0.67	6	17.96	248.44	115.37	133.07	44.35	0.70	0.00	5	2.08	48.19
13.78	6.130	42.74	99.55	6.150	0.69	6	18.00	248.80	115.56	133.24	44.29	0.72	0.00	5	2.09	48.10
13.80	6.170	43.33	99.65	6.190	0.70	6	18.02	249.16	115.76	133.40	44.53	0.73	0.00	5	2.09	48.38
13.82	6.270	42.87	99.75	6.290	0.68	6	18.02	249.52	115.95	133.56	45.22	0.71	0.00	5	2.08	49.22
13.84	6.200	42.78	99.94	6.220	0.69	6	18.01	249.88	116.15	133.73	44.64	0.72	0.00	5	2.08	48.56
13.86	6.100	42.60	100.21	6.120	0.70	6	18.00	250.24	116.35	133.89	43.84	0.73	0.00	5	2.09	47.65
13.88	6.120	42.28	100.40	6.140	0.69	6	17.99	250.60	116.54	134.06	43.93	0.72	0.00	5	2.09	47.79
13.90	6.150	42.60	100.50	6.170	0.69	6	18.00	250.96	116.74	134.22	44.10	0.72	0.00	5	2.09	47.99
13.92	6.400	42.37	100.42	6.420	0.66	6	18.01	251.32	116.94	134.38	45.90	0.69	0.00	6	2.06	50.12
13.94	6.520	42.37	100.44	6.540	0.65	6	18.02	251.68	117.13	134.55	46.74	0.67	0.00	6	2.05	51.11
13.96	6.570	43.79	100.54	6.590	0.66	6	18.06	252.04	117.33	134.71	47.05	0.69	0.00	6	2.05	51.45
13.98	6.690	43.24	100.64	6.710	0.64	6	18.05	252.40	117.52	134.88	47.88	0.67	0.00	6	2.04	52.46
14.00	6.760	43.15	100.82	6.780	0.64	6	18.05	252.76	117.72	135.04	48.34	0.66	0.00	6	2.03	53.03
14.02	6.720	44.88	101.10	6.740	0.67	6	18.10	253.12	117.92	135.21	47.98	0.69	0.00	6	2.05	52.57
14.04	6.580	45.93	101.46	6.600	0.70	6	18.11	253.49	118.11	135.37	46.88	0.72	0.00	6	2.06	51.27
14.06	6.440	48.57	101.74	6.460	0.75	6	18.17	253.85	118.31	135.54	45.79	0.78	0.00	5	2.09	49.94
14.08	6.150	51.76	102.10	6.170	0.84	6	18.23	254.21	118.50	135.71	43.59	0.87	0.00	5	2.14	47.30
14.10	6.080	53.26	102.37	6.100	0.87	6	18.25	254.58	118.70	135.88	43.02	0.91	0.00	5	2.15	46.62

In situ data				Basic output data				ARENILE PIAZZA MAZZINI - VIAREGGIO (LU)							CPTu 03	
Depth	qc	fs	u_2	qt	Rf	SBT	γ	σ,v	u_0	σ',v_0	Qt1	Fr	Bq	SBTn	Ic	Qtn
(m)	(MPa)	(kPa)	(kPa)	(MPa)	(%)		kN/m^3	(kPa)	(kPa)	(kPa)		(%)				
14.12	6.200	54.77	102.47	6.220	0.88	6	18.29	254.94	118.90	136.05	43.85	0.92	0.00	5	2.15	47.56
14.14	6.470	54.95	102.40	6.490	0.85	6	18.31	255.31	119.09	136.22	45.77	0.88	0.00	5	2.12	49.81
14.16	6.990	53.72	102.41	7.010	0.77	6	18.32	255.68	119.29	136.39	49.53	0.80	0.00	6	2.07	54.27
14.18	7.150	53.76	102.42	7.170	0.75	6	18.33	256.04	119.49	136.56	50.63	0.78	0.00	6	2.05	55.60
14.20	7.150	53.76	102.52	7.170	0.75	6	18.33	256.41	119.68	136.73	50.57	0.78	0.00	6	2.05	55.54
14.22	6.910	39.27	103.50	6.930	0.57	6	17.95	256.77	119.88	136.89	48.75	0.59	0.00	6	2.00	53.90
14.24	7.450	42.83	103.77	7.470	0.57	6	18.08	257.13	120.07	137.06	52.63	0.59	0.00	6	1.97	58.40
14.26	7.570	46.34	103.96	7.590	0.61	6	18.18	257.50	120.27	137.23	53.44	0.63	0.00	6	1.98	59.26
14.28	7.680	49.66	104.06	7.700	0.64	6	18.26	257.86	120.47	137.39	54.17	0.67	0.00	6	1.99	60.04
14.30	7.680	53.95	104.25	7.700	0.70	6	18.36	258.23	120.66	137.57	54.10	0.72	0.00	6	2.01	59.84
14.32	7.660	58.14	104.35	7.680	0.76	6	18.44	258.60	120.86	137.74	53.89	0.78	0.00	6	2.03	59.47
14.34	7.610	62.47	104.62	7.630	0.82	6	18.52	258.97	121.06	137.91	53.45	0.85	0.00	6	2.05	58.85
14.36	7.560	65.25	104.81	7.580	0.86	6	18.57	259.34	121.25	138.09	53.02	0.89	0.00	5	2.07	58.29
14.38	7.500	65.93	104.91	7.520	0.88	6	18.58	259.71	121.45	138.26	52.52	0.91	0.00	5	2.08	57.69
14.40	7.360	65.20	105.27	7.380	0.88	6	18.56	260.08	121.64	138.44	51.44	0.92	0.00	5	2.09	56.46
14.42	7.200	65.20	105.55	7.220	0.90	6	18.55	260.45	121.84	138.61	50.22	0.94	0.00	5	2.10	55.03
14.44	7.230	64.20	105.56	7.250	0.89	6	18.54	260.82	122.04	138.79	50.37	0.92	0.00	5	2.09	55.26
14.46	7.350	63.92	105.75	7.370	0.87	6	18.54	261.19	122.23	138.96	51.17	0.90	0.00	5	2.08	56.23
14.48	7.390	63.15	105.85	7.410	0.85	6	18.52	261.56	122.43	139.14	51.39	0.88	0.00	5	2.08	56.54
14.50	7.300	62.06	106.12	7.320	0.85	6	18.50	261.93	122.63	139.31	50.67	0.88	0.00	5	2.08	55.75
14.52	7.190	61.46	106.40	7.210	0.85	6	18.48	262.30	122.82	139.48	49.82	0.88	0.00	5	2.09	54.77
14.54	6.990	61.69	106.76	7.010	0.88	6	18.48	262.67	123.02	139.66	48.32	0.91	0.00	5	2.11	53.01
14.56	6.900	61.05	106.95	6.920	0.88	6	18.46	263.04	123.21	139.83	47.62	0.92	0.00	5	2.11	52.21
14.58	6.810	61.55	107.22	6.830	0.90	6	18.46	263.41	123.41	140.00	46.91	0.94	0.00	5	2.12	51.38
14.60	6.600	61.83	107.58	6.620	0.93	6	18.46	263.78	123.61	140.18	45.36	0.97	0.00	5	2.15	49.55
14.62	6.450	62.33	107.86	6.470	0.96	6	18.46	264.15	123.80	140.35	44.23	1.00	0.00	5	2.16	48.22
14.64	6.390	62.60	108.05	6.410	0.98	5	18.46	264.52	124.00	140.52	43.74	1.02	0.00	5	2.17	47.66
14.66	6.440	62.15	108.23	6.460	0.96	6	18.45	264.89	124.19	140.69	44.04	1.00	0.00	5	2.17	48.04
14.68	6.700	60.78	108.16	6.720	0.90	6	18.44	265.26	124.39	140.87	45.83	0.94	0.00	5	2.13	50.21
14.70	6.900	59.23	108.17	6.920	0.86	6	18.42	265.63	124.59	141.04	47.19	0.89	0.00	5	2.11	51.89
14.72	7.000	58.27	108.36	7.020	0.83	6	18.41	265.99	124.78	141.21	47.84	0.86	0.00	5	2.10	52.71
14.74	6.960	57.86	108.63	6.980	0.83	6	18.40	266.36	124.98	141.38	47.50	0.86	0.00	5	2.10	52.33
14.76	6.890	57.55	108.91	6.910	0.83	6	18.39	266.73	125.18	141.55	46.94	0.87	0.00	5	2.10	51.70
14.78	6.820	58.32	109.10	6.840	0.85	6	18.40	267.10	125.37	141.73	46.39	0.89	0.00	5	2.11	51.04
14.80	6.700	60.60	109.37	6.720	0.90	6	18.44	267.47	125.57	141.90	45.49	0.94	0.00	5	2.14	49.91
14.82	6.710	61.19	109.56	6.730	0.91	6	18.45	267.84	125.76	142.07	45.50	0.95	0.00	5	2.14	49.93
14.84	6.750	61.69	109.66	6.770	0.91	6	18.46	268.21	125.96	142.24	45.72	0.95	0.00	5	2.14	50.20
14.86	6.800	60.60	109.76	6.820	0.89	6	18.45	268.57	126.16	142.42	46.02	0.92	0.00	5	2.13	50.59
14.88	6.710	57.91	109.95	6.730	0.86	6	18.39	268.94	126.35	142.59	45.33	0.90	0.00	5	2.12	49.87
14.90	6.660	56.31	110.22	6.680	0.84	6	18.35	269.31	126.55	142.76	44.92	0.88	0.00	5	2.12	49.45
14.92	6.640	54.63	110.41	6.660	0.82	6	18.32	269.68	126.75	142.93	44.72	0.85	0.00	5	2.12	49.28
14.94	6.600	52.03	110.42	6.620	0.79	6	18.26	270.04	126.94	143.10	44.39	0.82	0.00	5	2.11	48.98
14.96	6.600	51.39	110.61	6.620	0.78	6	18.24	270.41	127.14	143.27	44.33	0.81	0.00	5	2.11	48.95
14.98	6.560	51.17	110.80	6.580	0.78	6	18.24	270.77	127.33	143.44	44.00	0.81	0.00	5	2.11	48.57
15.00	6.580	52.17	110.98	6.600	0.79	6	18.26	271.14	127.53	143.61	44.09	0.82	0.00	5	2.11	48.66
15.02	6.700	53.17	111.08	6.720	0.79	6	18.29	271.50	127.73	143.78	44.87	0.82	0.00	5	2.11	49.58
15.04	6.840	53.22	111.10	6.860	0.78	6	18.30	271.87	127.92	143.95	45.78	0.81	0.00	5	2.09	50.70
15.06	6.930	53.95	111.28	6.950	0.78	6	18.32	272.23	128.12	144.12	46.35	0.81	0.00	5	2.09	51.38
15.08	6.960	55.08	111.47	6.980	0.79	6	18.34	272.60	128.31	144.29	46.50	0.82	0.00	5	2.09	51.54
15.10	7.010	56.91	111.57	7.030	0.81	6	18.38	272.97	128.51	144.46	46.79	0.84	0.00	5	2.10	51.85
15.12	7.110	57.27	111.58	7.130	0.80	6	18.40	273.34	128.71	144.63	47.42	0.83	0.00	5	2.09	52.62
15.14	7.270	56.86	111.60	7.290	0.78	6	18.40	273.70	128.90	144.80	48.47	0.81	0.00	5	2.07	53.92
15.16	7.550	57.00	111.61	7.570	0.75	6	18.41	274.07	129.10	144.97	50.34	0.78	0.00	6	2.05	56.21
15.18	7.710	56.91	111.62	7.730	0.74	6	18.42	274.44	129.30	145.15	51.38	0.76	0.00	6	2.03	57.50

CPTu 04 ARENILE BAGNO FLORA - VIAREGGIO (LU)

qc cone resistance
fs sleeve friction
u_2 penetration pore pressure
qt total cone resistance
Rf friction ratio
SBT soil behavior type

γ soil unit weight
σ,v total overburden stress
u_0 in situ pore pressure
$\sigma'v_0$ effetive overburden stress
Qt1 normalized cone resistance
Fr normalized friction ratio

Bq normalized pore pressure
SBTn soil behavior type normalized
Ic soil behavior type index
Qtn normalized cone resistance based on the stress exponent n

In situ data **Basic output data**

Depth (m)	qc (MPa)	fs (kPa)	u_2 (kPa)	qt (MPa)	Rf (%)	SBT	γ kN/m³	σ,v (kPa)	u_0 (kPa)	$\sigma'v_0$ (kPa)	Qt1	Fr (%)	Bq	SBTn	Ic	Qtn
0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.02	0.110	0.00	0.00	0.110	0.00	1	19.00	0.38	0.00	0.38	288.47	0.00	0.00	0	0.00	0.00
0.04	9.640	64.74	5.95	9.640	0.67	6	18.65	0.75	0.00	0.75	12809.52	0.67	0.00	7	1.29	522.36
0.06	9.530	70.67	6.47	9.530	0.74	6	18.75	1.13	0.00	1.13	8455.12	0.74	0.00	6	1.35	479.37
0.08	9.190	77.41	7.52	9.190	0.84	6	18.84	1.50	0.00	1.50	6112.36	0.84	0.00	6	1.40	457.21
0.10	8.790	84.43	8.57	8.790	0.96	6	18.92	1.88	0.00	1.88	4671.50	0.96	0.00	6	1.46	438.76
0.12	7.870	93.31	11.02	7.870	1.19	6	19.00	2.26	0.00	2.26	3480.52	1.19	0.00	6	1.55	415.87
0.14	7.120	96.46	12.77	7.120	1.35	5	19.00	2.64	0.00	2.64	2695.79	1.35	0.00	6	1.62	385.84
0.16	6.440	97.23	14.00	6.440	1.51	5	18.97	3.02	0.00	3.02	2131.92	1.51	0.00	6	1.67	355.19
0.18	5.890	96.05	14.70	5.890	1.63	5	18.92	3.40	0.00	3.40	1732.57	1.63	0.00	6	1.72	326.58
0.20	5.440	93.45	15.40	5.440	1.72	5	18.86	3.78	0.00	3.78	1440.20	1.72	0.00	6	1.76	300.47
0.22	4.870	86.39	16.27	4.870	1.77	5	18.72	4.15	0.00	4.15	1172.65	1.77	0.00	6	1.80	268.64
0.24	4.580	80.42	16.80	4.580	1.75	5	18.62	4.53	0.00	4.53	1011.87	1.76	0.00	6	1.82	246.60
0.26	4.360	73.77	17.50	4.360	1.69	5	18.50	4.90	0.00	4.90	890.29	1.69	0.00	6	1.83	227.21
0.28	4.170	67.34	18.02	4.170	1.61	5	18.38	5.26	0.00	5.26	791.87	1.62	0.00	6	1.83	210.12
0.30	4.020	61.33	18.55	4.020	1.52	5	18.26	5.63	0.00	5.63	713.74	1.53	0.00	6	1.83	195.48
0.32	3.800	54.95	18.90	3.800	1.44	5	18.11	5.99	0.00	5.99	633.73	1.45	0.00	6	1.84	179.76
0.34	3.660	51.53	19.07	3.660	1.41	5	18.02	6.35	0.00	6.35	575.65	1.41	0.01	6	1.85	169.27
0.36	3.580	48.43	19.42	3.580	1.35	5	17.94	6.71	0.00	6.71	532.89	1.35	0.01	6	1.85	160.99
0.38	3.600	45.38	19.42	3.600	1.26	5	17.87	7.07	0.00	7.07	508.71	1.26	0.01	6	1.84	155.47
0.40	3.740	42.24	19.42	3.740	1.13	5	17.80	7.43	0.00	7.43	503.10	1.13	0.01	6	1.81	152.82
0.42	4.110	38.41	19.42	4.110	0.93	5	17.73	7.78	0.00	7.78	527.68	0.94	0.00	6	1.75	154.43
0.44	4.270	37.18	19.07	4.270	0.87	5	17.70	8.14	0.00	8.14	524.32	0.87	0.00	6	1.73	153.92
0.46	4.370	36.22	18.90	4.370	0.83	5	17.68	8.49	0.00	8.49	514.20	0.83	0.00	6	1.72	152.57
0.48	4.450	35.86	18.55	4.450	0.81	5	17.68	8.84	0.00	8.84	502.64	0.81	0.00	6	1.71	151.46
0.50	4.550	36.45	18.02	4.550	0.80	5	17.71	9.20	0.00	9.20	494.12	0.80	0.00	6	1.71	151.63
0.52	4.710	38.64	17.50	4.710	0.82	5	17.79	9.55	0.00	9.55	492.44	0.82	0.00	6	1.71	154.27
0.54	4.800	40.41	17.32	4.800	0.84	5	17.84	9.91	0.00	9.91	483.76	0.84	0.00	6	1.72	155.19
0.56	4.850	41.51	17.67	4.850	0.86	5	17.88	10.27	0.00	10.27	471.76	0.86	0.00	6	1.72	154.84
0.58	4.830	42.42	17.85	4.830	0.88	5	17.90	10.62	0.00	10.62	453.95	0.88	0.00	6	1.73	153.07
0.60	4.580	39.37	23.10	4.580	0.86	5	17.80	10.98	0.00	10.98	416.49	0.86	0.01	6	1.75	144.31
0.62	4.620	39.64	23.10	4.620	0.86	5	17.81	11.34	0.00	11.34	406.91	0.86	0.01	6	1.75	143.42
0.64	4.730	41.60	22.92	4.730	0.88	5	17.87	11.69	0.00	11.69	403.86	0.88	0.00	6	1.75	144.98
0.66	4.830	43.01	22.92	4.830	0.89	5	17.92	12.05	0.00	12.05	400.13	0.89	0.00	6	1.75	146.76
0.68	4.800	45.61	22.92	4.800	0.95	5	17.98	12.41	0.00	12.41	386.09	0.95	0.00	6	1.77	145.95
0.70	4.710	47.48	23.10	4.710	1.01	5	18.02	12.77	0.00	12.77	368.13	1.01	0.00	6	1.80	143.56
0.72	4.630	48.48	23.10	4.630	1.05	5	18.04	13.13	0.00	13.13	351.90	1.05	0.00	6	1.81	140.87
0.74	4.600	48.61	23.27	4.600	1.06	5	18.04	13.49	0.00	13.49	340.24	1.06	0.01	6	1.82	138.70
0.76	4.510	48.98	23.45	4.510	1.08	5	18.04	13.85	0.00	13.85	324.86	1.09	0.01	6	1.84	135.58
0.78	4.420	49.30	23.45	4.420	1.11	5	18.04	14.22	0.00	14.22	310.26	1.12	0.01	6	1.85	132.48
0.80	4.370	49.30	23.62	4.370	1.13	5	18.04	14.58	0.00	14.58	299.13	1.13	0.01	6	1.86	130.04
0.82	4.300	48.75	23.80	4.300	1.13	5	18.02	14.94	0.00	14.94	287.20	1.14	0.01	6	1.87	127.03
0.84	4.260	48.07	23.80	4.260	1.13	5	18.00	15.30	0.00	15.30	277.80	1.13	0.01	6	1.87	124.59
0.86	4.250	48.02	23.80	4.250	1.13	5	18.00	15.66	0.00	15.66	270.75	1.13	0.01	6	1.88	123.05
0.88	4.280	47.20	23.80	4.280	1.10	5	17.98	16.02	0.00	16.02	266.52	1.11	0.01	6	1.87	121.97
0.90	4.330	45.38	23.80	4.330	1.05	5	17.94	16.38	0.00	16.38	263.71	1.05	0.01	6	1.86	120.87

In situ data			Basic output data							ARENILE BAGNO FLORA - VIAREGGIO (LU)						CPTu 04	
Depth	qc	fs	u_2	qt	Rf	SBT	γ	σ,v	u_0	σ',v_0	Qt1	Fr	Bq	SBTn	Ic	Qtn
(m)	(MPa)	(kPa)	(kPa)	(MPa)	(%)		kN/m^3	(kPa)	(kPa)	(kPa)		(%)				
0.92	4.320	44.20	23.80	4.320	1.02	5	17.91	16.73	0.00	16.73	257.45	1.03	0.01	6	1.86	118.99
0.94	4.280	43.15	23.97	4.280	1.01	5	17.88	17.09	0.00	17.09	249.70	1.01	0.01	6	1.86	116.67
0.96	4.090	41.96	24.32	4.090	1.02	5	17.83	17.45	0.00	17.45	233.69	1.03	0.01	6	1.88	111.63
0.98	3.890	41.92	24.32	3.890	1.08	5	17.81	17.80	0.00	17.80	217.76	1.08	0.01	6	1.91	106.90
1.00	3.710	42.51	24.50	3.710	1.14	5	17.80	18.16	0.00	18.16	203.56	1.15	0.01	6	1.94	102.78
1.02	3.600	43.10	24.85	3.600	1.20	5	17.81	18.52	0.00	18.52	193.69	1.20	0.01	6	1.96	99.96
1.04	3.530	43.15	24.67	3.530	1.22	5	17.80	18.87	0.00	18.87	186.30	1.23	0.01	6	1.98	97.72
1.06	3.440	42.78	25.02	3.450	1.24	5	17.78	19.23	0.00	19.23	178.16	1.25	0.01	6	1.99	94.99
1.08	3.370	41.96	25.02	3.380	1.24	5	17.75	19.58	0.00	19.58	171.34	1.25	0.01	6	2.00	92.53
1.10	3.410	39.91	24.85	3.410	1.17	5	17.70	19.94	0.00	19.94	170.28	1.18	0.01	6	1.98	91.77
1.12	3.540	38.00	24.85	3.540	1.07	5	17.66	20.29	0.00	20.29	173.70	1.08	0.01	6	1.96	92.71
1.14	3.720	35.81	24.50	3.720	0.96	5	17.61	20.64	0.00	20.64	179.44	0.97	0.01	6	1.92	94.39
1.16	3.940	33.76	24.32	3.940	0.86	5	17.56	21.00	0.00	21.00	186.89	0.86	0.01	6	1.88	96.71
1.18	4.080	32.58	24.15	4.080	0.80	5	17.53	21.35	0.00	21.35	190.36	0.80	0.01	6	1.86	97.90
1.20	4.190	31.89	23.97	4.190	0.76	5	17.52	21.70	0.00	21.70	192.34	0.76	0.01	6	1.84	98.74
1.22	4.420	31.62	23.80	4.420	0.71	5	17.53	22.05	0.00	22.05	199.70	0.72	0.01	6	1.82	101.70
1.24	4.520	32.17	23.62	4.520	0.71	5	17.56	22.40	0.00	22.40	201.01	0.71	0.01	6	1.81	102.82
1.26	4.560	33.12	23.45	4.560	0.73	5	17.60	22.75	0.00	22.75	199.65	0.73	0.01	6	1.82	103.11
1.28	4.600	34.67	23.62	4.600	0.75	5	17.65	23.10	0.00	23.10	198.32	0.76	0.01	6	1.82	103.60
1.30	4.700	37.22	23.45	4.700	0.79	5	17.74	23.46	0.00	23.46	199.57	0.80	0.01	6	1.83	105.39
1.32	4.810	38.64	23.27	4.810	0.80	5	17.79	23.81	0.00	23.81	201.19	0.81	0.00	6	1.83	106.91
1.34	4.960	39.55	23.27	4.960	0.80	5	17.83	24.17	0.00	24.17	204.41	0.80	0.00	6	1.82	108.88
1.36	5.100	41.32	23.10	5.100	0.81	5	17.89	24.53	0.00	24.53	207.13	0.81	0.00	6	1.82	110.94
1.38	5.200	42.46	23.10	5.200	0.82	5	17.93	24.88	0.00	24.88	208.15	0.82	0.00	6	1.82	112.14
1.40	5.350	43.47	22.75	5.350	0.81	5	17.97	25.24	0.00	25.24	211.11	0.82	0.00	6	1.81	114.06
1.42	5.520	44.88	22.57	5.520	0.81	5	18.02	25.60	0.00	25.60	214.77	0.82	0.00	6	1.80	116.40
1.44	5.680	45.88	22.40	5.680	0.81	6	18.06	25.97	0.00	25.97	217.93	0.81	0.00	6	1.80	118.42
1.46	5.920	46.75	22.05	5.920	0.79	6	18.09	26.33	0.00	26.33	224.03	0.79	0.00	6	1.78	121.59
1.48	6.390	47.43	21.52	6.390	0.74	6	18.14	26.69	0.00	26.69	238.58	0.74	0.00	6	1.75	128.08
1.50	6.770	47.57	21.00	6.770	0.70	6	18.16	27.05	0.00	27.05	249.41	0.71	0.00	6	1.72	132.95
1.52	7.130	47.57	20.47	7.130	0.67	6	18.18	27.42	0.00	27.42	259.22	0.67	0.00	6	1.69	137.38
1.54	7.680	47.84	19.25	7.680	0.62	6	18.22	27.78	0.00	27.78	275.59	0.62	0.00	6	1.66	144.51
1.56	8.000	48.75	18.55	8.000	0.61	6	18.26	28.15	0.00	28.15	283.37	0.61	0.00	6	1.64	148.50
1.58	8.280	50.16	18.02	8.280	0.61	6	18.30	28.51	0.00	28.51	289.54	0.61	0.00	6	1.63	152.06
1.60	8.280	50.16	18.02	8.280	0.61	6	18.30	28.88	0.00	28.88	285.86	0.61	0.00	6	1.63	151.27
1.62	8.100	50.05	13.65	8.100	0.62	6	18.29	29.24	0.00	29.24	276.08	0.62	0.00	6	1.65	147.97
1.64	8.650	50.51	12.07	8.650	0.58	6	18.33	29.61	0.00	29.61	291.22	0.59	0.00	6	1.62	154.88
1.66	9.070	51.67	10.85	9.070	0.57	6	18.37	29.98	0.00	29.98	301.64	0.57	0.00	6	1.60	160.15
1.68	9.240	57.64	10.67	9.240	0.62	6	18.50	30.35	0.00	30.35	303.56	0.63	0.00	6	1.62	163.52
1.70	9.320	63.06	10.15	9.320	0.68	6	18.61	30.72	0.00	30.72	302.47	0.68	0.00	6	1.63	165.38
1.72	9.330	68.43	10.15	9.330	0.73	6	18.71	31.09	0.00	31.09	299.15	0.74	0.00	6	1.66	166.16
1.74	9.270	72.85	10.15	9.270	0.79	6	18.77	31.47	0.00	31.47	293.66	0.79	0.00	6	1.68	165.65
1.76	9.190	79.10	10.50	9.190	0.86	6	18.87	31.84	0.00	31.84	287.67	0.86	0.00	6	1.70	165.22
1.78	9.040	83.01	10.67	9.040	0.92	6	18.92	32.22	0.00	32.22	279.63	0.92	0.00	6	1.73	162.93
1.80	8.860	85.47	10.50	8.860	0.96	6	18.94	32.60	0.00	32.60	270.84	0.97	0.00	6	1.75	160.12
1.82	8.750	86.07	10.67	8.750	0.98	6	18.94	32.98	0.00	32.98	264.39	0.99	0.00	6	1.76	157.88
1.84	8.630	85.34	11.02	8.630	0.99	6	18.93	33.36	0.00	33.36	257.78	0.99	0.00	6	1.77	155.24
1.86	8.510	84.11	11.02	8.510	0.99	6	18.91	33.74	0.00	33.74	251.32	0.99	0.00	6	1.77	152.52
1.88	8.410	81.24	11.20	8.410	0.97	6	18.86	34.11	0.00	34.11	245.60	0.97	0.00	6	1.77	149.78
1.90	8.490	78.46	11.20	8.490	0.92	6	18.83	34.49	0.00	34.49	245.22	0.93	0.00	6	1.76	149.58
1.92	8.590	74.77	11.02	8.590	0.87	6	18.78	34.87	0.00	34.87	245.44	0.87	0.00	6	1.74	149.45
1.94	8.630	71.03	11.02	8.630	0.82	6	18.72	35.24	0.00	35.24	243.95	0.83	0.00	6	1.73	148.49
1.96	8.570	68.75	11.20	8.570	0.80	6	18.68	35.61	0.00	35.61	239.70	0.81	0.00	6	1.72	146.50
1.98	8.470	66.84	11.20	8.470	0.79	6	18.64	35.99	0.00	35.99	234.42	0.79	0.00	6	1.72	144.07
2.00	8.310	66.07	11.37	8.310	0.79	6	18.62	36.36	0.00	36.36	227.61	0.80	0.00	6	1.73	141.10

In situ data			Basic output data							ARENILE BAGNO FLORA - VIAREGGIO (LU)						CPTu 04	
Depth	qc	fs	u_2	qt	Rf	SBT	γ	σ,v	u_0	σ',v_0	Qt1	Fr	Bq	SBTn	Ic	Qtn
(m)	(MPa)	(kPa)	(kPa)	(MPa)	(%)		kN/m^3	(kPa)	(kPa)	(kPa)		(%)				
2.02	8.180	66.02	11.55	8.180	0.81	6	18.61	36.73	0.20	36.54	222.95	0.81	0.00	6	1.74	139.03
2.04	8.080	66.57	11.90	8.080	0.82	6	18.62	37.10	0.39	36.71	219.15	0.83	0.00	6	1.75	137.48
2.06	7.990	68.21	12.07	7.990	0.85	6	18.64	37.48	0.59	36.89	215.65	0.86	0.00	6	1.76	136.27
2.08	7.840	70.12	12.25	7.840	0.89	6	18.67	37.85	0.78	37.07	210.56	0.90	0.00	6	1.78	134.29
2.10	7.720	70.48	12.60	7.720	0.91	6	18.67	38.22	0.98	37.24	206.33	0.92	0.00	6	1.79	132.41
2.12	7.570	69.98	12.77	7.570	0.92	6	18.65	38.60	1.18	37.42	201.34	0.93	0.00	6	1.80	129.97
2.14	7.420	68.89	13.12	7.420	0.93	6	18.63	38.97	1.37	37.60	196.40	0.93	0.00	6	1.81	127.42
2.16	7.240	67.34	13.30	7.240	0.93	6	18.59	39.34	1.57	37.77	190.71	0.93	0.00	6	1.82	124.39
2.18	6.980	64.15	13.82	6.980	0.92	6	18.52	39.71	1.77	37.95	182.97	0.92	0.00	6	1.83	119.97
2.20	6.890	62.65	14.00	6.890	0.91	6	18.49	40.08	1.96	38.12	179.77	0.91	0.00	6	1.83	118.20
2.22	6.510	58.46	14.52	6.510	0.90	6	18.39	40.45	2.16	38.29	169.03	0.90	0.00	6	1.84	111.97
2.24	6.250	56.82	15.05	6.250	0.91	6	18.34	40.82	2.35	38.46	161.51	0.91	0.00	6	1.86	107.83
2.26	6.050	55.54	15.57	6.050	0.92	5	18.30	41.18	2.55	38.63	155.62	0.92	0.00	6	1.87	104.59
2.28	5.950	53.35	15.75	5.950	0.90	5	18.25	41.55	2.75	38.80	152.36	0.90	0.00	6	1.87	102.60
2.30	5.900	51.35	15.92	5.900	0.87	6	18.20	41.91	2.94	38.97	150.41	0.88	0.00	6	1.87	101.34
2.32	5.610	50.71	16.27	5.610	0.90	5	18.17	42.28	3.14	39.14	142.35	0.91	0.00	6	1.89	96.96
2.34	5.390	51.62	16.62	5.390	0.96	5	18.17	42.64	3.34	39.30	136.14	0.96	0.00	6	1.92	93.80
2.36	5.210	51.94	16.62	5.210	1.00	5	18.16	43.00	3.53	39.47	130.99	1.00	0.00	6	1.94	91.09
2.38	5.150	51.30	16.97	5.150	1.00	5	18.15	43.37	3.73	39.64	128.92	1.00	0.00	6	1.95	89.94
2.40	5.180	50.30	16.97	5.180	0.97	5	18.13	43.73	3.92	39.80	129.12	0.98	0.00	6	1.94	90.01
2.42	5.290	48.93	16.80	5.290	0.92	5	18.10	44.09	4.12	39.97	131.33	0.93	0.00	6	1.92	91.14
2.44	5.280	47.43	16.97	5.280	0.90	5	18.07	44.45	4.32	40.14	130.53	0.91	0.00	6	1.92	90.57
2.46	5.230	45.11	17.32	5.230	0.86	5	18.00	44.81	4.51	40.30	128.75	0.87	0.00	6	1.91	89.30
2.48	5.200	42.92	17.32	5.200	0.82	5	17.94	45.17	4.71	40.46	127.48	0.83	0.00	6	1.90	88.34
2.50	5.200	41.55	17.32	5.200	0.80	5	17.91	45.53	4.91	40.62	126.97	0.81	0.00	6	1.90	87.92
2.52	5.270	41.05	17.15	5.270	0.78	5	17.90	45.89	5.10	40.79	128.17	0.79	0.00	6	1.89	88.62
2.54	5.290	41.28	16.97	5.290	0.78	5	17.91	46.25	5.30	40.95	128.14	0.79	0.00	6	1.89	88.75
2.56	5.280	42.28	16.97	5.280	0.80	5	17.93	46.60	5.49	41.11	127.38	0.81	0.00	6	1.89	88.60
2.58	5.280	42.28	16.97	5.280	0.80	5	17.93	46.96	5.69	41.27	126.87	0.81	0.00	6	1.90	88.42
2.60	5.090	40.03	7.52	5.090	0.79	5	17.86	47.32	5.89	41.43	121.74	0.79	0.00	6	1.90	85.22
2.62	5.350	40.54	7.52	5.350	0.76	6	17.89	47.68	6.08	41.60	127.51	0.76	0.00	6	1.88	88.70
2.64	5.600	39.59	8.22	5.600	0.71	6	17.88	48.04	6.28	41.76	133.00	0.71	0.00	6	1.85	91.76
2.66	5.830	40.05	7.17	5.830	0.69	6	17.91	48.39	6.47	41.92	137.95	0.69	0.00	6	1.83	94.76
2.68	5.920	41.28	7.00	5.920	0.70	6	17.95	48.75	6.67	42.08	139.55	0.70	0.00	6	1.83	96.00
2.70	5.890	43.38	7.17	5.890	0.74	6	18.00	49.11	6.87	42.25	138.29	0.74	0.00	6	1.85	95.77
2.72	5.840	45.06	7.17	5.840	0.77	6	18.05	49.47	7.06	42.41	136.57	0.78	0.00	6	1.86	95.18
2.74	5.780	46.79	7.52	5.780	0.81	6	18.08	49.84	7.26	42.58	134.62	0.82	0.00	6	1.87	94.45
2.76	5.690	48.75	7.35	5.690	0.86	5	18.13	50.20	7.46	42.74	131.98	0.86	0.00	6	1.89	93.34
2.78	5.610	49.75	7.17	5.610	0.89	5	18.14	50.56	7.65	42.91	129.60	0.89	0.00	6	1.91	92.20
2.80	5.490	50.03	7.35	5.490	0.91	5	18.14	50.92	7.85	43.08	126.30	0.92	0.00	6	1.92	90.41
2.82	5.380	49.85	7.70	5.380	0.93	5	18.13	51.29	8.04	43.24	123.27	0.94	0.00	6	1.93	88.69
2.84	5.300	49.94	7.70	5.300	0.94	5	18.13	51.65	8.24	43.41	120.94	0.95	0.00	6	1.94	87.42
2.86	5.230	48.80	7.87	5.230	0.93	5	18.09	52.01	8.44	43.57	118.87	0.94	0.00	6	1.94	86.13
2.88	5.260	47.84	7.87	5.260	0.91	5	18.07	52.37	8.63	43.74	119.10	0.92	0.00	6	1.94	86.23
2.90	5.350	47.57	7.70	5.350	0.89	5	18.07	52.73	8.83	43.90	120.69	0.90	0.00	6	1.93	87.24
2.92	5.520	47.11	7.52	5.520	0.85	5	18.07	53.10	9.03	44.07	124.08	0.86	0.00	6	1.91	89.31
2.94	5.710	46.38	7.00	5.710	0.81	6	18.07	53.46	9.22	44.24	127.91	0.82	0.00	6	1.89	91.58
2.96	5.870	45.70	6.30	5.870	0.78	6	18.06	53.82	9.42	44.40	131.02	0.79	0.00	6	1.87	93.44
2.98	5.960	45.29	6.12	5.960	0.76	6	18.06	54.18	9.61	44.57	132.55	0.77	0.00	6	1.86	94.39
3.00	6.020	45.52	5.95	6.020	0.76	6	18.07	54.54	9.81	44.73	133.39	0.76	0.00	6	1.86	95.04
3.02	5.970	46.43	5.95	5.970	0.78	6	18.09	54.90	10.01	44.90	131.78	0.78	0.00	6	1.87	94.33
3.04	5.900	47.16	5.95	5.900	0.80	6	18.10	55.26	10.20	45.06	129.73	0.81	0.00	6	1.88	93.32
3.06	5.810	48.16	5.95	5.810	0.83	6	18.12	55.63	10.40	45.23	127.26	0.84	0.00	6	1.89	92.08
3.08	5.770	49.25	6.12	5.770	0.85	5	18.14	55.99	10.59	45.39	125.90	0.86	0.00	6	1.90	91.52
3.10	5.760	49.80	6.12	5.760	0.86	5	18.15	56.35	10.79	45.56	125.21	0.87	0.00	6	1.90	91.28

In situ data				Basic output data					ARENILE BAGNO FLORA - VIAREGGIO (LU)					CPTu 04		
Depth	qc	fs	u_2	qt	Rf	SBT	γ	σ,v	u_0	σ',v_0	Qt1	Fr	Bq	SBTn	Ic	Qtn
(m)	(MPa)	(kPa)	(kPa)	(MPa)	(%)		kN/m^3	(kPa)	(kPa)	(kPa)		(%)				
3.12	5.720	50.26	6.12	5.720	0.88	5	18.16	56.72	10.99	45.73	123.87	0.89	0.00	6	1.91	90.62
3.14	5.670	50.71	6.30	5.670	0.89	5	18.17	57.08	11.18	45.90	122.33	0.90	0.00	6	1.92	89.84
3.16	5.630	50.62	6.47	5.630	0.90	5	18.16	57.44	11.38	46.06	121.01	0.91	0.00	6	1.92	89.11
3.18	5.570	49.80	6.47	5.570	0.89	5	18.14	57.81	11.58	46.23	119.26	0.90	0.00	6	1.93	88.03
3.20	5.460	48.98	6.82	5.460	0.90	5	18.12	58.17	11.77	46.40	116.46	0.91	0.00	6	1.93	86.29
3.22	5.330	48.34	7.00	5.330	0.91	5	18.09	58.53	11.97	46.56	113.25	0.92	0.00	6	1.94	84.30
3.24	5.190	47.61	7.52	5.190	0.92	5	18.06	58.89	12.16	46.73	109.84	0.93	0.00	6	1.96	82.17
3.26	5.110	46.34	7.52	5.110	0.91	5	18.03	59.25	12.36	46.89	107.75	0.92	0.00	6	1.96	80.78
3.28	5.030	45.47	7.87	5.030	0.90	5	18.00	59.61	12.56	47.05	105.66	0.91	0.00	6	1.96	79.44
3.30	4.900	45.11	8.05	4.900	0.92	5	17.98	59.97	12.75	47.22	102.54	0.93	0.00	6	1.98	77.50
3.32	4.770	44.65	8.57	4.770	0.94	5	17.96	60.33	12.95	47.38	99.44	0.95	0.00	6	1.99	75.54
3.34	4.660	44.47	8.92	4.660	0.95	5	17.94	60.69	13.15	47.54	96.78	0.97	0.00	6	2.00	73.89
3.36	4.450	44.38	9.27	4.450	1.00	5	17.92	61.05	13.34	47.71	92.04	1.01	0.00	6	2.03	70.88
3.38	4.130	44.47	10.15	4.130	1.08	5	17.90	61.41	13.54	47.87	85.04	1.09	0.00	5	2.07	66.37
3.40	3.930	44.65	10.85	3.930	1.14	5	17.88	61.76	13.73	48.03	80.58	1.15	0.00	5	2.10	63.50
3.42	3.710	44.20	11.37	3.710	1.19	5	17.85	62.12	13.93	48.19	75.74	1.21	0.00	5	2.13	60.27
3.44	3.520	43.69	11.72	3.520	1.24	5	17.82	62.48	14.13	48.35	71.56	1.26	0.00	5	2.16	57.44
3.46	3.390	43.47	12.07	3.390	1.28	5	17.80	62.83	14.32	48.51	68.64	1.31	0.00	5	2.18	55.47
3.48	3.410	42.28	12.25	3.410	1.24	5	17.77	63.19	14.52	48.67	68.82	1.26	0.00	5	2.17	55.53
3.50	3.570	39.32	12.07	3.570	1.10	5	17.70	63.54	14.72	48.83	71.86	1.12	0.00	5	2.13	57.37
3.52	4.000	34.35	10.50	4.000	0.86	5	17.59	63.90	14.91	48.98	80.40	0.87	0.00	6	2.04	62.63
3.54	4.360	30.75	9.27	4.360	0.70	5	17.49	64.25	15.11	49.14	87.46	0.72	0.00	6	1.96	66.89
3.56	4.600	27.66	8.57	4.600	0.60	6	17.39	64.59	15.30	49.29	92.05	0.61	0.00	6	1.91	69.52
3.58	4.600	27.66	8.57	4.600	0.60	6	17.39	64.94	15.50	49.44	91.76	0.61	0.00	6	1.91	69.40
3.60	4.580	25.36	4.55	4.580	0.55	6	17.29	65.29	15.70	49.59	91.05	0.56	0.00	6	1.90	68.68
3.62	4.730	26.46	3.85	4.730	0.56	6	17.35	65.64	15.89	49.74	93.78	0.57	0.00	6	1.89	70.67
3.64	4.920	24.05	2.62	4.920	0.49	6	17.26	65.98	16.09	49.89	97.30	0.50	0.00	6	1.85	72.64
3.66	5.180	24.28	1.92	5.180	0.47	6	17.29	66.33	16.28	50.04	102.20	0.47	0.00	6	1.83	75.88
3.68	5.420	26.84	1.57	5.420	0.50	6	17.42	66.67	16.48	50.19	106.66	0.50	0.00	6	1.82	79.21
3.70	5.500	31.44	2.10	5.500	0.57	6	17.61	67.03	16.68	50.35	107.92	0.58	0.00	6	1.85	80.79
3.72	5.280	35.22	2.97	5.280	0.67	6	17.72	67.38	16.87	50.51	103.22	0.68	0.00	6	1.89	78.35
3.74	4.980	39.00	4.20	4.980	0.78	5	17.82	67.73	17.07	50.67	96.97	0.79	0.00	6	1.95	74.78
3.76	4.700	42.78	4.90	4.700	0.91	5	17.90	68.09	17.27	50.83	91.15	0.92	0.00	6	2.00	71.39
3.78	4.460	46.79	5.60	4.460	1.05	5	17.98	68.45	17.46	50.99	86.15	1.07	0.00	5	2.06	68.45
3.80	4.230	50.39	5.95	4.230	1.19	5	18.05	68.81	17.66	51.15	81.37	1.21	0.00	5	2.11	65.55
3.82	3.860	53.13	6.65	3.860	1.38	5	18.08	69.17	17.85	51.32	73.89	1.40	0.00	5	2.17	60.60
3.84	3.560	53.03	7.17	3.560	1.49	5	18.04	69.53	18.05	51.48	67.82	1.52	0.00	5	2.22	56.34
3.86	3.350	50.89	7.70	3.350	1.52	5	17.97	69.89	18.25	51.65	63.54	1.55	0.00	5	2.24	53.17
3.88	3.260	48.25	7.52	3.260	1.48	5	17.90	70.25	18.44	51.81	61.59	1.51	0.00	5	2.25	51.63
3.90	3.350	45.61	6.65	3.350	1.36	5	17.85	70.61	18.64	51.97	63.13	1.39	0.00	5	2.22	52.58
3.92	3.640	41.60	5.60	3.640	1.14	5	17.77	70.97	18.84	52.13	68.48	1.17	0.00	5	2.15	56.12
3.94	4.040	35.77	4.90	4.040	0.89	5	17.64	71.32	19.03	52.29	75.92	0.90	0.00	6	2.05	60.85
3.96	4.520	28.66	4.02	4.520	0.63	5	17.43	71.67	19.23	52.44	84.84	0.64	0.00	6	1.94	66.23
3.98	4.810	26.61	2.97	4.810	0.55	6	17.36	72.02	19.42	52.59	90.10	0.56	0.00	6	1.89	69.58
4.00	5.110	25.61	1.92	5.110	0.50	6	17.34	72.36	19.62	52.74	95.52	0.51	0.00	6	1.85	73.12
4.02	5.430	23.87	1.05	5.430	0.44	6	17.29	72.71	19.82	52.89	101.29	0.45	0.00	6	1.81	76.76
4.04	5.650	22.55	0.00	5.650	0.40	6	17.24	73.05	20.01	53.04	105.14	0.40	0.00	6	1.78	79.17
4.06	5.750	21.60	-0.17	5.750	0.38	6	17.19	73.40	20.21	53.19	106.72	0.38	0.00	6	1.76	80.14
4.08	5.890	23.15	0.35	5.890	0.39	6	17.28	73.74	20.40	53.34	109.05	0.40	0.00	6	1.76	82.00
4.10	5.880	24.83	1.05	5.880	0.42	6	17.36	74.09	20.60	53.49	108.55	0.43	0.00	6	1.77	82.02
4.12	5.770	26.47	1.22	5.770	0.46	6	17.43	74.44	20.80	53.64	106.18	0.46	0.00	6	1.80	80.79
4.14	5.510	28.70	2.10	5.510	0.52	6	17.50	74.79	20.99	53.79	101.04	0.53	0.00	6	1.84	77.75
4.16	5.160	31.35	3.67	5.160	0.61	6	17.58	75.14	21.19	53.95	94.27	0.62	0.00	6	1.89	73.58
4.18	4.720	34.63	5.07	4.720	0.73	5	17.66	75.49	21.39	54.11	85.86	0.75	0.00	6	1.97	68.25
4.20	4.570	35.58	5.42	4.570	0.78	5	17.68	75.85	21.58	54.26	82.84	0.79	0.00	6	1.99	66.31

In situ data				Basic output data						ARENILE BAGNO FLORA - VIAREGGIO (LU)					CPTu 04	
Depth	qc	fs	u_2	qt	Rf	SBT	γ	σ,v	u_0	σ',v_0	Qt1	Fr	Bq	SBTn	Ic	Qtn
(m)	(MPa)	(kPa)	(kPa)	(MPa)	(%)		kN/m^3	(kPa)	(kPa)	(kPa)		(%)				
4.22	4.510	35.17	5.77	4.510	0.78	5	17.66	76.20	21.78	54.42	81.49	0.79	0.00	6	2.00	65.39
4.24	4.580	33.81	6.30	4.580	0.74	5	17.62	76.55	21.97	54.58	82.54	0.75	0.00	6	1.98	66.04
4.26	4.740	31.62	5.25	4.740	0.67	5	17.56	76.90	22.17	54.73	85.22	0.68	0.00	6	1.95	67.73
4.28	4.910	29.57	3.32	4.910	0.60	6	17.49	77.25	22.37	54.89	88.06	0.61	0.00	6	1.91	69.54
4.30	4.990	27.38	2.27	4.990	0.55	6	17.41	77.60	22.56	55.04	89.26	0.56	0.00	6	1.89	70.18
4.32	4.900	26.93	2.80	4.900	0.55	6	17.39	77.95	22.76	55.19	87.38	0.56	0.00	6	1.90	68.89
4.34	4.800	26.88	2.45	4.800	0.56	6	17.38	78.30	22.96	55.34	85.33	0.57	0.00	6	1.91	67.53
4.36	4.710	27.70	2.45	4.710	0.59	6	17.40	78.65	23.15	55.49	83.47	0.60	0.00	6	1.93	66.39
4.38	4.640	28.84	2.45	4.640	0.62	5	17.44	78.99	23.35	55.65	81.97	0.63	0.00	6	1.94	65.53
4.40	4.580	30.66	2.62	4.580	0.67	5	17.51	79.34	23.54	55.80	80.67	0.68	0.00	6	1.96	64.86
4.42	4.460	31.94	2.80	4.460	0.72	5	17.55	79.69	23.74	55.95	78.29	0.73	0.00	6	1.99	63.36
4.44	4.380	33.03	3.32	4.380	0.75	5	17.58	80.05	23.94	56.11	76.65	0.77	0.00	6	2.01	62.34
4.46	4.360	34.22	3.67	4.360	0.78	5	17.62	80.40	24.13	56.27	76.07	0.80	0.00	6	2.02	62.09
4.48	4.320	35.17	3.85	4.320	0.81	5	17.64	80.75	24.33	56.42	75.15	0.83	0.00	6	2.03	61.56
4.50	4.200	36.31	4.02	4.200	0.86	5	17.67	81.10	24.53	56.58	72.81	0.88	0.00	6	2.05	60.02
4.52	4.240	36.40	3.85	4.240	0.86	5	17.68	81.46	24.72	56.74	73.31	0.88	-0.01	6	2.05	60.43
4.54	4.340	35.58	3.67	4.340	0.82	5	17.66	81.81	24.92	56.89	74.86	0.84	0.00	6	2.03	61.53
4.56	4.370	35.04	3.50	4.370	0.80	5	17.64	82.16	25.11	57.05	75.17	0.82	-0.01	6	2.03	61.76
4.58	4.370	35.04	12.95	4.370	0.80	5	17.64	82.52	25.31	57.21	74.99	0.82	0.00	6	2.03	61.68
4.60	4.300	22.60	4.37	4.300	0.53	6	17.13	82.86	25.51	57.35	73.54	0.54	-0.01	6	1.94	59.50
4.62	4.510	23.42	6.65	4.510	0.52	6	17.19	83.20	25.70	57.50	77.01	0.53	0.00	6	1.92	62.11
4.64	4.550	23.56	6.65	4.550	0.52	6	17.20	83.55	25.90	57.65	77.50	0.53	0.00	6	1.92	62.53
4.66	4.410	24.10	7.00	4.410	0.55	6	17.22	83.89	26.09	57.80	74.87	0.56	0.00	6	1.94	60.76
4.68	4.220	24.88	8.40	4.220	0.59	5	17.24	84.24	26.29	57.95	71.40	0.60	0.00	6	1.98	58.39
4.70	4.110	25.51	8.57	4.110	0.62	5	17.26	84.58	26.49	58.09	69.32	0.63	0.00	6	2.00	56.99
4.72	4.140	25.20	8.92	4.140	0.61	5	17.24	84.93	26.68	58.24	69.65	0.62	0.00	6	1.99	57.24
4.74	4.230	25.15	8.75	4.230	0.59	5	17.25	85.27	26.88	58.39	71.01	0.61	0.00	6	1.98	58.27
4.76	4.240	24.83	8.22	4.240	0.59	5	17.24	85.62	27.08	58.54	70.99	0.60	0.00	6	1.97	58.28
4.78	4.210	23.46	8.57	4.210	0.56	5	17.17	85.96	27.27	58.69	70.30	0.57	0.00	6	1.97	57.68
4.80	4.220	22.64	9.10	4.220	0.54	5	17.13	86.30	27.47	58.83	70.29	0.55	0.00	6	1.96	57.64
4.82	4.190	23.28	9.45	4.190	0.56	5	17.16	86.65	27.66	58.98	69.60	0.57	0.00	6	1.97	57.25
4.84	4.050	25.01	9.62	4.050	0.62	5	17.23	86.99	27.86	59.13	67.06	0.63	0.00	6	2.00	55.58
4.86	3.990	26.24	9.80	3.990	0.66	5	17.28	87.33	28.06	59.28	65.87	0.67	0.00	6	2.02	54.86
4.88	4.020	27.70	9.62	4.020	0.69	5	17.34	87.68	28.25	59.43	66.20	0.70	0.00	6	2.03	55.27
4.90	4.140	30.44	9.27	4.140	0.73	5	17.46	88.03	28.45	59.58	68.04	0.75	0.00	6	2.03	56.91
4.92	4.180	31.94	9.10	4.180	0.76	5	17.52	88.38	28.65	59.74	68.53	0.78	0.00	6	2.04	57.43
4.94	4.420	32.76	8.40	4.420	0.74	5	17.57	88.73	28.84	59.89	72.35	0.76	0.00	6	2.01	60.39
4.96	4.810	32.80	7.35	4.810	0.68	5	17.61	89.08	29.04	60.05	78.65	0.69	0.00	6	1.97	65.10
4.98	5.360	33.17	6.12	5.360	0.62	6	17.66	89.44	29.23	60.20	87.57	0.63	0.00	6	1.91	71.74
5.00	5.910	31.80	5.25	5.910	0.54	6	17.65	89.79	29.43	60.36	96.44	0.55	0.00	6	1.85	78.13
5.02	6.410	29.07	4.55	6.410	0.45	6	17.58	90.14	29.63	60.52	104.45	0.46	0.00	6	1.78	83.69
5.04	6.600	29.48	4.55	6.600	0.45	6	17.60	90.49	29.82	60.67	107.31	0.45	0.00	6	1.77	85.87
5.06	6.840	32.26	4.37	6.840	0.47	6	17.72	90.85	30.02	60.83	110.97	0.48	0.00	6	1.77	88.88
5.08	6.910	36.40	4.37	6.910	0.53	6	17.86	91.20	30.21	60.99	111.82	0.53	0.00	6	1.79	90.01
5.10	6.820	39.91	4.72	6.820	0.59	6	17.96	91.56	30.41	61.15	110.04	0.59	0.00	6	1.82	89.16
5.12	6.730	42.83	4.90	6.730	0.64	6	18.04	91.92	30.61	61.32	108.28	0.65	0.00	6	1.84	88.23
5.14	6.640	47.66	5.07	6.640	0.72	6	18.16	92.29	30.80	61.48	106.51	0.73	0.00	6	1.87	87.43
5.16	6.430	55.18	5.60	6.430	0.86	6	18.31	92.65	31.00	61.65	102.81	0.87	0.00	6	1.93	85.34
5.18	6.290	57.23	5.77	6.290	0.91	6	18.35	93.02	31.20	61.82	100.26	0.92	0.00	6	1.95	83.65
5.20	6.060	55.77	6.30	6.060	0.92	5	18.30	93.38	31.39	61.99	96.27	0.93	0.00	6	1.97	80.64
5.22	5.770	54.31	7.00	5.770	0.94	5	18.26	93.75	31.59	62.16	91.34	0.96	0.00	6	1.99	76.91
5.24	5.540	52.62	7.52	5.540	0.95	5	18.20	94.11	31.78	62.33	87.40	0.97	0.00	6	2.00	73.88
5.26	5.400	50.44	7.70	5.400	0.93	5	18.14	94.48	31.98	62.50	84.92	0.95	0.00	6	2.01	71.92
5.28	5.290	46.11	8.05	5.290	0.87	5	18.03	94.84	32.18	62.66	82.93	0.89	0.00	6	2.00	70.20
5.30	5.210	43.69	8.05	5.210	0.84	5	17.97	95.20	32.37	62.83	81.44	0.85	0.00	6	2.00	68.96

In situ data				Basic output data						ARENILE BAGNO FLORA - VIAREGGIO (LU)					CPTu 04	
Depth	qc	fs	u_2	qt	Rf	SBT	γ	σ,v	u_0	σ',v_0	Qt1	Fr	Bq	SBTn	Ic	Qtn
(m)	(MPa)	(kPa)	(kPa)	(MPa)	(%)		kN/m^3	(kPa)	(kPa)	(kPa)		(%)				
5.32	5.170	41.51	8.40	5.170	0.80	5	17.90	95.56	32.57	62.99	80.59	0.82	0.00	6	1.99	68.22
5.34	5.110	40.64	8.57	5.110	0.80	5	17.88	95.91	32.77	63.15	79.43	0.81	0.00	6	1.99	67.33
5.36	5.080	39.96	8.57	5.080	0.79	5	17.85	96.27	32.96	63.31	78.75	0.80	0.00	6	1.99	66.82
5.38	5.050	39.27	8.92	5.050	0.78	5	17.83	96.63	33.16	63.47	78.07	0.79	0.00	6	1.99	66.31
5.40	4.990	39.23	9.62	4.990	0.79	5	17.83	96.98	33.35	63.63	76.93	0.80	0.00	6	2.00	65.48
5.42	5.030	39.73	9.45	5.030	0.79	5	17.84	97.34	33.55	63.79	77.35	0.81	0.00	6	2.00	65.89
5.44	5.050	40.73	9.10	5.050	0.81	5	17.87	97.70	33.75	63.95	77.47	0.82	0.00	6	2.00	66.09
5.46	5.300	42.05	8.22	5.300	0.79	5	17.93	98.06	33.94	64.11	81.16	0.81	0.00	6	1.98	69.08
5.48	6.000	42.15	6.82	6.000	0.70	6	17.98	98.42	34.14	64.28	91.84	0.71	0.00	6	1.91	77.31
5.50	6.780	42.33	5.25	6.780	0.62	6	18.03	98.78	34.34	64.44	103.70	0.63	0.00	6	1.84	86.38
5.52	7.240	44.83	4.55	7.240	0.62	6	18.12	99.14	34.53	64.61	110.54	0.63	0.00	6	1.82	91.81
5.54	7.380	46.34	4.72	7.380	0.63	6	18.17	99.50	34.73	64.77	112.41	0.64	0.00	6	1.82	93.43
5.56	7.410	46.70	4.72	7.410	0.63	6	18.18	99.87	34.92	64.94	112.58	0.64	0.00	6	1.82	93.67
5.58	7.410	46.70	5.95	7.410	0.63	6	18.18	100.23	35.12	65.11	112.29	0.64	0.00	6	1.82	93.54
5.60	7.270	40.00	6.30	7.270	0.55	6	17.99	100.59	35.32	65.27	109.86	0.56	0.00	6	1.79	91.27
5.62	7.260	40.23	6.65	7.260	0.55	6	18.00	100.95	35.51	65.44	109.43	0.56	0.00	6	1.80	91.05
5.64	7.190	40.46	7.35	7.190	0.56	6	18.00	101.31	35.71	65.60	108.08	0.57	0.00	6	1.80	90.14
5.66	7.130	40.19	7.52	7.130	0.56	6	17.99	101.67	35.90	65.76	106.90	0.57	0.00	6	1.81	89.30
5.68	7.010	37.04	7.87	7.010	0.53	6	17.89	102.03	36.10	65.93	104.81	0.54	0.00	6	1.80	87.55
5.70	6.850	34.63	8.22	6.850	0.51	6	17.80	102.38	36.30	66.09	102.13	0.51	0.00	6	1.80	85.39
5.72	6.580	33.62	7.87	6.580	0.51	6	17.75	102.74	36.49	66.25	97.80	0.52	0.00	6	1.82	82.08
5.74	6.490	33.67	8.05	6.490	0.52	6	17.75	103.09	36.69	66.40	96.21	0.53	0.00	6	1.82	80.94
5.76	6.390	33.85	8.22	6.390	0.53	6	17.75	103.45	36.89	66.56	94.47	0.54	0.00	6	1.83	79.69
5.78	6.250	34.03	8.57	6.250	0.54	6	17.75	103.80	37.08	66.72	92.14	0.55	0.00	6	1.85	77.98
5.80	5.980	34.58	9.45	5.980	0.58	6	17.75	104.16	37.28	66.88	87.88	0.59	0.00	6	1.88	74.79
5.82	5.530	36.77	10.15	5.530	0.66	6	17.79	104.51	37.47	67.04	80.96	0.68	-0.01	6	1.94	69.59
5.84	4.800	42.97	11.72	4.800	0.89	5	17.92	104.87	37.67	67.20	69.90	0.91	-0.01	6	2.06	61.23
5.86	4.410	46.56	12.42	4.410	1.06	5	17.98	105.23	37.87	67.36	63.94	1.08	-0.01	5	2.13	56.65
5.88	4.240	48.34	12.60	4.240	1.14	5	18.00	105.59	38.06	67.53	61.26	1.17	-0.01	5	2.16	54.59
5.90	4.360	49.12	12.42	4.360	1.13	5	18.03	105.95	38.26	67.69	62.88	1.15	-0.01	5	2.15	55.97
5.92	4.780	49.44	11.55	4.780	1.03	5	18.08	106.31	38.46	67.86	68.91	1.06	-0.01	5	2.09	60.92
5.94	5.200	50.44	10.85	5.200	0.97	5	18.13	106.67	38.65	68.02	74.91	0.99	-0.01	6	2.05	65.84
5.96	5.440	52.76	7.52	5.440	0.97	5	18.20	107.04	38.85	68.19	78.23	0.99	-0.01	6	2.04	68.67
5.98	5.500	52.94	4.72	5.500	0.96	5	18.21	107.40	39.04	68.36	78.90	0.98	-0.01	6	2.03	69.27
6.00	5.560	52.03	3.67	5.560	0.94	5	18.19	107.77	39.24	68.53	79.58	0.95	-0.01	6	2.02	69.82
6.02	5.260	33.58	4.02	5.260	0.64	6	17.67	108.12	39.44	68.69	75.02	0.65	-0.01	6	1.95	65.23
6.04	5.080	25.29	4.72	5.080	0.50	6	17.33	108.47	39.63	68.84	72.24	0.51	-0.01	6	1.91	62.52
6.06	4.890	23.05	5.42	4.890	0.47	6	17.21	108.81	39.83	68.99	69.32	0.48	-0.01	6	1.92	60.09
6.08	4.750	24.10	5.77	4.750	0.51	6	17.25	109.16	40.02	69.13	67.14	0.52	-0.01	6	1.94	58.46
6.10	4.800	27.84	5.95	4.800	0.58	6	17.42	109.51	40.22	69.29	67.72	0.59	-0.01	6	1.97	59.21
6.12	5.000	30.25	5.95	5.000	0.60	6	17.53	109.86	40.42	69.44	70.44	0.62	-0.01	6	1.96	61.59
6.14	5.160	31.39	5.60	5.160	0.61	6	17.58	110.21	40.61	69.59	72.58	0.62	-0.01	6	1.95	63.43
6.16	5.180	29.71	5.77	5.180	0.57	6	17.52	110.56	40.81	69.75	72.70	0.59	-0.01	6	1.94	63.47
6.18	5.040	28.39	5.77	5.040	0.56	6	17.46	110.91	41.01	69.90	70.53	0.58	-0.01	6	1.94	61.69
6.20	5.000	27.02	5.77	5.000	0.54	6	17.40	111.26	41.20	70.05	69.80	0.55	-0.01	6	1.94	61.06
6.22	5.020	25.51	5.77	5.020	0.51	6	17.33	111.60	41.40	70.20	69.93	0.52	-0.01	6	1.93	61.11
6.24	4.960	23.92	6.12	4.960	0.48	6	17.25	111.95	41.59	70.35	68.93	0.49	-0.01	6	1.92	60.24
6.26	4.890	22.78	6.47	4.890	0.47	6	17.19	112.29	41.79	70.50	67.79	0.48	-0.01	6	1.92	59.29
6.28	4.820	23.42	6.65	4.820	0.49	6	17.22	112.64	41.99	70.65	66.65	0.50	-0.01	6	1.93	58.45
6.30	4.830	25.42	6.82	4.830	0.53	6	17.31	112.98	42.18	70.80	66.64	0.54	-0.01	6	1.95	58.62
6.32	4.780	27.57	7.00	4.780	0.58	6	17.40	113.33	42.38	70.95	65.79	0.59	-0.01	6	1.97	58.09
6.34	4.680	28.98	7.17	4.680	0.62	6	17.45	113.68	42.58	71.10	64.24	0.63	-0.01	6	2.00	56.94
6.36	4.610	29.66	7.17	4.610	0.64	5	17.47	114.03	42.77	71.26	63.12	0.66	-0.01	6	2.01	56.09
6.38	4.640	29.21	7.17	4.640	0.63	5	17.46	114.38	42.97	71.41	63.40	0.65	-0.01	6	2.00	56.33
6.40	4.870	28.89	5.77	4.870	0.59	6	17.46	114.73	43.16	71.56	66.47	0.61	-0.01	6	1.97	58.88

In situ data				Basic output data						ARENILE BAGNO FLORA - VIAREGGIO (LU)					CPTu 04	
Depth	qc	fs	u_2	qt	Rf	SBT	γ	σ,v	u_0	σ',v_0	Qt1	Fr	Bq	SBTn	Ic	Qtn
(m)	(MPa)	(kPa)	(kPa)	(MPa)	(%)		kN/m^3	(kPa)	(kPa)	(kPa)		(%)				
6.42	5.640	26.88	5.07	5.640	0.48	6	17.44	115.08	43.36	71.72	77.05	0.49	-0.01	6	1.87	67.46
6.44	6.020	25.10	4.90	6.020	0.42	6	17.38	115.42	43.56	71.87	82.17	0.43	-0.01	6	1.82	71.55
6.46	6.210	24.97	4.72	6.210	0.40	6	17.39	115.77	43.75	72.02	84.63	0.41	-0.01	6	1.81	73.59
6.48	6.260	26.06	4.72	6.260	0.42	6	17.44	116.12	43.95	72.17	85.14	0.42	-0.01	6	1.81	74.14
6.50	6.260	28.29	4.90	6.260	0.45	6	17.54	116.47	44.15	72.32	84.96	0.46	-0.01	6	1.83	74.20
6.52	6.250	32.39	5.25	6.250	0.52	6	17.69	116.82	44.34	72.48	84.63	0.53	-0.01	6	1.86	74.25
6.54	6.300	35.40	5.25	6.300	0.56	6	17.80	117.18	44.54	72.64	85.13	0.57	-0.01	6	1.87	74.89
6.56	6.300	35.40	5.25	6.300	0.56	6	17.80	117.53	44.73	72.80	84.94	0.57	-0.01	6	1.87	74.80
6.58	6.140	24.10	6.47	6.140	0.39	6	17.34	117.89	44.93	72.96	82.56	0.40	-0.01	6	1.81	72.22
6.60	6.100	26.97	7.00	6.100	0.44	6	17.47	118.23	45.13	73.11	81.84	0.45	-0.01	6	1.83	71.88
6.62	6.020	29.02	7.52	6.020	0.48	6	17.55	118.59	45.32	73.26	80.57	0.49	-0.01	6	1.86	71.02
6.64	5.920	30.66	7.87	5.920	0.52	6	17.61	118.94	45.52	73.42	79.03	0.53	-0.01	6	1.88	69.90
6.66	5.910	31.57	7.87	5.910	0.53	6	17.64	119.29	45.71	73.58	78.73	0.55	-0.01	6	1.89	69.75
6.68	5.810	31.71	7.87	5.810	0.55	6	17.64	119.64	45.91	73.73	77.20	0.56	-0.01	6	1.90	68.55
6.70	5.410	31.94	8.05	5.410	0.59	6	17.62	120.00	46.11	73.89	71.62	0.60	-0.01	6	1.94	63.97
6.72	5.260	32.44	8.05	5.260	0.62	6	17.63	120.35	46.30	74.04	69.43	0.63	-0.01	6	1.96	62.21
6.74	5.330	31.94	7.70	5.330	0.60	6	17.61	120.70	46.50	74.20	70.23	0.61	-0.01	6	1.95	62.90
6.76	5.640	31.16	7.35	5.640	0.55	6	17.61	121.05	46.70	74.36	74.24	0.56	-0.01	6	1.91	66.26
6.78	5.920	30.30	7.00	5.920	0.51	6	17.59	121.40	46.89	74.51	77.84	0.52	-0.01	6	1.88	69.27
6.80	6.140	31.62	6.65	6.140	0.51	6	17.66	121.76	47.09	74.67	80.62	0.53	-0.01	6	1.87	71.71
6.82	6.150	31.44	6.82	6.150	0.51	6	17.65	122.11	47.28	74.83	80.58	0.52	-0.01	6	1.87	71.72
6.84	6.060	31.26	7.17	6.060	0.52	6	17.64	122.46	47.48	74.98	79.20	0.53	-0.01	6	1.87	70.62
6.86	6.020	31.80	7.17	6.020	0.53	6	17.66	122.82	47.68	75.14	78.50	0.54	-0.01	6	1.88	70.12
6.88	6.070	34.22	7.17	6.070	0.56	6	17.74	123.17	47.87	75.30	79.00	0.58	-0.01	6	1.89	70.70
6.90	6.160	37.00	7.00	6.160	0.60	6	17.84	123.53	48.07	75.46	80.02	0.61	-0.01	6	1.90	71.75
6.92	6.090	36.59	7.17	6.090	0.60	6	17.82	123.88	48.27	75.62	78.92	0.61	-0.01	6	1.91	70.86
6.94	6.010	34.99	7.70	6.010	0.58	6	17.77	124.24	48.46	75.78	77.69	0.59	-0.01	6	1.91	69.80
6.96	5.910	35.63	7.87	5.910	0.60	6	17.78	124.59	48.66	75.94	76.21	0.62	-0.01	6	1.92	68.63
6.98	5.840	36.54	8.05	5.840	0.63	6	17.80	124.95	48.85	76.10	75.12	0.64	-0.01	6	1.93	67.80
7.00	5.810	37.13	8.05	5.810	0.64	6	17.82	125.31	49.05	76.26	74.57	0.65	-0.01	6	1.94	67.40
7.02	5.830	36.04	8.22	5.830	0.62	6	17.79	125.66	49.25	76.42	74.67	0.63	-0.01	6	1.93	67.49
7.04	5.810	36.40	8.22	5.810	0.63	6	17.80	126.02	49.44	76.58	74.25	0.64	-0.01	6	1.94	67.20
7.06	5.530	34.99	8.75	5.530	0.63	6	17.73	126.37	49.64	76.74	70.44	0.65	-0.01	6	1.96	63.94
7.08	5.090	32.39	9.45	5.090	0.64	6	17.61	126.73	49.83	76.89	64.57	0.65	-0.01	6	1.99	58.85
7.10	4.510	28.25	10.67	4.510	0.63	5	17.41	127.08	50.03	77.04	56.92	0.64	-0.01	6	2.03	52.13
7.12	4.040	25.88	11.90	4.040	0.64	5	17.27	127.42	50.23	77.19	50.72	0.66	-0.01	5	2.08	46.69
7.14	3.670	25.79	12.42	3.670	0.70	5	17.23	127.77	50.42	77.34	45.83	0.73	-0.01	5	2.14	42.46
7.16	3.230	26.52	13.30	3.230	0.82	5	17.21	128.11	50.62	77.49	40.06	0.85	-0.01	5	2.22	37.44
7.18	3.090	28.98	13.47	3.090	0.94	5	17.29	128.46	50.82	77.64	38.18	0.98	-0.01	5	2.27	35.86
7.20	3.110	30.66	13.12	3.110	0.99	5	17.36	128.80	51.01	77.79	38.36	1.03	-0.01	5	2.28	36.08
7.22	3.160	32.94	12.95	3.160	1.04	5	17.45	129.15	51.21	77.94	38.92	1.09	-0.01	5	2.28	36.65
7.24	3.090	33.72	12.42	3.090	1.09	5	17.47	129.50	51.40	78.10	37.94	1.14	-0.01	5	2.30	35.81
7.26	2.860	32.30	12.25	2.860	1.13	5	17.39	129.85	51.60	78.25	34.92	1.18	-0.01	5	2.34	33.09
7.28	2.600	25.42	12.42	2.600	0.98	5	17.08	130.19	51.80	78.40	31.54	1.03	-0.02	5	2.34	29.91
7.30	2.700	22.28	11.90	2.700	0.82	5	16.94	130.53	51.99	78.54	32.75	0.87	-0.02	5	2.29	30.93
7.32	3.090	22.74	10.67	3.090	0.74	5	17.01	130.87	52.19	78.68	37.64	0.77	-0.01	5	2.22	35.31
7.34	3.570	26.97	8.92	3.570	0.76	5	17.27	131.22	52.39	78.83	43.65	0.78	-0.01	5	2.17	40.79
7.36	4.040	32.17	7.52	4.040	0.80	5	17.52	131.56	52.58	78.98	49.50	0.82	-0.01	5	2.13	46.14
7.38	4.790	41.28	5.42	4.790	0.86	5	17.87	131.92	52.78	79.14	58.87	0.89	-0.01	5	2.09	54.69
7.40	5.320	41.78	4.02	5.320	0.79	5	17.92	132.28	52.97	79.30	65.43	0.81	-0.01	6	2.03	60.50
7.42	5.730	27.02	3.15	5.730	0.47	6	17.45	132.63	53.17	79.46	70.45	0.48	-0.01	6	1.89	64.41
7.44	6.000	21.32	2.27	6.000	0.36	6	17.19	132.98	53.37	79.61	73.70	0.36	-0.01	6	1.82	67.02
7.46	6.130	21.05	1.92	6.130	0.34	6	17.19	133.32	53.56	79.76	75.19	0.35	-0.01	6	1.81	68.34
7.48	6.190	20.59	1.92	6.190	0.33	6	17.17	133.66	53.76	79.90	75.80	0.34	-0.01	6	1.80	68.90
7.50	6.280	20.96	1.75	6.280	0.33	6	17.19	134.01	53.96	80.05	76.78	0.34	-0.01	6	1.79	69.82

In situ data				Basic output data						ARENILE BAGNO FLORA - VIAREGGIO (LU)					CPTu 04	
Depth	qc	fs	u_2	qt	Rf	SBT	γ	σ,v	u_0	σ',v_0	Qt1	Fr	Bq	SBTn	Ic	Qtn
(m)	(MPa)	(kPa)	(kPa)	(MPa)	(%)		kN/m^3	(kPa)	(kPa)	(kPa)		(%)				
7.52	6.380	21.82	1.75	6.380	0.34	6	17.24	134.35	54.15	80.20	77.88	0.35	-0.01	6	1.79	70.87
7.54	6.610	23.05	1.57	6.610	0.35	6	17.32	134.70	54.35	80.35	80.59	0.36	-0.01	6	1.78	73.33
7.56	6.610	23.05	1.57	6.610	0.35	6	17.32	135.04	54.54	80.50	80.44	0.36	-0.01	6	1.78	73.26
7.58	6.600	14.49	3.67	6.600	0.22	6	16.79	135.38	54.74	80.64	80.17	0.22	-0.01	6	1.71	72.63
7.60	7.270	21.28	3.32	7.270	0.29	6	17.27	135.73	54.94	80.79	88.31	0.30	-0.01	6	1.71	80.11
7.62	7.190	26.24	2.97	7.190	0.36	6	17.50	136.08	55.13	80.94	87.15	0.37	-0.01	6	1.76	79.42
7.64	6.700	27.61	3.85	6.700	0.41	6	17.53	136.43	55.33	81.10	80.94	0.42	-0.01	6	1.81	74.12
7.66	6.340	30.98	4.55	6.340	0.49	6	17.65	136.78	55.52	81.25	76.36	0.50	-0.01	6	1.86	70.29
7.68	6.180	36.31	4.72	6.180	0.59	6	17.82	137.13	55.72	81.41	74.24	0.60	-0.01	6	1.91	68.66
7.70	6.130	39.59	5.25	6.130	0.65	6	17.91	137.49	55.92	81.57	73.47	0.66	-0.01	6	1.94	68.13
7.72	6.190	42.05	5.25	6.190	0.68	6	17.99	137.85	56.11	81.74	74.06	0.69	-0.01	6	1.95	68.77
7.74	6.120	43.56	5.07	6.120	0.71	6	18.02	138.21	56.31	81.90	73.05	0.73	-0.01	6	1.96	67.97
7.76	5.770	44.79	5.60	5.770	0.78	6	18.03	138.57	56.51	82.07	68.63	0.80	-0.01	6	2.01	64.11
7.78	5.440	41.74	6.47	5.440	0.77	6	17.93	138.93	56.70	82.23	64.48	0.79	-0.01	6	2.02	60.37
7.80	5.060	36.95	7.17	5.060	0.73	5	17.76	139.29	56.90	82.39	59.74	0.75	-0.01	6	2.04	56.03
7.82	4.680	32.85	7.70	4.680	0.70	5	17.60	139.64	57.09	82.55	55.02	0.72	-0.01	6	2.06	51.72
7.84	4.440	29.98	8.22	4.440	0.67	5	17.47	139.99	57.29	82.70	52.02	0.70	-0.01	5	2.07	48.96
7.86	3.790	29.98	9.80	3.790	0.79	5	17.41	140.34	57.49	82.85	44.07	0.82	-0.01	5	2.17	41.80
7.88	3.260	31.76	11.55	3.260	0.97	5	17.42	140.69	57.68	83.00	37.61	1.02	-0.01	5	2.27	35.95
7.90	2.610	33.58	13.12	2.610	1.29	5	17.40	141.03	57.88	83.16	29.72	1.36	-0.02	5	2.42	28.73
7.92	2.310	35.86	12.95	2.310	1.55	4	17.43	141.38	58.08	83.31	26.06	1.65	-0.02	5	2.52	25.36
7.94	1.910	40.50	14.35	1.910	2.12	4	17.49	141.73	58.27	83.46	21.22	2.29	-0.02	4	2.67	20.87
7.96	1.490	50.30	15.92	1.490	3.37	3	17.65	142.08	58.47	83.62	16.16	3.72	-0.03	3	2.89	16.13
7.98	1.400	53.26	16.80	1.400	3.80	3	17.69	142.44	58.66	83.77	15.05	4.22	-0.03	3	2.94	15.05
8.00	2.070	45.84	15.05	2.070	2.21	4	17.67	142.79	58.86	83.93	23.00	2.37	-0.02	4	2.65	22.60
8.02	3.080	43.06	12.77	3.080	1.40	5	17.75	143.15	59.06	84.09	34.96	1.46	-0.02	5	2.39	33.77
8.04	3.040	44.79	13.12	3.040	1.47	5	17.79	143.50	59.25	84.25	34.41	1.54	-0.02	5	2.40	33.30
8.06	2.230	40.60	14.87	2.230	1.82	4	17.56	143.85	59.45	84.41	24.75	1.94	-0.02	4	2.57	24.22
8.08	1.510	34.81	16.97	1.510	2.30	4	17.23	144.20	59.64	84.56	16.19	2.54	-0.03	4	2.79	16.07
8.10	2.120	38.77	14.52	2.120	1.83	4	17.48	144.55	59.84	84.71	23.36	1.96	-0.02	4	2.60	22.90
8.12	4.060	41.51	19.25	4.060	1.02	5	17.81	144.90	60.04	84.87	46.18	1.06	-0.01	5	2.21	44.21
8.14	4.240	37.45	18.55	4.240	0.88	5	17.71	145.26	60.23	85.02	48.20	0.91	-0.01	5	2.16	46.03
8.16	3.970	33.53	19.25	3.970	0.84	5	17.56	145.61	60.43	85.18	44.94	0.88	-0.01	5	2.17	42.98
8.18	3.720	28.84	19.95	3.720	0.77	5	17.36	145.96	60.63	85.33	41.93	0.81	-0.01	5	2.18	40.13
8.20	3.520	26.65	20.82	3.520	0.76	5	17.25	146.30	60.82	85.48	39.52	0.79	-0.01	5	2.20	37.88
8.22	3.340	24.38	22.75	3.340	0.73	5	17.12	146.65	61.02	85.63	37.35	0.76	-0.01	5	2.21	35.84
8.24	3.110	23.51	24.67	3.110	0.75	5	17.06	146.99	61.21	85.77	34.60	0.79	-0.01	5	2.25	33.29
8.26	2.320	21.28	26.25	2.330	0.92	5	16.83	147.33	61.41	85.91	25.35	0.98	-0.02	5	2.41	24.63
8.28	1.770	25.33	28.70	1.780	1.43	4	16.93	147.66	61.61	86.06	18.92	1.56	-0.02	4	2.61	18.61
8.30	1.660	24.97	29.92	1.670	1.50	4	16.88	148.00	61.80	86.20	17.61	1.64	-0.02	4	2.65	17.36
8.32	1.490	27.98	33.60	1.500	1.87	4	16.97	148.34	62.00	86.34	15.62	2.08	-0.02	4	2.75	15.48
8.34	1.170	33.76	38.15	1.180	2.87	3	17.10	148.68	62.20	86.49	11.90	3.28	-0.02	3	2.96	11.90
8.36	1.000	39.46	53.19	1.010	3.90	3	17.22	149.03	62.39	86.63	9.95	4.58	-0.01	3	3.11	9.95
8.38	1.140	45.06	68.94	1.150	3.91	3	17.42	149.37	62.59	86.79	11.57	4.49	0.01	3	3.05	11.57
8.40	1.900	45.79	69.47	1.910	2.39	4	17.64	149.72	62.78	86.94	20.29	2.60	0.00	4	2.71	20.09
8.42	3.020	39.78	67.02	3.030	1.31	5	17.65	150.08	62.98	87.10	33.10	1.38	0.00	5	2.39	32.22
8.44	3.150	45.88	66.49	3.160	1.45	5	17.83	150.43	63.18	87.26	34.53	1.52	0.00	5	2.40	33.63
8.46	2.450	51.26	52.84	2.460	2.08	4	17.86	150.79	63.37	87.42	26.42	2.22	0.00	4	2.58	25.99
8.48	1.950	48.20	51.44	1.960	2.46	4	17.70	151.15	63.57	87.58	20.66	2.66	-0.01	4	2.71	20.46
8.50	2.060	64.93	50.04	2.070	3.14	4	18.07	151.50	63.77	87.74	21.87	3.38	-0.01	4	2.76	21.71
8.52	4.600	69.62	43.74	4.610	1.51	5	18.45	151.87	63.96	87.91	50.70	1.56	0.00	5	2.27	49.15
8.54	5.070	73.63	42.17	5.080	1.45	5	18.56	152.24	64.16	88.09	55.92	1.49	0.00	5	2.23	54.13
8.56	5.350	31.80	48.64	5.360	0.59	6	17.61	152.61	64.35	88.25	59.00	0.61	0.00	6	1.99	56.50
8.58	5.620	29.89	45.84	5.630	0.53	6	17.56	152.96	64.55	88.41	61.94	0.55	0.00	6	1.95	59.23
8.60	5.710	25.20	45.32	5.720	0.44	6	17.37	153.31	64.75	88.56	62.85	0.45	0.00	6	1.91	60.01

In situ data				Basic output data						ARENILE BAGNO FLORA - VIAREGGIO (LU)					CPTu 04	
Depth	qc	fs	u_2	qt	Rf	SBT	γ	σ,v	u_0	σ',v_0	Qt1	Fr	Bq	SBTn	Ic	Qtn
(m)	(MPa)	(kPa)	(kPa)	(MPa)	(%)		kN/m^3	(kPa)	(kPa)	(kPa)		(%)				
8.62	5.410	21.23	45.67	5.420	0.39	6	17.15	153.65	64.94	88.71	59.36	0.40	0.00	6	1.90	56.72
8.64	5.020	21.96	46.02	5.030	0.44	6	17.16	153.99	65.14	88.85	54.87	0.45	0.00	6	1.96	52.58
8.66	4.600	20.64	46.89	4.610	0.45	6	17.06	154.33	65.33	89.00	50.06	0.46	0.00	6	2.00	48.08
8.68	4.260	19.96	47.59	4.270	0.47	6	16.99	154.67	65.53	89.14	46.16	0.49	0.00	6	2.03	44.44
8.70	4.050	20.73	47.94	4.060	0.51	5	17.01	155.01	65.73	89.29	43.73	0.53	0.00	6	2.07	42.19
8.72	4.160	23.33	47.42	4.170	0.56	5	17.16	155.36	65.92	89.43	44.88	0.58	0.00	5	2.08	43.34
8.74	4.630	24.01	46.19	4.640	0.52	6	17.23	155.70	66.12	89.58	50.05	0.54	0.00	6	2.02	48.24
8.76	5.430	24.88	44.09	5.440	0.46	6	17.33	156.05	66.32	89.73	58.87	0.47	0.00	6	1.94	56.57
8.78	6.380	31.26	40.94	6.390	0.49	6	17.66	156.40	66.51	89.89	69.33	0.50	0.00	6	1.89	66.53
8.80	6.970	34.08	39.02	6.980	0.49	6	17.79	156.75	66.71	90.05	75.75	0.50	0.00	6	1.85	72.65
8.82	6.870	32.76	37.45	6.880	0.48	6	17.74	157.11	66.90	90.21	74.50	0.49	0.00	6	1.85	71.50
8.84	6.440	21.00	37.97	6.450	0.33	6	17.20	157.46	67.10	90.36	69.61	0.33	0.00	6	1.81	66.73
8.86	6.210	20.18	38.50	6.220	0.32	6	17.14	157.80	67.30	90.50	66.96	0.33	0.00	6	1.82	64.27
8.88	6.120	23.10	38.85	6.130	0.38	6	17.29	158.14	67.49	90.65	65.85	0.39	0.00	6	1.85	63.33
8.90	6.160	27.11	38.85	6.170	0.44	6	17.48	158.49	67.69	90.80	66.18	0.45	0.00	6	1.88	63.75
8.92	6.110	30.94	39.37	6.120	0.51	6	17.63	158.85	67.89	90.96	65.51	0.52	0.00	6	1.91	63.22
8.94	5.980	35.77	39.90	5.990	0.60	6	17.79	159.20	68.08	91.12	63.97	0.61	0.00	6	1.96	61.87
8.96	6.000	38.00	39.90	6.010	0.63	6	17.86	159.56	68.28	91.28	64.07	0.65	0.00	6	1.97	62.04
8.98	5.940	39.82	40.07	5.950	0.67	6	17.91	159.91	68.47	91.44	63.30	0.69	0.00	6	1.99	61.36
9.00	5.850	41.92	40.42	5.860	0.72	6	17.96	160.27	68.67	91.60	62.20	0.74	0.00	6	2.01	60.38
9.02	5.800	43.01	40.59	5.810	0.74	6	17.99	160.63	68.87	91.77	61.54	0.76	-0.01	6	2.02	59.80
9.04	5.760	43.19	40.94	5.770	0.75	6	17.99	160.99	69.06	91.93	60.99	0.77	-0.01	6	2.03	59.31
9.06	5.870	42.78	40.77	5.880	0.73	6	17.99	161.35	69.26	92.09	62.08	0.75	0.00	6	2.01	60.38
9.08	6.200	42.15	40.24	6.210	0.68	6	17.99	161.71	69.45	92.26	65.54	0.70	0.00	6	1.98	63.71
9.10	6.470	41.64	40.07	6.480	0.64	6	17.99	162.07	69.65	92.42	68.34	0.66	0.00	6	1.95	66.42
9.12	6.680	40.60	40.59	6.690	0.61	6	17.98	162.43	69.85	92.59	70.48	0.62	0.00	6	1.92	68.50
9.14	6.930	40.00	40.42	6.940	0.58	6	17.97	162.79	70.04	92.75	73.05	0.59	0.00	6	1.90	70.99
9.16	7.110	40.14	40.24	7.120	0.56	6	17.99	163.15	70.24	92.91	74.85	0.58	0.00	6	1.88	72.76
9.18	7.280	40.19	40.07	7.290	0.55	6	18.00	163.51	70.44	93.08	76.55	0.56	0.00	6	1.87	74.43
9.20	7.390	42.05	40.07	7.400	0.57	6	18.06	163.87	70.63	93.24	77.59	0.58	0.00	6	1.87	75.50
9.22	7.370	43.92	40.42	7.380	0.60	6	18.11	164.23	70.83	93.41	77.23	0.61	0.00	6	1.88	75.23
9.24	7.260	46.29	40.94	7.270	0.64	6	18.16	164.60	71.02	93.57	75.92	0.65	0.00	6	1.91	74.04
9.26	7.080	48.52	41.47	7.090	0.68	6	18.20	164.96	71.22	93.74	73.86	0.70	0.00	6	1.93	72.13
9.28	6.830	50.85	41.99	6.840	0.74	6	18.24	165.33	71.42	93.91	71.06	0.76	0.00	6	1.97	69.50
9.30	6.480	54.17	42.87	6.490	0.83	6	18.30	165.69	71.61	94.08	67.21	0.86	0.00	6	2.01	65.85
9.32	6.370	55.90	43.04	6.380	0.88	6	18.33	166.06	71.81	94.25	65.92	0.90	0.00	6	2.03	64.65
9.34	6.360	56.54	43.22	6.370	0.89	6	18.34	166.42	72.01	94.42	65.69	0.91	0.00	6	2.04	64.47
9.36	6.430	56.54	43.22	6.440	0.88	6	18.34	166.79	72.20	94.59	66.31	0.90	0.00	6	2.03	65.10
9.38	6.500	55.22	43.22	6.510	0.85	6	18.32	167.16	72.40	94.76	66.92	0.87	0.00	6	2.02	65.73
9.40	6.570	52.08	43.39	6.580	0.79	6	18.26	167.52	72.59	94.93	67.54	0.81	0.00	6	2.00	66.35
9.42	6.530	50.71	43.57	6.540	0.78	6	18.22	167.89	72.79	95.10	66.99	0.80	0.00	6	2.00	65.85
9.44	6.370	47.93	43.92	6.380	0.75	6	18.15	168.25	72.99	95.26	65.19	0.77	0.00	6	2.00	64.12
9.46	6.310	46.66	44.09	6.320	0.74	6	18.12	168.61	73.18	95.43	64.45	0.76	0.00	6	2.00	63.43
9.48	6.340	45.33	43.92	6.350	0.71	6	18.08	168.98	73.38	95.60	64.64	0.73	0.00	6	1.99	63.65
9.50	6.540	43.83	44.09	6.550	0.67	6	18.06	169.34	73.58	95.76	66.62	0.69	0.00	6	1.96	65.60
9.52	7.950	104.93	-56.52	7.940	1.32	5	19.14	169.71	73.77	95.94	80.98	1.35	-0.02	5	2.07	79.93
9.54	7.950	104.93	-56.52	7.940	1.32	5	19.14	170.09	73.97	96.12	80.82	1.35	-0.02	5	2.07	79.82
9.56	9.160	121.38	-58.62	9.150	1.33	6	19.36	170.48	74.16	96.31	93.21	1.35	-0.01	6	2.02	92.06
9.58	8.610	70.53	-50.74	8.600	0.82	6	18.71	170.85	74.36	96.49	87.36	0.84	-0.01	6	1.91	86.20
9.60	9.520	47.29	49.34	9.530	0.50	6	18.29	171.22	74.56	96.66	96.82	0.51	0.00	6	1.75	95.40
9.62	9.890	37.63	84.34	9.910	0.38	6	18.04	171.58	74.75	96.83	100.54	0.39	0.00	6	1.68	99.06
9.64	8.830	12.67	87.31	8.850	0.14	6	16.74	171.92	74.95	96.98	89.46	0.15	0.00	6	1.57	88.09
9.66	6.640	49.53	88.54	6.660	0.74	6	18.20	172.29	75.14	97.15	66.76	0.76	0.00	6	1.98	66.10
9.68	5.920	89.35	89.24	5.940	1.50	5	18.84	172.67	75.34	97.33	59.24	1.55	0.00	5	2.21	58.82
9.70	5.960	81.24	85.04	5.980	1.36	5	18.73	173.04	75.54	97.50	59.52	1.40	0.00	5	2.18	59.12

