

Appendix C: Investigation Logs

Client: Colliers Project Leaders Ltd
Project: Southern Links Stage 1 Residential Area
Site Location: Deanwell, Hamilton
Project No.: HAM2024-0017
Date: 22/04/2025



Position: 444996.1mE; 694922.2mN	Projection: Mt Eden 2000	Pit Dimensions: 4.0m by 1.0m
Elevation: 40.00m	Datum: NZVD 2016	Survey Source: Hand-held GPS

22-04-2025

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 5 - August 2024.

PHOTOGRAPH SHEET - TP25-01

Client:
Project: Southern Links
Location: Hamilton
Project ID: HAM2024-0017
Date: 22/04/2025



TP25-01:



TP25-01:

This borehole report must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination.

Client: Colliers Project Leaders Ltd
Project: Southern Links Stage 1 Residential Area
Site Location: Deanwell, Hamilton
Project No.: HAM2024-0017
Date: 22/04/2025



Position: 445162.4mE; 694941.1mN	Projection: Mt Eden 2000	Pit Dimensions: 4.0m by 1.0m
Elevation: 40.60m	Datum: NZVD 2016	Survey Source: Hand-held GPS

22-04-2025

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 5 - August 2024.

PHOTOGRAPH SHEET - TP25-02

Client:
Project: Southern Links
Location: Hamilton
Project ID: HAM2024-0017
Date: 22/04/2025



TP25-02:



TP25-02:

This borehole report must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination.

Client: Colliers Project Leaders Ltd
Project: Southern Links Stage 1 Residential Area
Site Location: Deanwell, Hamilton
Project No.: HAM2024-0017
Date: 23/04/2025



Position: 445393.1mE; 694982.1mN	Projection: Mt Eden 2000	Pit Dimensions: 4.0m by 1.0m
Elevation: 39.60m	Datum: NZVD 2016	Survey Source: Hand-held GPS

23-04-2025

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 5 - August 2024.

PHOTOGRAPH SHEET - TP25-03

Client:
Project: Southern Links
Location: Hamilton
Project ID: HAM2024-0017
Date: 23/04/2025



TP25-03:



TP25-03:

This borehole report must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination.

Client: Colliers Project Leaders Ltd
Project: Southern Links Stage 1 Residential Area
Site Location: Deanwell, Hamilton
Project No.: HAM2024-0017
Date: 22/04/2025



Position: 445420.7mE; 694852.2mN	Projection: Mt Eden 2000	Pit Dimensions: 4.0m by 1.0m
Elevation: 41.60m	Datum: NZVD 2016	Survey Source: Hand-held GPS

22-04-2025

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 5 - August 2024.

PHOTOGRAPH SHEET - TP25-04

Client:
Project: Southern Links
Location: Hamilton
Project ID: HAM2024-0017
Date: 22/04/2025



TP25-04:



TP25-04:

This borehole report must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination.

TEST PIT LOG - TP25-05

Client: Colliers Project Leaders Ltd
Project: Southern Links Stage 1 Residential Area
Site Location: Deanwell, Hamilton
Project No.: HAM2024-0017
Date: 23/04/2025
Test Pit Location: Refer to Site Plan



CMW Geosciences

Great People | Practical Solutions

Logged by: DB Checked by: MM Scale: 1:35 Sheet 1 of 1

Position: 445606.0mE; 694880.3mN Projection: Mt Eden 2000 Pit Dimensions: 4.0m by 1.0m
Elevation: 42.00m Datum: NZVD 2016 Survey Source: Hand-held GPS

Groundwater	Samples & Insitu Tests		RL (m)	Depth (m)	Graphic Log	Material Description Soil: Soil symbol; soil type; colour; structure; bedding; plasticity; sensitivity; additional comments. (origin/geological unit) Rock: Colour; fabric; rock name; additional comments. (origin/geological unit)	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)				Structure & Other Observations Discontinuities: Depth; Defect Number; Defect Type; Dip; Defect Shape; Roughness; Aperture; Infill; Seepage; Spacing; Block Size; Block Shape; Remarks		
	Depth	Type & Results							5	10	15	20			
23-04-2025	0.4	Peak = 133kPa Residual = 22kPa	42.0			OL: Organic SILT: brown. Low plasticity. (Topsoil)	D	VSt					2		
			41.8			ML: Fine sandy SILT: light brownish grey. Low plasticity. (Hinuera Formation) ... at 0.30m, Becoming orange and grey.							2		
			41.2										3		
	2.1	Peak = 65kPa Residual = 44kPa	1				SW: Fine to coarse SAND: with minor fine to medium gravel. Light grey. Well graded. Gravel; pumiceous. (Hinuera Formation)	M	MD						3
															6
															5
	2.3	Peak = 59kPa Residual = 24kPa	2				OL: Organic SILT: dark brown. Low plasticity. (Hinuera Formation)	M	St						5
							ML: SILT: with minor clay and fine sand. Grey. Low plasticity. (Hinuera Formation)								5
															5
	2.8	Peak = 68kPa Residual = 32kPa	3					M	MD						5
															5
															5
							SP: Fine SAND: with some silt. Grey. Poorly graded. (Hinuera Formation)	M	MD						5
															6
															6
								M	MD						6
															6
															6
								M	MD						5
															6
															7
								M	MD						
								S							
							OL: Organic SILT: black. Low plasticity. (Hinuera Formation)	M	St						
							SP: Silty fine SAND: with minor clay. Grey. Poorly graded. (Hinuera Formation)	S							
						Test pit terminated at 6.30 m									
				7											

PHOTOGRAPH SHEET - TP25-05

Client:
Project: Southern Links
Location: Hamilton
Project ID: HAM2024-0017
Date: 23/04/2025



TP25-05:



TP25-05:

This borehole report must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination.

Client: Colliers Project Leaders Ltd
Project: Southern Links Stage 1 Residential Area
Site Location: Deanwell, Hamilton
Project No.: HAM2024-0017
Date: 23/04/2025



Position: 445572.8mE; 694859.8mN	Projection: Mt Eden 2000	Pit Dimensions: 4.0m by 1.0m
Elevation: 41.60m	Datum: NZVD 2016	Survey Source: Hand-held GPS

23-04-2025

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 5 - August 2024.

PHOTOGRAPH SHEET - TP25-05 B

Client:
Project: Southern Links
Location: Hamilton
Project ID: HAM2024-0017
Date: 23/04/2025



TP25-05 B:



TP25-05 B:

This borehole report must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination.

Client: Colliers Project Leaders Ltd
Project: Southern Links Stage 1 Residential Area
Site Location: Deanwell, Hamilton
Project No.: HAM2024-0017
Date: 23/04/2025



Position: 445089.8mE; 694801.3mN	Projection: Mt Eden 2000	Pit Dimensions: 4.0m by 1.0m
Elevation: 40.00m	Datum: NZVD 2016	Survey Source: Hand-held GPS

23-04-2025

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 5 - August 2024.

PHOTOGRAPH SHEET - TP25-06

Client:
Project: Southern Links
Location: Hamilton
Project ID: HAM2024-0017
Date: 23/04/2025



TP25-06:



TP25-06:

This borehole report must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination.

TEST PIT LOG - TP25-07

Client: Colliers Project Leaders Ltd
Project: Southern Links Stage 1 Residential Area
Site Location: Deanwell, Hamilton
Project No.: HAM2024-0017
Date: 22/04/2025



Test Pit Location: Refer to Site Plan Logged by: DB Checked by: MM Scale: 1:25 Sheet 1 of 1
Position: 445224.1mE; 694820.4mN Projection: Mt Eden 2000 Pit Dimensions: 4.0m by 1.0m
Elevation: 40.00m Datum: NZVD 2016 Survey Source: Hand-held GPS

Groundwater	Samples & Insitu Tests		RL (m)	Depth (m)	Graphic Log	Material Description Soil: Soil symbol; soil type; colour; structure; bedding; plasticity; sensitivity; additional comments. (origin/geological unit) Rock: Colour; fabric; rock name; additional comments. (origin/geological unit)	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)				Structure & Other Observations Discontinuities: Depth; Defect Number; Defect Type; Dip; Defect Shape; Roughness; Aperture; Infill; Seepage; Spacing; Block Size; Block Shape; Remarks
	Depth	Type & Results											
									5	10	15	20	
22-04-2025	2.0	Peak = 59kPa Residual = 27kPa	40.0		OL: Organic SILT: brown. Low plasticity. (Topsoil)	M	L to MD					3	
			39.8		ML: Fine sandy SILT: light brown. Low plasticity. (Uncontrolled Fill)							2	
			39.7		OL: Organic SILT: brown. Low plasticity. (Topsoil)							2	
			39.6		SP: Silty fine SAND: light greyish brown. Poorly graded. (Hinuera Formation)							2	
			39.4		SW: Fine to coarse SAND: with trace silt and fine gravel. Light brownish grey. Well graded. (Hinuera Formation)							3	
												5	
												4	
												6	
												5	
												6	
												6	
												7	
												6	
												6	
												5	
			2.5	Peak = 59kPa Residual = 32kPa	38.0				OL: Organic SILT: brown. Low plasticity. (Hinuera Formation)	M	St		
												6	
												4	
												4	
												7	
												6	
												7	
												7	
												6	
												6	
												6	
												6	
												6	
												6	
	3		37.5		ML: Fine sandy SILT: with trace clay. Grey. Low plasticity. (Hinuera Formation)	M	St					7	
												7	
												6	
												7	
												6	
												6	
												6	
												6	
												6	
												6	
	4		37.0		SW: Fine to coarse SAND: with trace fine gravel. Grey. Well graded. (Hinuera Formation)	S	MD to D					12	
											10		
											10		
											6		
											8		
											10		
											10		
											9		
											7		
											8		
											11		
											9		
											9		
											7		
							7						
							9						
							8						
							7						
							9						
5													

Termination Reason: Pit collapse.
Shear Vane No: 2955 DCP No: 34
Remarks: Groundwater encountered at 1.7m.
This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 5 - August 2024.

PHOTOGRAPH SHEET - TP25-07

Client:
Project: Southern Links
Location: Hamilton
Project ID: HAM2024-0017
Date: 22/04/2025



TP25-07:

TEST PIT LOG - TP25-08

Client: Colliers Project Leaders Ltd
Project: Southern Links Stage 1 Residential Area
Site Location: Deanwell, Hamilton
Project No.: HAM2024-0017
Date: 22/04/2025
Test Pit Location: Refer to Site Plan



CMW Geosciences
Great People | Practical Solutions

Logged by: DB Checked by: MM Scale: 1:25 Sheet 1 of 1

Position: 445406.9mE; 694754.4mN Projection: Mt Eden 2000 Pit Dimensions: 4.0m by 1.0m
Elevation: 40.70m Datum: NZVD 2016 Survey Source: Hand-held GPS

Groundwater	Samples & Insitu Tests		RL (m)	Depth (m)	Graphic Log	Material Description Soil: Soil symbol; soil type; colour; structure; bedding; plasticity; sensitivity; additional comments. (origin/geological unit) Rock: Colour; fabric; rock name; additional comments. (origin/geological unit)	Moisture Condition	Consistency/Relative Density	Dynamic Cone Penetrometer (Blows/100mm)	Structure & Other Observations Discontinuities: Depth; Defect Number; Defect Type; Dip; Defect Shape; Roughness; Aperture; Infill; Seepage; Spacing; Block Size; Block Shape; Remarks
	Depth	Type & Results								
22-04-2025	0.5	Peak = UTP	40.7			OL: Organic SILT: Brown. Low plasticity. (Topsoil)	D	H	2	
			40.4			ML: Fine sandy SILT: light grey. Low plasticity. (Hinuera Formation)			3	
			40.1			SW: Fine to coarse SAND: with trace fine gravel. Light brown. Well graded. (Hinuera Formation)			4	
	1					... from 0.90m to 1.20m, Becoming light brown and slightly iron stained.			6	
									6	
									16	
	2						M	MD to D	2	
						... at 2.00m, Becoming grey.			0	
	4.1	Peak = 38kPa Residual = 18kPa	36.7	4		OL: Organic SILT: black. Low plasticity. (Hinuera Formation)	S	F		
			36.5			SW: Fine to coarse SAND: with trace fine gravel. Bluish grey. Well graded. (Hinuera Formation)				
						Test pit terminated at 4.50 m				
				5						

Termination Reason: Pit collapse.
Shear Vane No: 2955 DCP No: 34
Remarks: Groundwater encountered at 3.9m.