In situ data				Basic output data						ARENILE BAGNO FLORA - VIAREGGIO (LU)					CPTu 04	
Depth	qc	fs	u_2	qt	Rf	SBT	γ	σ,v	u_0	σ',v_0	Qt1	Fr	Bq	SBTn	Ic	Qtn
(m)	(MPa)	(kPa)	(kPa)	(MPa)	(%)		kN/m^3	(kPa)	(kPa)	(kPa)		(%)				
9.72	5.860	88.48	82.24	5.880	1.51	5	18.82	173.42	75.73	97.68	58.38	1.55	0.00	5	2.21	58.03
9.74	5.810	93.22	79.44	5.830	1.60	5	18.88	173.79	75.93	97.87	57.75	1.65	0.00	5	2.23	57.44
9.76	5.730	100.56	75.07	5.750	1.75	5	18.96	174.17	76.13	98.05	56.82	1.81	0.00	5	2.26	56.55
9.78	5.690	78.23	74.19	5.700	1.37	5	18.67	174.55	76.32	98.23	56.30	1.41	0.00	5	2.20	56.04
9.80	5.710	71.44	73.14	5.720	1.25	5	18.57	174.92	76.52	98.40	56.40	1.29	0.00	5	2.17	56.15
9.82	5.660	40.00	72.97	5.670	0.70	6	17.90	175.28	76.71	98.57	55.79	0.73	0.00	6	2.04	55.53
9.84	5.630	39.78	72.97	5.640	0.70	6	17.89	175.64	76.91	98.73	55.39	0.73	0.00	6	2.04	55.17
9.86	5.610	40.19	72.97	5.620	0.71	6	17.90	176.00	77.11	98.89	55.10	0.74	0.00	6	2.04	54.90
9.88	5.730	40.82	73.14	5.740	0.71	6	17.92	176.35	77.30	99.05	56.22	0.73	0.00	6	2.03	56.04
9.90	5.990	41.10	73.14	6.000	0.68	6	17.95	176.71	77.50	99.21	58.74	0.71	0.00	6	2.01	58.59
9.92	6.160	42.51	72.97	6.170	0.69	6	18.00	177.07	77.70	99.38	60.35	0.71	0.00	6	2.00	60.22
9.94	6.300	43.28	72.79	6.310	0.69	6	18.03	177.43	77.89	99.54	61.65	0.71	0.00	6	1.99	61.56
9.96	6.420	43.38	72.62	6.430	0.67	6	18.04	177.79	78.09	99.71	62.75	0.69	0.00	6	1.98	62.69
9.98	6.590	43.79	72.62	6.600	0.66	6	18.06	178.15	78.28	99.87	64.35	0.68	0.00	6	1.97	64.32
10.00	6.640	43.88	72.79	6.650	0.66	6	18.06	178.52	78.48	100.04	64.74	0.68	0.00	6	1.96	64.75
10.02	6.680	44.70	72.62	6.690	0.67	6	18.09	178.88	78.68	100.20	65.03	0.69	0.00	6	1.96	65.07
10.04	6.700	46.11	72.79	6.710	0.69	6	18.12	179.24	78.87	100.37	65.11	0.71	0.00	6	1.97	65.20
10.06	6.660	47.34	72.97	6.670	0.71	6	18.15	179.60	79.07	100.53	64.60	0.73	0.00	6	1.98	64.72
10.08	6.640	48.39	72.97	6.650	0.73	6	18.18	179.97	79.26	100.70	64.30	0.75	0.00	6	1.99	64.45
10.10	6.550	49.98	72.97	6.560	0.76	6	18.21	180.33	79.46	100.87	63.29	0.78	0.00	6	2.01	63.48
10.12	6.490	50.53	72.97	6.500	0.78	6	18.22	180.69	79.66	101.04	62.59	0.80	0.00	6	2.01	62.80
10.14	6.380	50.80	73.14	6.390	0.79	6	18.22	181.06	79.85	101.21	61.40	0.82	0.00	6	2.03	61.64
10.16	6.220	51.71	73.49	6.230	0.83	6	18.23	181.42	80.05	101.37	59.71	0.85	0.00	6	2.05	59.97
10.18	6.130	51.94	73.32	6.140	0.85	6	18.23	181.79	80.25	101.54	58.72	0.87	0.00	6	2.06	59.01
10.20	6.070	52.03	73.32	6.080	0.86	6	18.23	182.15	80.44	101.71	58.03	0.88	0.00	5	2.06	58.34
10.22	6.090	51.62	73.32	6.100	0.85	6	18.22	182.52	80.64	101.88	58.13	0.87	0.00	6	2.06	58.47
10.24	6.170	50.26	73.32	6.180	0.81	6	18.19	182.88	80.83	102.05	58.81	0.84	0.00	6	2.05	59.20
10.26	6.280	48.71	73.32	6.290	0.77	6	18.16	183.24	81.03	102.21	59.79	0.80	0.00	6	2.03	60.22
10.28	6.380	45.93	73.32	6.390	0.72	6	18.10	183.61	81.23	102.38	60.67	0.74	0.00	6	2.01	61.15
10.30	6.340	44.65	73.32	6.350	0.70	6	18.07	183.97	81.42	102.55	60.18	0.72	0.00	6	2.00	60.69
10.32	6.280	44.24	73.67	6.290	0.70	6	18.05	184.33	81.62	102.71	59.49	0.72	0.00	6	2.01	60.03
10.34	6.270	43.74	73.49	6.280	0.70	6	18.04	184.69	81.82	102.87	59.30	0.72	0.00	6	2.01	59.86
10.36	6.230	42.92	73.49	6.240	0.69	6	18.01	185.05	82.01	103.04	58.81	0.71	0.00	6	2.01	59.40
10.38	6.160	43.56	73.67	6.170	0.71	6	18.03	185.41	82.21	103.20	58.03	0.73	0.00	6	2.02	58.64
10.40	6.030	44.15	73.67	6.040	0.73	6	18.03	185.77	82.40	103.37	56.68	0.75	0.00	6	2.03	57.29
10.42	5.830	44.42	73.67	5.840	0.76	6	18.03	186.13	82.60	103.53	54.66	0.78	0.00	6	2.06	55.26
10.44	5.620	44.47	74.02	5.630	0.79	6	18.02	186.49	82.80	103.70	52.54	0.82	0.00	5	2.08	53.13
10.46	5.340	44.10	74.02	5.350	0.82	5	17.99	186.85	82.99	103.86	49.76	0.85	0.00	5	2.11	50.32
10.48	4.840	44.61	74.02	4.850	0.92	5	17.96	187.21	83.19	104.02	44.87	0.96	0.00	5	2.17	45.35
10.50	4.570	44.74	74.37	4.580	0.98	5	17.94	187.57	83.39	104.19	42.21	1.02	0.00	5	2.21	42.65
10.52	4.470	44.65	74.54	4.480	1.00	5	17.93	187.93	83.58	104.35	41.18	1.04	0.00	5	2.23	41.62
10.54	4.470	44.65	83.64	4.490	1.00	5	17.93	188.29	83.78	104.51	41.13	1.04	0.00	5	2.23	41.58
10.56	4.280	29.71	81.19	4.300	0.69	5	17.45	188.64	83.97	104.66	39.25	0.72	0.00	5	2.16	39.74
10.58	4.320	30.57	81.19	4.340	0.70	5	17.48	188.99	84.17	104.82	39.57	0.74	0.00	5	2.16	40.08
10.60	4.360	30.80	80.84	4.380	0.70	5	17.50	189.34	84.37	104.97	39.89	0.74	0.00	5	2.16	40.42
10.62	4.480	30.16	80.31	4.500	0.67	5	17.48	189.69	84.56	105.12	40.96	0.70	0.00	5	2.14	41.55
10.64	4.710	28.16	79.44	4.730	0.60	6	17.42	190.03	84.76	105.28	43.09	0.62	0.00	5	2.09	43.76
10.66	4.770	27.52	79.44	4.790	0.58	6	17.40	190.38	84.95	105.43	43.59	0.60	0.00	5	2.08	44.30
10.68	4.900	24.74	79.27	4.920	0.50	6	17.29	190.73	85.15	105.58	44.75	0.52	0.00	6	2.04	45.54
10.70	4.920	23.78	79.27	4.940	0.48	6	17.25	191.07	85.35	105.73	44.88	0.50	0.00	6	2.03	45.69
10.72	4.890	23.87	79.27	4.910	0.49	6	17.25	191.42	85.54	105.88	44.53	0.51	0.00	6	2.04	45.35
10.74	4.790	24.83	79.09	4.810	0.52	6	17.28	191.76	85.74	106.03	43.52	0.54	0.00	6	2.06	44.32
10.76	4.740	25.74	79.09	4.760	0.54	6	17.32	192.11	85.94	106.18	42.98	0.56	0.00	6	2.07	43.78
10.78	4.640	26.93	78.92	4.660	0.58	6	17.37	192.46	86.13	106.33	41.98	0.60	0.00	5	2.09	42.76
10.80	4.530	27.06	78.92	4.550	0.60	5	17.36	192.81	86.33	106.48	40.88	0.62	0.00	5	2.11	41.64

In situ data			Basic output data						ARENILE BAGNO FLORA - VIAREGGIO (LU)						CPTu 04	
Depth	qc	fs	u_2	qt	Rf	SBT	γ	σ,v	u_0	σ',v_0	Qt1	Fr	Bq	SBTn	Ic	Qtn
(m)	(MPa)	(kPa)	(kPa)	(MPa)	(%)		kN/m^3	(kPa)	(kPa)	(kPa)		(%)				
10.82	4.440	27.06	78.92	4.460	0.61	5	17.35	193.15	86.52	106.63	39.98	0.63	0.00	5	2.12	40.72
10.84	4.390	27.16	79.09	4.410	0.62	5	17.35	193.50	86.72	106.78	39.45	0.64	0.00	5	2.13	40.19
10.86	4.390	27.38	78.74	4.410	0.62	5	17.36	193.85	86.92	106.93	39.39	0.65	0.00	5	2.13	40.15
10.88	4.350	26.52	78.74	4.370	0.61	5	17.32	194.19	87.11	107.08	38.96	0.64	0.00	5	2.13	39.72
10.90	4.320	26.33	78.74	4.340	0.61	5	17.31	194.54	87.31	107.23	38.62	0.64	0.00	5	2.14	39.39
10.92	4.300	26.43	78.57	4.320	0.61	5	17.32	194.89	87.51	107.38	38.38	0.64	0.00	5	2.14	39.15
10.94	4.370	25.92	78.04	4.390	0.59	5	17.30	195.23	87.70	107.53	38.97	0.62	0.00	5	2.13	39.79
10.96	4.530	25.06	77.87	4.550	0.55	6	17.27	195.58	87.90	107.68	40.40	0.58	0.00	5	2.10	41.30
10.98	4.760	24.97	77.69	4.780	0.52	6	17.29	195.92	88.09	107.83	42.47	0.55	0.00	6	2.07	43.47
11.00	5.010	24.92	77.52	5.030	0.50	6	17.31	196.27	88.29	107.98	44.72	0.52	0.00	6	2.04	45.84
11.02	5.370	25.20	77.17	5.390	0.47	6	17.35	196.62	88.49	108.13	47.99	0.49	0.00	6	2.00	49.26
11.04	5.510	25.51	76.99	5.530	0.46	6	17.37	196.96	88.68	108.28	49.21	0.48	0.00	6	1.98	50.56
11.06	5.640	25.92	76.99	5.660	0.46	6	17.40	197.31	88.88	108.43	50.34	0.47	0.00	6	1.97	51.76
11.08	5.760	26.93	76.99	5.780	0.47	6	17.45	197.66	89.07	108.58	51.37	0.48	0.00	6	1.97	52.85
11.10	5.850	28.25	76.99	5.870	0.48	6	17.51	198.01	89.27	108.74	52.12	0.50	0.00	6	1.97	53.65
11.12	5.940	29.66	76.99	5.960	0.50	6	17.57	198.36	89.47	108.89	52.87	0.52	0.00	6	1.97	54.45
11.14	5.960	31.03	76.99	5.980	0.52	6	17.62	198.71	89.66	109.05	52.97	0.54	0.00	6	1.98	54.57
11.16	5.990	32.49	76.99	6.010	0.54	6	17.68	199.07	89.86	109.21	53.17	0.56	0.00	6	1.98	54.78
11.18	6.080	33.81	76.82	6.100	0.55	6	17.73	199.42	90.06	109.36	53.91	0.57	0.00	6	1.98	55.58
11.20	6.220	34.40	76.64	6.240	0.55	6	17.76	199.78	90.25	109.52	55.11	0.57	0.00	6	1.97	56.86
11.22	6.310	34.99	76.64	6.330	0.55	6	17.78	200.13	90.45	109.68	55.84	0.57	0.00	6	1.97	57.65
11.24	6.290	35.31	76.64	6.310	0.56	6	17.79	200.49	90.64	109.84	55.58	0.58	0.00	6	1.97	57.40
11.26	6.210	35.36	76.64	6.230	0.57	6	17.79	200.84	90.84	110.00	54.77	0.59	0.00	6	1.98	56.57
11.28	6.090	35.86	76.82	6.110	0.59	6	17.80	201.20	91.04	110.16	53.60	0.61	0.00	6	2.00	55.36
11.30	5.980	36.68	76.99	6.000	0.61	6	17.82	201.56	91.23	110.32	52.52	0.63	0.00	6	2.01	54.23
11.32	5.870	37.82	76.82	5.890	0.64	6	17.85	201.91	91.43	110.48	51.44	0.67	0.00	6	2.03	53.11
11.34	5.870	38.55	76.82	5.890	0.66	6	17.87	202.27	91.63	110.64	51.36	0.68	0.00	6	2.04	53.04
11.36	5.920	38.32	76.82	5.940	0.65	6	17.86	202.63	91.82	110.80	51.74	0.67	0.00	6	2.03	53.47
11.38	5.990	38.00	76.64	6.010	0.63	6	17.86	202.98	92.02	110.97	52.29	0.65	0.00	6	2.02	54.08
11.40	6.040	37.73	76.64	6.060	0.62	6	17.85	203.34	92.21	111.13	52.66	0.64	0.00	6	2.02	54.50
11.42	6.160	36.22	76.99	6.180	0.59	6	17.82	203.70	92.41	111.29	53.66	0.61	0.00	6	2.00	55.61
11.44	6.240	35.22	77.17	6.260	0.56	6	17.79	204.05	92.61	111.45	54.30	0.58	0.00	6	1.98	56.33
11.46	6.370	34.72	76.82	6.390	0.54	6	17.78	204.41	92.80	111.61	55.38	0.56	0.00	6	1.97	57.52
11.48	6.470	34.86	76.47	6.490	0.54	6	17.79	204.76	93.00	111.77	56.19	0.56	0.00	6	1.96	58.41
11.50	6.500	35.17	76.47	6.520	0.54	6	17.80	205.12	93.20	111.93	56.38	0.56	0.00	6	1.96	58.64
11.52	6.510	35.54	76.47	6.530	0.54	6	17.81	205.48	93.39	112.09	56.38	0.56	0.00	6	1.96	58.67
11.54	6.510	35.54	78.74	6.530	0.54	6	17.81	205.83	93.59	112.25	56.30	0.56	0.00	6	1.96	58.61
11.56	6.270	27.20	79.62	6.290	0.43	6	17.49	206.18	93.78	112.40	54.09	0.45	0.00	6	1.93	56.41
11.58	6.100	30.07	79.79	6.120	0.49	6	17.60	206.53	93.98	112.55	52.50	0.51	0.00	6	1.96	54.69
11.60	5.790	33.17	80.14	5.810	0.57	6	17.69	206.89	94.18	112.71	49.68	0.59	0.00	6	2.02	51.65
11.62	5.490	35.95	80.31	5.510	0.65	6	17.76	207.24	94.37	112.87	46.95	0.68	0.00	6	2.07	48.71
11.64	5.360	39.41	80.49	5.380	0.73	6	17.86	207.60	94.57	113.03	45.73	0.76	0.00	5	2.11	47.39
11.66	5.500	39.96	80.31	5.520	0.72	6	17.88	207.96	94.76	113.19	46.89	0.75	0.00	5	2.09	48.65
11.68	5.690	39.46	79.97	5.710	0.69	6	17.88	208.31	94.96	113.35	48.50	0.72	0.00	6	2.07	50.39
11.70	5.790	38.86	80.14	5.810	0.67	6	17.87	208.67	95.16	113.51	49.31	0.69	0.00	6	2.06	51.29
11.72	5.790	38.36	80.14	5.810	0.66	6	17.86	209.03	95.35	113.68	49.24	0.69	0.00	6	2.05	51.24
11.74	5.760	37.13	80.14	5.780	0.64	6	17.82	209.38	95.55	113.84	48.90	0.67	0.00	6	2.05	50.92
11.76	5.680	35.99	80.49	5.700	0.63	6	17.78	209.74	95.75	113.99	48.13	0.66	0.00	6	2.05	50.13
11.78	5.620	36.31	80.84	5.640	0.64	6	17.78	210.10	95.94	114.15	47.53	0.67	0.00	6	2.06	49.51
11.80	5.550	37.04	80.84	5.570	0.67	6	17.80	210.45	96.14	114.31	46.85	0.69	0.00	5	2.07	48.79
11.82	5.560	37.63	80.84	5.580	0.67	6	17.82	210.81	96.33	114.47	46.87	0.70	0.00	5	2.08	48.82
11.84	5.620	37.63	80.66	5.640	0.67	6	17.82	211.16	96.53	114.63	47.32	0.69	0.00	6	2.07	49.33
11.86	5.690	36.77	80.49	5.710	0.64	6	17.80	211.52	96.73	114.79	47.86	0.67	0.00	6	2.06	49.95
11.88	5.710	35.86	80.66	5.730	0.63	6	17.77	211.88	96.92	114.95	47.97	0.65	0.00	6	2.05	50.10
11.90	5.650	35.08	80.84	5.670	0.62	6	17.75	212.23	97.12	115.11	47.38	0.64	0.00	6	2.05	49.50

In situ data				Basic output data						ARENILE BAGNO FLORA - VIAREGGIO (LU)					CPTu 04	
Depth	qc	fs	u_2	qt	Rf	SBT	γ	σ,v	u_0	σ',v_0	Qt1	Fr	Bq	SBTn	Ic	Qtn
(m)	(MPa)	(kPa)	(kPa)	(MPa)	(%)		kN/m^3	(kPa)	(kPa)	(kPa)		(%)				
11.92	5.630	34.49	80.84	5.650	0.61	6	17.72	212.59	97.32	115.27	47.14	0.63	0.00	6	2.05	49.27
11.94	5.690	33.44	80.66	5.710	0.59	6	17.69	212.94	97.51	115.43	47.59	0.61	0.00	6	2.04	49.80
11.96	5.890	33.17	80.49	5.910	0.56	6	17.70	213.29	97.71	115.59	49.25	0.58	0.00	6	2.01	51.62
11.98	5.960	33.31	80.49	5.980	0.56	6	17.71	213.65	97.90	115.74	49.79	0.58	0.00	6	2.01	52.22
12.00	6.010	33.81	80.49	6.030	0.56	6	17.73	214.00	98.10	115.90	50.15	0.58	0.00	6	2.01	52.63
12.02	5.980	34.13	80.66	6.000	0.57	6	17.74	214.36	98.30	116.06	49.82	0.59	0.00	6	2.01	52.29
12.04	5.980	34.40	80.66	6.000	0.57	6	17.74	214.71	98.49	116.22	49.75	0.60	0.00	6	2.01	52.23
12.06	6.030	34.40	81.36	6.050	0.57	6	17.75	215.07	98.69	116.38	50.11	0.59	0.00	6	2.01	52.64
12.08	5.980	35.22	81.36	6.000	0.59	6	17.77	215.42	98.88	116.54	49.61	0.61	0.00	6	2.02	52.11
12.10	5.920	35.17	81.19	5.940	0.59	6	17.77	215.78	99.08	116.70	49.02	0.61	0.00	6	2.03	51.50
12.12	5.840	34.95	81.36	5.860	0.60	6	17.75	216.13	99.28	116.86	48.27	0.62	0.00	6	2.03	50.70
12.14	5.800	35.27	81.19	5.820	0.61	6	17.76	216.49	99.47	117.01	47.86	0.63	0.00	6	2.04	50.27
12.16	5.810	36.04	81.01	5.830	0.62	6	17.79	216.84	99.67	117.17	47.87	0.64	0.00	6	2.05	50.30
12.18	5.950	36.18	81.01	5.970	0.61	6	17.80	217.20	99.87	117.33	49.00	0.63	0.00	6	2.03	51.54
12.20	6.080	36.27	81.19	6.100	0.59	6	17.81	217.56	100.06	117.49	50.03	0.62	0.00	6	2.02	52.70
12.22	6.150	36.59	81.54	6.170	0.59	6	17.83	217.91	100.26	117.65	50.56	0.62	0.00	6	2.01	53.29
12.24	6.280	37.22	81.54	6.300	0.59	6	17.85	218.27	100.45	117.81	51.59	0.61	0.00	6	2.01	54.43
12.26	6.400	37.86	81.54	6.420	0.59	6	17.88	218.63	100.65	117.98	52.53	0.61	0.00	6	2.00	55.48
12.28	6.470	38.32	81.36	6.490	0.59	6	17.90	218.98	100.85	118.14	53.05	0.61	0.00	6	1.99	56.06
12.30	6.590	38.50	81.19	6.610	0.58	6	17.91	219.34	101.04	118.30	53.99	0.60	0.00	6	1.98	57.11
12.32	6.590	39.82	81.54	6.610	0.60	6	17.95	219.70	101.24	118.46	53.91	0.62	0.00	6	1.99	57.03
12.34	6.630	40.69	81.36	6.650	0.61	6	17.98	220.06	101.44	118.63	54.17	0.63	0.00	6	1.99	57.32
12.36	6.590	40.32	81.54	6.610	0.61	6	17.96	220.42	101.63	118.79	53.76	0.63	0.00	6	2.00	56.90
12.38	6.370	41.10	81.89	6.390	0.64	6	17.97	220.78	101.83	118.95	51.83	0.67	0.00	6	2.02	54.79
12.40	5.990	42.33	82.41	6.010	0.70	6	17.98	221.14	102.02	119.12	48.57	0.73	0.00	6	2.07	51.21
12.42	5.720	43.60	82.76	5.740	0.76	6	18.00	221.50	102.22	119.28	46.24	0.79	0.00	5	2.10	48.65
12.44	5.590	44.56	82.59	5.610	0.79	6	18.02	221.86	102.42	119.44	45.08	0.83	0.00	5	2.12	47.39
12.46	5.590	43.92	82.41	5.610	0.78	6	18.00	222.22	102.61	119.61	45.02	0.82	0.00	5	2.12	47.34
12.48	5.600	43.97	82.41	5.620	0.78	6	18.00	222.58	102.81	119.77	45.04	0.82	0.00	5	2.12	47.38
12.50	5.810	42.56	82.76	5.830	0.73	6	17.98	222.94	103.01	119.93	46.72	0.76	0.00	5	2.09	49.28
12.52	5.810	42.56	82.76	5.830	0.73	6	17.98	223.30	103.20	120.10	46.66	0.76	0.00	5	2.09	49.23
12.54	6.000	28.61	83.99	6.020	0.48	6	17.53	223.65	103.40	120.26	48.17	0.49	0.00	6	1.98	51.23
12.56	6.000	28.61	84.69	6.020	0.48	6	17.53	224.00	103.59	120.41	48.11	0.49	0.00	6	1.98	51.19
12.58	6.100	29.57	84.86	6.120	0.48	6	17.58	224.36	103.79	120.57	48.87	0.50	0.00	6	1.98	52.03
12.60	6.170	30.85	84.86	6.190	0.50	6	17.63	224.71	103.99	120.72	49.39	0.52	0.00	6	1.98	52.59
12.62	6.220	32.58	85.04	6.240	0.52	6	17.70	225.06	104.18	120.88	49.73	0.54	0.00	6	1.99	52.96
12.64	6.270	34.45	85.04	6.290	0.55	6	17.76	225.42	104.38	121.04	50.08	0.57	0.00	6	2.00	53.32
12.66	6.360	36.18	85.04	6.380	0.57	6	17.83	225.77	104.57	121.20	50.75	0.59	0.00	6	2.00	54.05
12.68	6.440	40.19	84.86	6.460	0.62	6	17.95	226.13	104.77	121.36	51.34	0.65	0.00	6	2.02	54.64
12.70	6.480	42.05	85.04	6.500	0.65	6	18.01	226.49	104.97	121.52	51.60	0.67	0.00	6	2.02	54.90
12.72	6.540	42.83	84.86	6.560	0.65	6	18.03	226.85	105.16	121.69	52.02	0.68	0.00	6	2.02	55.38
12.74	6.540	43.97	84.86	6.560	0.67	6	18.06	227.21	105.36	121.85	51.95	0.69	0.00	6	2.03	55.30
12.76	6.520	44.74	85.04	6.540	0.68	6	18.08	227.57	105.56	122.02	51.71	0.71	0.00	6	2.03	55.04
12.78	6.460	44.92	85.21	6.480	0.69	6	18.08	227.94	105.75	122.18	51.14	0.72	0.00	6	2.04	54.43
12.80	6.430	45.74	85.39	6.450	0.71	6	18.10	228.30	105.95	122.35	50.83	0.74	0.00	6	2.05	54.09
12.82	6.480	45.56	85.21	6.500	0.70	6	18.10	228.66	106.14	122.52	51.16	0.73	0.00	6	2.04	54.49
12.84	6.540	45.56	85.39	6.560	0.69	6	18.10	229.02	106.34	122.68	51.58	0.72	0.00	6	2.04	54.98
12.86	6.590	45.84	85.56	6.610	0.69	6	18.11	229.38	106.54	122.85	51.92	0.72	0.00	6	2.03	55.37
12.88	6.600	45.43	85.56	6.620	0.69	6	18.10	229.75	106.73	123.01	51.92	0.71	0.00	6	2.03	55.41
12.90	6.570	45.65	85.74	6.590	0.69	6	18.11	230.11	106.93	123.18	51.61	0.72	0.00	6	2.04	55.08
12.92	6.550	45.29	85.74	6.570	0.69	6	18.10	230.47	107.13	123.35	51.37	0.71	0.00	6	2.04	54.85
12.94	6.590	45.02	85.91	6.610	0.68	6	18.09	230.83	107.32	123.51	51.63	0.71	0.00	6	2.03	55.16
12.96	6.650	45.20	85.74	6.670	0.68	6	18.10	231.19	107.52	123.68	52.04	0.70	0.00	6	2.03	55.65
12.98	6.700	45.47	85.91	6.720	0.68	6	18.11	231.56	107.71	123.84	52.37	0.70	0.00	6	2.02	56.04
13.00	6.530	45.97	86.09	6.550	0.70	6	18.11	231.92	107.91	124.01	50.93	0.73	0.00	6	2.04	54.43

In situ data				Basic output data						ARENILE BAGNO FLORA - VIAREGGIO (LU)					CPTu 04	
Depth	qc	fs	u_2	qt	Rf	SBT	γ	σ,v	u_0	σ',v_0	Qt1	Fr	Bq	SBTn	Ic	Qtn
(m)	(MPa)	(kPa)	(kPa)	(MPa)	(%)		kN/m^3	(kPa)	(kPa)	(kPa)		(%)				
13.02	6.350	46.43	86.44	6.370	0.73	6	18.11	232.28	108.11	124.17	49.41	0.76	0.00	6	2.06	52.73
13.04	6.110	47.11	86.61	6.130	0.77	6	18.11	232.64	108.30	124.34	47.41	0.80	0.00	5	2.09	50.50
13.06	5.960	48.07	86.79	5.980	0.80	6	18.13	233.01	108.50	124.51	46.14	0.84	0.00	5	2.11	49.08
13.08	5.900	49.07	86.79	5.920	0.83	6	18.15	233.37	108.69	124.67	45.59	0.86	0.00	5	2.13	48.47
13.10	6.080	48.75	86.61	6.100	0.80	6	18.15	233.73	108.89	124.84	46.97	0.83	0.00	5	2.11	50.03
13.12	6.160	47.79	86.79	6.180	0.77	6	18.13	234.09	109.09	125.01	47.54	0.80	0.00	5	2.09	50.72
13.14	6.120	46.97	86.96	6.140	0.77	6	18.11	234.46	109.28	125.17	47.16	0.80	0.00	5	2.09	50.33
13.16	6.140	45.70	86.79	6.160	0.74	6	18.08	234.82	109.48	125.34	47.25	0.77	0.00	5	2.09	50.48
13.18	6.190	44.29	86.79	6.210	0.71	6	18.05	235.18	109.68	125.50	47.59	0.74	0.00	5	2.07	50.91
13.20	6.210	43.01	86.79	6.230	0.69	6	18.02	235.54	109.87	125.67	47.68	0.72	0.00	6	2.06	51.07
13.22	6.090	41.60	87.31	6.110	0.68	6	17.97	235.90	110.07	125.83	46.66	0.71	0.00	6	2.07	49.97
13.24	5.930	41.64	87.31	5.950	0.70	6	17.96	236.26	110.26	125.99	45.33	0.73	0.00	5	2.09	48.49
13.26	5.820	41.64	87.31	5.840	0.71	6	17.95	236.62	110.46	126.16	44.40	0.74	0.00	5	2.10	47.45
13.28	5.670	41.42	87.66	5.690	0.73	6	17.94	236.98	110.66	126.32	43.15	0.76	0.00	5	2.12	46.07
13.30	5.460	42.05	87.84	5.480	0.77	6	17.94	237.34	110.85	126.48	41.43	0.80	0.00	5	2.14	44.14
13.32	5.270	42.28	88.01	5.290	0.80	5	17.93	237.69	111.05	126.65	39.87	0.84	0.00	5	2.17	42.40
13.34	4.960	42.92	88.36	4.980	0.86	5	17.93	238.05	111.25	126.81	37.38	0.91	0.00	5	2.21	39.60
13.36	4.840	42.28	88.54	4.860	0.87	5	17.90	238.41	111.44	126.97	36.38	0.92	0.00	5	2.22	38.52
13.38	4.790	41.74	88.54	4.810	0.87	5	17.88	238.77	111.64	127.13	35.94	0.91	-0.01	5	2.23	38.04
13.40	4.770	41.92	88.89	4.790	0.88	5	17.89	239.13	111.83	127.29	35.73	0.92	-0.01	5	2.23	37.82
13.42	4.760	41.55	88.89	4.780	0.87	5	17.87	239.48	112.03	127.45	35.61	0.92	-0.01	5	2.23	37.70
13.44	4.600	39.78	89.06	4.620	0.86	5	17.81	239.84	112.23	127.61	34.31	0.91	-0.01	5	2.24	36.29
13.46	4.530	37.59	89.06	4.550	0.83	5	17.74	240.20	112.42	127.77	33.71	0.87	-0.01	5	2.24	35.68
13.48	4.490	35.99	89.24	4.510	0.80	5	17.69	240.55	112.62	127.93	33.36	0.84	-0.01	5	2.24	35.33
13.50	4.480	35.49	89.24	4.500	0.79	5	17.67	240.90	112.82	128.09	33.23	0.83	-0.01	5	2.24	35.21
13.52	4.480	35.49	89.24	4.500	0.79	5	17.67	241.26	113.01	128.25	33.19	0.83	-0.01	5	2.24	35.18
13.54	4.210	25.42	89.59	4.230	0.60	5	17.26	241.61	113.21	128.40	31.05	0.64	-0.01	5	2.20	33.01
13.56	4.420	25.10	90.46	4.440	0.57	6	17.27	241.95	113.40	128.55	32.64	0.60	-0.01	5	2.17	34.83
13.58	4.380	25.65	90.46	4.400	0.58	5	17.29	242.30	113.60	128.70	32.29	0.62	-0.01	5	2.18	34.43
13.60	4.360	26.02	90.46	4.380	0.59	5	17.30	242.64	113.80	128.85	32.10	0.63	-0.01	5	2.19	34.21
13.62	4.300	26.84	90.81	4.320	0.62	5	17.33	242.99	113.99	129.00	31.59	0.66	-0.01	5	2.20	33.63
13.64	4.240	27.79	90.99	4.260	0.65	5	17.37	243.34	114.19	129.15	31.09	0.69	-0.01	5	2.22	33.05
13.66	4.230	27.43	90.81	4.250	0.65	5	17.35	243.68	114.38	129.30	30.97	0.68	-0.01	5	2.22	32.94
13.68	4.270	27.47	90.81	4.290	0.64	5	17.36	244.03	114.58	129.45	31.24	0.68	-0.01	5	2.21	33.25
13.70	4.350	27.57	90.81	4.370	0.63	5	17.37	244.38	114.78	129.60	31.82	0.67	-0.01	5	2.20	33.91
13.72	4.480	27.20	90.64	4.500	0.60	5	17.36	244.73	114.97	129.75	32.78	0.64	-0.01	5	2.18	35.02
13.74	4.660	27.20	90.46	4.680	0.58	6	17.38	245.07	115.17	129.90	34.13	0.61	-0.01	5	2.16	36.55
13.76	4.870	26.97	90.29	4.890	0.55	6	17.39	245.42	115.37	130.06	35.70	0.58	-0.01	5	2.13	38.37
13.78	4.980	26.88	90.29	5.000	0.54	6	17.39	245.77	115.56	130.21	36.50	0.57	-0.01	5	2.11	39.30
13.80	4.990	27.20	90.11	5.010	0.54	6	17.41	246.12	115.76	130.36	36.53	0.57	-0.01	5	2.11	39.34
13.82	5.020	27.52	90.11	5.040	0.55	6	17.42	246.47	115.95	130.51	36.71	0.57	-0.01	5	2.11	39.55
13.84	5.080	28.52	90.29	5.100	0.56	6	17.47	246.81	116.15	130.66	37.13	0.59	-0.01	5	2.11	40.01
13.86	5.150	29.84	90.29	5.170	0.58	6	17.52	247.16	116.35	130.82	37.62	0.61	-0.01	5	2.11	40.54
13.88	5.150	31.07	90.29	5.170	0.60	6	17.57	247.52	116.54	130.97	37.57	0.63	-0.01	5	2.12	40.47
13.90	5.190	32.53	90.11	5.210	0.62	6	17.63	247.87	116.74	131.13	37.83	0.66	-0.01	5	2.13	40.73
13.92	5.250	33.03	90.29	5.270	0.63	6	17.65	248.22	116.94	131.29	38.24	0.66	-0.01	5	2.13	41.20
13.94	5.260	33.76	90.11	5.280	0.64	6	17.67	248.57	117.13	131.44	38.26	0.67	-0.01	5	2.13	41.23
13.96	5.330	34.03	90.29	5.350	0.64	6	17.69	248.93	117.33	131.60	38.75	0.67	-0.01	5	2.12	41.79
13.98	5.420	34.03	90.29	5.440	0.63	6	17.69	249.28	117.52	131.76	39.38	0.66	-0.01	5	2.11	42.53
14.00	5.440	34.99	90.11	5.460	0.64	6	17.73	249.64	117.72	131.92	39.48	0.67	-0.01	5	2.12	42.63
14.02	5.410	35.04	90.29	5.430	0.65	6	17.73	249.99	117.92	132.07	39.21	0.68	-0.01	5	2.12	42.33
14.04	5.410	35.36	90.46	5.430	0.65	6	17.74	250.35	118.11	132.23	39.16	0.68	-0.01	5	2.12	42.28
14.06	5.490	35.22	90.46	5.510	0.64	6	17.74	250.70	118.31	132.39	39.71	0.67	-0.01	5	2.11	42.94
14.08	5.580	34.95	90.29	5.600	0.62	6	17.74	251.05	118.50	132.55	40.34	0.65	-0.01	5	2.10	43.68
14.10	5.500	35.54	90.46	5.520	0.64	6	17.75	251.41	118.70	132.71	39.69	0.67	-0.01	5	2.12	42.93

In situ data				Basic output data						ARENILE BAGNO FLORA - VIAREGGIO (LU)					CPTu 04	
Depth	qc	fs	u_2	qt	Rf	SBT	γ	σ,v	u_0	σ',v_0	Qt1	Fr	Bq	SBTn	Ic	Qtn
(m)	(MPa)	(kPa)	(kPa)	(MPa)	(%)		kN/m^3	(kPa)	(kPa)	(kPa)		(%)				
14.12	5.480	35.72	90.46	5.500	0.65	6	17.75	251.77	118.90	132.87	39.49	0.68	-0.01	5	2.12	42.71
14.14	5.570	35.36	90.46	5.590	0.63	6	17.75	252.12	119.09	133.03	40.11	0.66	-0.01	5	2.11	43.46
14.16	5.730	35.86	90.46	5.750	0.62	6	17.78	252.48	119.29	133.19	41.26	0.65	-0.01	5	2.09	44.79
14.18	5.940	36.09	90.46	5.960	0.61	6	17.80	252.83	119.49	133.35	42.79	0.63	-0.01	6	2.07	46.57
14.20	6.030	36.95	90.46	6.050	0.61	6	17.83	253.19	119.68	133.51	43.41	0.64	-0.01	6	2.07	47.28
14.22	5.980	37.41	90.46	6.000	0.62	6	17.84	253.54	119.88	133.67	42.98	0.65	-0.01	5	2.08	46.78
14.24	5.860	37.18	90.64	5.880	0.63	6	17.83	253.90	120.07	133.83	42.03	0.66	-0.01	5	2.09	45.70
14.26	5.780	37.54	90.81	5.800	0.65	6	17.83	254.26	120.27	133.99	41.38	0.68	-0.01	5	2.10	44.95
14.28	5.650	38.59	90.99	5.670	0.68	6	17.86	254.61	120.47	134.15	40.36	0.71	-0.01	5	2.12	43.75
14.30	5.580	39.32	90.99	5.600	0.70	6	17.87	254.97	120.66	134.31	39.78	0.74	-0.01	5	2.13	43.08
14.32	5.570	39.82	90.81	5.590	0.71	6	17.89	255.33	120.86	134.47	39.66	0.75	-0.01	5	2.14	42.94
14.34	5.600	38.77	90.81	5.620	0.69	6	17.86	255.69	121.06	134.63	39.83	0.72	-0.01	5	2.13	43.18
14.36	5.570	38.36	90.99	5.590	0.69	6	17.84	256.04	121.25	134.79	39.56	0.72	-0.01	5	2.13	42.89
14.38	5.450	38.09	91.34	5.470	0.70	6	17.83	256.40	121.45	134.95	38.62	0.73	-0.01	5	2.14	41.83
14.40	5.300	37.45	91.69	5.320	0.70	6	17.80	256.76	121.64	135.11	37.46	0.74	-0.01	5	2.16	40.52
14.42	5.170	35.90	91.86	5.190	0.69	6	17.74	257.11	121.84	135.27	36.45	0.73	-0.01	5	2.16	39.41
14.44	5.140	36.13	91.86	5.160	0.70	6	17.74	257.47	122.04	135.43	36.19	0.74	-0.01	5	2.17	39.10
14.46	5.130	35.99	92.04	5.150	0.70	6	17.74	257.82	122.23	135.59	36.07	0.74	-0.01	5	2.17	38.98
14.48	5.170	35.58	92.21	5.190	0.69	6	17.73	258.18	122.43	135.75	36.32	0.72	-0.01	5	2.16	39.30
14.50	5.230	34.99	92.21	5.250	0.67	6	17.71	258.53	122.63	135.91	36.72	0.70	-0.01	5	2.15	39.79
14.52	5.230	34.99	95.54	5.250	0.67	6	17.71	258.88	122.82	136.06	36.68	0.70	-0.01	5	2.15	39.75
14.54	5.410	23.87	94.31	5.430	0.44	6	17.29	259.23	123.02	136.21	37.95	0.46	-0.01	6	2.05	41.65
14.56	5.540	25.20	94.31	5.560	0.45	6	17.36	259.58	123.21	136.36	38.86	0.48	-0.01	6	2.05	42.68
14.58	5.590	26.75	94.49	5.610	0.48	6	17.43	259.92	123.41	136.52	39.18	0.50	-0.01	6	2.05	43.01
14.60	5.600	28.52	94.31	5.620	0.51	6	17.50	260.27	123.61	136.67	39.21	0.53	-0.01	6	2.07	42.99
14.62	5.640	29.21	94.49	5.660	0.52	6	17.53	260.63	123.80	136.82	39.45	0.54	-0.01	6	2.07	43.27
14.64	5.730	30.48	94.66	5.750	0.53	6	17.59	260.98	124.00	136.98	40.06	0.56	-0.01	6	2.07	43.95
14.66	5.770	31.76	94.49	5.790	0.55	6	17.64	261.33	124.19	137.13	40.31	0.57	-0.01	6	2.07	44.21
14.68	5.800	32.53	94.49	5.820	0.56	6	17.67	261.68	124.39	137.29	40.48	0.59	-0.01	5	2.07	44.40
14.70	5.810	33.31	94.49	5.830	0.57	6	17.70	262.04	124.59	137.45	40.50	0.60	-0.01	5	2.08	44.41
14.72	5.840	33.58	94.66	5.860	0.57	6	17.71	262.39	124.78	137.61	40.67	0.60	-0.01	5	2.08	44.62
14.74	5.910	33.90	94.49	5.930	0.57	6	17.72	262.74	124.98	137.77	41.13	0.60	-0.01	6	2.07	45.16
14.76	6.080	34.86	94.31	6.100	0.57	6	17.77	263.10	125.18	137.92	42.31	0.60	-0.01	6	2.06	46.54
14.78	6.290	34.99	94.14	6.310	0.55	6	17.78	263.46	125.37	138.08	43.78	0.58	-0.01	6	2.04	48.30
14.80	6.370	34.54	94.31	6.390	0.54	6	17.77	263.81	125.57	138.24	44.31	0.56	-0.01	6	2.03	48.96
14.82	6.430	35.36	94.31	6.450	0.55	6	17.80	264.17	125.76	138.40	44.69	0.57	-0.01	6	2.03	49.40
14.84	6.620	36.22	94.31	6.640	0.55	6	17.84	264.52	125.96	138.56	46.00	0.57	0.00	6	2.01	50.95
14.86	6.720	37.36	94.31	6.740	0.55	6	17.88	264.88	126.16	138.72	46.67	0.58	0.00	6	2.01	51.72
14.88	6.640	38.77	94.49	6.660	0.58	6	17.92	265.24	126.35	138.89	46.04	0.61	0.00	6	2.03	50.93
14.90	6.550	40.64	94.66	6.570	0.62	6	17.97	265.60	126.55	139.05	45.33	0.64	-0.01	6	2.05	50.05
14.92	6.530	44.15	94.84	6.550	0.67	6	18.07	265.96	126.75	139.21	45.13	0.70	-0.01	6	2.07	49.71
14.94	6.580	45.84	95.01	6.600	0.69	6	18.11	266.32	126.94	139.38	45.43	0.72	-0.01	5	2.07	50.03
14.96	6.550	46.75	95.19	6.570	0.71	6	18.13	266.68	127.14	139.55	45.16	0.74	-0.01	5	2.08	49.70
14.98	6.550	47.43	95.19	6.570	0.72	6	18.15	267.05	127.33	139.71	45.11	0.75	-0.01	5	2.09	49.62
15.00	6.580	47.48	95.19	6.600	0.72	6	18.15	267.41	127.53	139.88	45.26	0.75	-0.01	5	2.08	49.83
15.02	6.670	46.97	95.54	6.690	0.70	6	18.14	267.77	127.73	140.05	45.85	0.73	-0.01	5	2.07	50.56
15.04	6.680	46.70	95.71	6.700	0.70	6	18.14	268.14	127.92	140.21	45.87	0.73	-0.01	5	2.07	50.61
15.06	6.630	46.25	95.71	6.650	0.70	6	18.12	268.50	128.12	140.38	45.45	0.72	-0.01	5	2.07	50.15
15.08	6.540	45.84	96.06	6.560	0.70	6	18.11	268.86	128.31	140.55	44.76	0.73	-0.01	5	2.08	49.35
15.10	6.430	45.93	96.06	6.450	0.71	6	18.10	269.22	128.51	140.71	43.92	0.74	-0.01	5	2.09	48.37
15.12	6.500	46.34	96.24	6.520	0.71	6	18.12	269.58	128.71	140.88	44.36	0.74	-0.01	5	2.09	48.90
15.14	6.640	46.56	96.24	6.660	0.70	6	18.13	269.95	128.90	141.04	45.30	0.73	-0.01	5	2.08	50.03
15.16	6.760	46.38	96.24	6.780	0.68	6	18.14	270.31	129.10	141.21	46.09	0.71	-0.01	6	2.06	51.00
15.18	6.720	47.02	96.41	6.740	0.70	6	18.15	270.67	129.30	141.38	45.75	0.73	-0.01	5	2.07	50.59
15.20	6.570	46.84	96.41	6.590	0.71	6	18.14	271.04	129.49	141.54	44.64	0.74	-0.01	5	2.08	49.28

In situ data				Basic output data					ARENILE BAGNO FLORA - VIAREGGIO (LU)					CPTu 04		
Depth	qc	fs	u_2	qt	Rf	SBT	γ	σ,v	u_0	σ',v_0	Qt1	Fr	Bq	SBTn	Ic	Qtn
(m)	(MPa)	(kPa)	(kPa)	(MPa)	(%)		kN/m^3	(kPa)	(kPa)	(kPa)		(%)				
15.22	6.380	45.84	96.59	6.400	0.72	6	18.10	271.40	129.69	141.71	43.24	0.75	-0.01	5	2.10	47.66
15.24	6.180	46.43	96.94	6.200	0.75	6	18.10	271.76	129.88	141.88	41.78	0.78	-0.01	5	2.12	45.92
15.26	6.020	47.25	97.11	6.040	0.78	6	18.11	272.12	130.08	142.04	40.60	0.82	-0.01	5	2.15	44.51
15.28	5.840	47.98	97.46	5.860	0.82	6	18.12	272.48	130.28	142.21	39.29	0.86	-0.01	5	2.17	42.94
15.30	5.840	47.61	97.46	5.860	0.81	6	18.11	272.85	130.47	142.37	39.24	0.85	-0.01	5	2.17	42.90
15.32	6.070	45.93	97.46	6.090	0.75	6	18.08	273.21	130.67	142.54	40.80	0.79	-0.01	5	2.13	44.83
15.34	6.280	45.70	97.29	6.300	0.73	6	18.09	273.57	130.87	142.70	42.23	0.76	-0.01	5	2.11	46.55
15.36	6.450	44.65	97.46	6.470	0.69	6	18.07	273.93	131.06	142.87	43.37	0.72	-0.01	5	2.09	47.97
15.38	6.540	43.38	97.46	6.560	0.66	6	18.05	274.29	131.26	143.03	43.94	0.69	-0.01	5	2.07	48.72
15.40	6.700	42.60	97.46	6.720	0.63	6	18.03	274.65	131.45	143.20	45.01	0.66	-0.01	6	2.05	50.05
15.42	6.780	42.56	97.64	6.800	0.63	6	18.04	275.01	131.65	143.36	45.51	0.65	-0.01	6	2.05	50.68
15.44	6.950	43.47	97.29	6.970	0.62	6	18.07	275.38	131.85	143.53	46.64	0.65	-0.01	6	2.04	52.03
15.46	7.170	43.38	97.11	7.190	0.60	6	18.08	275.74	132.04	143.69	48.11	0.63	-0.01	6	2.01	53.85
15.48	7.340	43.83	97.11	7.360	0.60	6	18.10	276.10	132.24	143.86	49.24	0.62	0.00	6	2.00	55.22

Allegato B

Prove Penetrometriche Statiche con Piezocono (CPTu)
Estimated Parameters

CPTu 01 ARENILE BAGNO FIRENZE - VIAREGGIO (LU)

qc	cone resistance	SPT	equivalent SPT N60	Es	Young's modulus
fs	sleeve friction	M	constrained modulus	Go	Shear modulus
SBTn	soil behavior type normalized	Dr	relative density	Su	Shear strenght
Ksbt	permeability	Fi	Friction angle	OCR	Over consolidation ratio

In situ data				Estimations								
Depth (m)	qc (MPa)	fs (kPa)	SBTn	Ksbt (m/s)	SPT N60	M (MPa)	Dr (%)	Fi (°)	Es (MPa)	Go (MPa)	Su (kPa)	OCR
0.00	-	-	-	-	-	-	-	-	-	-	-	-
0.02	0.110	0.00	0	0.0E+00	0	0.10	0	0	0.08	0.10	0.00	0.00
0.04	0.090	0.00	0	0.0E+00	0	0.08	0	0	0.06	0.08	0.00	0.00
0.06	0.220	0.00	0	0.0E+00	0	0.20	0	0	0.16	0.20	0.00	0.00
0.08	0.710	0.00	0	0.0E+00	0	0.64	0	0	0.51	0.64	0.00	0.00
0.10	1.140	0.00	0	0.0E+00	0	1.03	0	0	0.82	1.03	0.00	0.00
0.12	1.920	0.00	0	0.0E+00	0	1.73	0	0	1.38	1.73	0.00	0.00
0.14	2.820	0.05	0	0.0E+00	7	27.97	0	0	22.32	27.97	0.00	0.00
0.16	3.620	0.05	0	0.0E+00	9	37.37	0	0	29.81	37.37	0.00	0.00
0.18	4.990	0.09	0	0.0E+00	12	44.08	0	0	35.17	44.08	0.00	0.00
0.20	5.850	0.18	0	0.0E+00	12	41.95	0	0	33.47	41.95	0.00	0.00
0.22	5.860	0.23	0	0.0E+00	12	39.32	0	0	31.37	39.32	0.00	0.00
0.24	7.050	1.09	0	0.0E+00	12	32.49	0	0	25.92	32.49	0.00	0.00
0.26	7.280	2.82	0	0.0E+00	12	29.76	0	0	23.74	29.76	0.00	0.00
0.28	7.450	7.75	7	2.0E-03	12	30.69	75	43	24.49	30.69	0.00	0.00
0.30	7.720	12.39	7	1.5E-03	13	33.35	76	43	26.61	33.35	0.00	0.00
0.32	7.880	20.23	7	1.0E-03	13	36.59	79	43	29.20	36.59	0.00	0.00
0.34	7.930	25.97	6	7.8E-04	14	38.70	80	44	30.88	38.70	0.00	0.00
0.36	7.800	33.03	6	5.2E-04	14	40.95	81	44	32.67	40.95	0.00	0.00
0.38	7.540	40.28	6	3.3E-04	14	42.94	81	44	34.26	42.94	0.00	0.00
0.40	7.260	47.48	6	2.2E-04	14	44.49	81	44	35.50	44.49	0.00	0.00
0.42	6.750	58.41	6	1.2E-04	14	46.19	81	44	36.85	46.19	0.00	0.00
0.44	6.440	63.83	6	8.5E-05	14	46.89	80	43	37.41	46.89	0.00	0.00
0.46	6.170	66.93	6	6.6E-05	14	47.11	79	43	37.59	47.11	0.00	0.00
0.48	5.910	68.71	6	5.2E-05	13	47.01	78	43	37.51	47.01	0.00	0.00
0.50	5.670	67.02	6	4.6E-05	13	46.18	76	43	36.84	46.18	0.00	0.00
0.52	5.650	63.79	6	4.8E-05	13	45.68	75	43	36.44	45.68	0.00	0.00
0.54	5.690	60.60	6	5.2E-05	13	45.34	74	43	36.17	45.34	0.00	0.00
0.56	5.780	56.77	6	5.9E-05	13	44.96	73	43	35.87	44.96	0.00	0.00
0.58	5.760	52.53	6	6.5E-05	13	44.09	72	42	35.18	44.09	0.00	0.00
0.60	5.730	51.03	6	6.5E-05	13	43.86	71	42	34.99	43.86	0.00	0.00
0.62	5.630	50.30	6	6.0E-05	13	43.60	70	42	34.79	43.60	0.00	0.00
0.64	5.500	50.53	6	5.4E-05	12	43.49	69	42	34.70	43.49	0.00	0.00
0.66	5.350	51.08	6	4.7E-05	12	43.29	69	42	34.54	43.29	0.00	0.00
0.68	5.130	52.76	6	3.8E-05	12	43.25	67	42	34.51	43.25	0.00	0.00
0.70	5.030	53.58	6	3.3E-05	12	43.35	67	42	34.59	43.35	0.00	0.00
0.72	4.990	53.90	6	3.1E-05	12	43.52	66	42	34.72	43.52	0.00	0.00
0.74	4.950	53.49	6	3.0E-05	12	43.49	66	42	34.70	43.49	0.00	0.00
0.76	4.830	52.58	6	2.8E-05	12	43.07	65	41	34.37	43.07	0.00	0.00
0.78	4.680	51.35	6	2.5E-05	11	42.46	63	41	33.87	42.46	0.00	0.00
0.80	4.390	49.25	6	2.1E-05	11	41.12	62	41	32.81	41.12	0.00	0.00
0.82	4.200	47.89	6	1.8E-05	10	40.29	60	41	32.15	40.29	0.00	0.00
0.84	4.000	46.70	6	1.6E-05	10	39.45	59	41	31.47	39.45	0.00	0.00
0.86	3.790	45.33	6	1.3E-05	10	38.49	57	40	30.71	38.49	0.00	0.00
0.88	3.610	44.20	6	1.2E-05	9	37.69	56	40	30.07	37.69	0.00	0.00
0.90	3.490	43.19	6	1.0E-05	9	37.13	55	40	29.62	37.13	0.00	0.00
0.92	3.370	41.55	6	9.5E-06	9	36.39	54	40	29.03	36.39	0.00	0.00
0.94	3.280	40.69	6	8.7E-06	9	35.96	53	40	28.69	35.96	0.00	0.00

In situ data				Estimations		ARENILE BAGNO FIRENZE - VIAREGGIO (LU)					CPTu 01	
Depth (m)	qc (MPa)	fs (kPa)	SBTn	Ksbt (m/s)	SPT N60	M (MPa)	Dr (%)	Fi (°)	Es (MPa)	Go (MPa)	Su (kPa)	OCR
0.96	3.240	40.19	6	8.3E-06	9	35.82	53	39	28.58	35.82	0.00	0.00
0.98	3.180	39.27	6	7.9E-06	9	35.48	52	39	28.31	35.48	0.00	0.00
1.00	3.070	38.09	6	7.2E-06	8	34.86	51	39	27.81	34.86	0.00	0.00
1.02	2.940	37.04	6	6.3E-06	8	34.17	50	39	27.26	34.17	0.00	0.00
1.04	2.800	35.95	5	5.4E-06	8	33.41	49	39	26.66	33.41	0.00	0.00
1.06	2.800	35.95	5	5.3E-06	8	33.55	48	39	26.77	33.55	0.00	0.00
1.08	2.450	31.89	5	3.9E-06	7	30.99	46	38	24.72	30.99	0.00	0.00
1.10	2.580	30.66	5	4.9E-06	7	31.34	46	38	25.01	31.34	0.00	0.00
1.12	2.520	30.16	5	4.5E-06	7	31.05	45	38	24.78	31.05	0.00	0.00
1.14	2.440	29.84	5	4.0E-06	7	30.72	45	38	24.51	30.72	0.00	0.00
1.16	2.310	28.70	5	3.4E-06	7	29.90	43	38	23.85	29.90	0.00	0.00
1.18	2.280	27.47	5	3.4E-06	7	29.50	43	38	23.54	29.50	0.00	0.00
1.20	2.310	26.43	5	3.7E-06	7	29.43	43	37	23.48	29.43	0.00	0.00
1.22	2.360	25.56	5	4.2E-06	7	29.50	43	37	23.54	29.50	0.00	0.00
1.24	2.410	24.92	5	4.6E-06	7	29.62	43	38	23.64	29.62	0.00	0.00
1.26	2.520	24.56	6	5.3E-06	7	30.10	43	38	24.01	30.10	0.00	0.00
1.28	2.870	23.33	6	9.0E-06	8	31.23	45	38	24.92	31.23	0.00	0.00
1.30	3.190	22.74	6	1.3E-05	8	32.35	47	38	25.81	32.35	0.00	0.00
1.32	3.450	22.37	6	1.8E-05	9	33.27	48	39	26.54	33.27	0.00	0.00
1.34	3.600	22.74	6	2.0E-05	9	34.04	48	39	27.16	34.04	0.00	0.00
1.36	3.700	23.51	6	2.0E-05	9	34.78	49	39	27.75	34.78	0.00	0.00
1.38	3.750	25.65	6	1.9E-05	9	35.85	49	39	28.60	35.85	0.00	0.00
1.40	3.730	27.47	6	1.6E-05	9	36.54	49	39	29.16	36.54	0.00	0.00
1.42	3.720	29.66	6	1.4E-05	9	37.38	49	39	29.83	37.38	0.00	0.00
1.44	3.720	31.80	6	1.2E-05	10	38.22	49	39	30.50	38.22	0.00	0.00
1.46	3.710	33.67	6	1.1E-05	10	38.92	49	39	31.05	38.92	0.00	0.00
1.48	3.720	35.31	6	1.0E-05	10	39.61	49	39	31.60	39.61	0.00	0.00
1.50	3.710	35.40	6	9.8E-06	10	39.71	49	39	31.69	39.71	0.00	0.00
1.52	3.660	35.36	6	9.2E-06	10	39.63	48	39	31.62	39.63	0.00	0.00
1.54	3.580	35.68	6	8.3E-06	10	39.55	48	39	31.55	39.55	0.00	0.00
1.56	3.550	35.77	6	7.8E-06	10	39.58	48	38	31.58	39.58	0.00	0.00
1.58	3.560	35.63	6	7.8E-06	10	39.68	47	38	31.66	39.68	0.00	0.00
1.60	3.620	35.08	6	8.4E-06	10	39.84	48	38	31.79	39.84	0.00	0.00
1.62	3.640	34.76	6	8.6E-06	10	39.93	47	38	31.86	39.93	0.00	0.00
1.64	3.580	34.58	6	8.0E-06	10	39.75	47	38	31.72	39.75	0.00	0.00
1.66	3.570	34.54	6	7.8E-06	10	39.81	47	38	31.76	39.81	0.00	0.00
1.68	3.660	33.94	6	8.7E-06	10	40.05	47	38	31.96	40.05	0.00	0.00
1.70	3.780	33.44	6	9.8E-06	10	40.43	47	38	32.26	40.43	0.00	0.00
1.72	3.980	32.76	6	1.2E-05	10	40.96	48	39	32.68	40.96	0.00	0.00
1.74	4.170	32.12	6	1.5E-05	11	41.43	49	39	33.06	41.43	0.00	0.00
1.76	4.320	31.39	6	1.7E-05	11	41.72	50	39	33.28	41.72	0.00	0.00
1.78	4.430	30.89	6	1.9E-05	11	41.94	50	39	33.46	41.94	0.00	0.00
1.80	4.490	31.12	6	2.0E-05	11	42.26	50	39	33.72	42.26	0.00	0.00
1.82	4.490	32.49	6	1.9E-05	11	42.81	50	39	34.16	42.81	0.00	0.00
1.84	4.470	33.90	6	1.7E-05	11	43.30	50	39	34.54	43.30	0.00	0.00
1.86	4.440	35.63	6	1.5E-05	11	43.85	50	39	34.99	43.85	0.00	0.00
1.88	4.420	37.41	6	1.4E-05	11	44.45	50	39	35.46	44.45	0.00	0.00
1.90	4.390	39.00	6	1.3E-05	11	44.93	50	39	35.85	44.93	0.00	0.00
1.92	4.330	40.19	6	1.1E-05	11	45.17	50	39	36.04	45.17	0.00	0.00
1.94	4.330	41.32	6	1.1E-05	11	45.62	50	39	36.40	45.62	0.00	0.00
1.96	4.370	41.37	6	1.1E-05	11	45.83	50	39	36.57	45.83	0.00	0.00
1.98	4.410	41.19	6	1.1E-05	11	45.96	50	39	36.67	45.96	0.00	0.00
2.00	4.490	40.69	6	1.2E-05	12	46.11	50	39	36.79	46.11	0.00	0.00
2.02	4.550	40.19	6	1.3E-05	12	46.20	50	39	36.86	46.20	0.00	0.00
2.04	4.560	39.91	6	1.3E-05	12	46.19	50	39	36.85	46.19	0.00	0.00

In situ data				Estimations		ARENILE BAGNO FIRENZE - VIAREGGIO (LU)					CPTu 01	
Depth (m)	qc (MPa)	fs (kPa)	SBTn	Ksbt (m/s)	SPT N60	M (MPa)	Dr (%)	Fi (°)	Es (MPa)	Go (MPa)	Su (kPa)	OCR
2.06	4.560	39.91	6	1.3E-05	12	46.24	50	39	36.89	46.24	0.00	0.00
2.08	4.300	30.75	6	1.6E-05	11	42.14	48	39	33.62	42.14	0.00	0.00
2.10	4.300	30.75	6	1.6E-05	11	42.18	48	39	33.66	42.18	0.00	0.00
2.12	4.370	32.21	6	1.6E-05	11	43.00	49	39	34.31	43.00	0.00	0.00
2.14	4.300	34.13	6	1.3E-05	11	43.53	48	39	34.73	43.53	0.00	0.00
2.16	4.170	36.59	6	1.1E-05	11	44.00	48	39	35.10	44.00	0.00	0.00
2.18	4.080	37.73	6	9.2E-06	11	44.11	48	38	35.20	44.11	0.00	0.00
2.20	4.040	38.09	6	8.7E-06	11	44.14	47	38	35.22	44.14	0.00	0.00
2.22	3.840	38.55	6	7.0E-06	10	43.61	46	38	34.79	43.61	0.00	0.00
2.24	3.730	38.96	6	6.1E-06	10	43.37	46	38	34.61	43.37	0.00	0.00
2.26	3.660	38.86	6	5.7E-06	10	43.12	45	38	34.40	43.12	0.00	0.00
2.28	3.640	38.18	6	5.7E-06	10	42.86	45	38	34.20	42.86	0.00	0.00
2.30	3.640	37.22	6	5.9E-06	10	42.59	45	38	33.98	42.59	0.00	0.00
2.32	3.640	36.22	6	6.1E-06	10	42.30	45	38	33.75	42.30	0.00	0.00
2.34	3.610	35.22	6	6.1E-06	10	41.88	45	38	33.42	41.88	0.00	0.00
2.36	3.610	34.31	6	6.4E-06	10	41.61	45	38	33.20	41.61	0.00	0.00
2.38	3.630	33.49	6	6.7E-06	10	41.44	45	38	33.07	41.44	0.00	0.00
2.40	3.650	32.67	6	7.1E-06	10	41.27	45	38	32.93	41.27	0.00	0.00
2.42	3.650	31.98	6	7.3E-06	10	41.06	45	38	32.76	41.06	0.00	0.00
2.44	3.580	31.98	6	6.7E-06	10	40.84	44	38	32.59	40.84	0.00	0.00
2.46	3.490	32.35	6	6.0E-06	10	40.67	44	38	32.45	40.67	0.00	0.00
2.48	3.370	32.67	6	5.1E-06	9	40.36	43	38	32.20	40.36	0.00	0.00
2.50	3.230	33.03	5	4.3E-06	9	39.97	42	37	31.89	39.97	0.00	0.00
2.52	3.200	33.21	5	4.0E-06	9	39.95	42	37	31.88	39.95	0.00	0.00
2.54	3.180	32.76	5	4.0E-06	9	39.75	42	37	31.72	39.75	0.00	0.00
2.56	3.190	31.76	5	4.2E-06	9	39.48	42	37	31.50	39.48	0.00	0.00
2.58	3.200	30.16	5	4.6E-06	9	38.99	42	37	31.11	38.99	0.00	0.00
2.60	3.230	28.89	6	5.1E-06	9	38.68	42	37	30.86	38.68	0.00	0.00
2.62	3.290	27.70	6	5.8E-06	9	38.51	42	37	30.72	38.51	0.00	0.00
2.64	3.420	26.11	6	7.3E-06	9	38.43	42	37	30.66	38.43	0.00	0.00
2.66	3.530	25.47	6	8.4E-06	9	38.62	43	38	30.81	38.62	0.00	0.00
2.68	3.610	25.88	6	8.9E-06	10	39.11	43	38	31.20	39.11	0.00	0.00
2.70	3.670	26.84	6	8.9E-06	10	39.74	44	38	31.71	39.74	0.00	0.00
2.72	3.740	27.57	6	9.2E-06	10	40.32	44	38	32.17	40.32	0.00	0.00
2.74	3.840	28.34	6	9.7E-06	10	41.02	44	38	32.73	41.02	0.00	0.00
2.76	3.940	29.84	6	9.8E-06	10	41.99	45	38	33.50	41.99	0.00	0.00
2.78	4.090	30.94	6	1.1E-05	11	42.97	46	38	34.29	42.97	0.00	0.00
2.80	4.460	30.85	6	1.5E-05	11	44.22	47	38	35.28	44.22	0.00	0.00
2.82	5.010	29.84	6	2.4E-05	12	45.58	49	39	36.37	45.58	0.00	0.00
2.84	5.450	29.25	6	3.3E-05	13	46.67	51	39	37.24	46.67	0.00	0.00
2.86	5.680	30.57	6	3.6E-05	13	47.91	52	39	38.22	47.91	0.00	0.00
2.88	5.860	33.03	6	3.6E-05	14	49.44	53	39	39.45	49.44	0.00	0.00
2.90	6.050	35.45	6	3.7E-05	14	50.97	53	40	40.67	50.97	0.00	0.00
2.92	6.120	38.73	6	3.3E-05	14	52.47	54	40	41.86	52.47	0.00	0.00
2.94	5.970	45.79	6	2.3E-05	15	54.67	54	40	43.62	54.67	0.00	0.00
2.96	5.710	50.53	6	1.6E-05	14	55.57	53	39	44.34	55.57	0.00	0.00
2.98	5.500	53.40	6	1.3E-05	14	55.91	52	39	44.61	55.91	0.00	0.00
3.00	5.380	54.72	6	1.1E-05	14	56.01	52	39	44.69	56.01	0.00	0.00
3.02	5.340	53.95	6	1.1E-05	14	55.68	51	39	44.43	55.68	0.00	0.00
3.04	5.340	53.95	6	1.1E-05	14	55.73	51	39	44.47	55.73	0.00	0.00
3.06	5.160	43.92	6	1.4E-05	13	51.85	50	39	41.37	51.85	0.00	0.00
3.08	5.160	43.92	6	1.4E-05	13	51.89	50	39	41.40	51.89	0.00	0.00
3.10	5.390	42.19	6	1.7E-05	13	52.04	51	39	41.52	52.04	0.00	0.00
3.12	5.700	41.87	6	2.1E-05	14	52.90	52	39	42.21	52.90	0.00	0.00
3.14	6.150	41.55	6	2.9E-05	15	54.12	54	40	43.18	54.12	0.00	0.00

In situ data				Estimations		ARENILE BAGNO FIRENZE - VIAREGGIO (LU)					CPTu 01	
Depth (m)	qc (MPa)	fs (kPa)	SBTn	Ksbt (m/s)	SPT N60	M (MPa)	Dr (%)	Fi (°)	Es (MPa)	Go (MPa)	Su (kPa)	OCR
3.16	6.250	41.46	6	3.1E-05	15	54.41	54	40	43.41	54.41	0.00	0.00
3.18	6.150	42.10	6	2.8E-05	15	54.41	53	40	43.41	54.41	0.00	0.00
3.20	6.030	43.88	6	2.4E-05	15	54.77	53	40	43.70	54.77	0.00	0.00
3.22	5.910	49.21	6	1.8E-05	15	56.36	53	39	44.97	56.36	0.00	0.00
3.24	5.880	52.58	6	1.6E-05	15	57.47	53	39	45.85	57.47	0.00	0.00
3.26	5.840	55.54	6	1.4E-05	15	58.38	53	39	46.58	58.38	0.00	0.00
3.28	5.810	57.36	6	1.3E-05	15	58.93	53	39	47.02	58.93	0.00	0.00
3.30	5.740	58.41	6	1.2E-05	15	59.10	52	39	47.15	59.10	0.00	0.00
3.32	5.660	58.23	6	1.1E-05	15	58.84	52	39	46.95	58.84	0.00	0.00
3.34	5.570	56.72	6	1.1E-05	14	58.12	51	39	46.37	58.12	0.00	0.00
3.36	5.540	55.63	6	1.1E-05	14	57.72	51	39	46.06	57.72	0.00	0.00
3.38	5.550	54.04	6	1.2E-05	14	57.29	51	39	45.71	57.29	0.00	0.00
3.40	5.530	51.85	6	1.2E-05	14	56.54	51	39	45.11	56.54	0.00	0.00
3.42	5.490	48.34	6	1.4E-05	14	55.27	51	39	44.10	55.27	0.00	0.00
3.44	5.460	46.97	6	1.4E-05	14	54.75	50	39	43.68	54.75	0.00	0.00
3.46	5.470	45.70	6	1.4E-05	14	54.38	50	39	43.39	54.38	0.00	0.00
3.48	5.460	44.61	6	1.5E-05	14	54.00	50	39	43.09	54.00	0.00	0.00
3.50	5.390	43.97	6	1.4E-05	14	53.60	50	39	42.77	53.60	0.00	0.00
3.52	5.270	44.92	6	1.3E-05	14	53.61	49	39	42.78	53.61	0.00	0.00
3.54	5.220	45.88	6	1.2E-05	14	53.84	49	39	42.96	53.84	0.00	0.00
3.56	5.150	46.79	6	1.1E-05	13	53.98	49	39	43.07	53.98	0.00	0.00
3.58	4.970	47.70	6	9.0E-06	13	53.76	48	39	42.89	53.76	0.00	0.00
3.60	4.560	49.57	6	6.0E-06	13	53.03	46	38	42.31	53.03	0.00	0.00
3.62	4.310	50.35	5	4.6E-06	12	52.43	45	38	41.83	52.43	0.00	0.00
3.64	4.120	50.53	5	3.8E-06	12	51.82	44	38	41.35	51.82	0.00	0.00
3.66	4.070	50.35	5	3.7E-06	12	51.62	44	38	41.18	51.62	0.00	0.00
3.68	4.120	48.75	5	4.1E-06	12	51.34	44	38	40.96	51.34	0.00	0.00
3.70	4.180	46.56	5	4.6E-06	12	50.88	44	38	40.60	50.88	0.00	0.00
3.72	4.230	43.97	6	5.3E-06	12	50.23	45	38	40.07	50.23	0.00	0.00
3.74	4.290	40.82	6	6.3E-06	12	49.37	45	38	39.39	49.37	0.00	0.00
3.76	4.360	38.32	6	7.4E-06	12	48.75	45	38	38.89	48.75	0.00	0.00
3.78	4.470	36.18	6	8.9E-06	12	48.36	45	38	38.58	48.36	0.00	0.00
3.80	4.610	33.62	6	1.1E-05	12	47.86	46	38	38.19	47.86	0.00	0.00
3.82	4.640	32.94	6	1.2E-05	12	47.73	46	38	38.08	47.73	0.00	0.00
3.84	4.640	33.26	6	1.2E-05	12	47.89	46	38	38.21	47.89	0.00	0.00
3.86	4.660	33.62	6	1.2E-05	12	48.14	46	38	38.41	48.14	0.00	0.00
3.88	4.710	34.58	6	1.1E-05	12	48.72	46	38	38.87	48.72	0.00	0.00
3.90	4.700	35.81	6	1.1E-05	12	49.21	46	38	39.26	49.21	0.00	0.00
3.92	4.670	37.73	6	9.5E-06	12	49.89	46	38	39.81	49.89	0.00	0.00
3.94	4.670	38.77	6	9.1E-06	12	50.32	46	38	40.15	50.32	0.00	0.00
3.96	4.690	39.68	6	8.8E-06	12	50.77	46	38	40.51	50.77	0.00	0.00
3.98	4.630	41.19	6	7.9E-06	12	51.17	46	38	40.83	51.17	0.00	0.00
4.00	4.580	42.87	6	7.0E-06	12	51.66	45	38	41.21	51.66	0.00	0.00
4.02	4.570	43.69	6	6.7E-06	12	51.96	45	38	41.46	51.96	0.00	0.00
4.04	4.570	43.69	6	6.7E-06	12	52.00	45	38	41.49	52.00	0.00	0.00
4.06	4.520	35.99	6	8.7E-06	12	49.00	45	38	39.10	49.00	0.00	0.00
4.08	4.630	37.63	6	8.9E-06	12	50.04	45	38	39.93	50.04	0.00	0.00
4.10	4.690	40.00	6	8.4E-06	13	51.18	46	38	40.83	51.18	0.00	0.00
4.12	4.740	41.46	6	8.3E-06	13	51.93	46	38	41.43	51.93	0.00	0.00
4.14	4.780	41.92	6	8.3E-06	13	52.27	46	38	41.71	52.27	0.00	0.00
4.16	4.770	42.19	6	8.2E-06	13	52.38	46	38	41.79	52.38	0.00	0.00
4.18	4.770	42.46	6	8.0E-06	13	52.52	46	38	41.91	52.52	0.00	0.00
4.20	4.740	43.15	6	7.6E-06	13	52.72	46	38	42.06	52.72	0.00	0.00
4.22	4.620	43.51	6	6.7E-06	13	52.48	45	38	41.87	52.48	0.00	0.00
4.24	4.470	44.24	6	5.7E-06	12	52.27	44	38	41.70	52.27	0.00	0.00

In situ data				Estimations		ARENILE BAGNO FIRENZE - VIAREGGIO (LU)					CPTu 01	
Depth (m)	qc (MPa)	fs (kPa)	SBTn	Ksbt (m/s)	SPT N60	M (MPa)	Dr (%)	Fi (°)	Es (MPa)	Go (MPa)	Su (kPa)	OCR
4.26	4.380	44.24	6	5.3E-06	12	51.99	44	38	41.48	51.99	0.00	0.00
4.28	4.340	43.38	6	5.2E-06	12	51.59	44	38	41.16	51.59	0.00	0.00
4.30	4.290	42.15	6	5.2E-06	12	51.01	43	38	40.70	51.01	0.00	0.00
4.32	4.140	40.00	5	4.9E-06	12	49.72	43	37	39.67	49.72	0.00	0.00
4.34	4.020	38.41	5	4.6E-06	11	48.73	42	37	38.88	48.73	0.00	0.00
4.36	3.940	36.86	5	4.5E-06	11	47.89	42	37	38.21	47.89	0.00	0.00
4.38	3.940	35.90	5	4.7E-06	11	47.57	42	37	37.95	47.57	0.00	0.00
4.40	4.120	34.99	6	5.8E-06	11	47.90	42	37	38.22	47.90	0.00	0.00
4.42	4.260	34.22	6	6.9E-06	12	48.12	43	37	38.39	48.12	0.00	0.00
4.44	4.440	33.12	6	8.5E-06	12	48.32	44	38	38.55	48.32	0.00	0.00
4.46	4.650	32.67	6	1.0E-05	12	48.86	44	38	38.98	48.86	0.00	0.00
4.48	4.720	32.99	6	1.1E-05	12	49.25	45	38	39.30	49.25	0.00	0.00
4.50	4.570	33.94	6	9.0E-06	12	49.19	44	38	39.25	49.19	0.00	0.00
4.52	4.460	35.13	6	7.7E-06	12	49.35	44	38	39.37	49.35	0.00	0.00
4.54	4.360	36.40	6	6.6E-06	12	49.55	43	38	39.53	49.55	0.00	0.00
4.56	4.240	37.54	6	5.6E-06	12	49.61	43	37	39.58	49.61	0.00	0.00
4.58	4.200	39.14	6	5.0E-06	12	50.12	42	37	39.99	50.12	0.00	0.00
4.60	4.270	38.96	6	5.4E-06	12	50.34	43	37	40.16	50.34	0.00	0.00
4.62	4.360	37.86	6	6.1E-06	12	50.27	43	38	40.11	50.27	0.00	0.00
4.64	4.390	36.59	6	6.6E-06	12	49.91	43	38	39.82	49.91	0.00	0.00
4.66	4.430	35.63	6	7.1E-06	12	49.71	43	38	39.66	49.71	0.00	0.00
4.68	4.520	33.85	6	8.3E-06	12	49.32	43	38	39.35	49.32	0.00	0.00
4.70	4.680	32.58	6	1.0E-05	12	49.36	44	38	39.38	49.36	0.00	0.00
4.72	4.860	32.12	6	1.2E-05	13	49.77	45	38	39.71	49.77	0.00	0.00
4.74	4.950	32.49	6	1.3E-05	13	50.24	45	38	40.08	50.24	0.00	0.00
4.76	5.060	32.99	6	1.3E-05	13	50.83	45	38	40.55	50.83	0.00	0.00
4.78	5.090	34.03	6	1.3E-05	13	51.39	46	38	41.00	51.39	0.00	0.00
4.80	5.090	35.40	6	1.2E-05	13	52.00	46	38	41.49	52.00	0.00	0.00
4.82	5.050	37.82	6	1.1E-05	13	52.90	45	38	42.20	52.90	0.00	0.00
4.84	4.980	40.55	6	8.8E-06	13	53.79	45	38	42.92	53.79	0.00	0.00
4.86	4.950	42.92	6	7.8E-06	13	54.64	45	38	43.60	54.64	0.00	0.00
4.88	4.860	45.33	6	6.6E-06	13	55.29	45	38	44.11	55.29	0.00	0.00
4.90	4.670	46.97	6	5.3E-06	13	55.28	44	38	44.11	55.28	0.00	0.00
4.92	4.510	47.89	5	4.4E-06	13	55.10	43	38	43.96	55.10	0.00	0.00
4.94	4.480	47.29	5	4.4E-06	13	54.82	43	38	43.74	54.82	0.00	0.00
4.96	4.530	45.02	5	5.0E-06	13	54.21	43	38	43.26	54.21	0.00	0.00
4.98	4.620	41.32	6	6.2E-06	13	53.18	44	38	42.43	53.18	0.00	0.00
5.00	4.620	41.32	6	6.1E-06	13	53.22	43	38	42.46	53.22	0.00	0.00
5.02	4.620	41.32	6	6.1E-06	13	53.26	43	38	42.49	53.26	0.00	0.00
5.04	4.640	32.71	6	9.0E-06	12	49.90	43	38	39.81	49.90	0.00	0.00
5.06	4.620	32.62	6	8.8E-06	12	49.83	43	38	39.76	49.83	0.00	0.00
5.08	4.870	32.26	6	1.1E-05	13	50.51	44	38	40.30	50.51	0.00	0.00
5.10	5.200	31.71	6	1.5E-05	13	51.31	45	38	40.94	51.31	0.00	0.00
5.12	5.400	32.21	6	1.6E-05	14	52.16	46	38	41.61	52.16	0.00	0.00
5.14	5.390	34.17	6	1.5E-05	14	53.01	46	38	42.30	53.01	0.00	0.00
5.16	5.110	37.50	6	1.0E-05	13	53.60	45	38	42.76	53.60	0.00	0.00
5.18	4.990	40.05	6	8.5E-06	13	54.28	45	38	43.31	54.28	0.00	0.00
5.20	5.050	42.69	6	8.0E-06	14	55.55	45	38	44.32	55.55	0.00	0.00
5.22	5.280	44.42	6	8.9E-06	14	56.98	46	38	45.46	56.98	0.00	0.00
5.24	5.600	45.38	6	1.1E-05	15	58.37	47	38	46.57	58.37	0.00	0.00
5.26	5.600	46.06	6	1.1E-05	15	58.67	47	38	46.81	58.67	0.00	0.00
5.28	5.530	47.02	6	9.6E-06	15	58.87	47	38	46.97	58.87	0.00	0.00
5.30	5.480	47.93	6	8.9E-06	15	59.10	47	38	47.15	59.10	0.00	0.00
5.32	5.480	48.89	6	8.6E-06	15	59.50	46	38	47.47	59.50	0.00	0.00
5.34	5.500	50.07	6	8.3E-06	15	60.04	47	38	47.90	60.04	0.00	0.00

In situ data				Estimations		ARENILE BAGNO FIRENZE - VIAREGGIO (LU)					CPTu 01	
Depth (m)	qc (MPa)	fs (kPa)	SBTn	Ksbt (m/s)	SPT N60	M (MPa)	Dr (%)	Fi (°)	Es (MPa)	Go (MPa)	Su (kPa)	OCR
5.36	5.650	51.30	6	8.9E-06	15	61.00	47	38	48.67	61.00	0.00	0.00
5.38	5.810	51.67	6	9.8E-06	15	61.66	48	39	49.20	61.66	0.00	0.00
5.40	5.800	50.12	6	1.0E-05	15	61.10	48	38	48.75	61.10	0.00	0.00
5.42	5.560	48.84	6	8.9E-06	15	59.93	47	38	47.82	59.93	0.00	0.00
5.44	5.290	48.57	6	7.4E-06	14	59.03	46	38	47.10	59.03	0.00	0.00
5.46	5.030	48.48	6	6.0E-06	14	58.20	44	38	46.43	58.20	0.00	0.00
5.48	4.720	49.75	5	4.4E-06	13	57.65	43	38	46.00	57.65	0.00	0.00
5.50	4.590	51.80	5	3.7E-06	13	57.97	43	37	46.25	57.97	0.00	0.00
5.52	4.510	53.95	5	3.2E-06	13	58.47	42	37	46.65	58.47	0.00	0.00
5.54	4.450	54.90	5	2.9E-06	13	58.62	42	37	46.77	58.62	0.00	0.00
5.56	4.460	53.72	5	3.0E-06	13	58.29	42	37	46.51	58.29	0.00	0.00
5.58	4.510	51.03	5	3.4E-06	13	57.58	42	37	45.94	57.58	0.00	0.00
5.60	4.450	47.84	5	3.6E-06	13	56.26	42	37	44.89	56.26	0.00	0.00
5.62	4.310	45.11	5	3.5E-06	12	54.79	41	37	43.72	54.79	0.00	0.00
5.64	4.150	43.06	5	3.2E-06	12	53.48	40	37	42.67	53.48	0.00	0.00
5.66	3.900	40.87	5	2.7E-06	12	51.75	39	37	41.29	51.75	0.00	0.00
5.68	3.740	40.37	5	2.3E-06	11	50.98	38	36	40.68	50.98	0.00	0.00
5.70	3.620	40.69	5	2.0E-06	11	50.66	38	36	40.42	50.66	0.00	0.00
5.72	3.530	40.82	5	1.8E-06	11	48.07	37	36	40.20	50.38	0.00	0.00
5.74	3.420	40.23	5	1.6E-06	11	46.53	37	36	39.69	49.75	0.00	0.00
5.76	3.350	39.68	5	1.5E-06	11	45.54	36	36	39.32	49.28	0.00	0.00
5.78	3.270	38.68	5	1.4E-06	10	44.42	36	36	38.78	48.60	0.00	0.00
5.80	3.200	36.95	5	1.4E-06	10	43.43	35	36	38.04	47.68	0.00	0.00
5.82	3.130	34.99	5	1.4E-06	10	42.45	35	36	37.22	46.64	0.00	0.00
5.84	3.130	32.26	5	1.6E-06	10	42.44	35	36	36.37	45.58	0.00	0.00
5.86	3.340	30.21	5	2.2E-06	10	45.62	36	36	36.40	45.62	0.00	0.00
5.88	3.750	28.07	5	4.0E-06	11	46.28	38	36	36.92	46.28	0.00	0.00
5.90	4.240	25.70	6	7.4E-06	11	46.92	40	37	37.43	46.92	0.00	0.00
5.92	4.650	23.46	6	1.2E-05	12	47.16	42	37	37.63	47.16	0.00	0.00
5.94	4.990	21.87	6	1.8E-05	12	47.41	43	37	37.83	47.41	0.00	0.00
5.96	5.350	20.91	6	2.4E-05	13	47.97	44	38	38.27	47.97	0.00	0.00
5.98	5.470	20.82	6	2.7E-05	13	48.29	45	38	38.53	48.29	0.00	0.00
6.00	5.470	20.82	6	2.7E-05	13	48.31	45	38	38.55	48.31	0.00	0.00
6.02	5.560	15.67	6	4.0E-05	13	45.73	45	38	36.49	45.73	0.00	0.00
6.04	5.560	15.67	6	3.9E-05	13	45.75	45	38	36.51	45.75	0.00	0.00
6.06	5.590	17.31	6	3.6E-05	13	46.80	45	38	37.34	46.80	0.00	0.00
6.08	5.490	23.87	6	2.2E-05	13	50.07	45	38	39.95	50.07	0.00	0.00
6.10	5.380	29.52	6	1.5E-05	14	52.55	44	38	41.93	52.55	0.00	0.00
6.12	5.320	34.63	6	1.1E-05	14	54.73	44	38	43.67	54.73	0.00	0.00
6.14	5.180	38.68	6	8.6E-06	14	56.08	44	38	44.75	56.08	0.00	0.00
6.16	4.920	42.01	6	6.1E-06	14	56.66	43	37	45.21	56.66	0.00	0.00
6.18	4.900	43.24	6	5.7E-06	14	57.12	43	37	45.58	57.12	0.00	0.00
6.20	4.920	44.29	6	5.5E-06	14	57.64	43	37	45.99	57.64	0.00	0.00
6.22	4.940	42.65	6	5.9E-06	14	57.09	43	37	45.55	57.09	0.00	0.00
6.24	5.010	39.55	6	7.1E-06	14	56.10	43	37	44.76	56.10	0.00	0.00
6.26	4.920	39.00	6	6.7E-06	13	55.62	42	37	44.37	55.62	0.00	0.00
6.28	4.720	38.32	6	5.8E-06	13	54.72	42	37	43.66	54.72	0.00	0.00
6.30	4.490	38.82	5	4.6E-06	13	54.19	41	37	43.24	54.19	0.00	0.00
6.32	4.370	40.32	5	3.9E-06	13	54.42	40	37	43.42	54.42	0.00	0.00
6.34	4.430	40.96	5	4.0E-06	13	54.92	40	37	43.82	54.92	0.00	0.00
6.36	4.580	41.55	5	4.4E-06	13	55.71	41	37	44.45	55.71	0.00	0.00
6.38	4.790	42.01	6	5.2E-06	13	56.64	42	37	45.19	56.64	0.00	0.00
6.40	4.980	40.78	6	6.4E-06	14	56.80	43	37	45.32	56.80	0.00	0.00
6.42	5.430	38.77	6	9.8E-06	14	57.39	44	38	45.79	57.39	0.00	0.00
6.44	5.830	39.68	6	1.3E-05	15	58.98	46	38	47.06	58.98	0.00	0.00