PHOTOGRAPH SHEET - TP25-08

Client:
Project: Southern Links
Location: Hamilton
Project ID: HAM2024-0017
Date: 22/04/2025



TP25-08:



TP25-08:

This borehole report must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination.

Client: Colliers Project Leaders Ltd
Project: Southern Links Stage 1 Residential Area
Site Location: Deanwell, Hamilton
Project No.: HAM2024-0017
Date: 23/04/2025



Position: 445575.6mE; 694684.9mN	Projection: Mt Eden 2000	Pit Dimensions: 4.0m by 1.0m
Elevation: 42.50m	Datum: NZVD 2016	Survey Source: Hand-held GPS

23-04-2025

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 5 - August 2024.

PHOTOGRAPH SHEET - TP25-09

Client:
Project: Southern Links
Location: Hamilton
Project ID: HAM2024-0017
Date: 23/04/2025



TP25-09:



TP25-09:

This borehole report must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination.

TEST PIT LOG - TP25-10

Client: Colliers Project Leaders Ltd
Project: Southern Links Stage 1 Residential Area
Site Location: Deanwell, Hamilton
Project No.: HAM2024-0017
Date: 23/04/2025
Test Pit Location: Refer to Site Plan



CMW Geosciences

Great People | Practical Solutions

Logged by: DB Checked by: MM Scale: 1:35 Sheet 1 of 1

Position: 445692.0mE; 694719.0mN Projection: Mt Eden 2000 Pit Dimensions: 4.0m by 1.0m
Elevation: 40.40m Datum: NZVD 2016 Survey Source: Hand Held GPS

Groundwater	Samples & Insitu Tests		RL (m)	Depth (m)	Graphic Log	Material Description Soil: Soil symbol; soil type; colour; structure; bedding; plasticity; sensitivity; additional comments. (origin/geological unit) Rock: Colour; fabric; rock name; additional comments. (origin/geological unit)	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)				Structure & Other Observations Discontinuities: Depth; Defect Number; Defect Type; Dip; Defect Shape; Roughness; Aperture; Infill; Seepage; Spacing; Block Size; Block Shape; Remarks						
	Depth	Type & Results																	
									5	10	15	20							
23-04-2025 	0.4	Peak = >200kPa	40.4		OL: Organic SILT: brown. Low plasticity. (Topsoil)	M	VSt to H												
			40.2		ML: SILT: with some clay and trace fine sand. Light grey and brown. Low plasticity. (Hinuera Formation)														
	0.9	Peak = 153kPa Residual = 32kPa	39.5		... at 0.80m, Becoming grey.	M	St to VSt												
				1									ML: Clayey SILT: light orange brown streaked grey. Low plasticity. (Hamilton Ash)						
	1.5	Peak = 74kPa Residual = 18kPa	38.5																
				2									ML: SILT: with minor fine sand and trace clay. Grey. Low plasticity. (Walton Subgroup)						
	2.5	Peak = 83kPa Residual = 12kPa				W	St to VSt												
				3															
	3.5	Peak = 127kPa Residual = 37kPa																	
				4															
	4.0	Peak = 109kPa Residual = 24kPa																	
				5															
				6															
				7															
	Test pit terminated at 6.30 m																		

Termination Reason: Target Depth.
Shear Vane No: 2955 DCP No:
Remarks: Groundwater encountered at 3.1m.

PHOTOGRAPH SHEET - TP25-10

Client:
Project: Southern Links
Location: Hamilton
Project ID: HAM2024-0017
Date: 23/04/2025



TP25-10:



TP25-10:

This borehole report must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination.

TEST PIT LOG - TP25-11

Client: Colliers Project Leaders Ltd
Project: Southern Links Stage 1 Residential Area
Site Location: Deanwell, Hamilton
Project No.: HAM2024-0017
Date: 23/04/2025
Test Pit Location: Refer to Site Plan



CMW Geosciences
Great People | Practical Solutions

Logged by: DB Checked by: MM Scale: 1:25 Sheet 1 of 1

Position: 445066.9mE; 694588.0mN Projection: Mt Eden 2000 Pit Dimensions: 4.0m by 1.0m
Elevation: 40.50m Datum: NZVD 2016 Survey Source: Hand-held GPS

Groundwater	Samples & Insitu Tests		RL (m)	Depth (m)	Graphic Log	Material Description Soil: Soil symbol; soil type; colour; structure; bedding; plasticity; sensitivity; additional comments. (origin/geological unit) Rock: Colour; fabric; rock name; additional comments. (origin/geological unit)	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)				Structure & Other Observations Discontinuities: Depth; Defect Number; Defect Type; Dip; Defect Shape; Roughness; Aperture; Infill; Seepage; Spacing; Block Size; Block Shape; Remarks																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
	Depth	Type & Results							5	10	15	20																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
23-04-2025 			40.5		OL: Organic SILT: brown. Low plasticity. (Topsoil)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		

Termination Reason: Pit collapse.
Shear Vane No: 2955 DCP No: 34
Remarks: Groundwater encountered at 2.0m.

PHOTOGRAPH SHEET - TP25-11

Client:
Project: Southern Links
Location: Hamilton
Project ID: HAM2024-0017
Date: 23/04/2025



TP25-11:



TP25-11:

This borehole report must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination.

TEST PIT LOG - TP25-12

Client: Colliers Project Leaders Ltd
Project: Southern Links Stage 1 Residential Area
Site Location: Deanwell, Hamilton
Project No.: HAM2024-0017
Date: 22/04/2025
Test Pit Location: Refer to Site Plan



CMW Geosciences
Great People | Practical Solutions

Logged by: DB Checked by: MM Scale: 1:25 Sheet 1 of 1

Position: 445335.2mE; 694583.7mN Projection: Mt Eden 2000 Pit Dimensions: 4.0m by 1.0m
Elevation: 40.00m Datum: NZVD 2016 Survey Source: Hand-held GPS

Groundwater	Samples & Insitu Tests		RL (m)	Depth (m)	Graphic Log	Material Description Soil: Soil symbol; soil type; colour; structure; bedding; plasticity; sensitivity; additional comments. (origin/geological unit) Rock: Colour; fabric; rock name; additional comments. (origin/geological unit)	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)				Structure & Other Observations Discontinuities: Depth; Defect Type; Dip; Defect Shape; Roughness; Aperture; Infill; Seepage; Spacing; Block Size; Block Shape; Remarks	
	Depth	Type & Results							5	10	15	20		
22-04-2025	0.4	Peak = 74kPa Residual = 12kPa	40.0			OL: Organic SILT: brown. Low plasticity. (Topsoil)	M	St					2	
			39.8			ML: SILT: with some clay. Light brown. Low plasticity. (Hinuera Formation)							2	
													1	
													1	
													1	
													1	
	0.8	Peak = 85kPa Residual = 18kPa				... at 0.70m, Becoming light grey streaked orange.						0		
												1		
												1		
												3		
			39.0	1		SP: Silty fine SAND: light grey. Poorly graded. (Hinuera Formation)						6		
												5		
	1.9	Peak = 47kPa Residual = 27kPa									5			
											3			
											6			
											4			
											3			
											2			
	2.4	Peak = 22kPa Residual = 15kPa	38.2			ML: SILT: light brown. Low plasticity. (Hinuera Formation)	S	F					5	
			38.0	2		SP: Silty fine SAND: grey. Poorly graded. (Hinuera Formation) ... at 2.00m, Containing 50mm lens of coarse sand.							7	
												10		
												7		
												7		
												5		
2.7	Peak = 41kPa Residual = 18kPa	37.6			OL: Organic SILT: black. Low plasticity. (Hinuera Formation)	S		S					2	
		37.3			ML: SILT: with some clay. Grey. Low plasticity. (Hinuera Formation)								2	
													4	
													5	
													7	
													8	
4		36.9			SW: Fine to coarse SAND: bluish grey. Well graded. (Hinuera Formation)		MD to D					7		
												7		
												8		
												7		
												6		
												5		
												7		
												7		
												8		
												9		
												10		
												9		
												9		
												11		
								11						
								12						
								13						
								11						

PHOTOGRAPH SHEET - TP25-12

Client:
Project: Southern Links
Location: Hamilton
Project ID: HAM2024-0017
Date: 22/04/2025



TP25-12:



TP25-12:

This borehole report must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination.

Client: Colliers Project Leaders Ltd
Project: Southern Links Stage 1 Residential Area
Site Location: Deanwell, Hamilton
Project No.: HAM2024-0017
Date: 23/04/2025



Position: 445521.1mE; 694557.2mN	Projection: Mt Eden 2000	Pit Dimensions: 4.0m by 1.0m
Elevation: 42.50m	Datum: NZVD 2016	Survey Source: Hand-held GPS

23-04-2025

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 5 - August 2024.

PHOTOGRAPH SHEET - TP25-13

Client:
Project: Southern Links
Location: Hamilton
Project ID: HAM2024-0017
Date: 23/04/2025



TP25-13:



TP25-13:

This borehole report must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination.

Client: Colliers Project Leaders Ltd
Project: Southern Links Stage 1 Residential Area
Site Location: Deanwell, Hamilton
Project No.: HAM2024-0017
Date: 22/04/2025



Position: 445254.3mE; 694473.1mN	Projection: Mt Eden 2000	Pit Dimensions: 4.0m by 1.0m
Elevation: 40.40m	Datum: NZVD 2016	Survey Source: Hand-held GPS

22-04-2025

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 5 - August 2024.

PHOTOGRAPH SHEET - TP25-14

Client:
Project: Southern Links
Location: Hamilton
Project ID: HAM2024-0017
Date: 22/04/2025



TP25-14:



TP25-14:

This borehole report must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination.

TEST PIT LOG - TP25-15

Client: Colliers Project Leaders Ltd
Project: Southern Links Stage 1 Residential Area
Site Location: Deanwell, Hamilton
Project No.: HAM2024-0017
Date: 23/04/2025



Test Pit Location: Refer to Site Plan Logged by: DB Checked by: MM Scale: 1:25 Sheet 1 of 1
Position: 445438.0mE; 694394.1mN Projection: Mt Eden 2000 Pit Dimensions: 4.0m by 1.0m
Elevation: 40.70m Datum: NZVD 2016 Survey Source: Hand-held GPS

Groundwater	Samples & Insitu Tests		RL (m)	Depth (m)	Graphic Log	Material Description Soil: Soil symbol; soil type; colour; structure; bedding; plasticity; sensitivity; additional comments. (origin/geological unit) Rock: Colour; fabric; rock name; additional comments. (origin/geological unit)	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)	Structure & Other Observations Discontinuities: Depth; Defect Number; Defect Type; Dip; Defect Shape; Roughness; Aperture; Infill; Seepage; Spacing; Block Size; Block Shape; Remarks
	Depth	Type & Results								
22-04-2025	0.5	Peak = UTP	40.7		OL: Organic SILT: brown. Low plasticity. (Topsoil)	D	H		2	
			40.4		ML: Fine sandy SILT: light grey. Low plasticity. (Hinuera Formation)				4	
					... at 0.60m, 50mm lens of fine to medium sand.				5	
	0.8	Peak = 71kPa Residual = 15kPa	40.0		ML: SILT: with some clay and trace fine sand. Light brownish grey streaked orange. Low plasticity. (Hinuera Formation)		F to St		6	
									4	
									5	
	1.3	Peak = 44kPa Residual = 18kPa					F to St		4	
									3	
									1	
	2.8	Peak = 83kPa Residual = 32kPa	38.9		SP: Silty fine to medium SAND: light grey. Poorly graded. (Hinuera Formation)	M	MD to D		5	
									4	
									9	
	3.6	Peak = 83kPa Residual = 29kPa	38.2		SW: Fine to coarse SAND: with trace silt. Bluish grey. Well graded. (Hinuera Formation)		MD		6	
			38.0		ML: SILT: with minor clay and fine sand. Grey. Low plasticity. (Hinuera Formation)				5	
			37.8		SP: Silty fine to medium SAND: bluish grey. Poorly graded. (Hinuera Formation)				6	
	4.0	Peak = 37kPa Residual = 29kPa	37.4		ML: SILT: with minor clay and fine sand. Grey. Low plasticity. (Hinuera Formation)	S	St		8	
									5	
									7	
			36.9		OL: Organic SILT: black. Low plasticity. (Hinuera Formation)	M	F		9	
			36.7		ML: SILT: with some clay and fine sand. Grey. Low plasticity. (Hinuera Formation)				12	
			36.5		SW: Silty fine to coarse SAND: brownish grey. Well graded. (Hinuera Formation)				15	
			36.2		SW: Fine to coarse SAND: bluish grey. Well graded. (Hinuera Formation)	S	MD to D		11	
								6		
								10		
						D		8		
								9		
								10		
				Test pit terminated at 4.80 m				10		
								9		

PHOTOGRAPH SHEET - TP25-15

Client:
Project: Southern Links
Location: Hamilton
Project ID: HAM2024-0017
Date: 23/04/2025



TP25-15:



TP25-15:

This borehole report must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination.

Appendix D: Geotechnical Hazards Register Methods

NATURAL HAZARDS RISK ASSESSMENT

SOUTHERN LINKS DEVELOPMENT – RESIDENTIAL STAGE 1, SAXBYS ROAD, HAMILTON

11 CONTEXT

This appendix to CMW report reference HAM2025-0056AD Rev 2 sets out the criteria for and presents the results of an assessment of the geotechnical-related natural hazards associated with this proposed development.

Section 106 of the Resource Management Act (RMA) requires an assessment of the risk from natural hazards to be carried out when considering the granting of a subdivision consent. S106 RMA specifically states that the assessment must consider the combined effect of the natural hazard likelihood and material damage to land, other land, or structures (consequence).

Section 2 of the RMA defines natural hazards as any atmospheric or earth or water related occurrence (including earthquake, tsunami, erosion, volcanic and geothermal activity, landslip, subsidence, sedimentation, wind, drought, fire, or flooding) the action of which adversely affects or may adversely affect human life, property, or other aspects of the environment.

The National Policy Statement for Natural Hazards 2025 (NPS-NH) provides direction under the Resource Management Act 1991 for assessing the risk associated with natural hazards for subdivision, use and development.

12 BASIS OF ASSESSMENT

12.1 Risk Classification

The occurrence of natural hazards and their potential impacts on the proposed subdivision development is assessed in terms of risk significance, which is based on likelihood and consequence factors. A risk matrix is used to assess the likelihood and consequence factors, the form of which used by CMW for this project is presented in Table B1 which is derived from Appendix 1 of the NPS-NH.

Table B1: Risk Matrix

	Almost certain Up to 10 AEP 10% or more	Very Likely 10-20 10% to 5%	Likely 20 – 50 5% to 2%	Possible 50 – 100 2% to 1%	Unlikely 100 – 500 1% to 0.2%	Rare 500 – 5000 0.2% to 0.02%	Very rare >5000 <0.02%
Catastrophic	Very High	Very High	Very High	High	Medium	Medium	Medium
Major	Very High	Very High	High	High	Medium	Medium	Medium
Moderate	High	High	High	Medium	Medium	Low	Low
Minor	Medium	Medium	Medium	Medium	Low	Low	Low
Negligible	Low	Low	Low	Low	Low	Low	Low

12.2 Likelihood

With respect to assessing the likelihood or chance of the risk occurring, the qualitative definitions used by CMW for this project are provided in Table B2 for each likelihood classification, which is derived from Appendix 1 of the NPS-NH.

Table B2: Likelihood Classification (extract from NPS-NH)

Likelihood level	Annual exceedance probability (AEP)	Average recurrence interval (ARI) or 'return period'
Almost certain	10% or more	Up to and including 10 years
Very likely	10% to 5%	Over 10 and up to and including 20 years
Likely	5% to 2%	Over 20 and up to and including 50 years
Possible	2% to 1%	Over 50 and up to and including 100 years
Unlikely	1% to 0.2%	Over 100 and up to and including 500 years
Rare	0.2% to 0.02%	Over 500 and up to and including 5,000 years
Very rare	Less than 0.02%	More than 5,000 years

12.3 Consequence

In terms of determining the consequence or severity of the natural hazard occurring, the qualitative definitions used by CMW for this project are provided in Table B3 for each consequence classification, which is derived from Appendix 1 of the NPS-NH.

Table B3: Consequence Table (extract from NPS-NH)

Consequence Level	Damage to Property	Potential for Injury or Fatalities
Catastrophic	Severe damage to land and building(s), potential for collapse or total destruction of structures. Building(s) need to be demolished, rebuilt or relocated.	High threat to life safety, with probable fatalities and/or critical injuries.
Major	Major damage to land and building(s), including structural damage. Loss of use and substantial repair required.	Unsafe for people, with potential for many injuries, or critical injuries and/or fatalities.
Moderate	Some damage to land and non-structural damage to building(s). Limited loss of use, repairs required.	Unsafe for people, with potential for injuries, although expected to be minor.

Minor	Minor damage to land and building(s). No loss of use, minimal repairs required.	Isolated minor injuries possible.
Negligible	No loss of use, no building repairs required.	No injuries.

12.4 Proportionate Management of Natural Hazard Risk

It is recognised that the natural hazard risk assessment provided herein is qualitative and, due to the wide range of possible geohazards that could occur, is somewhat subjective. Decision-makers must consider the scale and detail of information necessary to assess the risk by having regard to the anticipated level of risk.

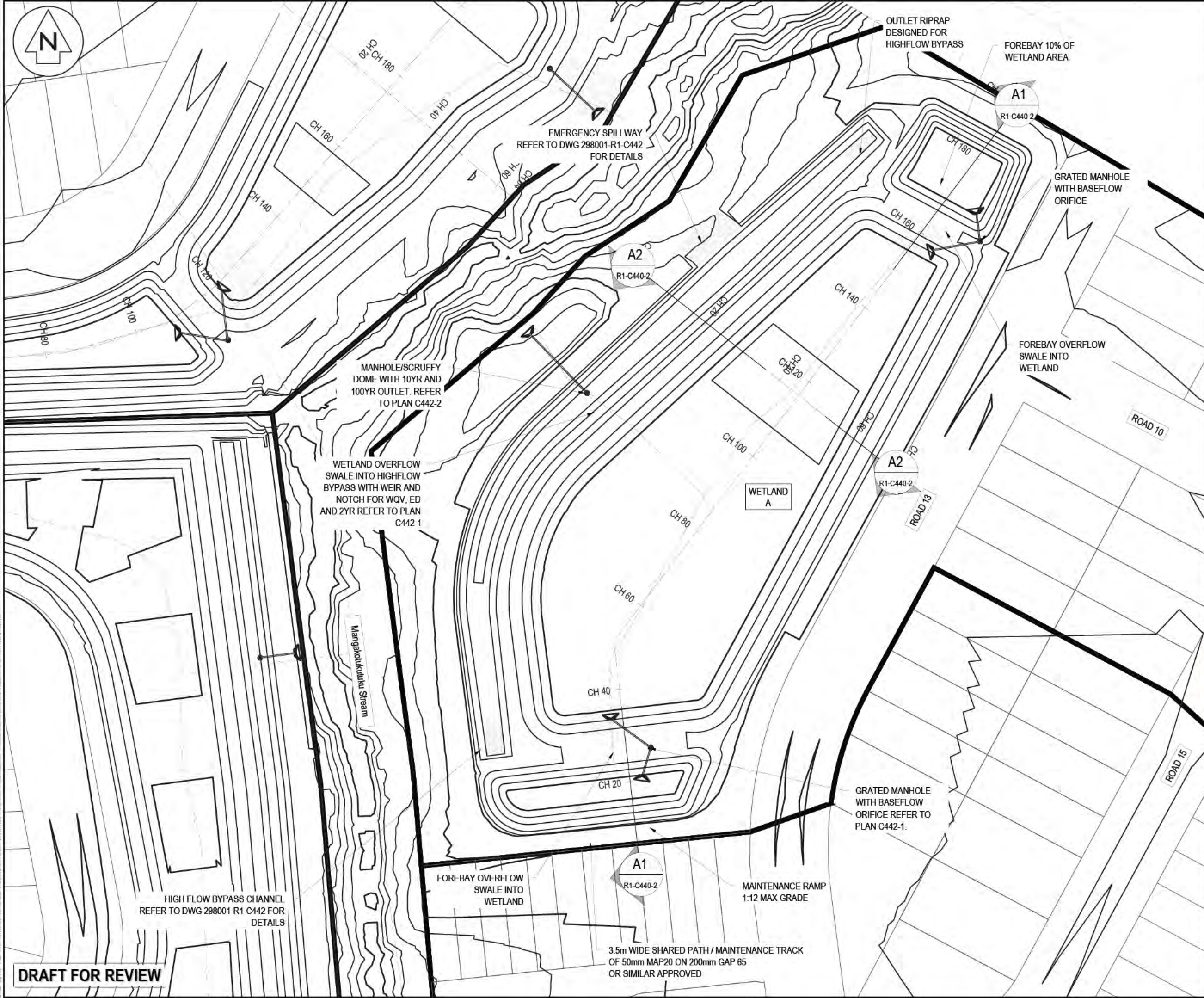
Other methods are available to quantitatively assess an acceptable level of geotechnical related natural hazard risk, such as defining an acceptable factor of safety with respect to slope stability or acceptable differential ground settlements with respect to recommended building code limits.

When managing natural hazard risk associated with subdivision, use and development, decision-makers must apply mitigation measures, including location and design, for the purposes of ensuring that:

- (a) very high natural hazard risk is avoided;
- (b) high or medium natural hazard risk is avoided or mitigated proportionate to the level of risk; and
- (c) any creation of, or increase in, significant natural hazard risk on other sites is avoided or mitigated proportionate to the level of natural hazard risk.

Results of this assessment are presented in **Table 5** (Section 7).

Appendix E: Swale Slope Stability



DRAFT FOR REVIEW

NOTES

1. ALL WORKS TO BE IN ACCORDANCE WITH WAIKATO REGIONAL INFRASTRUCTURE TECHNICAL SPECIFICATIONS.
2. CO-ORDINATES IN TERMS OF NZ GEODETIC DATUM MT EDEN 2000. LEVELS IN TERMS OF THE NEW ZEALAND VERTICAL DATUM 2016. CONVERSION TO MOTURIKI 1953 CAN BE ACHIEVED BY ADDING 777m.
3. IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE ALL SERVICES THAT MAY BE AFFECTED BY HIS OPERATIONS.
4. ALL CONCRETE SW PIPE TO BE INSTALLED IN ACCORDANCE WITH AS/NZS 3725:2007 FOR BURIED CONCRETE PIPES AND AS/NZS 4058:2007 FOR PRECAST CONCRETE PIPES (PRESSURE AND NON-PRESSURE) AS STIPULATED IN THE RITS 2018.
5. APPROVED HARDFILL IS TO BE USED IN BACKFILLING OF ALL STORMWATER LINES WITHIN THE ROAD RESERVE.
6. HEAVY DUTY MANHOLE LIDS AND FRAMES TO BE USED IN TRAFFICKED AREAS.
7. ALL CESSPIT LEADS SHALL HAVE MIN COVER 0.9m.
8. ALL LINES ARE TO BE CLASS4 RCRRJ UNLESS SHOWN OTHERWISE.
9. ALL LINES TO BE ABANDONED SHALL BE SEALED AT EACH END. TIMING OF ALL SEALING TO BE COORDINATED WITH COUNCIL STAFF.