In situ data				Estimations		ARENILE BAGNO FIRENZE - VIAREGGIO (LU)					CPTu 01	
Depth (m)	qc (MPa)	fs (kPa)	SBTn	Ksbt (m/s)	SPT N60	M (MPa)	Dr (%)	Fi (°)	Es (MPa)	Go (MPa)	Su (kPa)	OCR
6.46	6.240	40.05	6	1.6E-05	16	60.32	47	38	48.13	60.32	0.00	0.00
6.48	6.640	41.23	6	2.0E-05	16	61.94	48	39	49.42	61.94	0.00	0.00
6.50	6.790	43.24	6	2.0E-05	17	63.22	49	39	50.45	63.22	0.00	0.00
6.52	6.820	45.52	6	1.9E-05	17	64.30	49	39	51.30	64.30	0.00	0.00
6.54	6.950	47.25	6	1.9E-05	17	65.39	50	39	52.17	65.39	0.00	0.00
6.56	7.010	50.21	6	1.8E-05	17	66.79	50	39	53.29	66.79	0.00	0.00
6.58	6.870	52.99	6	1.5E-05	17	67.56	49	39	53.90	67.56	0.00	0.00
6.60	6.660	55.63	6	1.2E-05	17	68.05	49	39	54.29	68.05	0.00	0.00
6.62	6.570	58.37	6	1.0E-05	17	68.87	48	39	54.95	68.87	0.00	0.00
6.64	6.550	62.33	6	9.1E-06	17	70.31	48	39	56.10	70.31	0.00	0.00
6.66	6.720	64.15	6	9.6E-06	18	71.50	49	39	57.05	71.50	0.00	0.00
6.68	6.640	65.06	6	8.9E-06	18	71.64	49	39	57.16	71.64	0.00	0.00
6.70	6.200	64.93	6	6.7E-06	17	70.34	47	38	56.12	70.34	0.00	0.00
6.72	5.760	64.65	5	4.9E-06	16	68.92	45	38	54.99	68.92	0.00	0.00
6.74	5.330	64.06	5	3.6E-06	15	67.35	44	38	53.74	67.35	0.00	0.00
6.76	4.850	61.42	5	2.6E-06	14	64.82	42	37	51.72	64.82	0.00	0.00
6.78	4.640	58.50	5	2.4E-06	14	63.09	41	37	50.34	63.09	0.00	0.00
6.80	4.470	56.22	5	2.2E-06	14	61.71	40	37	49.23	61.71	0.00	0.00
6.82	4.310	54.40	5	2.0E-06	13	60.50	39	37	48.27	60.50	0.00	0.00
6.84	4.040	50.98	5	1.7E-06	13	54.95	38	36	46.50	58.28	0.00	0.00
6.86	3.900	47.11	5	1.7E-06	12	52.99	37	36	44.95	56.34	0.00	0.00
6.88	3.780	43.47	5	1.7E-06	12	51.31	37	36	43.50	54.53	0.00	0.00
6.90	3.720	40.00	5	1.8E-06	11	50.46	36	36	42.26	52.96	0.00	0.00
6.92	3.640	35.13	5	2.0E-06	11	50.68	36	36	40.44	50.68	0.00	0.00
6.94	3.510	32.67	5	1.9E-06	11	49.15	35	36	39.22	49.15	0.00	0.00
6.96	3.480	31.71	5	1.9E-06	11	48.65	35	36	38.82	48.65	0.00	0.00
6.98	3.480	31.71	5	1.9E-06	11	48.68	35	36	38.84	48.68	0.00	0.00
7.00	3.480	31.71	5	1.9E-06	11	48.71	35	36	38.87	48.71	0.00	0.00
7.02	3.780	21.46	6	4.8E-06	11	44.94	36	36	35.85	44.94	0.00	0.00
7.04	4.260	23.42	6	6.9E-06	12	47.62	38	36	37.99	47.62	0.00	0.00
7.06	5.350	27.29	6	1.4E-05	14	52.96	43	37	42.26	52.96	0.00	0.00
7.08	5.750	33.08	6	1.4E-05	15	56.93	44	38	45.42	56.93	0.00	0.00
7.10	5.900	40.78	6	1.1E-05	15	60.85	45	38	48.55	60.85	0.00	0.00
7.12	5.530	31.76	6	1.3E-05	14	55.75	43	38	44.48	55.75	0.00	0.00
7.14	5.160	28.16	6	1.1E-05	13	52.96	42	37	42.26	52.96	0.00	0.00
7.16	4.780	29.34	6	7.8E-06	13	52.41	40	37	41.82	52.41	0.00	0.00
7.18	4.360	31.21	6	4.8E-06	12	51.96	39	36	41.46	51.96	0.00	0.00
7.20	4.220	34.86	5	3.5E-06	12	53.16	38	36	42.42	53.16	0.00	0.00
7.22	4.240	39.50	5	2.9E-06	12	55.25	38	36	44.08	55.25	0.00	0.00
7.24	4.350	39.96	5	3.2E-06	13	55.87	39	36	44.57	55.87	0.00	0.00
7.26	4.780	39.64	6	4.8E-06	13	57.23	40	37	45.66	57.23	0.00	0.00
7.28	5.210	39.05	6	7.0E-06	14	58.37	42	37	46.57	58.37	0.00	0.00
7.30	5.570	37.77	6	9.6E-06	15	58.92	43	38	47.01	58.92	0.00	0.00
7.32	6.010	35.40	6	1.5E-05	15	59.13	45	38	47.17	59.13	0.00	0.00
7.34	6.060	30.94	6	1.8E-05	15	57.17	45	38	45.62	57.17	0.00	0.00
7.36	5.820	22.23	6	2.4E-05	14	52.06	44	38	41.54	52.06	0.00	0.00
7.38	5.680	22.60	6	2.2E-05	14	51.91	43	38	41.42	51.91	0.00	0.00
7.40	5.560	24.65	6	1.8E-05	14	52.71	43	38	42.06	52.71	0.00	0.00
7.42	5.350	26.56	6	1.4E-05	14	53.14	42	37	42.40	53.14	0.00	0.00
7.44	5.010	31.26	6	8.1E-06	13	54.48	41	37	43.47	54.48	0.00	0.00
7.46	4.660	37.45	5	4.5E-06	13	56.22	40	37	44.86	56.22	0.00	0.00
7.48	4.040	42.51	5	2.0E-06	12	56.19	37	36	44.84	56.19	0.00	0.00
7.50	3.630	42.87	5	1.3E-06	12	49.08	35	36	43.70	54.77	0.00	0.00
7.52	3.370	41.69	5	9.6E-07	11	45.44	34	35	42.49	53.26	0.00	0.00
7.54	3.350	40.46	5	9.8E-07	11	45.16	34	35	42.06	52.72	0.00	0.00

In situ data				Estimations		ARENILE BAGNO FIRENZE - VIAREGGIO (LU)					CPTu 01	
Depth (m)	qc (MPa)	fs (kPa)	SBTn	Ksbt (m/s)	SPT N60	M (MPa)	Dr (%)	Fi (°)	Es (MPa)	Go (MPa)	Su (kPa)	OCR
7.56	3.500	38.50	5	1.3E-06	11	47.25	34	35	41.96	52.59	0.00	0.00
7.58	3.660	36.86	5	1.7E-06	11	49.49	35	36	41.95	52.58	0.00	0.00
7.60	3.750	35.54	5	1.9E-06	11	52.40	35	36	41.80	52.40	0.00	0.00
7.62	3.830	33.17	5	2.4E-06	12	51.69	36	36	41.24	51.69	0.00	0.00
7.64	3.880	28.11	5	3.2E-06	11	49.55	36	36	39.53	49.55	0.00	0.00
7.66	3.800	14.26	6	7.3E-06	10	41.73	35	36	33.30	41.73	0.00	0.00
7.68	3.780	11.34	6	9.2E-06	10	39.79	35	36	31.75	39.79	0.00	0.00
7.70	3.750	11.47	6	8.8E-06	10	39.80	35	36	31.75	39.80	0.00	0.00
7.72	3.720	11.43	6	8.6E-06	10	39.69	35	35	31.66	39.69	0.00	0.00
7.74	3.730	12.21	6	8.0E-06	10	40.26	35	36	32.12	40.26	0.00	0.00
7.76	3.900	15.31	6	7.4E-06	11	42.83	36	36	34.17	42.83	0.00	0.00
7.78	4.310	17.77	6	9.1E-06	11	45.68	37	36	36.45	45.68	0.00	0.00
7.80	5.130	18.22	6	1.8E-05	13	48.45	41	37	38.66	48.45	0.00	0.00
7.82	6.040	18.32	6	3.3E-05	14	51.03	44	38	40.71	51.03	0.00	0.00
7.84	6.700	19.14	6	4.8E-05	15	53.20	46	38	42.45	53.20	0.00	0.00
7.86	7.540	21.46	6	6.6E-05	17	56.55	49	39	45.12	56.55	0.00	0.00
7.88	8.270	22.83	6	8.8E-05	18	58.97	51	39	47.05	58.97	0.00	0.00
7.90	8.990	26.75	6	1.0E-04	19	62.66	53	40	50.00	62.66	0.00	0.00
7.92	9.390	33.94	6	8.7E-05	20	67.23	55	40	53.64	67.23	0.00	0.00
7.94	9.600	38.86	6	7.8E-05	21	70.10	55	40	55.93	70.10	0.00	0.00
7.96	9.340	33.40	6	8.7E-05	20	66.92	54	40	53.40	66.92	0.00	0.00
7.98	9.340	33.40	6	8.6E-05	20	66.96	54	40	53.42	66.96	0.00	0.00
8.00	9.340	33.40	6	8.6E-05	20	66.99	54	40	53.45	66.99	0.00	0.00
8.02	8.860	29.21	6	8.3E-05	19	63.88	53	40	50.97	63.88	0.00	0.00
8.04	8.830	33.26	6	6.9E-05	19	65.93	53	40	52.60	65.93	0.00	0.00
8.06	8.630	42.15	6	4.4E-05	20	69.82	52	39	55.71	69.82	0.00	0.00
8.08	8.390	49.85	6	3.0E-05	20	72.77	52	39	58.06	72.77	0.00	0.00
8.10	8.130	59.00	6	2.0E-05	20	76.02	51	39	60.65	76.02	0.00	0.00
8.12	7.740	68.80	6	1.2E-05	20	78.88	50	39	62.94	78.88	0.00	0.00
8.14	7.350	70.85	6	9.2E-06	19	78.65	49	39	62.75	78.65	0.00	0.00
8.16	6.850	70.62	6	6.9E-06	19	77.22	47	38	61.61	77.22	0.00	0.00
8.18	6.380	70.12	5	5.1E-06	18	75.71	45	38	60.41	75.71	0.00	0.00
8.20	5.990	69.03	5	4.0E-06	17	74.17	44	38	59.18	74.17	0.00	0.00
8.22	5.920	65.79	5	4.2E-06	17	72.83	44	38	58.11	72.83	0.00	0.00
8.24	6.340	61.92	6	6.2E-06	17	72.70	45	38	58.01	72.70	0.00	0.00
8.26	7.210	57.64	6	1.2E-05	19	73.49	48	39	58.64	73.49	0.00	0.00
8.28	8.350	52.58	6	2.6E-05	20	74.24	51	39	59.24	74.24	0.00	0.00
8.30	9.080	46.75	6	4.4E-05	21	73.35	53	40	58.52	73.35	0.00	0.00
8.32	9.480	43.51	6	5.9E-05	21	72.73	54	40	58.03	72.73	0.00	0.00
8.34	9.470	42.87	6	6.0E-05	21	72.45	54	40	57.80	72.45	0.00	0.00
8.36	9.160	46.75	6	4.6E-05	21	73.62	54	40	58.74	73.62	0.00	0.00
8.38	9.030	49.34	6	3.9E-05	21	74.54	53	40	59.48	74.54	0.00	0.00
8.40	8.470	60.23	6	2.1E-05	21	77.94	52	39	62.18	77.94	0.00	0.00
8.42	8.130	68.48	6	1.4E-05	21	80.40	51	39	64.15	80.40	0.00	0.00
8.44	7.890	74.86	6	1.1E-05	21	82.21	50	39	65.59	82.21	0.00	0.00
8.46	7.650	78.41	6	8.6E-06	20	82.90	49	39	66.14	82.90	0.00	0.00
8.48	7.420	78.96	6	7.4E-06	20	82.51	48	39	65.84	82.51	0.00	0.00
8.50	7.290	77.68	6	7.1E-06	20	81.75	48	39	65.22	81.75	0.00	0.00
8.52	7.340	73.99	6	7.9E-06	20	80.61	48	39	64.32	80.61	0.00	0.00
8.54	6.850	67.48	6	7.0E-06	19	76.90	46	38	61.36	76.90	0.00	0.00
8.56	6.470	64.79	6	5.9E-06	18	74.85	45	38	59.72	74.85	0.00	0.00
8.58	6.220	62.88	6	5.2E-06	17	73.43	44	38	58.59	73.43	0.00	0.00
8.60	5.910	61.01	5	4.4E-06	17	71.83	43	38	57.31	71.83	0.00	0.00
8.62	5.680	59.37	5	3.9E-06	16	70.53	42	37	56.27	70.53	0.00	0.00
8.64	5.530	56.72	5	3.8E-06	16	69.08	41	37	55.11	69.08	0.00	0.00

In situ data				Estimations		ARENILE BAGNO FIRENZE - VIAREGGIO (LU)					CPTu 01	
Depth (m)	qc (MPa)	fs (kPa)	SBTn	Ksbt (m/s)	SPT N60	M (MPa)	Dr (%)	Fi (°)	Es (MPa)	Go (MPa)	Su (kPa)	OCR
8.66	5.570	53.76	5	4.2E-06	16	68.08	42	37	54.32	68.08	0.00	0.00
8.68	5.810	51.21	6	5.5E-06	16	67.82	42	37	54.11	67.82	0.00	0.00
8.70	5.840	52.21	6	5.4E-06	16	68.35	42	37	54.54	68.35	0.00	0.00
8.72	5.590	50.98	5	4.7E-06	16	67.13	42	37	53.56	67.13	0.00	0.00
8.74	5.000	49.62	5	3.0E-06	15	64.73	39	37	51.65	64.73	0.00	0.00
8.76	4.250	28.66	5	3.7E-06	12	52.86	36	36	42.17	52.86	0.00	0.00
8.78	3.980	27.88	5	2.9E-06	12	51.56	35	36	41.14	51.56	0.00	0.00
8.80	3.980	30.39	5	2.5E-06	12	52.83	35	36	42.15	52.83	0.00	0.00
8.82	4.180	33.62	5	2.6E-06	12	55.11	36	36	43.97	55.11	0.00	0.00
8.84	4.290	37.86	5	2.4E-06	13	57.47	36	36	45.86	57.47	0.00	0.00
8.86	3.620	42.83	5	9.5E-07	12	48.63	33	35	45.56	57.10	0.00	0.00
8.88	2.580	36.27	5	2.9E-07	9	34.07	28	33	39.65	49.69	0.00	0.00
8.90	1.740	34.76	4	5.3E-08	7	22.30	0	0	0.00	44.17	113.79	5.96
8.92	1.390	37.91	3	1.6E-08	7	17.40	0	0	0.00	42.74	88.77	4.69
8.94	1.150	44.42	3	4.8E-09	6	11.48	0	0	0.00	42.89	71.62	3.78
8.96	1.090	50.80	3	2.9E-09	6	10.15	0	0	0.00	44.30	67.39	3.55
8.98	3.140	43.38	5	4.9E-07	11	41.93	31	34	44.26	55.47	0.00	0.00
9.00	3.140	43.38	5	4.9E-07	11	41.96	31	34	44.29	55.51	0.00	0.00
9.02	4.910	28.34	6	6.6E-06	13	55.21	38	36	44.05	55.21	0.00	0.00
9.04	4.970	24.28	6	8.6E-06	13	53.24	39	37	42.48	53.24	0.00	0.00
9.06	4.620	19.14	6	8.7E-06	12	49.25	37	36	39.30	49.25	0.00	0.00
9.08	4.820	22.10	6	8.6E-06	13	51.62	38	36	41.18	51.62	0.00	0.00
9.10	5.140	24.56	6	9.7E-06	14	53.97	39	37	43.06	53.97	0.00	0.00
9.12	5.570	24.28	6	1.4E-05	14	55.07	41	37	43.94	55.07	0.00	0.00
9.14	5.850	26.93	6	1.4E-05	15	57.31	42	37	45.73	57.31	0.00	0.00
9.16	5.830	28.75	6	1.3E-05	15	58.26	42	37	46.48	58.26	0.00	0.00
9.18	5.950	25.33	6	1.7E-05	15	56.76	42	37	45.29	56.76	0.00	0.00
9.20	6.020	25.24	6	1.8E-05	15	56.92	42	37	45.42	56.92	0.00	0.00
9.22	6.060	25.83	6	1.8E-05	15	57.38	42	37	45.78	57.38	0.00	0.00
9.24	5.870	25.61	6	1.5E-05	15	56.78	42	37	45.31	56.78	0.00	0.00
9.26	5.360	30.03	6	8.4E-06	14	57.75	40	37	46.08	57.75	0.00	0.00
9.28	5.090	32.76	6	5.9E-06	14	58.36	39	37	46.56	58.36	0.00	0.00
9.30	4.990	33.90	6	5.1E-06	14	58.64	38	36	46.79	58.64	0.00	0.00
9.32	5.010	34.58	6	5.0E-06	14	59.06	39	36	47.13	59.06	0.00	0.00
9.34	5.060	33.03	6	5.6E-06	14	58.49	39	37	46.67	58.49	0.00	0.00
9.36	5.030	32.62	6	5.6E-06	14	58.23	39	36	46.46	58.23	0.00	0.00
9.38	4.940	33.72	6	4.9E-06	14	58.52	38	36	46.69	58.52	0.00	0.00
9.40	4.780	33.17	5	4.4E-06	14	57.78	38	36	46.10	57.78	0.00	0.00
9.42	4.620	31.48	5	4.1E-06	13	56.46	37	36	45.05	56.46	0.00	0.00
9.44	4.610	29.11	6	4.5E-06	13	55.26	37	36	44.09	55.26	0.00	0.00
9.46	4.640	28.39	6	4.8E-06	13	55.01	37	36	43.89	55.01	0.00	0.00
9.48	4.730	28.93	6	5.1E-06	13	55.60	37	36	44.36	55.60	0.00	0.00
9.50	4.760	28.11	6	5.4E-06	13	55.30	37	36	44.12	55.30	0.00	0.00
9.52	4.860	29.25	6	5.5E-06	14	56.23	38	36	44.86	56.23	0.00	0.00
9.54	4.870	32.67	6	4.7E-06	14	58.02	38	36	46.29	58.02	0.00	0.00
9.56	4.970	32.85	6	5.1E-06	14	58.45	38	36	46.64	58.45	0.00	0.00
9.58	4.920	25.51	6	7.1E-06	13	54.50	38	36	43.48	54.50	0.00	0.00
9.60	4.680	18.09	6	9.0E-06	12	49.48	37	36	39.48	49.48	0.00	0.00
9.62	4.610	19.23	6	7.8E-06	12	49.98	37	36	39.88	49.98	0.00	0.00
9.64	4.570	19.96	6	7.2E-06	12	50.32	36	36	40.15	50.32	0.00	0.00
9.66	4.570	21.78	6	6.4E-06	13	51.42	36	36	41.03	51.42	0.00	0.00
9.68	4.570	24.01	6	5.5E-06	13	52.72	36	36	42.06	52.72	0.00	0.00
9.70	4.520	26.38	6	4.6E-06	13	53.89	36	36	42.99	53.89	0.00	0.00
9.72	4.450	26.97	5	4.2E-06	13	54.00	36	36	43.09	54.00	0.00	0.00
9.74	4.420	27.66	5	3.9E-06	13	54.30	36	36	43.32	54.30	0.00	0.00

In situ data				Estimations		ARENILE BAGNO FIRENZE - VIAREGGIO (LU)					CPTu 01	
Depth (m)	qc (MPa)	fs (kPa)	SBTn	Ksbt (m/s)	SPT N60	M (MPa)	Dr (%)	Fi (°)	Es (MPa)	Go (MPa)	Su (kPa)	OCR
9.76	4.400	28.61	5	3.6E-06	13	54.76	36	36	43.69	54.76	0.00	0.00
9.78	4.350	28.93	5	3.4E-06	13	54.79	35	36	43.71	54.79	0.00	0.00
9.80	4.290	28.43	5	3.3E-06	13	54.36	35	36	43.37	54.36	0.00	0.00
9.82	4.260	29.02	5	3.1E-06	13	54.59	35	36	43.55	54.59	0.00	0.00
9.84	4.310	29.62	5	3.1E-06	13	55.09	35	36	43.96	55.09	0.00	0.00
9.86	4.350	30.03	5	3.1E-06	13	55.47	35	36	44.26	55.47	0.00	0.00
9.88	4.440	30.30	5	3.4E-06	13	55.93	36	36	44.63	55.93	0.00	0.00
9.90	4.660	29.52	5	4.3E-06	13	56.27	37	36	44.90	56.27	0.00	0.00
9.92	4.780	29.43	6	4.8E-06	13	56.63	37	36	45.19	56.63	0.00	0.00
9.94	4.880	29.75	6	5.2E-06	14	57.14	37	36	45.59	57.14	0.00	0.00
9.96	4.890	29.89	6	5.1E-06	14	57.27	37	36	45.70	57.27	0.00	0.00
9.98	4.890	29.89	6	5.1E-06	14	57.30	37	36	45.72	57.30	0.00	0.00
10.00	4.790	19.27	6	8.6E-06	13	51.04	37	36	40.72	51.04	0.00	0.00
10.02	4.790	19.27	6	8.6E-06	13	51.06	37	36	40.74	51.06	0.00	0.00
10.04	4.880	22.96	6	7.4E-06	13	53.55	37	36	42.73	53.55	0.00	0.00
10.06	4.940	25.56	6	6.6E-06	14	55.23	37	36	44.07	55.23	0.00	0.00
10.08	5.070	27.84	6	6.5E-06	14	56.90	38	36	45.40	56.90	0.00	0.00
10.10	5.290	29.89	6	7.0E-06	14	58.67	39	37	46.81	58.67	0.00	0.00
10.12	5.540	31.30	6	8.0E-06	15	60.15	40	37	48.00	60.15	0.00	0.00
10.14	5.740	33.08	6	8.5E-06	15	61.67	40	37	49.20	61.67	0.00	0.00
10.16	5.770	34.86	6	8.0E-06	15	62.68	40	37	50.01	62.68	0.00	0.00
10.18	5.910	36.40	6	8.3E-06	16	63.87	41	37	50.96	63.87	0.00	0.00
10.20	5.990	37.63	6	8.3E-06	16	64.73	41	37	51.64	64.73	0.00	0.00
10.22	6.050	38.82	6	8.2E-06	16	65.50	41	37	52.26	65.50	0.00	0.00
10.24	6.070	40.46	6	7.8E-06	16	66.38	41	37	52.96	66.38	0.00	0.00
10.26	6.020	42.10	6	7.0E-06	16	67.05	41	37	53.49	67.05	0.00	0.00
10.28	5.970	43.74	6	6.3E-06	16	67.70	41	37	54.02	67.70	0.00	0.00
10.30	6.020	44.20	6	6.4E-06	16	68.09	41	37	54.32	68.09	0.00	0.00
10.32	6.170	44.15	6	7.1E-06	17	68.52	42	37	54.67	68.52	0.00	0.00
10.34	6.220	44.33	6	7.3E-06	17	68.77	42	37	54.87	68.77	0.00	0.00
10.36	6.180	44.74	6	7.0E-06	17	68.88	42	37	54.96	68.88	0.00	0.00
10.38	6.140	45.24	6	6.7E-06	17	69.04	41	37	55.08	69.04	0.00	0.00
10.40	6.120	45.88	6	6.4E-06	17	69.31	41	37	55.30	69.31	0.00	0.00
10.42	6.110	45.84	6	6.3E-06	17	69.29	41	37	55.29	69.29	0.00	0.00
10.44	6.140	45.88	6	6.4E-06	17	69.43	41	37	55.40	69.43	0.00	0.00
10.46	6.190	46.34	6	6.5E-06	17	69.81	42	37	55.70	69.81	0.00	0.00
10.48	6.220	45.74	6	6.8E-06	17	69.66	42	37	55.58	69.66	0.00	0.00
10.50	6.400	44.65	6	8.0E-06	17	69.68	42	37	55.60	69.68	0.00	0.00
10.52	6.570	43.19	6	9.4E-06	17	69.48	43	37	55.44	69.48	0.00	0.00
10.54	6.730	41.55	6	1.1E-05	18	69.15	43	38	55.17	69.15	0.00	0.00
10.56	6.800	40.87	6	1.2E-05	18	69.03	44	38	55.08	69.03	0.00	0.00
10.58	6.910	40.60	6	1.3E-05	18	69.21	44	38	55.22	69.21	0.00	0.00
10.60	7.040	40.87	6	1.4E-05	18	69.70	44	38	55.61	69.70	0.00	0.00
10.62	7.200	41.46	6	1.5E-05	18	70.41	45	38	56.18	70.41	0.00	0.00
10.64	7.210	42.74	6	1.4E-05	18	71.09	45	38	56.72	71.09	0.00	0.00
10.66	7.240	44.06	6	1.4E-05	19	71.83	45	38	57.31	71.83	0.00	0.00
10.68	7.230	46.02	6	1.3E-05	19	72.76	45	38	58.06	72.76	0.00	0.00
10.70	7.180	47.29	6	1.2E-05	19	73.27	45	38	58.46	73.27	0.00	0.00
10.72	7.090	48.34	6	1.1E-05	19	73.56	44	38	58.69	73.56	0.00	0.00
10.74	6.970	49.30	6	9.5E-06	18	73.73	44	38	58.82	73.73	0.00	0.00
10.76	6.720	50.76	6	7.7E-06	18	73.77	43	38	58.86	73.77	0.00	0.00
10.78	6.560	50.94	6	6.8E-06	18	73.45	42	37	58.61	73.45	0.00	0.00
10.80	6.450	50.94	6	6.3E-06	18	73.19	42	37	58.40	73.19	0.00	0.00
10.82	6.330	50.12	6	6.0E-06	17	72.53	42	37	57.87	72.53	0.00	0.00
10.84	6.220	49.07	6	5.7E-06	17	71.80	41	37	57.28	71.80	0.00	0.00

In situ data				Estimations		ARENILE BAGNO FIRENZE - VIAREGGIO (LU)					CPTu 01	
Depth (m)	qc (MPa)	fs (kPa)	SBTn	Ksbt (m/s)	SPT N60	M (MPa)	Dr (%)	Fi (°)	Es (MPa)	Go (MPa)	Su (kPa)	OCR
10.86	6.010	48.34	6	5.0E-06	17	70.91	40	37	56.58	70.91	0.00	0.00
10.88	5.760	46.88	5	4.4E-06	16	69.57	40	37	55.51	69.57	0.00	0.00
10.90	5.710	45.97	5	4.4E-06	16	69.04	39	37	55.09	69.04	0.00	0.00
10.92	5.670	44.92	5	4.4E-06	16	68.48	39	37	54.64	68.48	0.00	0.00
10.94	5.630	44.06	5	4.4E-06	16	68.00	39	37	54.25	68.00	0.00	0.00
10.96	5.600	43.51	5	4.4E-06	16	67.69	39	37	54.01	67.69	0.00	0.00
10.98	5.600	43.51	5	4.3E-06	16	67.72	39	37	54.03	67.72	0.00	0.00
11.00	5.390	29.71	6	6.7E-06	15	60.23	38	36	48.05	60.23	0.00	0.00
11.02	5.390	29.71	6	6.7E-06	15	60.25	38	36	48.08	60.25	0.00	0.00
11.04	5.330	30.89	6	6.0E-06	15	60.75	38	36	48.47	60.75	0.00	0.00
11.06	5.200	32.08	6	5.0E-06	15	61.02	37	36	48.69	61.02	0.00	0.00
11.08	5.120	33.44	5	4.4E-06	15	61.52	37	36	49.08	61.52	0.00	0.00
11.10	5.020	34.31	5	3.9E-06	14	61.69	37	36	49.22	61.69	0.00	0.00
11.12	4.970	34.86	5	3.6E-06	14	61.85	36	36	49.34	61.85	0.00	0.00
11.14	4.960	34.95	5	3.6E-06	14	61.89	36	36	49.38	61.89	0.00	0.00
11.16	4.980	35.58	5	3.5E-06	14	62.30	36	36	49.71	62.30	0.00	0.00
11.18	5.000	35.90	5	3.5E-06	15	62.55	36	36	49.91	62.55	0.00	0.00
11.20	5.020	35.31	5	3.7E-06	15	62.35	37	36	49.75	62.35	0.00	0.00
11.22	5.070	35.54	5	3.8E-06	15	62.65	37	36	49.99	62.65	0.00	0.00
11.24	5.140	35.17	5	4.1E-06	15	62.71	37	36	50.03	62.71	0.00	0.00
11.26	5.290	35.08	6	4.6E-06	15	63.14	37	36	50.38	63.14	0.00	0.00
11.28	5.510	34.67	6	5.6E-06	15	63.60	38	36	50.75	63.60	0.00	0.00
11.30	5.640	34.35	6	6.2E-06	16	63.84	39	37	50.93	63.84	0.00	0.00
11.32	5.880	34.40	6	7.4E-06	16	64.56	40	37	51.51	64.56	0.00	0.00
11.34	6.190	34.72	6	9.1E-06	16	65.59	41	37	52.34	65.59	0.00	0.00
11.36	6.430	35.27	6	1.0E-05	17	66.54	41	37	53.09	66.54	0.00	0.00
11.38	6.560	37.63	6	1.0E-05	17	68.12	42	37	54.35	68.12	0.00	0.00
11.40	6.640	39.14	6	1.0E-05	17	69.12	42	37	55.15	69.12	0.00	0.00
11.42	6.730	40.91	6	1.0E-05	18	70.27	42	37	56.06	70.27	0.00	0.00
11.44	6.740	42.28	6	9.5E-06	18	71.00	42	37	56.65	71.00	0.00	0.00
11.46	6.740	43.65	6	9.0E-06	18	71.70	42	37	57.21	71.70	0.00	0.00
11.48	6.750	45.52	6	8.5E-06	18	72.65	42	37	57.97	72.65	0.00	0.00
11.50	6.950	46.06	6	9.4E-06	18	73.45	43	37	58.61	73.45	0.00	0.00
11.52	7.050	45.15	6	1.0E-05	18	73.31	43	38	58.49	73.31	0.00	0.00
11.54	7.030	45.43	6	1.0E-05	18	73.42	43	38	58.58	73.42	0.00	0.00
11.56	6.900	46.02	6	9.0E-06	18	73.41	43	37	58.57	73.41	0.00	0.00
11.58	6.790	46.75	6	8.2E-06	18	73.51	42	37	58.65	73.51	0.00	0.00
11.60	6.910	46.56	6	8.9E-06	18	73.76	43	37	58.85	73.76	0.00	0.00
11.62	6.990	46.97	6	9.2E-06	19	74.19	43	37	59.20	74.19	0.00	0.00
11.64	7.050	47.89	6	9.2E-06	19	74.81	43	38	59.69	74.81	0.00	0.00
11.66	7.090	47.75	6	9.4E-06	19	74.88	43	38	59.74	74.88	0.00	0.00
11.68	7.040	47.89	6	9.1E-06	19	74.86	43	38	59.72	74.86	0.00	0.00
11.70	7.010	47.48	6	9.0E-06	19	74.62	43	37	59.54	74.62	0.00	0.00
11.72	7.010	47.29	6	9.1E-06	19	74.57	43	37	59.49	74.57	0.00	0.00
11.74	6.910	47.79	6	8.3E-06	18	74.58	42	37	59.51	74.58	0.00	0.00
11.76	6.790	48.39	6	7.5E-06	18	74.59	42	37	59.51	74.59	0.00	0.00
11.78	6.620	49.48	6	6.5E-06	18	74.68	41	37	59.59	74.68	0.00	0.00
11.80	6.510	50.03	6	5.9E-06	18	74.68	41	37	59.58	74.68	0.00	0.00
11.82	6.520	49.30	6	6.1E-06	18	74.41	41	37	59.37	74.41	0.00	0.00
11.84	6.510	49.30	6	6.0E-06	18	74.41	41	37	59.37	74.41	0.00	0.00
11.86	6.560	48.52	6	6.4E-06	18	74.22	41	37	59.22	74.22	0.00	0.00
11.88	6.530	47.57	6	6.4E-06	18	73.73	41	37	58.83	73.73	0.00	0.00
11.90	6.460	47.11	6	6.2E-06	18	73.36	41	37	58.54	73.36	0.00	0.00
11.92	6.410	46.38	6	6.1E-06	18	72.92	41	37	58.18	72.92	0.00	0.00
11.94	6.470	46.06	6	6.5E-06	18	72.96	41	37	58.21	72.96	0.00	0.00

In situ data				Estimations		ARENILE BAGNO FIRENZE - VIAREGGIO (LU)					CPTu 01	
Depth (m)	qc (MPa)	fs (kPa)	SBTn	Ksbt (m/s)	SPT N60	M (MPa)	Dr (%)	Fi (°)	Es (MPa)	Go (MPa)	Su (kPa)	OCR
11.96	6.530	45.88	6	6.7E-06	18	73.07	41	37	58.30	73.07	0.00	0.00
11.98	6.530	45.88	6	6.7E-06	18	73.10	41	37	58.33	73.10	0.00	0.00
12.00	6.700	33.85	6	1.2E-05	17	67.47	42	37	53.83	67.47	0.00	0.00
12.02	6.700	33.85	6	1.2E-05	17	67.50	42	37	53.86	67.50	0.00	0.00
12.04	6.760	35.08	6	1.2E-05	18	68.34	42	37	54.53	68.34	0.00	0.00
12.06	6.800	38.14	6	1.1E-05	18	70.08	42	37	55.91	70.08	0.00	0.00
12.08	6.860	40.23	6	1.0E-05	18	71.33	42	37	56.91	71.33	0.00	0.00
12.10	6.880	42.05	6	9.6E-06	18	72.33	42	37	57.71	72.33	0.00	0.00
12.12	6.930	43.56	6	9.3E-06	18	73.24	42	37	58.43	73.24	0.00	0.00
12.14	6.940	45.70	6	8.7E-06	19	74.34	42	37	59.31	74.34	0.00	0.00
12.16	7.000	47.29	6	8.5E-06	19	75.29	42	37	60.07	75.29	0.00	0.00
12.18	6.820	49.71	6	6.9E-06	19	76.01	42	37	60.64	76.01	0.00	0.00
12.20	6.750	50.67	6	6.4E-06	19	76.31	41	37	60.88	76.31	0.00	0.00
12.22	6.650	51.30	6	5.8E-06	18	76.37	41	37	60.93	76.37	0.00	0.00
12.24	6.720	51.94	6	6.0E-06	19	76.88	41	37	61.34	76.88	0.00	0.00
12.26	6.890	51.94	6	6.7E-06	19	77.36	42	37	61.73	77.36	0.00	0.00
12.28	7.070	51.44	6	7.6E-06	19	77.63	42	37	61.94	77.63	0.00	0.00
12.30	7.210	50.76	6	8.4E-06	19	77.70	43	37	61.99	77.70	0.00	0.00
12.32	7.400	49.71	6	9.7E-06	20	77.71	43	38	62.00	77.71	0.00	0.00
12.34	7.620	49.25	6	1.1E-05	20	78.05	44	38	62.28	78.05	0.00	0.00
12.36	7.580	49.30	6	1.1E-05	20	78.02	44	38	62.25	78.02	0.00	0.00
12.38	7.450	50.62	6	9.6E-06	20	78.37	43	38	62.53	78.37	0.00	0.00
12.40	7.400	51.99	6	8.9E-06	20	78.92	43	38	62.97	78.92	0.00	0.00
12.42	7.260	52.94	6	7.9E-06	20	79.05	43	37	63.07	79.05	0.00	0.00
12.44	6.880	54.54	6	5.9E-06	19	78.85	42	37	62.91	78.85	0.00	0.00
12.46	6.450	56.68	5	4.2E-06	18	78.68	40	37	62.78	78.68	0.00	0.00
12.48	6.020	56.77	5	3.0E-06	18	77.53	39	37	61.86	77.53	0.00	0.00
12.50	5.820	56.22	5	2.6E-06	17	76.74	38	36	61.23	76.74	0.00	0.00
12.52	5.680	55.13	5	2.5E-06	17	75.88	37	36	60.54	75.88	0.00	0.00
12.54	5.640	54.40	5	2.4E-06	17	75.47	37	36	60.22	75.47	0.00	0.00
12.56	5.670	53.13	5	2.6E-06	17	75.04	37	36	59.87	75.04	0.00	0.00
12.58	5.800	50.48	5	3.1E-06	17	74.27	38	36	59.26	74.27	0.00	0.00
12.60	6.040	48.16	5	4.0E-06	17	73.92	39	36	58.98	73.92	0.00	0.00
12.62	6.270	47.25	6	4.9E-06	18	74.16	39	37	59.17	74.16	0.00	0.00
12.64	6.630	45.56	6	6.6E-06	18	74.34	41	37	59.31	74.34	0.00	0.00
12.66	6.800	45.06	6	7.5E-06	18	74.56	41	37	59.49	74.56	0.00	0.00
12.68	6.970	45.20	6	8.3E-06	19	75.09	42	37	59.91	75.09	0.00	0.00
12.70	7.150	45.43	6	9.2E-06	19	75.68	42	37	60.39	75.68	0.00	0.00
12.72	7.250	46.38	6	9.4E-06	19	76.43	42	37	60.98	76.43	0.00	0.00
12.74	7.450	47.89	6	1.0E-05	20	77.68	43	38	61.98	77.68	0.00	0.00
12.76	7.860	50.35	6	1.2E-05	20	79.87	44	38	63.73	79.87	0.00	0.00
12.78	7.960	52.17	6	1.2E-05	21	81.01	45	38	64.63	81.01	0.00	0.00
12.80	8.030	53.95	6	1.1E-05	21	82.04	45	38	65.46	82.04	0.00	0.00
12.82	8.070	54.81	6	1.1E-05	21	82.57	45	38	65.88	82.57	0.00	0.00
12.84	8.070	56.95	6	1.1E-05	21	83.60	45	38	66.70	83.60	0.00	0.00
12.86	8.110	58.68	6	1.0E-05	21	84.52	45	38	67.43	84.52	0.00	0.00
12.88	8.070	62.92	6	8.8E-06	21	86.35	45	38	68.90	86.35	0.00	0.00
12.90	8.040	64.79	6	8.2E-06	22	87.14	45	38	69.52	87.14	0.00	0.00
12.92	8.090	65.66	6	8.2E-06	22	87.67	45	38	69.95	87.67	0.00	0.00
12.94	8.110	66.29	6	8.2E-06	22	88.03	45	38	70.24	88.03	0.00	0.00
12.96	8.060	66.66	6	7.8E-06	22	88.11	45	38	70.30	88.11	0.00	0.00
12.98	7.950	50.48	6	1.2E-05	21	80.54	44	38	64.26	80.54	0.00	0.00
13.00	7.950	49.98	6	1.2E-05	21	80.33	44	38	64.09	80.33	0.00	0.00
13.02	7.950	53.08	6	1.1E-05	21	81.85	44	38	65.31	81.85	0.00	0.00
13.04	7.900	54.72	6	1.0E-05	21	82.54	44	38	65.86	82.54	0.00	0.00

In situ data				Estimations		ARENILE BAGNO FIRENZE - VIAREGGIO (LU)					CPTu 01	
Depth (m)	qc (MPa)	fs (kPa)	SBTn	Ksbt (m/s)	SPT N60	M (MPa)	Dr (%)	Fi (°)	Es (MPa)	Go (MPa)	Su (kPa)	OCR
13.06	7.860	56.22	6	9.3E-06	21	83.18	44	38	66.37	83.18	0.00	0.00
13.08	7.830	57.41	6	8.8E-06	21	83.69	44	38	66.77	83.69	0.00	0.00
13.10	7.700	59.37	6	7.7E-06	21	84.30	43	38	67.26	84.30	0.00	0.00
13.12	7.470	59.50	6	6.7E-06	20	83.84	43	37	66.89	83.84	0.00	0.00
13.14	7.270	60.60	6	5.7E-06	20	83.86	42	37	66.91	83.86	0.00	0.00
13.16	7.260	61.05	6	5.6E-06	20	84.07	42	37	67.08	84.07	0.00	0.00
13.18	7.460	61.28	6	6.3E-06	21	84.72	43	37	67.59	84.72	0.00	0.00
13.20	7.600	60.60	6	6.9E-06	21	84.80	43	38	67.66	84.80	0.00	0.00
13.22	7.590	60.28	6	6.9E-06	21	84.67	43	37	67.56	84.67	0.00	0.00
13.24	7.500	59.32	6	6.7E-06	20	84.06	43	37	67.07	84.06	0.00	0.00
13.26	7.380	58.59	6	6.4E-06	20	83.47	42	37	66.59	83.47	0.00	0.00
13.28	7.280	58.59	6	6.0E-06	20	83.25	42	37	66.42	83.25	0.00	0.00
13.30	7.140	59.14	6	5.4E-06	20	83.18	41	37	66.37	83.18	0.00	0.00
13.32	7.000	58.82	6	5.0E-06	20	82.71	41	37	65.99	82.71	0.00	0.00
13.34	6.780	58.64	5	4.3E-06	19	82.09	40	37	65.50	82.09	0.00	0.00
13.36	6.530	58.00	5	3.7E-06	19	81.17	39	37	64.76	81.17	0.00	0.00
13.38	6.200	57.14	5	3.0E-06	18	79.90	38	36	63.75	79.90	0.00	0.00
13.40	6.020	55.36	5	2.8E-06	18	78.62	38	36	62.73	78.62	0.00	0.00
13.42	5.860	54.22	5	2.5E-06	18	77.68	37	36	61.98	77.68	0.00	0.00
13.44	5.740	53.22	5	2.4E-06	17	76.90	37	36	61.36	76.90	0.00	0.00
13.46	5.590	52.62	5	2.1E-06	17	76.21	36	36	60.81	76.21	0.00	0.00
13.48	5.630	49.80	5	2.4E-06	17	75.06	36	36	59.89	75.06	0.00	0.00
13.50	5.730	48.43	5	2.8E-06	17	74.75	37	36	59.64	74.75	0.00	0.00
13.52	5.860	46.84	5	3.2E-06	17	74.39	37	36	59.36	74.39	0.00	0.00
13.54	6.010	45.52	5	3.8E-06	17	74.21	38	36	59.21	74.21	0.00	0.00
13.56	6.230	43.60	6	4.7E-06	18	73.88	38	36	58.95	73.88	0.00	0.00
13.58	6.450	42.01	6	5.9E-06	18	73.69	39	37	58.80	73.69	0.00	0.00
13.60	6.420	41.46	6	5.9E-06	18	73.36	39	37	58.53	73.36	0.00	0.00
13.62	6.440	42.97	6	5.6E-06	18	74.22	39	37	59.22	74.22	0.00	0.00
13.64	6.430	43.97	6	5.3E-06	18	74.73	39	37	59.63	74.73	0.00	0.00
13.66	6.340	45.79	6	4.7E-06	18	75.44	39	36	60.19	75.44	0.00	0.00
13.68	6.330	47.79	5	4.3E-06	18	76.43	38	36	60.98	76.43	0.00	0.00
13.70	6.210	50.71	5	3.6E-06	18	77.54	38	36	61.86	77.54	0.00	0.00
13.72	6.070	53.13	5	3.0E-06	18	78.31	38	36	62.48	78.31	0.00	0.00
13.74	5.970	55.18	5	2.6E-06	18	79.00	37	36	63.03	79.00	0.00	0.00
13.76	5.900	56.59	5	2.3E-06	18	79.47	37	36	63.41	79.47	0.00	0.00
13.78	5.930	56.86	5	2.3E-06	18	79.72	37	36	63.60	79.72	0.00	0.00
13.80	5.900	56.50	5	2.3E-06	18	79.50	37	36	63.43	79.50	0.00	0.00
13.82	5.940	56.41	5	2.4E-06	18	79.62	37	36	63.53	79.62	0.00	0.00
13.84	5.850	53.95	5	2.4E-06	18	78.27	37	36	62.45	78.27	0.00	0.00
13.86	5.700	52.21	5	2.2E-06	17	77.06	36	36	61.49	77.06	0.00	0.00
13.88	5.710	49.62	5	2.5E-06	17	75.91	36	36	60.57	75.91	0.00	0.00
13.90	5.870	48.11	5	2.9E-06	17	75.69	37	36	60.39	75.69	0.00	0.00
13.92	5.880	47.29	5	3.0E-06	17	75.35	37	36	60.12	75.35	0.00	0.00
13.94	5.830	46.79	5	3.0E-06	17	75.00	37	36	59.84	75.00	0.00	0.00
13.96	5.830	46.79	5	3.0E-06	17	75.03	37	36	59.87	75.03	0.00	0.00
13.98	5.830	46.79	5	2.9E-06	17	75.07	37	36	59.89	75.07	0.00	0.00
14.00	5.890	36.95	6	4.5E-06	17	70.20	37	36	56.01	70.20	0.00	0.00
14.02	5.940	38.68	5	4.4E-06	17	71.30	37	36	56.88	71.30	0.00	0.00
14.04	6.210	41.14	6	4.8E-06	18	73.35	38	36	58.53	73.35	0.00	0.00
14.06	6.740	43.33	6	6.4E-06	19	75.89	39	37	60.55	75.89	0.00	0.00
14.08	7.010	43.38	6	7.6E-06	19	76.62	40	37	61.14	76.62	0.00	0.00
14.10	7.250	45.47	6	8.1E-06	19	78.31	41	37	62.48	78.31	0.00	0.00
14.12	7.470	47.20	6	8.7E-06	20	79.75	42	37	63.63	79.75	0.00	0.00
14.14	7.800	50.57	6	9.4E-06	21	82.24	43	37	65.61	82.24	0.00	0.00

In situ data				Estimations		ARENILE BAGNO FIRENZE - VIAREGGIO (LU)					CPTu 01	
Depth (m)	qc (MPa)	fs (kPa)	SBTn	Ksbt (m/s)	SPT N60	M (MPa)	Dr (%)	Fi (°)	Es (MPa)	Go (MPa)	Su (kPa)	OCR
14.16	7.960	53.90	6	9.2E-06	21	84.26	43	38	67.23	84.26	0.00	0.00
14.18	8.180	56.91	6	9.5E-06	22	86.24	44	38	68.81	86.24	0.00	0.00
14.20	8.580	62.28	6	1.0E-05	23	89.68	45	38	71.55	89.68	0.00	0.00
14.22	8.770	65.93	6	9.9E-06	23	91.80	45	38	73.24	91.80	0.00	0.00
14.24	9.000	72.08	6	9.5E-06	24	95.07	46	38	75.85	95.07	0.00	0.00
14.26	9.130	74.95	6	9.4E-06	24	96.63	46	38	77.10	96.63	0.00	0.00
14.28	9.290	77.14	6	9.6E-06	25	97.96	46	38	78.16	97.96	0.00	0.00
14.30	9.370	78.55	6	9.6E-06	25	98.78	47	38	78.81	98.78	0.00	0.00
14.32	9.320	82.06	6	8.7E-06	25	100.18	46	38	79.93	100.18	0.00	0.00
14.34	9.320	83.56	6	8.3E-06	25	100.84	46	38	80.46	100.84	0.00	0.00
14.36	9.330	85.06	6	8.1E-06	25	101.52	46	38	81.00	101.52	0.00	0.00
14.38	9.270	85.20	6	7.8E-06	25	101.49	46	38	80.97	101.49	0.00	0.00
14.40	9.020	84.61	6	7.0E-06	25	100.72	46	38	80.36	100.72	0.00	0.00
14.42	8.820	83.29	6	6.5E-06	24	99.76	45	38	79.60	99.76	0.00	0.00
14.44	8.610	82.56	6	5.9E-06	24	99.01	44	38	79.00	99.01	0.00	0.00
14.46	8.420	82.38	6	5.3E-06	23	98.53	44	38	78.61	98.53	0.00	0.00
14.48	8.000	81.65	5	4.3E-06	23	97.24	43	37	77.59	97.24	0.00	0.00
14.50	7.730	80.01	5	3.8E-06	22	95.93	42	37	76.54	95.93	0.00	0.00
14.52	7.500	78.55	5	3.4E-06	22	94.78	41	37	75.63	94.78	0.00	0.00
14.54	7.250	77.36	5	3.0E-06	21	93.68	40	37	74.74	93.68	0.00	0.00
14.56	7.140	76.18	5	2.9E-06	21	92.94	40	37	74.15	92.94	0.00	0.00
14.58	7.040	73.22	5	2.9E-06	21	91.48	40	37	72.99	91.48	0.00	0.00
14.60	6.970	70.21	5	3.0E-06	21	90.06	39	37	71.86	90.06	0.00	0.00
14.62	6.810	68.12	5	2.8E-06	20	88.77	39	37	70.83	88.77	0.00	0.00
14.64	6.660	66.25	5	2.7E-06	20	87.59	38	36	69.88	87.59	0.00	0.00
14.66	6.470	64.47	5	2.5E-06	19	86.32	38	36	68.87	86.32	0.00	0.00
14.68	5.980	61.69	5	1.8E-06	18	83.73	36	36	66.81	83.73	0.00	0.00
14.70	5.760	61.24	5	1.6E-06	18	77.28	35	36	66.15	82.91	0.00	0.00
14.72	5.640	60.51	5	1.5E-06	18	75.60	35	36	65.63	82.26	0.00	0.00
14.74	5.650	60.01	5	1.5E-06	18	75.73	35	36	65.51	82.11	0.00	0.00
14.76	6.040	56.09	5	2.3E-06	18	81.51	36	36	65.04	81.51	0.00	0.00
14.78	6.380	54.40	5	3.1E-06	19	81.71	37	36	65.19	81.71	0.00	0.00
14.80	6.640	52.12	5	3.9E-06	19	81.35	38	36	64.90	81.35	0.00	0.00
14.82	6.870	50.62	6	4.8E-06	19	81.24	39	37	64.82	81.24	0.00	0.00
14.84	7.100	49.53	6	5.8E-06	20	81.31	40	37	64.87	81.31	0.00	0.00
14.86	7.130	49.89	6	5.8E-06	20	81.60	40	37	65.10	81.60	0.00	0.00
14.88	7.140	51.76	6	5.5E-06	20	82.58	40	37	65.89	82.58	0.00	0.00
14.90	7.170	54.63	6	5.1E-06	20	84.09	40	37	67.09	84.09	0.00	0.00
14.92	7.120	57.45	5	4.5E-06	20	85.34	40	37	68.09	85.34	0.00	0.00
14.94	7.080	58.82	5	4.2E-06	20	85.92	40	37	68.55	85.92	0.00	0.00
14.96	7.080	58.82	5	4.2E-06	20	85.96	39	37	68.58	85.96	0.00	0.00
14.98	7.080	58.82	5	4.2E-06	20	85.99	39	37	68.61	85.99	0.00	0.00
15.00	6.640	47.98	5	4.4E-06	19	79.65	38	36	63.55	79.65	0.00	0.00
15.02	6.640	46.02	6	4.7E-06	19	78.68	38	36	62.78	78.68	0.00	0.00
15.04	6.470	50.03	5	3.6E-06	19	80.30	38	36	64.07	80.30	0.00	0.00
15.06	6.240	52.94	5	2.8E-06	19	81.13	37	36	64.73	81.13	0.00	0.00
15.08	6.010	55.90	5	2.1E-06	18	81.92	36	36	65.36	81.92	0.00	0.00
15.10	5.960	57.04	5	2.0E-06	18	82.34	36	36	65.70	82.34	0.00	0.00
15.12	6.020	57.36	5	2.0E-06	18	82.70	36	36	65.98	82.70	0.00	0.00
15.14	6.140	57.09	5	2.2E-06	19	82.96	36	36	66.19	82.96	0.00	0.00
15.16	6.420	55.49	5	2.9E-06	19	83.02	37	36	66.24	83.02	0.00	0.00
15.18	6.580	53.90	5	3.4E-06	19	82.72	38	36	66.00	82.72	0.00	0.00
15.20	6.820	53.13	5	4.1E-06	20	83.01	39	36	66.23	83.01	0.00	0.00
15.22	7.220	52.67	6	5.4E-06	20	83.83	40	37	66.88	83.83	0.00	0.00
15.24	7.480	52.72	6	6.3E-06	21	84.51	41	37	67.43	84.51	0.00	0.00

In situ data				Estimations		ARENILE BAGNO FIRENZE - VIAREGGIO (LU)					CPTu 01	
Depth (m)	qc (MPa)	fs (kPa)	SBTn	Ksbt (m/s)	SPT N60	M (MPa)	Dr (%)	Fi (°)	Es (MPa)	Go (MPa)	Su (kPa)	OCR
15.26	7.760	53.03	6	7.3E-06	21	85.36	41	37	68.11	85.36	0.00	0.00
15.28	8.120	54.63	6	8.5E-06	22	87.01	42	37	69.42	87.01	0.00	0.00
15.30	8.430	56.18	6	9.6E-06	22	88.49	43	38	70.61	88.49	0.00	0.00
15.32	8.630	59.14	6	9.8E-06	23	90.40	44	38	72.13	90.40	0.00	0.00
15.34	8.650	62.88	6	8.8E-06	23	92.26	44	38	73.61	92.26	0.00	0.00
15.36	8.600	66.25	6	7.8E-06	23	93.75	44	38	74.80	93.75	0.00	0.00
15.38	8.510	69.03	6	6.9E-06	23	94.85	43	38	75.68	94.85	0.00	0.00
15.40	8.330	73.67	6	5.5E-06	23	96.53	43	37	77.02	96.53	0.00	0.00
15.42	8.230	76.04	5	4.9E-06	23	97.36	42	37	77.68	97.36	0.00	0.00
15.44	8.070	78.00	5	4.3E-06	23	97.86	42	37	78.08	97.86	0.00	0.00
15.46	7.960	78.50	5	4.0E-06	23	97.84	41	37	78.07	97.84	0.00	0.00
15.48	7.840	77.36	5	3.8E-06	23	97.10	41	37	77.48	97.10	0.00	0.00
15.50	7.540	74.36	5	3.4E-06	22	95.11	40	37	75.89	95.11	0.00	0.00
15.52	7.320	71.58	5	3.2E-06	21	93.39	40	37	74.51	93.39	0.00	0.00
15.54	7.160	69.71	5	3.0E-06	21	92.19	39	37	73.56	92.19	0.00	0.00
15.56	7.100	67.89	5	3.0E-06	21	91.27	39	37	72.82	91.27	0.00	0.00
15.58	7.170	66.34	5	3.3E-06	21	90.80	39	37	72.45	90.80	0.00	0.00
15.60	7.440	64.52	5	4.1E-06	21	90.70	40	37	72.37	90.70	0.00	0.00
15.62	7.400	63.51	5	4.1E-06	21	90.18	40	37	71.95	90.18	0.00	0.00
15.64	7.260	63.29	5	3.8E-06	21	89.76	39	37	71.62	89.76	0.00	0.00
15.66	7.070	63.15	5	3.3E-06	21	89.25	39	37	71.21	89.25	0.00	0.00
15.68	6.980	63.19	5	3.1E-06	20	89.08	38	36	71.07	89.08	0.00	0.00
15.70	7.120	63.19	5	3.4E-06	21	89.47	39	37	71.39	89.47	0.00	0.00
15.72	7.260	62.92	5	3.8E-06	21	89.74	39	37	71.60	89.74	0.00	0.00
15.74	7.440	63.47	5	4.1E-06	21	90.49	40	37	72.20	90.49	0.00	0.00
15.76	7.620	63.24	5	4.6E-06	22	90.86	40	37	72.49	90.86	0.00	0.00
15.78	7.770	62.37	6	5.2E-06	22	90.85	41	37	72.49	90.85	0.00	0.00
15.80	7.890	62.33	6	5.6E-06	22	91.15	41	37	72.73	91.15	0.00	0.00
15.82	7.850	63.01	6	5.3E-06	22	91.41	41	37	72.94	91.41	0.00	0.00
15.84	7.810	64.56	6	5.0E-06	22	92.08	41	37	73.47	92.08	0.00	0.00
15.86	7.780	66.25	5	4.6E-06	22	92.82	41	37	74.06	92.82	0.00	0.00
15.88	7.770	67.48	5	4.5E-06	22	93.40	41	37	74.52	93.40	0.00	0.00
15.90	7.950	69.03	5	4.7E-06	22	94.57	41	37	75.46	94.57	0.00	0.00
15.92	8.120	68.89	6	5.2E-06	23	94.95	42	37	75.76	94.95	0.00	0.00
15.94	8.290	68.43	6	5.8E-06	23	95.17	42	37	75.94	95.17	0.00	0.00
15.96	8.420	67.39	6	6.4E-06	23	95.03	42	37	75.82	95.03	0.00	0.00

CPTu 02 ARENILE PRINCIPE DI PIEMONTE - VIAREGGIO (LU)

qc	cone resistance	SPT	equivalent SPT N60	Es	Young's modulus
fs	sleeve friction	M	constrained modulus	Go	Shear modulus
SBTn	soil behavior type normalized	Dr	relative density	Su	Shear strenght
Ksbt	permeability	Fi	Friction angle	OCR	Over consolidation ratio

In situ data				Estimations								
Depth (m)	qc (MPa)	fs (kPa)	SBTn	Ksbt (m/s)	SPT N60	M (MPa)	Dr (%)	Fi (°)	Es (MPa)	Go (MPa)	Su (kPa)	OCR
0.00	-	-	-	-	-	-	-	-	-	-	-	-
0.02	0.090	0.00	0	0.0E+00	0	0.08	0	0	0.06	0.08	0.00	0.00
0.04	0.090	0.00	0	0.0E+00	0	0.08	0	0	0.06	0.08	0.00	0.00
0.06	0.090	0.00	0	0.0E+00	0	0.08	0	0	0.06	0.08	0.00	0.00
0.08	0.070	0.00	0	0.0E+00	0	0.06	0	0	0.05	0.06	0.00	0.00
0.10	0.080	0.00	0	0.0E+00	0	0.07	0	0	0.06	0.07	0.00	0.00
0.12	0.190	0.00	0	0.0E+00	0	0.17	0	0	0.13	0.17	0.00	0.00
0.14	0.310	0.00	0	0.0E+00	0	0.28	0	0	0.22	0.28	0.00	0.00
0.16	0.490	0.00	0	0.0E+00	0	0.44	0	0	0.35	0.44	0.00	0.00
0.18	0.700	0.00	0	0.0E+00	0	0.62	0	0	0.50	0.62	0.00	0.00
0.20	1.630	0.05	0	0.0E+00	4	16.65	0	0	13.29	16.65	0.00	0.00
0.22	2.710	0.00	0	0.0E+00	0	2.43	0	0	1.94	2.43	0.00	0.00
0.24	3.660	0.00	0	0.0E+00	0	3.29	0	0	2.62	3.29	0.00	0.00
0.26	4.550	0.00	0	0.0E+00	0	4.09	0	0	3.26	4.09	0.00	0.00
0.28	5.610	0.00	0	0.0E+00	0	5.04	0	0	4.02	5.04	0.00	0.00
0.30	6.110	0.00	0	0.0E+00	0	5.49	0	0	4.38	5.49	0.00	0.00
0.32	6.490	0.00	0	0.0E+00	0	5.83	0	0	4.65	5.83	0.00	0.00
0.34	7.100	0.00	0	0.0E+00	0	6.38	0	0	5.09	6.38	0.00	0.00
0.36	7.630	0.00	0	0.0E+00	0	6.86	0	0	5.47	6.86	0.00	0.00
0.38	8.260	0.00	0	0.0E+00	0	7.42	0	0	5.92	7.42	0.00	0.00
0.40	9.180	0.00	0	0.0E+00	0	8.25	0	0	6.58	8.25	0.00	0.00
0.42	10.720	0.00	0	0.0E+00	0	9.63	0	0	7.69	9.63	0.00	0.00
0.44	11.650	0.00	0	0.0E+00	0	10.47	0	0	8.35	10.47	0.00	0.00
0.46	12.160	0.00	0	0.0E+00	0	10.93	0	0	8.72	10.93	0.00	0.00
0.48	12.250	2.96	0	0.0E+00	19	47.00	0	0	37.50	47.00	0.00	0.00
0.50	12.470	9.66	0	0.0E+00	19	44.89	0	0	35.82	44.89	0.00	0.00
0.52	12.600	20.32	7	2.8E-03	20	48.73	85	44	38.88	48.73	0.00	0.00
0.54	12.670	30.48	7	1.8E-03	21	52.94	86	44	42.24	52.94	0.00	0.00
0.56	12.750	43.10	7	1.2E-03	21	57.58	89	44	45.94	57.58	0.00	0.00
0.58	12.800	51.58	7	9.2E-04	22	60.63	90	45	48.38	60.63	0.00	0.00
0.60	12.750	59.28	6	7.2E-04	23	63.15	90	45	50.38	63.15	0.00	0.00
0.62	12.610	65.34	6	5.8E-04	23	64.92	91	45	51.79	64.92	0.00	0.00
0.64	12.440	70.07	6	4.8E-04	23	66.19	90	45	52.81	66.19	0.00	0.00
0.66	12.330	74.40	6	4.2E-04	23	67.31	90	45	53.70	67.31	0.00	0.00
0.68	12.180	78.55	6	3.6E-04	23	68.42	90	45	54.59	68.42	0.00	0.00
0.70	12.040	79.96	6	3.3E-04	23	68.77	90	45	54.87	68.77	0.00	0.00
0.72	11.740	81.92	6	2.8E-04	23	68.91	89	44	54.98	68.91	0.00	0.00
0.74	11.340	84.02	6	2.3E-04	22	68.85	87	44	54.93	68.85	0.00	0.00
0.76	10.880	86.16	6	1.9E-04	22	68.63	86	44	54.75	68.63	0.00	0.00
0.78	10.420	87.80	6	1.5E-04	21	68.22	85	44	54.43	68.22	0.00	0.00
0.80	9.740	88.94	6	1.2E-04	20	67.11	83	44	53.55	67.11	0.00	0.00
0.82	9.410	88.53	6	1.0E-04	20	66.42	81	44	53.00	66.42	0.00	0.00
0.84	9.100	87.21	6	9.0E-05	19	65.53	80	43	52.29	65.53	0.00	0.00
0.86	8.840	84.97	6	8.4E-05	19	64.53	79	43	51.49	64.53	0.00	0.00
0.88	8.620	82.79	6	7.9E-05	19	63.62	77	43	50.76	63.62	0.00	0.00
0.90	8.260	79.14	6	7.2E-05	18	61.96	76	43	49.43	61.96	0.00	0.00
0.92	8.110	77.14	6	6.9E-05	18	61.25	75	43	48.87	61.25	0.00	0.00
0.94	7.940	74.77	6	6.7E-05	17	60.38	74	43	48.18	60.38	0.00	0.00

In situ data				Estimations		ARENILE PRINCIPE DI PIEMONTE - VIAREGGIO (LU)					CPTu 02	
Depth (m)	qc (MPa)	fs (kPa)	SBTn	Ksbt (m/s)	SPT N60	M (MPa)	Dr (%)	Fi (°)	Es (MPa)	Go (MPa)	Su (kPa)	OCR
0.96	7.860	72.76	6	6.6E-05	17	59.84	73	43	47.75	59.84	0.00	0.00
0.98	7.890	69.98	6	7.0E-05	17	59.37	73	43	47.37	59.37	0.00	0.00
1.00	8.120	66.84	6	8.3E-05	18	59.30	73	43	47.32	59.30	0.00	0.00
1.02	9.070	60.55	6	1.4E-04	19	60.01	75	43	47.88	60.01	0.00	0.00
1.04	10.240	56.41	6	2.5E-04	20	61.54	77	43	49.10	61.54	0.00	0.00
1.06	12.060	51.67	6	4.9E-04	22	63.85	81	44	50.94	63.85	0.00	0.00
1.08	13.930	47.70	7	9.1E-04	24	66.05	84	44	52.70	66.05	0.00	0.00
1.10	15.350	46.47	7	1.3E-03	26	68.18	87	44	54.40	68.18	0.00	0.00
1.12	15.350	46.47	7	1.3E-03	26	68.33	87	44	54.52	68.33	0.00	0.00
1.14	15.350	46.20	7	1.3E-03	26	68.38	86	44	54.56	68.38	0.00	0.00
1.16	15.560	46.43	7	1.3E-03	26	68.96	87	44	55.02	68.96	0.00	0.00
1.18	14.680	47.00	7	1.1E-03	25	67.85	85	44	54.13	67.85	0.00	0.00
1.20	17.430	55.72	7	1.5E-03	29	75.68	91	45	60.38	75.68	0.00	0.00
1.22	18.440	80.78	7	9.9E-04	32	86.10	95	45	68.70	86.10	0.00	0.00
1.24	19.000	97.14	7	7.9E-04	33	92.42	97	45	73.74	92.42	0.00	0.00
1.26	19.240	113.81	6	6.1E-04	34	98.05	98	45	78.23	98.05	0.00	0.00
1.28	19.210	130.99	6	4.6E-04	35	103.13	99	45	82.29	103.13	0.00	0.00
1.30	18.900	145.84	6	3.5E-04	36	106.84	99	45	85.25	106.84	0.00	0.00
1.32	18.080	164.21	6	2.3E-04	36	110.25	98	45	87.97	110.25	0.00	0.00
1.34	17.710	170.22	6	1.9E-04	35	111.23	97	45	88.75	111.23	0.00	0.00
1.36	17.440	172.73	6	1.7E-04	35	111.53	96	45	88.98	111.53	0.00	0.00
1.38	17.270	172.91	6	1.7E-04	35	111.44	96	45	88.92	111.44	0.00	0.00
1.40	17.050	167.26	6	1.7E-04	34	109.82	95	45	87.63	109.82	0.00	0.00
1.42	16.560	163.25	6	1.6E-04	34	108.03	93	45	86.19	108.03	0.00	0.00
1.44	15.950	159.65	6	1.4E-04	33	106.07	91	45	84.63	106.07	0.00	0.00
1.46	15.490	155.09	6	1.3E-04	32	104.16	90	45	83.11	104.16	0.00	0.00
1.48	15.340	150.36	6	1.3E-04	32	102.86	89	44	82.07	102.86	0.00	0.00
1.50	15.300	140.65	6	1.5E-04	31	100.48	88	44	80.17	100.48	0.00	0.00
1.52	15.220	133.18	6	1.6E-04	31	98.54	88	44	78.62	98.54	0.00	0.00
1.54	15.370	125.66	6	1.9E-04	31	97.00	87	44	77.39	97.00	0.00	0.00
1.56	15.250	119.83	6	2.0E-04	30	95.33	87	44	76.06	95.33	0.00	0.00
1.58	14.440	112.17	6	1.8E-04	29	91.72	84	44	73.18	91.72	0.00	0.00
1.60	14.020	110.03	6	1.7E-04	28	90.43	83	44	72.15	90.43	0.00	0.00
1.62	13.620	109.17	6	1.5E-04	28	89.53	82	44	71.44	89.53	0.00	0.00
1.64	13.080	108.16	6	1.3E-04	27	88.28	81	44	70.44	88.28	0.00	0.00
1.66	12.050	104.29	6	1.0E-04	26	85.16	78	43	67.95	85.16	0.00	0.00
1.68	11.260	101.83	6	8.0E-05	24	82.84	75	43	66.10	82.84	0.00	0.00
1.70	10.420	99.87	6	6.1E-05	23	80.47	73	43	64.20	80.47	0.00	0.00
1.72	9.660	99.42	6	4.6E-05	22	78.61	71	42	62.72	78.61	0.00	0.00
1.74	8.940	100.69	6	3.3E-05	21	77.22	68	42	61.62	77.22	0.00	0.00
1.76	7.970	102.10	6	2.0E-05	20	75.03	65	42	59.86	75.03	0.00	0.00
1.78	7.530	100.15	6	1.7E-05	19	73.38	64	41	58.55	73.38	0.00	0.00
1.80	7.150	97.37	6	1.4E-05	18	71.66	62	41	57.17	71.66	0.00	0.00
1.82	6.840	94.18	6	1.3E-05	18	70.02	61	41	55.87	70.02	0.00	0.00
1.84	6.600	90.26	6	1.2E-05	17	68.39	60	41	54.57	68.39	0.00	0.00
1.86	6.410	85.25	6	1.2E-05	17	66.61	59	40	53.15	66.61	0.00	0.00
1.88	6.260	77.32	6	1.3E-05	16	64.12	58	40	51.16	64.12	0.00	0.00
1.90	6.330	72.72	6	1.5E-05	16	63.18	57	40	50.41	63.18	0.00	0.00
1.92	6.590	68.80	6	1.9E-05	16	62.97	58	40	50.24	62.97	0.00	0.00
1.94	7.240	63.42	6	3.0E-05	17	63.31	60	41	50.51	63.31	0.00	0.00
1.96	8.330	56.91	6	6.2E-05	18	64.11	63	41	51.15	64.11	0.00	0.00
1.98	9.620	48.11	6	1.4E-04	20	63.99	66	42	51.05	63.99	0.00	0.00
2.00	9.880	45.56	6	1.7E-04	20	63.68	66	42	50.81	63.68	0.00	0.00
2.02	9.910	47.38	6	1.6E-04	20	64.58	66	42	51.53	64.58	0.00	0.00
2.04	10.160	50.44	6	1.5E-04	21	66.37	67	42	52.96	66.37	0.00	0.00

In situ data				Estimations		ARENILE PRINCIPE DI PIEMONTE - VIAREGGIO (LU)					CPTu 02	
Depth (m)	qc (MPa)	fs (kPa)	SBTn	Ksbt (m/s)	SPT N60	M (MPa)	Dr (%)	Fi (°)	Es (MPa)	Go (MPa)	Su (kPa)	OCR
2.06	10.350	54.49	6	1.4E-04	21	68.39	68	42	54.56	68.39	0.00	0.00
2.08	10.480	62.74	6	1.2E-04	22	71.73	68	42	57.23	71.73	0.00	0.00
2.10	10.390	69.62	6	9.5E-05	22	74.00	68	42	59.04	74.00	0.00	0.00
2.12	10.410	74.90	6	8.3E-05	22	75.92	68	42	60.57	75.92	0.00	0.00
2.14	10.410	74.90	6	8.2E-05	22	76.04	68	42	60.67	76.04	0.00	0.00
2.16	10.410	74.90	6	8.2E-05	22	76.17	68	42	60.77	76.17	0.00	0.00
2.18	10.070	57.68	6	1.1E-04	21	69.64	66	42	55.56	69.64	0.00	0.00
2.20	10.200	58.41	6	1.1E-04	21	70.29	67	42	56.08	70.29	0.00	0.00
2.22	10.280	60.60	6	1.1E-04	22	71.36	67	42	56.94	71.36	0.00	0.00
2.24	10.350	63.10	6	1.0E-04	22	72.51	67	42	57.86	72.51	0.00	0.00
2.26	10.660	63.70	6	1.1E-04	22	73.50	68	42	58.64	73.50	0.00	0.00
2.28	10.740	63.24	6	1.2E-04	22	73.62	68	42	58.74	73.62	0.00	0.00
2.30	10.730	63.60	6	1.2E-04	22	73.84	68	42	58.92	73.84	0.00	0.00
2.32	10.650	65.61	6	1.1E-04	22	74.44	67	42	59.39	74.44	0.00	0.00
2.34	10.630	68.71	6	9.6E-05	23	75.53	67	42	60.26	75.53	0.00	0.00
2.36	10.640	70.89	6	9.1E-05	23	76.36	68	42	60.92	76.36	0.00	0.00
2.38	10.620	74.04	6	8.3E-05	23	77.43	68	42	61.78	77.43	0.00	0.00
2.40	10.690	75.91	6	8.1E-05	23	78.27	68	42	62.45	78.27	0.00	0.00
2.42	10.970	77.09	6	8.7E-05	24	79.33	68	42	63.29	79.33	0.00	0.00
2.44	11.140	76.32	6	9.4E-05	24	79.49	69	42	63.42	79.49	0.00	0.00
2.46	11.100	75.45	6	9.4E-05	24	79.17	69	42	63.17	79.17	0.00	0.00
2.48	11.020	74.63	6	9.3E-05	24	78.78	68	42	62.86	78.78	0.00	0.00
2.50	10.810	74.27	6	8.6E-05	23	78.27	68	42	62.45	78.27	0.00	0.00
2.52	10.750	73.67	6	8.5E-05	23	77.99	67	42	62.23	77.99	0.00	0.00
2.54	10.640	74.13	6	8.1E-05	23	77.97	67	42	62.21	77.97	0.00	0.00
2.56	10.330	76.13	6	6.8E-05	23	78.01	66	42	62.24	78.01	0.00	0.00
2.58	9.820	80.46	6	5.1E-05	22	78.31	65	41	62.48	78.31	0.00	0.00
2.60	9.520	83.24	6	4.2E-05	22	78.54	64	41	62.67	78.54	0.00	0.00
2.62	9.260	85.34	6	3.6E-05	22	78.62	63	41	62.73	78.62	0.00	0.00
2.64	9.000	86.39	6	3.1E-05	21	78.35	63	41	62.51	78.35	0.00	0.00
2.66	8.710	87.16	6	2.7E-05	21	77.90	62	41	62.16	77.90	0.00	0.00
2.68	8.180	86.70	6	2.1E-05	20	76.42	60	41	60.97	76.42	0.00	0.00
2.70	7.800	85.34	6	1.8E-05	19	75.02	59	41	59.86	75.02	0.00	0.00
2.72	7.370	83.65	6	1.5E-05	19	73.36	57	40	58.53	73.36	0.00	0.00
2.74	6.910	81.88	6	1.2E-05	18	71.54	56	40	57.08	71.54	0.00	0.00
2.76	6.560	79.96	6	1.0E-05	17	69.96	54	40	55.82	69.96	0.00	0.00
2.78	6.360	77.00	6	9.4E-06	17	68.52	53	40	54.67	68.52	0.00	0.00
2.80	6.370	70.21	6	1.1E-05	17	66.54	53	40	53.09	66.54	0.00	0.00
2.82	6.560	64.24	6	1.5E-05	17	65.26	54	40	52.07	65.26	0.00	0.00
2.84	6.930	57.27	6	2.2E-05	17	64.01	55	40	51.08	64.01	0.00	0.00
2.86	7.240	50.12	6	3.3E-05	17	62.32	55	40	49.73	62.32	0.00	0.00
2.88	7.300	41.51	6	4.5E-05	17	59.20	55	40	47.24	59.20	0.00	0.00
2.90	7.230	38.36	6	4.9E-05	16	57.79	55	40	46.11	57.79	0.00	0.00
2.92	6.980	37.95	6	4.3E-05	16	57.04	54	40	45.51	57.04	0.00	0.00
2.94	6.600	39.64	6	3.3E-05	16	56.78	53	39	45.31	56.78	0.00	0.00
2.96	6.080	44.38	6	2.0E-05	15	57.25	51	39	45.68	57.25	0.00	0.00
2.98	5.820	47.02	6	1.5E-05	15	57.52	50	39	45.90	57.52	0.00	0.00
3.00	5.720	48.61	6	1.3E-05	15	57.85	50	39	46.15	57.85	0.00	0.00
3.02	5.720	49.30	6	1.3E-05	15	58.14	50	39	46.39	58.14	0.00	0.00
3.04	5.710	47.70	6	1.3E-05	15	57.58	50	39	45.94	57.58	0.00	0.00
3.06	5.760	42.42	6	1.7E-05	14	55.80	50	39	44.52	55.80	0.00	0.00
3.08	5.750	38.14	6	2.0E-05	14	54.13	49	39	43.19	54.13	0.00	0.00
3.10	5.690	33.62	6	2.3E-05	14	52.14	49	39	41.60	52.14	0.00	0.00
3.12	5.660	32.21	6	2.4E-05	14	51.50	49	39	41.09	51.50	0.00	0.00
3.14	5.660	32.21	6	2.4E-05	14	51.53	49	39	41.12	51.53	0.00	0.00

In situ data				Estimations		ARENILE PRINCIPE DI PIEMONTE - VIAREGGIO (LU)					CPTu 02	
Depth (m)	qc (MPa)	fs (kPa)	SBTn	Ksbt (m/s)	SPT N60	M (MPa)	Dr (%)	Fi (°)	Es (MPa)	Go (MPa)	Su (kPa)	OCR
3.16	5.230	26.13	6	2.3E-05	13	47.64	47	38	38.01	47.64	0.00	0.00
3.18	5.230	26.13	6	2.3E-05	13	47.67	47	38	38.04	47.67	0.00	0.00
3.20	5.230	26.31	6	2.3E-05	13	47.79	47	38	38.13	47.79	0.00	0.00
3.22	5.190	26.90	6	2.2E-05	13	47.98	46	38	38.28	47.98	0.00	0.00
3.24	5.160	27.72	6	2.0E-05	13	48.29	46	38	38.53	48.29	0.00	0.00
3.26	5.110	29.09	6	1.8E-05	13	48.79	46	38	38.93	48.79	0.00	0.00
3.28	5.100	20.87	6	2.8E-05	12	44.94	46	38	35.86	44.94	0.00	0.00
3.30	5.100	21.10	6	2.8E-05	12	45.09	46	38	35.97	45.09	0.00	0.00
3.32	5.070	21.46	6	2.6E-05	12	45.21	46	38	36.07	45.21	0.00	0.00
3.34	4.980	22.33	6	2.3E-05	12	45.40	45	38	36.23	45.40	0.00	0.00
3.36	4.900	22.55	6	2.1E-05	12	45.30	45	38	36.15	45.30	0.00	0.00
3.38	4.810	22.60	6	2.0E-05	12	45.09	44	38	35.98	45.09	0.00	0.00
3.40	4.690	23.19	6	1.7E-05	12	45.04	44	38	35.94	45.04	0.00	0.00
3.42	4.600	24.10	6	1.5E-05	12	45.23	44	38	36.08	45.23	0.00	0.00
3.44	4.600	24.06	6	1.5E-05	12	45.24	44	38	36.09	45.24	0.00	0.00
3.46	4.550	23.74	6	1.5E-05	12	44.96	43	38	35.87	44.96	0.00	0.00
3.48	4.520	23.37	6	1.5E-05	11	44.72	43	38	35.68	44.72	0.00	0.00
3.50	4.580	22.78	6	1.6E-05	12	44.66	43	38	35.63	44.66	0.00	0.00
3.52	4.680	21.78	6	1.8E-05	12	44.51	44	38	35.51	44.51	0.00	0.00
3.54	4.740	20.96	6	2.0E-05	12	44.32	44	38	35.36	44.32	0.00	0.00
3.56	4.740	20.50	6	2.1E-05	12	44.11	44	38	35.20	44.11	0.00	0.00
3.58	4.880	20.28	6	2.3E-05	12	44.45	44	38	35.46	44.45	0.00	0.00
3.60	5.050	19.73	6	2.7E-05	12	44.69	45	38	35.66	44.69	0.00	0.00
3.62	5.210	19.82	6	3.0E-05	12	45.23	46	38	36.09	45.23	0.00	0.00
3.64	5.260	20.59	6	3.0E-05	12	45.79	46	38	36.54	45.79	0.00	0.00
3.66	5.310	21.14	6	3.0E-05	13	46.24	46	38	36.90	46.24	0.00	0.00
3.68	5.370	21.19	6	3.1E-05	13	46.47	46	38	37.07	46.47	0.00	0.00
3.70	5.390	21.14	6	3.1E-05	13	46.53	46	38	37.12	46.53	0.00	0.00
3.72	5.360	21.69	6	3.0E-05	13	46.75	46	38	37.30	46.75	0.00	0.00
3.74	5.310	22.33	6	2.7E-05	13	46.96	46	38	37.47	46.96	0.00	0.00
3.76	5.300	23.28	6	2.6E-05	13	47.43	46	38	37.84	47.43	0.00	0.00
3.78	5.280	24.56	6	2.3E-05	13	48.03	46	38	38.32	48.03	0.00	0.00
3.80	5.250	25.70	6	2.1E-05	13	48.52	46	38	38.71	48.52	0.00	0.00
3.82	5.240	26.20	6	2.1E-05	13	48.76	46	38	38.90	48.76	0.00	0.00
3.84	5.240	26.33	6	2.0E-05	13	48.85	46	38	38.98	48.85	0.00	0.00
3.86	5.220	26.38	6	2.0E-05	13	48.85	45	38	38.98	48.85	0.00	0.00
3.88	5.190	26.75	6	1.9E-05	13	48.97	45	38	39.07	48.97	0.00	0.00
3.90	5.140	27.29	6	1.8E-05	13	49.10	45	38	39.18	49.10	0.00	0.00
3.92	5.070	27.93	6	1.6E-05	13	49.22	45	38	39.28	49.22	0.00	0.00
3.94	5.030	28.75	6	1.5E-05	13	49.51	45	38	39.50	49.51	0.00	0.00
3.96	5.160	29.07	6	1.6E-05	13	50.08	45	38	39.96	50.08	0.00	0.00
3.98	5.290	28.25	6	1.9E-05	13	50.12	46	38	39.99	50.12	0.00	0.00
4.00	5.380	27.43	6	2.1E-05	13	50.03	46	38	39.92	50.03	0.00	0.00
4.02	5.450	27.02	6	2.2E-05	13	50.07	46	38	39.95	50.07	0.00	0.00
4.04	5.560	26.38	6	2.5E-05	13	50.11	46	38	39.98	50.11	0.00	0.00
4.06	5.770	24.51	6	3.1E-05	14	49.81	47	38	39.74	49.81	0.00	0.00
4.08	5.890	24.10	6	3.5E-05	14	49.96	48	38	39.86	49.96	0.00	0.00
4.10	5.890	24.42	6	3.4E-05	14	50.15	48	38	40.01	50.15	0.00	0.00
4.12	5.820	25.06	6	3.1E-05	14	50.31	47	38	40.14	50.31	0.00	0.00
4.14	5.760	25.65	6	2.9E-05	14	50.46	47	38	40.26	50.46	0.00	0.00
4.16	5.350	24.44	6	2.3E-05	13	48.77	45	38	38.91	48.77	0.00	0.00
4.18	5.330	25.77	6	2.1E-05	13	49.39	45	38	39.40	49.39	0.00	0.00
4.20	5.210	24.42	6	2.1E-05	13	48.42	45	38	38.63	48.42	0.00	0.00
4.22	5.070	24.51	6	1.8E-05	13	48.08	44	38	38.36	48.08	0.00	0.00
4.24	4.850	26.43	6	1.4E-05	12	48.38	43	38	38.60	48.38	0.00	0.00

In situ data				Estimations		ARENILE PRINCIPE DI PIEMONTE - VIAREGGIO (LU)					CPTu 02	
Depth (m)	qc (MPa)	fs (kPa)	SBTn	Ksbt (m/s)	SPT N60	M (MPa)	Dr (%)	Fi (°)	Es (MPa)	Go (MPa)	Su (kPa)	OCR
4.26	4.600	27.61	6	1.1E-05	12	48.18	42	37	38.44	48.18	0.00	0.00
4.28	4.380	28.07	6	8.4E-06	12	47.72	41	37	38.07	47.72	0.00	0.00
4.30	4.260	28.29	6	7.4E-06	12	47.45	41	37	37.86	47.45	0.00	0.00
4.32	4.210	27.52	6	7.3E-06	11	46.96	41	37	37.47	46.96	0.00	0.00
4.34	4.150	25.06	6	7.9E-06	11	45.65	40	37	36.42	45.65	0.00	0.00
4.36	4.140	23.28	6	8.7E-06	11	44.79	40	37	35.74	44.79	0.00	0.00
4.38	4.160	21.51	6	9.8E-06	11	44.01	40	37	35.12	44.01	0.00	0.00
4.40	4.180	19.36	6	1.2E-05	11	43.00	40	37	34.31	43.00	0.00	0.00
4.42	4.150	17.40	6	1.3E-05	11	41.88	40	37	33.42	41.88	0.00	0.00
4.44	4.080	16.54	6	1.3E-05	10	41.21	39	37	32.88	41.21	0.00	0.00
4.46	4.050	16.36	6	1.2E-05	10	41.04	39	37	32.74	41.04	0.00	0.00
4.48	4.050	16.17	6	1.3E-05	10	40.96	39	37	32.68	40.96	0.00	0.00
4.50	4.060	16.08	6	1.3E-05	10	40.96	39	37	32.68	40.96	0.00	0.00
4.52	4.000	15.72	6	1.2E-05	10	40.59	39	37	32.38	40.59	0.00	0.00
4.54	3.900	15.04	6	1.2E-05	10	39.89	38	36	31.83	39.89	0.00	0.00
4.56	3.770	14.03	6	1.1E-05	10	38.90	38	36	31.03	38.90	0.00	0.00
4.58	3.620	13.12	6	1.0E-05	9	37.87	37	36	30.21	37.87	0.00	0.00
4.60	3.480	12.53	6	9.3E-06	9	37.04	36	36	29.56	37.04	0.00	0.00
4.62	3.290	12.30	6	7.6E-06	9	36.24	35	36	28.91	36.24	0.00	0.00
4.64	3.130	12.03	6	6.4E-06	9	35.50	35	35	28.33	35.50	0.00	0.00
4.66	3.040	11.80	6	5.8E-06	8	35.04	34	35	27.96	35.04	0.00	0.00
4.68	3.010	11.16	6	6.0E-06	8	34.55	34	35	27.56	34.55	0.00	0.00
4.70	3.020	11.24	6	6.0E-06	8	34.66	34	35	27.65	34.66	0.00	0.00
4.72	3.130	11.65	6	6.6E-06	9	35.35	34	35	28.21	35.35	0.00	0.00
4.74	3.370	12.55	6	8.0E-06	9	36.81	36	36	29.37	36.81	0.00	0.00
4.76	3.670	13.66	6	1.0E-05	10	38.56	37	36	30.76	38.56	0.00	0.00
4.78	3.990	14.86	6	1.2E-05	10	40.36	39	36	32.20	40.36	0.00	0.00
4.80	4.280	15.94	6	1.5E-05	11	41.95	40	37	33.47	41.95	0.00	0.00
4.82	4.450	16.57	6	1.7E-05	11	42.86	41	37	34.20	42.86	0.00	0.00
4.84	4.670	17.39	6	1.9E-05	12	44.02	42	37	35.12	44.02	0.00	0.00
4.86	4.990	18.58	6	2.2E-05	12	45.65	43	37	36.42	45.65	0.00	0.00
4.88	5.350	19.92	6	2.7E-05	13	47.43	44	38	37.85	47.43	0.00	0.00
4.90	5.500	20.48	6	2.8E-05	13	48.18	45	38	38.44	48.18	0.00	0.00
4.92	5.540	20.63	6	2.9E-05	13	48.40	45	38	38.61	48.40	0.00	0.00
4.94	5.720	21.30	6	3.1E-05	14	49.27	46	38	39.31	49.27	0.00	0.00
4.96	5.900	21.97	6	3.4E-05	14	50.13	46	38	40.00	50.13	0.00	0.00
4.98	5.980	21.44	6	3.7E-05	14	50.09	46	38	39.97	50.09	0.00	0.00
5.00	5.930	24.35	6	3.0E-05	14	51.50	46	38	41.09	51.50	0.00	0.00
5.02	5.760	22.14	6	3.0E-05	14	49.94	46	38	39.84	49.94	0.00	0.00
5.04	5.670	21.82	6	2.9E-05	14	49.55	45	38	39.54	49.55	0.00	0.00
5.06	5.600	24.69	6	2.3E-05	14	50.87	45	38	40.59	50.87	0.00	0.00
5.08	5.500	27.98	6	1.8E-05	14	52.24	45	38	41.68	52.24	0.00	0.00
5.10	5.430	30.03	6	1.5E-05	14	53.05	45	38	42.33	53.05	0.00	0.00
5.12	5.330	30.21	6	1.4E-05	14	52.88	44	38	42.19	52.88	0.00	0.00
5.14	5.330	30.21	6	1.4E-05	14	52.91	44	38	42.21	52.91	0.00	0.00
5.16	4.850	30.62	6	9.4E-06	13	51.69	42	37	41.24	51.69	0.00	0.00
5.18	4.790	23.85	6	1.3E-05	12	48.28	42	37	38.52	48.28	0.00	0.00
5.20	4.600	25.67	6	9.8E-06	12	48.63	41	37	38.80	48.63	0.00	0.00
5.22	4.410	25.63	6	8.3E-06	12	48.03	40	37	38.32	48.03	0.00	0.00
5.24	4.240	25.26	6	7.2E-06	11	47.32	39	37	37.76	47.32	0.00	0.00
5.26	4.060	24.85	6	6.2E-06	11	46.55	39	36	37.14	46.55	0.00	0.00
5.28	3.940	24.08	6	5.7E-06	11	45.79	38	36	36.53	45.79	0.00	0.00
5.30	3.880	23.40	6	5.6E-06	11	45.27	38	36	36.12	45.27	0.00	0.00
5.32	3.870	22.80	6	5.7E-06	11	44.96	38	36	35.88	44.96	0.00	0.00
5.34	3.990	22.44	6	6.5E-06	11	45.22	38	36	36.08	45.22	0.00	0.00