LEGEND

EX BOUNDARY

PROP BOUNDARY

C	DRAFT	MJRA	02/2026
B	DRAFT	MJRA	02/2026
A	DRAFT	MJRA	11/2025
Rev	Description	By	Date
		By	Date
Survey	MAVEN		06/2025
Design	MKS		07/2025
Drawn	MJRA		11/2025
Checked	DJM		11/2025



Maven Waikato
07 242 0601
info@maven.co.nz
www.maven.co.nz
Level 1 286 Victoria Street, Hamilton
New Zealand

Project

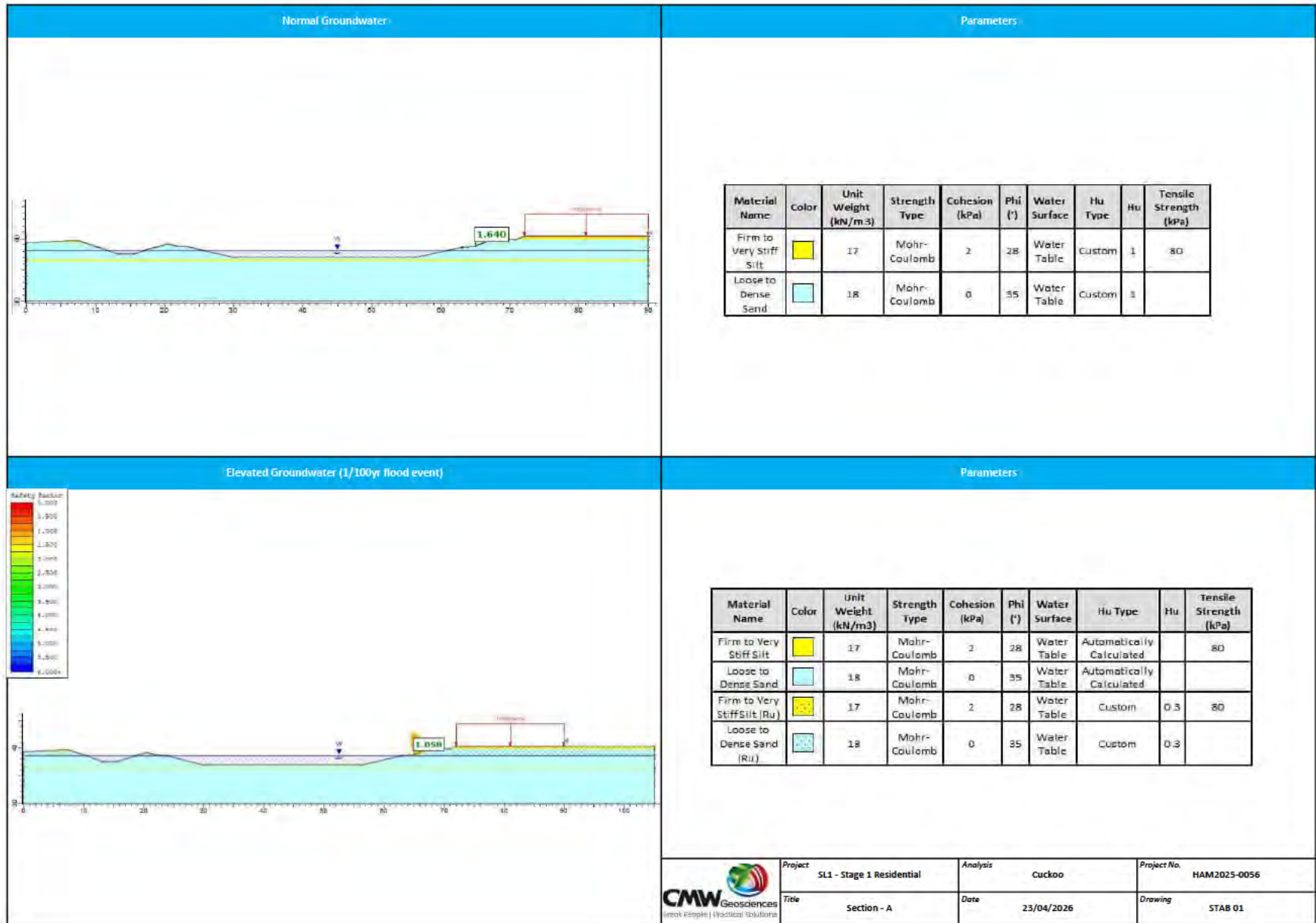
**SOUTHERN LINKS 1
RESIDENTIAL STAGE 1
HAMILTON, WAIKATO
FOR
SL1 CONSORTIUM GROUP**

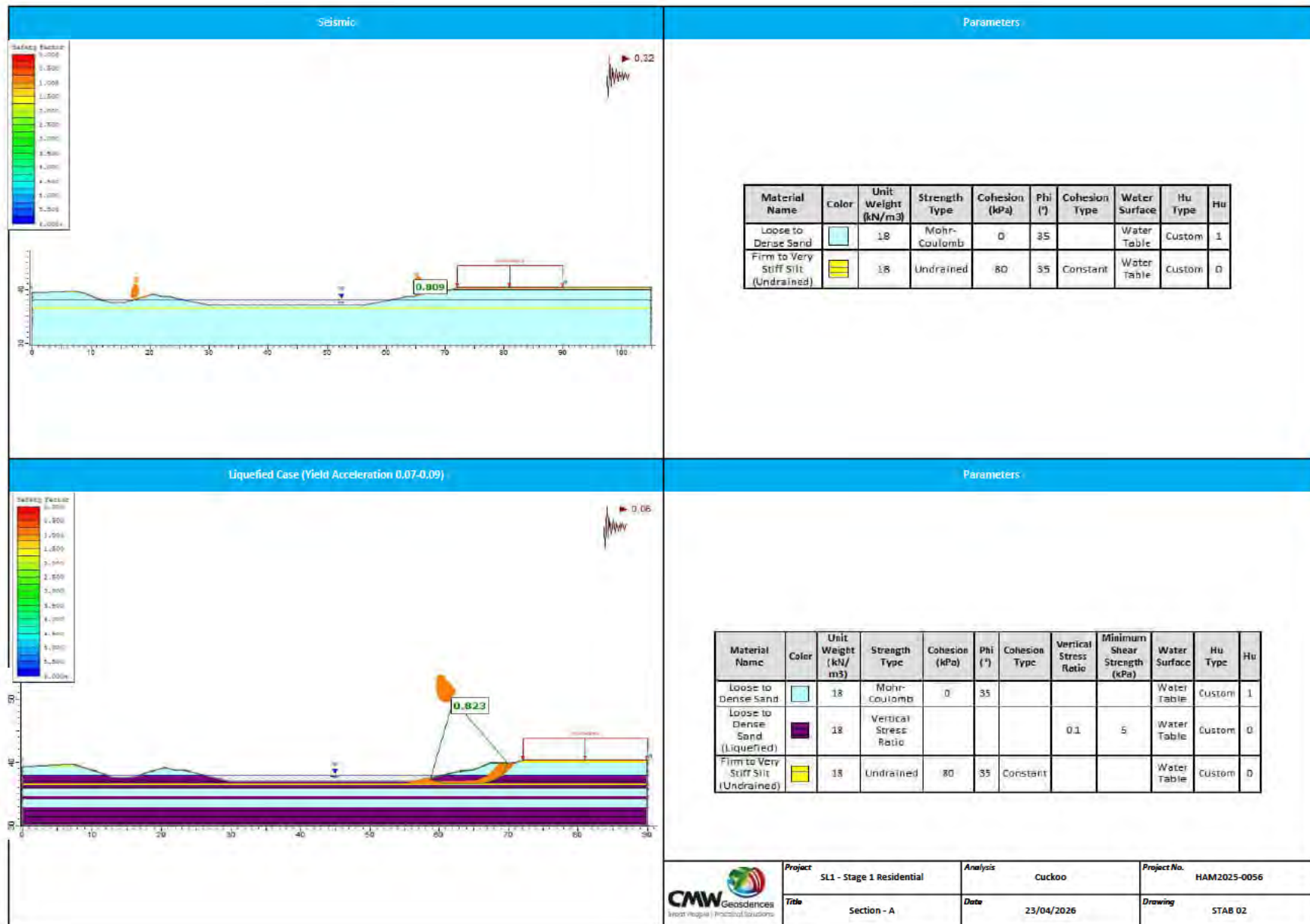
Title

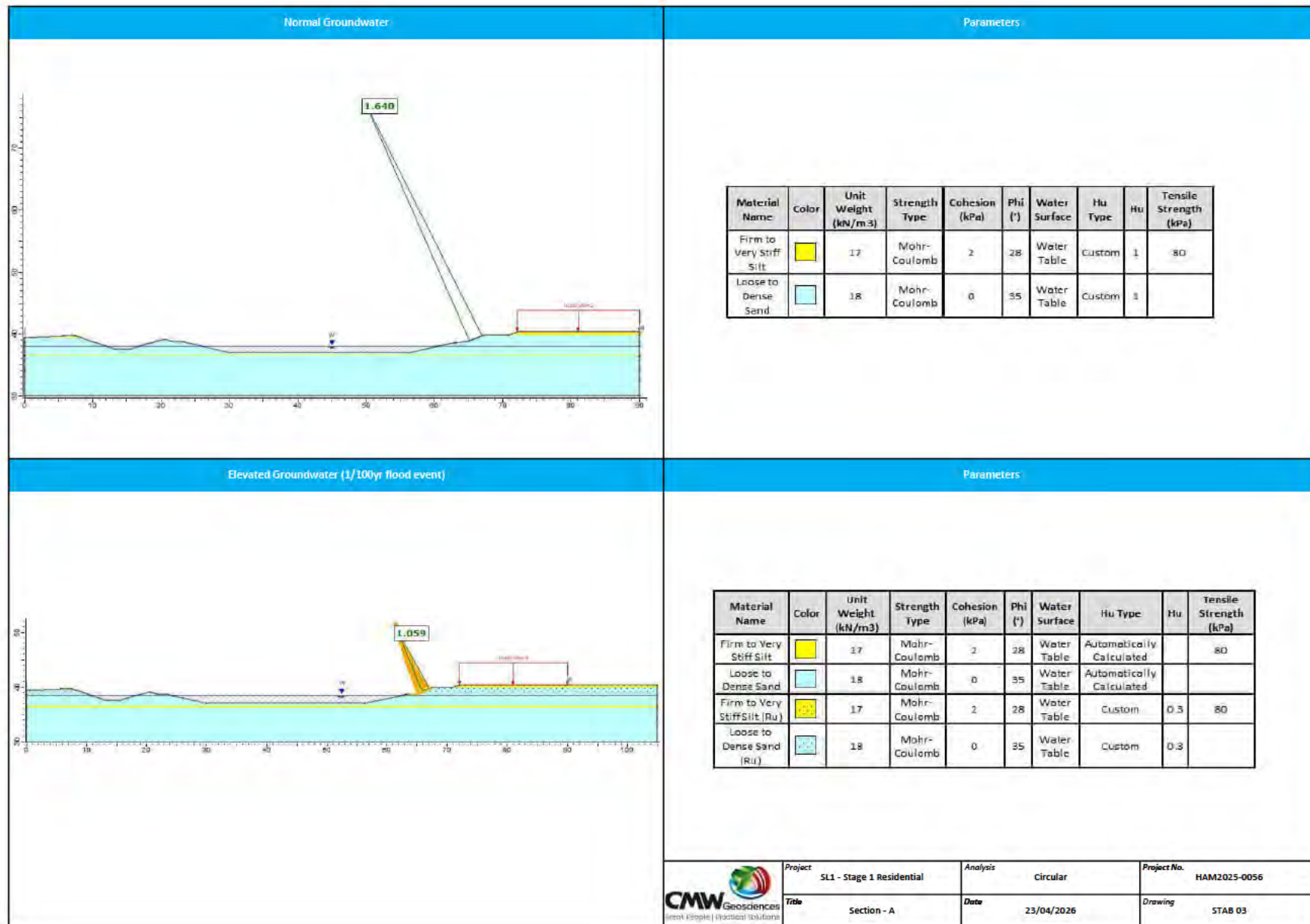
**PROPOSED STORMWATER
WETLAND A
PLAN**

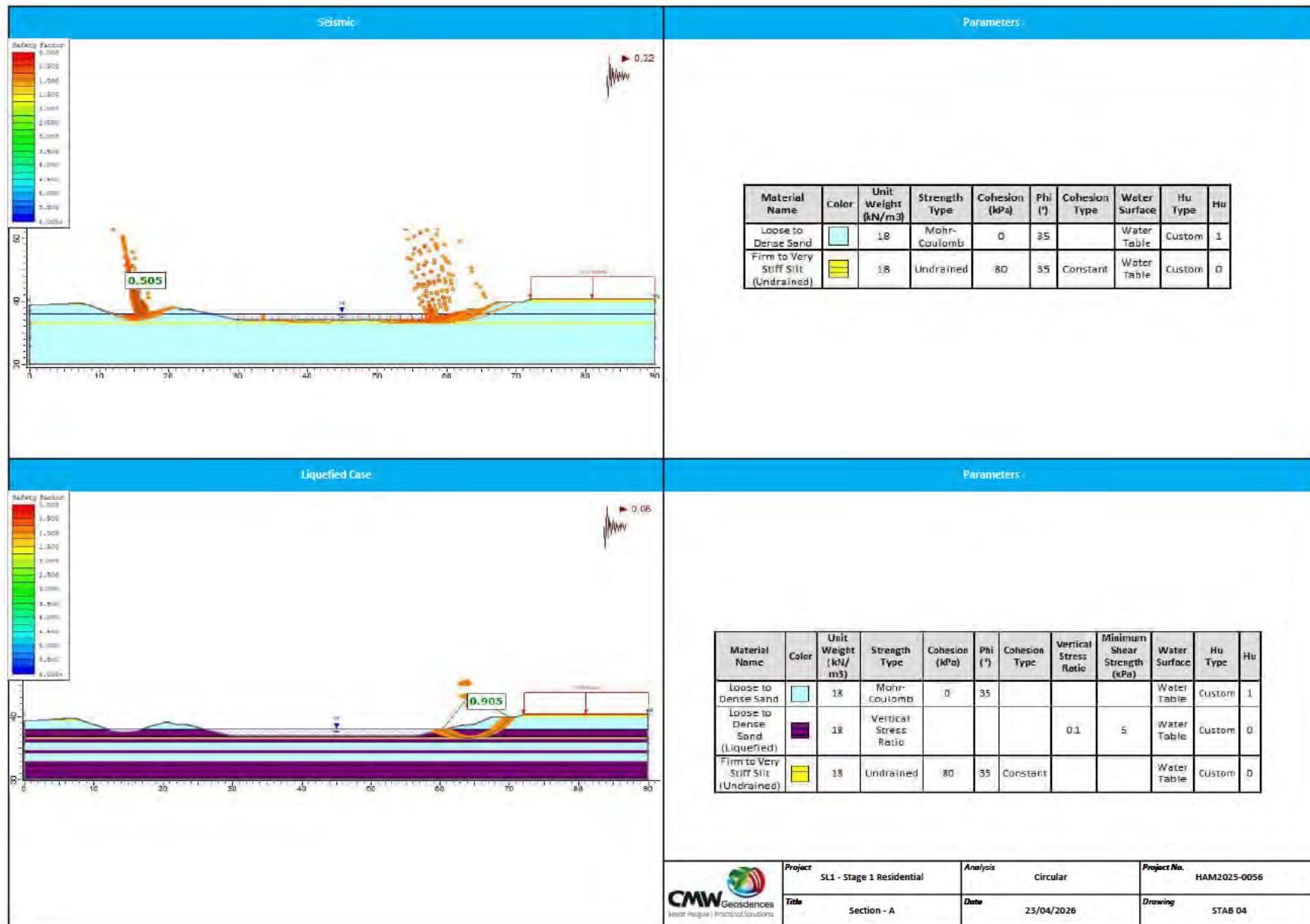
Project no.	298001-R1 SL1		
Scale	1:750 @ A3		
Cad file	298001-R1-C440 SW WETLAND.DWG		
Drawing no.	R1-C440-1	Rev	C

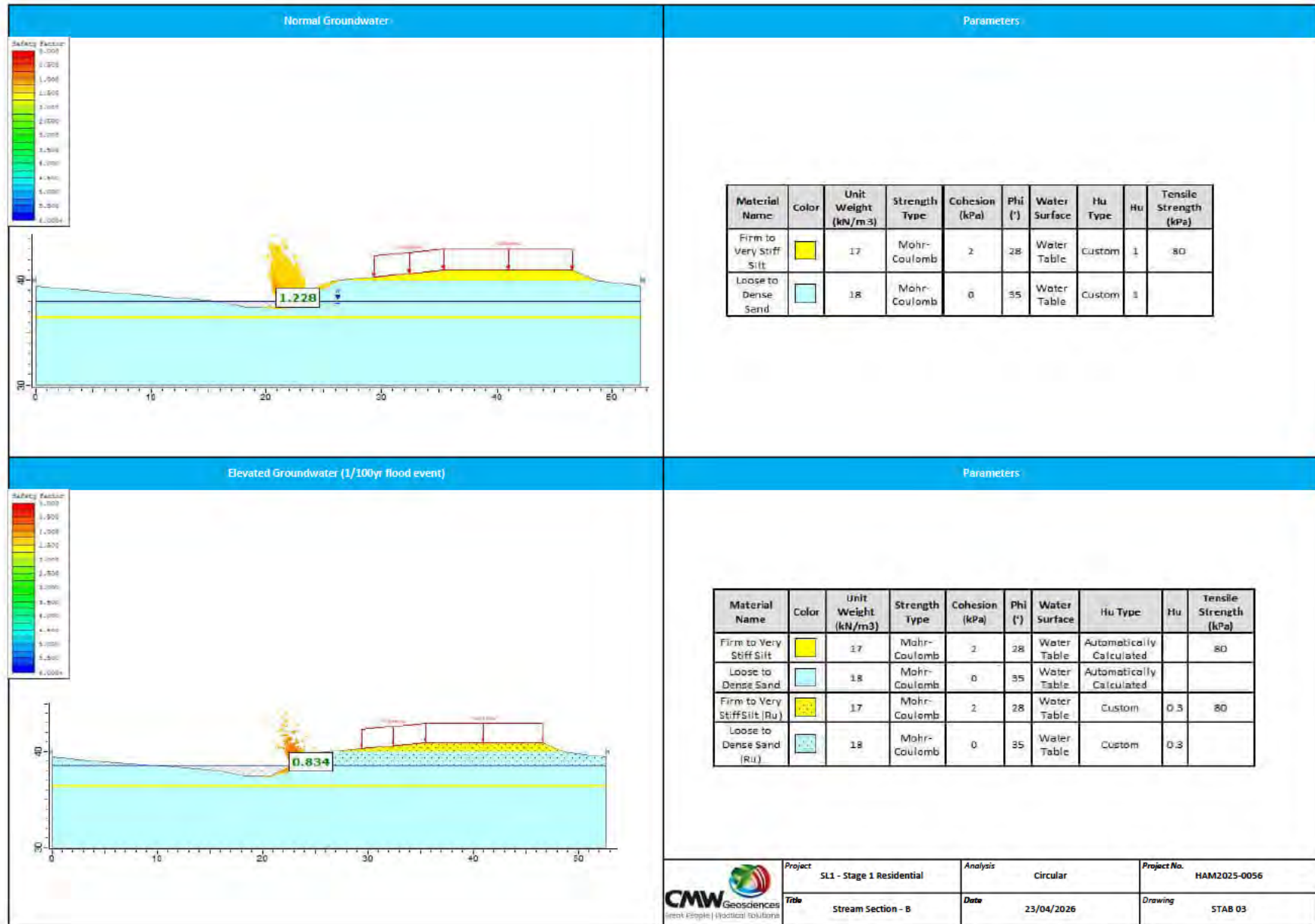
DATE: 09/08/2025 FILE PATH: \\MAVEN\MAVEN\SL1\PROJECTS\SL1\HAMILTON\WETLAND A\DWG\298001-R1-C440 SW WETLAND.DWG