In situ data				Estimations		ARENILE PRINCIPE DI PIEMONTE - VIAREGGIO (LU)					CPTu 02	
Depth (m)	qc (MPa)	fs (kPa)	SBTn	Ksbt (m/s)	SPT N60	M (MPa)	Dr (%)	Fi (°)	Es (MPa)	Go (MPa)	Su (kPa)	OCR
5.36	4.160	22.71	6	7.6E-06	11	45.96	39	37	36.67	45.96	0.00	0.00
5.38	4.340	20.11	6	1.1E-05	11	45.21	39	37	36.07	45.21	0.00	0.00
5.40	4.540	19.11	6	1.3E-05	12	45.33	40	37	36.16	45.33	0.00	0.00
5.42	4.710	18.66	6	1.6E-05	12	45.62	41	37	36.40	45.62	0.00	0.00
5.44	4.950	18.20	6	2.0E-05	12	46.11	42	37	36.79	46.11	0.00	0.00
5.46	5.170	19.39	6	2.2E-05	13	47.43	43	37	37.84	47.43	0.00	0.00
5.48	5.080	19.07	6	2.1E-05	12	47.02	42	37	37.52	47.02	0.00	0.00
5.50	4.960	19.48	6	1.8E-05	12	46.92	42	37	37.44	46.92	0.00	0.00
5.52	4.800	20.85	6	1.5E-05	12	47.22	41	37	37.68	47.22	0.00	0.00
5.54	4.550	20.72	6	1.2E-05	12	46.41	40	37	37.03	46.41	0.00	0.00
5.56	4.330	20.67	6	9.7E-06	11	45.72	39	37	36.48	45.72	0.00	0.00
5.58	4.150	20.90	6	8.1E-06	11	45.28	38	36	36.13	45.28	0.00	0.00
5.60	4.050	20.31	6	7.6E-06	11	44.66	38	36	35.64	44.66	0.00	0.00
5.62	3.990	16.54	6	9.3E-06	11	42.40	38	36	33.83	42.40	0.00	0.00
5.64	3.940	15.81	6	9.3E-06	10	41.83	37	36	33.38	41.83	0.00	0.00
5.66	3.780	15.90	6	7.8E-06	10	41.37	37	36	33.01	41.37	0.00	0.00
5.68	3.740	15.76	6	7.6E-06	10	41.17	36	36	32.85	41.17	0.00	0.00
5.70	3.800	14.94	6	8.6E-06	10	40.92	37	36	32.65	40.92	0.00	0.00
5.72	3.930	13.67	6	1.1E-05	10	40.61	37	36	32.40	40.61	0.00	0.00
5.74	4.090	12.67	6	1.4E-05	10	40.54	38	36	32.34	40.54	0.00	0.00
5.76	4.190	11.57	6	1.6E-05	11	40.18	38	36	32.06	40.18	0.00	0.00
5.78	4.160	10.93	6	1.7E-05	10	39.69	38	36	31.67	39.69	0.00	0.00
5.80	4.080	10.34	6	1.7E-05	10	39.06	38	36	31.17	39.06	0.00	0.00
5.82	4.000	10.62	6	1.5E-05	10	39.00	37	36	31.12	39.00	0.00	0.00
5.84	3.900	10.56	6	1.4E-05	10	38.65	37	36	30.84	38.65	0.00	0.00
5.86	3.780	10.56	6	1.2E-05	10	38.26	36	36	30.53	38.26	0.00	0.00
5.88	3.730	11.43	6	1.1E-05	10	38.68	36	36	30.87	38.68	0.00	0.00
5.90	3.700	12.29	6	9.3E-06	10	39.16	36	36	31.24	39.16	0.00	0.00
5.92	3.650	13.02	6	8.3E-06	10	39.46	36	36	31.49	39.46	0.00	0.00
5.94	3.720	13.39	6	8.6E-06	10	39.96	36	36	31.88	39.96	0.00	0.00
5.96	3.830	13.11	6	9.8E-06	10	40.18	36	36	32.06	40.18	0.00	0.00
5.98	3.810	12.70	6	1.0E-05	10	39.88	36	36	31.82	39.88	0.00	0.00
6.00	3.750	12.29	6	9.7E-06	10	39.43	36	36	31.46	39.43	0.00	0.00
6.02	3.750	12.16	6	9.8E-06	10	39.37	36	36	31.41	39.37	0.00	0.00
6.04	3.840	11.75	6	1.1E-05	10	39.43	36	36	31.46	39.43	0.00	0.00
6.06	4.010	11.47	6	1.3E-05	10	39.84	37	36	31.79	39.84	0.00	0.00
6.08	4.290	11.61	6	1.7E-05	11	40.86	38	36	32.60	40.86	0.00	0.00
6.10	4.460	11.75	6	1.9E-05	11	41.50	39	37	33.12	41.50	0.00	0.00
6.12	4.380	12.52	6	1.7E-05	11	41.77	39	36	33.33	41.77	0.00	0.00
6.14	4.380	12.52	6	1.7E-05	11	41.79	39	36	33.34	41.79	0.00	0.00
6.16	4.130	12.58	6	1.3E-05	11	41.05	37	36	32.75	41.05	0.00	0.00
6.18	4.150	12.28	6	1.4E-05	11	40.95	38	36	32.67	40.95	0.00	0.00
6.20	4.010	12.24	6	1.2E-05	10	40.48	37	36	32.30	40.48	0.00	0.00
6.22	3.860	12.34	6	1.0E-05	10	40.07	36	36	31.97	40.07	0.00	0.00
6.24	3.740	12.48	6	9.0E-06	10	39.77	36	36	31.73	39.77	0.00	0.00
6.26	3.690	11.25	6	9.6E-06	10	38.82	35	36	30.97	38.82	0.00	0.00
6.28	3.720	11.53	6	9.6E-06	10	39.13	35	36	31.22	39.13	0.00	0.00
6.30	3.820	10.80	6	1.1E-05	10	39.00	36	36	31.12	39.00	0.00	0.00
6.32	3.950	10.16	6	1.4E-05	10	39.03	36	36	31.14	39.03	0.00	0.00
6.34	4.060	9.02	6	1.7E-05	10	38.64	37	36	30.83	38.64	0.00	0.00
6.36	4.160	7.43	6	2.2E-05	10	37.88	37	36	30.23	37.88	0.00	0.00
6.38	4.350	6.11	6	2.9E-05	10	37.62	38	36	30.02	37.62	0.00	0.00
6.40	4.490	5.33	6	3.5E-05	11	37.59	39	36	30.00	37.59	0.00	0.00
6.42	4.360	5.33	6	3.1E-05	10	37.17	38	36	29.66	37.17	0.00	0.00
6.44	4.000	6.88	6	2.0E-05	10	37.02	36	36	29.54	37.02	0.00	0.00

In situ data				Estimations		ARENILE PRINCIPE DI PIEMONTE - VIAREGGIO (LU)					CPTu 02	
Depth (m)	qc (MPa)	fs (kPa)	SBTn	Ksbt (m/s)	SPT N60	M (MPa)	Dr (%)	Fi (°)	Es (MPa)	Go (MPa)	Su (kPa)	OCR
6.46	3.730	8.34	6	1.3E-05	10	37.14	35	36	29.64	37.14	0.00	0.00
6.48	3.490	9.93	6	8.5E-06	9	37.43	34	35	29.86	37.43	0.00	0.00
6.50	3.320	12.12	6	5.6E-06	9	38.29	33	35	30.55	38.29	0.00	0.00
6.52	3.260	13.58	6	4.6E-06	9	39.02	33	35	31.13	39.02	0.00	0.00
6.54	3.270	13.94	6	4.5E-06	9	39.30	33	35	31.36	39.30	0.00	0.00
6.56	3.350	13.62	6	5.0E-06	9	39.42	34	35	31.45	39.42	0.00	0.00
6.58	3.510	12.85	6	6.5E-06	10	39.53	34	35	31.54	39.53	0.00	0.00
6.60	3.770	11.62	6	9.5E-06	10	39.67	35	36	31.65	39.67	0.00	0.00
6.62	4.140	9.57	6	1.7E-05	10	39.54	37	36	31.55	39.54	0.00	0.00
6.64	4.470	7.84	6	2.6E-05	11	39.43	38	36	31.46	39.43	0.00	0.00
6.66	4.720	6.93	6	3.4E-05	11	39.63	39	37	31.62	39.63	0.00	0.00
6.68	5.070	7.11	6	4.3E-05	12	40.86	41	37	32.60	40.86	0.00	0.00
6.70	5.230	7.84	6	4.5E-05	12	41.83	41	37	33.38	41.83	0.00	0.00
6.72	5.280	9.84	6	3.9E-05	12	43.32	42	37	34.56	43.32	0.00	0.00
6.74	5.300	12.80	6	3.1E-05	13	45.31	42	37	36.15	45.31	0.00	0.00
6.76	5.310	16.04	6	2.5E-05	13	47.38	42	37	37.80	47.38	0.00	0.00
6.78	5.300	18.00	6	2.1E-05	13	48.54	42	37	38.73	48.54	0.00	0.00
6.80	5.220	19.46	6	1.8E-05	13	49.19	41	37	39.24	49.19	0.00	0.00
6.82	5.040	20.46	6	1.5E-05	13	49.26	41	37	39.30	49.26	0.00	0.00
6.84	4.690	21.32	6	1.1E-05	12	48.72	39	37	38.87	48.72	0.00	0.00
6.86	4.310	21.46	6	7.4E-06	12	47.62	38	36	38.00	47.62	0.00	0.00
6.88	3.840	19.91	6	5.1E-06	11	45.22	36	36	36.08	45.22	0.00	0.00
6.90	3.680	19.87	5	4.3E-06	10	44.66	35	36	35.64	44.66	0.00	0.00
6.92	3.660	20.32	5	4.0E-06	10	44.87	35	35	35.80	44.87	0.00	0.00
6.94	3.740	19.82	6	4.6E-06	11	44.90	35	36	35.82	44.90	0.00	0.00
6.96	3.760	18.04	6	5.3E-06	10	43.99	35	36	35.10	43.99	0.00	0.00
6.98	3.670	16.27	6	5.4E-06	10	42.65	35	35	34.03	42.65	0.00	0.00
7.00	3.530	15.35	6	5.0E-06	10	41.62	34	35	33.21	41.62	0.00	0.00
7.02	3.410	14.17	6	4.8E-06	10	40.48	33	35	32.30	40.48	0.00	0.00
7.04	3.340	13.21	6	4.7E-06	9	39.64	33	35	31.62	39.64	0.00	0.00
7.06	3.320	12.48	6	4.9E-06	9	39.11	33	35	31.20	39.11	0.00	0.00
7.08	3.320	11.76	6	5.3E-06	9	38.65	33	35	30.84	38.65	0.00	0.00
7.10	3.220	10.43	6	5.3E-06	9	37.39	32	35	29.84	37.39	0.00	0.00
7.12	2.980	10.88	5	3.7E-06	9	36.80	31	34	29.36	36.80	0.00	0.00
7.14	2.980	10.88	5	3.7E-06	9	36.81	31	34	29.37	36.81	0.00	0.00
7.16	2.980	10.88	5	3.7E-06	9	36.83	31	34	29.39	36.83	0.00	0.00
7.18	2.530	11.06	5	1.9E-06	8	35.11	29	34	28.01	35.11	0.00	0.00
7.20	2.400	10.49	5	1.6E-06	7	31.95	28	33	27.25	34.16	0.00	0.00
7.22	2.370	10.36	5	1.5E-06	7	31.52	28	33	27.09	33.95	0.00	0.00
7.24	2.410	10.54	5	1.6E-06	8	32.08	28	33	27.34	34.27	0.00	0.00
7.26	2.520	11.02	5	1.8E-06	8	33.61	28	34	28.01	35.11	0.00	0.00
7.28	2.600	11.37	5	2.0E-06	8	35.71	29	34	28.49	35.71	0.00	0.00
7.30	2.570	11.23	5	1.9E-06	8	35.50	29	34	28.33	35.50	0.00	0.00
7.32	2.500	10.93	5	1.8E-06	8	33.32	28	34	27.93	35.01	0.00	0.00
7.34	2.380	10.40	5	1.5E-06	7	31.64	28	33	27.23	34.13	0.00	0.00
7.36	2.090	9.14	5	1.0E-06	7	27.58	26	33	25.44	31.89	0.00	0.00
7.38	1.750	7.65	5	6.1E-07	6	22.81	24	32	23.17	29.04	0.00	0.00
7.40	1.590	10.69	5	2.7E-07	6	20.57	22	31	24.18	30.31	0.00	0.00
7.42	1.520	10.07	5	2.4E-07	6	19.59	22	31	23.53	29.49	0.00	0.00
7.44	1.430	15.72	4	1.0E-07	6	18.32	0	0	0.00	32.35	93.49	5.23
7.46	1.570	19.55	4	1.1E-07	6	20.28	0	0	0.00	35.29	103.48	5.77
7.48	1.680	25.06	4	9.8E-08	7	21.82	0	0	0.00	38.63	111.32	6.21
7.50	1.550	23.05	4	7.8E-08	6	19.99	0	0	0.00	36.88	102.01	5.69
7.52	1.350	20.55	4	5.1E-08	6	17.19	0	0	0.00	34.32	87.71	4.91
7.54	1.510	21.02	4	8.0E-08	6	19.43	0	0	0.00	35.70	99.11	5.51

In situ data				Estimations		ARENILE PRINCIPE DI PIEMONTE - VIAREGGIO (LU)					CPTu 02	
Depth (m)	qc (MPa)	fs (kPa)	SBTn	Ksbt (m/s)	SPT N60	M (MPa)	Dr (%)	Fi (°)	Es (MPa)	Go (MPa)	Su (kPa)	OCR
7.56	2.880	20.39	5	1.3E-06	9	38.60	30	34	33.99	42.60	0.00	0.00
7.58	4.590	20.14	6	9.3E-06	12	48.61	38	36	38.78	48.61	0.00	0.00
7.60	4.810	11.89	6	2.1E-05	12	44.19	39	37	35.26	44.19	0.00	0.00
7.62	4.940	7.61	6	3.3E-05	12	41.68	39	37	33.26	41.68	0.00	0.00
7.64	5.030	8.06	6	3.4E-05	12	42.28	40	37	33.74	42.28	0.00	0.00
7.66	5.080	9.20	6	3.2E-05	12	43.23	40	37	34.49	43.23	0.00	0.00
7.68	5.110	6.61	6	4.0E-05	12	41.59	40	37	33.18	41.59	0.00	0.00
7.70	5.090	6.33	6	4.1E-05	12	41.36	40	37	33.00	41.36	0.00	0.00
7.72	5.040	9.70	6	2.9E-05	12	43.51	40	37	34.71	43.51	0.00	0.00
7.74	4.980	10.57	6	2.6E-05	12	43.94	39	37	35.06	43.94	0.00	0.00
7.76	4.910	11.44	6	2.3E-05	12	44.34	39	37	35.38	44.34	0.00	0.00
7.78	4.710	12.89	6	1.7E-05	12	44.73	38	36	35.69	44.73	0.00	0.00
7.80	4.070	13.94	6	8.7E-06	11	43.42	36	36	34.64	43.42	0.00	0.00
7.82	3.920	16.17	6	6.3E-06	11	44.34	35	36	35.38	44.34	0.00	0.00
7.84	4.320	17.86	6	8.2E-06	12	46.71	37	36	37.27	46.71	0.00	0.00
7.86	4.580	22.42	6	7.7E-06	12	50.18	38	36	40.04	50.18	0.00	0.00
7.88	4.700	23.24	6	8.1E-06	13	51.03	38	36	40.72	51.03	0.00	0.00
7.90	4.400	22.01	6	6.6E-06	12	49.43	37	36	39.44	49.43	0.00	0.00
7.92	3.960	20.28	6	4.8E-06	11	47.03	35	36	37.53	47.03	0.00	0.00
7.94	3.610	15.35	6	4.7E-06	10	42.90	33	35	34.23	42.90	0.00	0.00
7.96	3.280	12.48	5	4.1E-06	9	39.85	32	35	31.80	39.85	0.00	0.00
7.98	2.980	11.30	5	3.1E-06	9	37.91	30	34	30.25	37.91	0.00	0.00
8.00	2.770	10.47	5	2.5E-06	8	36.49	29	34	29.12	36.49	0.00	0.00
8.02	2.680	10.13	5	2.3E-06	8	35.89	29	34	28.64	35.89	0.00	0.00
8.04	2.720	10.28	5	2.3E-06	8	36.19	29	34	28.87	36.19	0.00	0.00
8.06	2.860	10.81	5	2.7E-06	9	37.16	30	34	29.65	37.16	0.00	0.00
8.08	3.270	12.36	5	4.0E-06	9	39.85	32	35	31.79	39.85	0.00	0.00
8.10	3.730	14.10	6	5.8E-06	10	42.68	34	35	34.06	42.68	0.00	0.00
8.12	4.410	16.67	6	9.3E-06	12	46.58	37	36	37.17	46.58	0.00	0.00
8.14	4.820	18.22	6	1.2E-05	12	48.81	38	36	38.94	48.81	0.00	0.00
8.16	4.820	18.22	6	1.2E-05	12	48.83	38	36	38.96	48.83	0.00	0.00
8.18	5.280	19.96	6	1.5E-05	13	51.23	40	37	40.88	51.23	0.00	0.00
8.20	5.760	21.78	6	1.9E-05	14	53.64	42	37	42.80	53.64	0.00	0.00
8.22	6.150	23.25	6	2.3E-05	15	55.53	43	38	44.31	55.53	0.00	0.00
8.24	6.290	23.78	6	2.5E-05	15	56.22	44	38	44.85	56.22	0.00	0.00
8.26	6.420	24.27	6	2.6E-05	15	56.85	44	38	45.36	56.85	0.00	0.00
8.28	6.590	24.92	6	2.8E-05	16	57.66	45	38	46.01	57.66	0.00	0.00
8.30	6.520	24.65	6	2.7E-05	16	57.37	45	38	45.77	57.37	0.00	0.00
8.32	6.040	22.84	6	2.2E-05	15	55.15	43	37	44.00	55.15	0.00	0.00
8.34	5.610	21.21	6	1.8E-05	14	53.09	41	37	42.36	53.09	0.00	0.00
8.36	3.030	20.85	5	1.4E-06	10	40.54	30	34	35.43	44.41	0.00	0.00
8.38	2.130	21.60	5	2.9E-07	8	27.94	25	32	32.44	40.65	0.00	0.00
8.40	1.410	27.84	4	3.1E-08	6	17.86	0	0	0.00	39.05	91.10	4.79
8.42	1.020	33.44	3	4.8E-09	6	8.96	0	0	0.00	37.91	63.23	3.34
8.44	1.360	34.03	4	1.8E-08	6	17.10	0	0	0.00	41.18	87.49	4.61
8.46	2.760	36.04	5	3.9E-07	10	36.74	29	34	40.43	50.67	0.00	0.00
8.48	4.090	26.79	5	3.4E-06	12	51.71	35	36	41.26	51.71	0.00	0.00
8.50	5.300	10.89	6	2.9E-05	13	45.89	40	37	36.62	45.89	0.00	0.00
8.52	6.130	10.64	6	5.0E-05	14	48.05	43	37	38.34	48.05	0.00	0.00
8.54	6.220	8.64	6	6.2E-05	14	47.00	43	38	37.50	47.00	0.00	0.00
8.56	6.230	8.65	6	6.2E-05	14	47.05	43	38	37.54	47.05	0.00	0.00
8.58	6.130	8.52	6	5.9E-05	14	46.71	43	37	37.27	46.71	0.00	0.00
8.60	6.290	8.74	6	6.3E-05	14	47.31	43	38	37.75	47.31	0.00	0.00
8.62	6.520	9.06	6	7.0E-05	14	48.15	44	38	38.42	48.15	0.00	0.00
8.64	6.870	9.54	6	8.2E-05	15	49.40	45	38	39.41	49.40	0.00	0.00

In situ data				Estimations		ARENILE PRINCIPE DI PIEMONTE - VIAREGGIO (LU)					CPTu 02	
Depth (m)	qc (MPa)	fs (kPa)	SBTn	Ksbt (m/s)	SPT N60	M (MPa)	Dr (%)	Fi (°)	Es (MPa)	Go (MPa)	Su (kPa)	OCR
8.66	7.260	10.09	6	9.7E-05	15	50.75	46	38	40.49	50.75	0.00	0.00
8.68	7.750	10.77	6	1.2E-04	16	52.39	48	39	41.80	52.39	0.00	0.00
8.70	7.960	11.06	6	1.3E-04	17	53.09	49	39	42.36	53.09	0.00	0.00
8.72	7.770	10.79	6	1.2E-04	16	52.49	48	39	41.88	52.49	0.00	0.00
8.74	7.180	9.97	6	9.3E-05	15	50.55	46	38	40.34	50.55	0.00	0.00
8.76	7.070	9.82	6	8.8E-05	15	50.20	46	38	40.05	50.20	0.00	0.00
8.78	6.960	13.44	6	6.5E-05	15	52.25	45	38	41.69	52.25	0.00	0.00
8.80	6.850	15.31	6	5.4E-05	15	53.20	45	38	42.45	53.20	0.00	0.00
8.82	6.760	18.59	6	4.1E-05	16	55.04	45	38	43.92	55.04	0.00	0.00
8.84	6.500	21.51	6	2.9E-05	15	56.18	44	38	44.82	56.18	0.00	0.00
8.86	6.070	18.82	6	2.6E-05	15	53.50	42	37	42.68	53.50	0.00	0.00
8.88	5.430	13.71	6	2.4E-05	13	48.55	40	37	38.73	48.55	0.00	0.00
8.90	4.940	10.39	6	2.1E-05	12	44.88	38	36	35.81	44.88	0.00	0.00
8.92	4.450	8.02	6	1.8E-05	11	41.67	36	36	33.25	41.67	0.00	0.00
8.94	3.890	5.01	6	1.5E-05	10	37.51	34	35	29.93	37.51	0.00	0.00
8.96	3.130	6.61	6	5.4E-06	9	35.90	30	34	28.64	35.90	0.00	0.00
8.98	2.430	15.72	5	7.3E-07	8	32.01	27	33	31.49	39.47	0.00	0.00
9.00	2.160	22.64	5	2.6E-07	8	28.23	25	32	33.55	42.05	0.00	0.00
9.02	3.070	24.60	5	1.0E-06	10	40.97	30	34	37.79	47.36	0.00	0.00
9.04	4.710	26.75	6	5.6E-06	13	54.40	37	36	43.41	54.40	0.00	0.00
9.06	5.780	14.26	6	2.9E-05	14	50.06	41	37	39.94	50.06	0.00	0.00
9.08	5.810	16.69	6	2.5E-05	14	51.73	41	37	41.27	51.73	0.00	0.00
9.10	5.530	15.88	6	2.1E-05	14	50.47	40	37	40.27	50.47	0.00	0.00
9.12	5.120	14.70	6	1.7E-05	13	48.57	39	37	38.75	48.57	0.00	0.00
9.14	4.950	14.22	6	1.5E-05	13	47.78	38	36	38.12	47.78	0.00	0.00
9.16	4.950	14.22	6	1.5E-05	13	47.80	38	36	38.14	47.80	0.00	0.00
9.18	4.410	12.67	6	1.1E-05	12	45.13	36	36	36.00	45.13	0.00	0.00
9.20	4.350	12.49	6	1.0E-05	11	44.83	36	36	35.77	44.83	0.00	0.00
9.22	4.110	11.80	6	8.8E-06	11	43.59	34	35	34.78	43.59	0.00	0.00
9.24	3.870	11.11	6	7.3E-06	10	42.31	33	35	33.76	42.31	0.00	0.00
9.26	3.700	10.63	6	6.4E-06	10	41.39	33	35	33.03	41.39	0.00	0.00
9.28	3.570	10.25	6	5.7E-06	10	40.67	32	35	32.45	40.67	0.00	0.00
9.30	3.500	10.05	6	5.4E-06	10	40.29	32	35	32.14	40.29	0.00	0.00
9.32	3.450	9.91	6	5.1E-06	10	40.02	31	35	31.93	40.02	0.00	0.00
9.34	3.420	9.82	6	5.0E-06	10	39.86	31	34	31.80	39.86	0.00	0.00
9.36	3.460	9.94	6	5.1E-06	10	40.11	31	35	32.00	40.11	0.00	0.00
9.38	3.630	10.43	6	5.9E-06	10	41.11	32	35	32.80	41.11	0.00	0.00
9.40	3.830	11.00	6	6.9E-06	10	42.24	33	35	33.70	42.24	0.00	0.00
9.42	4.060	11.66	6	8.2E-06	11	43.51	34	35	34.72	43.51	0.00	0.00
9.44	4.400	12.64	6	1.0E-05	12	45.32	36	36	36.16	45.32	0.00	0.00
9.46	4.840	13.90	6	1.4E-05	12	47.56	37	36	37.95	47.56	0.00	0.00
9.48	5.030	14.45	6	1.5E-05	13	48.51	38	36	38.70	48.51	0.00	0.00
9.50	4.970	14.27	6	1.5E-05	13	48.24	38	36	38.49	48.24	0.00	0.00
9.52	4.690	13.47	6	1.2E-05	12	46.88	37	36	37.40	46.88	0.00	0.00
9.54	4.430	12.72	6	1.1E-05	12	45.58	36	36	36.36	45.58	0.00	0.00
9.56	4.260	12.24	6	9.3E-06	11	44.72	35	36	35.68	44.72	0.00	0.00
9.58	4.090	11.75	6	8.2E-06	11	43.83	34	35	34.97	43.83	0.00	0.00
9.60	4.010	11.52	6	7.7E-06	11	43.42	34	35	34.64	43.42	0.00	0.00
9.62	4.050	11.63	6	7.9E-06	11	43.65	34	35	34.83	43.65	0.00	0.00
9.64	4.170	11.98	6	8.6E-06	11	44.32	34	35	35.36	44.32	0.00	0.00
9.66	4.370	12.55	6	9.9E-06	12	45.38	35	36	36.21	45.38	0.00	0.00
9.68	4.560	13.10	6	1.1E-05	12	46.38	36	36	37.01	46.38	0.00	0.00
9.70	4.720	13.56	6	1.2E-05	12	47.21	37	36	37.67	47.21	0.00	0.00
9.72	4.810	13.81	6	1.3E-05	12	47.67	37	36	38.04	47.67	0.00	0.00
9.74	4.830	13.87	6	1.3E-05	12	47.79	37	36	38.13	47.79	0.00	0.00

In situ data				Estimations		ARENILE PRINCIPE DI PIEMONTE - VIAREGGIO (LU)					CPTu 02	
Depth (m)	qc (MPa)	fs (kPa)	SBTn	Ksbt (m/s)	SPT N60	M (MPa)	Dr (%)	Fi (°)	Es (MPa)	Go (MPa)	Su (kPa)	OCR
9.76	4.790	13.76	6	1.3E-05	12	47.62	37	36	38.00	47.62	0.00	0.00
9.78	4.810	13.81	6	1.3E-05	12	47.74	37	36	38.09	47.74	0.00	0.00
9.80	4.900	10.89	6	1.8E-05	12	45.99	37	36	36.69	45.99	0.00	0.00
9.82	4.990	11.94	6	1.7E-05	12	47.02	38	36	37.51	47.02	0.00	0.00
9.84	5.100	12.53	6	1.8E-05	13	47.77	38	36	38.12	47.77	0.00	0.00
9.86	5.150	13.40	6	1.7E-05	13	48.54	38	36	38.73	48.54	0.00	0.00
9.88	5.170	14.08	6	1.7E-05	13	49.08	38	36	39.16	49.08	0.00	0.00
9.90	5.180	14.72	6	1.6E-05	13	49.56	38	36	39.54	49.56	0.00	0.00
9.92	5.230	14.67	6	1.7E-05	13	49.69	38	36	39.65	49.69	0.00	0.00
9.94	5.310	15.04	6	1.7E-05	13	50.19	39	37	40.04	50.19	0.00	0.00
9.96	5.390	15.35	6	1.8E-05	13	50.64	39	37	40.40	50.64	0.00	0.00
9.98	5.390	15.81	6	1.7E-05	13	50.96	39	37	40.66	50.96	0.00	0.00
10.00	5.410	16.36	6	1.7E-05	14	51.40	39	37	41.01	51.40	0.00	0.00
10.02	5.520	16.45	6	1.8E-05	14	51.79	39	37	41.32	51.79	0.00	0.00
10.04	5.540	16.45	6	1.8E-05	14	51.87	39	37	41.38	51.87	0.00	0.00
10.06	5.470	16.81	6	1.7E-05	14	51.93	39	37	41.43	51.93	0.00	0.00
10.08	5.440	17.45	6	1.6E-05	14	52.28	39	37	41.71	52.28	0.00	0.00
10.10	5.460	17.91	6	1.5E-05	14	52.65	39	37	42.01	52.65	0.00	0.00
10.12	5.510	18.36	6	1.6E-05	14	53.10	39	37	42.37	53.10	0.00	0.00
10.14	5.580	18.18	6	1.6E-05	14	53.20	39	37	42.45	53.20	0.00	0.00
10.16	5.580	18.18	6	1.6E-05	14	53.23	39	37	42.47	53.23	0.00	0.00
10.18	5.420	10.01	6	2.7E-05	13	47.27	39	37	37.71	47.27	0.00	0.00
10.20	5.660	10.61	6	3.0E-05	13	48.39	40	37	38.61	48.39	0.00	0.00
10.22	5.710	10.11	6	3.2E-05	13	48.20	40	37	38.46	48.20	0.00	0.00
10.24	5.670	10.57	6	3.0E-05	13	48.43	40	37	38.64	48.43	0.00	0.00
10.26	5.570	11.85	6	2.5E-05	13	49.07	39	37	39.15	49.07	0.00	0.00
10.28	5.520	13.08	6	2.2E-05	13	49.80	39	37	39.74	49.80	0.00	0.00
10.30	5.490	14.22	6	2.0E-05	14	50.52	39	37	40.31	50.52	0.00	0.00
10.32	5.460	15.31	6	1.8E-05	14	51.19	39	37	40.85	51.19	0.00	0.00
10.34	5.430	16.95	6	1.6E-05	14	52.21	39	37	41.66	52.21	0.00	0.00
10.36	5.430	18.50	6	1.4E-05	14	53.23	39	37	42.47	53.23	0.00	0.00
10.38	5.700	18.50	6	1.7E-05	14	54.00	40	37	43.08	54.00	0.00	0.00
10.40	6.040	17.68	6	2.3E-05	15	54.40	41	37	43.40	54.40	0.00	0.00
10.42	6.340	17.27	6	2.8E-05	15	54.93	42	37	43.82	54.93	0.00	0.00
10.44	6.450	16.22	6	3.3E-05	15	54.55	42	37	43.52	54.55	0.00	0.00
10.46	6.410	16.22	6	3.2E-05	15	54.47	42	37	43.46	54.47	0.00	0.00
10.48	6.330	16.45	6	3.0E-05	15	54.44	42	37	43.43	54.44	0.00	0.00
10.50	6.200	17.18	6	2.6E-05	15	54.60	41	37	43.57	54.60	0.00	0.00
10.52	6.090	18.91	6	2.1E-05	15	55.45	41	37	44.24	55.45	0.00	0.00
10.54	5.980	21.23	6	1.7E-05	15	56.63	41	37	45.18	56.63	0.00	0.00
10.56	5.870	23.46	6	1.4E-05	15	57.71	40	37	46.04	57.71	0.00	0.00
10.58	5.780	24.28	6	1.2E-05	15	57.98	40	37	46.26	57.98	0.00	0.00
10.60	5.680	24.69	6	1.1E-05	15	57.97	39	37	46.25	57.97	0.00	0.00
10.62	5.610	24.92	6	1.1E-05	15	57.94	39	37	46.23	57.94	0.00	0.00
10.64	5.470	24.56	6	9.6E-06	14	57.37	39	36	45.77	57.37	0.00	0.00
10.66	5.240	24.15	6	8.2E-06	14	56.50	38	36	45.08	56.50	0.00	0.00
10.68	4.980	23.97	6	6.6E-06	14	55.66	37	36	44.41	55.66	0.00	0.00
10.70	4.800	24.06	6	5.6E-06	13	55.20	36	36	44.04	55.20	0.00	0.00
10.72	4.700	24.01	6	5.1E-06	13	54.89	36	36	43.80	54.89	0.00	0.00
10.74	4.680	23.60	6	5.2E-06	13	54.62	36	36	43.58	54.62	0.00	0.00
10.76	4.790	23.37	6	5.8E-06	13	54.84	36	36	43.76	54.84	0.00	0.00
10.78	5.020	22.60	6	7.3E-06	14	55.10	37	36	43.96	55.10	0.00	0.00
10.80	5.300	20.64	6	1.0E-05	14	54.74	38	36	43.68	54.74	0.00	0.00
10.82	5.600	18.41	6	1.5E-05	14	54.19	39	37	43.24	54.19	0.00	0.00
10.84	5.800	17.50	6	1.8E-05	14	54.16	40	37	43.21	54.16	0.00	0.00

In situ data				Estimations		ARENILE PRINCIPE DI PIEMONTE - VIAREGGIO (LU)					CPTu 02	
Depth (m)	qc (MPa)	fs (kPa)	SBTn	Ksbt (m/s)	SPT N60	M (MPa)	Dr (%)	Fi (°)	Es (MPa)	Go (MPa)	Su (kPa)	OCR
10.86	5.990	17.22	6	2.1E-05	15	54.50	40	37	43.49	54.50	0.00	0.00
10.88	6.150	17.13	6	2.4E-05	15	54.88	41	37	43.79	54.88	0.00	0.00
10.90	6.260	17.36	6	2.5E-05	15	55.34	41	37	44.15	55.34	0.00	0.00
10.92	6.260	18.36	6	2.4E-05	15	56.01	41	37	44.69	56.01	0.00	0.00
10.94	6.190	19.68	6	2.1E-05	15	56.70	41	37	45.24	56.70	0.00	0.00
10.96	5.990	22.01	6	1.6E-05	15	57.65	40	37	46.00	57.65	0.00	0.00
10.98	5.890	23.37	6	1.3E-05	15	58.24	40	37	46.47	58.24	0.00	0.00
11.00	5.860	24.15	6	1.3E-05	15	58.65	40	37	46.79	58.65	0.00	0.00
11.02	5.720	24.51	6	1.1E-05	15	58.51	39	37	46.68	58.51	0.00	0.00
11.04	5.600	24.65	6	1.0E-05	15	58.29	39	37	46.51	58.29	0.00	0.00
11.06	5.550	24.10	6	9.9E-06	15	57.85	38	36	46.16	57.85	0.00	0.00
11.08	5.570	23.19	6	1.1E-05	15	57.39	39	36	45.79	57.39	0.00	0.00
11.10	5.610	21.23	6	1.2E-05	15	56.33	39	37	44.95	56.33	0.00	0.00
11.12	5.590	20.14	6	1.3E-05	14	55.62	39	36	44.38	55.62	0.00	0.00
11.14	5.550	19.64	6	1.3E-05	14	55.22	38	36	44.06	55.22	0.00	0.00
11.16	5.550	19.64	6	1.3E-05	14	55.24	38	36	44.08	55.24	0.00	0.00
11.18	5.380	8.29	6	2.6E-05	13	46.91	38	36	37.43	46.91	0.00	0.00
11.20	5.390	9.16	6	2.5E-05	13	47.60	38	36	37.98	47.60	0.00	0.00
11.22	5.420	10.66	6	2.2E-05	13	48.80	38	36	38.94	48.80	0.00	0.00
11.24	5.480	11.48	6	2.2E-05	13	49.59	38	36	39.56	49.59	0.00	0.00
11.26	5.620	12.03	6	2.3E-05	14	50.39	39	36	40.21	50.39	0.00	0.00
11.28	5.730	13.12	6	2.3E-05	14	51.49	39	37	41.08	51.49	0.00	0.00
11.30	5.810	13.94	6	2.2E-05	14	52.30	39	37	41.73	52.30	0.00	0.00
11.32	6.010	13.67	6	2.6E-05	14	52.67	40	37	42.02	52.67	0.00	0.00
11.34	6.260	15.72	6	2.7E-05	15	54.74	41	37	43.68	54.74	0.00	0.00
11.36	6.430	16.68	6	2.8E-05	15	55.84	41	37	44.55	55.84	0.00	0.00
11.38	6.590	17.40	6	2.9E-05	16	56.73	42	37	45.27	56.73	0.00	0.00
11.40	6.700	18.54	6	2.9E-05	16	57.77	42	37	46.09	57.77	0.00	0.00
11.42	6.790	19.82	6	2.8E-05	16	58.84	42	37	46.94	58.84	0.00	0.00
11.44	6.990	20.46	6	3.1E-05	17	59.74	43	38	47.67	59.74	0.00	0.00
11.46	7.180	22.64	6	3.0E-05	17	61.57	44	38	49.13	61.57	0.00	0.00
11.48	7.220	23.42	6	3.0E-05	17	62.17	44	38	49.60	62.17	0.00	0.00
11.50	7.160	24.97	6	2.6E-05	17	62.99	44	38	50.26	62.99	0.00	0.00
11.52	7.080	26.88	6	2.3E-05	17	63.95	43	38	51.03	63.95	0.00	0.00
11.54	7.000	27.93	6	2.0E-05	17	64.40	43	38	51.38	64.40	0.00	0.00
11.56	6.810	29.16	6	1.7E-05	17	64.67	42	37	51.60	64.67	0.00	0.00
11.58	6.650	30.53	6	1.4E-05	17	65.08	42	37	51.92	65.08	0.00	0.00
11.60	6.590	31.21	6	1.3E-05	17	65.34	42	37	52.13	65.34	0.00	0.00
11.62	6.580	31.71	6	1.3E-05	17	65.61	42	37	52.35	65.61	0.00	0.00
11.64	6.530	31.07	6	1.3E-05	17	65.17	41	37	51.99	65.17	0.00	0.00
11.66	6.470	30.75	6	1.3E-05	17	64.86	41	37	51.75	64.86	0.00	0.00
11.68	6.440	29.84	6	1.3E-05	17	64.31	41	37	51.31	64.31	0.00	0.00
11.70	6.400	28.89	6	1.3E-05	16	63.70	41	37	50.82	63.70	0.00	0.00
11.72	6.320	28.39	6	1.3E-05	16	63.24	41	37	50.46	63.24	0.00	0.00
11.74	6.220	28.25	6	1.2E-05	16	62.93	40	37	50.21	62.93	0.00	0.00
11.76	6.140	27.98	6	1.1E-05	16	62.59	40	37	49.94	62.59	0.00	0.00
11.78	6.030	27.66	6	1.1E-05	16	62.15	40	37	49.59	62.15	0.00	0.00
11.80	5.950	26.56	6	1.1E-05	16	61.33	39	37	48.93	61.33	0.00	0.00
11.82	5.900	26.15	6	1.0E-05	15	60.98	39	37	48.65	60.98	0.00	0.00
11.84	5.900	25.61	6	1.1E-05	15	60.69	39	37	48.42	60.69	0.00	0.00
11.86	5.880	25.42	6	1.1E-05	15	60.55	39	37	48.31	60.55	0.00	0.00
11.88	5.850	24.65	6	1.1E-05	15	60.03	39	37	47.90	60.03	0.00	0.00
11.90	5.690	24.74	6	9.5E-06	15	59.68	38	36	47.62	59.68	0.00	0.00
11.92	5.540	24.74	6	8.4E-06	15	59.30	38	36	47.31	59.30	0.00	0.00
11.94	5.410	24.74	6	7.6E-06	15	58.96	37	36	47.04	58.96	0.00	0.00

In situ data				Estimations		ARENILE PRINCIPE DI PIEMONTE - VIAREGGIO (LU)					CPTu 02	
Depth (m)	qc (MPa)	fs (kPa)	SBTn	Ksbt (m/s)	SPT N60	M (MPa)	Dr (%)	Fi (°)	Es (MPa)	Go (MPa)	Su (kPa)	OCR
11.96	5.390	24.47	6	7.6E-06	15	58.77	37	36	46.89	58.77	0.00	0.00
11.98	5.490	24.56	6	8.1E-06	15	59.13	37	36	47.18	59.13	0.00	0.00
12.00	5.630	23.78	6	9.4E-06	15	59.07	38	36	47.13	59.07	0.00	0.00
12.02	5.690	22.92	6	1.0E-05	15	58.73	38	36	46.86	58.73	0.00	0.00
12.04	5.700	22.37	6	1.1E-05	15	58.44	38	36	46.63	58.44	0.00	0.00
12.06	5.850	21.05	6	1.3E-05	15	58.04	39	37	46.31	58.04	0.00	0.00
12.08	5.890	20.82	6	1.4E-05	15	58.02	39	37	46.29	58.02	0.00	0.00
12.10	5.940	20.14	6	1.5E-05	15	57.74	39	37	46.07	57.74	0.00	0.00
12.12	5.930	20.09	6	1.4E-05	15	57.70	39	37	46.04	57.70	0.00	0.00
12.14	5.940	20.05	6	1.5E-05	15	57.73	39	37	46.06	57.73	0.00	0.00
12.16	5.940	20.05	6	1.5E-05	15	57.75	39	37	46.08	57.75	0.00	0.00
12.18	5.940	20.05	6	1.4E-05	15	57.78	39	37	46.10	57.78	0.00	0.00
12.20	5.840	16.61	6	1.7E-05	15	55.25	39	36	44.08	55.25	0.00	0.00
12.22	5.880	17.47	6	1.6E-05	15	55.96	39	37	44.65	55.96	0.00	0.00
12.24	5.820	18.16	6	1.5E-05	15	56.29	38	36	44.91	56.29	0.00	0.00
12.26	5.730	18.12	6	1.4E-05	15	56.04	38	36	44.71	56.04	0.00	0.00
12.28	5.680	18.76	6	1.3E-05	15	56.35	38	36	44.96	56.35	0.00	0.00
12.30	5.760	16.13	6	1.6E-05	15	54.82	38	36	43.74	54.82	0.00	0.00
12.32	5.840	15.49	6	1.8E-05	15	54.61	38	36	43.57	54.61	0.00	0.00
12.34	5.890	15.95	6	1.8E-05	15	55.08	39	36	43.95	55.08	0.00	0.00
12.36	5.880	16.54	6	1.7E-05	15	55.48	39	36	44.27	55.48	0.00	0.00
12.38	5.890	16.86	6	1.7E-05	15	55.75	39	36	44.48	55.75	0.00	0.00
12.40	5.960	16.90	6	1.7E-05	15	55.98	39	37	44.67	55.98	0.00	0.00
12.42	6.040	16.90	6	1.8E-05	15	56.22	39	37	44.85	56.22	0.00	0.00
12.44	6.120	17.18	6	1.9E-05	15	56.64	39	37	45.19	56.64	0.00	0.00
12.46	6.100	17.50	6	1.8E-05	15	56.82	39	37	45.34	56.82	0.00	0.00
12.48	6.010	17.95	6	1.7E-05	15	56.91	39	37	45.41	56.91	0.00	0.00
12.50	5.990	18.13	6	1.6E-05	15	57.01	39	37	45.48	57.01	0.00	0.00
12.52	6.070	18.63	6	1.7E-05	15	57.57	39	37	45.93	57.57	0.00	0.00
12.54	6.130	19.41	6	1.6E-05	15	58.27	39	37	46.49	58.27	0.00	0.00
12.56	6.250	20.37	6	1.7E-05	16	59.22	40	37	47.25	59.22	0.00	0.00
12.58	6.370	20.37	6	1.8E-05	16	59.55	40	37	47.51	59.55	0.00	0.00
12.60	6.540	19.82	6	2.1E-05	16	59.64	41	37	47.58	59.64	0.00	0.00
12.62	6.700	19.18	6	2.4E-05	16	59.63	41	37	47.58	59.63	0.00	0.00
12.64	6.760	19.50	6	2.4E-05	16	60.01	41	37	47.88	60.01	0.00	0.00
12.66	6.710	20.00	6	2.3E-05	16	60.24	41	37	48.07	60.24	0.00	0.00
12.68	6.540	20.50	6	2.0E-05	16	60.18	40	37	48.01	60.18	0.00	0.00
12.70	6.440	21.19	6	1.8E-05	16	60.40	40	37	48.19	60.40	0.00	0.00
12.72	6.390	22.64	6	1.6E-05	16	61.22	40	37	48.85	61.22	0.00	0.00
12.74	6.370	23.87	6	1.5E-05	16	61.97	40	37	49.44	61.97	0.00	0.00
12.76	6.370	24.19	6	1.4E-05	16	62.19	40	37	49.62	62.19	0.00	0.00
12.78	6.390	23.51	6	1.5E-05	16	61.84	40	37	49.34	61.84	0.00	0.00
12.80	6.370	22.78	6	1.5E-05	16	61.36	40	37	48.96	61.36	0.00	0.00
12.82	6.140	21.96	6	1.4E-05	16	60.28	39	37	48.10	60.28	0.00	0.00
12.84	5.900	21.92	6	1.2E-05	15	59.65	38	36	47.60	59.65	0.00	0.00
12.86	5.660	21.87	6	9.6E-06	15	59.00	37	36	47.08	59.00	0.00	0.00
12.88	5.510	22.10	6	8.5E-06	15	58.77	37	36	46.89	58.77	0.00	0.00
12.90	5.540	22.01	6	8.7E-06	15	58.82	37	36	46.93	58.82	0.00	0.00
12.92	5.680	21.82	6	9.7E-06	15	59.10	37	36	47.15	59.10	0.00	0.00
12.94	5.840	21.00	6	1.2E-05	15	59.02	38	36	47.09	59.02	0.00	0.00
12.96	6.160	19.23	6	1.6E-05	16	58.72	39	37	46.85	58.72	0.00	0.00
12.98	6.520	17.36	6	2.3E-05	16	58.39	40	37	46.59	58.39	0.00	0.00
13.00	6.610	16.90	6	2.5E-05	16	58.32	40	37	46.53	58.32	0.00	0.00
13.02	6.650	17.22	6	2.5E-05	16	58.66	41	37	46.80	58.66	0.00	0.00
13.04	6.720	18.18	6	2.5E-05	16	59.50	41	37	47.48	59.50	0.00	0.00

In situ data				Estimations		ARENILE PRINCIPE DI PIEMONTE - VIAREGGIO (LU)					CPTu 02	
Depth (m)	qc (MPa)	fs (kPa)	SBTn	Ksbt (m/s)	SPT N60	M (MPa)	Dr (%)	Fi (°)	Es (MPa)	Go (MPa)	Su (kPa)	OCR
13.06	6.830	19.55	6	2.4E-05	17	60.71	41	37	48.44	60.71	0.00	0.00
13.08	6.920	21.41	6	2.3E-05	17	62.16	41	37	49.60	62.16	0.00	0.00
13.10	7.070	23.74	6	2.2E-05	17	64.03	42	37	51.08	64.03	0.00	0.00
13.12	7.190	25.20	6	2.2E-05	18	65.24	42	37	52.05	65.24	0.00	0.00
13.14	7.340	26.47	6	2.2E-05	18	66.39	43	37	52.97	66.39	0.00	0.00
13.16	7.470	27.57	6	2.3E-05	18	67.37	43	38	53.76	67.37	0.00	0.00
13.18	7.470	27.57	6	2.2E-05	18	67.40	43	38	53.78	67.40	0.00	0.00
13.20	7.660	23.90	6	3.0E-05	18	65.60	44	38	52.34	65.60	0.00	0.00
13.22	7.730	26.63	6	2.7E-05	19	67.47	44	38	53.83	67.47	0.00	0.00
13.24	7.700	25.55	6	2.8E-05	18	66.77	44	38	53.27	66.77	0.00	0.00
13.26	7.720	26.87	6	2.7E-05	19	67.64	44	38	53.97	67.64	0.00	0.00
13.28	7.620	26.28	6	2.6E-05	18	67.09	43	38	53.53	67.09	0.00	0.00
13.30	7.540	26.29	6	2.5E-05	18	66.94	43	38	53.41	66.94	0.00	0.00
13.32	7.540	29.30	6	2.1E-05	19	68.78	43	38	54.88	68.78	0.00	0.00
13.34	7.500	31.16	6	1.9E-05	19	69.80	43	37	55.69	69.80	0.00	0.00
13.36	7.360	33.08	6	1.6E-05	19	70.61	42	37	56.34	70.61	0.00	0.00
13.38	7.340	34.31	6	1.5E-05	19	71.29	42	37	56.88	71.29	0.00	0.00
13.40	7.460	35.45	6	1.5E-05	19	72.23	43	37	57.63	72.23	0.00	0.00
13.42	7.470	35.81	6	1.5E-05	19	72.48	43	37	57.83	72.48	0.00	0.00
13.44	7.550	36.36	6	1.5E-05	19	72.99	43	37	58.24	72.99	0.00	0.00
13.46	7.590	37.63	6	1.5E-05	19	73.81	43	38	58.89	73.81	0.00	0.00
13.48	7.480	38.18	6	1.4E-05	19	73.88	43	37	58.95	73.88	0.00	0.00
13.50	7.350	37.82	6	1.3E-05	19	73.42	42	37	58.58	73.42	0.00	0.00
13.52	7.190	39.14	6	1.1E-05	19	73.78	42	37	58.87	73.78	0.00	0.00
13.54	7.140	40.28	6	1.0E-05	19	74.30	41	37	59.28	74.30	0.00	0.00
13.56	7.140	40.28	6	1.0E-05	19	74.33	41	37	59.30	74.33	0.00	0.00
13.58	7.080	40.60	6	9.5E-06	19	74.38	41	37	59.35	74.38	0.00	0.00
13.60	6.950	40.46	6	8.8E-06	19	74.02	41	37	59.06	74.02	0.00	0.00
13.62	6.880	40.96	6	8.2E-06	18	74.14	41	37	59.16	74.14	0.00	0.00
13.64	7.020	40.73	6	9.1E-06	19	74.40	41	37	59.36	74.40	0.00	0.00
13.66	7.220	39.73	6	1.1E-05	19	74.38	42	37	59.35	74.38	0.00	0.00
13.68	7.260	39.18	6	1.1E-05	19	74.22	42	37	59.22	74.22	0.00	0.00
13.70	7.250	38.50	6	1.1E-05	19	73.86	42	37	58.93	73.86	0.00	0.00
13.72	7.170	37.41	6	1.1E-05	19	73.11	41	37	58.33	73.11	0.00	0.00
13.74	7.110	35.17	6	1.2E-05	18	71.76	41	37	57.26	71.76	0.00	0.00
13.76	6.980	32.85	6	1.2E-05	18	70.18	41	37	55.99	70.18	0.00	0.00
13.78	6.880	31.16	6	1.2E-05	18	68.99	40	37	55.05	68.99	0.00	0.00
13.80	6.780	31.35	6	1.1E-05	18	68.89	40	37	54.96	68.89	0.00	0.00
13.82	6.570	31.26	6	9.9E-06	17	68.35	39	37	54.53	68.35	0.00	0.00
13.84	6.410	31.44	6	8.8E-06	17	68.08	39	37	54.32	68.08	0.00	0.00
13.86	6.340	31.35	6	8.4E-06	17	67.88	39	37	54.16	67.88	0.00	0.00
13.88	6.280	32.99	6	7.4E-06	17	68.69	38	36	54.81	68.69	0.00	0.00
13.90	6.220	33.62	6	6.9E-06	17	68.92	38	36	54.99	68.92	0.00	0.00
13.92	6.220	33.81	6	6.8E-06	17	69.06	38	36	55.10	69.06	0.00	0.00
13.94	6.190	33.03	6	6.9E-06	17	68.57	38	36	54.71	68.57	0.00	0.00
13.96	6.150	31.94	6	7.0E-06	17	67.87	38	36	54.15	67.87	0.00	0.00
13.98	6.120	32.12	6	6.8E-06	17	67.92	38	36	54.19	67.92	0.00	0.00
14.00	6.060	33.21	6	6.2E-06	17	68.41	38	36	54.59	68.41	0.00	0.00
14.02	6.060	32.80	6	6.3E-06	17	68.21	38	36	54.42	68.21	0.00	0.00
14.04	6.120	32.49	6	6.7E-06	17	68.22	38	36	54.43	68.22	0.00	0.00
14.06	6.220	32.49	6	7.1E-06	17	68.51	38	36	54.66	68.51	0.00	0.00
14.08	6.350	32.53	6	7.8E-06	17	68.90	38	36	54.97	68.90	0.00	0.00
14.10	6.530	33.03	6	8.6E-06	17	69.66	39	37	55.58	69.66	0.00	0.00
14.12	6.750	32.90	6	1.0E-05	18	70.16	40	37	55.98	70.16	0.00	0.00
14.14	6.980	32.67	6	1.2E-05	18	70.61	40	37	56.34	70.61	0.00	0.00

In situ data				Estimations		ARENILE PRINCIPE DI PIEMONTE - VIAREGGIO (LU)					CPTu 02	
Depth (m)	qc (MPa)	fs (kPa)	SBTn	Ksbt (m/s)	SPT N60	M (MPa)	Dr (%)	Fi (°)	Es (MPa)	Go (MPa)	Su (kPa)	OCR
14.16	7.200	32.35	6	1.4E-05	18	70.98	41	37	56.63	70.98	0.00	0.00
14.18	7.200	32.35	6	1.4E-05	18	71.00	41	37	56.65	71.00	0.00	0.00
14.20	7.200	32.35	6	1.3E-05	18	71.03	41	37	56.68	71.03	0.00	0.00
14.22	7.030	26.99	6	1.6E-05	18	67.45	41	37	53.82	67.45	0.00	0.00
14.24	7.240	27.59	6	1.7E-05	18	68.34	41	37	54.53	68.34	0.00	0.00
14.26	7.350	26.73	6	1.9E-05	18	68.09	42	37	54.32	68.09	0.00	0.00
14.28	7.430	25.88	6	2.1E-05	18	67.76	42	37	54.07	67.76	0.00	0.00
14.30	7.510	26.65	6	2.1E-05	18	68.45	42	37	54.61	68.45	0.00	0.00
14.32	7.640	28.57	6	2.1E-05	19	69.95	42	37	55.81	69.95	0.00	0.00
14.34	7.760	30.53	6	2.0E-05	19	71.42	43	37	56.99	71.42	0.00	0.00
14.36	7.690	33.17	6	1.7E-05	19	72.85	42	37	58.12	72.85	0.00	0.00
14.38	7.680	34.76	6	1.6E-05	19	73.77	42	37	58.86	73.77	0.00	0.00
14.40	7.680	36.22	6	1.5E-05	20	74.62	42	37	59.54	74.62	0.00	0.00
14.42	7.680	37.54	6	1.4E-05	20	75.39	42	37	60.15	75.39	0.00	0.00
14.44	7.700	37.54	6	1.4E-05	20	75.47	42	37	60.21	75.47	0.00	0.00
14.46	7.730	37.09	6	1.5E-05	20	75.31	42	37	60.09	75.31	0.00	0.00
14.48	7.650	37.50	6	1.4E-05	20	75.39	42	37	60.15	75.39	0.00	0.00
14.50	7.580	37.27	6	1.3E-05	19	75.14	42	37	59.95	75.14	0.00	0.00
14.52	7.260	36.91	6	1.1E-05	19	74.23	41	37	59.23	74.23	0.00	0.00
14.54	6.990	36.59	6	9.4E-06	19	73.44	40	37	58.60	73.44	0.00	0.00
14.56	6.690	37.32	6	7.5E-06	18	73.14	39	37	58.36	73.14	0.00	0.00
14.58	6.560	37.91	6	6.7E-06	18	73.17	39	36	58.38	73.17	0.00	0.00
14.60	6.390	38.14	6	5.9E-06	18	72.90	38	36	58.16	72.90	0.00	0.00
14.62	6.290	36.09	6	5.9E-06	17	71.54	38	36	57.08	71.54	0.00	0.00
14.64	6.280	33.99	6	6.4E-06	17	70.36	38	36	56.14	70.36	0.00	0.00
14.66	6.280	32.67	6	6.8E-06	17	69.63	38	36	55.56	69.63	0.00	0.00
14.68	6.340	31.07	6	7.7E-06	17	68.88	38	36	54.96	68.88	0.00	0.00
14.70	6.510	29.25	6	9.4E-06	17	68.24	38	36	54.45	68.24	0.00	0.00
14.72	6.780	28.43	6	1.2E-05	18	68.43	39	37	54.60	68.43	0.00	0.00
14.74	7.010	27.20	6	1.4E-05	18	68.24	40	37	54.45	68.24	0.00	0.00
14.76	7.070	27.75	6	1.4E-05	18	68.75	40	37	54.86	68.75	0.00	0.00
14.78	7.070	28.66	6	1.4E-05	18	69.34	40	37	55.32	69.34	0.00	0.00
14.80	7.070	29.84	6	1.3E-05	18	70.08	40	37	55.92	70.08	0.00	0.00
14.82	7.030	31.03	6	1.2E-05	18	70.73	40	37	56.44	70.73	0.00	0.00
14.84	6.910	32.39	6	1.0E-05	18	71.28	40	37	56.87	71.28	0.00	0.00
14.86	6.590	33.26	6	8.0E-06	18	71.04	39	36	56.68	71.04	0.00	0.00
14.88	6.230	34.86	6	5.8E-06	17	71.07	37	36	56.71	71.07	0.00	0.00
14.90	5.910	34.76	6	4.6E-06	17	70.20	36	36	56.01	70.20	0.00	0.00
14.92	5.830	34.40	5	4.4E-06	17	69.81	36	36	55.70	69.81	0.00	0.00
14.94	5.830	33.35	6	4.6E-06	17	69.24	36	36	55.24	69.24	0.00	0.00
14.96	5.870	32.21	6	5.0E-06	17	68.71	36	36	54.82	68.71	0.00	0.00
14.98	5.800	31.07	6	4.9E-06	16	67.88	36	36	54.16	67.88	0.00	0.00
15.00	5.740	29.34	6	5.1E-06	16	66.72	36	36	53.23	66.72	0.00	0.00
15.02	5.910	27.66	6	6.3E-06	16	66.17	36	36	52.80	66.17	0.00	0.00
15.04	6.010	26.97	6	7.1E-06	16	66.03	37	36	52.68	66.03	0.00	0.00
15.06	6.050	25.97	6	7.7E-06	16	65.53	37	36	52.29	65.53	0.00	0.00
15.08	6.210	25.88	6	8.6E-06	17	65.91	37	36	52.59	65.91	0.00	0.00
15.10	6.460	25.51	6	1.0E-05	17	66.33	38	36	52.92	66.33	0.00	0.00
15.12	6.680	25.56	6	1.2E-05	17	66.92	39	37	53.40	66.92	0.00	0.00
15.14	6.870	25.97	6	1.3E-05	18	67.67	39	37	53.99	67.67	0.00	0.00
15.16	7.000	27.57	6	1.3E-05	18	69.01	40	37	55.06	69.01	0.00	0.00
15.18	7.000	29.02	6	1.2E-05	18	69.94	40	37	55.80	69.94	0.00	0.00

CPTu 03 ARENILE PIAZZA MAZZINI - VIAREGGIO (LU)

qc	cone resistance	SPT	equivalent SPT N60	Es	Young's modulus
fs	sleeve friction	M	constrained modulus	Go	Shear modulus
SBTn	soil behavior type normalized	Dr	relative density	Su	Shear strenght
Ksbt	permeability	Fi	Friction angle	OCR	Over consolidation ratio

In situ data				Estimations								
Depth (m)	qc (MPa)	fs (kPa)	SBTn	Ksbt (m/s)	SPT N60	M (MPa)	Dr (%)	Fi (°)	Es (MPa)	Go (MPa)	Su (kPa)	OCR
0.00	-	-	-	-	-	-	-	-	-	-	-	-
0.02	0.100	0.00	0	0.0E+00	0	0.09	0	0	0.07	0.09	0.00	0.00
0.04	0.110	0.00	0	0.0E+00	0	0.10	0	0	0.08	0.10	0.00	0.00
0.06	0.090	0.00	0	0.0E+00	0	0.08	0	0	0.06	0.08	0.00	0.00
0.08	0.100	0.00	0	0.0E+00	0	0.09	0	0	0.07	0.09	0.00	0.00
0.10	0.100	0.00	0	0.0E+00	0	0.09	0	0	0.07	0.09	0.00	0.00
0.12	0.360	0.00	0	0.0E+00	0	0.32	0	0	0.26	0.32	0.00	0.00
0.14	0.670	0.00	0	0.0E+00	0	0.60	0	0	0.48	0.60	0.00	0.00
0.16	0.940	0.05	0	0.0E+00	2	9.68	0	0	7.72	9.68	0.00	0.00
0.18	1.590	0.14	0	0.0E+00	4	12.71	0	0	10.14	12.71	0.00	0.00
0.20	3.280	0.46	0	0.0E+00	6	19.37	0	0	15.45	19.37	0.00	0.00
0.22	5.080	1.73	0	0.0E+00	9	23.72	0	0	18.93	23.72	0.00	0.00
0.24	5.330	3.60	0	0.0E+00	9	24.22	0	0	19.32	24.22	0.00	0.00
0.26	6.510	5.88	0	0.0E+00	11	27.78	0	0	22.16	27.78	0.00	0.00
0.28	7.540	7.97	7	2.0E-03	12	31.10	75	43	24.81	31.10	0.00	0.00
0.30	8.390	10.75	7	2.1E-03	13	34.16	78	43	27.26	34.16	0.00	0.00
0.32	9.160	15.49	7	2.0E-03	15	37.87	80	43	30.21	37.87	0.00	0.00
0.34	9.470	19.87	7	1.7E-03	15	40.24	82	44	32.11	40.24	0.00	0.00
0.36	9.840	28.98	7	1.2E-03	17	44.16	85	44	35.23	44.16	0.00	0.00
0.38	10.020	35.45	7	9.8E-04	17	46.92	87	44	37.44	46.92	0.00	0.00
0.40	10.250	43.88	6	7.4E-04	18	50.49	88	44	40.28	50.49	0.00	0.00
0.42	10.360	50.21	6	6.1E-04	19	52.85	89	44	42.16	52.85	0.00	0.00
0.44	10.920	58.14	6	5.6E-04	20	56.56	91	45	45.13	56.56	0.00	0.00
0.46	11.270	63.47	6	5.3E-04	20	59.07	92	45	47.13	59.07	0.00	0.00
0.48	11.780	71.26	6	4.9E-04	22	62.56	94	45	49.92	62.56	0.00	0.00
0.50	12.240	76.13	6	4.8E-04	22	65.14	95	45	51.97	65.14	0.00	0.00
0.52	12.700	81.19	6	4.8E-04	23	67.74	96	45	54.05	67.74	0.00	0.00
0.54	13.070	86.80	6	4.6E-04	24	70.29	97	45	56.08	70.29	0.00	0.00
0.56	13.310	93.49	6	4.2E-04	25	72.67	98	45	57.98	72.67	0.00	0.00
0.58	13.490	104.16	6	3.5E-04	25	76.07	99	45	60.70	76.07	0.00	0.00
0.60	13.620	109.26	6	3.2E-04	26	77.94	99	46	62.19	77.94	0.00	0.00
0.62	13.650	113.91	6	2.9E-04	26	79.46	99	46	63.40	79.46	0.00	0.00
0.64	13.110	122.88	6	2.2E-04	26	80.73	98	45	64.41	80.73	0.00	0.00
0.66	12.530	129.12	6	1.6E-04	25	81.14	97	45	64.74	81.14	0.00	0.00
0.68	11.860	135.73	6	1.2E-04	25	81.31	95	45	64.87	81.31	0.00	0.00
0.70	11.280	141.24	6	9.0E-05	24	81.34	94	45	64.90	81.34	0.00	0.00
0.72	10.790	143.84	6	7.3E-05	24	80.91	92	45	64.55	80.91	0.00	0.00
0.74	10.580	142.70	6	6.7E-05	23	80.42	91	45	64.17	80.42	0.00	0.00
0.76	10.180	139.01	6	6.1E-05	23	78.87	89	44	62.93	78.87	0.00	0.00
0.78	9.830	131.90	6	5.8E-05	22	76.71	87	44	61.20	76.71	0.00	0.00
0.80	9.690	123.97	6	6.1E-05	22	74.91	86	44	59.77	74.91	0.00	0.00
0.82	9.480	111.99	6	6.8E-05	21	71.96	84	44	57.42	71.96	0.00	0.00
0.84	9.130	106.25	6	6.4E-05	20	69.97	82	44	55.82	69.97	0.00	0.00
0.86	8.870	102.93	6	6.0E-05	20	68.74	80	44	54.85	68.74	0.00	0.00
0.88	8.810	100.83	6	6.0E-05	20	68.34	80	43	54.52	68.34	0.00	0.00
0.90	8.820	98.32	6	6.2E-05	20	68.01	79	43	54.26	68.01	0.00	0.00
0.92	8.620	96.14	6	5.8E-05	19	67.18	78	43	53.60	67.18	0.00	0.00
0.94	8.350	95.77	6	5.2E-05	19	66.58	77	43	53.12	66.58	0.00	0.00

In situ data				Estimations		ARENILE PIAZZA MAZZINI - VIAREGGIO (LU)					CPTu 03	
Depth (m)	qc (MPa)	fs (kPa)	SBTn	Ksbt (m/s)	SPT N60	M (MPa)	Dr (%)	Fi (°)	Es (MPa)	Go (MPa)	Su (kPa)	OCR
0.96	8.320	94.04	6	5.2E-05	19	66.30	76	43	52.90	66.30	0.00	0.00
0.98	8.430	90.90	6	5.7E-05	19	66.06	76	43	52.71	66.06	0.00	0.00
1.00	8.410	87.48	6	5.9E-05	19	65.38	75	43	52.16	65.38	0.00	0.00
1.02	7.960	85.06	6	5.0E-05	18	63.74	74	43	50.86	63.74	0.00	0.00
1.04	7.480	83.47	6	4.1E-05	17	62.19	72	42	49.62	62.19	0.00	0.00
1.06	7.250	81.69	6	3.7E-05	17	61.28	70	42	48.89	61.28	0.00	0.00
1.08	7.330	79.64	6	4.0E-05	17	61.19	70	42	48.82	61.19	0.00	0.00
1.10	7.530	78.73	6	4.4E-05	17	61.72	71	42	49.24	61.72	0.00	0.00
1.12	7.950	77.00	6	5.5E-05	18	62.61	71	42	49.96	62.61	0.00	0.00
1.14	8.070	76.04	6	5.8E-05	18	62.87	71	42	50.16	62.87	0.00	0.00
1.16	8.070	76.04	6	5.7E-05	18	63.05	71	42	50.31	63.05	0.00	0.00
1.18	7.740	75.95	6	4.9E-05	18	62.31	70	42	49.72	62.31	0.00	0.00
1.20	7.820	76.09	6	5.0E-05	18	62.75	70	42	50.07	62.75	0.00	0.00
1.22	7.530	75.51	6	4.3E-05	17	61.97	69	42	49.44	61.97	0.00	0.00
1.24	6.930	75.71	6	3.1E-05	16	60.47	67	42	48.25	60.47	0.00	0.00
1.26	6.540	76.86	6	2.4E-05	16	59.77	65	41	47.69	59.77	0.00	0.00
1.28	6.250	79.83	6	1.9E-05	15	59.79	64	41	47.70	59.79	0.00	0.00
1.30	6.130	83.70	6	1.6E-05	15	60.53	63	41	48.30	60.53	0.00	0.00
1.32	6.060	85.38	6	1.4E-05	15	60.89	63	41	48.58	60.89	0.00	0.00
1.34	6.110	83.79	6	1.5E-05	15	60.84	63	41	48.54	60.84	0.00	0.00
1.36	6.230	79.87	6	1.7E-05	16	60.42	63	41	48.21	60.42	0.00	0.00
1.38	6.260	75.59	6	1.9E-05	15	59.58	63	41	47.54	59.58	0.00	0.00
1.40	6.120	72.31	6	1.9E-05	15	58.44	62	41	46.63	58.44	0.00	0.00
1.42	5.830	69.98	6	1.6E-05	15	57.05	60	41	45.52	57.05	0.00	0.00
1.44	5.580	68.25	6	1.4E-05	14	55.92	59	41	44.62	55.92	0.00	0.00
1.46	5.640	66.20	6	1.6E-05	14	55.72	59	41	44.46	55.72	0.00	0.00
1.48	5.870	65.02	6	1.8E-05	15	56.28	59	41	44.91	56.28	0.00	0.00
1.50	6.140	63.29	6	2.2E-05	15	56.78	60	41	45.30	56.78	0.00	0.00
1.52	6.390	61.05	6	2.7E-05	15	57.03	61	41	45.50	57.03	0.00	0.00
1.54	6.470	58.50	6	3.0E-05	15	56.64	61	41	45.19	56.64	0.00	0.00
1.56	6.420	56.41	6	3.1E-05	15	56.00	60	41	44.68	56.00	0.00	0.00
1.58	6.310	57.18	6	2.8E-05	15	56.05	60	41	44.72	56.05	0.00	0.00
1.60	6.220	59.32	6	2.5E-05	15	56.57	59	41	45.13	56.57	0.00	0.00
1.62	6.150	62.33	6	2.1E-05	15	57.38	59	41	45.79	57.38	0.00	0.00
1.64	6.200	64.33	6	2.1E-05	15	58.26	59	41	46.48	58.26	0.00	0.00
1.66	6.390	64.84	6	2.2E-05	16	59.12	60	41	47.17	59.12	0.00	0.00
1.68	6.600	64.06	6	2.5E-05	16	59.65	60	41	47.59	59.65	0.00	0.00
1.70	6.720	62.47	6	2.8E-05	16	59.66	60	41	47.60	59.66	0.00	0.00
1.72	6.780	61.92	6	2.9E-05	16	59.80	60	41	47.71	59.80	0.00	0.00
1.74	6.840	61.46	6	3.0E-05	16	59.96	60	41	47.84	59.96	0.00	0.00
1.76	6.950	60.78	6	3.2E-05	16	60.23	60	41	48.06	60.23	0.00	0.00
1.78	7.140	60.42	6	3.5E-05	17	60.78	61	41	48.49	60.78	0.00	0.00
1.80	7.320	60.69	6	3.8E-05	17	61.48	61	41	49.05	61.48	0.00	0.00
1.82	7.600	61.01	6	4.3E-05	17	62.46	62	41	49.83	62.46	0.00	0.00
1.84	7.760	61.78	6	4.5E-05	18	63.25	63	41	50.47	63.25	0.00	0.00
1.86	7.880	62.65	6	4.6E-05	18	63.97	63	41	51.04	63.97	0.00	0.00
1.88	7.970	63.79	6	4.6E-05	18	64.69	63	41	51.62	64.69	0.00	0.00
1.90	7.920	66.20	6	4.2E-05	18	65.45	63	41	52.22	65.45	0.00	0.00
1.92	7.810	69.98	6	3.5E-05	18	66.46	63	41	53.03	66.46	0.00	0.00
1.94	7.870	73.31	6	3.3E-05	18	67.77	63	41	54.07	67.77	0.00	0.00
1.96	8.450	74.72	6	4.2E-05	19	69.85	64	41	55.73	69.85	0.00	0.00
1.98	8.670	74.36	6	4.6E-05	20	70.44	65	41	56.20	70.44	0.00	0.00
2.00	8.500	74.63	6	4.2E-05	20	70.22	64	41	56.03	70.22	0.00	0.00
2.02	8.140	76.09	6	3.4E-05	19	69.79	63	41	55.68	69.79	0.00	0.00
2.04	7.890	77.46	6	2.9E-05	19	69.59	62	41	55.52	69.59	0.00	0.00

In situ data				Estimations		ARENILE PIAZZA MAZZINI - VIAREGGIO (LU)					CPTu 03	
Depth (m)	qc (MPa)	fs (kPa)	SBTn	Ksbt (m/s)	SPT N60	M (MPa)	Dr (%)	Fi (°)	Es (MPa)	Go (MPa)	Su (kPa)	OCR
2.06	7.680	79.14	6	2.5E-05	19	69.57	62	41	55.51	69.57	0.00	0.00
2.08	7.560	81.60	6	2.2E-05	18	70.01	61	41	55.86	70.01	0.00	0.00
2.10	7.450	83.79	6	2.0E-05	18	70.38	61	41	56.16	70.38	0.00	0.00
2.12	7.330	84.65	6	1.8E-05	18	70.34	60	41	56.13	70.34	0.00	0.00
2.14	7.500	84.61	6	2.0E-05	18	70.89	61	41	56.56	70.89	0.00	0.00
2.16	7.690	84.06	6	2.2E-05	19	71.34	61	41	56.92	71.34	0.00	0.00
2.18	7.690	84.06	6	2.2E-05	19	71.41	61	41	56.98	71.41	0.00	0.00
2.20	7.560	66.70	6	3.1E-05	18	65.90	60	41	52.58	65.90	0.00	0.00
2.22	7.850	66.25	6	3.6E-05	18	66.59	61	41	53.13	66.59	0.00	0.00
2.24	7.880	68.43	6	3.4E-05	18	67.42	61	41	53.79	67.42	0.00	0.00
2.26	7.970	70.21	6	3.4E-05	19	68.27	62	41	54.47	68.27	0.00	0.00
2.28	8.030	73.31	6	3.2E-05	19	69.46	62	41	55.42	69.46	0.00	0.00
2.30	8.120	75.77	6	3.2E-05	19	70.51	62	41	56.26	70.51	0.00	0.00
2.32	8.110	78.46	6	2.9E-05	19	71.36	62	41	56.94	71.36	0.00	0.00
2.34	8.120	80.65	6	2.8E-05	19	72.10	62	41	57.53	72.10	0.00	0.00
2.36	8.400	81.47	6	3.1E-05	20	73.16	63	41	58.37	73.16	0.00	0.00
2.38	8.850	80.96	6	3.8E-05	21	74.23	64	41	59.23	74.23	0.00	0.00
2.40	9.090	79.87	6	4.3E-05	21	74.56	65	41	59.49	74.56	0.00	0.00
2.42	9.170	79.10	6	4.5E-05	21	74.58	65	41	59.51	74.58	0.00	0.00
2.44	9.180	79.19	6	4.5E-05	21	74.70	65	41	59.60	74.70	0.00	0.00
2.46	9.290	78.96	6	4.7E-05	21	74.96	65	41	59.81	74.96	0.00	0.00
2.48	9.500	79.28	6	5.1E-05	21	75.63	66	42	60.34	75.63	0.00	0.00
2.50	9.750	80.51	6	5.5E-05	22	76.67	66	42	61.17	76.67	0.00	0.00
2.52	9.940	80.83	6	5.8E-05	22	77.28	67	42	61.66	77.28	0.00	0.00
2.54	10.090	82.65	6	5.9E-05	22	78.26	67	42	62.45	78.26	0.00	0.00
2.56	10.190	85.84	6	5.7E-05	23	79.55	68	42	63.47	79.55	0.00	0.00
2.58	10.210	88.85	6	5.4E-05	23	80.59	68	42	64.30	80.59	0.00	0.00
2.60	10.050	91.63	6	4.7E-05	23	81.11	67	42	64.72	81.11	0.00	0.00
2.62	9.790	94.09	6	4.1E-05	23	81.28	66	42	64.85	81.28	0.00	0.00
2.64	9.360	97.41	6	3.2E-05	22	81.23	65	42	64.81	81.23	0.00	0.00
2.66	9.070	99.51	6	2.7E-05	22	81.15	64	41	64.74	81.15	0.00	0.00
2.68	8.770	100.01	6	2.3E-05	21	80.55	63	41	64.27	80.55	0.00	0.00
2.70	8.550	99.01	6	2.1E-05	21	79.74	63	41	63.62	79.74	0.00	0.00
2.72	8.320	97.50	6	2.0E-05	21	78.75	62	41	62.83	78.75	0.00	0.00
2.74	8.020	95.36	6	1.8E-05	20	77.37	61	41	61.73	77.37	0.00	0.00
2.76	7.490	91.17	6	1.5E-05	19	74.73	59	41	59.62	74.73	0.00	0.00
2.78	7.190	87.39	6	1.3E-05	18	72.83	58	40	58.11	72.83	0.00	0.00
2.80	6.950	82.42	6	1.3E-05	18	70.75	57	40	56.45	70.75	0.00	0.00
2.82	6.790	77.96	6	1.3E-05	17	69.02	56	40	55.07	69.02	0.00	0.00
2.84	6.750	74.31	6	1.4E-05	17	67.87	56	40	54.15	67.87	0.00	0.00
2.86	6.720	70.89	6	1.5E-05	17	66.79	55	40	53.29	66.79	0.00	0.00
2.88	6.630	67.25	6	1.5E-05	17	65.45	55	40	52.22	65.45	0.00	0.00
2.90	6.460	64.61	6	1.5E-05	16	64.17	54	40	51.20	64.17	0.00	0.00
2.92	6.210	62.19	6	1.4E-05	16	62.70	53	40	50.02	62.70	0.00	0.00
2.94	6.080	61.60	6	1.3E-05	16	62.16	53	39	49.60	62.16	0.00	0.00
2.96	5.960	61.33	6	1.2E-05	15	61.76	52	39	49.28	61.76	0.00	0.00
2.98	5.800	61.33	6	1.0E-05	15	61.31	52	39	48.92	61.31	0.00	0.00
3.00	5.630	61.46	6	9.2E-06	15	60.86	51	39	48.56	60.86	0.00	0.00
3.02	5.450	61.05	6	8.1E-06	15	60.20	50	39	48.03	60.20	0.00	0.00
3.04	5.220	58.96	6	7.3E-06	14	58.82	49	39	46.93	58.82	0.00	0.00
3.06	5.150	57.45	6	7.2E-06	14	58.15	49	39	46.40	58.15	0.00	0.00
3.08	5.100	55.18	6	7.4E-06	14	57.30	48	39	45.72	57.30	0.00	0.00
3.10	5.010	52.31	6	7.5E-06	14	56.09	48	39	44.76	56.09	0.00	0.00
3.12	4.850	49.71	6	7.2E-06	13	54.73	47	38	43.66	54.73	0.00	0.00
3.14	4.630	47.93	6	6.3E-06	13	53.41	46	38	42.61	53.41	0.00	0.00

In situ data				Estimations		ARENILE PIAZZA MAZZINI - VIAREGGIO (LU)					CPTu 03	
Depth (m)	qc (MPa)	fs (kPa)	SBTn	Ksbt (m/s)	SPT N60	M (MPa)	Dr (%)	Fi (°)	Es (MPa)	Go (MPa)	Su (kPa)	OCR
3.16	4.630	47.93	6	6.3E-06	13	53.46	46	38	42.65	53.46	0.00	0.00
3.18	4.630	47.93	6	6.3E-06	13	53.50	46	38	42.69	53.50	0.00	0.00
3.20	4.140	36.50	6	6.3E-06	11	47.72	43	38	38.07	47.72	0.00	0.00
3.22	4.130	36.36	6	6.2E-06	11	47.67	43	38	38.03	47.67	0.00	0.00
3.24	4.170	37.09	6	6.2E-06	11	48.12	43	38	38.40	48.12	0.00	0.00
3.26	4.340	37.59	6	7.1E-06	12	48.95	44	38	39.05	48.95	0.00	0.00
3.28	4.580	37.41	6	8.8E-06	12	49.73	45	38	39.68	49.73	0.00	0.00
3.30	4.820	36.31	6	1.1E-05	13	50.13	46	38	39.99	50.13	0.00	0.00
3.32	4.870	35.90	6	1.2E-05	13	50.16	46	38	40.02	50.16	0.00	0.00
3.34	4.960	36.68	6	1.2E-05	13	50.79	47	38	40.53	50.79	0.00	0.00
3.36	5.010	37.54	6	1.2E-05	13	51.33	47	38	40.95	51.33	0.00	0.00
3.38	5.030	38.36	6	1.2E-05	13	51.75	47	38	41.29	51.75	0.00	0.00
3.40	4.960	40.73	6	1.0E-05	13	52.47	47	38	41.87	52.47	0.00	0.00
3.42	4.930	42.51	6	9.2E-06	13	53.08	47	38	42.35	53.08	0.00	0.00
3.44	4.830	43.88	6	8.0E-06	13	53.30	46	38	42.52	53.30	0.00	0.00
3.46	4.620	45.33	6	6.4E-06	13	53.15	45	38	42.41	53.15	0.00	0.00
3.48	4.230	47.25	5	4.2E-06	12	52.48	44	38	41.87	52.48	0.00	0.00
3.50	4.000	48.16	5	3.2E-06	12	51.96	42	37	41.46	51.96	0.00	0.00
3.52	3.820	48.43	5	2.6E-06	11	51.39	42	37	41.00	51.39	0.00	0.00
3.54	3.710	47.38	5	2.4E-06	11	50.64	41	37	40.41	50.64	0.00	0.00
3.56	3.640	45.70	5	2.4E-06	11	49.84	41	37	39.77	49.84	0.00	0.00
3.58	3.610	43.74	5	2.5E-06	11	49.09	40	37	39.17	49.09	0.00	0.00
3.60	3.640	40.73	5	2.9E-06	11	48.20	40	37	38.46	48.20	0.00	0.00
3.62	3.740	38.32	5	3.5E-06	11	47.75	41	37	38.10	47.75	0.00	0.00
3.64	3.930	35.90	5	4.7E-06	11	47.59	42	37	37.97	47.59	0.00	0.00
3.66	4.170	33.76	6	6.5E-06	11	47.65	42	37	38.01	47.65	0.00	0.00
3.68	4.440	32.12	6	9.0E-06	12	47.93	44	38	38.24	47.93	0.00	0.00
3.70	4.750	30.71	6	1.2E-05	12	48.37	45	38	38.60	48.37	0.00	0.00
3.72	5.160	29.25	6	1.8E-05	13	49.03	46	38	39.12	49.03	0.00	0.00
3.74	5.240	29.25	6	1.9E-05	13	49.30	47	38	39.33	49.30	0.00	0.00
3.76	5.220	30.25	6	1.8E-05	13	49.71	47	38	39.66	49.71	0.00	0.00
3.78	5.150	31.85	6	1.6E-05	13	50.23	46	38	40.08	50.23	0.00	0.00
3.80	5.060	33.94	6	1.3E-05	13	50.88	46	38	40.59	50.88	0.00	0.00
3.82	4.960	37.04	6	1.1E-05	13	51.87	46	38	41.38	51.87	0.00	0.00
3.84	4.860	40.73	6	8.5E-06	13	53.03	45	38	42.31	53.03	0.00	0.00
3.86	4.770	44.88	6	6.7E-06	13	54.32	45	38	43.34	54.32	0.00	0.00
3.88	4.720	46.79	6	6.0E-06	13	54.88	45	38	43.79	54.88	0.00	0.00
3.90	4.610	48.16	5	5.1E-06	13	55.03	44	38	43.91	55.03	0.00	0.00
3.92	4.500	49.25	5	4.5E-06	13	55.07	44	38	43.94	55.07	0.00	0.00
3.94	4.420	49.71	5	4.1E-06	13	54.98	43	38	43.87	54.98	0.00	0.00
3.96	4.410	49.16	5	4.1E-06	13	54.80	43	38	43.72	54.80	0.00	0.00
3.98	4.440	48.11	5	4.4E-06	13	54.58	43	38	43.55	54.58	0.00	0.00
4.00	4.490	47.66	5	4.6E-06	13	54.65	44	38	43.60	54.65	0.00	0.00
4.02	4.580	47.07	5	5.1E-06	13	54.80	44	38	43.72	54.80	0.00	0.00
4.04	4.750	46.06	6	6.0E-06	13	55.06	45	38	43.93	55.06	0.00	0.00
4.06	4.980	45.79	6	7.3E-06	13	55.77	45	38	44.50	55.77	0.00	0.00
4.08	5.190	45.93	6	8.6E-06	14	56.54	46	38	45.11	56.54	0.00	0.00
4.10	5.300	46.34	6	9.1E-06	14	57.08	47	38	45.54	57.08	0.00	0.00
4.12	5.230	48.84	6	7.9E-06	14	57.82	46	38	46.13	57.82	0.00	0.00
4.14	5.130	51.30	6	6.7E-06	14	58.42	46	38	46.61	58.42	0.00	0.00
4.16	5.140	53.44	6	6.3E-06	14	59.25	46	38	47.27	59.25	0.00	0.00
4.18	5.140	53.44	6	6.2E-06	14	59.29	46	38	47.31	59.29	0.00	0.00
4.20	5.180	46.15	6	8.2E-06	14	56.84	46	38	45.35	56.84	0.00	0.00
4.22	5.410	48.48	6	9.0E-06	14	58.47	47	38	46.65	58.47	0.00	0.00
4.24	5.500	50.94	6	8.8E-06	15	59.69	47	38	47.63	59.69	0.00	0.00

In situ data				Estimations		ARENILE PIAZZA MAZZINI - VIAREGGIO (LU)					CPTu 03	
Depth (m)	qc (MPa)	fs (kPa)	SBTn	Ksbt (m/s)	SPT N60	M (MPa)	Dr (%)	Fi (°)	Es (MPa)	Go (MPa)	Su (kPa)	OCR
4.26	5.480	52.58	6	8.1E-06	15	60.26	47	38	48.08	60.26	0.00	0.00
4.28	5.420	54.36	6	7.3E-06	15	60.74	47	38	48.47	60.74	0.00	0.00
4.30	5.350	55.36	6	6.7E-06	15	60.91	47	38	48.60	60.91	0.00	0.00
4.32	5.210	56.59	6	5.8E-06	14	60.92	46	38	48.61	60.92	0.00	0.00
4.34	5.050	58.59	5	4.8E-06	14	61.10	45	38	48.75	61.10	0.00	0.00
4.36	4.890	59.87	5	4.0E-06	14	61.02	45	38	48.68	61.02	0.00	0.00
4.38	4.790	59.69	5	3.7E-06	14	60.65	44	38	48.39	60.65	0.00	0.00
4.40	4.740	58.27	5	3.7E-06	14	60.05	44	38	47.91	60.05	0.00	0.00
4.42	4.720	55.08	5	4.0E-06	14	58.95	44	38	47.03	58.95	0.00	0.00
4.44	4.760	52.12	5	4.5E-06	13	58.11	44	38	46.37	58.11	0.00	0.00
4.46	4.760	48.89	5	5.0E-06	13	57.01	44	38	45.49	57.01	0.00	0.00
4.48	4.760	45.97	6	5.5E-06	13	55.98	44	38	44.67	55.98	0.00	0.00
4.50	4.810	43.28	6	6.4E-06	13	55.18	44	38	44.03	55.18	0.00	0.00
4.52	4.840	42.10	6	6.8E-06	13	54.86	44	38	43.77	54.86	0.00	0.00
4.54	5.070	41.78	6	8.2E-06	14	55.52	45	38	44.30	55.52	0.00	0.00
4.56	5.280	41.78	6	9.7E-06	14	56.22	46	38	44.85	56.22	0.00	0.00
4.58	5.340	42.69	6	9.7E-06	14	56.80	46	38	45.32	56.80	0.00	0.00
4.60	5.230	43.79	6	8.5E-06	14	56.93	45	38	45.42	56.93	0.00	0.00
4.62	5.010	45.84	6	6.6E-06	14	57.05	44	38	45.52	57.05	0.00	0.00
4.64	4.800	46.43	6	5.4E-06	13	56.61	44	38	45.17	56.61	0.00	0.00
4.66	4.530	46.47	5	4.3E-06	13	55.74	42	37	44.47	55.74	0.00	0.00
4.68	4.260	45.43	5	3.4E-06	12	54.43	41	37	43.43	54.43	0.00	0.00
4.70	4.190	45.38	5	3.2E-06	12	54.19	41	37	43.24	54.19	0.00	0.00
4.72	4.260	44.29	5	3.6E-06	12	54.09	41	37	43.15	54.09	0.00	0.00
4.74	4.440	41.69	5	4.6E-06	13	53.78	42	37	42.91	53.78	0.00	0.00
4.76	4.670	39.46	6	6.2E-06	13	53.73	43	37	42.87	53.73	0.00	0.00
4.78	4.760	38.55	6	6.9E-06	13	53.69	43	38	42.84	53.69	0.00	0.00
4.80	4.620	38.50	6	6.1E-06	13	53.25	42	37	42.49	53.25	0.00	0.00
4.82	4.230	38.55	5	4.3E-06	12	51.96	41	37	41.46	51.96	0.00	0.00
4.84	3.940	38.96	5	3.1E-06	12	51.11	39	37	40.78	51.11	0.00	0.00
4.86	3.660	39.82	5	2.2E-06	11	50.40	38	36	40.21	50.40	0.00	0.00
4.88	3.490	40.73	5	1.8E-06	11	47.68	37	36	39.97	50.10	0.00	0.00
4.90	3.400	40.82	5	1.6E-06	11	46.42	37	36	39.73	49.79	0.00	0.00
4.92	3.400	39.73	5	1.6E-06	11	46.41	37	36	39.43	49.42	0.00	0.00
4.94	3.460	38.09	5	1.9E-06	11	49.08	37	36	39.16	49.08	0.00	0.00
4.96	3.520	35.86	5	2.2E-06	11	48.48	37	36	38.68	48.48	0.00	0.00
4.98	3.530	33.58	5	2.5E-06	11	47.64	37	36	38.01	47.64	0.00	0.00
5.00	3.570	29.75	5	3.1E-06	10	46.21	37	36	36.87	46.21	0.00	0.00
5.02	3.600	28.25	5	3.5E-06	10	45.69	37	36	36.46	45.69	0.00	0.00
5.04	3.620	27.38	5	3.7E-06	10	45.41	37	36	36.23	45.41	0.00	0.00
5.06	3.710	26.38	5	4.3E-06	11	45.31	38	36	36.15	45.31	0.00	0.00
5.08	3.870	25.38	6	5.4E-06	11	45.45	38	36	36.26	45.45	0.00	0.00
5.10	4.050	24.33	6	6.8E-06	11	45.60	39	37	36.38	45.60	0.00	0.00
5.12	4.240	23.56	6	8.5E-06	11	45.88	40	37	36.61	45.88	0.00	0.00
5.14	4.410	23.37	6	1.0E-05	12	46.37	41	37	37.00	46.37	0.00	0.00
5.16	4.470	23.33	6	1.1E-05	12	46.57	41	37	37.16	46.57	0.00	0.00
5.18	4.470	23.33	6	1.1E-05	12	46.60	41	37	37.18	46.60	0.00	0.00
5.20	4.360	22.13	6	1.0E-05	11	45.67	40	37	36.44	45.67	0.00	0.00
5.22	4.480	20.95	6	1.2E-05	12	45.47	41	37	36.28	45.47	0.00	0.00
5.24	4.420	21.87	6	1.1E-05	12	45.78	40	37	36.53	45.78	0.00	0.00
5.26	4.350	25.29	6	8.3E-06	12	47.29	40	37	37.73	47.29	0.00	0.00
5.28	4.270	28.70	6	6.4E-06	12	48.67	40	37	38.83	48.67	0.00	0.00
5.30	4.180	31.48	6	5.1E-06	12	49.64	40	37	39.61	49.64	0.00	0.00
5.32	4.110	33.62	5	4.3E-06	12	50.36	39	37	40.18	50.36	0.00	0.00
5.34	4.010	36.50	5	3.4E-06	12	51.24	39	37	40.88	51.24	0.00	0.00

In situ data				Estimations		ARENILE PIAZZA MAZZINI - VIAREGGIO (LU)					CPTu 03	
Depth (m)	qc (MPa)	fs (kPa)	SBTn	Ksbt (m/s)	SPT N60	M (MPa)	Dr (%)	Fi (°)	Es (MPa)	Go (MPa)	Su (kPa)	OCR
5.36	3.950	37.50	5	3.0E-06	12	51.46	39	36	41.06	51.46	0.00	0.00
5.38	3.880	37.41	5	2.8E-06	11	51.20	38	36	40.85	51.20	0.00	0.00
5.40	3.850	37.00	5	2.8E-06	11	50.95	38	36	40.65	50.95	0.00	0.00
5.42	3.940	36.13	5	3.1E-06	12	50.97	38	36	40.67	50.97	0.00	0.00
5.44	4.090	35.54	5	3.7E-06	12	51.30	39	37	40.93	51.30	0.00	0.00
5.46	4.380	34.54	6	5.1E-06	12	51.92	40	37	41.43	51.92	0.00	0.00
5.48	4.550	33.76	6	6.2E-06	12	52.19	41	37	41.64	52.19	0.00	0.00
5.50	4.550	32.90	6	6.4E-06	12	51.84	41	37	41.36	51.84	0.00	0.00
5.52	4.360	32.12	6	5.6E-06	12	50.90	40	37	40.61	50.90	0.00	0.00
5.54	4.130	31.71	5	4.6E-06	12	49.96	39	37	39.86	49.96	0.00	0.00
5.56	3.990	31.89	5	3.9E-06	11	49.58	38	36	39.56	49.58	0.00	0.00
5.58	3.940	31.80	5	3.7E-06	11	49.39	38	36	39.41	49.39	0.00	0.00
5.60	3.900	30.85	5	3.7E-06	11	48.86	38	36	38.99	48.86	0.00	0.00
5.62	3.820	30.30	5	3.5E-06	11	48.36	37	36	38.59	48.36	0.00	0.00
5.64	3.650	30.16	5	2.9E-06	11	47.70	37	36	38.06	47.70	0.00	0.00
5.66	3.370	30.25	5	2.1E-06	10	46.69	35	36	37.25	46.69	0.00	0.00
5.68	3.060	29.48	5	1.5E-06	10	41.48	34	35	35.99	45.11	0.00	0.00
5.70	2.850	28.57	5	1.1E-06	9	38.54	32	35	34.97	43.83	0.00	0.00
5.72	2.740	27.06	5	1.1E-06	9	36.99	32	35	34.07	42.70	0.00	0.00
5.74	2.710	25.61	5	1.1E-06	9	36.57	32	35	33.47	41.94	0.00	0.00
5.76	2.750	24.19	5	1.3E-06	9	37.13	32	35	33.11	41.50	0.00	0.00
5.78	2.850	21.10	5	1.8E-06	9	38.52	32	35	32.28	40.46	0.00	0.00
5.80	3.010	18.68	5	2.6E-06	9	39.90	33	35	31.83	39.90	0.00	0.00
5.82	3.260	16.58	5	4.2E-06	9	39.74	34	35	31.71	39.74	0.00	0.00
5.84	3.540	14.81	6	6.7E-06	10	39.77	35	36	31.73	39.77	0.00	0.00
5.86	3.800	13.21	6	1.0E-05	10	39.73	37	36	31.70	39.73	0.00	0.00
5.88	3.930	12.21	6	1.2E-05	10	39.56	37	36	31.57	39.56	0.00	0.00
5.90	3.950	12.48	6	1.2E-05	10	39.82	37	36	31.77	39.82	0.00	0.00
5.92	3.950	14.26	6	1.1E-05	10	40.94	37	36	32.66	40.94	0.00	0.00
5.94	3.940	16.49	6	8.7E-06	10	42.25	37	36	33.71	42.25	0.00	0.00
5.96	3.790	17.95	6	6.7E-06	10	42.59	37	36	33.98	42.59	0.00	0.00
5.98	3.480	22.01	5	3.6E-06	10	43.67	35	36	34.84	43.67	0.00	0.00
6.00	3.360	24.88	5	2.6E-06	10	44.66	35	35	35.63	44.66	0.00	0.00
6.02	3.280	26.97	5	2.1E-06	10	45.36	34	35	36.19	45.36	0.00	0.00
6.04	3.240	27.84	5	1.9E-06	10	45.63	34	35	36.41	45.63	0.00	0.00
6.06	3.230	27.43	5	1.9E-06	10	45.43	34	35	36.25	45.43	0.00	0.00
6.08	3.320	27.38	5	2.1E-06	10	45.80	34	35	36.54	45.80	0.00	0.00
6.10	3.510	27.16	5	2.7E-06	10	46.46	35	36	37.07	46.46	0.00	0.00
6.12	3.690	26.20	5	3.4E-06	11	46.71	36	36	37.27	46.71	0.00	0.00
6.14	3.720	24.51	5	3.9E-06	11	46.02	36	36	36.72	46.02	0.00	0.00
6.16	3.680	23.46	5	4.0E-06	11	45.38	36	36	36.21	45.38	0.00	0.00
6.18	3.680	23.46	5	4.0E-06	11	45.41	36	36	36.23	45.41	0.00	0.00
6.20	3.680	15.13	6	7.1E-06	10	40.88	36	36	32.62	40.88	0.00	0.00
6.22	3.680	15.13	6	7.0E-06	10	40.91	36	36	32.64	40.91	0.00	0.00
6.24	4.040	14.76	6	1.0E-05	11	41.92	37	36	33.45	41.92	0.00	0.00
6.26	4.740	14.72	6	2.0E-05	12	44.12	40	37	35.20	44.12	0.00	0.00
6.28	4.960	15.31	6	2.2E-05	12	45.15	41	37	36.02	45.15	0.00	0.00
6.30	4.950	16.31	6	2.0E-05	12	45.74	41	37	36.50	45.74	0.00	0.00
6.32	4.990	18.41	6	1.8E-05	12	47.10	41	37	37.58	47.10	0.00	0.00
6.34	5.160	21.51	6	1.7E-05	13	49.35	42	37	39.37	49.35	0.00	0.00
6.36	5.160	25.10	6	1.4E-05	13	51.27	42	37	40.91	51.27	0.00	0.00
6.38	5.210	28.39	6	1.2E-05	13	53.10	42	37	42.36	53.10	0.00	0.00
6.40	5.430	31.21	6	1.2E-05	14	55.13	43	38	43.99	55.13	0.00	0.00
6.42	5.790	33.21	6	1.4E-05	15	57.13	44	38	45.58	57.13	0.00	0.00
6.44	6.260	33.85	6	1.9E-05	15	58.74	46	38	46.87	58.74	0.00	0.00

In situ data				Estimations		ARENILE PIAZZA MAZZINI - VIAREGGIO (LU)					CPTu 03	
Depth (m)	qc (MPa)	fs (kPa)	SBTn	Ksbt (m/s)	SPT N60	M (MPa)	Dr (%)	Fi (°)	Es (MPa)	Go (MPa)	Su (kPa)	OCR
6.46	6.460	34.67	6	2.1E-05	16	59.68	47	38	47.62	59.68	0.00	0.00
6.48	6.420	36.27	6	1.9E-05	16	60.36	47	38	48.16	60.36	0.00	0.00
6.50	6.370	38.91	6	1.6E-05	16	61.46	46	38	49.03	61.46	0.00	0.00
6.52	6.380	46.52	6	1.2E-05	16	64.80	47	38	51.70	64.80	0.00	0.00
6.54	6.720	52.12	6	1.3E-05	17	68.05	48	39	54.30	68.05	0.00	0.00
6.56	7.220	56.68	6	1.5E-05	18	71.23	49	39	56.83	71.23	0.00	0.00
6.58	7.770	59.14	6	1.8E-05	19	73.64	51	39	58.76	73.64	0.00	0.00
6.60	8.330	59.73	6	2.4E-05	20	75.29	53	39	60.07	75.29	0.00	0.00
6.62	8.670	60.46	6	2.8E-05	21	76.42	54	40	60.97	76.42	0.00	0.00
6.64	8.620	60.42	6	2.7E-05	21	76.33	54	40	60.90	76.33	0.00	0.00
6.66	8.630	61.10	6	2.7E-05	21	76.66	54	40	61.17	76.66	0.00	0.00
6.68	8.510	63.70	6	2.3E-05	21	77.43	53	40	61.78	77.43	0.00	0.00
6.70	8.200	67.43	6	1.8E-05	20	78.14	52	39	62.34	78.14	0.00	0.00
6.72	7.860	73.22	6	1.3E-05	20	79.44	51	39	63.38	79.44	0.00	0.00
6.74	7.530	79.55	6	9.2E-06	20	80.82	50	39	64.48	80.82	0.00	0.00
6.76	7.180	83.70	6	6.8E-06	20	81.28	49	39	64.85	81.28	0.00	0.00
6.78	7.060	85.75	6	6.1E-06	19	81.65	49	39	65.15	81.65	0.00	0.00
6.80	6.980	87.16	5	5.6E-06	19	81.92	49	39	65.36	81.92	0.00	0.00
6.82	6.800	85.70	5	5.2E-06	19	80.96	48	39	64.59	80.96	0.00	0.00
6.84	6.630	81.65	5	5.1E-06	19	79.16	47	38	63.16	79.16	0.00	0.00
6.86	6.440	79.23	5	4.7E-06	18	77.82	47	38	62.09	77.82	0.00	0.00
6.88	6.310	79.51	5	4.3E-06	18	77.56	46	38	61.88	77.56	0.00	0.00
6.90	6.290	78.18	5	4.3E-06	18	77.10	46	38	61.52	77.10	0.00	0.00
6.92	6.550	75.09	6	5.5E-06	18	76.90	47	38	61.36	76.90	0.00	0.00
6.94	7.110	71.21	6	8.6E-06	19	77.21	49	39	61.60	77.21	0.00	0.00
6.96	7.550	66.57	6	1.2E-05	19	76.75	50	39	61.23	76.75	0.00	0.00
6.98	7.640	63.42	6	1.4E-05	19	75.84	50	39	60.51	75.84	0.00	0.00
7.00	7.360	61.87	6	1.3E-05	19	74.56	49	39	59.49	74.56	0.00	0.00
7.02	6.700	59.69	6	9.0E-06	18	71.98	47	38	57.43	71.98	0.00	0.00
7.04	6.340	61.96	6	6.7E-06	17	71.85	46	38	57.33	71.85	0.00	0.00
7.06	6.020	68.21	5	4.5E-06	17	73.20	45	38	58.40	73.20	0.00	0.00
7.08	5.590	75.50	5	2.7E-06	17	74.35	43	38	59.32	74.35	0.00	0.00
7.10	5.070	80.01	5	1.6E-06	16	69.29	41	37	59.06	74.02	0.00	0.00
7.12	4.610	80.96	5	1.0E-06	15	62.85	39	37	57.92	72.60	0.00	0.00
7.14	4.310	78.96	5	8.2E-07	14	58.65	38	36	56.49	70.80	0.00	0.00
7.16	4.120	75.27	5	7.3E-07	14	55.98	37	36	54.97	68.89	0.00	0.00
7.18	4.080	72.63	5	7.5E-07	14	55.42	37	36	54.20	67.94	0.00	0.00
7.20	4.080	72.63	5	7.5E-07	14	55.41	37	36	54.24	67.98	0.00	0.00
7.22	3.930	53.76	5	1.1E-06	13	53.31	36	36	48.66	60.98	0.00	0.00
7.24	3.930	45.52	5	1.5E-06	12	53.31	36	36	46.19	57.90	0.00	0.00
7.26	3.910	37.32	5	2.0E-06	12	54.47	36	36	43.46	54.47	0.00	0.00
7.28	3.830	32.58	5	2.3E-06	12	52.10	35	36	41.57	52.10	0.00	0.00
7.30	3.610	29.71	5	2.0E-06	11	49.97	34	35	39.87	49.97	0.00	0.00
7.32	3.320	26.56	5	1.7E-06	10	44.75	33	35	37.78	47.36	0.00	0.00
7.34	3.120	25.20	5	1.4E-06	10	41.94	32	35	36.63	45.90	0.00	0.00
7.36	3.150	26.65	5	1.3E-06	10	42.36	32	35	37.31	46.77	0.00	0.00
7.38	3.230	28.11	5	1.4E-06	10	43.48	32	35	38.16	47.83	0.00	0.00
7.40	3.350	28.48	5	1.6E-06	10	45.15	33	35	38.71	48.52	0.00	0.00
7.42	3.490	27.47	5	1.9E-06	11	48.61	33	35	38.78	48.61	0.00	0.00
7.44	3.700	26.56	5	2.6E-06	11	48.97	34	35	39.08	48.97	0.00	0.00
7.46	4.130	25.92	5	4.3E-06	12	50.20	36	36	40.05	50.20	0.00	0.00
7.48	4.430	25.61	6	5.8E-06	12	51.06	38	36	40.74	51.06	0.00	0.00
7.50	4.650	24.97	6	7.3E-06	13	51.45	38	36	41.05	51.45	0.00	0.00
7.52	4.760	24.74	6	8.1E-06	13	51.70	39	37	41.25	51.70	0.00	0.00
7.54	4.830	26.11	6	7.9E-06	13	52.66	39	37	42.02	52.66	0.00	0.00

In situ data				Estimations		ARENILE PIAZZA MAZZINI - VIAREGGIO (LU)					CPTu 03	
Depth (m)	qc (MPa)	fs (kPa)	SBTn	Ksbt (m/s)	SPT N60	M (MPa)	Dr (%)	Fi (°)	Es (MPa)	Go (MPa)	Su (kPa)	OCR
7.56	4.910	28.07	6	7.6E-06	13	53.95	39	37	43.04	53.95	0.00	0.00
7.58	4.960	30.07	6	7.2E-06	13	55.13	40	37	43.99	55.13	0.00	0.00
7.60	4.780	32.58	6	5.4E-06	13	55.83	39	37	44.54	55.83	0.00	0.00
7.62	3.990	37.45	5	2.0E-06	12	55.39	36	36	44.19	55.39	0.00	0.00
7.64	3.410	41.23	5	8.8E-07	11	45.94	33	35	43.67	54.73	0.00	0.00
7.66	2.800	46.70	5	3.0E-07	10	37.39	30	34	43.15	54.08	0.00	0.00
7.68	2.380	55.36	4	1.1E-07	10	31.51	0	0	0.00	54.83	160.77	8.75
7.70	2.480	64.56	4	9.7E-08	10	32.91	0	0	0.00	58.39	167.89	9.13
7.72	3.240	70.62	5	2.6E-07	12	43.54	32	35	51.47	64.51	0.00	0.00
7.74	4.540	73.13	5	1.1E-06	15	61.74	38	36	56.74	71.12	0.00	0.00
7.76	4.850	62.42	5	1.9E-06	15	68.62	39	37	54.75	68.62	0.00	0.00
7.78	4.950	52.85	5	2.7E-06	15	65.42	39	37	52.19	65.42	0.00	0.00
7.80	5.050	46.20	5	3.7E-06	15	63.10	40	37	50.35	63.10	0.00	0.00
7.82	5.010	43.69	5	4.0E-06	14	61.95	40	37	49.42	61.95	0.00	0.00
7.84	4.790	43.92	5	3.2E-06	14	61.36	39	37	48.96	61.36	0.00	0.00
7.86	4.640	42.19	5	3.0E-06	14	60.15	38	36	47.99	60.15	0.00	0.00
7.88	4.740	37.54	5	4.0E-06	14	58.47	38	36	46.65	58.47	0.00	0.00
7.90	5.000	42.24	5	4.1E-06	14	61.43	39	37	49.01	61.43	0.00	0.00
7.92	5.260	44.20	5	4.7E-06	15	63.13	40	37	50.37	63.13	0.00	0.00
7.94	5.510	43.69	6	5.8E-06	15	63.71	41	37	50.83	63.71	0.00	0.00
7.96	5.660	41.37	6	7.1E-06	15	63.16	42	37	50.40	63.16	0.00	0.00
7.98	5.580	39.78	6	7.1E-06	15	62.25	42	37	49.66	62.25	0.00	0.00
8.00	4.920	40.64	5	4.0E-06	14	60.64	39	37	48.38	60.64	0.00	0.00
8.02	4.070	41.51	5	1.7E-06	13	55.08	35	36	46.37	58.12	0.00	0.00
8.04	2.990	45.43	5	3.9E-07	11	39.95	30	34	44.05	55.21	0.00	0.00
8.06	2.720	49.71	4	2.2E-07	10	36.17	0	0	44.27	55.49	184.54	9.67
8.08	3.090	53.63	5	3.3E-07	11	41.35	31	34	46.92	58.80	0.00	0.00
8.10	3.820	57.14	5	7.4E-07	13	51.56	34	35	50.58	63.39	0.00	0.00
8.12	4.470	54.90	5	1.6E-06	14	60.65	37	36	51.98	65.15	0.00	0.00
8.14	4.430	49.53	5	1.8E-06	14	60.09	37	36	50.23	62.95	0.00	0.00
8.16	4.280	41.83	5	2.1E-06	13	59.26	36	36	47.28	59.26	0.00	0.00
8.18	4.200	37.73	5	2.2E-06	13	57.22	36	36	45.65	57.22	0.00	0.00
8.20	4.200	37.73	5	2.2E-06	13	57.25	36	36	45.68	57.25	0.00	0.00
8.22	3.800	22.14	5	3.3E-06	11	48.14	34	35	38.41	48.14	0.00	0.00
8.24	3.640	18.13	5	3.6E-06	11	45.28	33	35	36.13	45.28	0.00	0.00
8.26	3.480	17.50	5	3.1E-06	10	44.35	32	35	35.38	44.35	0.00	0.00
8.28	3.490	16.86	5	3.3E-06	10	44.02	32	35	35.12	44.02	0.00	0.00
8.30	3.710	16.99	5	4.2E-06	11	44.91	33	35	35.83	44.91	0.00	0.00
8.32	4.160	16.31	6	7.0E-06	11	46.04	35	36	36.73	46.04	0.00	0.00
8.34	4.420	14.67	6	1.0E-05	12	45.84	36	36	36.58	45.84	0.00	0.00
8.36	4.120	13.76	6	8.2E-06	11	44.30	35	36	35.35	44.30	0.00	0.00
8.38	3.050	15.04	5	2.1E-06	9	41.31	30	34	32.96	41.31	0.00	0.00
8.40	2.210	22.37	5	3.1E-07	8	28.96	26	33	33.30	41.73	0.00	0.00
8.42	1.620	32.99	4	4.1E-08	7	20.70	0	0	0.00	43.00	105.62	5.45
8.44	1.350	45.74	3	9.7E-09	7	16.40	0	0	0.00	45.54	86.31	4.48
8.46	1.380	58.82	3	6.8E-09	7	17.32	0	0	0.00	49.98	88.79	4.60
8.48	2.990	56.04	5	2.6E-07	11	40.36	30	34	47.90	60.03	0.00	0.00
8.50	5.080	58.18	5	2.3E-06	15	69.31	39	37	55.30	69.31	0.00	0.00
8.52	5.580	47.61	6	4.9E-06	16	66.60	41	37	53.14	66.60	0.00	0.00
8.54	5.600	33.76	6	8.6E-06	15	60.34	41	37	48.14	60.34	0.00	0.00
8.56	5.430	28.70	6	9.6E-06	14	57.30	40	37	45.72	57.30	0.00	0.00
8.58	5.410	28.43	6	9.5E-06	14	57.13	40	37	45.58	57.13	0.00	0.00
8.60	5.630	26.79	6	1.2E-05	15	56.90	41	37	45.40	56.90	0.00	0.00
8.62	5.950	24.83	6	1.7E-05	15	56.71	42	37	45.25	56.71	0.00	0.00
8.64	6.120	25.92	6	1.8E-05	15	57.79	43	37	46.11	57.79	0.00	0.00

In situ data				Estimations		ARENILE PIAZZA MAZZINI - VIAREGGIO (LU)					CPTu 03	
Depth (m)	qc (MPa)	fs (kPa)	SBTn	Ksbt (m/s)	SPT N60	M (MPa)	Dr (%)	Fi (°)	Es (MPa)	Go (MPa)	Su (kPa)	OCR
8.66	6.080	26.43	6	1.7E-05	15	58.00	42	37	46.27	58.00	0.00	0.00
8.68	5.930	27.75	6	1.4E-05	15	58.34	42	37	46.55	58.34	0.00	0.00
8.70	5.670	28.93	6	1.1E-05	15	58.29	41	37	46.51	58.29	0.00	0.00
8.72	5.290	30.34	6	7.7E-06	14	57.98	40	37	46.26	57.98	0.00	0.00
8.74	4.910	31.85	6	5.2E-06	14	57.63	38	36	45.98	57.63	0.00	0.00
8.76	4.560	33.03	5	3.6E-06	13	57.13	37	36	45.58	57.13	0.00	0.00
8.78	4.600	32.99	5	3.7E-06	13	57.27	37	36	45.69	57.27	0.00	0.00
8.80	4.760	31.03	6	4.7E-06	13	56.84	37	36	45.35	56.84	0.00	0.00
8.82	4.920	27.57	6	6.4E-06	13	55.57	38	36	44.34	55.57	0.00	0.00
8.84	5.000	25.38	6	7.7E-06	13	54.65	38	36	43.60	54.65	0.00	0.00
8.86	4.980	22.14	6	9.1E-06	13	52.79	38	36	42.12	52.79	0.00	0.00
8.88	4.530	15.49	6	9.7E-06	12	47.37	36	36	37.80	47.37	0.00	0.00
8.90	4.230	13.35	6	8.6E-06	11	45.02	35	36	35.92	45.02	0.00	0.00
8.92	4.110	13.53	6	7.6E-06	11	44.77	34	35	35.72	44.77	0.00	0.00
8.94	4.170	16.77	6	6.2E-06	11	47.11	35	35	37.59	47.11	0.00	0.00
8.96	4.290	22.69	6	4.7E-06	12	51.08	35	36	40.75	51.08	0.00	0.00
8.98	4.150	26.06	5	3.3E-06	12	52.49	35	35	41.88	52.49	0.00	0.00
9.00	3.550	28.66	5	1.5E-06	11	47.63	32	35	41.26	51.71	0.00	0.00
9.02	3.540	38.86	5	8.8E-07	12	47.48	32	35	45.08	56.50	0.00	0.00
9.04	4.630	45.65	5	2.2E-06	14	63.54	37	36	50.70	63.54	0.00	0.00
9.06	5.550	52.08	5	3.7E-06	16	69.28	40	37	55.28	69.28	0.00	0.00
9.08	5.980	48.84	6	5.7E-06	17	69.22	42	37	55.23	69.22	0.00	0.00
9.10	6.620	47.57	6	9.3E-06	18	70.47	44	38	56.22	70.47	0.00	0.00
9.12	7.090	45.20	6	1.3E-05	18	70.64	45	38	56.36	70.64	0.00	0.00
9.14	7.470	47.61	6	1.5E-05	19	72.72	47	38	58.02	72.72	0.00	0.00
9.16	7.790	44.83	6	2.0E-05	19	72.24	47	38	57.63	72.24	0.00	0.00
9.18	7.920	42.37	6	2.4E-05	19	71.41	48	39	56.97	71.41	0.00	0.00
9.20	7.920	42.37	6	2.4E-05	19	71.44	48	39	57.00	71.44	0.00	0.00
9.22	8.010	23.87	6	5.5E-05	18	61.92	48	39	49.40	61.92	0.00	0.00
9.24	8.310	27.43	6	5.4E-05	19	64.63	49	39	51.56	64.63	0.00	0.00
9.26	8.510	30.85	6	5.1E-05	19	66.96	49	39	53.43	66.96	0.00	0.00
9.28	8.290	31.80	6	4.3E-05	19	67.03	49	39	53.48	67.03	0.00	0.00
9.30	7.750	34.95	6	2.8E-05	18	67.52	47	38	53.87	67.52	0.00	0.00
9.32	6.900	40.73	6	1.4E-05	18	68.40	44	38	54.57	68.40	0.00	0.00
9.34	6.720	43.24	6	1.1E-05	17	69.16	44	38	55.18	69.16	0.00	0.00
9.36	6.850	47.16	6	1.0E-05	18	71.34	44	38	56.92	71.34	0.00	0.00
9.38	7.090	48.48	6	1.2E-05	18	72.58	45	38	57.91	72.58	0.00	0.00
9.40	7.570	49.07	6	1.5E-05	19	74.07	47	38	59.10	74.07	0.00	0.00
9.42	8.330	49.62	6	2.2E-05	20	76.14	49	39	60.75	76.14	0.00	0.00
9.44	9.150	48.93	6	3.3E-05	22	77.65	51	39	61.95	77.65	0.00	0.00
9.46	10.020	47.34	6	5.2E-05	23	78.70	54	40	62.80	78.70	0.00	0.00
9.48	10.810	48.43	6	6.9E-05	24	80.77	56	40	64.45	80.77	0.00	0.00
9.50	11.140	54.22	6	6.5E-05	25	84.13	56	40	67.13	84.13	0.00	0.00
9.52	11.250	62.60	6	5.3E-05	25	88.13	57	40	70.31	88.13	0.00	0.00
9.54	10.860	51.58	6	6.3E-05	24	82.46	56	40	65.79	82.46	0.00	0.00
9.56	10.790	55.36	6	5.4E-05	24	84.11	55	40	67.11	84.11	0.00	0.00
9.58	10.690	62.74	6	4.2E-05	25	87.23	55	40	69.60	87.23	0.00	0.00
9.60	10.550	74.04	6	3.0E-05	25	91.71	55	40	73.18	91.71	0.00	0.00
9.62	10.460	83.79	6	2.3E-05	25	95.41	54	40	76.13	95.41	0.00	0.00
9.64	10.360	93.81	6	1.8E-05	26	98.99	54	40	78.98	98.99	0.00	0.00
9.66	10.310	100.51	6	1.5E-05	26	101.34	54	40	80.85	101.34	0.00	0.00
9.68	10.270	100.92	6	1.5E-05	26	101.44	54	40	80.94	101.44	0.00	0.00
9.70	10.230	100.10	6	1.5E-05	26	101.11	54	40	80.67	101.11	0.00	0.00
9.72	10.190	97.82	6	1.5E-05	26	100.26	54	40	79.99	100.26	0.00	0.00
9.74	10.080	97.00	6	1.4E-05	26	99.76	53	40	79.60	99.76	0.00	0.00

In situ data				Estimations		ARENILE PIAZZA MAZZINI - VIAREGGIO (LU)					CPTu 03	
Depth (m)	qc (MPa)	fs (kPa)	SBTn	Ksbt (m/s)	SPT N60	M (MPa)	Dr (%)	Fi (°)	Es (MPa)	Go (MPa)	Su (kPa)	OCR
9.76	9.960	95.95	6	1.4E-05	25	99.16	53	40	79.12	99.16	0.00	0.00
9.78	9.650	95.95	6	1.2E-05	25	98.49	52	39	78.58	98.49	0.00	0.00
9.80	9.570	94.77	6	1.2E-05	25	97.93	52	39	78.13	97.93	0.00	0.00
9.82	9.480	93.81	6	1.2E-05	25	97.42	52	39	77.73	97.42	0.00	0.00
9.84	9.290	93.04	6	1.1E-05	24	96.74	51	39	77.18	96.74	0.00	0.00
9.86	8.940	93.17	6	9.0E-06	24	95.98	50	39	76.58	95.98	0.00	0.00
9.88	8.550	92.45	6	7.5E-06	23	94.79	49	39	75.63	94.79	0.00	0.00
9.90	8.040	90.58	6	6.0E-06	22	92.85	47	38	74.08	92.85	0.00	0.00
9.92	7.700	88.66	5	5.1E-06	22	91.30	46	38	72.84	91.30	0.00	0.00
9.94	7.400	87.80	5	4.4E-06	21	90.21	45	38	71.98	90.21	0.00	0.00
9.96	7.100	86.70	5	3.7E-06	20	89.01	44	38	71.02	89.01	0.00	0.00
9.98	6.760	84.79	5	3.1E-06	20	87.38	43	38	69.72	87.38	0.00	0.00
10.00	6.710	80.46	5	3.3E-06	20	85.72	43	38	68.39	85.72	0.00	0.00
10.02	6.910	80.01	5	3.8E-06	20	86.19	44	38	68.77	86.19	0.00	0.00
10.04	7.280	77.32	5	5.1E-06	20	86.27	45	38	68.83	86.27	0.00	0.00
10.06	7.330	77.68	5	5.2E-06	20	86.59	45	38	69.08	86.59	0.00	0.00
10.08	7.310	73.45	6	5.7E-06	20	84.96	45	38	67.79	84.96	0.00	0.00
10.10	6.790	67.30	5	4.8E-06	19	81.17	43	38	64.77	81.17	0.00	0.00
10.12	6.450	53.31	6	5.8E-06	18	74.47	42	37	59.42	74.47	0.00	0.00
10.14	6.360	52.03	6	5.7E-06	18	73.70	42	37	58.80	73.70	0.00	0.00
10.16	6.390	49.98	6	6.2E-06	18	72.91	42	37	58.17	72.91	0.00	0.00
10.18	6.410	49.80	6	6.3E-06	18	72.92	42	37	58.18	72.92	0.00	0.00
10.20	6.410	49.80	6	6.3E-06	18	72.95	42	37	58.21	72.95	0.00	0.00
10.22	6.350	48.55	6	6.3E-06	17	72.26	41	37	57.66	72.26	0.00	0.00
10.24	6.540	48.28	6	7.2E-06	18	72.69	42	37	58.00	72.69	0.00	0.00
10.26	6.510	48.11	6	7.0E-06	18	72.56	42	37	57.90	72.56	0.00	0.00
10.28	6.320	47.43	6	6.3E-06	17	71.77	41	37	57.27	71.77	0.00	0.00
10.30	5.990	47.98	6	4.9E-06	17	71.14	40	37	56.76	71.14	0.00	0.00
10.32	5.910	48.84	5	4.5E-06	17	71.33	40	37	56.91	71.33	0.00	0.00
10.34	5.890	49.89	5	4.2E-06	17	71.78	40	37	57.27	71.78	0.00	0.00
10.36	5.850	50.98	5	3.9E-06	17	72.18	40	37	57.59	72.18	0.00	0.00
10.38	5.870	52.40	5	3.8E-06	17	72.90	40	37	58.16	72.90	0.00	0.00
10.40	5.890	51.94	5	3.9E-06	17	72.79	40	37	58.08	72.79	0.00	0.00
10.42	5.960	51.03	5	4.2E-06	17	72.63	40	37	57.95	72.63	0.00	0.00
10.44	5.980	51.26	5	4.2E-06	17	72.83	40	37	58.11	72.83	0.00	0.00
10.46	5.940	51.71	5	4.1E-06	17	72.94	40	37	58.20	72.94	0.00	0.00
10.48	5.820	51.03	5	3.8E-06	17	72.33	39	37	57.71	72.33	0.00	0.00
10.50	5.790	50.03	5	3.8E-06	17	71.83	39	37	57.31	71.83	0.00	0.00
10.52	5.830	50.07	5	3.9E-06	17	72.01	39	37	57.45	72.01	0.00	0.00
10.54	5.830	50.30	5	3.9E-06	17	72.14	39	37	57.56	72.14	0.00	0.00
10.56	5.810	50.62	5	3.8E-06	17	72.26	39	37	57.66	72.26	0.00	0.00
10.58	5.770	50.26	5	3.7E-06	17	72.02	39	37	57.46	72.02	0.00	0.00
10.60	5.750	49.75	5	3.7E-06	17	71.77	39	37	57.26	71.77	0.00	0.00
10.62	5.660	49.30	5	3.5E-06	16	71.34	39	36	56.92	71.34	0.00	0.00
10.64	5.490	49.12	5	3.0E-06	16	70.78	38	36	56.47	70.78	0.00	0.00
10.66	5.350	48.57	5	2.8E-06	16	70.14	37	36	55.96	70.14	0.00	0.00
10.68	5.360	47.48	5	2.9E-06	16	69.71	37	36	55.62	69.71	0.00	0.00
10.70	5.300	46.93	5	2.8E-06	16	69.31	37	36	55.30	69.31	0.00	0.00
10.72	5.170	46.52	5	2.5E-06	15	68.75	37	36	54.86	68.75	0.00	0.00
10.74	5.120	45.56	5	2.5E-06	15	68.19	37	36	54.41	68.19	0.00	0.00
10.76	5.210	43.42	5	2.9E-06	15	67.52	37	36	53.87	67.52	0.00	0.00
10.78	5.190	42.42	5	3.0E-06	15	67.02	37	36	53.47	67.02	0.00	0.00
10.80	5.160	42.01	5	2.9E-06	15	66.76	37	36	53.27	66.76	0.00	0.00
10.82	5.120	41.60	5	2.9E-06	15	66.48	36	36	53.04	66.48	0.00	0.00
10.84	5.170	40.55	5	3.1E-06	15	66.16	37	36	52.79	66.16	0.00	0.00

In situ data				Estimations		ARENILE PIAZZA MAZZINI - VIAREGGIO (LU)					CPTu 03	
Depth (m)	qc (MPa)	fs (kPa)	SBTn	Ksbt (m/s)	SPT N60	M (MPa)	Dr (%)	Fi (°)	Es (MPa)	Go (MPa)	Su (kPa)	OCR
10.86	5.230	39.55	5	3.4E-06	15	65.89	37	36	52.57	65.89	0.00	0.00
10.88	5.200	39.14	5	3.4E-06	15	65.63	37	36	52.36	65.63	0.00	0.00
10.90	5.140	39.00	5	3.2E-06	15	65.41	36	36	52.19	65.41	0.00	0.00
10.92	5.140	39.27	5	3.2E-06	15	65.57	36	36	52.32	65.57	0.00	0.00
10.94	5.240	39.05	5	3.5E-06	15	65.80	37	36	52.50	65.80	0.00	0.00
10.96	5.480	39.82	5	4.1E-06	16	66.93	38	36	53.40	66.93	0.00	0.00
10.98	5.690	40.32	6	4.7E-06	16	67.81	38	36	54.11	67.81	0.00	0.00
11.00	5.880	40.28	6	5.4E-06	16	68.36	39	37	54.55	68.36	0.00	0.00
11.02	5.930	40.09	6	5.7E-06	16	68.44	39	37	54.61	68.44	0.00	0.00
11.04	5.940	41.14	6	5.4E-06	17	69.02	39	37	55.07	69.02	0.00	0.00
11.06	6.010	42.15	6	5.5E-06	17	69.74	39	37	55.65	69.74	0.00	0.00
11.08	6.020	43.69	6	5.2E-06	17	70.55	39	37	56.29	70.55	0.00	0.00
11.10	6.020	44.38	6	5.1E-06	17	70.91	39	37	56.58	70.91	0.00	0.00
11.12	6.010	45.70	6	4.8E-06	17	71.55	39	37	57.08	71.55	0.00	0.00
11.14	5.950	48.11	5	4.2E-06	17	72.53	39	37	57.87	72.53	0.00	0.00
11.16	5.880	48.07	5	4.0E-06	17	72.35	39	37	57.73	72.35	0.00	0.00
11.18	5.850	48.16	5	3.8E-06	17	72.34	39	37	57.72	72.34	0.00	0.00
11.20	5.850	48.16	5	3.8E-06	17	72.37	39	37	57.75	72.37	0.00	0.00
11.22	5.760	37.91	6	5.3E-06	16	67.19	38	36	53.61	67.19	0.00	0.00
11.24	5.700	38.96	6	4.8E-06	16	67.59	38	36	53.92	67.59	0.00	0.00
11.26	5.670	40.32	5	4.4E-06	16	68.21	38	36	54.42	68.21	0.00	0.00
11.28	5.580	41.64	5	3.9E-06	16	68.63	38	36	54.76	68.63	0.00	0.00
11.30	5.400	42.46	5	3.3E-06	16	68.53	37	36	54.68	68.53	0.00	0.00
11.32	5.280	42.87	5	2.9E-06	16	68.40	37	36	54.57	68.40	0.00	0.00
11.34	5.300	42.33	5	3.0E-06	16	68.23	37	36	54.44	68.23	0.00	0.00
11.36	5.360	42.51	5	3.1E-06	16	68.53	37	36	54.68	68.53	0.00	0.00
11.38	5.440	41.96	5	3.4E-06	16	68.54	37	36	54.68	68.54	0.00	0.00
11.40	5.580	41.60	5	3.9E-06	16	68.81	38	36	54.90	68.81	0.00	0.00
11.42	5.680	40.87	5	4.3E-06	16	68.77	38	36	54.87	68.77	0.00	0.00
11.44	5.740	40.14	6	4.6E-06	16	68.61	38	36	54.74	68.61	0.00	0.00
11.46	5.800	40.05	6	4.8E-06	16	68.77	38	36	54.87	68.77	0.00	0.00
11.48	5.790	41.05	6	4.6E-06	16	69.27	38	36	55.27	69.27	0.00	0.00
11.50	5.740	42.28	5	4.2E-06	16	69.76	38	36	55.66	69.76	0.00	0.00
11.52	5.710	44.29	5	3.8E-06	16	70.68	38	36	56.40	70.68	0.00	0.00
11.54	5.820	45.47	5	3.9E-06	17	71.60	38	36	57.13	71.60	0.00	0.00
11.56	6.090	45.61	6	4.8E-06	17	72.46	39	37	57.81	72.46	0.00	0.00
11.58	6.330	45.84	6	5.6E-06	18	73.26	40	37	58.45	73.26	0.00	0.00
11.60	6.420	46.47	6	5.8E-06	18	73.84	40	37	58.91	73.84	0.00	0.00
11.62	6.380	47.02	6	5.5E-06	18	74.03	40	37	59.06	74.03	0.00	0.00
11.64	6.340	46.97	6	5.4E-06	18	73.93	40	37	58.99	73.93	0.00	0.00
11.66	6.290	47.75	6	5.0E-06	18	74.20	40	37	59.20	74.20	0.00	0.00
11.68	6.190	48.57	5	4.5E-06	18	74.34	39	37	59.32	74.34	0.00	0.00
11.70	5.990	50.62	5	3.6E-06	17	74.77	39	36	59.65	74.77	0.00	0.00
11.72	5.780	52.62	5	2.9E-06	17	75.10	38	36	59.92	75.10	0.00	0.00
11.74	5.660	53.03	5	2.6E-06	17	74.96	37	36	59.81	74.96	0.00	0.00
11.76	5.590	52.94	5	2.5E-06	17	74.74	37	36	59.63	74.74	0.00	0.00
11.78	5.540	53.35	5	2.3E-06	17	74.81	37	36	59.69	74.81	0.00	0.00
11.80	5.610	51.85	5	2.6E-06	17	74.39	37	36	59.35	74.39	0.00	0.00
11.82	5.700	50.16	5	2.9E-06	17	73.92	37	36	58.98	73.92	0.00	0.00
11.84	5.810	48.30	5	3.4E-06	17	73.42	38	36	58.58	73.42	0.00	0.00
11.86	5.940	47.11	5	3.9E-06	17	73.27	38	36	58.46	73.27	0.00	0.00
11.88	5.980	46.56	5	4.0E-06	17	73.15	38	36	58.37	73.15	0.00	0.00
11.90	5.910	44.88	5	4.1E-06	17	72.18	38	36	57.59	72.18	0.00	0.00
11.92	5.850	44.33	5	4.0E-06	17	71.78	38	36	57.27	71.78	0.00	0.00
11.94	5.810	45.02	5	3.7E-06	17	72.03	38	36	57.47	72.03	0.00	0.00

In situ data				Estimations		ARENILE PIAZZA MAZZINI - VIAREGGIO (LU)					CPTu 03	
Depth (m)	qc (MPa)	fs (kPa)	SBTn	Ksbt (m/s)	SPT N60	M (MPa)	Dr (%)	Fi (°)	Es (MPa)	Go (MPa)	Su (kPa)	OCR
11.96	5.830	45.84	5	3.7E-06	17	72.52	38	36	57.86	72.52	0.00	0.00
11.98	5.860	46.25	5	3.7E-06	17	72.83	38	36	58.11	72.83	0.00	0.00
12.00	5.860	46.84	5	3.6E-06	17	73.15	38	36	58.36	73.15	0.00	0.00
12.02	5.850	46.61	5	3.6E-06	17	73.04	38	36	58.28	73.04	0.00	0.00
12.04	5.830	46.97	5	3.5E-06	17	73.19	38	36	58.40	73.19	0.00	0.00
12.06	5.770	46.25	5	3.4E-06	17	72.71	37	36	58.01	72.71	0.00	0.00
12.08	5.770	45.56	5	3.5E-06	17	72.41	37	36	57.78	72.41	0.00	0.00
12.10	5.800	44.74	5	3.7E-06	17	72.14	38	36	57.56	72.14	0.00	0.00
12.12	5.810	44.01	5	3.8E-06	17	71.84	38	36	57.32	71.84	0.00	0.00
12.14	5.800	44.29	5	3.7E-06	17	71.98	38	36	57.43	71.98	0.00	0.00
12.16	5.810	45.29	5	3.6E-06	17	72.53	38	36	57.87	72.53	0.00	0.00
12.18	5.810	45.20	5	3.6E-06	17	72.52	38	36	57.86	72.52	0.00	0.00
12.20	5.810	45.20	5	3.6E-06	17	72.55	37	36	57.89	72.55	0.00	0.00
12.22	5.850	32.03	6	6.3E-06	16	65.85	38	36	52.54	65.85	0.00	0.00
12.24	5.970	33.21	6	6.6E-06	16	66.86	38	36	53.35	66.86	0.00	0.00
12.26	6.050	36.31	6	6.0E-06	17	68.79	38	36	54.89	68.79	0.00	0.00
12.28	6.100	38.09	6	5.8E-06	17	69.90	38	36	55.77	69.90	0.00	0.00
12.30	6.190	39.82	6	5.7E-06	17	71.07	39	37	56.70	71.07	0.00	0.00
12.32	6.310	40.73	6	6.0E-06	17	71.89	39	37	57.36	71.89	0.00	0.00
12.34	6.390	41.37	6	6.2E-06	18	72.46	39	37	57.81	72.46	0.00	0.00
12.36	6.320	42.97	6	5.5E-06	18	73.12	39	37	58.34	73.12	0.00	0.00
12.38	6.200	44.38	6	4.8E-06	17	73.53	39	37	58.67	73.53	0.00	0.00
12.40	6.030	45.47	5	4.1E-06	17	73.63	38	36	58.75	73.63	0.00	0.00
12.42	5.850	46.47	5	3.4E-06	17	73.65	37	36	58.76	73.65	0.00	0.00
12.44	5.720	47.07	5	3.0E-06	17	73.59	37	36	58.72	73.59	0.00	0.00
12.46	5.750	46.38	5	3.2E-06	17	73.38	37	36	58.55	73.38	0.00	0.00
12.48	5.810	46.43	5	3.3E-06	17	73.61	37	36	58.73	73.61	0.00	0.00
12.50	5.880	45.29	5	3.6E-06	17	73.29	37	36	58.48	73.29	0.00	0.00
12.52	5.870	43.83	5	3.8E-06	17	72.58	37	36	57.91	72.58	0.00	0.00
12.54	5.820	42.69	5	3.8E-06	17	71.90	37	36	57.37	71.90	0.00	0.00
12.56	5.830	42.37	5	3.8E-06	17	71.80	37	36	57.29	71.80	0.00	0.00
12.58	5.830	42.24	5	3.8E-06	17	71.77	37	36	57.26	71.77	0.00	0.00
12.60	5.840	42.83	5	3.8E-06	17	72.13	37	36	57.55	72.13	0.00	0.00
12.62	5.850	42.97	5	3.8E-06	17	72.26	37	36	57.65	72.26	0.00	0.00
12.64	5.850	43.15	5	3.7E-06	17	72.38	37	36	57.75	72.38	0.00	0.00
12.66	5.810	43.19	5	3.6E-06	17	72.32	37	36	57.70	72.32	0.00	0.00
12.68	5.770	43.33	5	3.5E-06	17	72.31	37	36	57.69	72.31	0.00	0.00
12.70	5.770	43.42	5	3.5E-06	17	72.38	37	36	57.75	72.38	0.00	0.00
12.72	5.860	42.69	5	3.8E-06	17	72.31	37	36	57.69	72.31	0.00	0.00
12.74	5.940	43.15	5	4.0E-06	17	72.79	37	36	58.08	72.79	0.00	0.00
12.76	5.980	43.74	5	4.0E-06	17	73.23	38	36	58.43	73.23	0.00	0.00
12.78	6.050	43.74	5	4.2E-06	17	73.46	38	36	58.61	73.46	0.00	0.00
12.80	6.140	43.42	5	4.5E-06	17	73.58	38	36	58.70	73.58	0.00	0.00
12.82	6.390	42.92	6	5.5E-06	18	74.02	39	37	59.06	74.02	0.00	0.00
12.84	6.740	42.78	6	6.9E-06	18	74.88	40	37	59.75	74.88	0.00	0.00
12.86	7.040	43.01	6	8.3E-06	19	75.78	41	37	60.46	75.78	0.00	0.00
12.88	7.270	43.19	6	9.5E-06	19	76.46	42	37	61.01	76.46	0.00	0.00
12.90	7.490	43.92	6	1.1E-05	20	77.39	42	37	61.75	77.39	0.00	0.00
12.92	7.570	45.15	6	1.1E-05	20	78.24	42	37	62.42	78.24	0.00	0.00
12.94	7.570	46.75	6	9.9E-06	20	79.08	42	37	63.10	79.08	0.00	0.00
12.96	7.600	49.21	6	9.3E-06	20	80.41	42	37	64.16	80.41	0.00	0.00
12.98	7.500	53.13	6	7.7E-06	20	82.11	42	37	65.51	82.11	0.00	0.00
13.00	7.480	54.86	6	7.1E-06	20	82.91	42	37	66.15	82.91	0.00	0.00
13.02	7.390	56.41	6	6.4E-06	20	83.45	42	37	66.59	83.45	0.00	0.00
13.04	7.230	58.09	6	5.5E-06	20	83.87	41	37	66.92	83.87	0.00	0.00

In situ data				Estimations		ARENILE PIAZZA MAZZINI - VIAREGGIO (LU)					CPTu 03	
Depth (m)	qc (MPa)	fs (kPa)	SBTn	Ksbt (m/s)	SPT N60	M (MPa)	Dr (%)	Fi (°)	Es (MPa)	Go (MPa)	Su (kPa)	OCR
13.06	6.960	59.19	5	4.5E-06	20	83.72	40	37	66.79	83.72	0.00	0.00
13.08	6.910	58.46	5	4.4E-06	20	83.29	40	37	66.46	83.29	0.00	0.00
13.10	6.940	57.41	5	4.7E-06	20	82.93	40	37	66.17	82.93	0.00	0.00
13.12	6.890	56.18	5	4.7E-06	19	82.27	40	37	65.64	82.27	0.00	0.00
13.14	6.620	55.49	5	4.0E-06	19	81.28	39	37	64.85	81.28	0.00	0.00
13.16	6.290	52.76	5	3.4E-06	18	79.15	38	36	63.15	79.15	0.00	0.00
13.18	6.210	51.67	5	3.3E-06	18	78.45	38	36	62.59	78.45	0.00	0.00
13.20	6.210	51.67	5	3.3E-06	18	78.48	38	36	62.62	78.48	0.00	0.00
13.22	5.870	38.18	5	4.3E-06	17	70.81	37	36	56.50	70.81	0.00	0.00
13.24	5.970	38.77	5	4.5E-06	17	71.43	37	36	56.99	71.43	0.00	0.00
13.26	5.940	40.78	5	4.0E-06	17	72.43	37	36	57.79	72.43	0.00	0.00
13.28	5.950	41.83	5	3.9E-06	17	73.04	37	36	58.28	73.04	0.00	0.00
13.30	5.870	42.42	5	3.6E-06	17	73.15	37	36	58.37	73.15	0.00	0.00
13.32	5.830	43.15	5	3.3E-06	17	73.45	36	36	58.60	73.45	0.00	0.00
13.34	5.790	43.69	5	3.2E-06	17	73.64	36	36	58.76	73.64	0.00	0.00
13.36	5.850	43.24	5	3.4E-06	17	73.61	37	36	58.73	73.61	0.00	0.00
13.38	5.820	42.24	5	3.4E-06	17	73.05	36	36	58.28	73.05	0.00	0.00
13.40	5.810	41.19	5	3.5E-06	17	72.51	36	36	57.85	72.51	0.00	0.00
13.42	5.720	40.96	5	3.3E-06	17	72.17	36	36	57.58	72.17	0.00	0.00
13.44	5.500	40.41	5	2.8E-06	16	71.29	35	36	56.88	71.29	0.00	0.00
13.46	5.500	39.82	5	2.9E-06	16	71.01	35	36	56.66	71.01	0.00	0.00
13.48	5.530	39.50	5	3.0E-06	16	70.96	35	36	56.61	70.96	0.00	0.00
13.50	5.610	39.87	5	3.1E-06	16	71.41	36	36	56.98	71.41	0.00	0.00
13.52	5.620	40.19	5	3.1E-06	16	71.64	36	36	57.16	71.64	0.00	0.00
13.54	5.600	39.91	5	3.1E-06	16	71.47	36	36	57.02	71.47	0.00	0.00
13.56	5.680	39.73	5	3.3E-06	17	71.63	36	36	57.15	71.63	0.00	0.00
13.58	5.890	39.87	5	3.9E-06	17	72.32	36	36	57.70	72.32	0.00	0.00
13.60	6.170	40.50	6	4.6E-06	17	73.44	37	36	58.60	73.44	0.00	0.00
13.62	6.230	40.55	6	4.8E-06	18	73.66	38	36	58.77	73.66	0.00	0.00
13.64	6.220	39.96	6	4.9E-06	18	73.35	38	36	58.53	73.35	0.00	0.00
13.66	6.250	38.82	6	5.2E-06	17	72.85	38	36	58.13	72.85	0.00	0.00
13.68	6.320	38.41	6	5.5E-06	18	72.84	38	36	58.12	72.84	0.00	0.00
13.70	6.350	37.73	6	5.8E-06	18	72.58	38	36	57.91	72.58	0.00	0.00
13.72	6.250	38.23	6	5.3E-06	17	72.62	38	36	57.95	72.62	0.00	0.00
13.74	6.140	38.86	6	4.7E-06	17	72.71	37	36	58.01	72.71	0.00	0.00
13.76	6.130	41.28	5	4.3E-06	17	74.00	37	36	59.04	74.00	0.00	0.00
13.78	6.130	42.74	5	4.0E-06	18	74.79	37	36	59.68	74.79	0.00	0.00
13.80	6.170	43.33	5	4.0E-06	18	75.24	37	36	60.03	75.24	0.00	0.00
13.82	6.270	42.87	5	4.4E-06	18	75.30	37	36	60.08	75.30	0.00	0.00
13.84	6.200	42.78	5	4.2E-06	18	75.10	37	36	59.92	75.10	0.00	0.00
13.86	6.100	42.60	5	3.9E-06	18	74.77	37	36	59.66	74.77	0.00	0.00
13.88	6.120	42.28	5	4.0E-06	18	74.69	37	36	59.59	74.69	0.00	0.00
13.90	6.150	42.60	5	4.0E-06	18	74.97	37	36	59.81	74.97	0.00	0.00
13.92	6.400	42.37	6	4.8E-06	18	75.54	38	36	60.27	75.54	0.00	0.00
13.94	6.520	42.37	6	5.3E-06	18	75.88	38	36	60.55	75.88	0.00	0.00
13.96	6.570	43.79	6	5.1E-06	18	76.79	38	36	61.27	76.79	0.00	0.00
13.98	6.690	43.24	6	5.7E-06	19	76.84	39	37	61.31	76.84	0.00	0.00
14.00	6.760	43.15	6	6.0E-06	19	77.00	39	37	61.43	77.00	0.00	0.00
14.02	6.720	44.88	6	5.4E-06	19	77.83	39	37	62.10	77.83	0.00	0.00
14.04	6.580	45.93	6	4.7E-06	19	78.05	38	36	62.27	78.05	0.00	0.00
14.06	6.440	48.57	5	3.9E-06	19	79.04	38	36	63.07	79.04	0.00	0.00
14.08	6.150	51.76	5	2.8E-06	18	79.85	37	36	63.71	79.85	0.00	0.00
14.10	6.080	53.26	5	2.6E-06	18	80.41	36	36	64.16	80.41	0.00	0.00
14.12	6.200	54.77	5	2.7E-06	18	81.50	37	36	65.02	81.50	0.00	0.00
14.14	6.470	54.95	5	3.2E-06	19	82.36	38	36	65.71	82.36	0.00	0.00

In situ data				Estimations		ARENILE PIAZZA MAZZINI - VIAREGGIO (LU)					CPTu 03	
Depth (m)	qc (MPa)	fs (kPa)	SBTn	Ksbt (m/s)	SPT N60	M (MPa)	Dr (%)	Fi (°)	Es (MPa)	Go (MPa)	Su (kPa)	OCR
14.16	6.990	53.72	6	4.7E-06	20	83.16	39	37	66.35	83.16	0.00	0.00
14.18	7.150	53.76	6	5.2E-06	20	83.62	40	37	66.72	83.62	0.00	0.00
14.20	7.150	53.76	6	5.2E-06	20	83.65	40	37	66.75	83.65	0.00	0.00
14.22	6.910	39.27	6	7.4E-06	19	75.64	39	37	60.35	75.64	0.00	0.00
14.24	7.450	42.83	6	9.1E-06	20	78.88	41	37	62.94	78.88	0.00	0.00
14.26	7.570	46.34	6	8.5E-06	20	81.04	41	37	64.66	81.04	0.00	0.00
14.28	7.680	49.66	6	8.1E-06	21	83.03	41	37	66.25	83.03	0.00	0.00
14.30	7.680	53.95	6	7.0E-06	21	85.20	41	37	67.98	85.20	0.00	0.00
14.32	7.660	58.14	6	6.1E-06	21	87.21	41	37	69.58	87.21	0.00	0.00
14.34	7.610	62.47	6	5.2E-06	21	89.14	41	37	71.13	89.14	0.00	0.00
14.36	7.560	65.25	5	4.7E-06	21	90.33	41	37	72.07	90.33	0.00	0.00
14.38	7.500	65.93	5	4.4E-06	21	90.52	41	37	72.22	90.52	0.00	0.00
14.40	7.360	65.20	5	4.1E-06	21	89.88	40	37	71.71	89.88	0.00	0.00
14.42	7.200	65.20	5	3.7E-06	21	89.51	40	37	71.42	89.51	0.00	0.00
14.44	7.230	64.20	5	3.9E-06	21	89.18	40	37	71.15	89.18	0.00	0.00
14.46	7.350	63.92	5	4.2E-06	21	89.39	40	37	71.33	89.39	0.00	0.00
14.48	7.390	63.15	5	4.4E-06	21	89.18	40	37	71.16	89.18	0.00	0.00
14.50	7.300	62.06	5	4.3E-06	21	88.50	40	37	70.61	88.50	0.00	0.00
14.52	7.190	61.46	5	4.0E-06	21	87.98	40	37	70.20	87.98	0.00	0.00
14.54	6.990	61.69	5	3.5E-06	20	87.61	39	37	69.90	87.61	0.00	0.00
14.56	6.900	61.05	5	3.4E-06	20	87.12	39	36	69.51	87.12	0.00	0.00
14.58	6.810	61.55	5	3.1E-06	20	87.15	38	36	69.54	87.15	0.00	0.00
14.60	6.600	61.83	5	2.7E-06	20	86.76	38	36	69.22	86.76	0.00	0.00
14.62	6.450	62.33	5	2.4E-06	19	86.61	37	36	69.10	86.61	0.00	0.00
14.64	6.390	62.60	5	2.2E-06	19	86.60	37	36	69.10	86.60	0.00	0.00
14.66	6.440	62.15	5	2.3E-06	19	86.58	37	36	69.08	86.58	0.00	0.00
14.68	6.700	60.78	5	2.9E-06	20	86.69	38	36	69.17	86.69	0.00	0.00
14.70	6.900	59.23	5	3.5E-06	20	86.54	39	36	69.05	86.54	0.00	0.00
14.72	7.000	58.27	5	3.8E-06	20	86.38	39	37	68.92	86.38	0.00	0.00
14.74	6.960	57.86	5	3.8E-06	20	86.12	39	37	68.71	86.12	0.00	0.00
14.76	6.890	57.55	5	3.6E-06	20	85.83	38	36	68.48	85.83	0.00	0.00
14.78	6.820	58.32	5	3.4E-06	20	86.05	38	36	68.66	86.05	0.00	0.00
14.80	6.700	60.60	5	2.9E-06	20	86.84	38	36	69.28	86.84	0.00	0.00
14.82	6.710	61.19	5	2.8E-06	20	87.17	38	36	69.55	87.17	0.00	0.00
14.84	6.750	61.69	5	2.9E-06	20	87.55	38	36	69.85	87.55	0.00	0.00
14.86	6.800	60.60	5	3.1E-06	20	87.21	38	36	69.59	87.21	0.00	0.00
14.88	6.710	57.91	5	3.1E-06	20	85.75	38	36	68.42	85.75	0.00	0.00
14.90	6.660	56.31	5	3.2E-06	20	84.90	38	36	67.74	84.90	0.00	0.00
14.92	6.640	54.63	5	3.3E-06	19	84.07	38	36	67.08	84.07	0.00	0.00
14.94	6.600	52.03	5	3.4E-06	19	82.73	37	36	66.01	82.73	0.00	0.00
14.96	6.600	51.39	5	3.5E-06	19	82.45	37	36	65.78	82.45	0.00	0.00
14.98	6.560	51.17	5	3.4E-06	19	82.27	37	36	65.64	82.27	0.00	0.00
15.00	6.580	52.17	5	3.4E-06	19	82.85	37	36	66.11	82.85	0.00	0.00
15.02	6.700	53.17	5	3.5E-06	19	83.70	38	36	66.78	83.70	0.00	0.00
15.04	6.840	53.22	5	3.9E-06	20	84.12	38	36	67.11	84.12	0.00	0.00
15.06	6.930	53.95	5	4.0E-06	20	84.74	38	36	67.61	84.74	0.00	0.00
15.08	6.960	55.08	5	3.9E-06	20	85.40	38	36	68.14	85.40	0.00	0.00
15.10	7.010	56.91	5	3.8E-06	20	86.45	38	36	68.98	86.45	0.00	0.00
15.12	7.110	57.27	5	4.0E-06	20	86.91	39	37	69.35	86.91	0.00	0.00
15.14	7.270	56.86	5	4.5E-06	21	87.15	39	37	69.53	87.15	0.00	0.00
15.16	7.550	57.00	6	5.3E-06	21	87.93	40	37	70.16	87.93	0.00	0.00
15.18	7.710	56.91	6	5.8E-06	21	88.30	41	37	70.45	88.30	0.00	0.00

CPTu 04 ARENILE BAGNO FLORA - VIAREGGIO (LU)

qc	cone resistance	SPT	equivalent SPT N60	Es	Young's modulus
fs	sleeve friction	M	constrained modulus	Go	Shear modulus
SBTn	soil behavior type normalized	Dr	relative density	Su	Shear strenght
Ksbt	permeability	Fi	Friction angle	OCR	Over consolidation ratio

In situ data				Estimations								
Depth (m)	qc (MPa)	fs (kPa)	SBTn	Ksbt (m/s)	SPT N60	M (MPa)	Dr (%)	Fi (°)	Es (MPa)	Go (MPa)	Su (kPa)	OCR
0.00	-	-	-	-	-	-	-	-	-	-	-	-
0.02	0.110	0.00	0	0.0E+00	0	0.10	0	0	0.08	0.10	0.00	0.00
0.04	9.640	64.74	7	1.1E-03	16	44.39	100	47	35.42	44.39	0.00	0.00
0.06	9.530	70.67	6	7.3E-04	17	47.15	100	47	37.62	47.15	0.00	0.00
0.08	9.190	77.41	6	4.9E-04	17	48.87	100	47	38.99	48.87	0.00	0.00
0.10	8.790	84.43	6	3.3E-04	17	50.24	100	47	40.09	50.24	0.00	0.00
0.12	7.870	93.31	6	1.8E-04	16	50.34	100	46	40.17	50.34	0.00	0.00
0.14	7.120	96.46	6	1.1E-04	15	49.53	100	46	39.52	49.53	0.00	0.00
0.16	6.440	97.23	6	7.3E-05	14	48.28	100	46	38.52	48.28	0.00	0.00
0.18	5.890	96.05	6	5.2E-05	13	46.93	97	45	37.44	46.93	0.00	0.00
0.20	5.440	93.45	6	4.0E-05	13	45.53	93	45	36.33	45.53	0.00	0.00
0.22	4.870	86.39	6	3.0E-05	12	42.84	88	44	34.18	42.84	0.00	0.00
0.24	4.580	80.42	6	2.7E-05	11	41.22	84	44	32.89	41.22	0.00	0.00
0.26	4.360	73.77	6	2.5E-05	11	39.66	81	44	31.65	39.66	0.00	0.00
0.28	4.170	67.34	6	2.4E-05	10	38.18	77	43	30.46	38.18	0.00	0.00
0.30	4.020	61.33	6	2.4E-05	10	36.84	75	43	29.40	36.84	0.00	0.00
0.32	3.800	54.95	6	2.3E-05	9	35.09	72	42	28.00	35.09	0.00	0.00
0.34	3.660	51.53	6	2.2E-05	9	34.18	70	42	27.27	34.18	0.00	0.00
0.36	3.580	48.43	6	2.1E-05	9	33.51	68	42	26.74	33.51	0.00	0.00
0.38	3.600	45.38	6	2.3E-05	9	33.20	67	42	26.49	33.20	0.00	0.00
0.40	3.740	42.24	6	2.8E-05	9	33.26	66	42	26.53	33.26	0.00	0.00
0.42	4.110	38.41	6	4.3E-05	9	33.86	66	42	27.02	33.86	0.00	0.00
0.44	4.270	37.18	6	4.9E-05	10	34.31	66	42	27.38	34.31	0.00	0.00
0.46	4.370	36.22	6	5.4E-05	10	34.61	66	42	27.61	34.61	0.00	0.00
0.48	4.450	35.86	6	5.6E-05	10	34.99	66	42	27.92	34.99	0.00	0.00
0.50	4.550	36.45	6	5.7E-05	10	35.68	66	42	28.47	35.68	0.00	0.00
0.52	4.710	38.64	6	5.6E-05	11	36.99	66	42	29.51	36.99	0.00	0.00
0.54	4.800	40.41	6	5.4E-05	11	37.96	67	42	30.29	37.96	0.00	0.00
0.56	4.850	41.51	6	5.2E-05	11	38.62	67	42	30.82	38.62	0.00	0.00
0.58	4.830	42.42	6	4.8E-05	11	39.01	66	42	31.13	39.01	0.00	0.00
0.60	4.580	39.37	6	4.4E-05	10	37.60	64	41	30.00	37.60	0.00	0.00
0.62	4.620	39.64	6	4.3E-05	11	38.00	64	41	30.32	38.00	0.00	0.00
0.64	4.730	41.60	6	4.2E-05	11	39.08	64	41	31.18	39.08	0.00	0.00
0.66	4.830	43.01	6	4.2E-05	11	39.89	65	41	31.83	39.89	0.00	0.00
0.68	4.800	45.61	6	3.7E-05	11	40.69	65	41	32.47	40.69	0.00	0.00
0.70	4.710	47.48	6	3.1E-05	11	41.09	64	41	32.79	41.09	0.00	0.00
0.72	4.630	48.48	6	2.8E-05	11	41.29	63	41	32.94	41.29	0.00	0.00
0.74	4.600	48.61	6	2.6E-05	11	41.41	63	41	33.04	41.41	0.00	0.00
0.76	4.510	48.98	6	2.4E-05	11	41.40	62	41	33.03	41.40	0.00	0.00
0.78	4.420	49.30	6	2.1E-05	11	41.36	62	41	33.00	41.36	0.00	0.00
0.80	4.370	49.30	6	2.0E-05	11	41.37	61	41	33.01	41.37	0.00	0.00
0.82	4.300	48.75	6	1.9E-05	11	41.17	60	41	32.85	41.17	0.00	0.00
0.84	4.260	48.07	6	1.8E-05	11	41.03	60	41	32.74	41.03	0.00	0.00
0.86	4.250	48.02	6	1.8E-05	11	41.16	59	41	32.84	41.16	0.00	0.00
0.88	4.280	47.20	6	1.8E-05	11	41.22	59	41	32.89	41.22	0.00	0.00
0.90	4.330	45.38	6	2.0E-05	11	41.08	59	41	32.77	41.08	0.00	0.00
0.92	4.320	44.20	6	2.0E-05	11	40.88	58	40	32.62	40.88	0.00	0.00
0.94	4.280	43.15	6	2.0E-05	11	40.61	58	40	32.41	40.61	0.00	0.00

In situ data				Estimations		ARENILE BAGNO FLORA - VIAREGGIO (LU)					CPTu 04	
Depth (m)	qc (MPa)	fs (kPa)	SBTn	Ksbt (m/s)	SPT N60	M (MPa)	Dr (%)	Fi (°)	Es (MPa)	Go (MPa)	Su (kPa)	OCR
0.96	4.090	41.96	6	1.7E-05	10	39.77	56	40	31.73	39.77	0.00	0.00
0.98	3.890	41.92	6	1.4E-05	10	39.20	55	40	31.28	39.20	0.00	0.00
1.00	3.710	42.51	6	1.1E-05	10	38.85	54	40	30.99	38.85	0.00	0.00
1.02	3.600	43.10	6	9.7E-06	9	38.74	53	40	30.91	38.74	0.00	0.00
1.04	3.530	43.15	6	8.8E-06	9	38.63	53	39	30.82	38.63	0.00	0.00
1.06	3.440	42.78	6	8.0E-06	9	38.32	52	39	30.57	38.32	0.00	0.00
1.08	3.370	41.96	6	7.5E-06	9	37.96	51	39	30.29	37.96	0.00	0.00
1.10	3.410	39.91	6	8.3E-06	9	37.69	51	39	30.07	37.69	0.00	0.00
1.12	3.540	38.00	6	1.0E-05	9	37.79	51	39	30.15	37.79	0.00	0.00
1.14	3.720	35.81	6	1.3E-05	10	37.94	52	39	30.27	37.94	0.00	0.00
1.16	3.940	33.76	6	1.7E-05	10	38.22	53	39	30.49	38.22	0.00	0.00
1.18	4.080	32.58	6	2.0E-05	10	38.45	53	39	30.68	38.45	0.00	0.00
1.20	4.190	31.89	6	2.3E-05	10	38.72	53	40	30.89	38.72	0.00	0.00
1.22	4.420	31.62	6	2.7E-05	11	39.50	54	40	31.52	39.50	0.00	0.00
1.24	4.520	32.17	6	2.8E-05	11	40.14	54	40	32.02	40.14	0.00	0.00
1.26	4.560	33.12	6	2.7E-05	11	40.71	54	40	32.48	40.71	0.00	0.00
1.28	4.600	34.67	6	2.6E-05	11	41.48	54	40	33.10	41.48	0.00	0.00
1.30	4.700	37.22	6	2.4E-05	11	42.77	55	40	34.12	42.77	0.00	0.00
1.32	4.810	38.64	6	2.5E-05	12	43.71	55	40	34.88	43.71	0.00	0.00
1.34	4.960	39.55	6	2.6E-05	12	44.61	56	40	35.59	44.61	0.00	0.00
1.36	5.100	41.32	6	2.7E-05	12	45.75	56	40	36.50	45.75	0.00	0.00
1.38	5.200	42.46	6	2.7E-05	12	46.55	57	40	37.14	46.55	0.00	0.00
1.40	5.350	43.47	6	2.8E-05	13	47.47	57	40	37.87	47.47	0.00	0.00
1.42	5.520	44.88	6	3.0E-05	13	48.56	58	40	38.75	48.56	0.00	0.00
1.44	5.680	45.88	6	3.1E-05	13	49.49	58	40	39.49	49.49	0.00	0.00
1.46	5.920	46.75	6	3.5E-05	14	50.61	59	41	40.38	50.61	0.00	0.00
1.48	6.390	47.43	6	4.4E-05	15	52.30	60	41	41.73	52.30	0.00	0.00
1.50	6.770	47.57	6	5.3E-05	15	53.52	62	41	42.70	53.52	0.00	0.00
1.52	7.130	47.57	6	6.4E-05	16	54.61	63	41	43.57	54.61	0.00	0.00
1.54	7.680	47.84	6	8.2E-05	17	56.23	64	41	44.86	56.23	0.00	0.00
1.56	8.000	48.75	6	9.1E-05	17	57.45	65	41	45.84	57.45	0.00	0.00
1.58	8.280	50.16	6	9.7E-05	18	58.74	66	42	46.87	58.74	0.00	0.00
1.60	8.280	50.16	6	9.6E-05	18	58.87	66	42	46.97	58.87	0.00	0.00
1.62	8.100	50.05	6	8.8E-05	17	58.53	65	41	46.70	58.53	0.00	0.00
1.64	8.650	50.51	6	1.1E-04	18	60.12	67	42	47.97	60.12	0.00	0.00
1.66	9.070	51.67	6	1.2E-04	19	61.62	68	42	49.17	61.62	0.00	0.00
1.68	9.240	57.64	6	1.1E-04	19	64.17	68	42	51.20	64.17	0.00	0.00
1.70	9.320	63.06	6	9.6E-05	20	66.27	69	42	52.88	66.27	0.00	0.00
1.72	9.330	68.43	6	8.3E-05	20	68.15	69	42	54.37	68.15	0.00	0.00
1.74	9.270	72.85	6	7.2E-05	20	69.52	69	42	55.47	69.52	0.00	0.00
1.76	9.190	79.10	6	5.9E-05	20	71.35	69	42	56.93	71.35	0.00	0.00
1.78	9.040	83.01	6	5.0E-05	20	72.31	68	42	57.69	72.31	0.00	0.00
1.80	8.860	85.47	6	4.3E-05	20	72.70	68	42	58.00	72.70	0.00	0.00
1.82	8.750	86.07	6	4.0E-05	20	72.73	67	42	58.03	72.73	0.00	0.00
1.84	8.630	85.34	6	3.9E-05	20	72.36	67	42	57.73	72.36	0.00	0.00
1.86	8.510	84.11	6	3.7E-05	20	71.84	66	42	57.32	71.84	0.00	0.00
1.88	8.410	81.24	6	3.7E-05	20	70.90	65	42	56.57	70.90	0.00	0.00
1.90	8.490	78.46	6	4.1E-05	20	70.44	65	42	56.20	70.44	0.00	0.00
1.92	8.590	74.77	6	4.6E-05	20	69.73	65	42	55.64	69.73	0.00	0.00
1.94	8.630	71.03	6	5.1E-05	19	68.82	65	41	54.91	68.82	0.00	0.00
1.96	8.570	68.75	6	5.2E-05	19	68.09	65	41	54.33	68.09	0.00	0.00
1.98	8.470	66.84	6	5.2E-05	19	67.36	64	41	53.75	67.36	0.00	0.00
2.00	8.310	66.07	6	4.8E-05	19	66.85	63	41	53.33	66.85	0.00	0.00
2.02	8.180	66.02	6	4.5E-05	19	66.56	63	41	53.11	66.56	0.00	0.00
2.04	8.080	66.57	6	4.2E-05	19	66.54	63	41	53.09	66.54	0.00	0.00

In situ data				Estimations		ARENILE BAGNO FLORA - VIAREGGIO (LU)					CPTu 04	
Depth (m)	qc (MPa)	fs (kPa)	SBTn	Ksbt (m/s)	SPT N60	M (MPa)	Dr (%)	Fi (°)	Es (MPa)	Go (MPa)	Su (kPa)	OCR
2.06	7.990	68.21	6	3.9E-05	19	66.88	62	41	53.36	66.88	0.00	0.00
2.08	7.840	70.12	6	3.4E-05	18	67.14	62	41	53.57	67.14	0.00	0.00
2.10	7.720	70.48	6	3.2E-05	18	66.99	62	41	53.45	66.99	0.00	0.00
2.12	7.570	69.98	6	3.0E-05	18	66.49	61	41	53.05	66.49	0.00	0.00
2.14	7.420	68.89	6	2.8E-05	18	65.81	60	41	52.51	65.81	0.00	0.00
2.16	7.240	67.34	6	2.6E-05	17	64.89	60	41	51.78	64.89	0.00	0.00
2.18	6.980	64.15	6	2.5E-05	17	63.23	59	40	50.45	63.23	0.00	0.00
2.20	6.890	62.65	6	2.5E-05	17	62.56	58	40	49.92	62.56	0.00	0.00
2.22	6.510	58.46	6	2.2E-05	16	60.20	57	40	48.03	60.20	0.00	0.00
2.24	6.250	56.82	6	2.0E-05	15	58.97	56	40	47.05	58.97	0.00	0.00
2.26	6.050	55.54	6	1.8E-05	15	58.01	55	40	46.29	58.01	0.00	0.00
2.28	5.950	53.35	6	1.8E-05	15	57.05	54	40	45.52	57.05	0.00	0.00
2.30	5.900	51.35	6	1.9E-05	15	56.29	54	40	44.91	56.29	0.00	0.00
2.32	5.610	50.71	6	1.6E-05	14	55.25	53	39	44.08	55.25	0.00	0.00
2.34	5.390	51.62	6	1.3E-05	14	54.91	52	39	43.81	54.91	0.00	0.00
2.36	5.210	51.94	6	1.1E-05	14	54.48	51	39	43.47	54.48	0.00	0.00
2.38	5.150	51.30	6	1.1E-05	13	54.13	51	39	43.19	54.13	0.00	0.00
2.40	5.180	50.30	6	1.1E-05	13	53.95	51	39	43.05	53.95	0.00	0.00
2.42	5.290	48.93	6	1.3E-05	14	53.90	51	39	43.01	53.90	0.00	0.00
2.44	5.280	47.43	6	1.3E-05	14	53.41	51	39	42.62	53.41	0.00	0.00
2.46	5.230	45.11	6	1.4E-05	13	52.51	51	39	41.89	52.51	0.00	0.00
2.48	5.200	42.92	6	1.5E-05	13	51.69	50	39	41.24	51.69	0.00	0.00
2.50	5.200	41.55	6	1.5E-05	13	51.25	50	39	40.89	51.25	0.00	0.00
2.52	5.270	41.05	6	1.6E-05	13	51.33	50	39	40.95	51.33	0.00	0.00
2.54	5.290	41.28	6	1.6E-05	13	51.52	50	39	41.10	51.52	0.00	0.00
2.56	5.280	42.28	6	1.6E-05	13	51.89	50	39	41.40	51.89	0.00	0.00
2.58	5.280	42.28	6	1.6E-05	13	51.94	50	39	41.44	51.94	0.00	0.00
2.60	5.090	40.03	6	1.5E-05	13	50.57	49	39	40.35	50.57	0.00	0.00
2.62	5.350	40.54	6	1.7E-05	13	51.60	50	39	41.17	51.60	0.00	0.00
2.64	5.600	39.59	6	2.1E-05	14	52.04	51	39	41.52	52.04	0.00	0.00
2.66	5.830	40.05	6	2.4E-05	14	52.93	52	39	42.23	52.93	0.00	0.00
2.68	5.920	41.28	6	2.4E-05	14	53.69	52	39	42.84	53.69	0.00	0.00
2.70	5.890	43.38	6	2.2E-05	14	54.43	52	39	43.42	54.43	0.00	0.00
2.72	5.840	45.06	6	2.0E-05	14	54.93	52	39	43.83	54.93	0.00	0.00
2.74	5.780	46.79	6	1.8E-05	14	55.42	52	39	44.22	55.42	0.00	0.00
2.76	5.690	48.75	6	1.6E-05	14	55.88	52	39	44.59	55.88	0.00	0.00
2.78	5.610	49.75	6	1.4E-05	14	56.03	51	39	44.71	56.03	0.00	0.00
2.80	5.490	50.03	6	1.3E-05	14	55.80	51	39	44.52	55.80	0.00	0.00
2.82	5.380	49.85	6	1.2E-05	14	55.44	50	39	44.24	55.44	0.00	0.00
2.84	5.300	49.94	6	1.1E-05	14	55.27	50	39	44.10	55.27	0.00	0.00
2.86	5.230	48.80	6	1.1E-05	14	54.70	50	39	43.65	54.70	0.00	0.00
2.88	5.260	47.84	6	1.2E-05	14	54.52	50	39	43.50	54.52	0.00	0.00
2.90	5.350	47.57	6	1.2E-05	14	54.75	50	39	43.69	54.75	0.00	0.00
2.92	5.520	47.11	6	1.4E-05	14	55.17	51	39	44.02	55.17	0.00	0.00
2.94	5.710	46.38	6	1.7E-05	14	55.53	51	39	44.31	55.53	0.00	0.00
2.96	5.870	45.70	6	1.9E-05	15	55.81	52	39	44.53	55.81	0.00	0.00
2.98	5.960	45.29	6	2.0E-05	15	55.96	52	39	44.65	55.96	0.00	0.00
3.00	6.020	45.52	6	2.1E-05	15	56.27	52	39	44.89	56.27	0.00	0.00
3.02	5.970	46.43	6	1.9E-05	15	56.50	52	39	45.08	56.50	0.00	0.00
3.04	5.900	47.16	6	1.8E-05	15	56.60	52	39	45.16	56.60	0.00	0.00
3.06	5.810	48.16	6	1.6E-05	15	56.74	51	39	45.27	56.74	0.00	0.00
3.08	5.770	49.25	6	1.5E-05	15	57.05	51	39	45.52	57.05	0.00	0.00
3.10	5.760	49.80	6	1.5E-05	15	57.26	51	39	45.69	57.26	0.00	0.00
3.12	5.720	50.26	6	1.4E-05	15	57.34	51	39	45.75	57.34	0.00	0.00
3.14	5.670	50.71	6	1.3E-05	15	57.40	51	39	45.79	57.40	0.00	0.00

In situ data				Estimations		ARENILE BAGNO FLORA - VIAREGGIO (LU)					CPTu 04	
Depth (m)	qc (MPa)	fs (kPa)	SBTn	Ksbt (m/s)	SPT N60	M (MPa)	Dr (%)	Fi (°)	Es (MPa)	Go (MPa)	Su (kPa)	OCR
3.16	5.630	50.62	6	1.3E-05	14	57.29	50	39	45.71	57.29	0.00	0.00
3.18	5.570	49.80	6	1.3E-05	14	56.87	50	39	45.37	56.87	0.00	0.00
3.20	5.460	48.98	6	1.2E-05	14	56.28	50	39	44.91	56.28	0.00	0.00
3.22	5.330	48.34	6	1.1E-05	14	55.70	49	39	44.44	55.70	0.00	0.00
3.24	5.190	47.61	6	1.0E-05	14	55.04	48	39	43.92	55.04	0.00	0.00
3.26	5.110	46.34	6	9.9E-06	13	54.38	48	39	43.39	54.38	0.00	0.00
3.28	5.030	45.47	6	9.5E-06	13	53.86	48	39	42.97	53.86	0.00	0.00
3.30	4.900	45.11	6	8.7E-06	13	53.35	47	38	42.57	53.35	0.00	0.00
3.32	4.770	44.65	6	7.9E-06	13	52.80	46	38	42.13	52.80	0.00	0.00
3.34	4.660	44.47	6	7.2E-06	13	52.40	46	38	41.81	52.40	0.00	0.00
3.36	4.450	44.38	6	6.0E-06	12	51.69	45	38	41.24	51.69	0.00	0.00
3.38	4.130	44.47	5	4.5E-06	12	50.61	44	38	40.38	50.61	0.00	0.00
3.40	3.930	44.65	5	3.6E-06	11	49.97	43	37	39.87	49.97	0.00	0.00
3.42	3.710	44.20	5	2.9E-06	11	49.00	41	37	39.09	49.00	0.00	0.00
3.44	3.520	43.69	5	2.4E-06	11	48.10	41	37	38.38	48.10	0.00	0.00
3.46	3.390	43.47	5	2.1E-06	10	47.53	40	37	37.92	47.53	0.00	0.00
3.48	3.410	42.28	5	2.2E-06	10	47.25	40	37	37.70	47.25	0.00	0.00
3.50	3.570	39.32	5	3.0E-06	10	46.91	40	37	37.42	46.91	0.00	0.00
3.52	4.000	34.35	6	5.8E-06	11	46.72	42	37	37.27	46.72	0.00	0.00
3.54	4.360	30.75	6	9.5E-06	11	46.55	44	38	37.14	46.55	0.00	0.00
3.56	4.600	27.66	6	1.4E-05	12	46.05	45	38	36.74	46.05	0.00	0.00
3.58	4.600	27.66	6	1.4E-05	12	46.08	45	38	36.77	46.08	0.00	0.00
3.60	4.580	25.36	6	1.5E-05	12	45.02	44	38	35.92	45.02	0.00	0.00
3.62	4.730	26.46	6	1.6E-05	12	46.02	45	38	36.72	46.02	0.00	0.00
3.64	4.920	24.05	6	2.1E-05	12	45.52	46	38	36.32	45.52	0.00	0.00
3.66	5.180	24.28	6	2.5E-05	12	46.43	47	38	37.04	46.43	0.00	0.00
3.68	5.420	26.84	6	2.6E-05	13	48.33	48	38	38.56	48.33	0.00	0.00
3.70	5.500	31.44	6	2.2E-05	13	50.63	48	39	40.40	50.63	0.00	0.00
3.72	5.280	35.22	6	1.6E-05	13	51.61	47	38	41.18	51.61	0.00	0.00
3.74	4.980	39.00	6	1.1E-05	13	52.23	46	38	41.67	52.23	0.00	0.00
3.76	4.700	42.78	6	7.2E-06	13	52.78	45	38	42.11	52.78	0.00	0.00
3.78	4.460	46.79	5	5.0E-06	12	53.43	44	38	42.63	53.43	0.00	0.00
3.80	4.230	50.39	5	3.6E-06	12	53.87	43	38	42.98	53.87	0.00	0.00
3.82	3.860	53.13	5	2.2E-06	12	53.37	42	37	42.58	53.37	0.00	0.00
3.84	3.560	53.03	5	1.6E-06	11	48.89	40	37	41.60	52.14	0.00	0.00
3.86	3.350	50.89	5	1.4E-06	11	45.94	39	37	40.36	50.59	0.00	0.00
3.88	3.260	48.25	5	1.3E-06	10	44.68	38	36	39.40	49.39	0.00	0.00
3.90	3.350	45.61	5	1.6E-06	10	45.93	39	37	39.06	48.95	0.00	0.00
3.92	3.640	41.60	5	2.6E-06	11	48.81	40	37	38.95	48.81	0.00	0.00
3.94	4.040	35.77	6	5.1E-06	11	48.19	42	37	38.45	48.19	0.00	0.00
3.96	4.520	28.66	6	1.1E-05	12	46.93	44	38	37.44	46.93	0.00	0.00
3.98	4.810	26.61	6	1.6E-05	12	46.96	45	38	37.47	46.96	0.00	0.00
4.00	5.110	25.61	6	2.1E-05	13	47.43	46	38	37.84	47.43	0.00	0.00
4.02	5.430	23.87	6	2.9E-05	13	47.55	47	38	37.94	47.55	0.00	0.00
4.04	5.650	22.55	6	3.6E-05	13	47.55	48	38	37.94	47.55	0.00	0.00
4.06	5.750	21.60	6	4.0E-05	13	47.38	48	39	37.80	47.38	0.00	0.00
4.08	5.890	23.15	6	4.0E-05	14	48.56	48	39	38.74	48.56	0.00	0.00
4.10	5.880	24.83	6	3.6E-05	14	49.38	48	39	39.40	49.38	0.00	0.00
4.12	5.770	26.47	6	3.1E-05	14	49.89	48	39	39.81	49.89	0.00	0.00
4.14	5.510	28.70	6	2.3E-05	13	50.23	47	38	40.08	50.23	0.00	0.00
4.16	5.160	31.35	6	1.6E-05	13	50.42	46	38	40.23	50.42	0.00	0.00
4.18	4.720	34.63	6	9.4E-06	12	50.48	44	38	40.28	50.48	0.00	0.00
4.20	4.570	35.58	6	7.9E-06	12	50.41	44	38	40.22	50.41	0.00	0.00
4.22	4.510	35.17	6	7.6E-06	12	50.08	43	38	39.96	50.08	0.00	0.00
4.24	4.580	33.81	6	8.5E-06	12	49.80	43	38	39.73	49.80	0.00	0.00