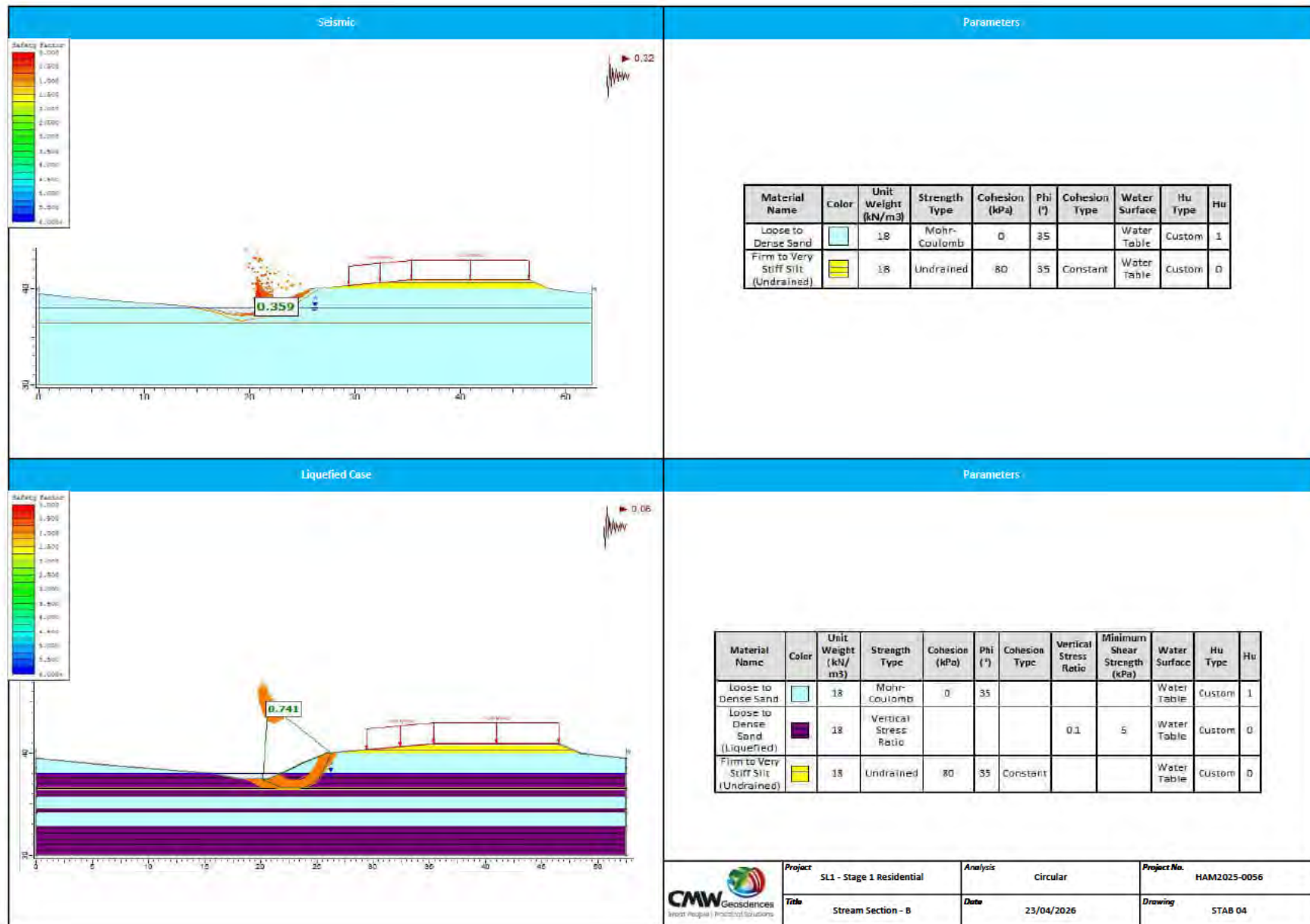


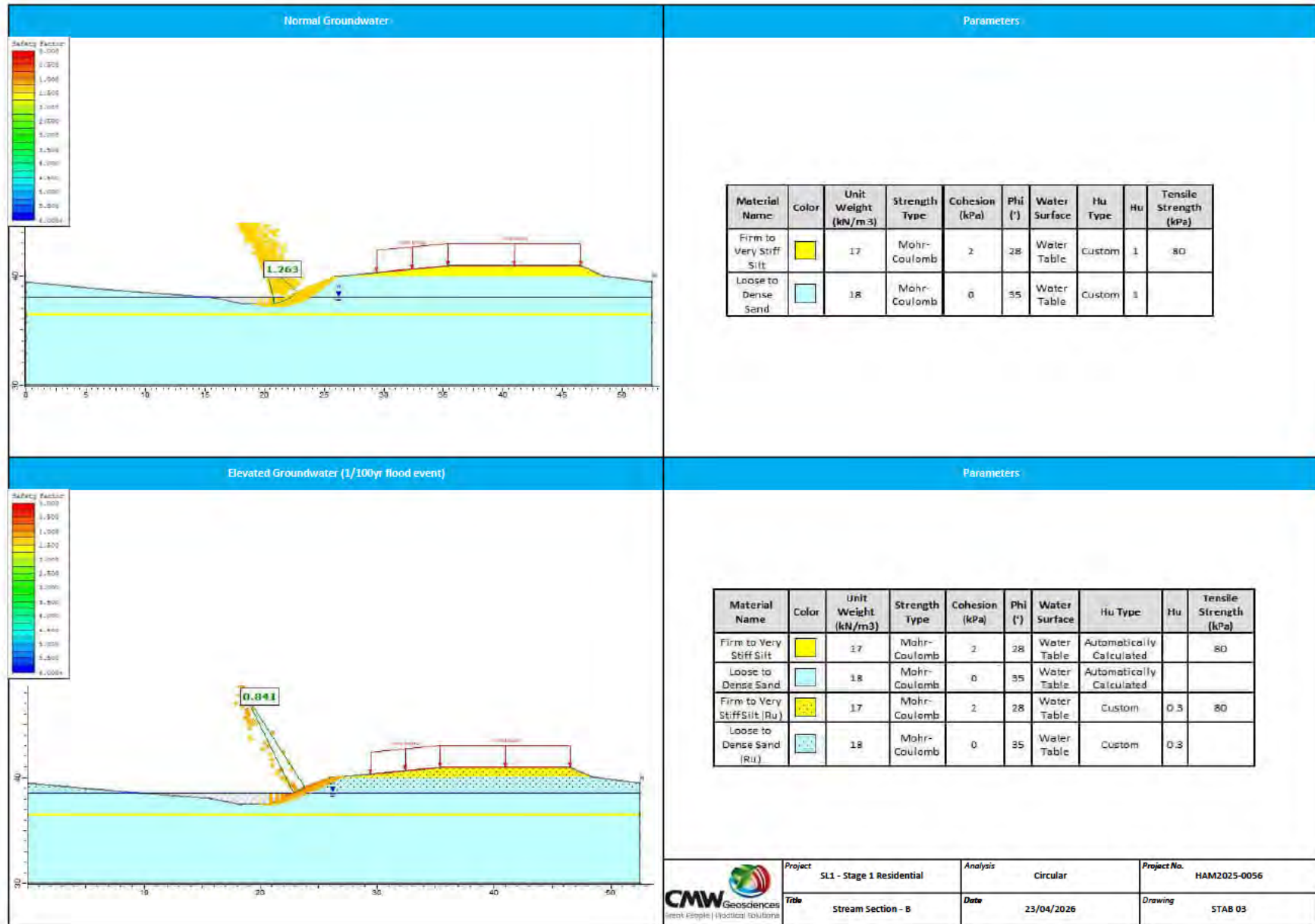


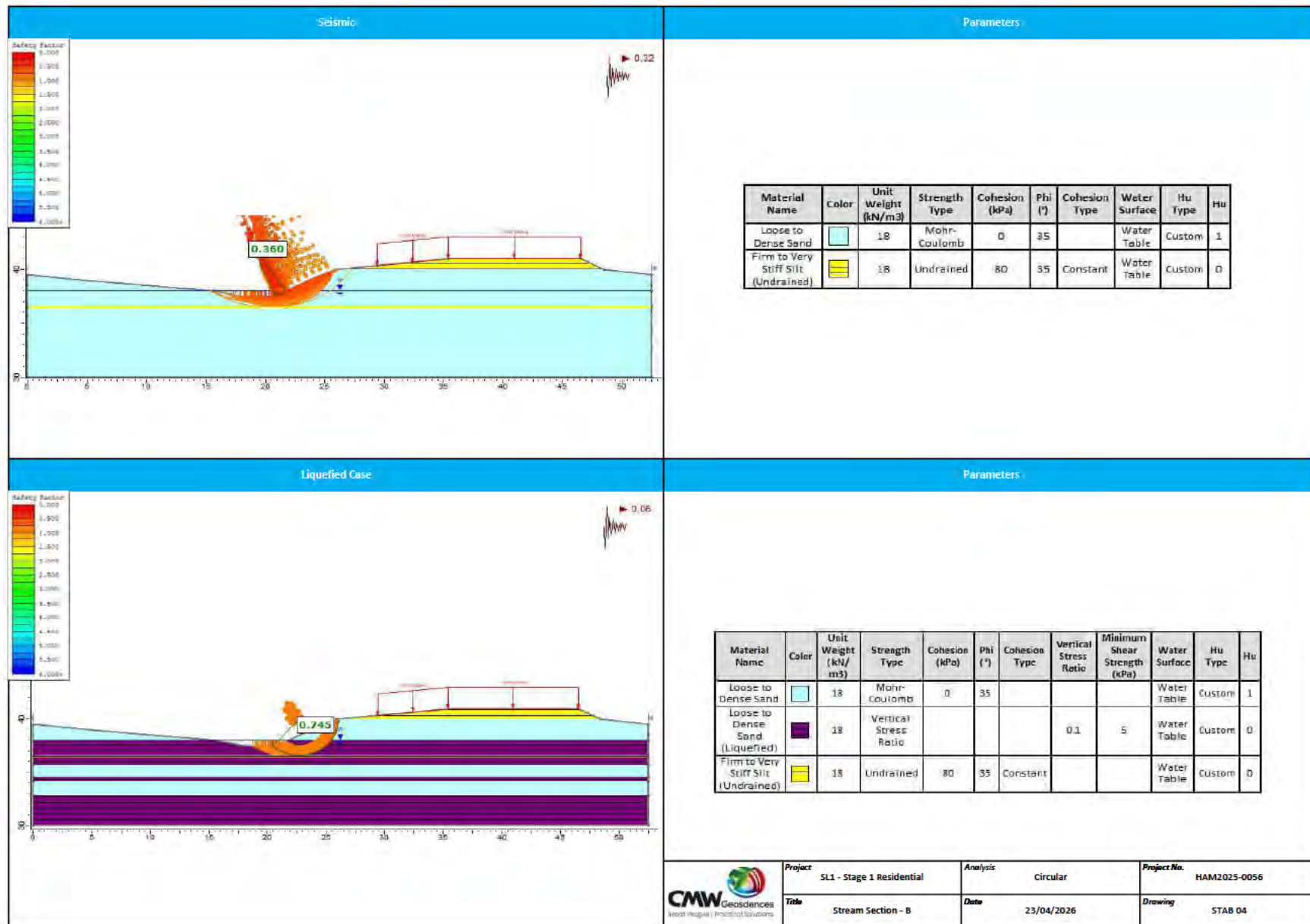














Notes
1. See plan C250 for all notes.

Legend	
	EX BDY
	PROP BDY
	RETAINING WALL 0.0-1.0m
	RETAINING WALL 1.0-1.5m
	RETAINING WALL 1.5-2.0m
	RETAINING WALL 2.0-2.5m

A		FAST TRACK APP	MJRA	06/2026
Rev	Description	By	Date	
		By	Date	
Survey	MAVEN		06/2025	
Design	MJRA		04/2026	
Drawn	MJRA		04/2026	
Checked	MKJ/DJM		04/2026	



Maven Waikato
07 242 0601
info@maven.co.nz
www.maven.co.nz
Level 1 286 Victoria Street, Hamilton
New Zealand

Project
**SOUTHERN LINKS 1
RESIDENTIAL STAGE 1
HAMILTON, WAIKATO
FOR
SAXBY RD JV LIMITED**

Title
**PROPOSED
RETAINING WALL
PLAN**

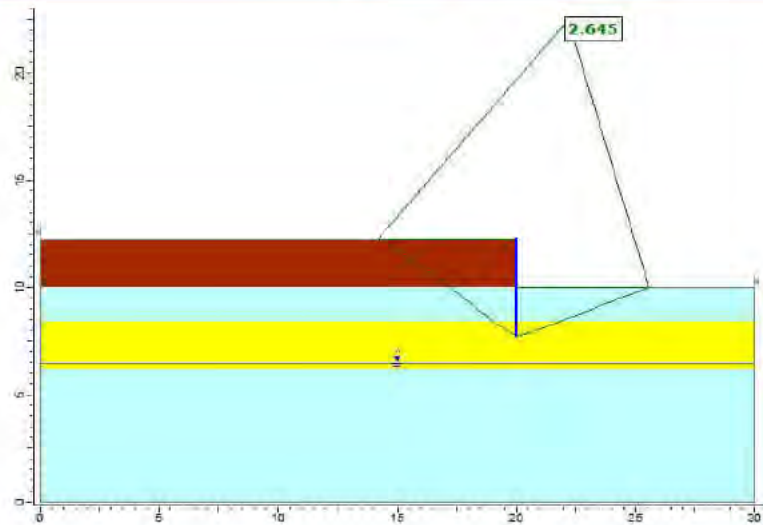
Project no.	298001-R1 SL1
Scale	1:1000 @ A3
Cad file	298001-R1-C250 RETAINING WALL.DWG
Drawing no.	R1-C250-1
Rev	A

RW 1
NOTE: BUILD BACK OF
RETAINING WALL ON THE
EDGE OF JOAL & LOT
BOUNDARY. NO NEED TO
APPLY THE 0.5m SETBACK
SPECIFIED ON THE RETAINING
WALL TYPICAL SECTION

RESOURCE CONSENT

DATE: 08/05/2025 FILEPATH: F:\Maven\Hamilton\Projects\Southern Links 1 Residential Stage 1\Drawings\Retaining Walls\DWG

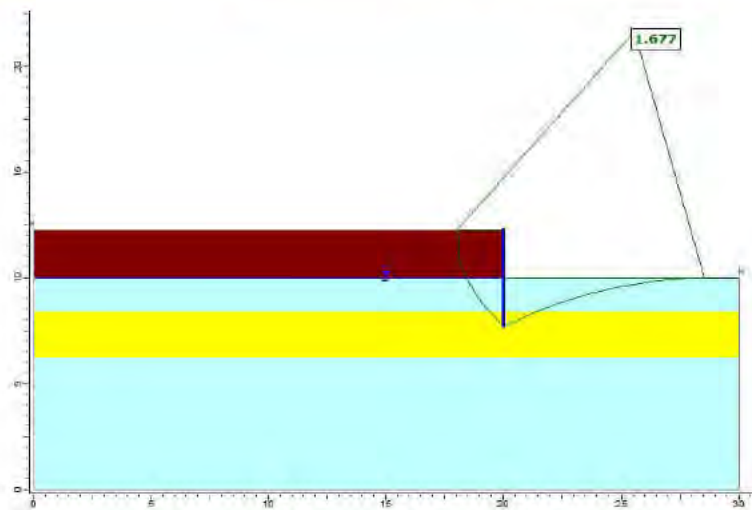
Normal Groundwater



Parameters

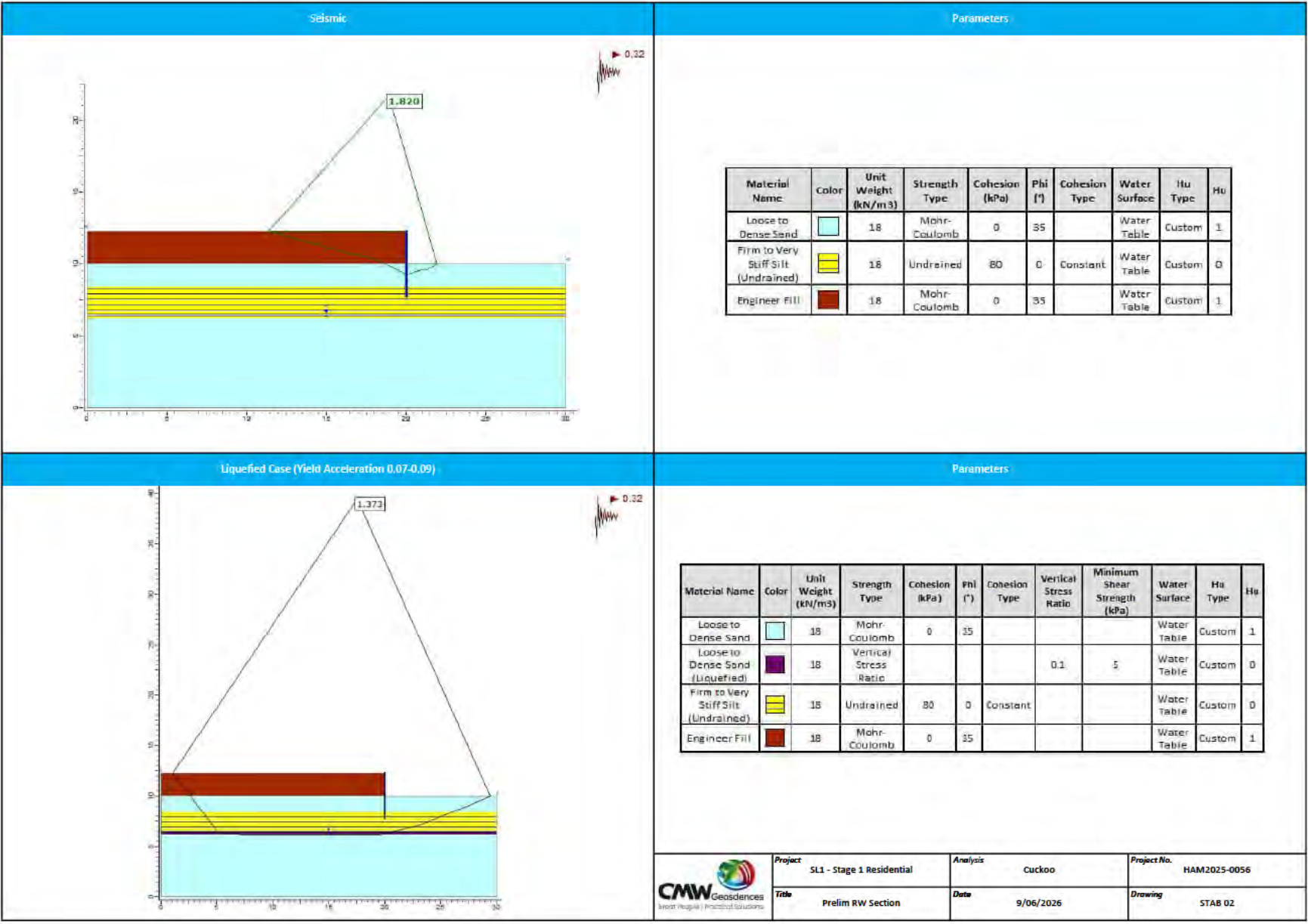
Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	Phi (°)	Water Surface	Hu Type	Hu	Tensile Strength (kPa)
Firm to Very Stiff Silt		17	Mohr-Coulomb	2	28	Water Table	Custom	1	80
Loose to Dense Sand		18	Mohr-Coulomb	0	35	Water Table	Custom	1	
Engineer Fill		18	Mohr-Coulomb	0	35	Water Table	Custom	1	

Elevated Groundwater (1/100yr flood event)



Parameters

Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	Phi (°)	Water Surface	Hu Type	Hu	Tensile Strength (kPa)
Firm to Very Stiff Silt		17	Mohr-Coulomb	2	28	Water Table	Automatically Calculated		80
Loose to Dense Sand		18	Mohr-Coulomb	0	35	Water Table	Automatically Calculated		
Engineer Fill (Ru)		18	Mohr-Coulomb	0	35	Water Table	Custom	0.3	



Liquefied Case (Yield Acceleration 0.07-0.09)

A cross-sectional diagram of soil layers, similar to the seismic case, but with a different seismic wave and a peak value of 1.373 indicated. The x-axis ranges from 0 to 30, and the y-axis ranges from 0 to 20.

Parameters

Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (°)	Cohesion Type	Vertical Stress Ratio	Minimum Shear Strength (kPa)	Water Surface	Hu Type	Hu
Loose to Dense Sand		18	Mohr-Coulomb	0	35				Water Table	Custom	1
Loose to Dense Sand (Liquefied)		18	Vertical Stress Ratio				0.1	5	Water Table	Custom	0
Firm to Very Stiff Silt (Undrained)		18	Undrained	80	0	Constant			Water Table	Custom	0
Engineer Fill		18	Mohr-Coulomb	0	35				Water Table	Custom	1

CMW Geosidences
Smart People. Practical Solutions.

Project

SL1 - Stage 1 Residential

Analysis

Cuckoo

Project No.

HAM2025-0056

Title

Prelim RW Section

Date

9/06/2026

Drawing

STAB 02

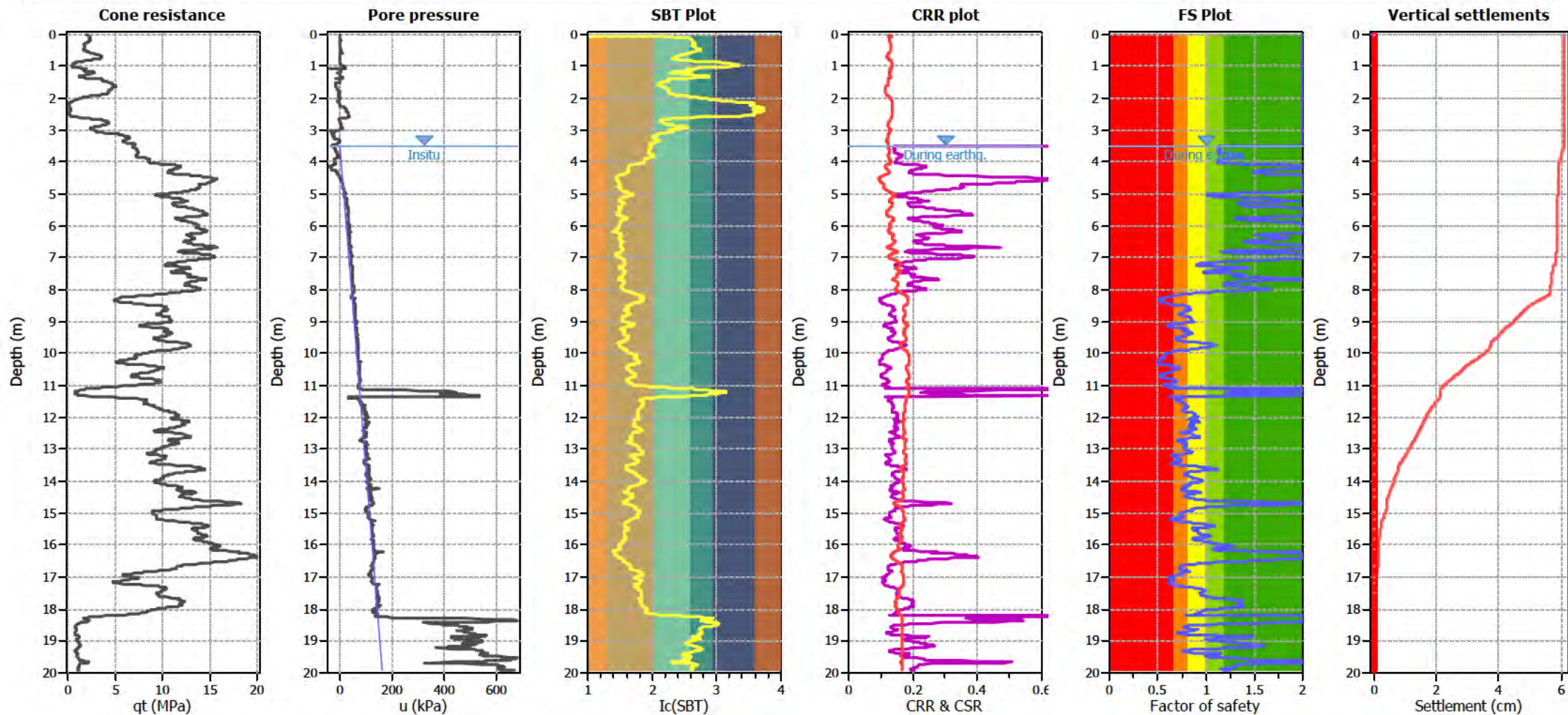
Appendix F: Liquefaction Analysis Results Summary

Project:

Location:

CPT: CPT-01

Total depth: 19.92 m



Analysis method: B&I (2014)
Fines correction method: B&I (2014)
Points to test: Based on Ic value
Earthquake magnitude M_w : 5.90
Peak ground acceleration: 0.25

G.W.T. (in-situ): 3.50 m
G.W.T. (earthq.): 3.50 m
Average results interval: 3
Ic cut-off value: 2.60
Unit weight calculation: Based on SBT

Use fill: No
Fill height: N/A
Fill weight: N/A
Trans. detect. applied: No
 K_σ applied: Yes