In situ data				Estimations		ARENILE BAGNO FLORA - VIAREGGIO (LU)					CPTu 04	
Depth (m)	qc (MPa)	fs (kPa)	SBTn	Ksbt (m/s)	SPT N60	M (MPa)	Dr (%)	Fi (°)	Es (MPa)	Go (MPa)	Su (kPa)	OCR
4.26	4.740	31.62	6	1.1E-05	12	49.42	44	38	39.43	49.42	0.00	0.00
4.28	4.910	29.57	6	1.4E-05	13	49.09	45	38	39.17	49.09	0.00	0.00
4.30	4.990	27.38	6	1.6E-05	13	48.38	45	38	38.60	48.38	0.00	0.00
4.32	4.900	26.93	6	1.5E-05	12	47.94	44	38	38.25	47.94	0.00	0.00
4.34	4.800	26.88	6	1.4E-05	12	47.64	44	38	38.01	47.64	0.00	0.00
4.36	4.710	27.70	6	1.3E-05	12	47.77	44	38	38.11	47.77	0.00	0.00
4.38	4.640	28.84	6	1.1E-05	12	48.09	43	38	38.37	48.09	0.00	0.00
4.40	4.580	30.66	6	9.6E-06	12	48.74	43	38	38.88	48.74	0.00	0.00
4.42	4.460	31.94	6	8.1E-06	12	48.93	43	37	39.04	48.93	0.00	0.00
4.44	4.380	33.03	6	7.1E-06	12	49.15	42	37	39.22	49.15	0.00	0.00
4.46	4.360	34.22	6	6.6E-06	12	49.62	42	37	39.59	49.62	0.00	0.00
4.48	4.320	35.17	6	6.0E-06	12	49.90	42	37	39.82	49.90	0.00	0.00
4.50	4.200	36.31	6	5.1E-06	12	49.98	41	37	39.88	49.98	0.00	0.00
4.52	4.240	36.40	6	5.3E-06	12	50.19	42	37	40.05	50.19	0.00	0.00
4.54	4.340	35.58	6	6.0E-06	12	50.25	42	37	40.09	50.25	0.00	0.00
4.56	4.370	35.04	6	6.2E-06	12	50.16	42	37	40.02	50.16	0.00	0.00
4.58	4.370	35.04	6	6.2E-06	12	50.21	42	37	40.06	50.21	0.00	0.00
4.60	4.300	22.60	6	1.1E-05	11	44.46	41	37	35.47	44.46	0.00	0.00
4.62	4.510	23.42	6	1.3E-05	12	45.56	42	37	36.35	45.56	0.00	0.00
4.64	4.550	23.56	6	1.3E-05	12	45.78	42	37	36.53	45.78	0.00	0.00
4.66	4.410	24.10	6	1.1E-05	11	45.63	42	37	36.40	45.63	0.00	0.00
4.68	4.220	24.88	6	8.9E-06	11	45.41	41	37	36.23	45.41	0.00	0.00
4.70	4.110	25.51	6	7.7E-06	11	45.37	40	37	36.20	45.37	0.00	0.00
4.72	4.140	25.20	6	8.0E-06	11	45.35	40	37	36.19	45.35	0.00	0.00
4.74	4.230	25.15	6	8.7E-06	11	45.66	41	37	36.43	45.66	0.00	0.00
4.76	4.240	24.83	6	8.9E-06	11	45.57	41	37	36.36	45.57	0.00	0.00
4.78	4.210	23.46	6	9.4E-06	11	44.85	41	37	35.78	44.85	0.00	0.00
4.80	4.220	22.64	6	9.9E-06	11	44.51	41	37	35.52	44.51	0.00	0.00
4.82	4.190	23.28	6	9.2E-06	11	44.76	40	37	35.71	44.76	0.00	0.00
4.84	4.050	25.01	6	7.2E-06	11	45.14	40	37	36.02	45.14	0.00	0.00
4.86	3.990	26.24	6	6.3E-06	11	45.54	40	37	36.33	45.54	0.00	0.00
4.88	4.020	27.70	6	6.0E-06	11	46.34	40	37	36.97	46.34	0.00	0.00
4.90	4.140	30.44	6	5.8E-06	11	48.00	40	37	38.30	48.00	0.00	0.00
4.92	4.180	31.94	6	5.6E-06	12	48.82	41	37	38.95	48.82	0.00	0.00
4.94	4.420	32.76	6	6.7E-06	12	50.02	42	37	39.91	50.02	0.00	0.00
4.96	4.810	32.80	6	9.4E-06	13	51.34	43	38	40.96	51.34	0.00	0.00
4.98	5.360	33.17	6	1.4E-05	14	53.21	45	38	42.45	53.21	0.00	0.00
5.00	5.910	31.80	6	2.2E-05	14	54.19	47	38	43.24	54.19	0.00	0.00
5.02	6.410	29.07	6	3.4E-05	15	54.29	49	39	43.31	54.29	0.00	0.00
5.04	6.600	29.48	6	3.8E-05	15	55.00	50	39	43.88	55.00	0.00	0.00
5.06	6.840	32.26	6	3.8E-05	16	56.94	50	39	45.43	56.94	0.00	0.00
5.08	6.910	36.40	6	3.3E-05	16	59.02	51	39	47.09	59.02	0.00	0.00
5.10	6.820	39.91	6	2.7E-05	16	60.35	50	39	48.15	60.35	0.00	0.00
5.12	6.730	42.83	6	2.3E-05	16	61.38	50	39	48.97	61.38	0.00	0.00
5.14	6.640	47.66	6	1.8E-05	16	63.13	50	39	50.37	63.13	0.00	0.00
5.16	6.430	55.18	6	1.2E-05	17	65.46	49	39	52.23	65.46	0.00	0.00
5.18	6.290	57.23	6	1.1E-05	16	65.85	49	39	52.54	65.85	0.00	0.00
5.20	6.060	55.77	6	9.5E-06	16	64.69	48	39	51.61	64.69	0.00	0.00
5.22	5.770	54.31	6	8.1E-06	15	63.32	47	38	50.52	63.32	0.00	0.00
5.24	5.540	52.62	6	7.2E-06	15	62.03	46	38	49.49	62.03	0.00	0.00
5.26	5.400	50.44	6	7.0E-06	15	60.83	45	38	48.53	60.83	0.00	0.00
5.28	5.290	46.11	6	7.4E-06	14	58.88	45	38	46.98	58.88	0.00	0.00
5.30	5.210	43.69	6	7.6E-06	14	57.73	44	38	46.06	57.73	0.00	0.00
5.32	5.170	41.51	6	8.0E-06	14	56.77	44	38	45.30	56.77	0.00	0.00
5.34	5.110	40.64	6	7.9E-06	14	56.27	44	38	44.89	56.27	0.00	0.00

In situ data				Estimations		ARENILE BAGNO FLORA - VIAREGGIO (LU)					CPTu 04	
Depth (m)	qc (MPa)	fs (kPa)	SBTn	Ksbt (m/s)	SPT N60	M (MPa)	Dr (%)	Fi (°)	Es (MPa)	Go (MPa)	Su (kPa)	OCR
5.36	5.080	39.96	6	7.9E-06	14	55.93	44	38	44.63	55.93	0.00	0.00
5.38	5.050	39.27	6	7.9E-06	14	55.59	44	38	44.36	55.59	0.00	0.00
5.40	4.990	39.23	6	7.5E-06	13	55.42	43	38	44.22	55.42	0.00	0.00
5.42	5.030	39.73	6	7.5E-06	14	55.79	43	38	44.51	55.79	0.00	0.00
5.44	5.050	40.73	6	7.3E-06	14	56.30	43	38	44.92	56.30	0.00	0.00
5.46	5.300	42.05	6	8.4E-06	14	57.65	44	38	46.00	57.65	0.00	0.00
5.48	6.000	42.15	6	1.4E-05	15	59.80	47	38	47.71	59.80	0.00	0.00
5.50	6.780	42.33	6	2.2E-05	17	62.03	50	39	49.49	62.03	0.00	0.00
5.52	7.240	44.83	6	2.7E-05	17	64.29	51	39	51.30	64.29	0.00	0.00
5.54	7.380	46.34	6	2.7E-05	18	65.31	52	39	52.11	65.31	0.00	0.00
5.56	7.410	46.70	6	2.7E-05	18	65.57	52	39	52.32	65.57	0.00	0.00
5.58	7.410	46.70	6	2.7E-05	18	65.61	52	39	52.35	65.61	0.00	0.00
5.60	7.270	40.00	6	3.2E-05	17	62.46	51	39	49.84	62.46	0.00	0.00
5.62	7.260	40.23	6	3.1E-05	17	62.58	51	39	49.93	62.58	0.00	0.00
5.64	7.190	40.46	6	3.0E-05	17	62.54	51	39	49.90	62.54	0.00	0.00
5.66	7.130	40.19	6	2.9E-05	17	62.31	51	39	49.71	62.31	0.00	0.00
5.68	7.010	37.04	6	3.1E-05	17	60.65	50	39	48.39	60.65	0.00	0.00
5.70	6.850	34.63	6	3.1E-05	16	59.19	49	39	47.23	59.19	0.00	0.00
5.72	6.580	33.62	6	2.7E-05	16	58.07	48	39	46.34	58.07	0.00	0.00
5.74	6.490	33.67	6	2.6E-05	16	57.90	48	39	46.20	57.90	0.00	0.00
5.76	6.390	33.85	6	2.4E-05	15	57.75	48	39	46.08	57.75	0.00	0.00
5.78	6.250	34.03	6	2.2E-05	15	57.50	47	38	45.88	57.50	0.00	0.00
5.80	5.980	34.58	6	1.8E-05	15	57.06	46	38	45.52	57.06	0.00	0.00
5.82	5.530	36.77	6	1.2E-05	14	56.79	45	38	45.31	56.79	0.00	0.00
5.84	4.800	42.97	6	5.0E-06	13	57.14	42	37	45.59	57.14	0.00	0.00
5.86	4.410	46.56	5	3.1E-06	13	57.23	40	37	45.66	57.23	0.00	0.00
5.88	4.240	48.34	5	2.5E-06	13	57.31	39	37	45.73	57.31	0.00	0.00
5.90	4.360	49.12	5	2.7E-06	13	58.08	40	37	46.34	58.08	0.00	0.00
5.92	4.780	49.44	5	3.8E-06	14	59.73	42	37	47.65	59.73	0.00	0.00
5.94	5.200	50.44	6	5.2E-06	14	61.54	43	38	49.10	61.54	0.00	0.00
5.96	5.440	52.76	6	5.8E-06	15	63.23	44	38	50.45	63.23	0.00	0.00
5.98	5.500	52.94	6	6.0E-06	15	63.52	44	38	50.68	63.52	0.00	0.00
6.00	5.560	52.03	6	6.5E-06	15	63.41	45	38	50.59	63.41	0.00	0.00
6.02	5.260	33.58	6	1.0E-05	14	54.92	43	38	43.82	54.92	0.00	0.00
6.04	5.080	25.29	6	1.4E-05	13	50.47	42	37	40.26	50.47	0.00	0.00
6.06	4.890	23.05	6	1.3E-05	13	48.78	41	37	38.92	48.78	0.00	0.00
6.08	4.750	24.10	6	1.1E-05	12	48.93	41	37	39.04	48.93	0.00	0.00
6.10	4.800	27.84	6	9.4E-06	13	50.97	41	37	40.66	50.97	0.00	0.00
6.12	5.000	30.25	6	9.8E-06	13	52.76	42	37	42.10	52.76	0.00	0.00
6.14	5.160	31.39	6	1.1E-05	13	53.81	43	37	42.93	53.81	0.00	0.00
6.16	5.180	29.71	6	1.2E-05	13	53.11	43	37	42.37	53.11	0.00	0.00
6.18	5.040	28.39	6	1.1E-05	13	52.09	42	37	41.56	52.09	0.00	0.00
6.20	5.000	27.02	6	1.1E-05	13	51.33	42	37	40.95	51.33	0.00	0.00
6.22	5.020	25.51	6	1.3E-05	13	50.66	42	37	40.42	50.66	0.00	0.00
6.24	4.960	23.92	6	1.3E-05	13	49.70	41	37	39.66	49.70	0.00	0.00
6.26	4.890	22.78	6	1.3E-05	13	48.93	41	37	39.04	48.93	0.00	0.00
6.28	4.820	23.42	6	1.2E-05	12	49.08	41	37	39.16	49.08	0.00	0.00
6.30	4.830	25.42	6	1.1E-05	13	50.16	41	37	40.02	50.16	0.00	0.00
6.32	4.780	27.57	6	9.0E-06	13	51.10	41	37	40.77	51.10	0.00	0.00
6.34	4.680	28.98	6	7.6E-06	13	51.50	40	37	41.09	51.50	0.00	0.00
6.36	4.610	29.66	6	6.9E-06	13	51.63	40	37	41.20	51.63	0.00	0.00
6.38	4.640	29.21	6	7.2E-06	13	51.55	40	37	41.13	51.55	0.00	0.00
6.40	4.870	28.89	6	8.9E-06	13	52.14	41	37	41.60	52.14	0.00	0.00
6.42	5.640	26.88	6	1.8E-05	14	53.43	44	38	42.63	53.43	0.00	0.00
6.44	6.020	25.10	6	2.5E-05	14	53.57	45	38	42.75	53.57	0.00	0.00

In situ data				Estimations		ARENILE BAGNO FLORA - VIAREGGIO (LU)					CPTu 04	
Depth (m)	qc (MPa)	fs (kPa)	SBTn	Ksbt (m/s)	SPT N60	M (MPa)	Dr (%)	Fi (°)	Es (MPa)	Go (MPa)	Su (kPa)	OCR
6.46	6.210	24.97	6	2.9E-05	15	54.03	46	38	43.11	54.03	0.00	0.00
6.48	6.260	26.06	6	2.8E-05	15	54.76	46	38	43.69	54.76	0.00	0.00
6.50	6.260	28.29	6	2.5E-05	15	55.92	46	38	44.62	55.92	0.00	0.00
6.52	6.250	32.39	6	2.0E-05	15	57.94	46	38	46.23	57.94	0.00	0.00
6.54	6.300	35.40	6	1.8E-05	16	59.52	46	38	47.49	59.52	0.00	0.00
6.56	6.300	35.40	6	1.8E-05	16	59.55	46	38	47.51	59.55	0.00	0.00
6.58	6.140	24.10	6	2.8E-05	15	53.57	45	38	42.74	53.57	0.00	0.00
6.60	6.100	26.97	6	2.4E-05	15	54.99	45	38	43.88	54.99	0.00	0.00
6.62	6.020	29.02	6	2.0E-05	15	55.84	45	38	44.55	55.84	0.00	0.00
6.64	5.920	30.66	6	1.7E-05	15	56.41	45	38	45.01	56.41	0.00	0.00
6.66	5.910	31.57	6	1.6E-05	15	56.85	45	38	45.36	56.85	0.00	0.00
6.68	5.810	31.71	6	1.5E-05	15	56.68	44	38	45.22	56.68	0.00	0.00
6.70	5.410	31.94	6	1.1E-05	14	55.68	43	37	44.43	55.68	0.00	0.00
6.72	5.260	32.44	6	9.7E-06	14	55.51	42	37	44.29	55.51	0.00	0.00
6.74	5.330	31.94	6	1.1E-05	14	55.51	42	37	44.29	55.51	0.00	0.00
6.76	5.640	31.16	6	1.4E-05	14	56.06	44	38	44.73	56.06	0.00	0.00
6.78	5.920	30.30	6	1.7E-05	15	56.45	44	38	45.04	56.45	0.00	0.00
6.80	6.140	31.62	6	1.9E-05	15	57.72	45	38	46.05	57.72	0.00	0.00
6.82	6.150	31.44	6	1.9E-05	15	57.69	45	38	46.03	57.69	0.00	0.00
6.84	6.060	31.26	6	1.8E-05	15	57.39	45	38	45.79	57.39	0.00	0.00
6.86	6.020	31.80	6	1.7E-05	15	57.58	45	38	45.94	57.58	0.00	0.00
6.88	6.070	34.22	6	1.6E-05	15	58.90	45	38	47.00	58.90	0.00	0.00
6.90	6.160	37.00	6	1.5E-05	16	60.47	45	38	48.25	60.47	0.00	0.00
6.92	6.090	36.59	6	1.4E-05	15	60.12	45	38	47.97	60.12	0.00	0.00
6.94	6.010	34.99	6	1.4E-05	15	59.20	45	38	47.23	59.20	0.00	0.00
6.96	5.910	35.63	6	1.3E-05	15	59.25	44	38	47.28	59.25	0.00	0.00
6.98	5.840	36.54	6	1.2E-05	15	59.51	44	38	47.48	59.51	0.00	0.00
7.00	5.810	37.13	6	1.1E-05	15	59.73	44	38	47.65	59.73	0.00	0.00
7.02	5.830	36.04	6	1.2E-05	15	59.32	44	38	47.33	59.32	0.00	0.00
7.04	5.810	36.40	6	1.2E-05	15	59.46	44	38	47.44	59.46	0.00	0.00
7.06	5.530	34.99	6	1.0E-05	15	58.04	43	37	46.31	58.04	0.00	0.00
7.08	5.090	32.39	6	8.0E-06	14	55.55	41	37	44.33	55.55	0.00	0.00
7.10	4.510	28.25	6	5.9E-06	12	51.77	39	36	41.31	51.77	0.00	0.00
7.12	4.040	25.88	5	4.3E-06	11	49.05	37	36	39.14	49.05	0.00	0.00
7.14	3.670	25.79	5	2.9E-06	11	47.72	35	36	38.07	47.72	0.00	0.00
7.16	3.230	26.52	5	1.6E-06	10	43.46	33	35	37.02	46.40	0.00	0.00
7.18	3.090	28.98	5	1.2E-06	10	41.50	32	35	37.51	47.01	0.00	0.00
7.20	3.110	30.66	5	1.1E-06	10	41.77	32	35	38.21	47.89	0.00	0.00
7.22	3.160	32.94	5	1.0E-06	10	42.47	32	35	39.21	49.14	0.00	0.00
7.24	3.090	33.72	5	9.0E-07	10	41.48	32	35	39.26	49.21	0.00	0.00
7.26	2.860	32.30	5	6.9E-07	10	38.26	31	34	37.98	47.60	0.00	0.00
7.28	2.600	25.42	5	6.7E-07	9	34.61	29	34	34.55	43.30	0.00	0.00
7.30	2.700	22.28	5	9.6E-07	9	36.01	30	34	33.70	42.24	0.00	0.00
7.32	3.090	22.74	5	1.6E-06	10	41.46	32	35	35.24	44.17	0.00	0.00
7.34	3.570	26.97	5	2.3E-06	11	48.20	34	35	38.46	48.20	0.00	0.00
7.36	4.040	32.17	5	2.9E-06	12	52.42	36	36	41.83	52.42	0.00	0.00
7.38	4.790	41.28	5	4.0E-06	14	59.06	40	37	47.12	59.06	0.00	0.00
7.40	5.320	41.78	6	6.1E-06	15	60.99	42	37	48.66	60.99	0.00	0.00
7.42	5.730	27.02	6	1.6E-05	14	55.23	43	37	44.07	55.23	0.00	0.00
7.44	6.000	21.32	6	2.6E-05	14	52.89	44	38	42.20	52.89	0.00	0.00
7.46	6.130	21.05	6	2.9E-05	15	53.11	44	38	42.37	53.11	0.00	0.00
7.48	6.190	20.59	6	3.1E-05	15	53.02	44	38	42.31	53.02	0.00	0.00
7.50	6.280	20.96	6	3.2E-05	15	53.49	45	38	42.68	53.49	0.00	0.00
7.52	6.380	21.82	6	3.2E-05	15	54.26	45	38	43.29	54.26	0.00	0.00
7.54	6.610	23.05	6	3.5E-05	15	55.55	46	38	44.32	55.55	0.00	0.00

In situ data				Estimations		ARENILE BAGNO FLORA - VIAREGGIO (LU)					CPTu 04	
Depth (m)	qc (MPa)	fs (kPa)	SBTn	Ksbt (m/s)	SPT N60	M (MPa)	Dr (%)	Fi (°)	Es (MPa)	Go (MPa)	Su (kPa)	OCR
7.56	6.610	23.05	6	3.5E-05	15	55.58	46	38	44.35	55.58	0.00	0.00
7.58	6.600	14.49	6	5.8E-05	15	50.54	46	38	40.32	50.54	0.00	0.00
7.60	7.270	21.28	6	5.5E-05	16	56.22	48	39	44.86	56.22	0.00	0.00
7.62	7.190	26.24	6	4.1E-05	17	58.81	48	38	46.92	58.81	0.00	0.00
7.64	6.700	27.61	6	2.8E-05	16	58.38	46	38	46.58	58.38	0.00	0.00
7.66	6.340	30.98	6	1.9E-05	16	59.23	45	38	47.26	59.23	0.00	0.00
7.68	6.180	36.31	6	1.4E-05	16	61.44	44	38	49.02	61.44	0.00	0.00
7.70	6.130	39.59	6	1.1E-05	16	62.85	44	38	50.15	62.85	0.00	0.00
7.72	6.190	42.05	6	1.1E-05	16	64.16	44	38	51.19	64.16	0.00	0.00
7.74	6.120	43.56	6	9.7E-06	16	64.67	44	38	51.60	64.67	0.00	0.00
7.76	5.770	44.79	6	7.2E-06	16	64.24	43	37	51.25	64.24	0.00	0.00
7.78	5.440	41.74	6	6.3E-06	15	61.97	42	37	49.44	61.97	0.00	0.00
7.80	5.060	36.95	6	5.6E-06	14	58.70	40	37	46.83	58.70	0.00	0.00
7.82	4.680	32.85	6	4.8E-06	13	55.62	38	36	44.38	55.62	0.00	0.00
7.84	4.440	29.98	5	4.5E-06	13	53.48	37	36	42.67	53.48	0.00	0.00
7.86	3.790	29.98	5	2.3E-06	11	51.24	35	35	40.89	51.24	0.00	0.00
7.88	3.260	31.76	5	1.1E-06	11	43.70	32	35	39.92	50.03	0.00	0.00
7.90	2.610	33.58	5	3.8E-07	9	34.60	29	34	38.24	47.93	0.00	0.00
7.92	2.310	35.86	5	2.0E-07	9	30.40	27	33	37.77	47.34	0.00	0.00
7.94	1.910	40.50	4	6.9E-08	8	24.80	0	0	0.00	46.75	126.51	6.89
7.96	1.490	50.30	3	1.5E-08	7	18.92	0	0	0.00	46.97	96.51	5.32
7.98	1.400	53.26	3	1.0E-08	7	17.65	0	0	0.00	47.16	90.07	4.97
8.00	2.070	45.84	4	7.9E-08	9	27.02	0	0	0.00	49.81	137.87	7.46
8.02	3.080	43.06	5	5.0E-07	11	41.15	31	34	43.28	54.24	0.00	0.00
8.04	3.040	44.79	5	4.4E-07	11	40.59	31	34	43.70	54.76	0.00	0.00
8.06	2.230	40.60	4	1.3E-07	9	29.25	0	0	39.07	48.97	149.22	7.99
8.08	1.510	34.81	4	3.0E-08	7	19.17	0	0	0.00	42.02	97.80	5.30
8.10	2.120	38.77	4	1.2E-07	8	27.70	0	0	38.04	47.68	141.31	7.56
8.12	4.060	41.51	5	1.7E-06	13	54.87	36	36	46.14	57.83	0.00	0.00
8.14	4.240	37.45	5	2.5E-06	13	56.76	36	36	45.28	56.76	0.00	0.00
8.16	3.970	33.53	5	2.2E-06	12	54.04	35	36	43.12	54.04	0.00	0.00
8.18	3.720	28.84	5	2.1E-06	11	50.91	34	35	40.62	50.91	0.00	0.00
8.20	3.520	26.65	5	1.9E-06	11	49.10	33	35	39.17	49.10	0.00	0.00
8.22	3.340	24.38	5	1.7E-06	10	44.77	32	35	37.71	47.27	0.00	0.00
8.24	3.110	23.51	5	1.3E-06	10	41.55	31	34	36.64	45.92	0.00	0.00
8.26	2.320	21.28	5	4.4E-07	8	30.49	27	33	32.88	41.21	0.00	0.00
8.28	1.770	25.33	4	1.0E-07	7	22.79	0	0	0.00	40.16	116.29	6.14
8.30	1.660	24.97	4	7.7E-08	7	21.25	0	0	0.00	39.31	108.43	5.73
8.32	1.490	27.98	4	3.9E-08	7	18.88	0	0	0.00	39.48	96.31	5.11
8.34	1.170	33.76	3	9.1E-09	6	12.24	0	0	0.00	39.20	73.50	3.93
8.36	1.000	39.46	3	3.2E-09	6	8.57	0	0	0.00	39.63	61.54	3.28
8.38	1.140	45.06	3	4.8E-09	6	11.62	0	0	0.00	42.95	71.74	3.82
8.40	1.900	45.79	4	5.0E-08	8	24.70	0	0	0.00	49.38	126.01	6.63
8.42	3.020	39.78	5	5.0E-07	11	40.37	30	34	42.55	53.33	0.00	0.00
8.44	3.150	45.88	5	4.6E-07	11	42.18	31	34	45.00	56.40	0.00	0.00
8.46	2.450	51.26	4	1.3E-07	10	32.34	0	0	43.73	54.81	164.98	8.58
8.48	1.950	48.20	4	5.0E-08	8	25.33	0	0	0.00	50.66	129.22	6.75
8.50	2.060	64.93	4	3.7E-08	9	26.86	0	0	0.00	56.83	137.04	7.16
8.52	4.600	69.62	5	1.1E-06	15	62.40	37	36	56.84	71.24	0.00	0.00
8.54	5.070	73.63	5	1.5E-06	16	68.97	39	37	59.37	74.41	0.00	0.00
8.56	5.350	31.80	6	7.9E-06	14	58.30	40	37	46.52	58.30	0.00	0.00
8.58	5.620	29.89	6	1.1E-05	15	58.13	41	37	46.38	58.13	0.00	0.00
8.60	5.710	25.20	6	1.5E-05	15	55.91	41	37	44.61	55.91	0.00	0.00
8.62	5.410	21.23	6	1.5E-05	14	52.85	40	37	42.17	52.85	0.00	0.00
8.64	5.020	21.96	6	1.0E-05	13	52.18	39	37	41.63	52.18	0.00	0.00

In situ data				Estimations		ARENILE BAGNO FLORA - VIAREGGIO (LU)					CPTu 04	
Depth (m)	qc (MPa)	fs (kPa)	SBTn	Ksbt (m/s)	SPT N60	M (MPa)	Dr (%)	Fi (°)	Es (MPa)	Go (MPa)	Su (kPa)	OCR
8.66	4.600	20.64	6	7.7E-06	12	50.18	37	36	40.03	50.18	0.00	0.00
8.68	4.260	19.96	6	5.8E-06	12	48.72	36	36	38.87	48.72	0.00	0.00
8.70	4.050	20.73	6	4.5E-06	11	48.50	35	35	38.70	48.50	0.00	0.00
8.72	4.160	23.33	5	4.2E-06	12	50.36	35	36	40.18	50.36	0.00	0.00
8.74	4.630	24.01	6	6.4E-06	13	52.28	37	36	41.72	52.28	0.00	0.00
8.76	5.430	24.88	6	1.2E-05	14	55.16	40	37	44.01	55.16	0.00	0.00
8.78	6.380	31.26	6	1.7E-05	16	61.16	44	38	48.80	61.16	0.00	0.00
8.80	6.970	34.08	6	2.1E-05	17	64.11	46	38	51.15	64.11	0.00	0.00
8.82	6.870	32.76	6	2.1E-05	17	63.22	45	38	50.44	63.22	0.00	0.00
8.84	6.440	21.00	6	2.9E-05	15	55.72	44	38	44.46	55.72	0.00	0.00
8.86	6.210	20.18	6	2.6E-05	15	54.68	43	37	43.62	54.68	0.00	0.00
8.88	6.120	23.10	6	2.1E-05	15	56.18	43	37	44.83	56.18	0.00	0.00
8.90	6.160	27.11	6	1.7E-05	15	58.56	43	37	46.72	58.56	0.00	0.00
8.92	6.110	30.94	6	1.4E-05	16	60.49	43	37	48.26	60.49	0.00	0.00
8.94	5.980	35.77	6	1.0E-05	16	62.60	42	37	49.95	62.60	0.00	0.00
8.96	6.000	38.00	6	9.2E-06	16	63.76	42	37	50.88	63.76	0.00	0.00
8.98	5.940	39.82	6	8.2E-06	16	64.49	42	37	51.46	64.49	0.00	0.00
9.00	5.850	41.92	6	7.0E-06	16	65.24	42	37	52.06	65.24	0.00	0.00
9.02	5.800	43.01	6	6.5E-06	16	65.63	41	37	52.36	65.63	0.00	0.00
9.04	5.760	43.19	6	6.2E-06	16	65.63	41	37	52.36	65.63	0.00	0.00
9.06	5.870	42.78	6	6.8E-06	16	65.80	42	37	52.50	65.80	0.00	0.00
9.08	6.200	42.15	6	8.8E-06	16	66.46	43	37	53.03	66.46	0.00	0.00
9.10	6.470	41.64	6	1.1E-05	17	66.99	44	38	53.45	66.99	0.00	0.00
9.12	6.680	40.60	6	1.3E-05	17	67.08	44	38	53.52	67.08	0.00	0.00
9.14	6.930	40.00	6	1.5E-05	18	67.46	45	38	53.83	67.46	0.00	0.00
9.16	7.110	40.14	6	1.7E-05	18	68.01	46	38	54.26	68.01	0.00	0.00
9.18	7.280	40.19	6	1.9E-05	18	68.48	46	38	54.64	68.48	0.00	0.00
9.20	7.390	42.05	6	1.8E-05	18	69.67	46	38	55.59	69.67	0.00	0.00
9.22	7.370	43.92	6	1.7E-05	18	70.54	46	38	56.28	70.54	0.00	0.00
9.24	7.260	46.29	6	1.4E-05	18	71.39	46	38	56.96	71.39	0.00	0.00
9.26	7.080	48.52	6	1.2E-05	18	71.98	45	38	57.43	71.98	0.00	0.00
9.28	6.830	50.85	6	9.5E-06	18	72.40	45	38	57.77	72.40	0.00	0.00
9.30	6.480	54.17	6	6.8E-06	18	72.91	43	38	58.17	72.91	0.00	0.00
9.32	6.370	55.90	6	5.9E-06	18	73.36	43	38	58.54	73.36	0.00	0.00
9.34	6.360	56.54	6	5.7E-06	18	73.64	43	38	58.75	73.64	0.00	0.00
9.36	6.430	56.54	6	6.0E-06	18	73.87	43	38	58.94	73.87	0.00	0.00
9.38	6.500	55.22	6	6.5E-06	18	73.56	43	38	58.69	73.56	0.00	0.00
9.40	6.570	52.08	6	7.5E-06	18	72.46	44	38	57.81	72.46	0.00	0.00
9.42	6.530	50.71	6	7.7E-06	18	71.80	43	38	57.28	71.80	0.00	0.00
9.44	6.370	47.93	6	7.6E-06	17	70.18	43	37	55.99	70.18	0.00	0.00
9.46	6.310	46.66	6	7.6E-06	17	69.48	43	37	55.44	69.48	0.00	0.00
9.48	6.340	45.33	6	8.1E-06	17	69.00	43	37	55.05	69.00	0.00	0.00
9.50	6.540	43.83	6	9.7E-06	17	68.88	43	38	54.96	68.88	0.00	0.00
9.52	7.950	104.93	5	4.6E-06	22	96.03	48	39	76.62	96.03	0.00	0.00
9.54	7.950	104.93	5	4.6E-06	22	96.08	48	39	76.66	96.08	0.00	0.00
9.56	9.160	121.38	6	6.3E-06	25	104.72	51	39	83.55	104.72	0.00	0.00
9.58	8.610	70.53	6	1.4E-05	22	85.54	50	39	68.25	85.54	0.00	0.00
9.60	9.520	47.29	6	4.2E-05	22	77.58	52	39	61.90	77.58	0.00	0.00
9.62	9.890	37.63	6	7.0E-05	22	73.60	53	40	58.72	73.60	0.00	0.00
9.64	8.830	12.67	6	1.5E-04	18	57.21	50	39	45.65	57.21	0.00	0.00
9.66	6.640	49.53	6	8.3E-06	18	72.04	43	38	57.48	72.04	0.00	0.00
9.68	5.920	89.35	5	1.7E-06	18	80.71	41	37	67.91	85.12	0.00	0.00
9.70	5.960	81.24	5	2.1E-06	18	82.53	41	37	65.85	82.53	0.00	0.00
9.72	5.860	88.48	5	1.7E-06	18	79.84	41	37	67.59	84.72	0.00	0.00
9.74	5.810	93.22	5	1.4E-06	18	79.13	41	37	68.74	86.16	0.00	0.00

In situ data				Estimations		ARENILE BAGNO FLORA - VIAREGGIO (LU)					CPTu 04	
Depth (m)	qc (MPa)	fs (kPa)	SBTn	Ksbt (m/s)	SPT N60	M (MPa)	Dr (%)	Fi (°)	Es (MPa)	Go (MPa)	Su (kPa)	OCR
9.76	5.730	100.56	5	1.2E-06	18	77.99	40	37	70.43	88.27	0.00	0.00
9.78	5.690	78.23	5	1.8E-06	18	77.42	40	37	64.44	80.76	0.00	0.00
9.80	5.710	71.44	5	2.2E-06	17	78.42	40	37	62.57	78.42	0.00	0.00
9.82	5.660	40.00	6	5.8E-06	16	65.25	40	37	52.06	65.25	0.00	0.00
9.84	5.630	39.78	6	5.7E-06	16	65.09	40	37	51.93	65.09	0.00	0.00
9.86	5.610	40.19	6	5.5E-06	16	65.26	40	37	52.07	65.26	0.00	0.00
9.88	5.730	40.82	6	5.8E-06	16	65.93	40	37	52.61	65.93	0.00	0.00
9.90	5.990	41.10	6	7.0E-06	16	66.83	41	37	53.32	66.83	0.00	0.00
9.92	6.160	42.51	6	7.4E-06	17	68.00	41	37	54.26	68.00	0.00	0.00
9.94	6.300	43.28	6	7.9E-06	17	68.78	42	37	54.88	68.78	0.00	0.00
9.96	6.420	43.38	6	8.5E-06	17	69.18	42	37	55.20	69.18	0.00	0.00
9.98	6.590	43.79	6	9.4E-06	17	69.86	43	37	55.74	69.86	0.00	0.00
10.00	6.640	43.88	6	9.6E-06	18	70.06	43	38	55.90	70.06	0.00	0.00
10.02	6.680	44.70	6	9.5E-06	18	70.59	43	38	56.32	70.59	0.00	0.00
10.04	6.700	46.11	6	9.2E-06	18	71.33	43	38	56.91	71.33	0.00	0.00
10.06	6.660	47.34	6	8.5E-06	18	71.82	43	38	57.31	71.82	0.00	0.00
10.08	6.640	48.39	6	8.1E-06	18	72.28	43	38	57.67	72.28	0.00	0.00
10.10	6.550	49.98	6	7.2E-06	18	72.79	43	37	58.08	72.79	0.00	0.00
10.12	6.490	50.53	6	6.8E-06	18	72.91	42	37	58.17	72.91	0.00	0.00
10.14	6.380	50.80	6	6.2E-06	18	72.76	42	37	58.06	72.76	0.00	0.00
10.16	6.220	51.71	6	5.4E-06	17	72.75	41	37	58.05	72.75	0.00	0.00
10.18	6.130	51.94	6	5.0E-06	17	72.64	41	37	57.95	72.64	0.00	0.00
10.20	6.070	52.03	5	4.8E-06	17	72.54	41	37	57.88	72.54	0.00	0.00
10.22	6.090	51.62	6	4.9E-06	17	72.45	41	37	57.81	72.45	0.00	0.00
10.24	6.170	50.26	6	5.4E-06	17	72.12	41	37	57.54	72.12	0.00	0.00
10.26	6.280	48.71	6	6.1E-06	17	71.77	41	37	57.27	71.77	0.00	0.00
10.28	6.380	45.93	6	7.2E-06	17	70.81	42	37	56.50	70.81	0.00	0.00
10.30	6.340	44.65	6	7.3E-06	17	70.15	42	37	55.97	70.15	0.00	0.00
10.32	6.280	44.24	6	7.1E-06	17	69.83	41	37	55.71	69.83	0.00	0.00
10.34	6.270	43.74	6	7.2E-06	17	69.60	41	37	55.53	69.60	0.00	0.00
10.36	6.230	42.92	6	7.2E-06	17	69.13	41	37	55.16	69.13	0.00	0.00
10.38	6.160	43.56	6	6.6E-06	17	69.28	41	37	55.28	69.28	0.00	0.00
10.40	6.030	44.15	6	5.9E-06	17	69.23	40	37	55.24	69.23	0.00	0.00
10.42	5.830	44.42	6	5.0E-06	16	68.82	40	37	54.91	68.82	0.00	0.00
10.44	5.620	44.47	5	4.3E-06	16	68.27	39	37	54.47	68.27	0.00	0.00
10.46	5.340	44.10	5	3.5E-06	16	67.29	38	36	53.69	67.29	0.00	0.00
10.48	4.840	44.61	5	2.2E-06	15	65.97	36	36	52.63	65.97	0.00	0.00
10.50	4.570	44.74	5	1.7E-06	14	61.56	35	36	51.98	65.15	0.00	0.00
10.52	4.470	44.65	5	1.5E-06	14	60.16	34	35	51.70	64.80	0.00	0.00
10.54	4.470	44.65	5	1.5E-06	14	60.18	34	35	51.73	64.84	0.00	0.00
10.56	4.280	29.71	5	2.4E-06	13	56.97	34	35	45.45	56.97	0.00	0.00
10.58	4.320	30.57	5	2.4E-06	13	57.58	34	35	45.95	57.58	0.00	0.00
10.60	4.360	30.80	5	2.5E-06	13	57.87	34	35	46.17	57.87	0.00	0.00
10.62	4.480	30.16	5	2.9E-06	13	57.96	34	35	46.24	57.96	0.00	0.00
10.64	4.710	28.16	5	4.0E-06	14	57.64	35	36	45.99	57.64	0.00	0.00
10.66	4.770	27.52	5	4.3E-06	14	57.50	36	36	45.88	57.50	0.00	0.00
10.68	4.900	24.74	6	5.6E-06	14	56.34	36	36	44.96	56.34	0.00	0.00
10.70	4.920	23.78	6	6.0E-06	14	55.87	36	36	44.58	55.87	0.00	0.00
10.72	4.890	23.87	6	5.8E-06	14	55.86	36	36	44.57	55.86	0.00	0.00
10.74	4.790	24.83	6	5.0E-06	13	56.14	36	36	44.79	56.14	0.00	0.00
10.76	4.740	25.74	6	4.5E-06	13	56.54	35	36	45.11	56.54	0.00	0.00
10.78	4.640	26.93	5	3.9E-06	13	56.92	35	36	45.42	56.92	0.00	0.00
10.80	4.530	27.06	5	3.5E-06	13	56.67	34	35	45.22	56.67	0.00	0.00
10.82	4.440	27.06	5	3.2E-06	13	56.41	34	35	45.01	56.41	0.00	0.00
10.84	4.390	27.16	5	3.0E-06	13	56.33	34	35	44.94	56.33	0.00	0.00

In situ data				Estimations		ARENILE BAGNO FLORA - VIAREGGIO (LU)					CPTu 04	
Depth (m)	qc (MPa)	fs (kPa)	SBTn	Ksbt (m/s)	SPT N60	M (MPa)	Dr (%)	Fi (°)	Es (MPa)	Go (MPa)	Su (kPa)	OCR
10.86	4.390	27.38	5	2.9E-06	13	56.48	34	35	45.06	56.48	0.00	0.00
10.88	4.350	26.52	5	3.0E-06	13	55.89	34	35	44.59	55.89	0.00	0.00
10.90	4.320	26.33	5	2.9E-06	13	55.71	34	35	44.45	55.71	0.00	0.00
10.92	4.300	26.43	5	2.8E-06	13	55.73	33	35	44.46	55.73	0.00	0.00
10.94	4.370	25.92	5	3.1E-06	13	55.70	34	35	44.44	55.70	0.00	0.00
10.96	4.530	25.06	5	3.8E-06	13	55.75	34	35	44.48	55.75	0.00	0.00
10.98	4.760	24.97	6	4.7E-06	13	56.44	35	36	45.03	56.44	0.00	0.00
11.00	5.010	24.92	6	5.8E-06	14	57.19	36	36	45.63	57.19	0.00	0.00
11.02	5.370	25.20	6	7.7E-06	14	58.42	38	36	46.62	58.42	0.00	0.00
11.04	5.510	25.51	6	8.4E-06	15	59.02	38	36	47.09	59.02	0.00	0.00
11.06	5.640	25.92	6	9.1E-06	15	59.65	38	36	47.59	59.65	0.00	0.00
11.08	5.760	26.93	6	9.4E-06	15	60.59	39	37	48.34	60.59	0.00	0.00
11.10	5.850	28.25	6	9.4E-06	15	61.61	39	37	49.16	61.61	0.00	0.00
11.12	5.940	29.66	6	9.3E-06	16	62.67	39	37	50.01	62.67	0.00	0.00
11.14	5.960	31.03	6	8.8E-06	16	63.51	39	37	50.68	63.51	0.00	0.00
11.16	5.990	32.49	6	8.4E-06	16	64.42	40	37	51.40	64.42	0.00	0.00
11.18	6.080	33.81	6	8.4E-06	16	65.39	40	37	52.17	65.39	0.00	0.00
11.20	6.220	34.40	6	9.0E-06	17	66.11	40	37	52.74	66.11	0.00	0.00
11.22	6.310	34.99	6	9.3E-06	17	66.68	41	37	53.20	66.68	0.00	0.00
11.24	6.290	35.31	6	9.0E-06	17	66.83	40	37	53.32	66.83	0.00	0.00
11.26	6.210	35.36	6	8.5E-06	17	66.68	40	37	53.20	66.68	0.00	0.00
11.28	6.090	35.86	6	7.6E-06	16	66.65	40	37	53.18	66.65	0.00	0.00
11.30	5.980	36.68	6	6.8E-06	16	66.81	39	37	53.30	66.81	0.00	0.00
11.32	5.870	37.82	6	5.9E-06	16	67.12	39	37	53.55	67.12	0.00	0.00
11.34	5.870	38.55	6	5.7E-06	16	67.52	39	37	53.87	67.52	0.00	0.00
11.36	5.920	38.32	6	6.0E-06	16	67.57	39	37	53.91	67.57	0.00	0.00
11.38	5.990	38.00	6	6.4E-06	16	67.63	39	37	53.96	67.63	0.00	0.00
11.40	6.040	37.73	6	6.7E-06	17	67.66	39	37	53.99	67.66	0.00	0.00
11.42	6.160	36.22	6	7.7E-06	17	67.24	40	37	53.65	67.24	0.00	0.00
11.44	6.240	35.22	6	8.5E-06	17	66.95	40	37	53.42	66.95	0.00	0.00
11.46	6.370	34.72	6	9.5E-06	17	67.06	41	37	53.50	67.06	0.00	0.00
11.48	6.470	34.86	6	1.0E-05	17	67.42	41	37	53.79	67.42	0.00	0.00
11.50	6.500	35.17	6	1.0E-05	17	67.69	41	37	54.01	67.69	0.00	0.00
11.52	6.510	35.54	6	9.9E-06	17	67.94	41	37	54.21	67.94	0.00	0.00
11.54	6.510	35.54	6	9.9E-06	17	67.97	41	37	54.23	67.97	0.00	0.00
11.56	6.270	27.20	6	1.3E-05	16	62.76	40	37	50.07	62.76	0.00	0.00
11.58	6.100	30.07	6	9.6E-06	16	63.99	40	37	51.05	63.99	0.00	0.00
11.60	5.790	33.17	6	6.6E-06	16	64.89	38	36	51.77	64.89	0.00	0.00
11.62	5.490	35.95	6	4.6E-06	16	65.54	37	36	52.29	65.54	0.00	0.00
11.64	5.360	39.41	5	3.6E-06	16	66.95	37	36	53.42	66.95	0.00	0.00
11.66	5.500	39.96	5	3.9E-06	16	67.67	37	36	53.99	67.67	0.00	0.00
11.68	5.690	39.46	6	4.6E-06	16	68.00	38	36	54.25	68.00	0.00	0.00
11.70	5.790	38.86	6	5.1E-06	16	68.01	38	36	54.26	68.01	0.00	0.00
11.72	5.790	38.36	6	5.2E-06	16	67.79	38	36	54.09	67.79	0.00	0.00
11.74	5.760	37.13	6	5.3E-06	16	67.10	38	36	53.54	67.10	0.00	0.00
11.76	5.680	35.99	6	5.2E-06	16	66.32	38	36	52.91	66.32	0.00	0.00
11.78	5.620	36.31	6	4.9E-06	16	66.35	38	36	52.94	66.35	0.00	0.00
11.80	5.550	37.04	5	4.5E-06	16	66.55	37	36	53.10	66.55	0.00	0.00
11.82	5.560	37.63	5	4.4E-06	16	66.92	37	36	53.39	66.92	0.00	0.00
11.84	5.620	37.63	6	4.6E-06	16	67.12	38	36	53.55	67.12	0.00	0.00
11.86	5.690	36.77	6	5.0E-06	16	66.90	38	36	53.38	66.90	0.00	0.00
11.88	5.710	35.86	6	5.3E-06	16	66.52	38	36	53.07	66.52	0.00	0.00
11.90	5.650	35.08	6	5.2E-06	16	65.97	38	36	52.63	65.97	0.00	0.00
11.92	5.630	34.49	6	5.2E-06	16	65.63	38	36	52.36	65.63	0.00	0.00
11.94	5.690	33.44	6	5.7E-06	16	65.26	38	36	52.07	65.26	0.00	0.00

In situ data				Estimations		ARENILE BAGNO FLORA - VIAREGGIO (LU)					CPTu 04	
Depth (m)	qc (MPa)	fs (kPa)	SBTn	Ksbt (m/s)	SPT N60	M (MPa)	Dr (%)	Fi (°)	Es (MPa)	Go (MPa)	Su (kPa)	OCR
11.96	5.890	33.17	6	6.7E-06	16	65.69	38	36	52.42	65.69	0.00	0.00
11.98	5.960	33.31	6	7.0E-06	16	65.99	39	36	52.65	65.99	0.00	0.00
12.00	6.010	33.81	6	7.1E-06	16	66.42	39	37	53.00	66.42	0.00	0.00
12.02	5.980	34.13	6	6.8E-06	16	66.55	39	37	53.09	66.55	0.00	0.00
12.04	5.980	34.40	6	6.7E-06	16	66.72	39	36	53.23	66.72	0.00	0.00
12.06	6.030	34.40	6	7.0E-06	16	66.88	39	37	53.37	66.88	0.00	0.00
12.08	5.980	35.22	6	6.5E-06	16	67.22	39	36	53.63	67.22	0.00	0.00
12.10	5.920	35.17	6	6.2E-06	16	67.06	38	36	53.51	67.06	0.00	0.00
12.12	5.840	34.95	6	5.9E-06	16	66.75	38	36	53.26	66.75	0.00	0.00
12.14	5.800	35.27	6	5.6E-06	16	66.84	38	36	53.33	66.84	0.00	0.00
12.16	5.810	36.04	6	5.4E-06	16	67.31	38	36	53.70	67.31	0.00	0.00
12.18	5.950	36.18	6	6.0E-06	16	67.80	38	36	54.09	67.80	0.00	0.00
12.20	6.080	36.27	6	6.5E-06	17	68.23	39	37	54.44	68.23	0.00	0.00
12.22	6.150	36.59	6	6.7E-06	17	68.61	39	37	54.74	68.61	0.00	0.00
12.24	6.280	37.22	6	7.2E-06	17	69.32	39	37	55.31	69.32	0.00	0.00
12.26	6.400	37.86	6	7.6E-06	17	70.00	40	37	55.85	70.00	0.00	0.00
12.28	6.470	38.32	6	7.8E-06	17	70.45	40	37	56.21	70.45	0.00	0.00
12.30	6.590	38.50	6	8.3E-06	18	70.89	40	37	56.56	70.89	0.00	0.00
12.32	6.590	39.82	6	7.9E-06	18	71.60	40	37	57.13	71.60	0.00	0.00
12.34	6.630	40.69	6	7.8E-06	18	72.18	40	37	57.59	72.18	0.00	0.00
12.36	6.590	40.32	6	7.7E-06	18	71.92	40	37	57.39	71.92	0.00	0.00
12.38	6.370	41.10	6	6.4E-06	17	71.78	40	37	57.27	71.78	0.00	0.00
12.40	5.990	42.33	6	4.6E-06	17	71.41	38	36	56.98	71.41	0.00	0.00
12.42	5.720	43.60	5	3.6E-06	17	71.31	37	36	56.90	71.31	0.00	0.00
12.44	5.590	44.56	5	3.1E-06	16	71.43	37	36	56.99	71.43	0.00	0.00
12.46	5.590	43.92	5	3.2E-06	16	71.15	37	36	56.77	71.15	0.00	0.00
12.48	5.600	43.97	5	3.2E-06	16	71.24	37	36	56.84	71.24	0.00	0.00
12.50	5.810	42.56	5	4.0E-06	17	71.18	38	36	56.80	71.18	0.00	0.00
12.52	5.810	42.56	5	3.9E-06	17	71.22	38	36	56.82	71.22	0.00	0.00
12.54	6.000	28.61	6	8.4E-06	16	64.26	38	36	51.27	64.26	0.00	0.00
12.56	6.000	28.61	6	8.3E-06	16	64.29	38	36	51.29	64.29	0.00	0.00
12.58	6.100	29.57	6	8.5E-06	16	65.14	39	36	51.97	65.14	0.00	0.00
12.60	6.170	30.85	6	8.4E-06	17	66.08	39	37	52.72	66.08	0.00	0.00
12.62	6.220	32.58	6	8.0E-06	17	67.22	39	37	53.63	67.22	0.00	0.00
12.64	6.270	34.45	6	7.6E-06	17	68.41	39	37	54.58	68.41	0.00	0.00
12.66	6.360	36.18	6	7.5E-06	17	69.62	39	37	55.54	69.62	0.00	0.00
12.68	6.440	40.19	6	6.7E-06	18	71.97	40	37	57.42	71.97	0.00	0.00
12.70	6.480	42.05	6	6.4E-06	18	73.06	40	37	58.29	73.06	0.00	0.00
12.72	6.540	42.83	6	6.4E-06	18	73.64	40	37	58.76	73.64	0.00	0.00
12.74	6.540	43.97	6	6.1E-06	18	74.25	40	37	59.24	74.25	0.00	0.00
12.76	6.520	44.74	6	5.9E-06	18	74.61	40	37	59.53	74.61	0.00	0.00
12.78	6.460	44.92	6	5.6E-06	18	74.58	39	37	59.50	74.58	0.00	0.00
12.80	6.430	45.74	6	5.3E-06	18	74.94	39	37	59.79	74.94	0.00	0.00
12.82	6.480	45.56	6	5.5E-06	18	75.01	39	37	59.85	75.01	0.00	0.00
12.84	6.540	45.56	6	5.7E-06	18	75.21	40	37	60.00	75.21	0.00	0.00
12.86	6.590	45.84	6	5.8E-06	18	75.51	40	37	60.25	75.51	0.00	0.00
12.88	6.600	45.43	6	6.0E-06	18	75.36	40	37	60.13	75.36	0.00	0.00
12.90	6.570	45.65	6	5.8E-06	18	75.43	40	37	60.18	75.43	0.00	0.00
12.92	6.550	45.29	6	5.8E-06	18	75.23	40	37	60.02	75.23	0.00	0.00
12.94	6.590	45.02	6	6.0E-06	18	75.23	40	37	60.03	75.23	0.00	0.00
12.96	6.650	45.20	6	6.1E-06	18	75.51	40	37	60.25	75.51	0.00	0.00
12.98	6.700	45.47	6	6.3E-06	18	75.81	40	37	60.49	75.81	0.00	0.00
13.00	6.530	45.97	6	5.5E-06	18	75.65	39	37	60.36	75.65	0.00	0.00
13.02	6.350	46.43	6	4.7E-06	18	75.43	39	37	60.19	75.43	0.00	0.00
13.04	6.110	47.11	5	3.9E-06	18	75.14	38	36	59.96	75.14	0.00	0.00

In situ data				Estimations		ARENILE BAGNO FLORA - VIAREGGIO (LU)					CPTu 04	
Depth (m)	qc (MPa)	fs (kPa)	SBTn	Ksbt (m/s)	SPT N60	M (MPa)	Dr (%)	Fi (°)	Es (MPa)	Go (MPa)	Su (kPa)	OCR
13.06	5.960	48.07	5	3.3E-06	17	75.22	37	36	60.02	75.22	0.00	0.00
13.08	5.900	49.07	5	3.1E-06	17	75.56	37	36	60.29	75.56	0.00	0.00
13.10	6.080	48.75	5	3.6E-06	18	75.95	38	36	60.60	75.95	0.00	0.00
13.12	6.160	47.79	5	3.9E-06	18	75.75	38	36	60.44	75.75	0.00	0.00
13.14	6.120	46.97	5	3.9E-06	18	75.27	38	36	60.06	75.27	0.00	0.00
13.16	6.140	45.70	5	4.1E-06	18	74.74	38	36	59.63	74.74	0.00	0.00
13.18	6.190	44.29	5	4.5E-06	18	74.21	38	36	59.21	74.21	0.00	0.00
13.20	6.210	43.01	6	4.7E-06	18	73.65	38	36	58.76	73.65	0.00	0.00
13.22	6.090	41.60	6	4.6E-06	17	72.64	38	36	57.96	72.64	0.00	0.00
13.24	5.930	41.64	5	4.0E-06	17	72.25	37	36	57.65	72.25	0.00	0.00
13.26	5.820	41.64	5	3.7E-06	17	71.98	37	36	57.43	71.98	0.00	0.00
13.28	5.670	41.42	5	3.3E-06	17	71.47	36	36	57.02	71.47	0.00	0.00
13.30	5.460	42.05	5	2.7E-06	16	71.21	36	36	56.82	71.21	0.00	0.00
13.32	5.270	42.28	5	2.3E-06	16	70.79	35	36	56.48	70.79	0.00	0.00
13.34	4.960	42.92	5	1.7E-06	15	66.35	34	35	55.99	70.18	0.00	0.00
13.36	4.840	42.28	5	1.6E-06	15	64.67	33	35	55.46	69.51	0.00	0.00
13.38	4.790	41.74	5	1.5E-06	15	63.97	33	35	55.14	69.11	0.00	0.00
13.40	4.770	41.92	5	1.5E-06	15	63.68	33	35	55.18	69.16	0.00	0.00
13.42	4.760	41.55	5	1.5E-06	15	63.54	33	35	55.03	68.98	0.00	0.00
13.44	4.600	39.78	5	1.4E-06	15	61.29	32	35	53.93	67.59	0.00	0.00
13.46	4.530	37.59	5	1.4E-06	14	60.31	32	35	52.87	66.26	0.00	0.00
13.48	4.490	35.99	5	1.4E-06	14	59.74	32	35	52.11	65.31	0.00	0.00
13.50	4.480	35.49	5	1.4E-06	14	59.60	32	35	51.90	65.04	0.00	0.00
13.52	4.480	35.49	5	1.4E-06	14	59.59	32	35	51.92	65.07	0.00	0.00
13.54	4.210	25.42	5	1.8E-06	13	55.81	31	34	46.65	58.47	0.00	0.00
13.56	4.420	25.10	5	2.3E-06	13	58.99	32	35	47.07	58.99	0.00	0.00
13.58	4.380	25.65	5	2.1E-06	13	59.22	31	35	47.25	59.22	0.00	0.00
13.60	4.360	26.02	5	2.0E-06	13	59.41	31	34	47.40	59.41	0.00	0.00
13.62	4.300	26.84	5	1.8E-06	13	57.05	31	34	47.66	59.73	0.00	0.00
13.64	4.240	27.79	5	1.6E-06	13	56.21	31	34	47.97	60.12	0.00	0.00
13.66	4.230	27.43	5	1.6E-06	13	56.06	31	34	47.79	59.90	0.00	0.00
13.68	4.270	27.47	5	1.7E-06	13	56.62	31	34	47.94	60.08	0.00	0.00
13.70	4.350	27.57	5	1.8E-06	13	57.73	31	34	48.22	60.43	0.00	0.00
13.72	4.480	27.20	5	2.1E-06	14	60.67	32	35	48.40	60.67	0.00	0.00
13.74	4.660	27.20	5	2.5E-06	14	61.26	32	35	48.88	61.26	0.00	0.00
13.76	4.870	26.97	5	3.1E-06	14	61.80	33	35	49.31	61.80	0.00	0.00
13.78	4.980	26.88	5	3.4E-06	15	62.10	34	35	49.55	62.10	0.00	0.00
13.80	4.990	27.20	5	3.3E-06	15	62.35	34	35	49.75	62.35	0.00	0.00
13.82	5.020	27.52	5	3.4E-06	15	62.66	34	35	49.99	62.66	0.00	0.00
13.84	5.080	28.52	5	3.4E-06	15	63.46	34	35	50.64	63.46	0.00	0.00
13.86	5.150	29.84	5	3.3E-06	15	64.48	34	35	51.45	64.48	0.00	0.00
13.88	5.150	31.07	5	3.1E-06	15	65.22	34	35	52.04	65.22	0.00	0.00
13.90	5.190	32.53	5	3.0E-06	15	66.20	34	35	52.82	66.20	0.00	0.00
13.92	5.250	33.03	5	3.1E-06	15	66.69	34	35	53.21	66.69	0.00	0.00
13.94	5.260	33.76	5	3.0E-06	15	67.16	34	35	53.58	67.16	0.00	0.00
13.96	5.330	34.03	5	3.1E-06	16	67.54	35	35	53.89	67.54	0.00	0.00
13.98	5.420	34.03	5	3.4E-06	16	67.83	35	36	54.12	67.83	0.00	0.00
14.00	5.440	34.99	5	3.3E-06	16	68.45	35	36	54.62	68.45	0.00	0.00
14.02	5.410	35.04	5	3.2E-06	16	68.43	35	35	54.59	68.43	0.00	0.00
14.04	5.410	35.36	5	3.1E-06	16	68.63	35	35	54.76	68.63	0.00	0.00
14.06	5.490	35.22	5	3.4E-06	16	68.81	35	36	54.90	68.81	0.00	0.00
14.08	5.580	34.95	5	3.6E-06	16	68.95	35	36	55.01	68.95	0.00	0.00
14.10	5.500	35.54	5	3.3E-06	16	69.08	35	36	55.12	69.08	0.00	0.00
14.12	5.480	35.72	5	3.2E-06	16	69.15	35	36	55.17	69.15	0.00	0.00
14.14	5.570	35.36	5	3.5E-06	16	69.24	35	36	55.24	69.24	0.00	0.00

In situ data				Estimations		ARENILE BAGNO FLORA - VIAREGGIO (LU)					CPTu 04	
Depth (m)	qc (MPa)	fs (kPa)	SBTn	Ksbt (m/s)	SPT N60	M (MPa)	Dr (%)	Fi (°)	Es (MPa)	Go (MPa)	Su (kPa)	OCR
14.16	5.730	35.86	5	3.9E-06	16	69.99	36	36	55.84	69.99	0.00	0.00
14.18	5.940	36.09	6	4.5E-06	17	70.72	36	36	56.43	70.72	0.00	0.00
14.20	6.030	36.95	6	4.7E-06	17	71.47	37	36	57.02	71.47	0.00	0.00
14.22	5.980	37.41	5	4.4E-06	17	71.62	37	36	57.14	71.62	0.00	0.00
14.24	5.860	37.18	5	4.0E-06	17	71.20	36	36	56.81	71.20	0.00	0.00
14.26	5.780	37.54	5	3.7E-06	17	71.20	36	36	56.81	71.20	0.00	0.00
14.28	5.650	38.59	5	3.2E-06	17	71.44	35	36	57.00	71.44	0.00	0.00
14.30	5.580	39.32	5	2.9E-06	16	71.66	35	36	57.18	71.66	0.00	0.00
14.32	5.570	39.82	5	2.8E-06	16	71.93	35	36	57.39	71.93	0.00	0.00
14.34	5.600	38.77	5	3.0E-06	16	71.48	35	36	57.04	71.48	0.00	0.00
14.36	5.570	38.36	5	3.0E-06	16	71.21	35	36	56.82	71.21	0.00	0.00
14.38	5.450	38.09	5	2.7E-06	16	70.75	35	35	56.45	70.75	0.00	0.00
14.40	5.300	37.45	5	2.5E-06	16	69.99	34	35	55.85	69.99	0.00	0.00
14.42	5.170	35.90	5	2.4E-06	16	68.79	34	35	54.89	68.79	0.00	0.00
14.44	5.140	36.13	5	2.3E-06	16	68.86	33	35	54.94	68.86	0.00	0.00
14.46	5.130	35.99	5	2.3E-06	16	68.78	33	35	54.88	68.78	0.00	0.00
14.48	5.170	35.58	5	2.4E-06	16	68.70	34	35	54.82	68.70	0.00	0.00
14.50	5.230	34.99	5	2.6E-06	16	68.58	34	35	54.72	68.58	0.00	0.00
14.52	5.230	34.99	5	2.6E-06	16	68.61	34	35	54.74	68.61	0.00	0.00
14.54	5.410	23.87	6	5.2E-06	15	62.46	34	35	49.84	62.46	0.00	0.00
14.56	5.540	25.20	6	5.4E-06	15	63.71	35	36	50.83	63.71	0.00	0.00
14.58	5.590	26.75	6	5.1E-06	16	64.85	35	36	51.74	64.85	0.00	0.00
14.60	5.600	28.52	6	4.7E-06	16	66.00	35	36	52.66	66.00	0.00	0.00
14.62	5.640	29.21	6	4.7E-06	16	66.55	35	36	53.10	66.55	0.00	0.00
14.64	5.730	30.48	6	4.7E-06	16	67.59	35	36	53.93	67.59	0.00	0.00
14.66	5.770	31.76	6	4.5E-06	16	68.48	36	36	54.64	68.48	0.00	0.00
14.68	5.800	32.53	5	4.5E-06	16	69.05	36	36	55.09	69.05	0.00	0.00
14.70	5.810	33.31	5	4.3E-06	17	69.55	36	36	55.49	69.55	0.00	0.00
14.72	5.840	33.58	5	4.4E-06	17	69.82	36	36	55.71	69.82	0.00	0.00
14.74	5.910	33.90	6	4.5E-06	17	70.22	36	36	56.03	70.22	0.00	0.00
14.76	6.080	34.86	6	4.9E-06	17	71.25	36	36	56.85	71.25	0.00	0.00
14.78	6.290	34.99	6	5.7E-06	17	71.90	37	36	57.37	71.90	0.00	0.00
14.80	6.370	34.54	6	6.1E-06	18	71.88	37	36	57.35	71.88	0.00	0.00
14.82	6.430	35.36	6	6.2E-06	18	72.53	38	36	57.87	72.53	0.00	0.00
14.84	6.620	36.22	6	6.7E-06	18	73.53	38	36	58.66	73.53	0.00	0.00
14.86	6.720	37.36	6	6.9E-06	18	74.45	38	36	59.40	74.45	0.00	0.00
14.88	6.640	38.77	6	6.1E-06	18	75.06	38	36	59.89	75.06	0.00	0.00
14.90	6.550	40.64	6	5.3E-06	18	75.89	38	36	60.55	75.89	0.00	0.00
14.92	6.530	44.15	6	4.6E-06	18	77.74	38	36	62.03	77.74	0.00	0.00
14.94	6.580	45.84	5	4.4E-06	19	78.78	38	36	62.86	78.78	0.00	0.00
14.96	6.550	46.75	5	4.2E-06	19	79.21	38	36	63.20	79.21	0.00	0.00
14.98	6.550	47.43	5	4.1E-06	19	79.59	38	36	63.50	79.59	0.00	0.00
15.00	6.580	47.48	5	4.2E-06	19	79.72	38	36	63.61	79.72	0.00	0.00
15.02	6.670	46.97	5	4.5E-06	19	79.73	38	36	63.61	79.73	0.00	0.00
15.04	6.680	46.70	5	4.6E-06	19	79.65	38	36	63.55	79.65	0.00	0.00
15.06	6.630	46.25	5	4.5E-06	19	79.32	38	36	63.29	79.32	0.00	0.00
15.08	6.540	45.84	5	4.2E-06	19	78.91	38	36	62.96	78.91	0.00	0.00
15.10	6.430	45.93	5	3.9E-06	18	78.70	37	36	62.80	78.70	0.00	0.00
15.12	6.500	46.34	5	4.0E-06	19	79.13	37	36	63.14	79.13	0.00	0.00
15.14	6.640	46.56	5	4.4E-06	19	79.64	38	36	63.54	79.64	0.00	0.00
15.16	6.760	46.38	6	4.8E-06	19	79.88	38	36	63.74	79.88	0.00	0.00
15.18	6.720	47.02	5	4.5E-06	19	80.15	38	36	63.95	80.15	0.00	0.00
15.20	6.570	46.84	5	4.1E-06	19	79.70	38	36	63.59	79.70	0.00	0.00
15.22	6.380	45.84	5	3.7E-06	18	78.72	37	36	62.81	78.72	0.00	0.00
15.24	6.180	46.43	5	3.1E-06	18	78.53	36	36	62.66	78.53	0.00	0.00

In situ data				Estimations		ARENILE BAGNO FLORA - VIAREGGIO (LU)					CPTu 04	
Depth (m)	qc (MPa)	fs (kPa)	SBTn	Ksbt (m/s)	SPT N60	M (MPa)	Dr (%)	Fi (°)	Es (MPa)	Go (MPa)	Su (kPa)	OCR
15.26	6.020	47.25	5	2.7E-06	18	78.54	36	36	62.67	78.54	0.00	0.00
15.28	5.840	47.98	5	2.3E-06	18	78.44	35	36	62.59	78.44	0.00	0.00
15.30	5.840	47.61	5	2.3E-06	18	78.29	35	36	62.46	78.29	0.00	0.00
15.32	6.070	45.93	5	2.9E-06	18	78.11	36	36	62.32	78.11	0.00	0.00
15.34	6.280	45.70	5	3.4E-06	18	78.59	36	36	62.70	78.59	0.00	0.00
15.36	6.450	44.65	5	4.0E-06	18	78.52	37	36	62.65	78.52	0.00	0.00
15.38	6.540	43.38	5	4.5E-06	19	78.11	37	36	62.32	78.11	0.00	0.00
15.40	6.700	42.60	6	5.1E-06	19	78.13	38	36	62.34	78.13	0.00	0.00
15.42	6.780	42.56	6	5.4E-06	19	78.34	38	36	62.50	78.34	0.00	0.00
15.44	6.950	43.47	6	5.8E-06	19	79.28	39	36	63.25	79.28	0.00	0.00
15.46	7.170	43.38	6	6.7E-06	20	79.79	39	37	63.66	79.79	0.00	0.00
15.48	7.340	43.83	6	7.3E-06	20	80.47	40	37	64.20	80.47	0.00	0.00

Allegato C

Prove Penetrometriche Statiche con Piezocono (CPTu)
Elaborati Grafici

BIERREGI SRL
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55100 Lucca
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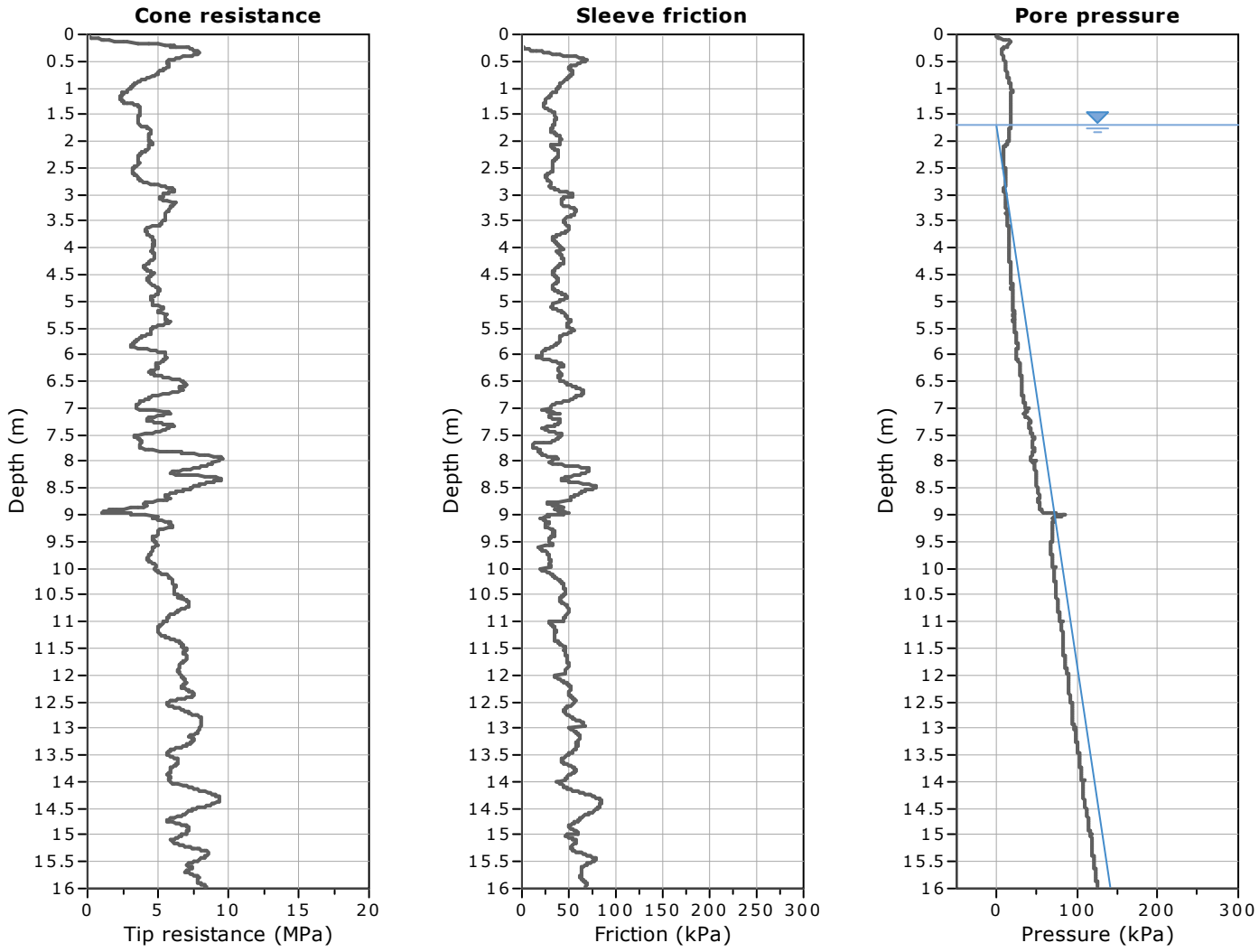
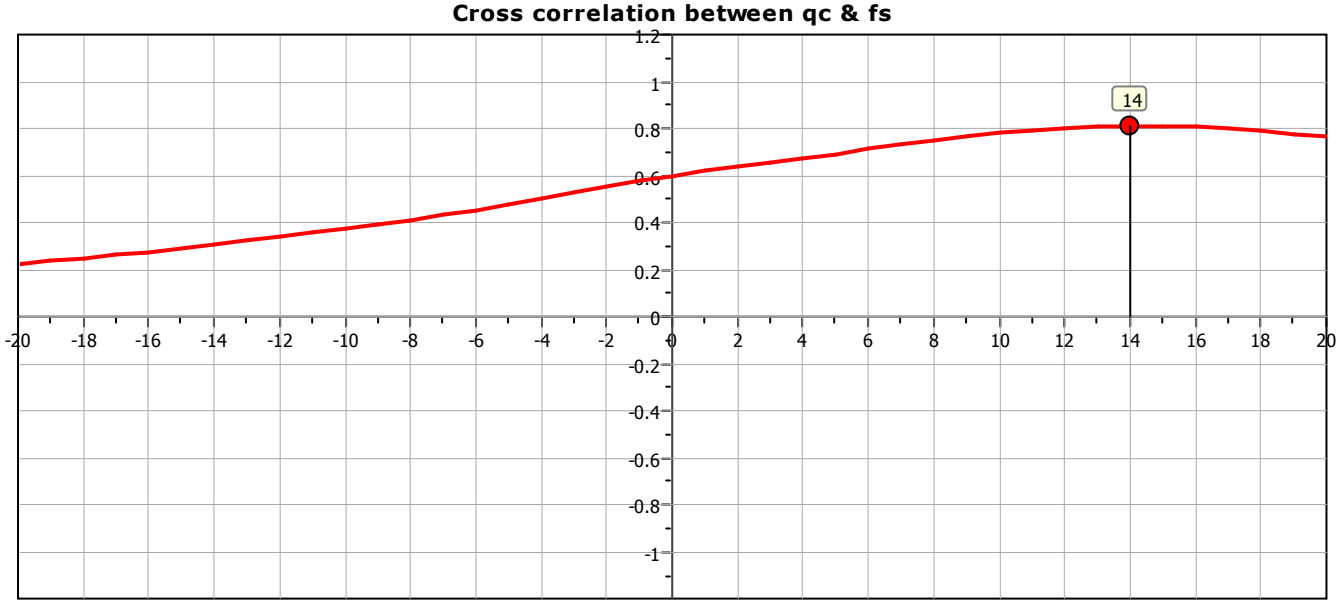
CPT: CPTu 01
Total depth: 15.96 m, Date: 13/07/2021
Surface Elevation: 1.70 m
Coords: X:1598830.73, Y:4860072.47
Cone Type: Mej61
Cone Operator: Geol. Jacopo Civita

Project: **Indagini geognostiche a supporto della stesura del piano per l'utilizzo degli arenili**
Location: **Bagno Firenze, Principe di Piemonte, Paizza Mazzini, Bagno Flora**



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



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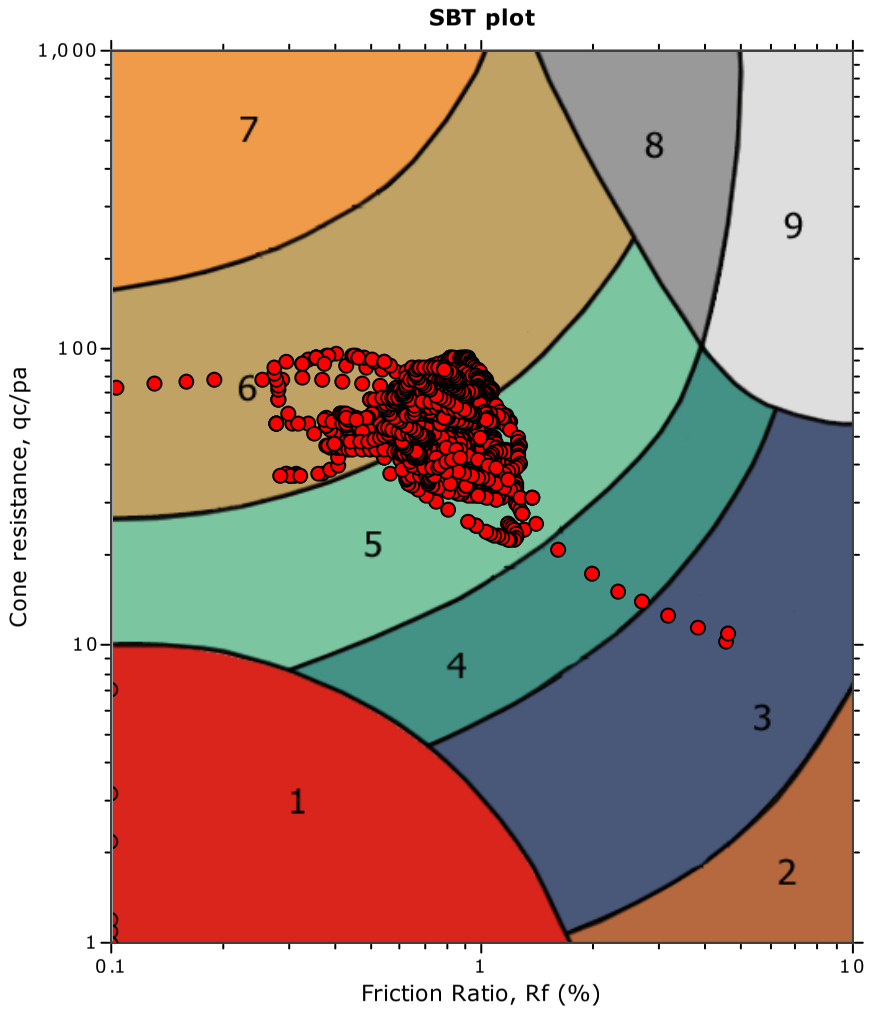
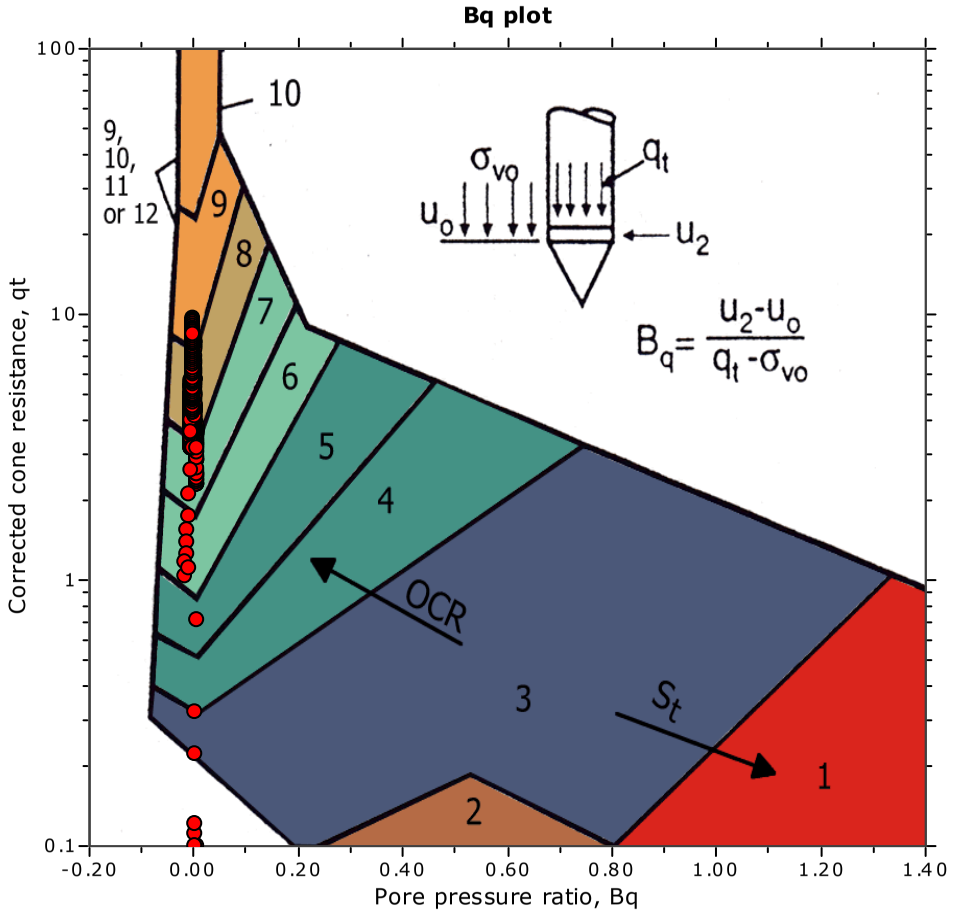
SBT - Bq plots





SBT legend

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

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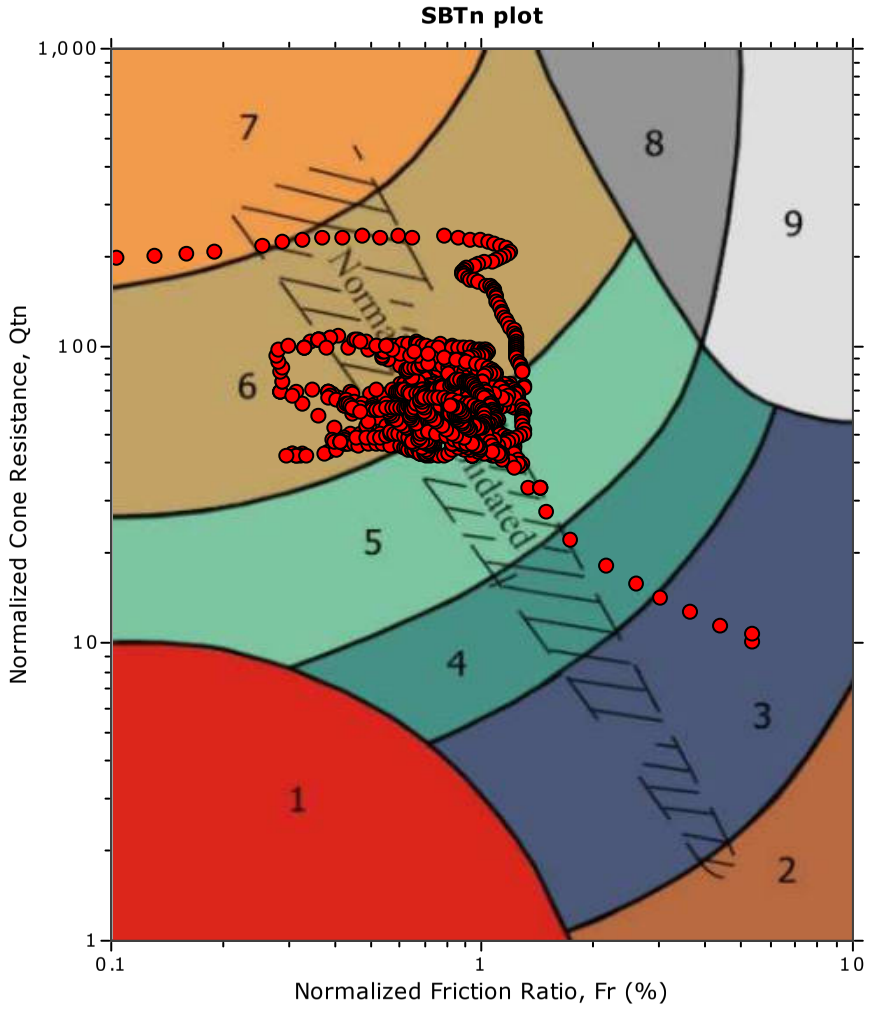
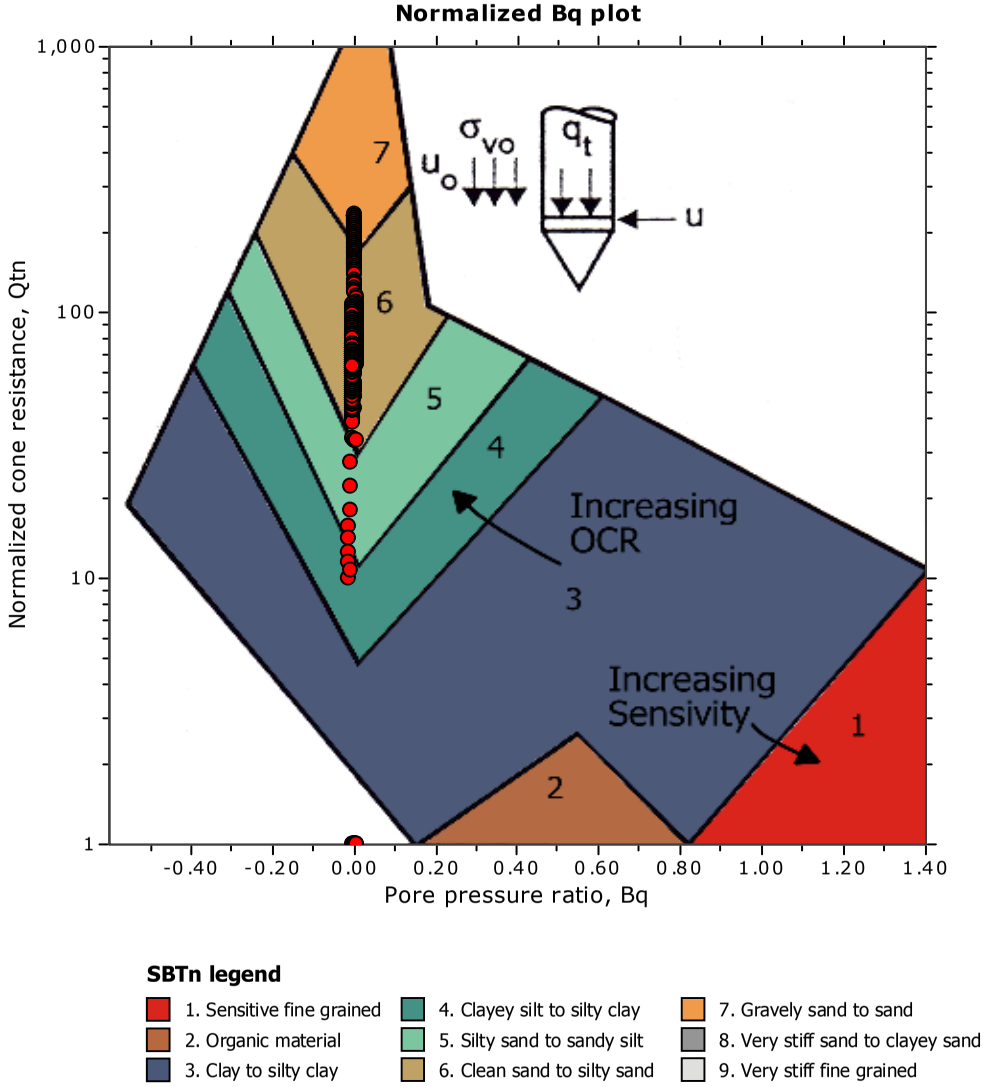
SBT - Bq plots (normalized)





SBTn legend

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

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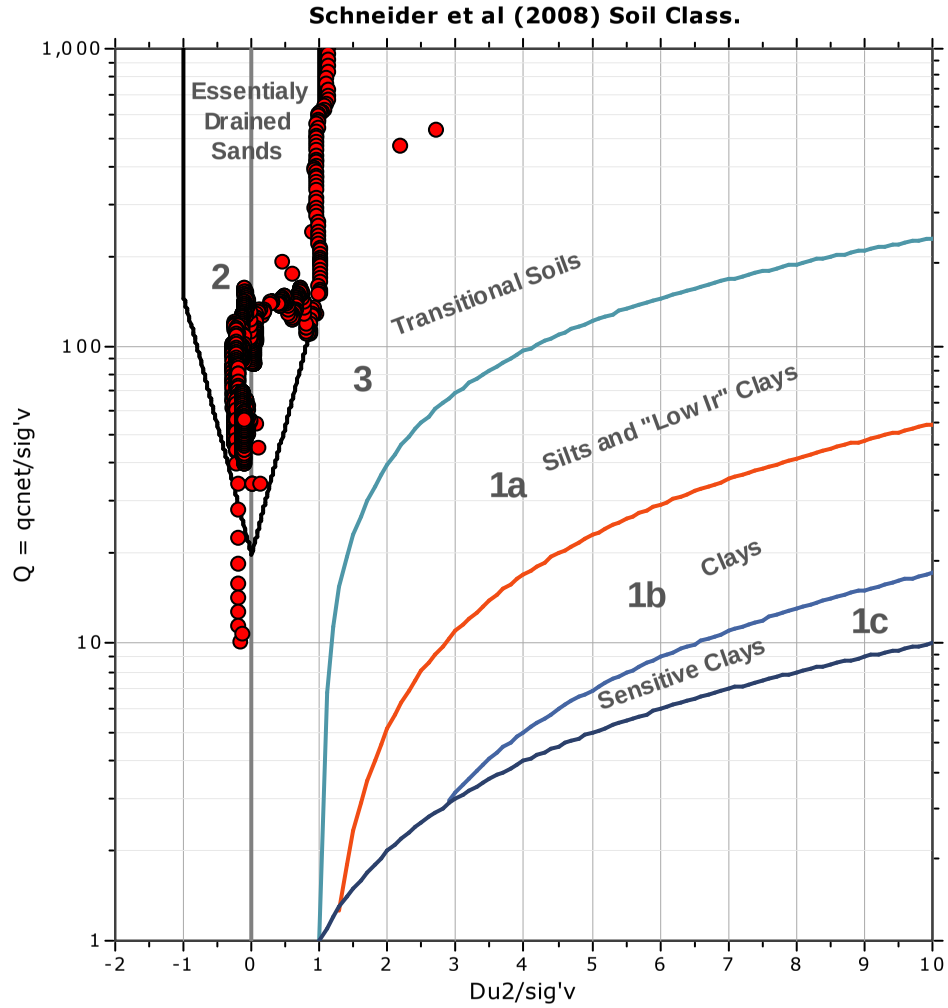
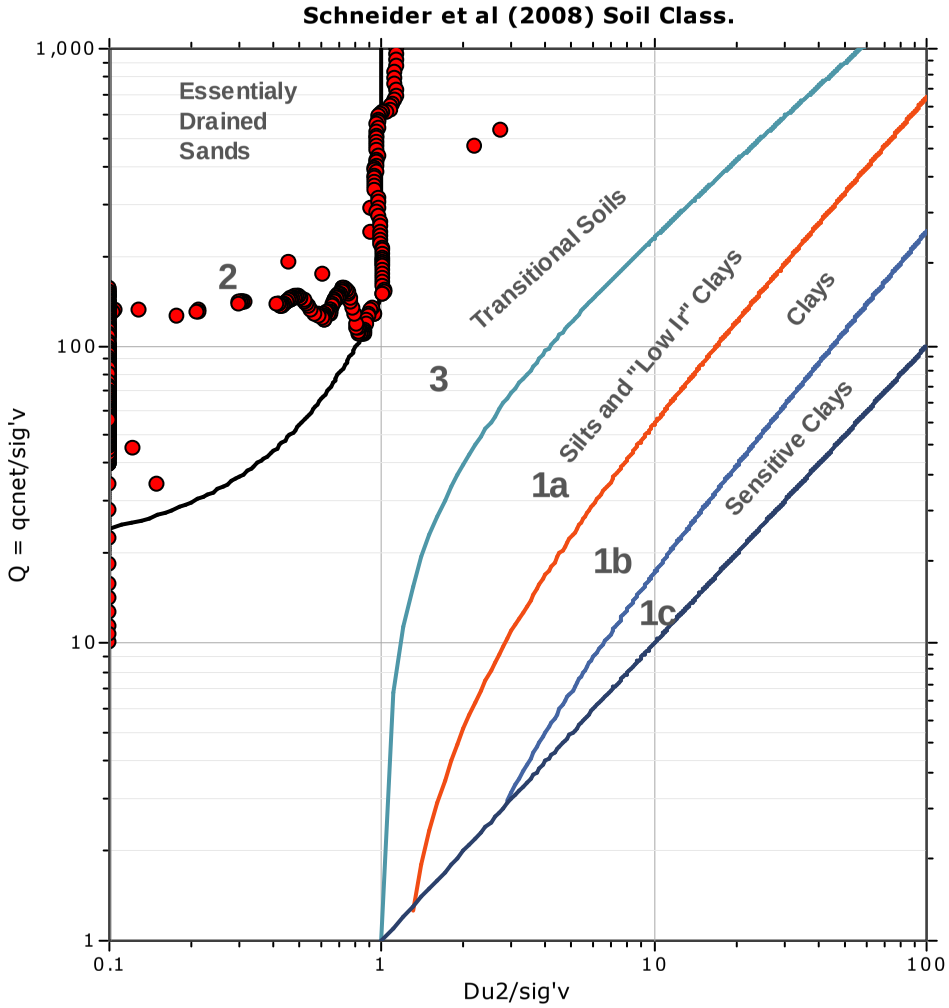
Location: **Bagno Firenze, Principe di Piemonte, Paizza Mazzini, Bagno Flora**

Bq plots (Schneider)





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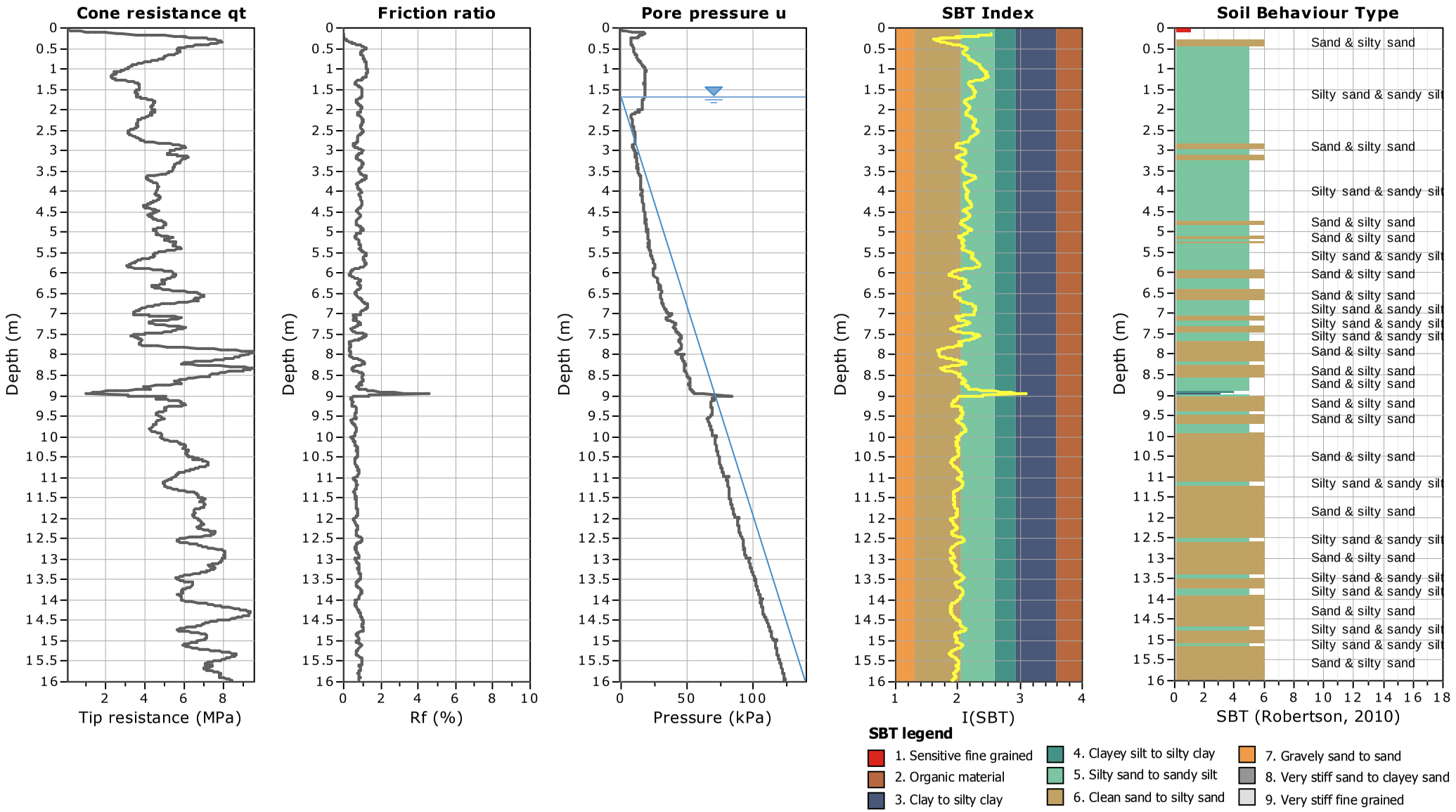

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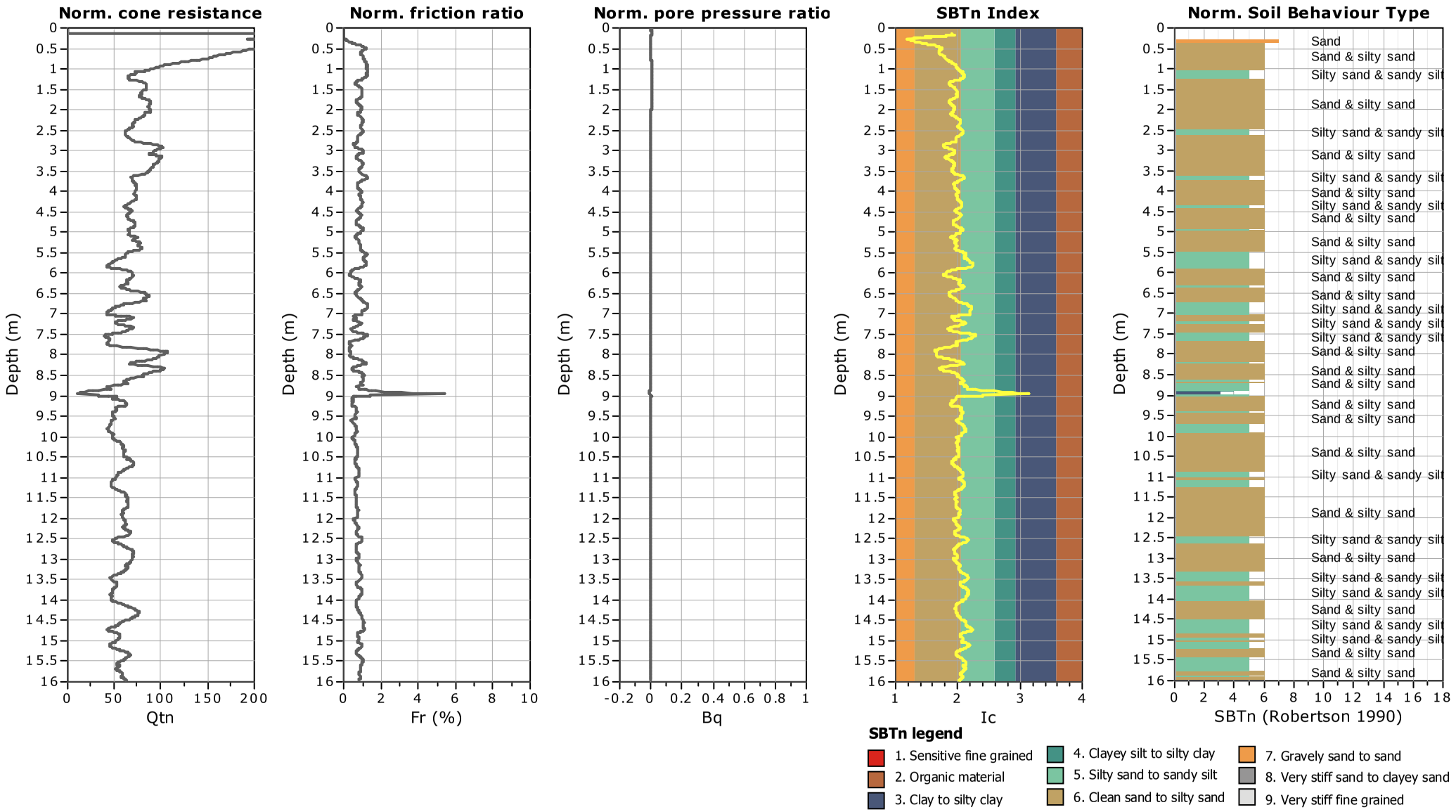

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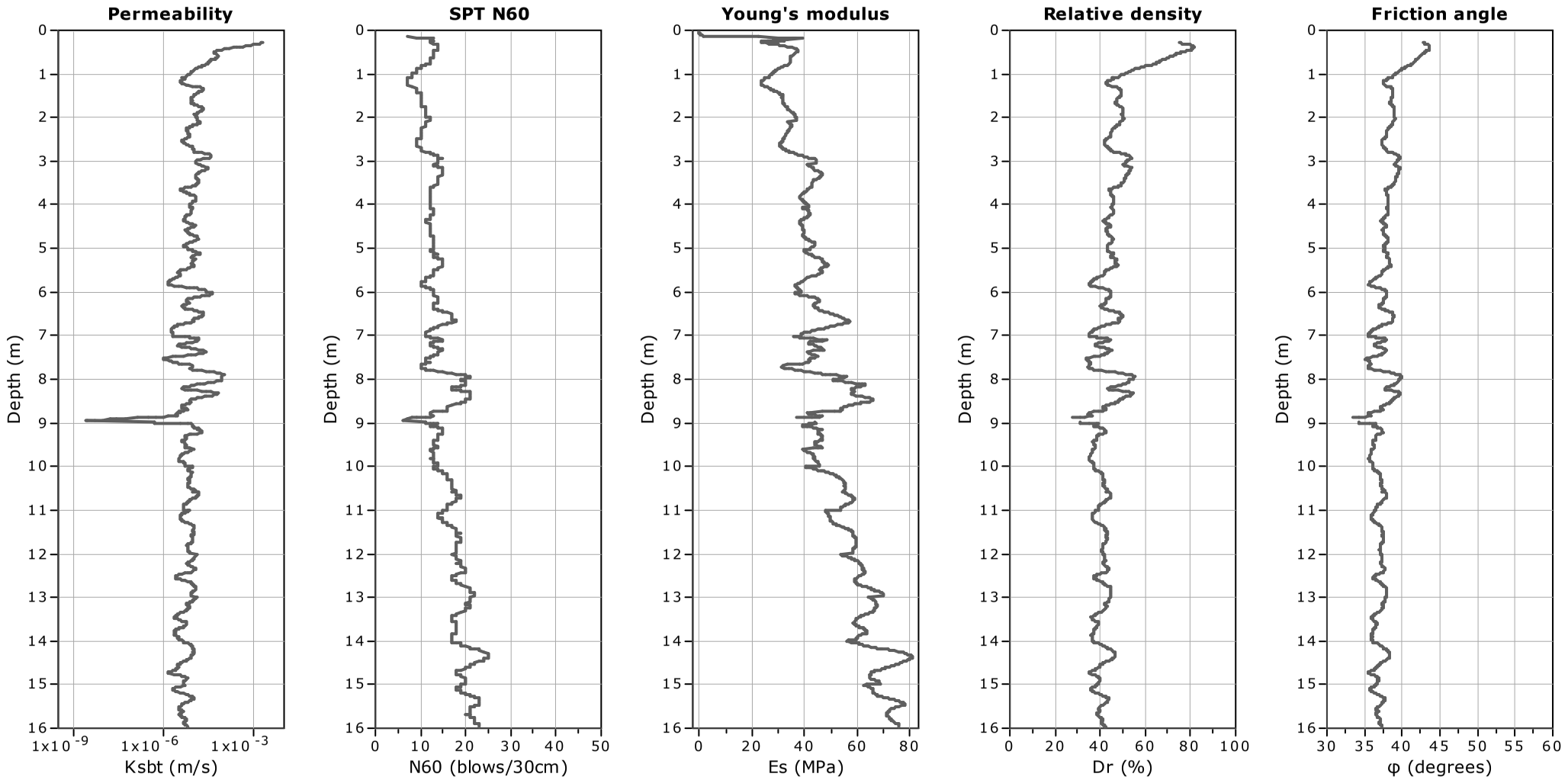

Calculation parameters

Permeability: Based on SBT_n
SPT N_{60}: Based on I_c and q_t
Young's modulus: Based on variable alpha using I_c (Robertson, 2009)
Relative desnisty constant, C_{Dr}: 350.0
Phi: Based on Kulhawy & Mayne (1990)
User defined estimation data

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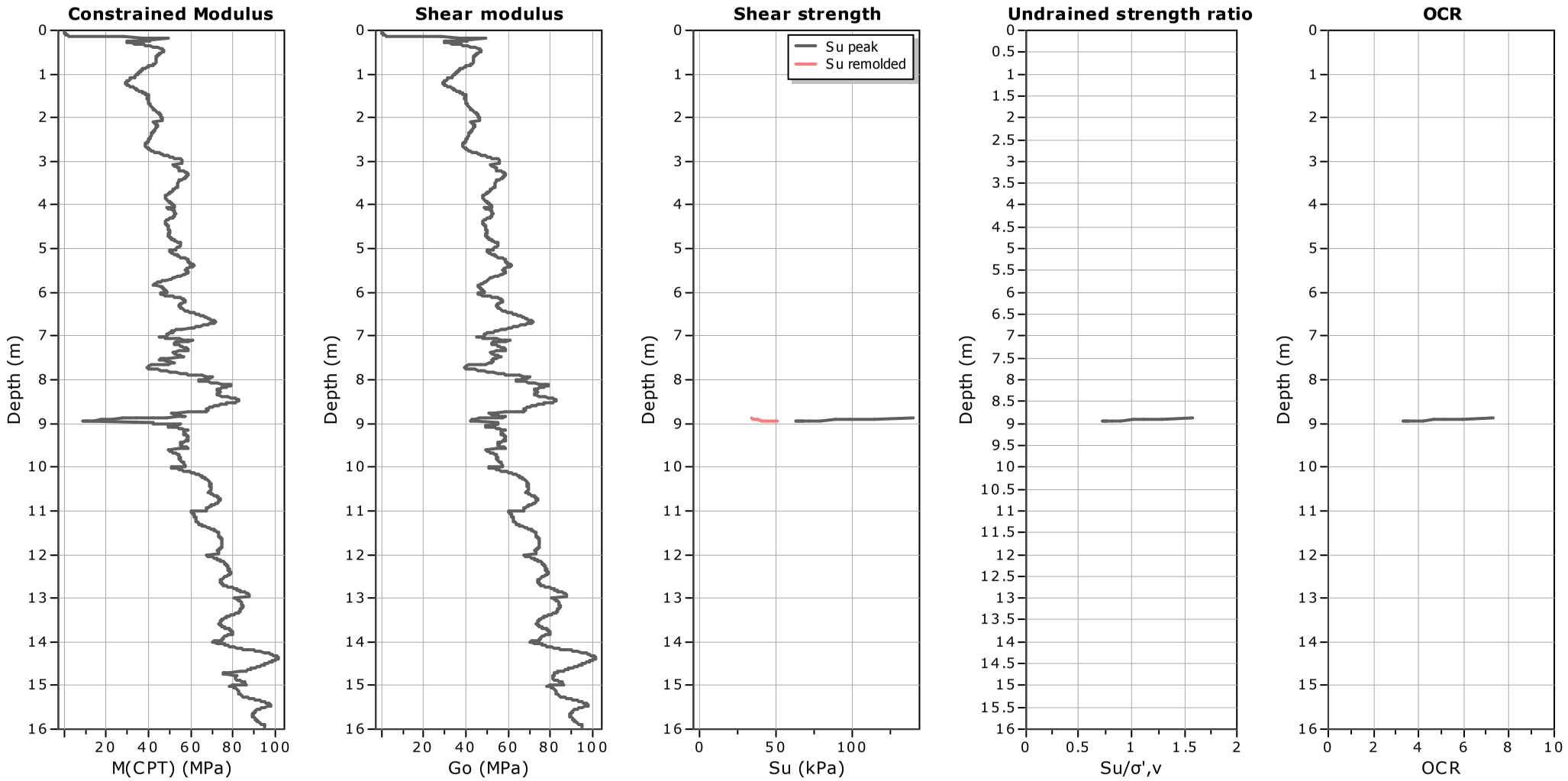

Calculation parameters

Constrained modulus: Based on variable *alpha* using I_c and Q_{tn} (Robertson, 2009)
Go: Based on variable *alpha* using I_c (Robertson, 2009)
Undrained shear strength cone factor for clays, N_{kt}: 14
OCR factor for clays, N_{kt}: 0.33
User defined estimation data

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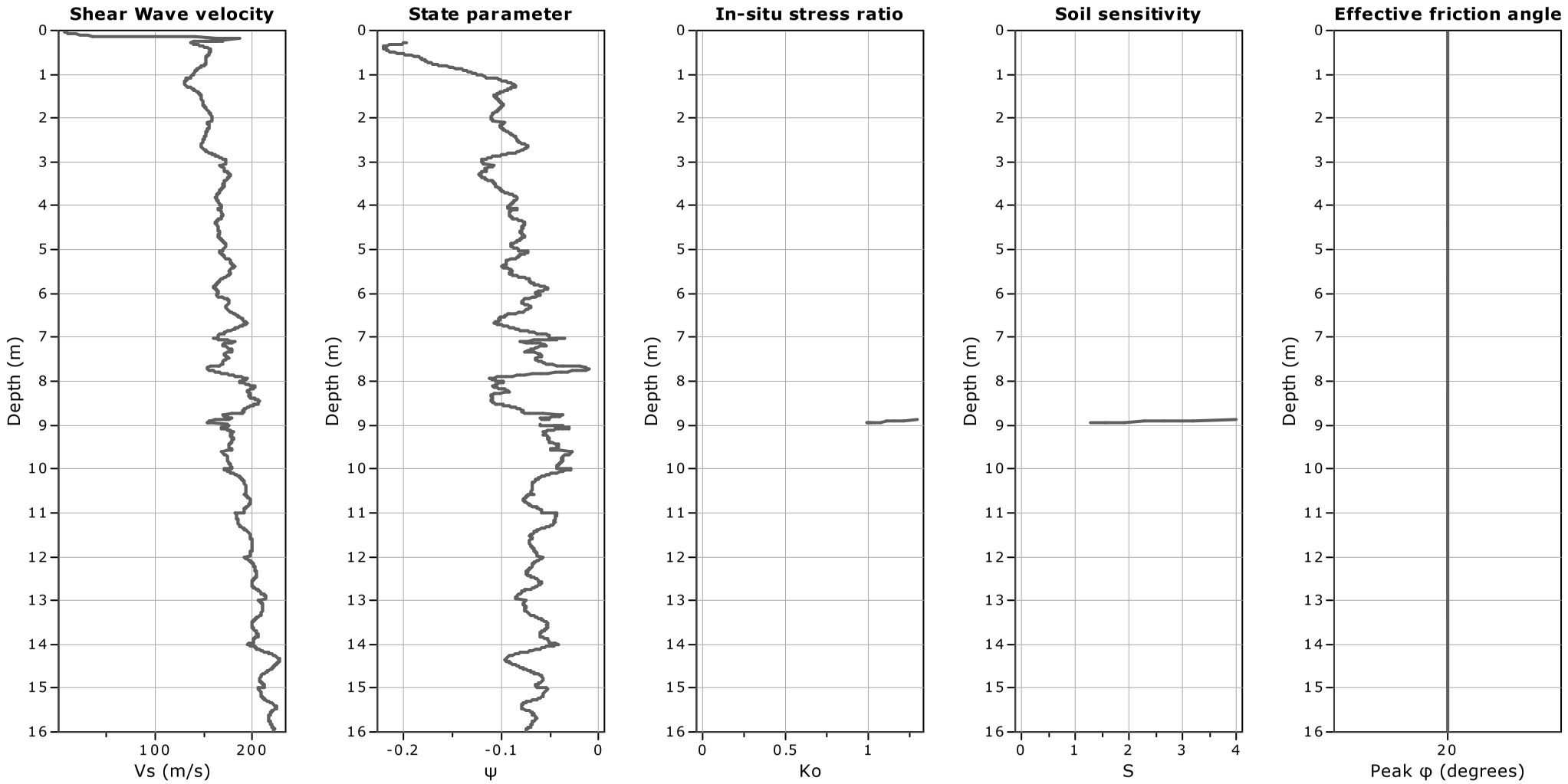

Calculation parameters

Soil Sensitivity factor, N_S: 7.00
User defined estimation data

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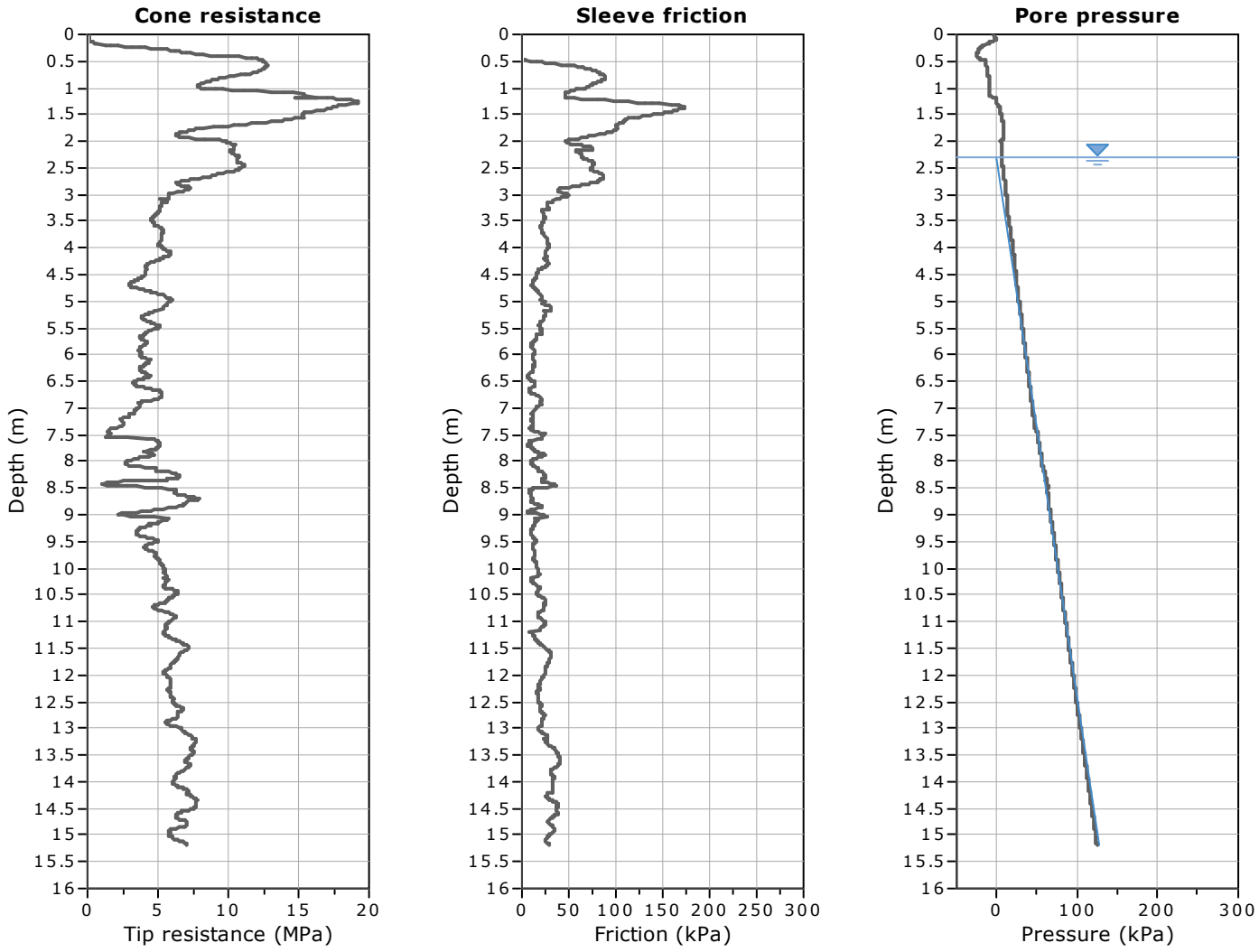
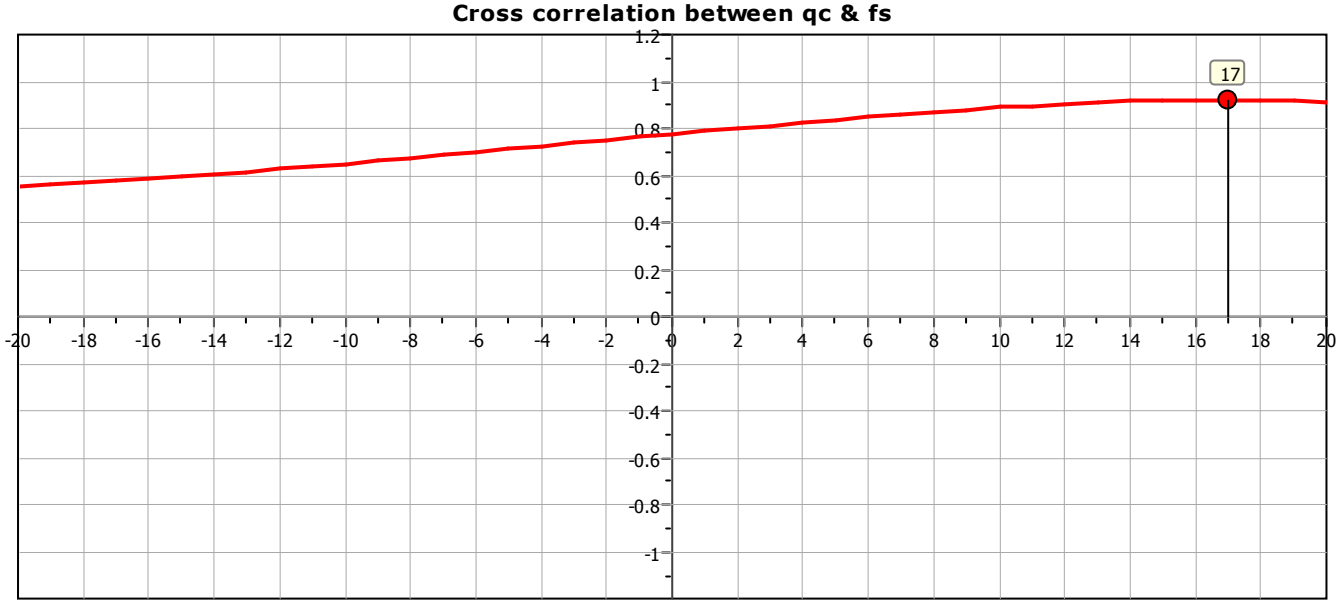
info@bierregilucca.it

CPT: CPTu 02
Total depth: 15.18 m, Date: 13/07/2021
Surface Elevation: 2.30 m
Coords: X:1599152.23, Y:4859377.30
Cone Type: Mej61
Cone Operator: Geol. Jacopo Civita

Project: **Indagini geognostiche a supporto della stesura del piano per l'utilizzo degli arenili**
Location: **Bagno Firenze, Principe di Piemonte, Paizza Mazzini, Bagno Flora**



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



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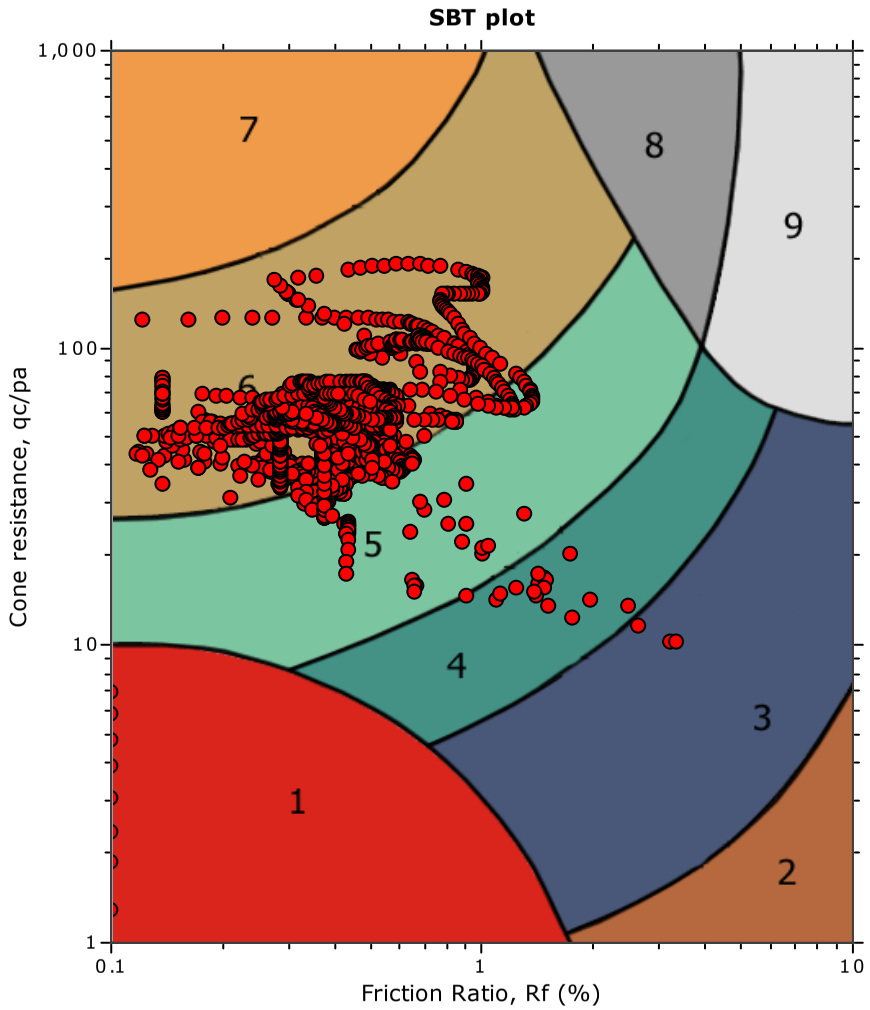
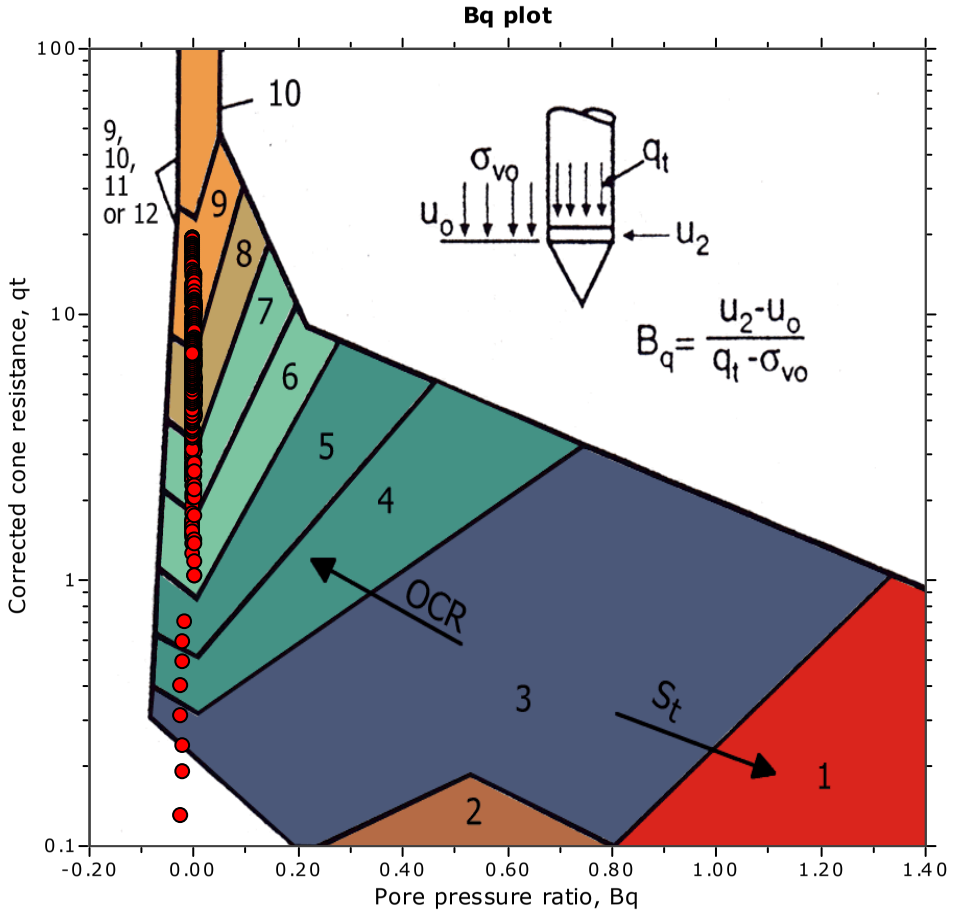
Cone Operator: Geol. Jacopo Civita

SBT - Bq plots





SBT legend

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

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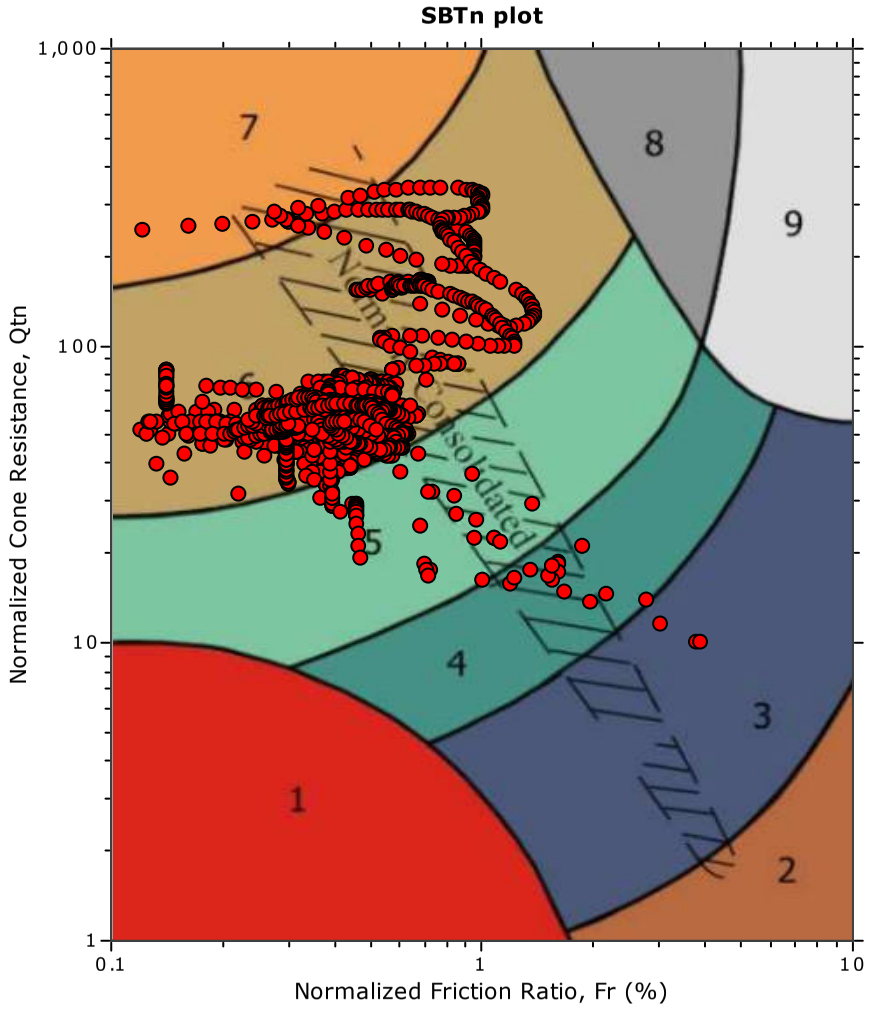
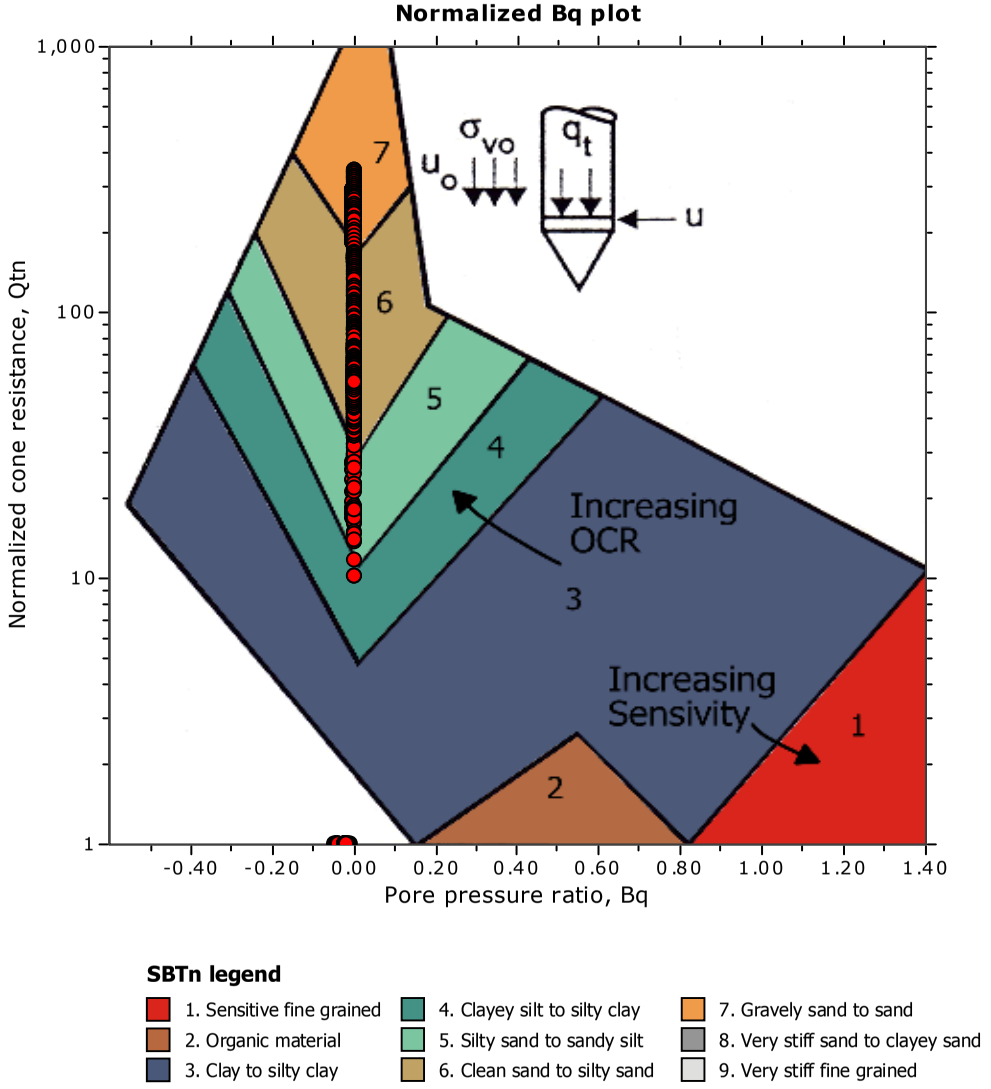
Cone Operator: Geol. Jacopo Civita

SBT - Bq plots (normalized)





SBTn legend

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

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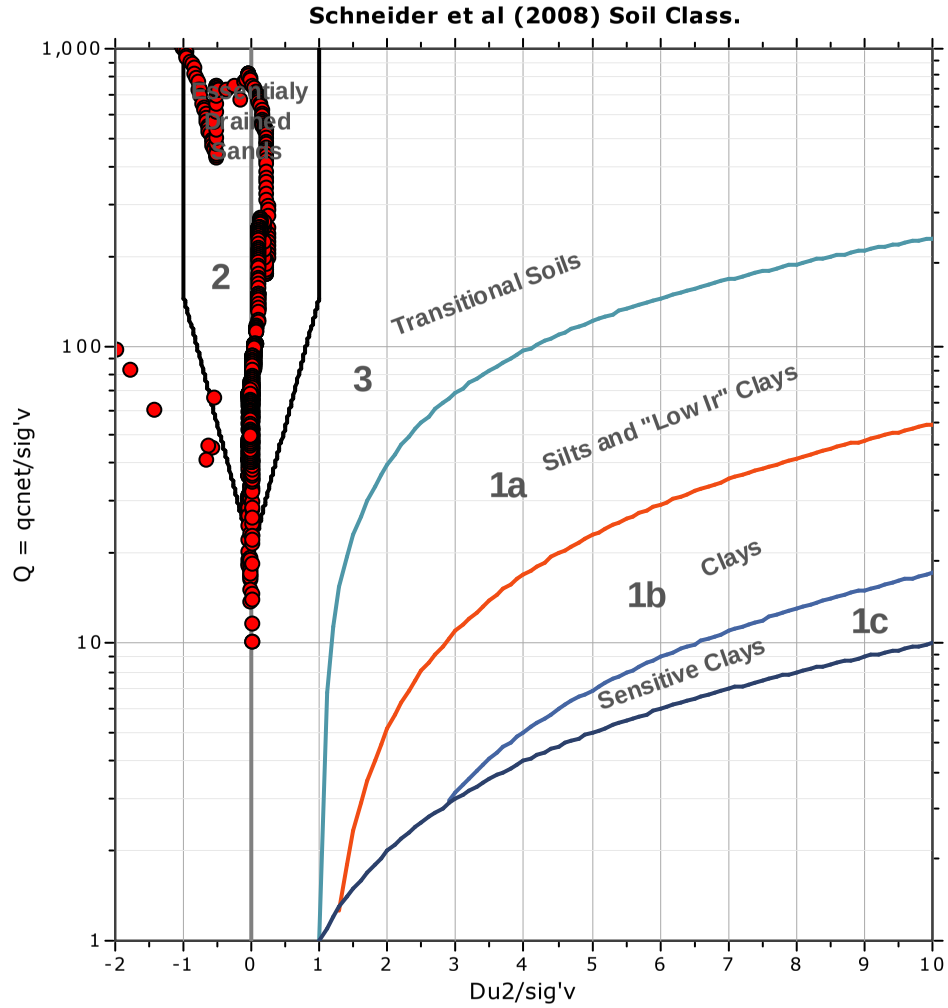
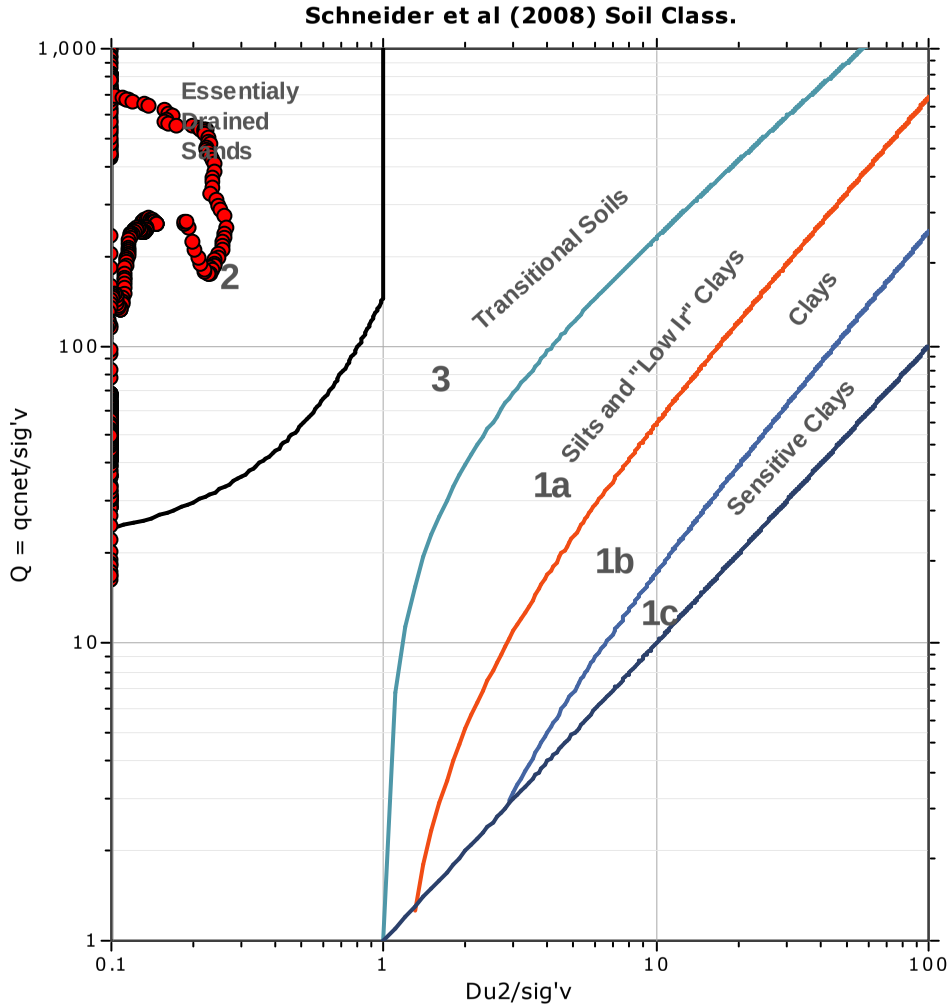
Project: **Indagini geognostiche a supporto della stesura del piano per l'utilizzo degli arenili**
Location: **Bagno Firenze, Principe di Piemonte, Paizza Mazzini, Bagno Flora**

Bq plots (Schneider)





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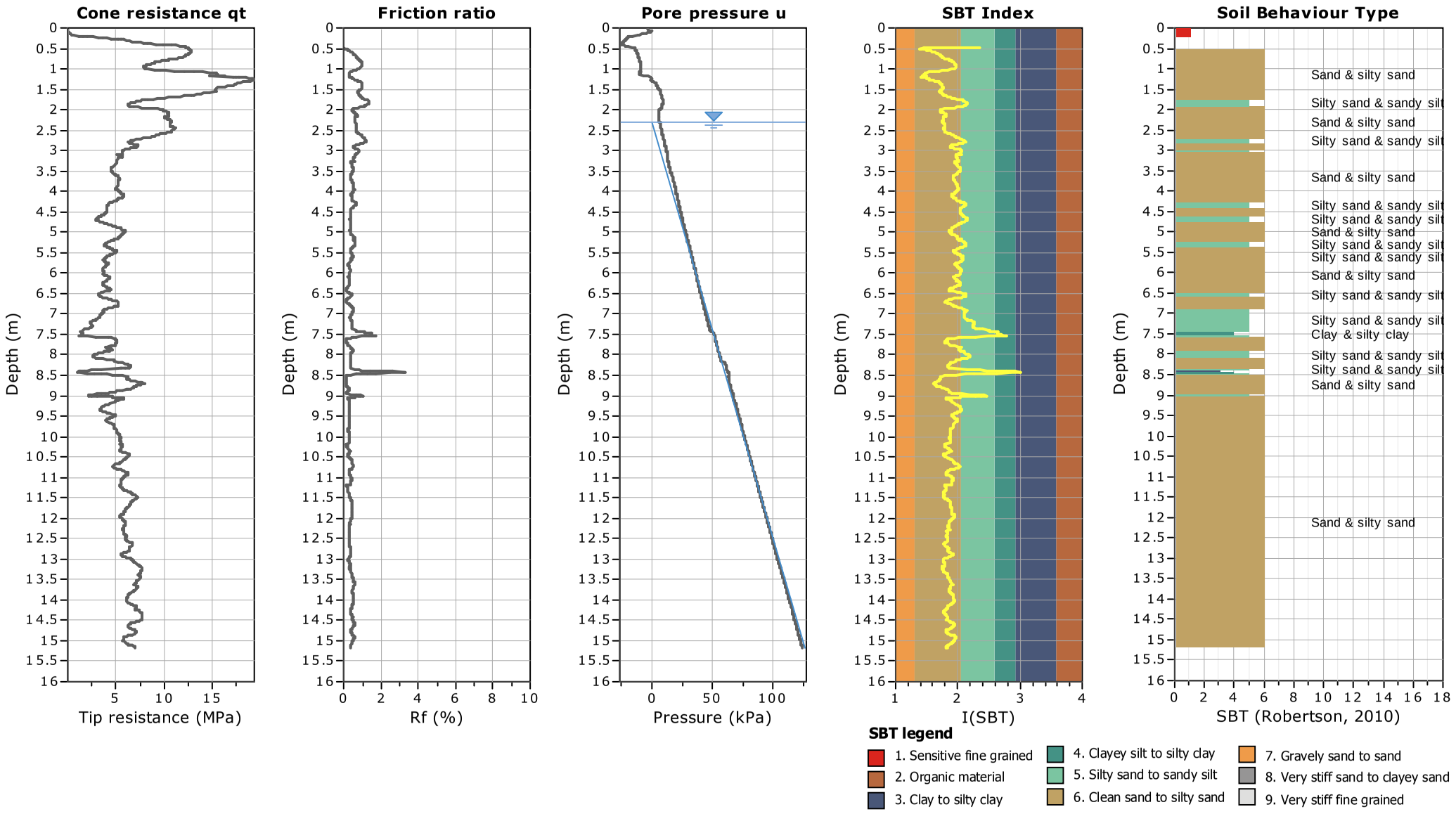

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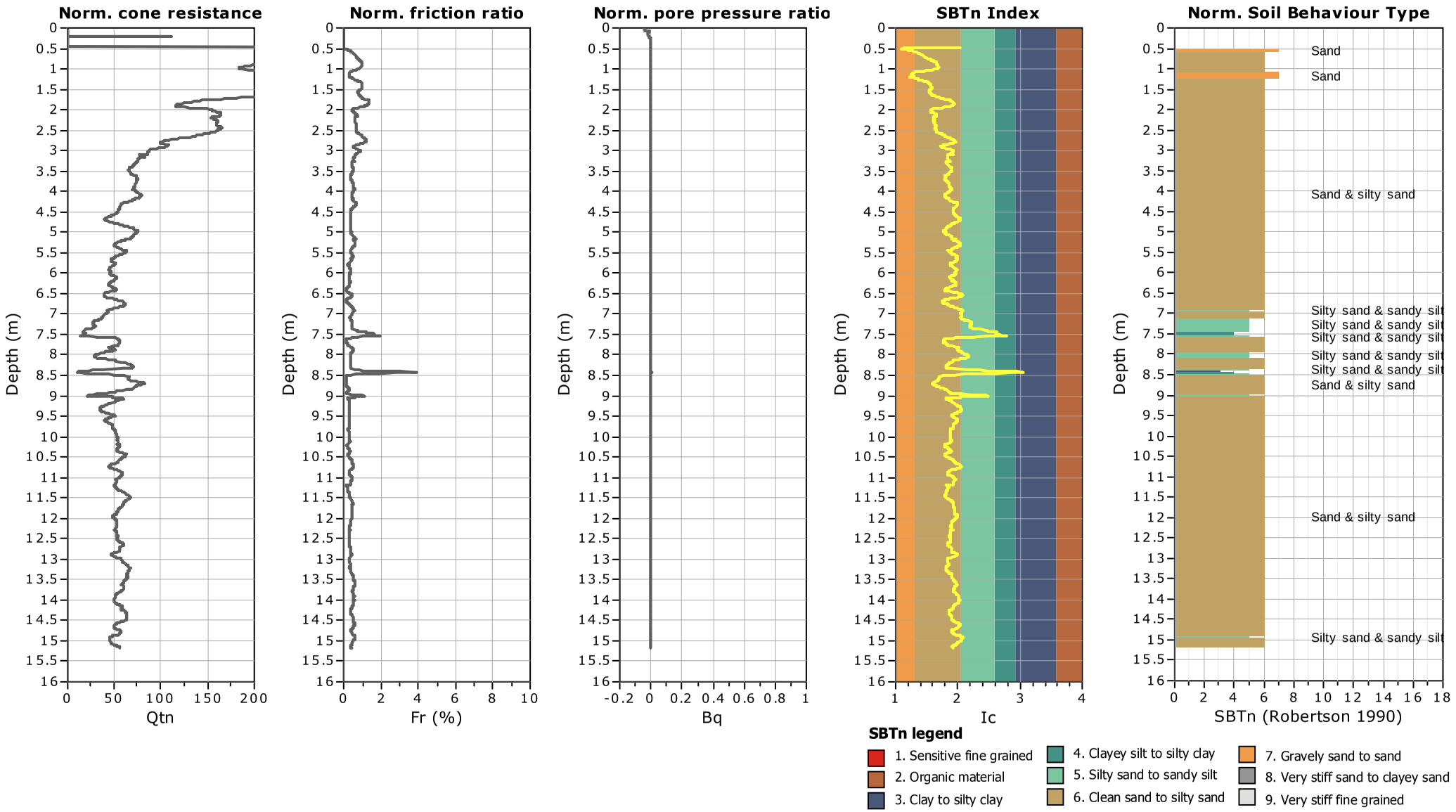

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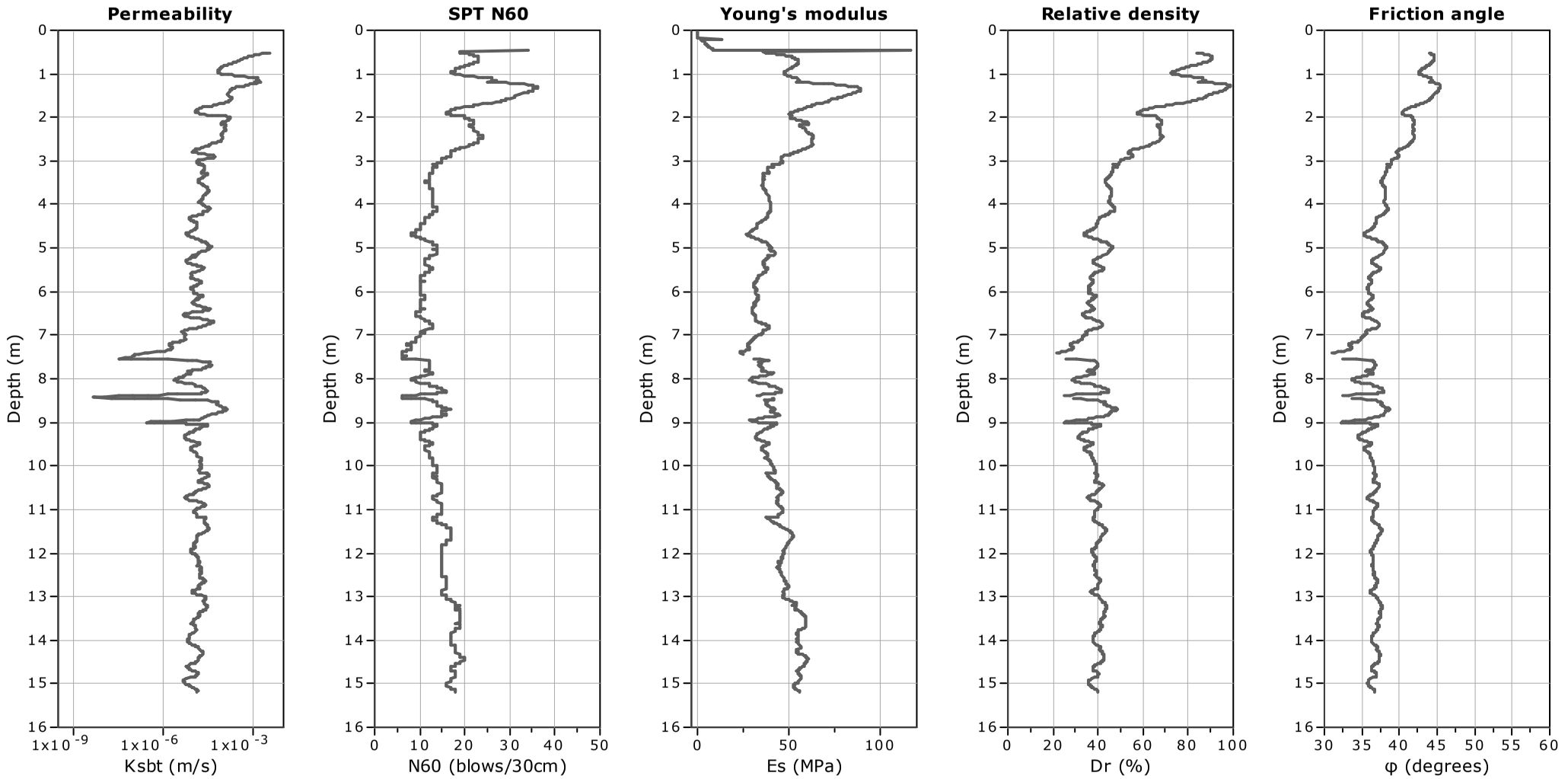

Calculation parameters
Permeability: Based on SBT_n
SPT N_{60}: Based on I_c and q_t
Young's modulus: Based on variable alpha using I_c (Robertson, 2009)
Relative desnisty constant, C_{Dr}: 350.0
Phi: Based on Kulhawy & Mayne (1990)
User defined estimation data

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Project: **Indagini geognostiche a supporto della stesura del piano per l'utilizzo degli arenili**
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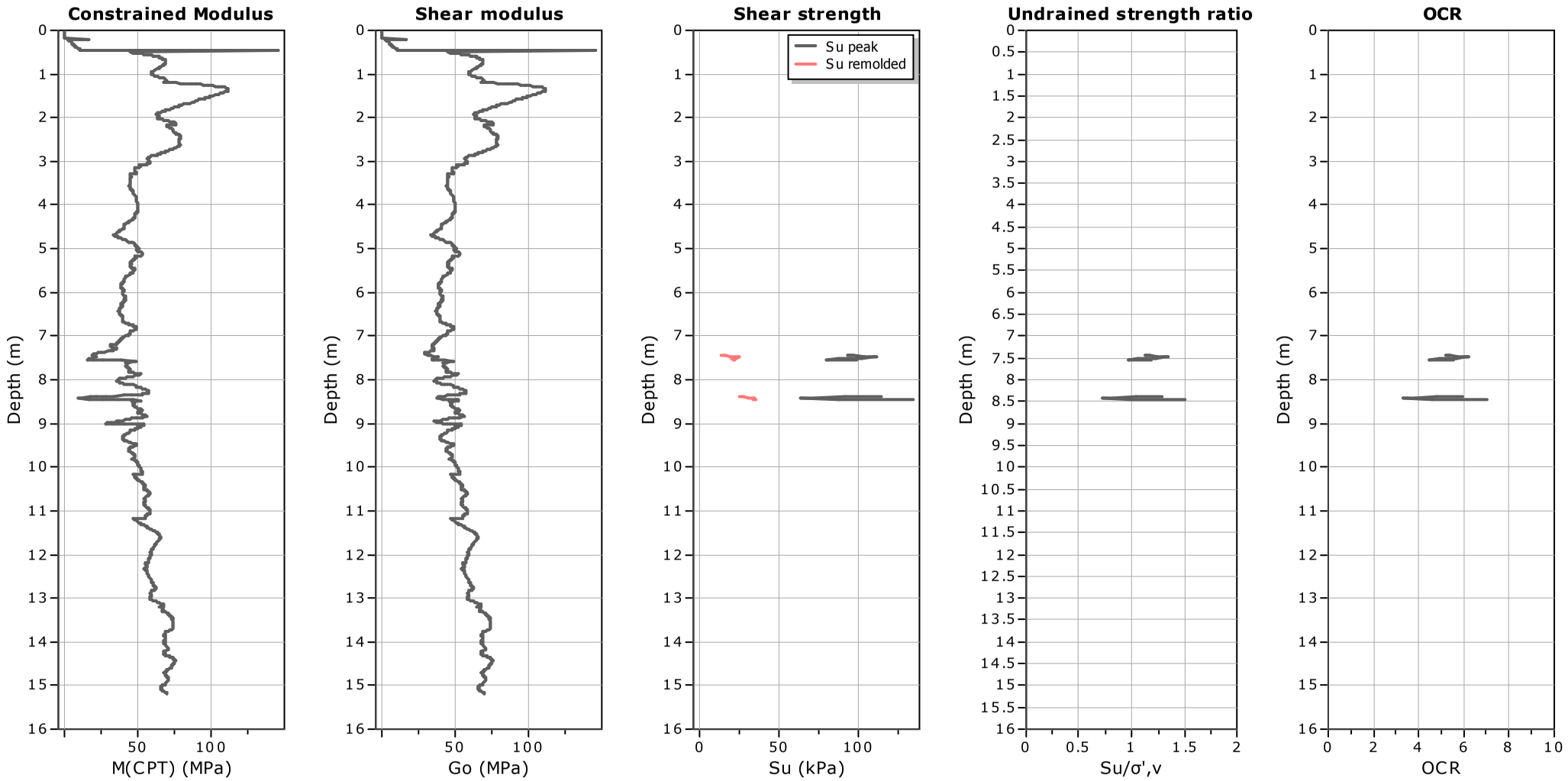

Calculation parameters

Constrained modulus: Based on variable *alpha* using I_c and Q_{tn} (Robertson, 2009)
Go: Based on variable *alpha* using I_c (Robertson, 2009)
Undrained shear strength cone factor for clays, N_{kt}: 14
OCR factor for clays, N_{kt}: 0.33
User defined estimation data

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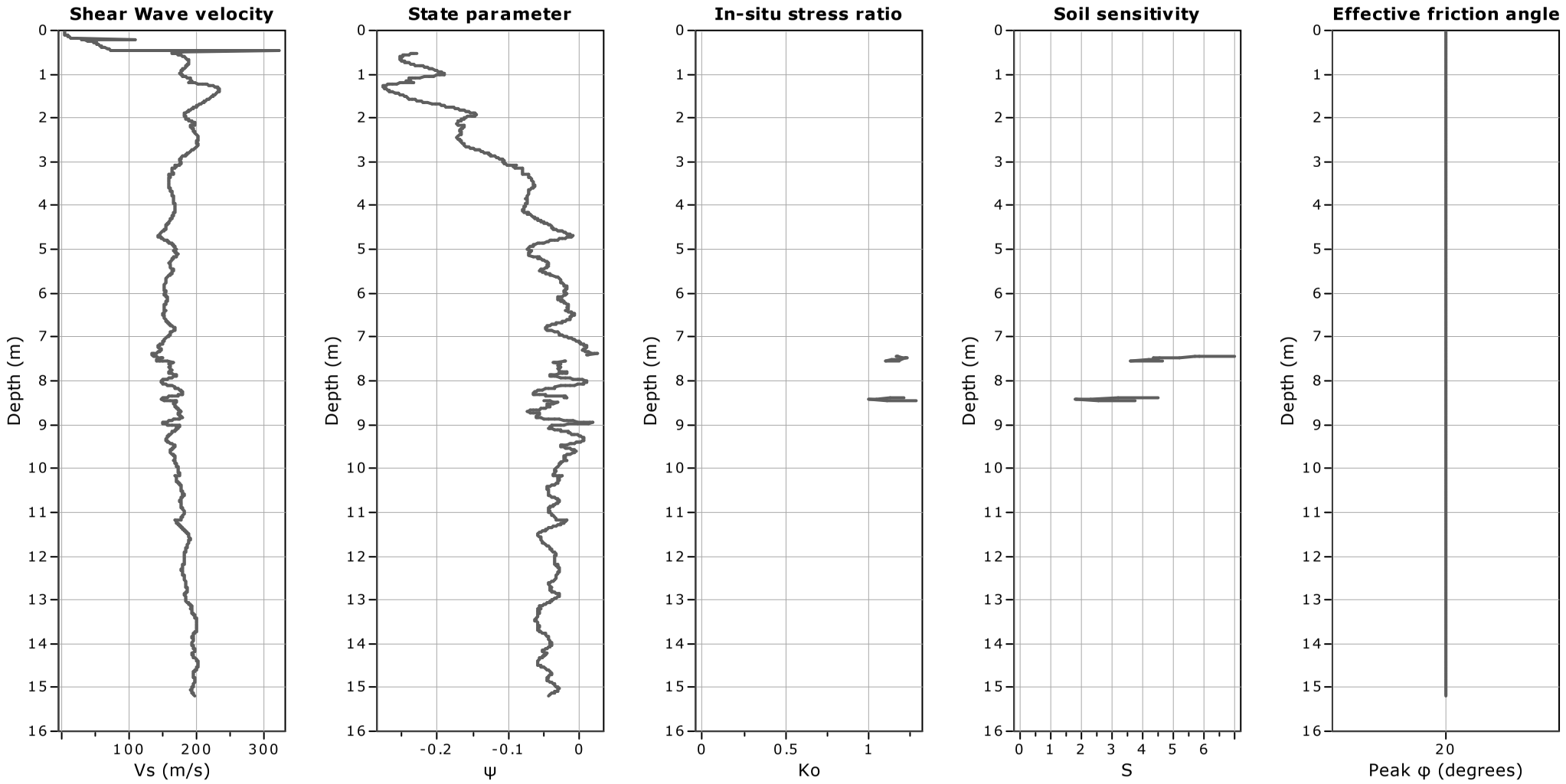

Calculation parameters

Soil Sensitivity factor, N_S: 7.00
User defined estimation data

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CPT: CPTu 03
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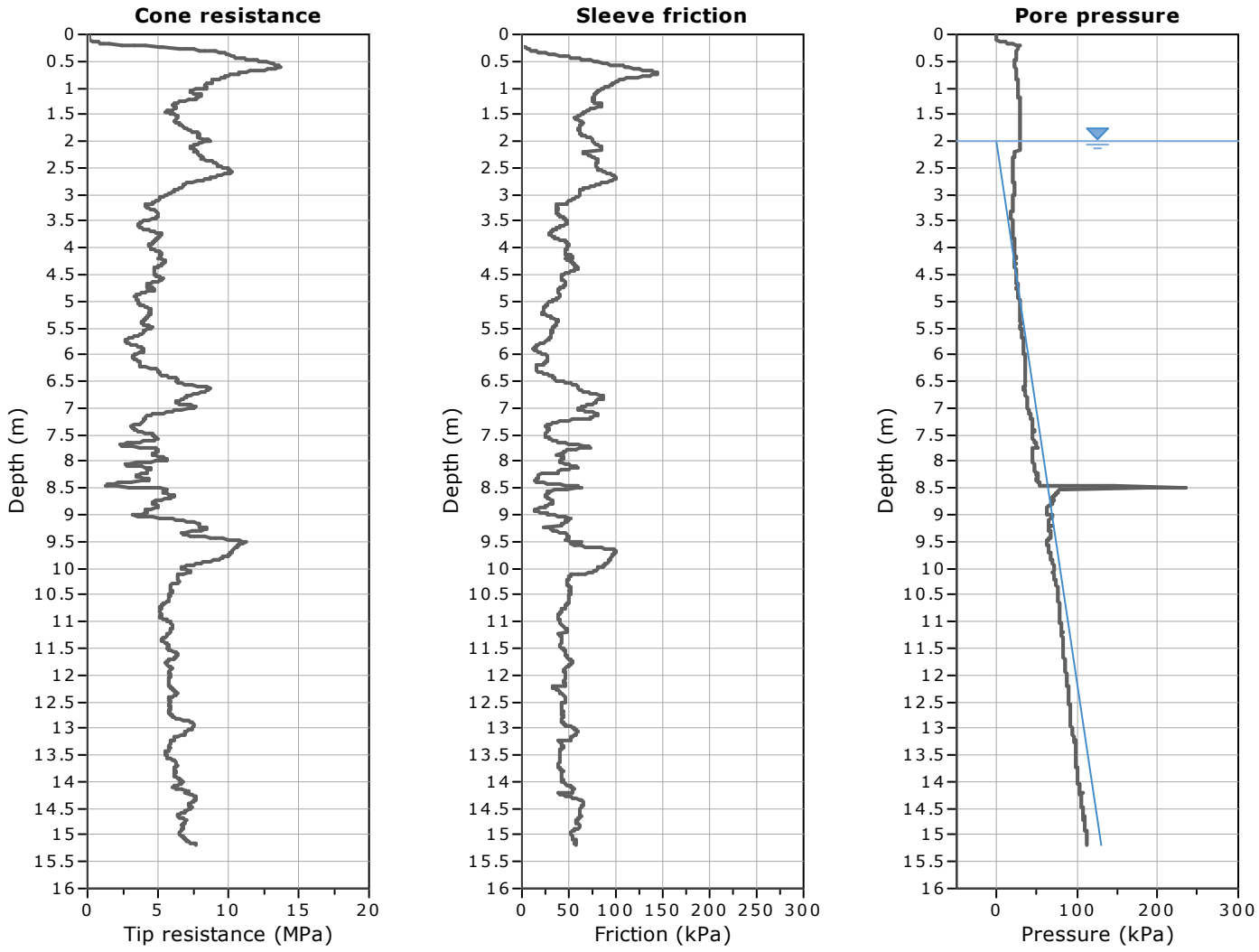
Surface Elevation: 2.00 m
Coords: X:1599743.62, Y:4858190.25
Cone Type: Mej61
Cone Operator: Geol. Jacopo Civita

Project: **Indagini geognostiche a supporto della stesura del piano per l'utilizzo degli arenili**
Location: **Bagno Firenze, Principe di Piemonte, Paizza Mazzini, Bagno Flora**



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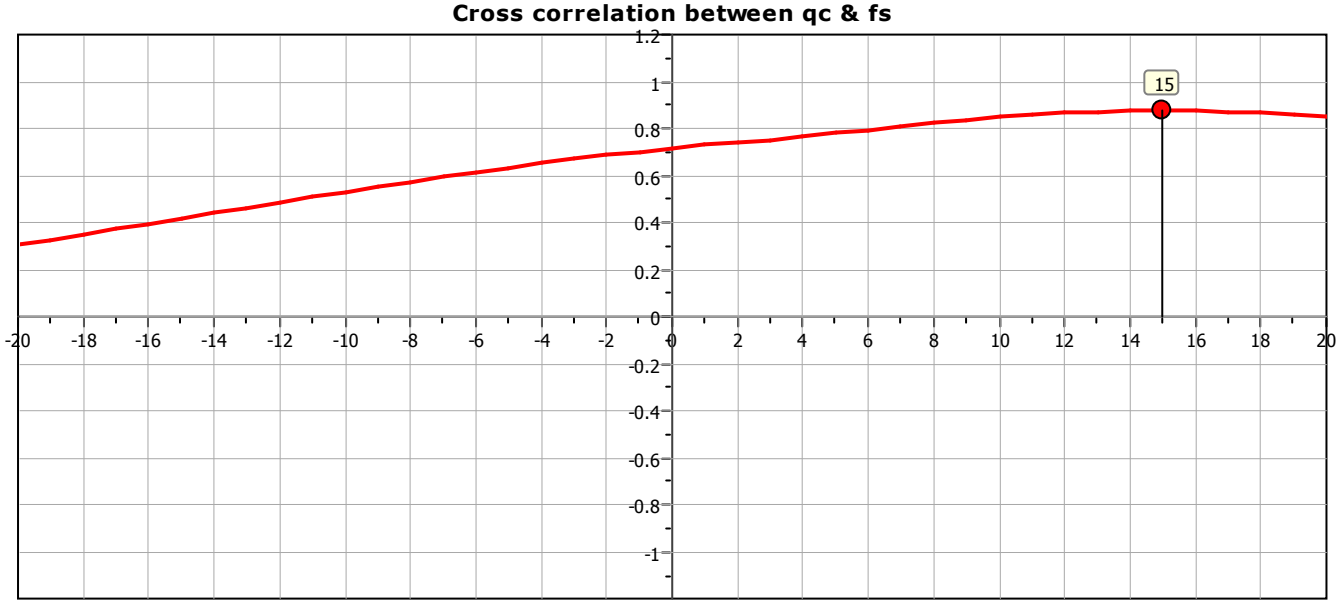

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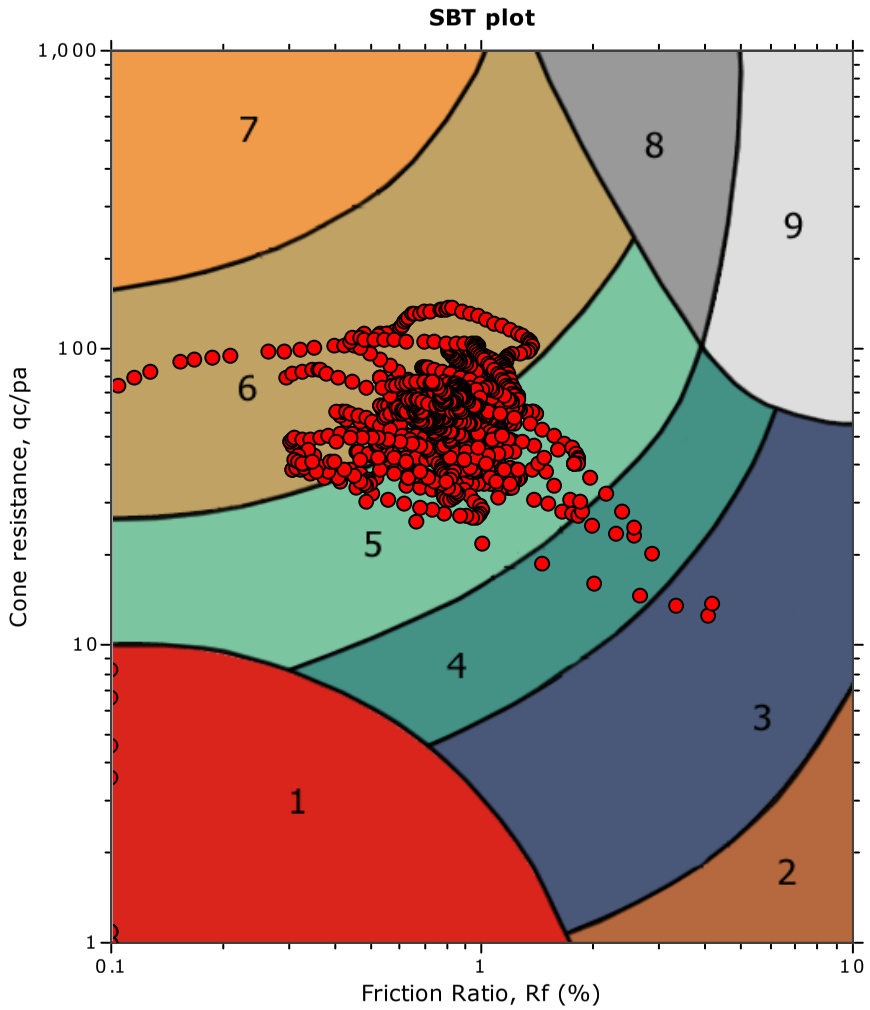
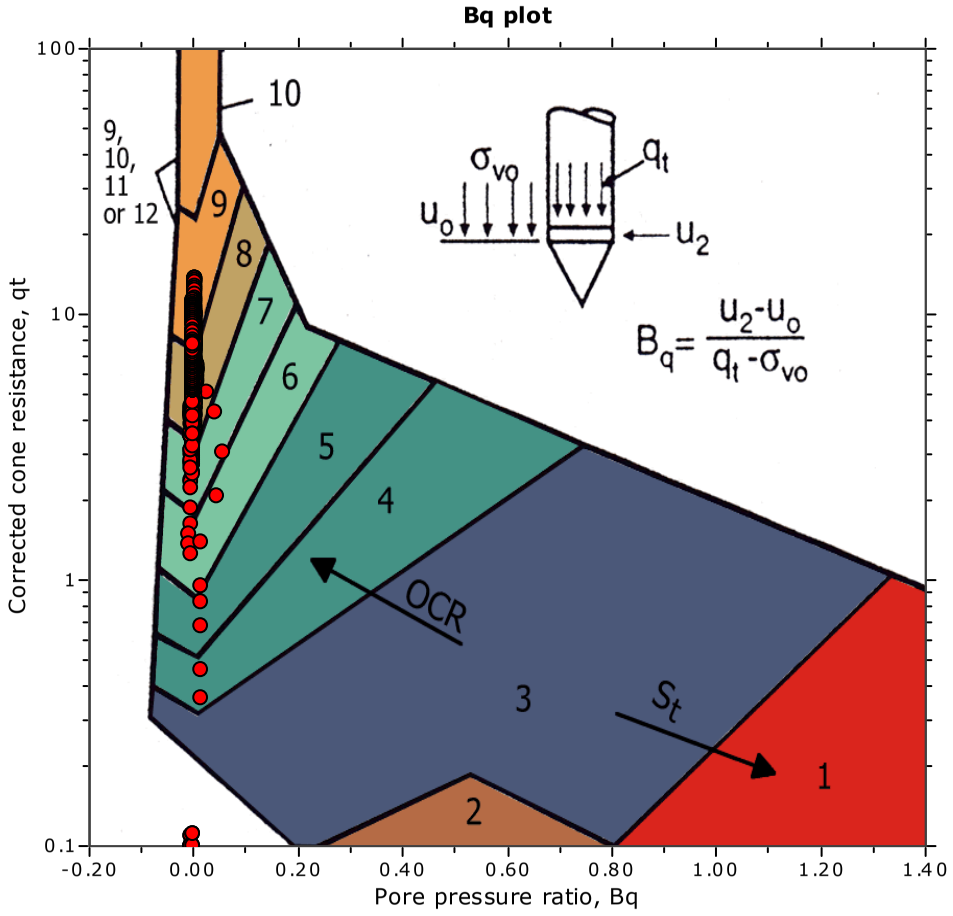
SBT - Bq plots





SBT legend

1. Sensitive fine grained	4. Clayey silt to silty clay	7. Gravely sand to sand
2. Organic material	5. Silty sand to sandy silt	8. Very stiff sand to clayey sand
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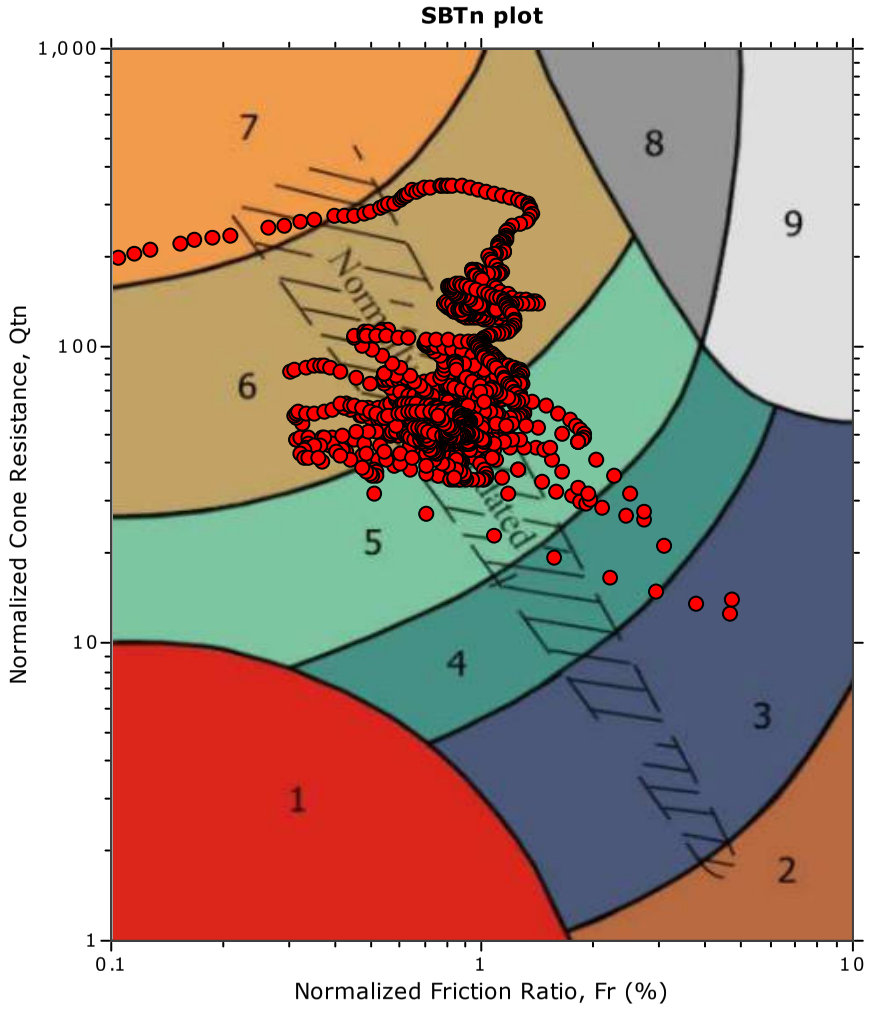
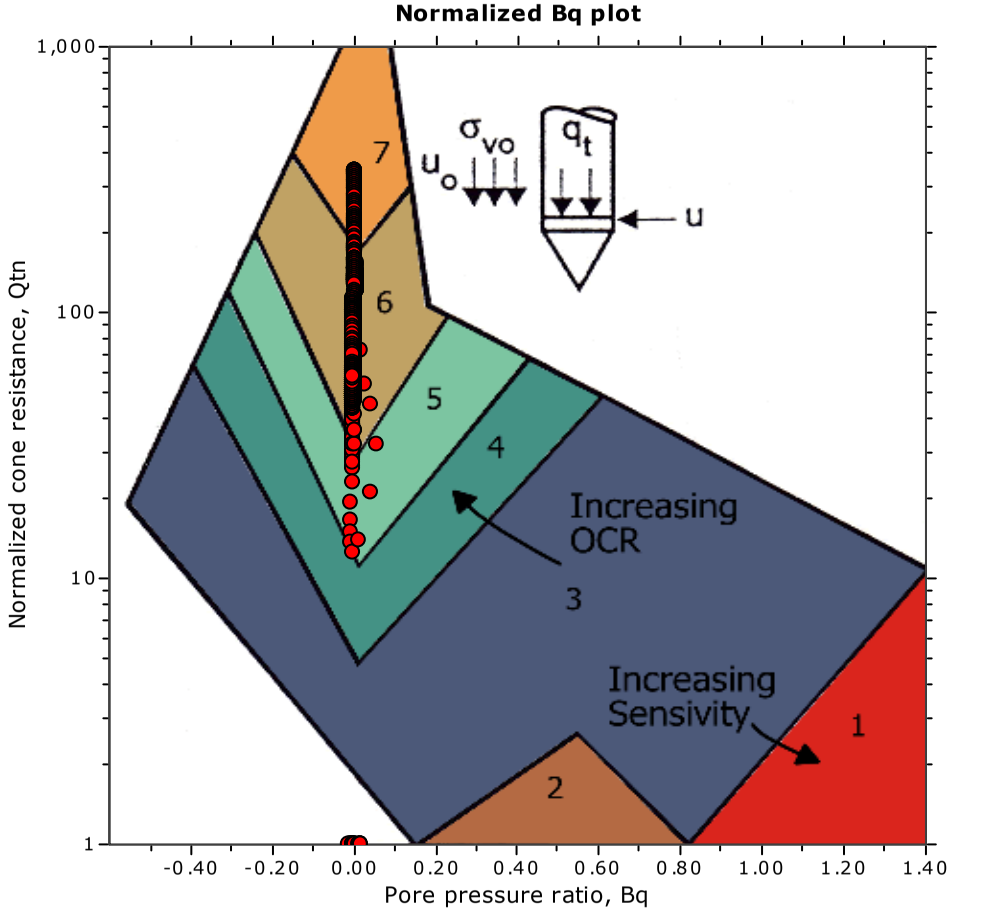
SBT - Bq plots (normalized)





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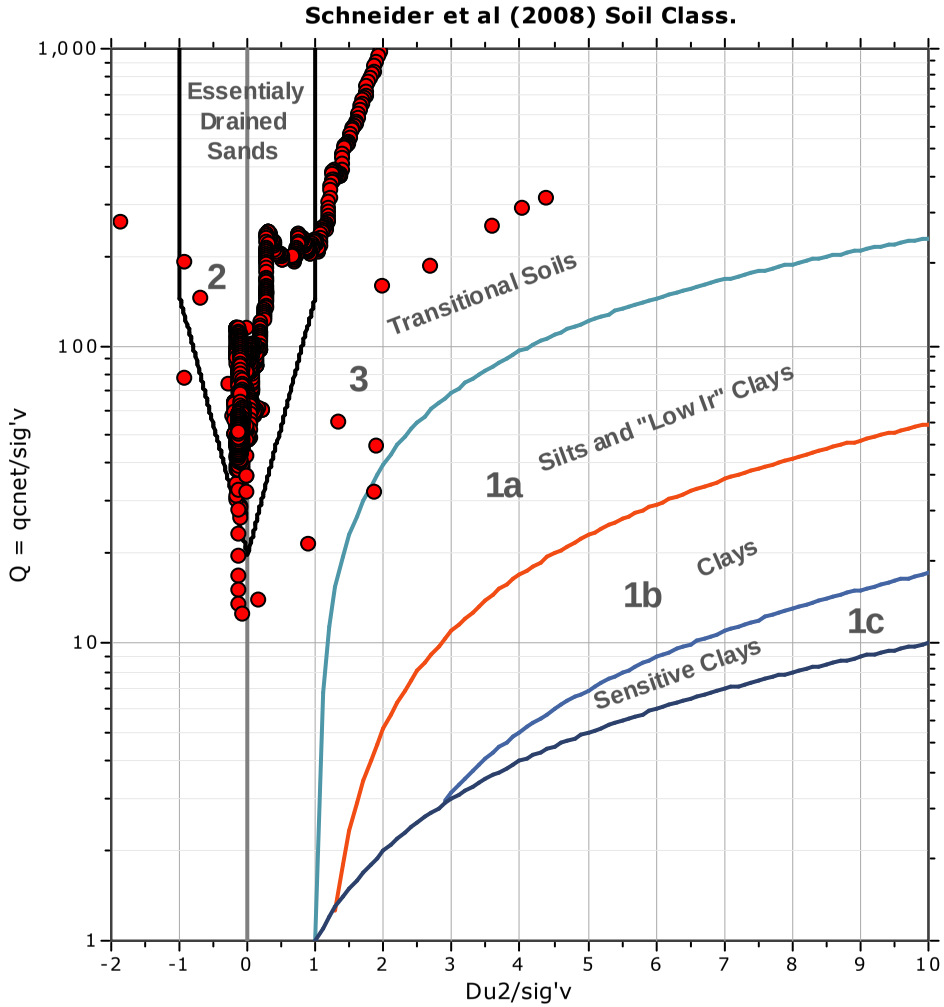
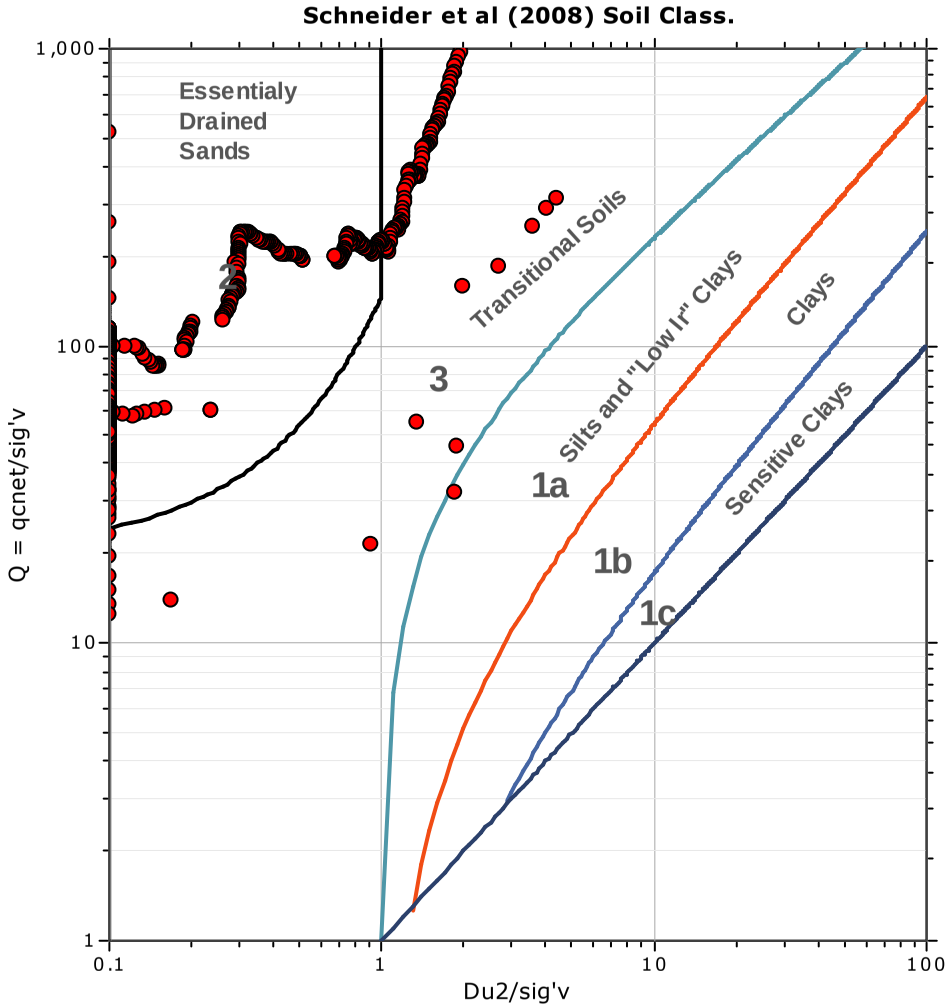
Bq plots (Schneider)





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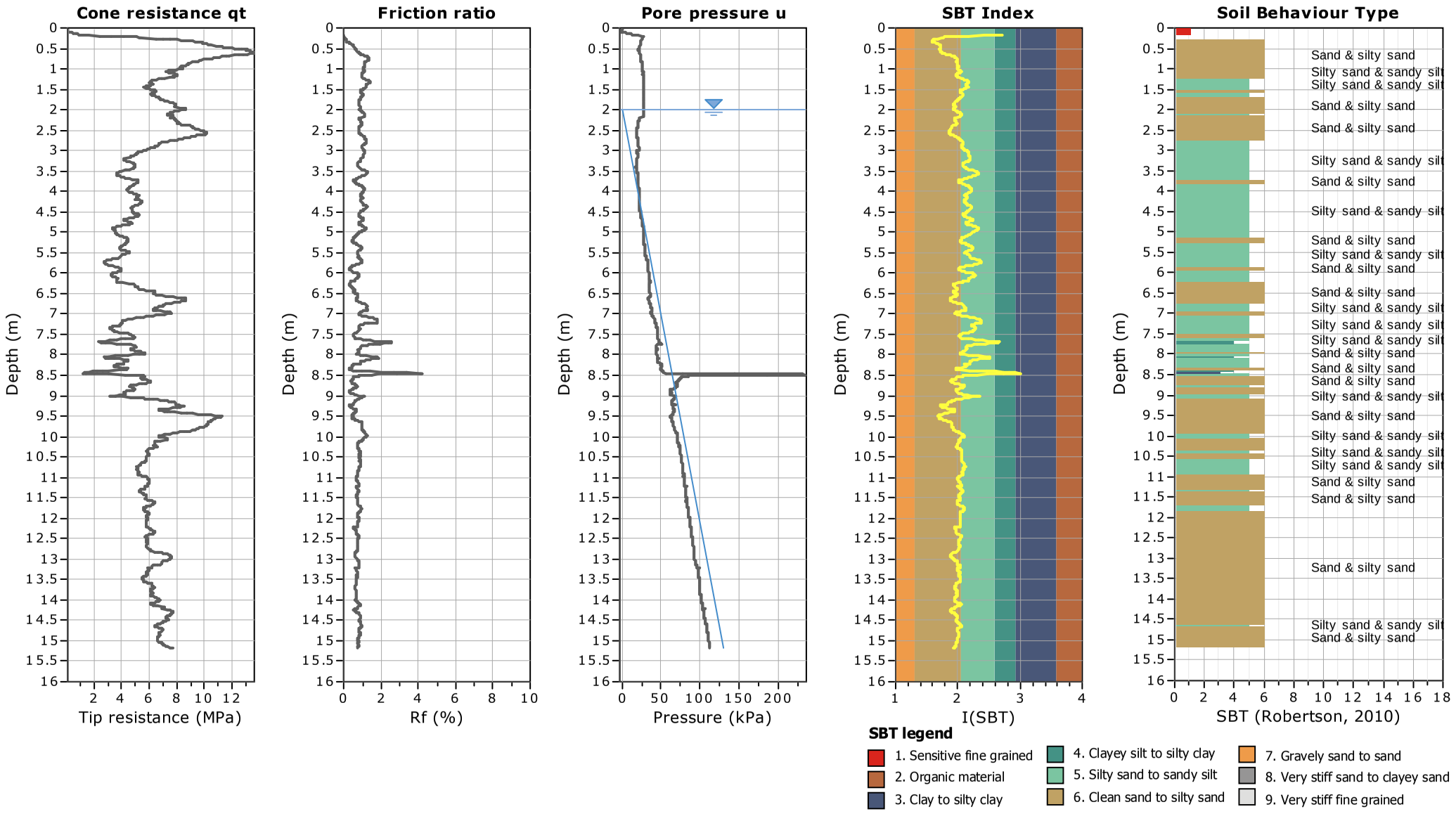

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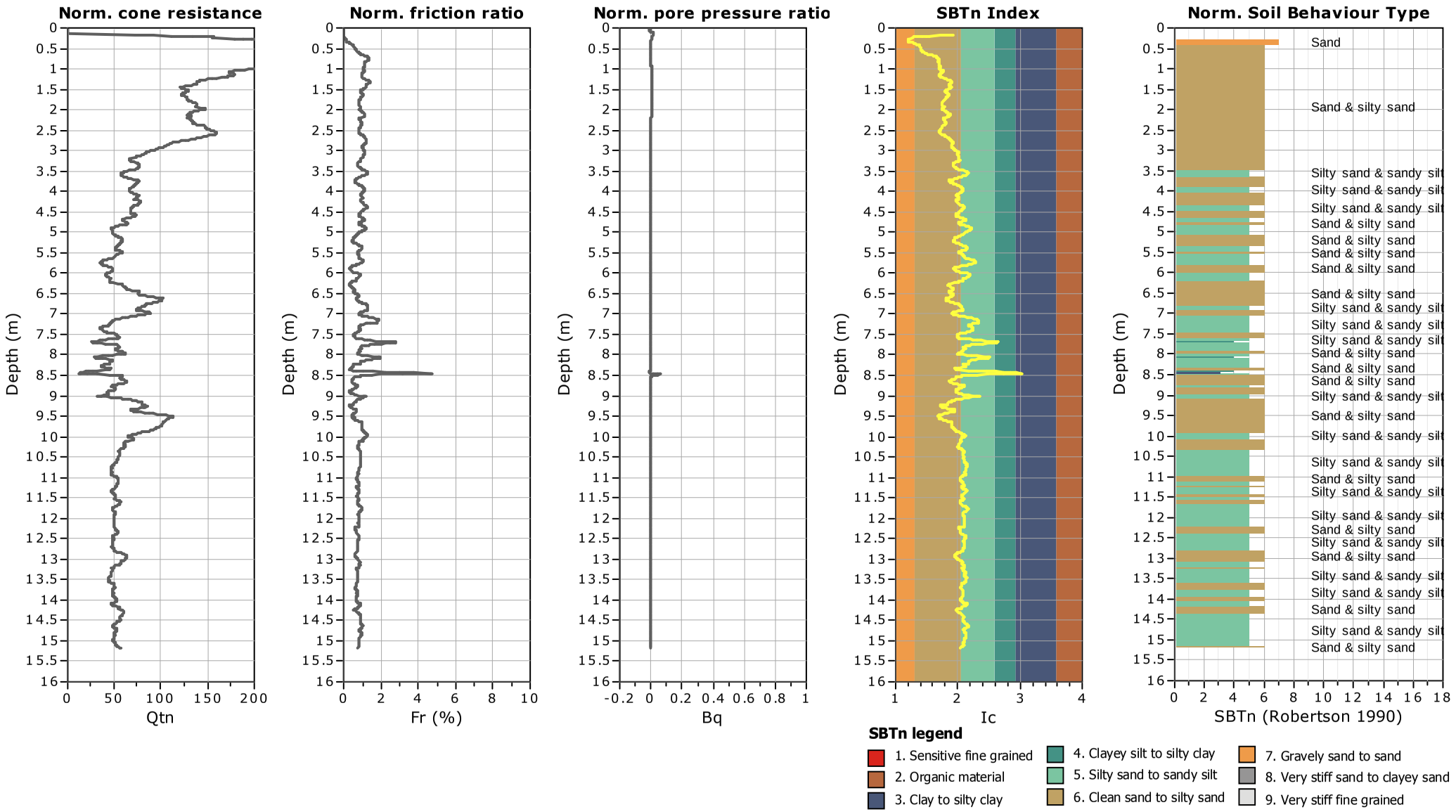

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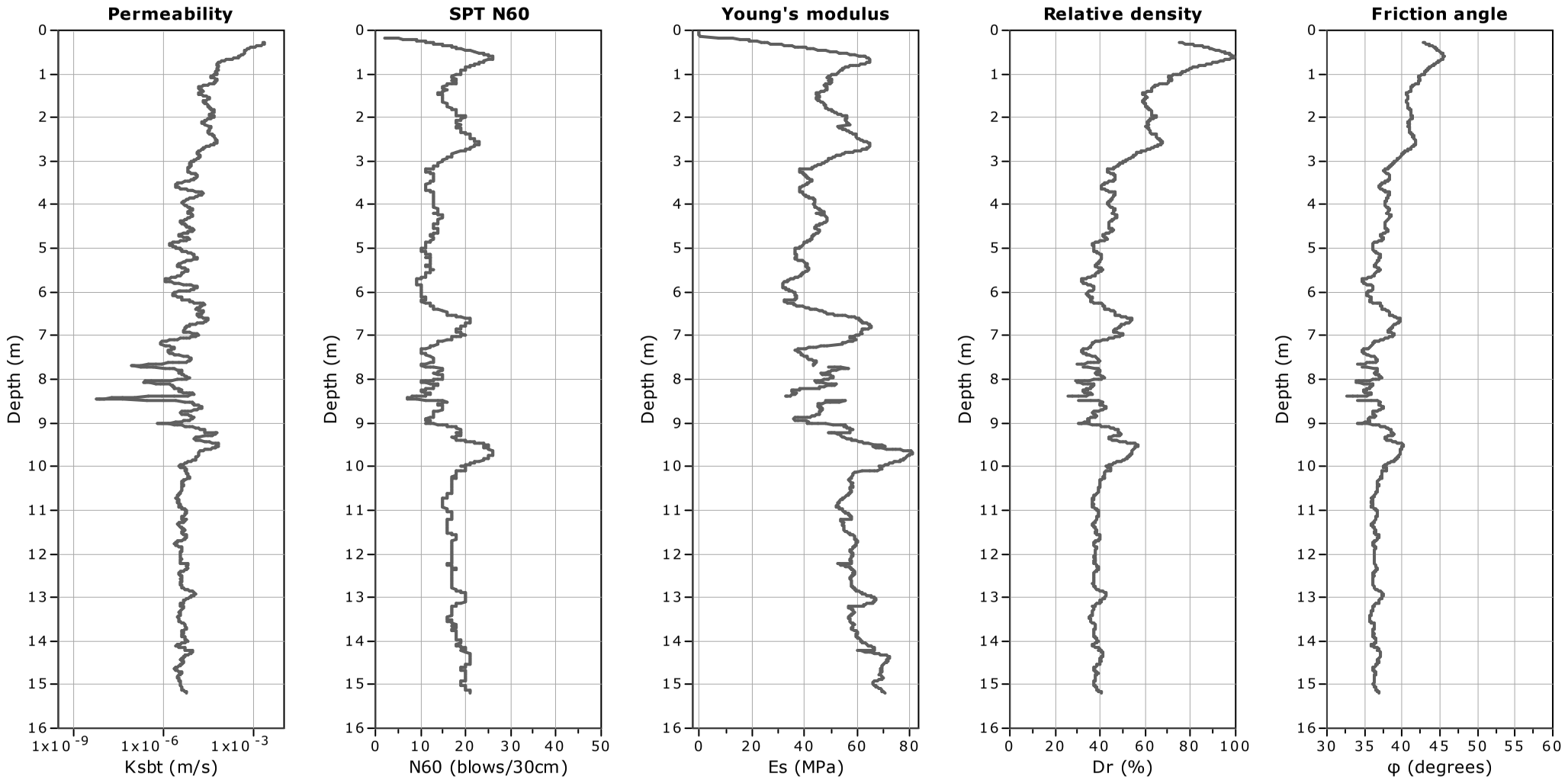

Calculation parameters
Permeability: Based on SBT_n
SPT N_{60}: Based on I_c and q_t
Young's modulus: Based on variable alpha using I_c (Robertson, 2009)
Relative desnisty constant, C_{Dr}: 350.0
Phi: Based on Kulhawy & Mayne (1990)
User defined estimation data

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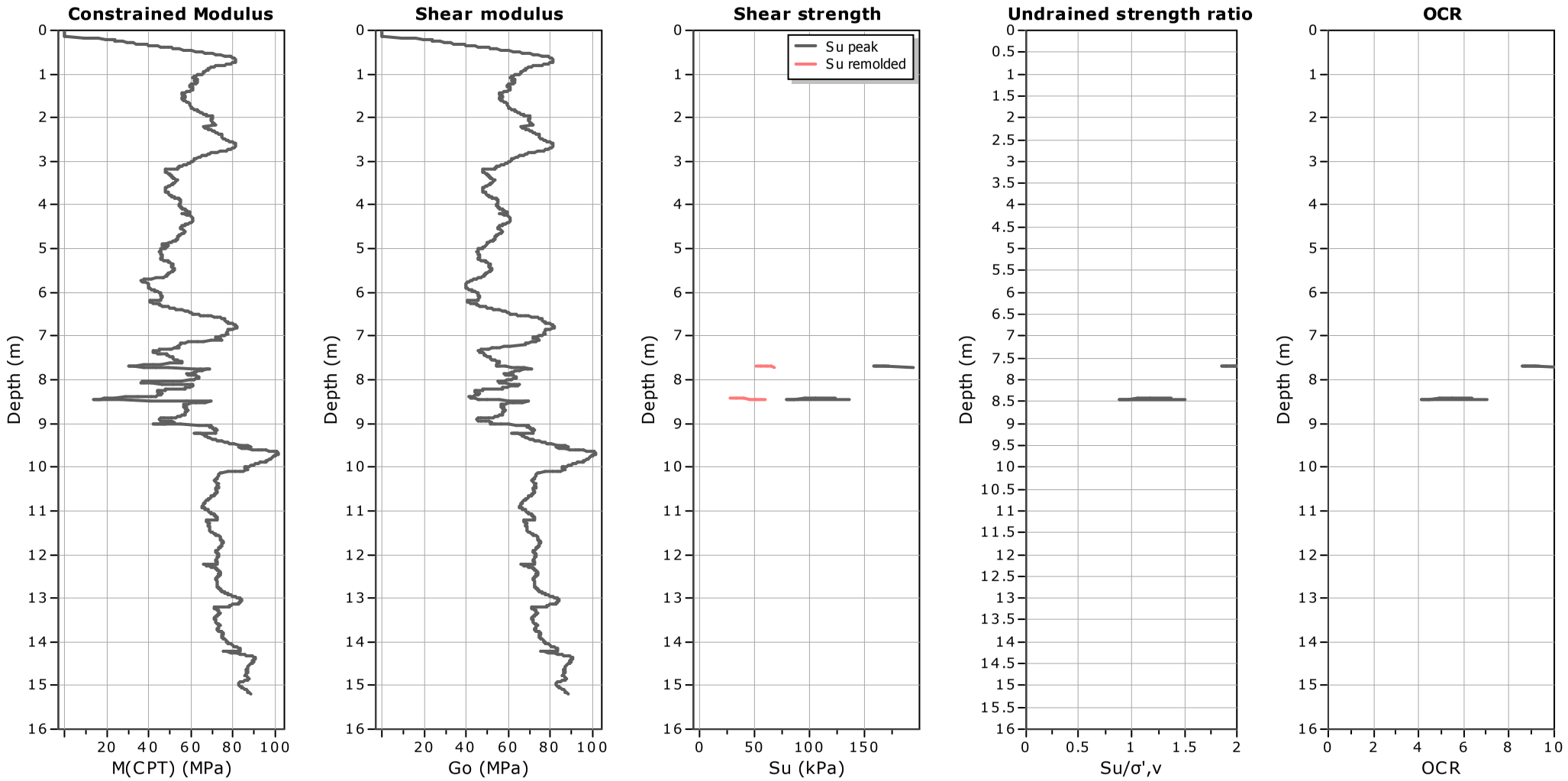

Calculation parameters

Constrained modulus: Based on variable *alpha* using I_c and Q_{tn} (Robertson, 2009)
Go: Based on variable *alpha* using I_c (Robertson, 2009)
Undrained shear strength cone factor for clays, N_{kt}: 14
OCR factor for clays, N_{kt}: 0.33
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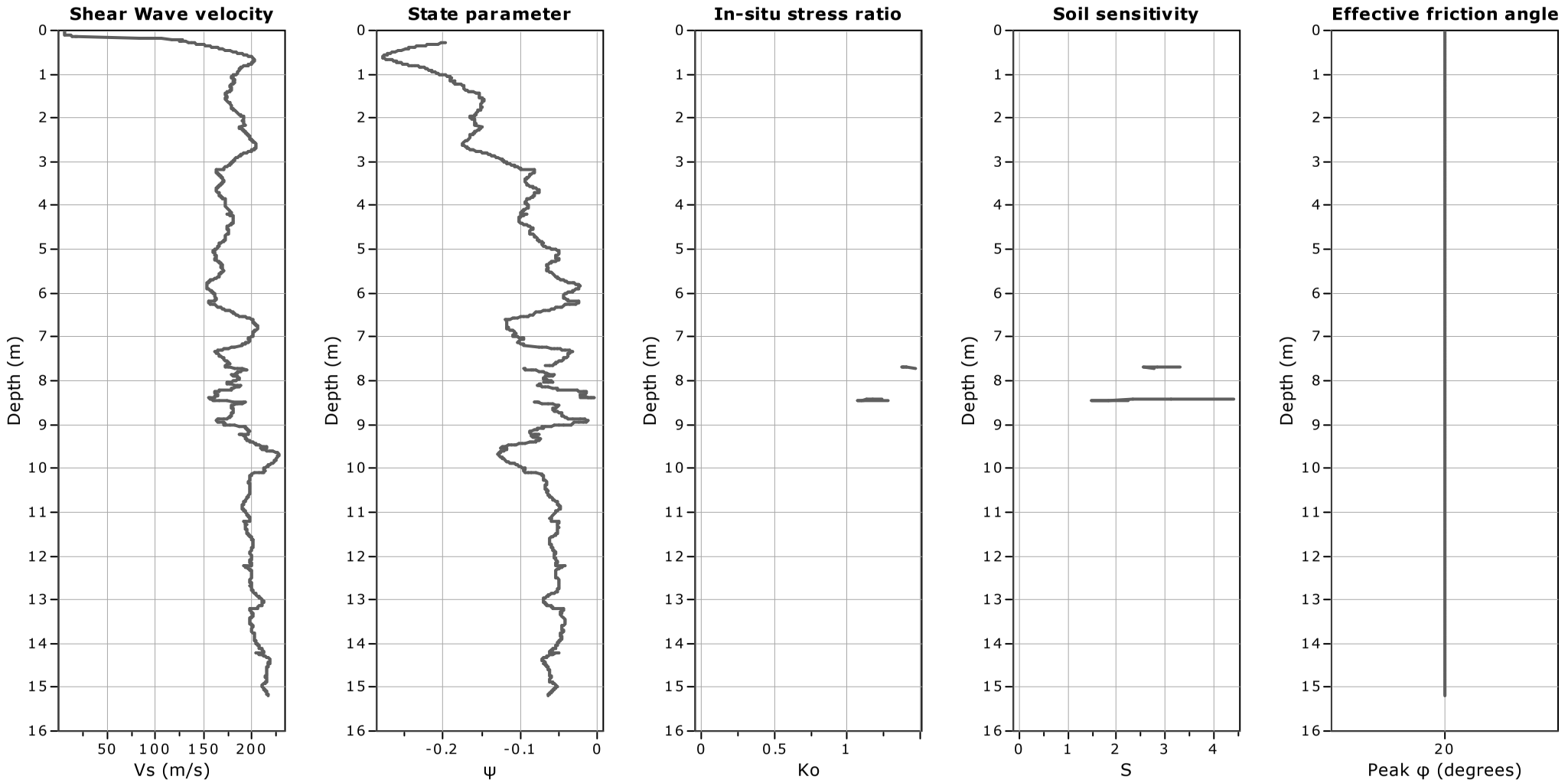

Calculation parameters

Soil Sensitivity factor, N_S: 7.00
User defined estimation data

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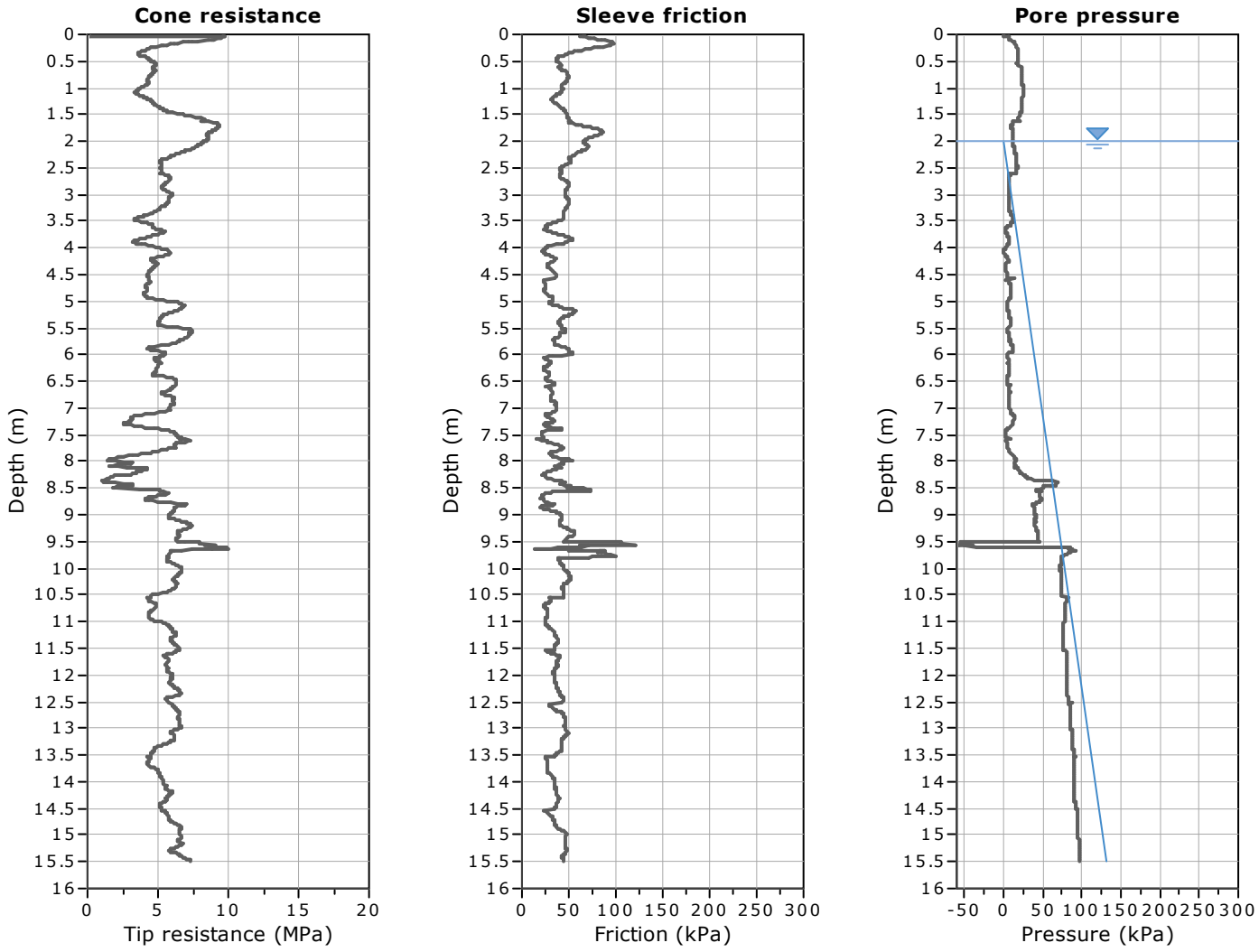
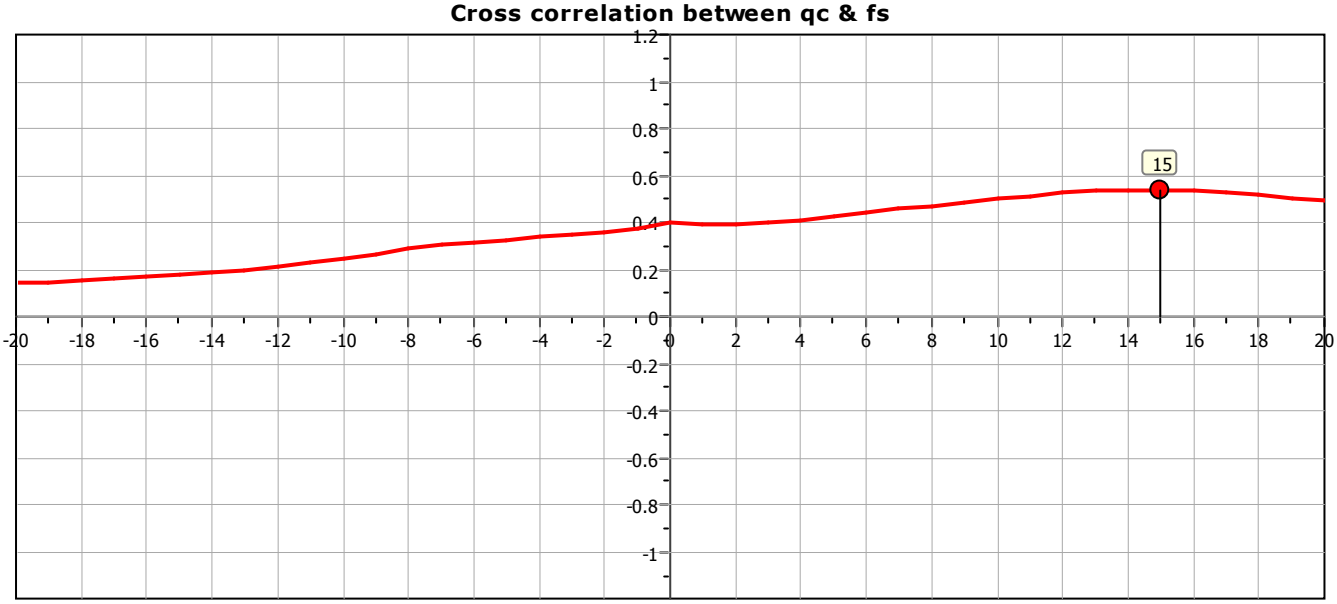
CPT: CPTu 04
Total depth: 15.48 m, Date: 14/07/2021
Surface Elevation: 2.00 m
Coords: X:1599872.42, Y:4857648.69
Cone Type: Mej61
Cone Operator: Geol. Jacopo Civita

Project: **Indagini geognostiche a supporto della stesura del piano per l'utilizzo degli arenili**
Location: **Bagno Firenze, Principe di Piemonte, Paizza Mazzini, Bagno Flora**



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



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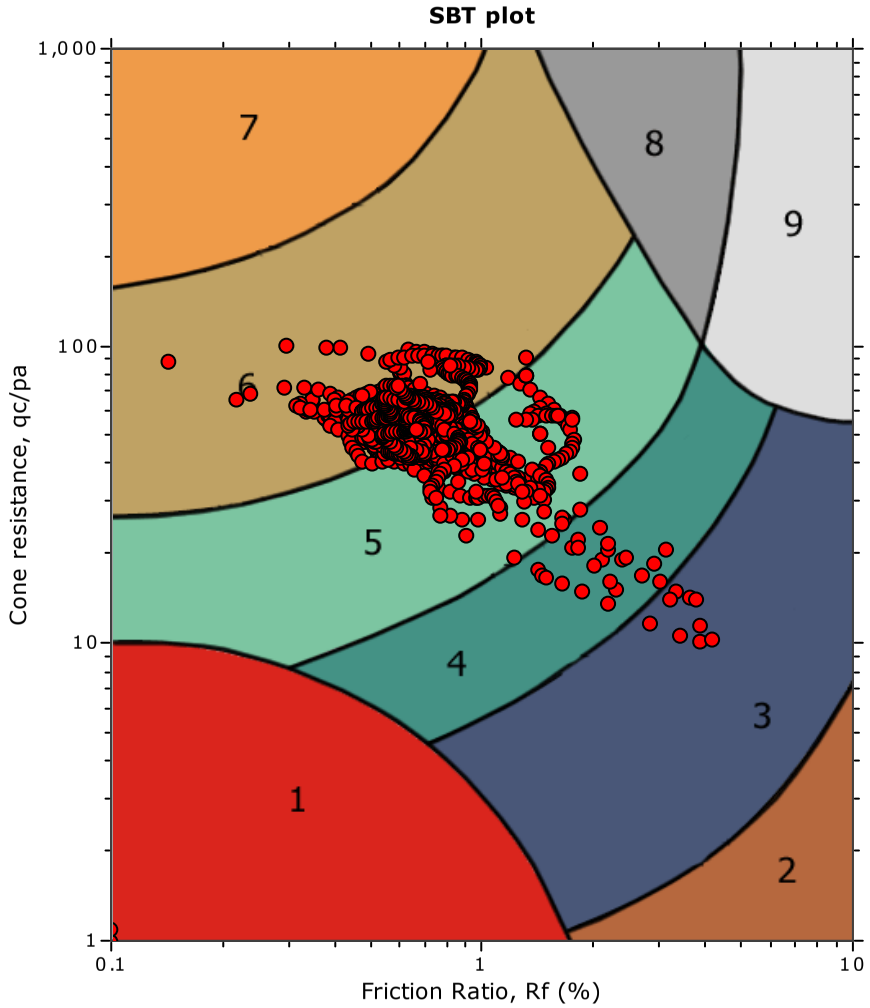
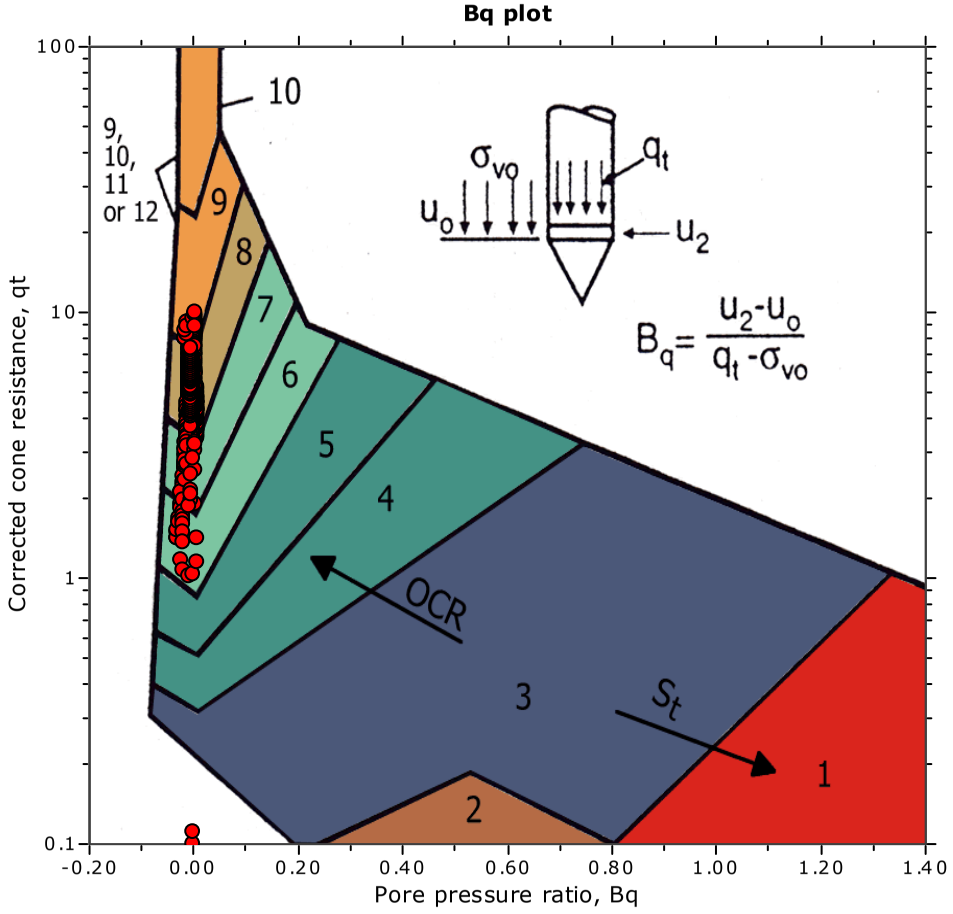
Cone Operator: Geol. Jacopo Civita

SBT - Bq plots





SBT legend

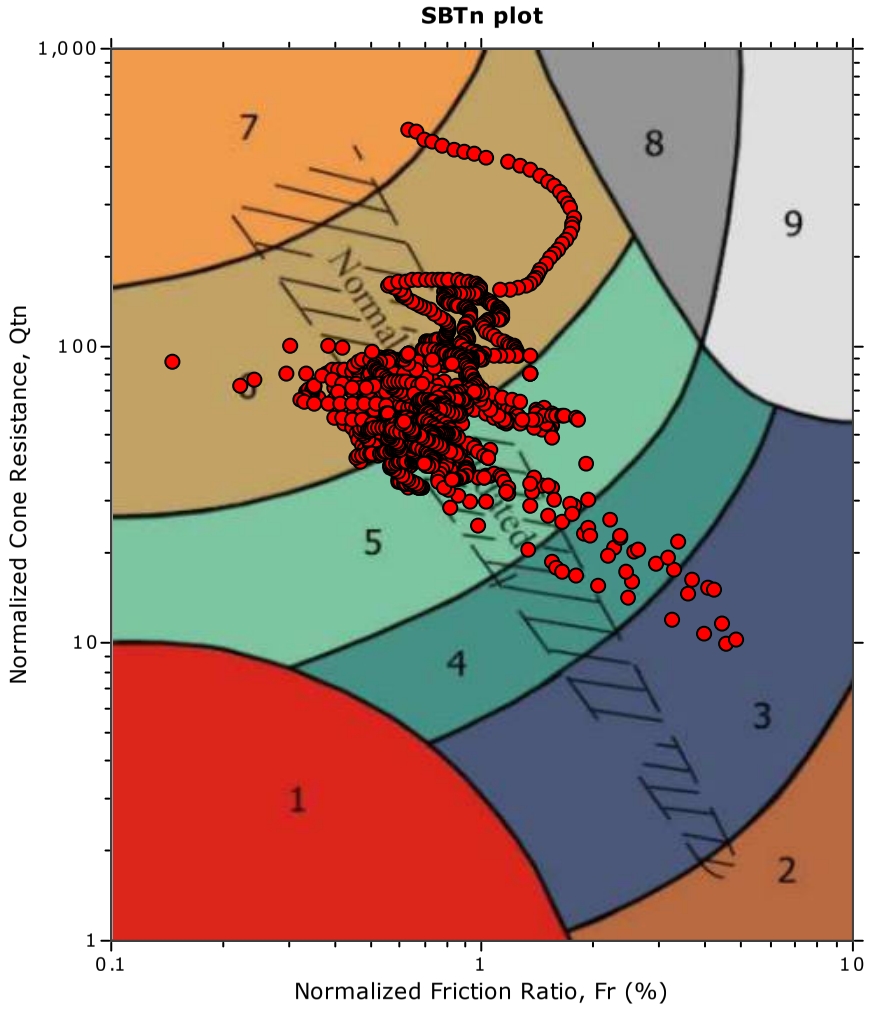
1. Sensitive fine grained	4. Clayey silt to silty clay	7. Gravely sand to sand
2. Organic material	5. Silty sand to sandy silt	8. Very stiff sand to clayey sand
3. Clay to silty clay	6. Clean sand to silty sand	9. Very stiff fine grained

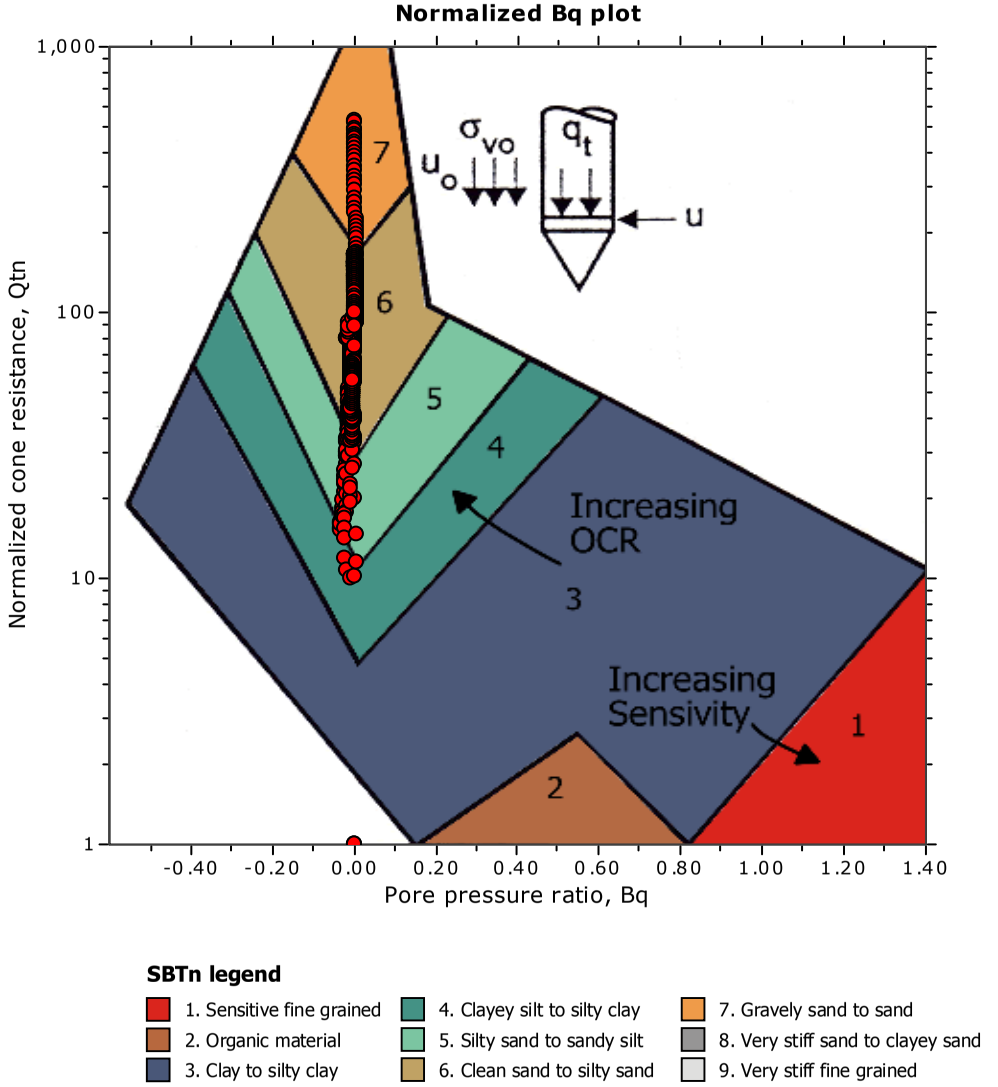
BIERREGI SRL
Via dell'Acquacalda 840/a
55100 Lucca
info@bierregilucca.it

CPT: CPTu 04
Total depth: 15.48 m, Date: 14/07/2021
Surface Elevation: 2.00 m
Coords: X:1599872.42, Y:4857648.69
Cone Type: Mej61
Cone Operator: Geol. Jacopo Civita

Project: **Indagini geognostiche a supporto della stesura del piano per l'utilizzo degli arenili**
Location: **Bagno Firenze, Principe di Piemonte, Paizza Mazzini, Bagno Flora**

SBT - Bq plots (normalized)





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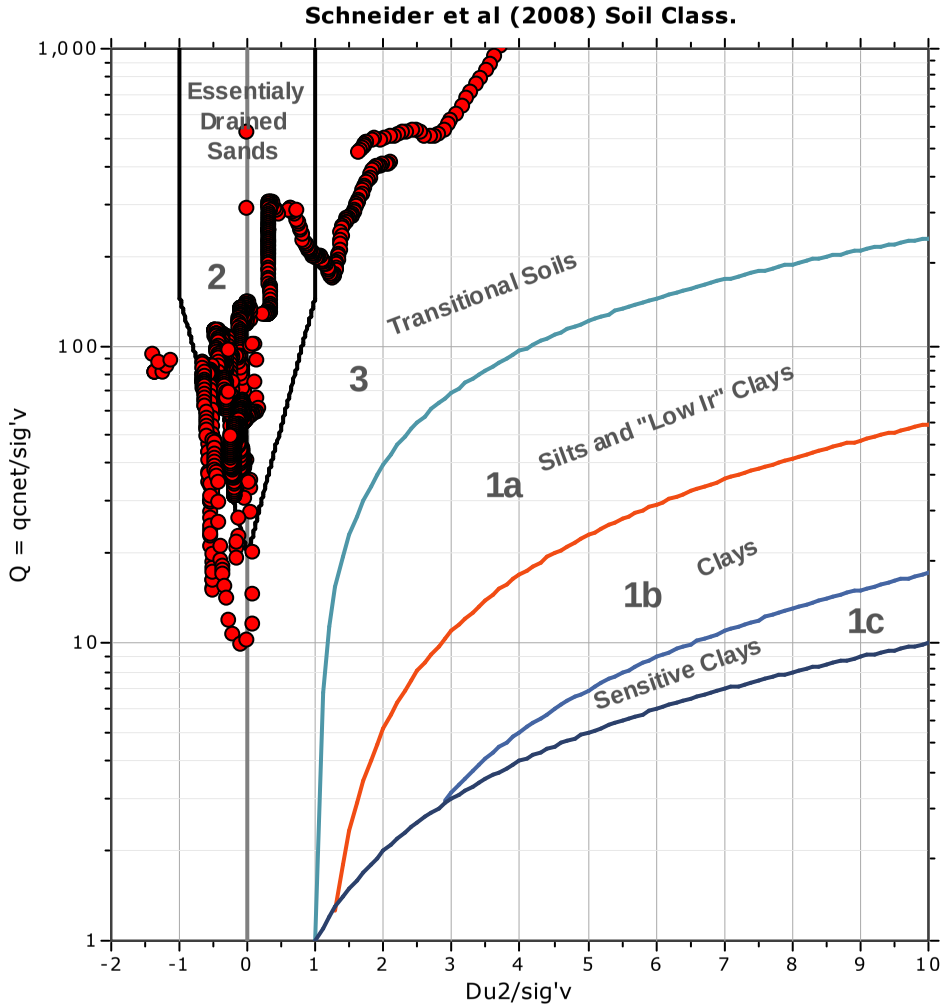
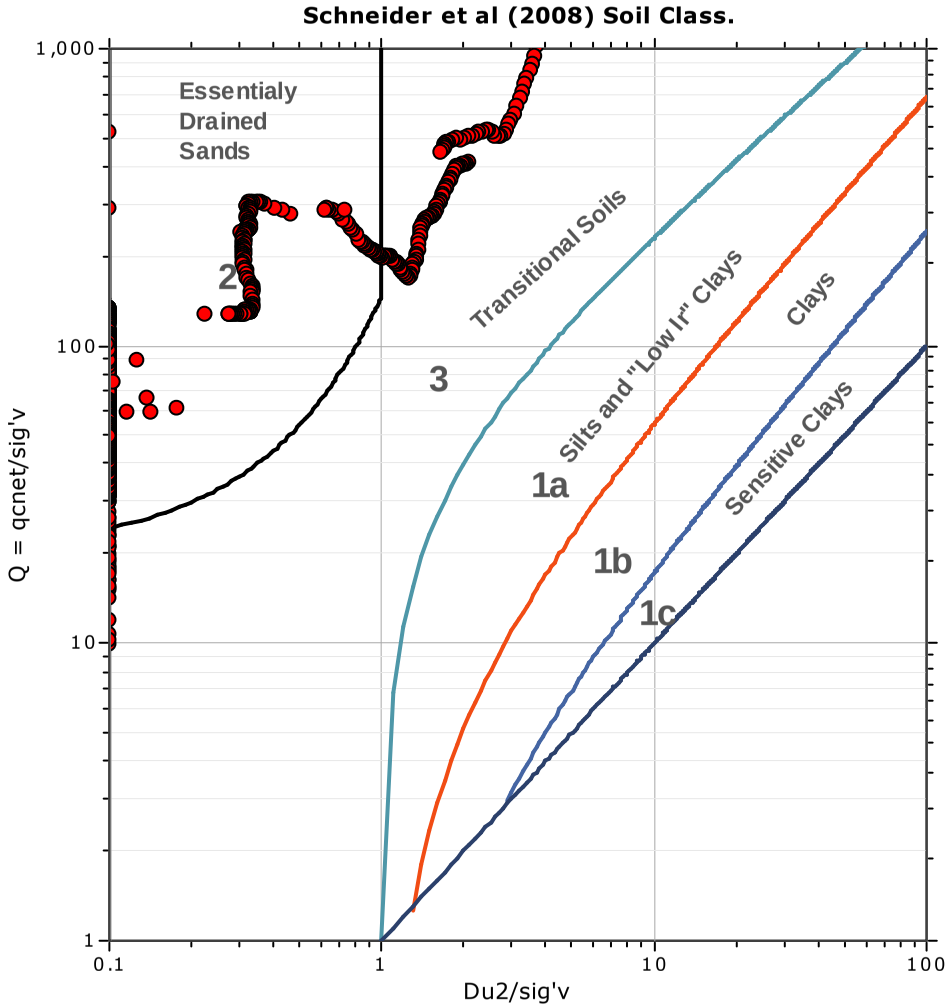
Location: **Bagno Firenze, Principe di Piemonte, Paizza Mazzini, Bagno Flora**

Bq plots (Schneider)





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CPT: CPTu 04
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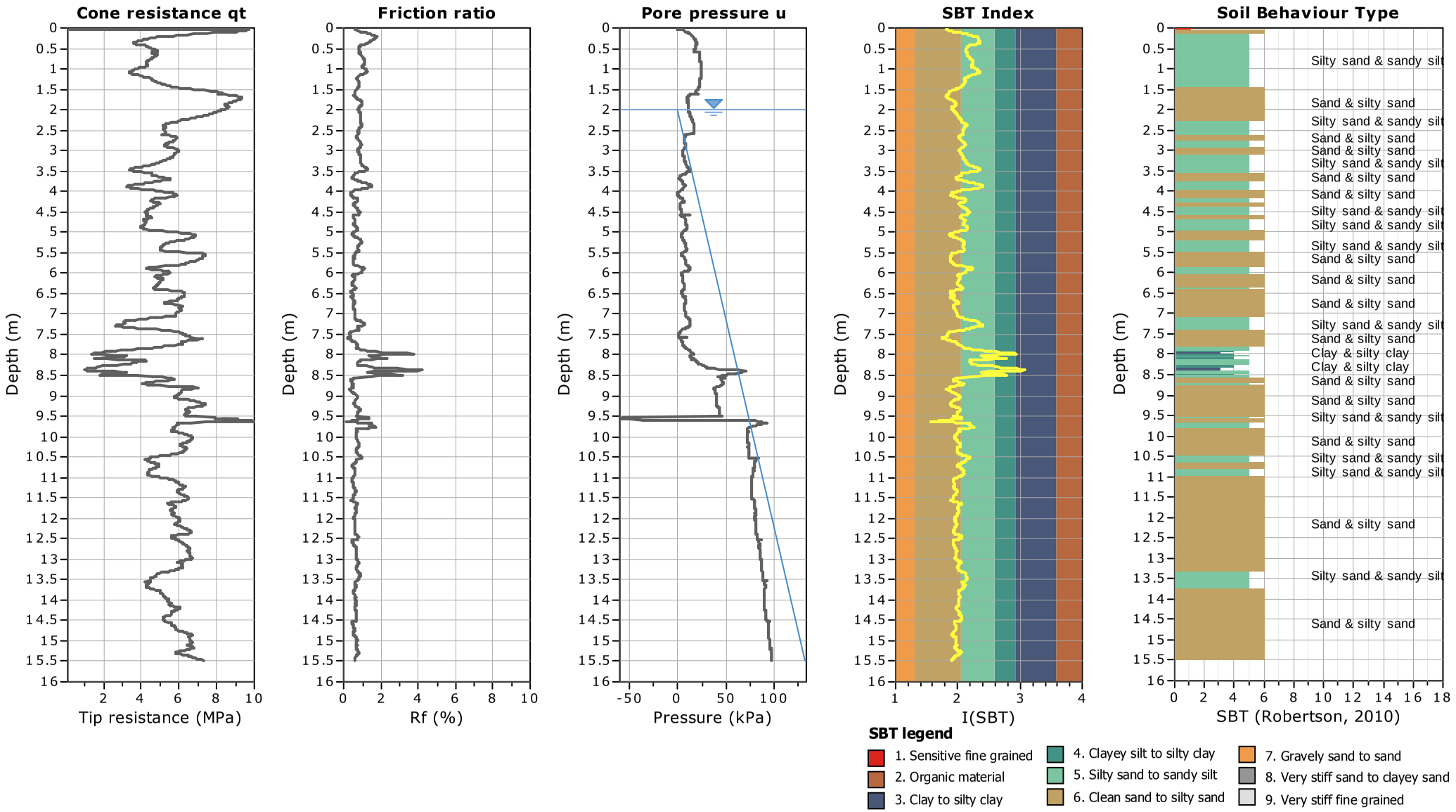
Location: **Bagno Firenze, Principe di Piemonte, Paizza Mazzini, Bagno Flora**



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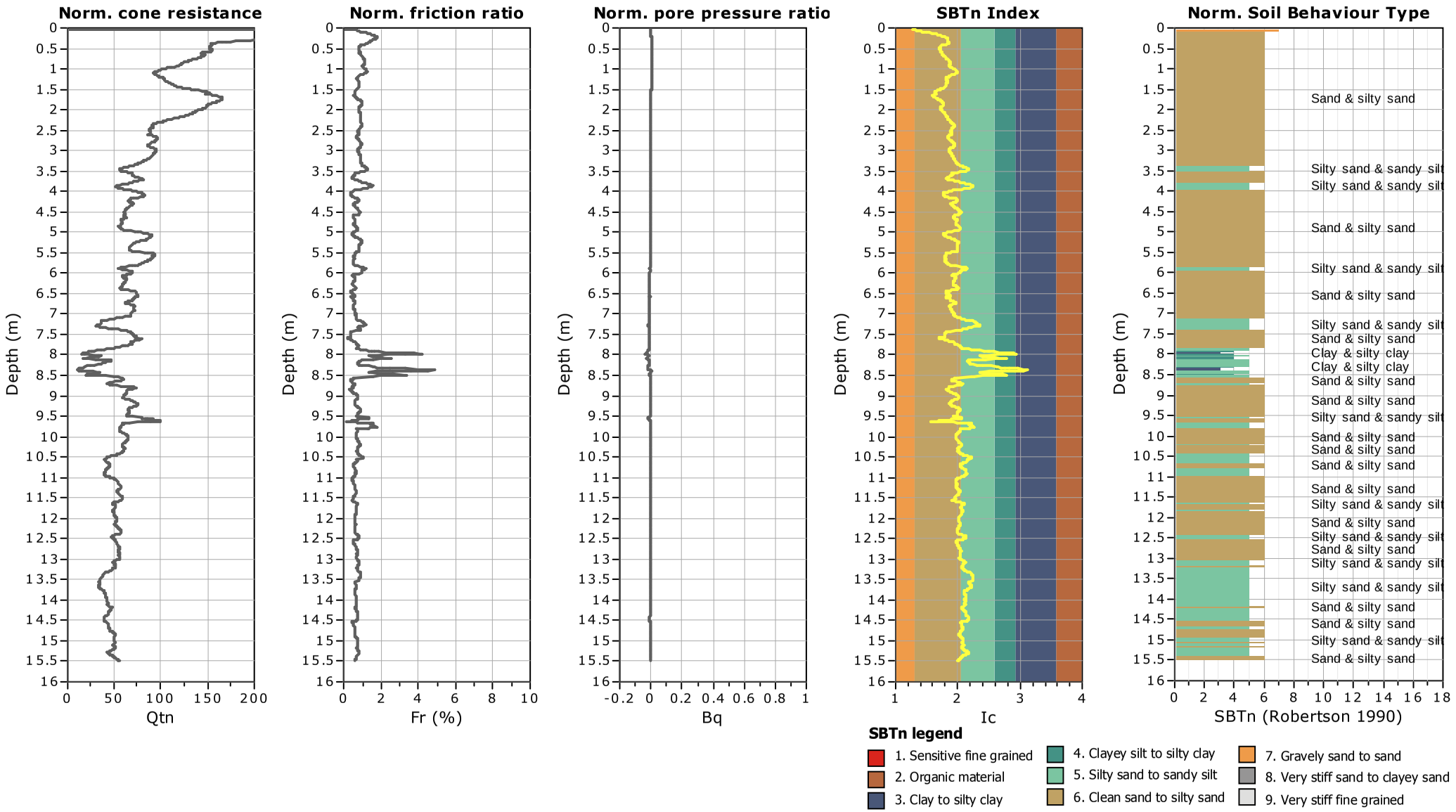

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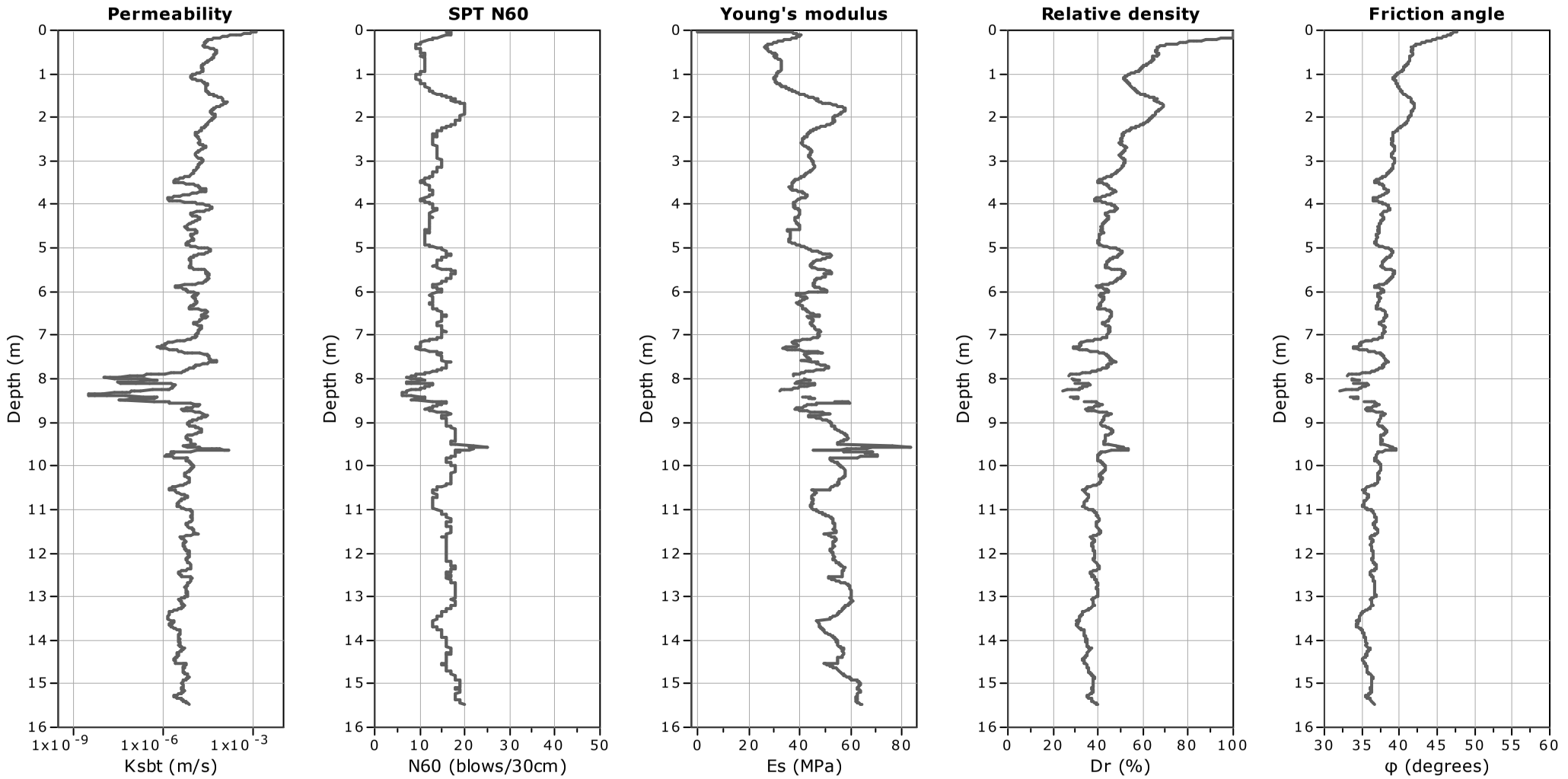

Calculation parameters

Permeability: Based on SBT_n
SPT N_{60}: Based on I_c and q_t
Young's modulus: Based on variable alpha using I_c (Robertson, 2009)
Relative desnisty constant, C_{Dr}: 350.0
Phi: Based on Kulhawy & Mayne (1990)
User defined estimation data

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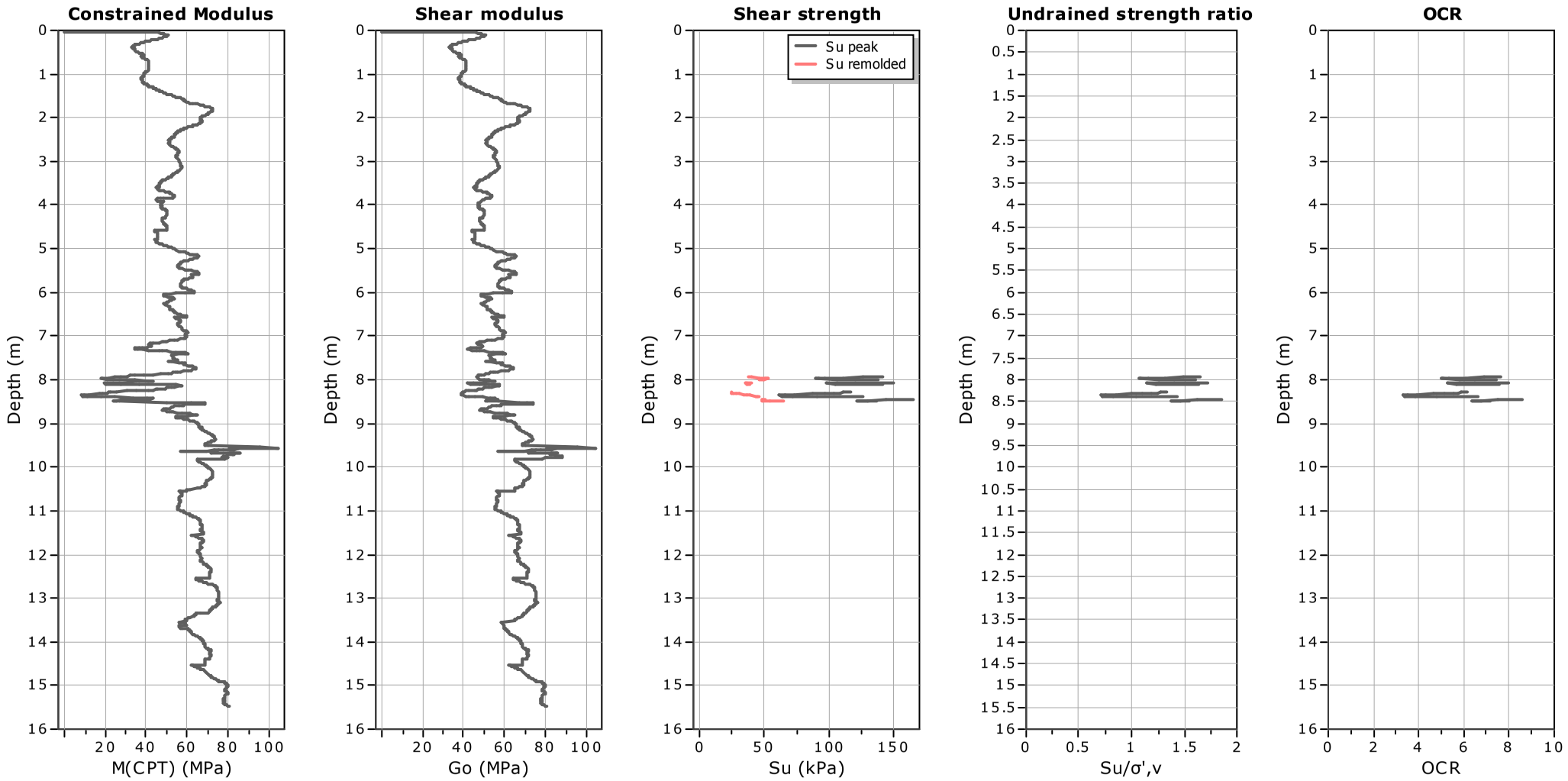

Calculation parameters

Constrained modulus: Based on variable *alpha* using I_c and Q_{tn} (Robertson, 2009)
Go: Based on variable *alpha* using I_c (Robertson, 2009)
Undrained shear strength cone factor for clays, N_{kt}: 14
OCR factor for clays, N_{kt}: 0.33
User defined estimation data

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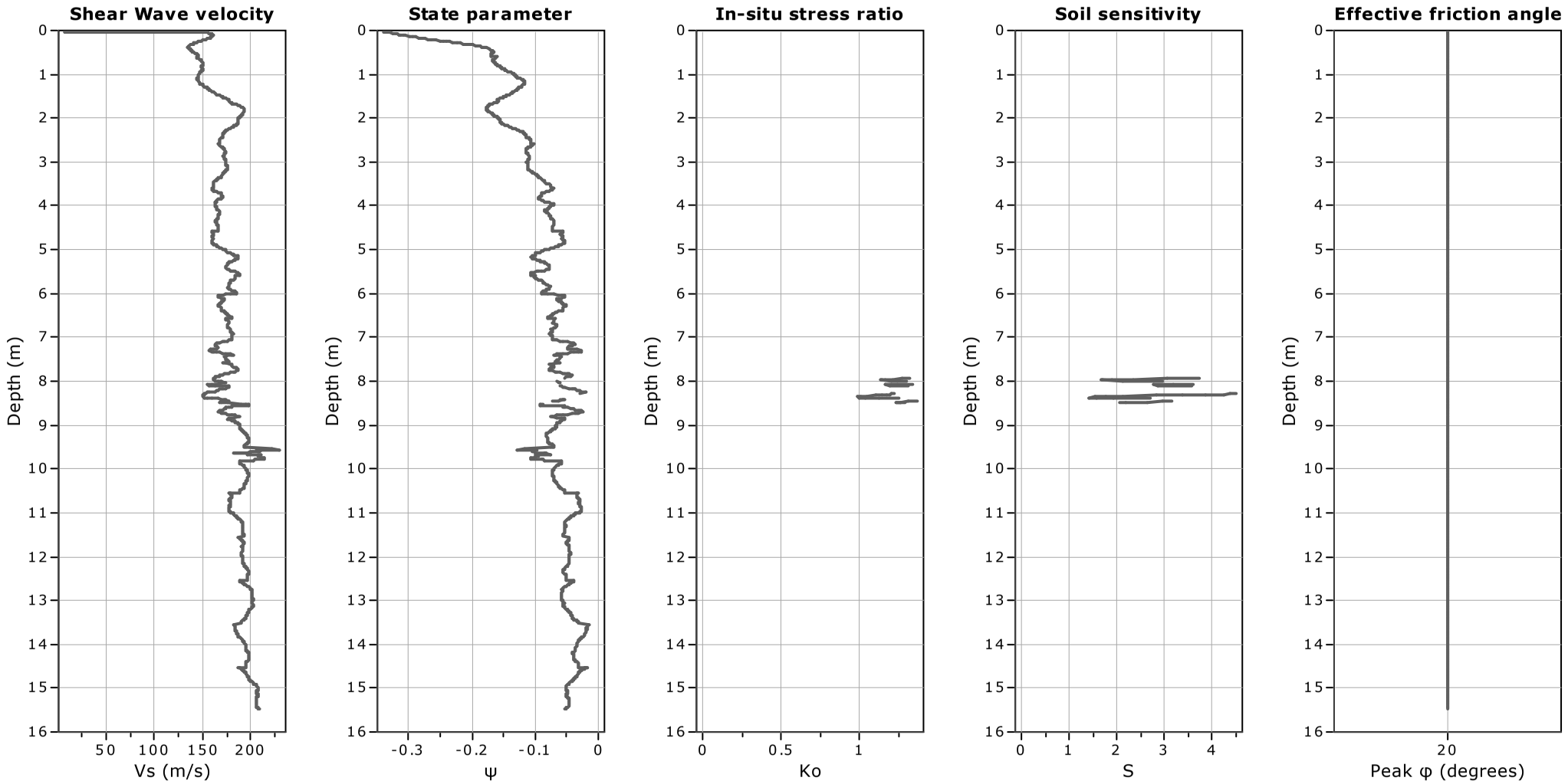

Calculation parameters

Soil Sensitivity factor, N_S: 7.00
User defined estimation data

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

:: Unit Weight, g (kN/m³) ::

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

where g_w = water unit weight

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

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

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

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

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

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

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

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

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

:: Relative Density, Dr (%) ::

$100 \cdot \sqrt{\frac{Q_{tn}}{k_{DR}}}$ (applicable only to SBT_n: 5, 6, 7 and 8 or $I_c < I_{c\_cutoff}$)

:: State Parameter, ψ ::

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

:: Peak drained friction angle, φ (°) ::

$\varphi = 17.60 + 11 \cdot \log(Q_{tn})$

(applicable only to SBT_n: 5, 6, 7 and 8)

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

If $I_c > 2.20$

$\alpha = 14$ for $Q_{tn} > 14$

$\alpha = Q_{tn}$ for $Q_{tn} \leq 14$

$M_{CPT} = \alpha \cdot (q_t - \sigma_v)$

If $I_c \leq 2.20$

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

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

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

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

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

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

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

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

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

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

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

:: Overconsolidation Ratio, OCR ::

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

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

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

:: In situ Stress Ratio, Ko ::

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

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

:: Soil Sensitivity, S_t ::

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

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

:: Effective Stress Friction Angle, φ' (°) ::

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

(applicable for $0.10 < B_q < 1.00$)

References

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

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

Allegato D

Certificati di taratura del Piezocono

PAGANI®
GEOTECHNICAL EQUIPMENT

Loc. Campogrande , n° 26
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ITALY

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Tel: +39 0523 771535 - Fax: +39 0523 773449

CONE CALIBRATION CERTIFICATE
N° Z075/21

Calibrated system *(Sistema tarato)* **:**

Serial number	**Mej61**
Sensor	**TIP RESISTANCE**
Max. Capacity [MPa]:	**50**
Scaling Factor:	**204820**
Tip net area ratio (a_n):	**0,79**
Sleeve net ratio (b_n):	**0,00**

Addressee *(destinatario)* **:**
BIERREGI s.r.l.
via Di Tiglio N°433
55100 Lucca

Applied load measurement system:
(Sistema di rilevamento del carico applicato)

Load cell:

Manufacturer	AEP transducers
Model	KAL 50 kN
Serial Number	65495

Power press:

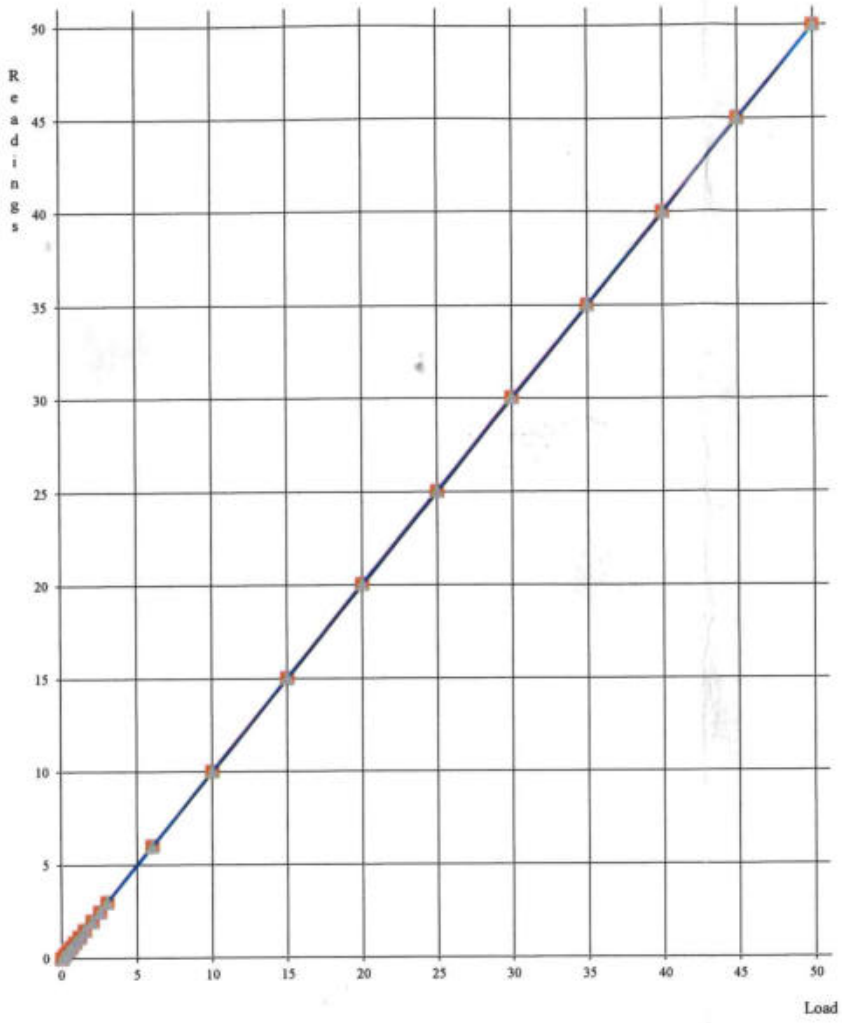
Manufacturer	Easydur Italiana
Model	Aura 10T
Serial Number	29002

The measurement system is periodically checked in a SIT calibration center. *(Il sistema di rilevamento è sottoposto a verifica periodica presso un centro SIT)*

Last verification date:	22/01/2021
Certificate N.	LAT 091 2021-020

Temperature of calibration	22°C
Humidity	45%

Factory calibration in accordance with ASTM D5778-12



	Ascending		Descending	
	Load	Readings	Load	Readings
1	0,00	0,01	0,00	-0,01
2	0,03	0,03	0,03	0,02
3	0,20	0,21	0,20	0,19
4	0,40	0,40	0,40	0,39
5	0,60	0,60	0,60	0,59
6	0,85	0,85	0,85	0,84
7	1,15	1,15	1,15	1,14
8	1,50	1,50	1,50	1,49
9	2,00	2,01	2,00	1,99
10	2,50	2,51	2,50	2,49
11	3,00	3,01	3,00	2,99
12	6,00	6,02	6,00	6,00
13	10,00	10,03	10,00	10,02
14	15,00	15,04	15,00	15,03
15	20,00	20,06	20,00	20,04
16	25,00	25,06	25,00	25,05
17	30,00	30,06	30,00	30,04
18	35,00	35,05	35,00	35,04
19	40,00	40,04	40,00	40,03
20	45,00	45,02	45,00	45,02
21	50,00	50,00	50,00	50,00

Unit: Mpa

Zero-load error:	=	0,030	% FSO
Zero-load thermal stability:	<=	1,000	% FSO
Nonlinearity:	=	0,114	% FSO
Hysteresis:	=	0,040	% FSO
Calibration error:	=	0,000	% MO
Apparent load:	=	0,010	% FSO

The adopted calibration procedure has been developed according to the suggestions given by Prof. Paul W. Mayne (Georgia Institute of technology) and Prof. Diego Lo Presti (University of Pisa)

Cone calibrated by _____

Date of issue 30/03/2021

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CONE CALIBRATION CERTIFICATE
N° Z075/21

Calibrated system *(Sistema tarato)* **:**

Serial number	**Mej61**
Sensor	**SLEEVE FRICTION**
Max. Capacity [kPa]:	**500**
Scaling Factor:	**21948**

Addressee *(destinatario)* **:**
BIERREGI s.r.l.
via Di Tiglio N°433
55100 Lucca

Applied load measurement system:
(Sistema di rilevamento del carico applicato)

Load cell:

Manufacturer	AEP transducers
Model	KAL 50 kN
Serial Number	65495

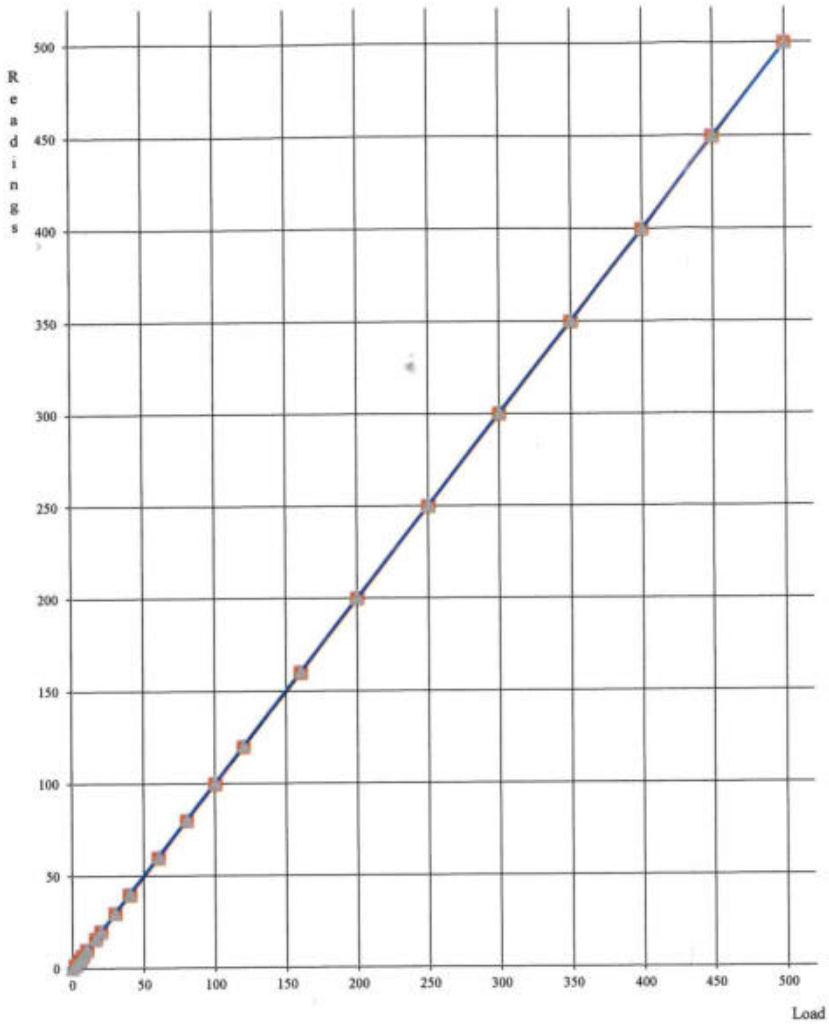
Power press:

Manufacturer	Easydur Italiana
Model	Aura 10T
Serial Number	29002

The measurement system is periodically checked in a SIT calibration center. *(Il sistema di rilevamento è sottoposto a verifica periodica presso un centro SIT)*

Last verification date:	22/01/2021
Certificate N.	LAT 091 2021-020
Temperature of calibration	22°C
Humidity	45%

Factory calibration in accordance with ASTM D5778-12



	Ascending		Descending	
	Load	Readings	Load	Readings
1	0,00	-0,07	0,00	0,07
2	2,00	1,87	2,00	2,07
3	5,00	4,87	5,00	5,07
4	7,00	6,87	7,00	7,13
5	10,00	9,93	10,00	10,27
6	16,00	15,93	16,00	16,20
7	20,00	19,93	20,00	20,20
8	30,00	29,93	30,00	30,27
9	40,00	39,87	40,00	40,40
10	60,00	59,93	60,00	60,53
11	80,00	80,00	80,00	80,53
12	100,00	100,07	100,00	100,60
13	120,00	120,07	120,00	120,67
14	160,00	160,07	160,00	160,67
15	200,00	200,00	200,00	200,67
16	250,00	250,07	250,00	250,67
17	300,00	300,07	300,00	300,73
18	350,00	350,00	350,00	350,53
19	400,00	400,00	400,00	400,53
20	450,00	450,00	450,00	450,40
21	500,00	500,00	500,00	500,07

Unit: kPa

Zero-load error:	=	0,027	% FSO
Zero-load thermal stability:	<=	1,000	% FSO
Nonlinearity:	=	0,027	% FSO
Hysteresis:	=	0,133	% FSO
Calibration error:	=	0,000	% MO
Apparent load:	=	0,264	% FSO

The adopted calibration procedure has been developed according to the suggestions given by Prof. Paul W. Mayne (Georgia Institute of technology) and Prof. Diego Lo Presti (University of Pisa)

Cone calibrated by _____

Date of issue 30/03/2021

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CONE CALIBRATION CERTIFICATE
N° Z075/21

Calibrated system *(Sistema tarato)* **:**

Serial number	Mej61
Sensor	PORE PRESSURE
Max. Capacity [kPa]:	2500
Scaling Factor:	5715
Sensor	TILT ANGLE
Max. Inclination [°]:	20
Scaling Factor:	433429

Addressee *(destinatario)* **:**
BIERREGI s.r.l.
via Di Tiglio N°433
55100 Lucca

Applied load measurement system:
(Sistema di rilevamento del carico applicato)

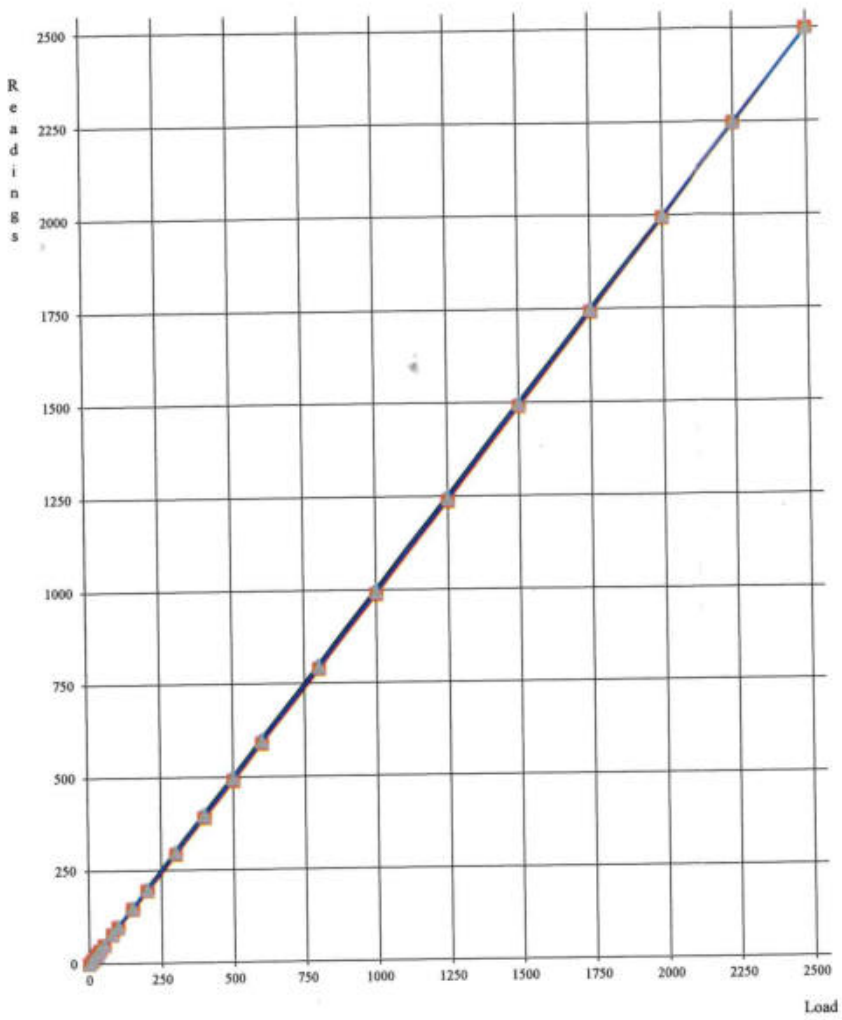
Pressure Generator:

Manufacturer	MENSOR
Model	CPC 4000
Serial Number	41000V56
Sensor Descr	Silicon Pressure Transducer
Sensor Serial Number	41000SYF

The measurement system is periodically checked in a SIT calibration center. *(Il sistema di rilevamento è sottoposto a verifica periodica presso un centro SIT)*

Last verification date:	17/04/2020
Certificate N.	0333-SP-20
Temperature of calibration	22°C
Humidity	45%

Factory calibration in accordance with ASTM D5778-12



	Ascending		Descending	
	Load	Readings	Load	Readings
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4	35,00	34,50	35,00	36,70
5	50,00	49,20	50,00	51,60
6	80,00	78,40	80,00	81,00
7	100,00	97,80	100,00	101,00
8	150,00	146,50	150,00	150,30
9	200,00	195,50	200,00	199,70
10	300,00	293,10	300,00	298,20
11	400,00	391,40	400,00	397,20
12	500,00	490,50	500,00	496,40
13	600,00	589,90	600,00	595,60
14	800,00	788,70	800,00	794,40
15	1000,00	988,30	1000,00	994,60
16	1250,00	1238,90	1250,00	1245,40
17	1500,00	1490,50	1500,00	1497,00
18	1750,00	1742,70	1750,00	1748,40
19	2000,00	1995,30	2000,00	2000,10
20	2250,00	2247,80	2250,00	2250,60
21	2500,00	2500,00	2500,00	2500,20

Unit: kPa

Zero-load error:	=	0,084	% FSO
Nonlinearity:	=	0,468	% FSO

The adopted calibration procedure has been developed according to the suggestions given by Prof. Paul W. Mayne (Georgia Institute of technology) and Prof. Diego Lo Presti (University of Pisa)

Cone calibrated by _____

Date of issue 30/03/2021