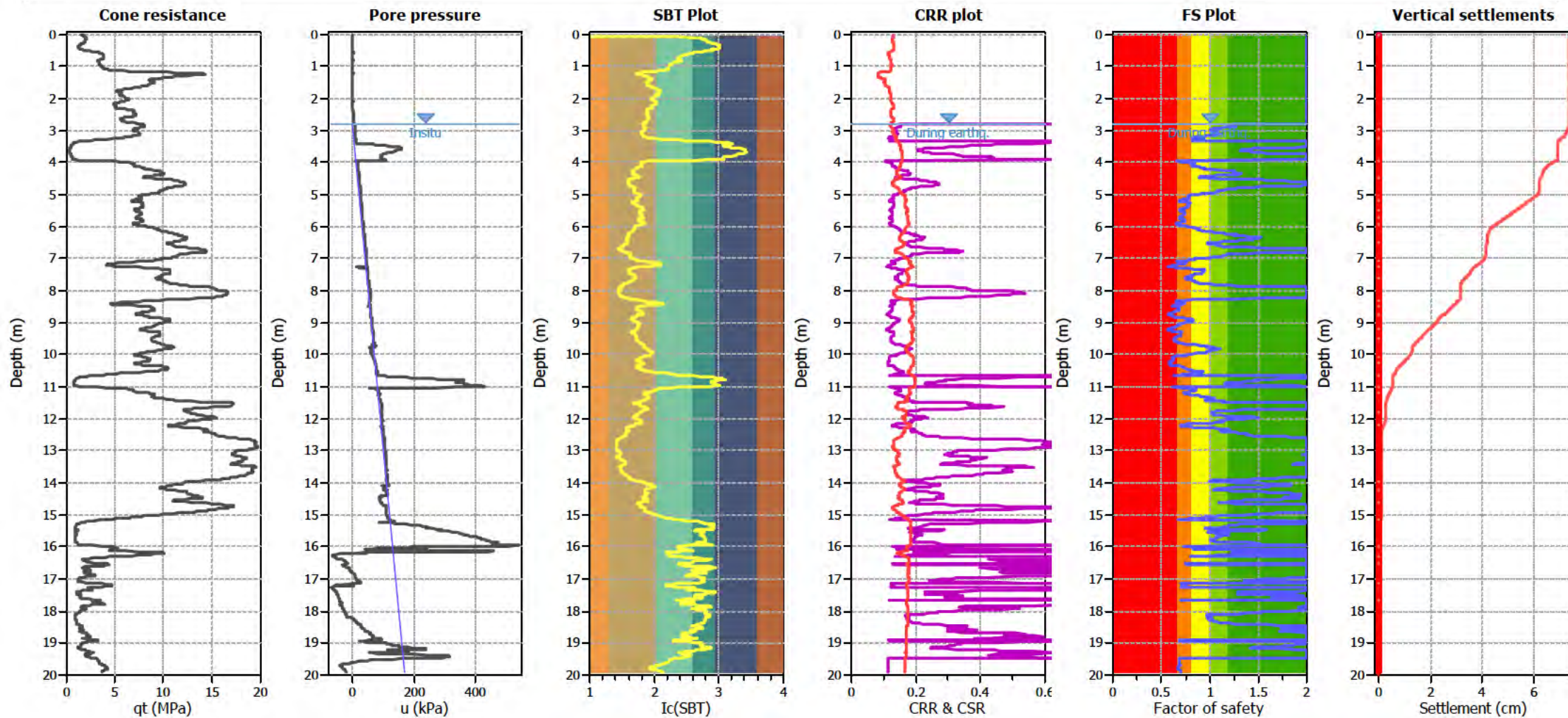
Clay like behavior applied: .
Limit depth applied: No
Limit depth: N/A
MSF method: Method based

Project:

Location:

CPT: CPT-02

Total depth: 19.92 m



Analysis method: B&I (2014)
Fines correction method: B&I (2014)
Points to test: Based on Ic value
Earthquake magnitude M_w : 5.90
Peak ground acceleration: 0.25

G.W.T. (in-situ): 2.80 m
G.W.T. (earthq.): 2.80 m
Average results interval: 3
Ic cut-off value: 2.60
Unit weight calculation: Based on SBT

Use fill: No
Fill height: N/A
Fill weight: N/A
Trans. detect. applied: No
 K_σ applied: Yes

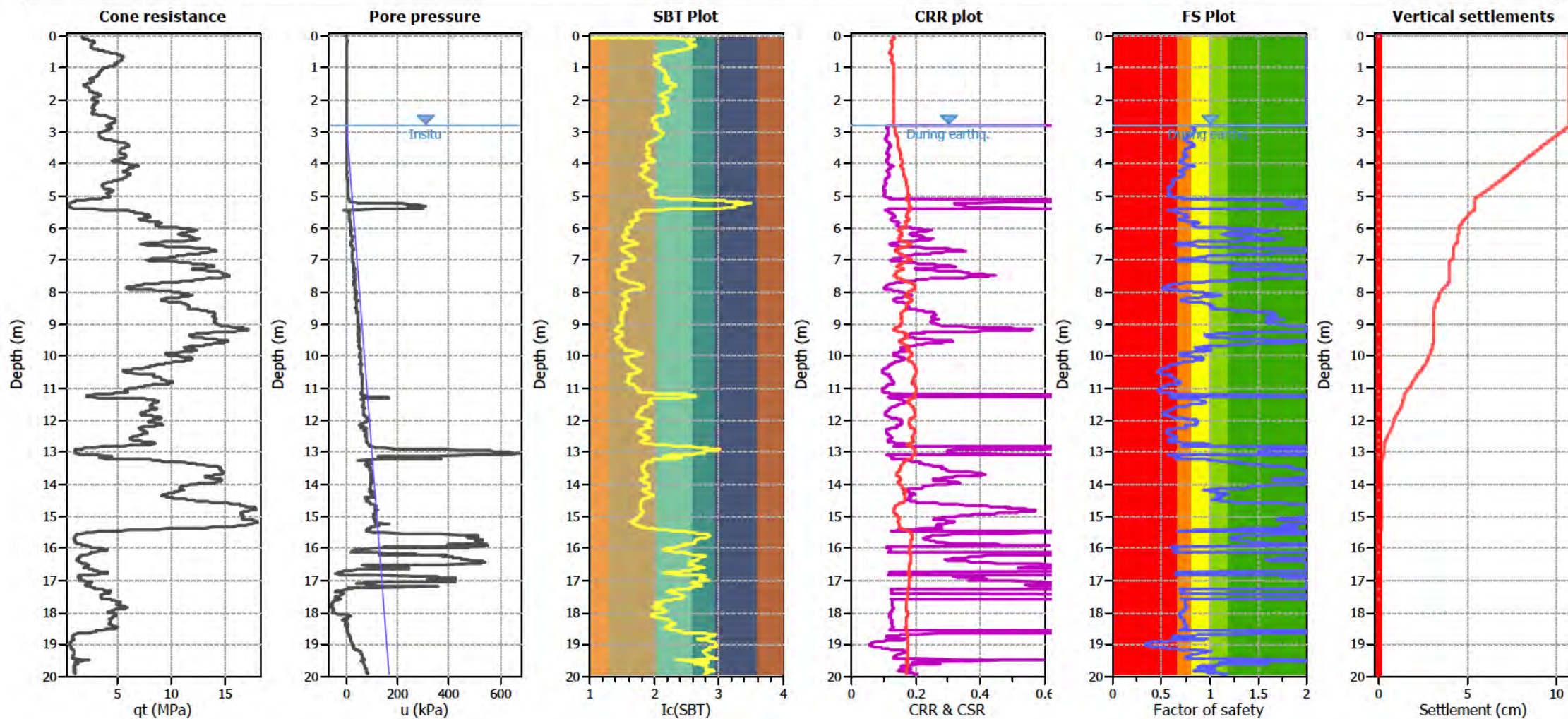
Clay like behavior applied: .
Limit depth applied: No
Limit depth: N/A
MSF method: Method based

Project:

Location:

CPT: CPT-03

Total depth: 19.92 m



Analysis method: B&I (2014)
Fines correction method: B&I (2014)
Points to test: Based on I_c value
Earthquake magnitude M_w : 5.90
Peak ground acceleration: 0.25

G.W.T. (in-situ): 2.80 m
G.W.T. (earthq.): 2.80 m
Average results interval: 3
 I_c cut-off value: 2.60
Unit weight calculation: Based on SBT

Use fill: No
Fill height: N/A
Fill weight: N/A
Trans. detect. applied: No
 K_σ applied: Yes

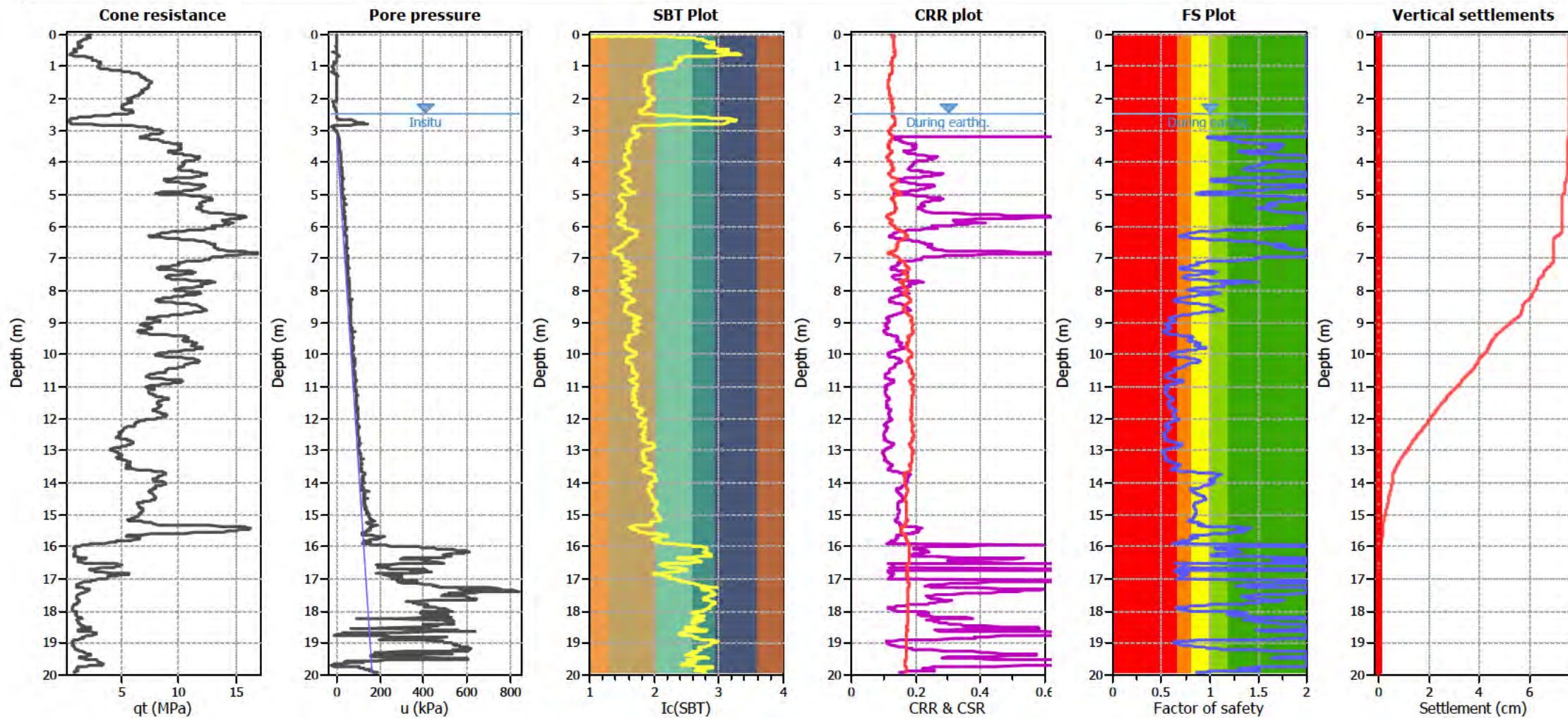
Clay like behavior applied: .
Limit depth applied: No
Limit depth: N/A
MSF method: Method based

Project:

Location:

CPT: CPT-04

Total depth: 19.92 m



Analysis method: B&I (2014)
Fines correction method: B&I (2014)
Points to test: Based on Ic value
Earthquake magnitude M_w : 5.90
Peak ground acceleration: 0.25

G.W.T. (in-situ): 2.50 m
G.W.T. (earthq.): 2.50 m
Average results interval: 3
Ic cut-off value: 2.60
Unit weight calculation: Based on SBT

Use fill: No
Fill height: N/A
Fill weight: N/A
Trans. detect. applied: No
 K_σ applied: Yes

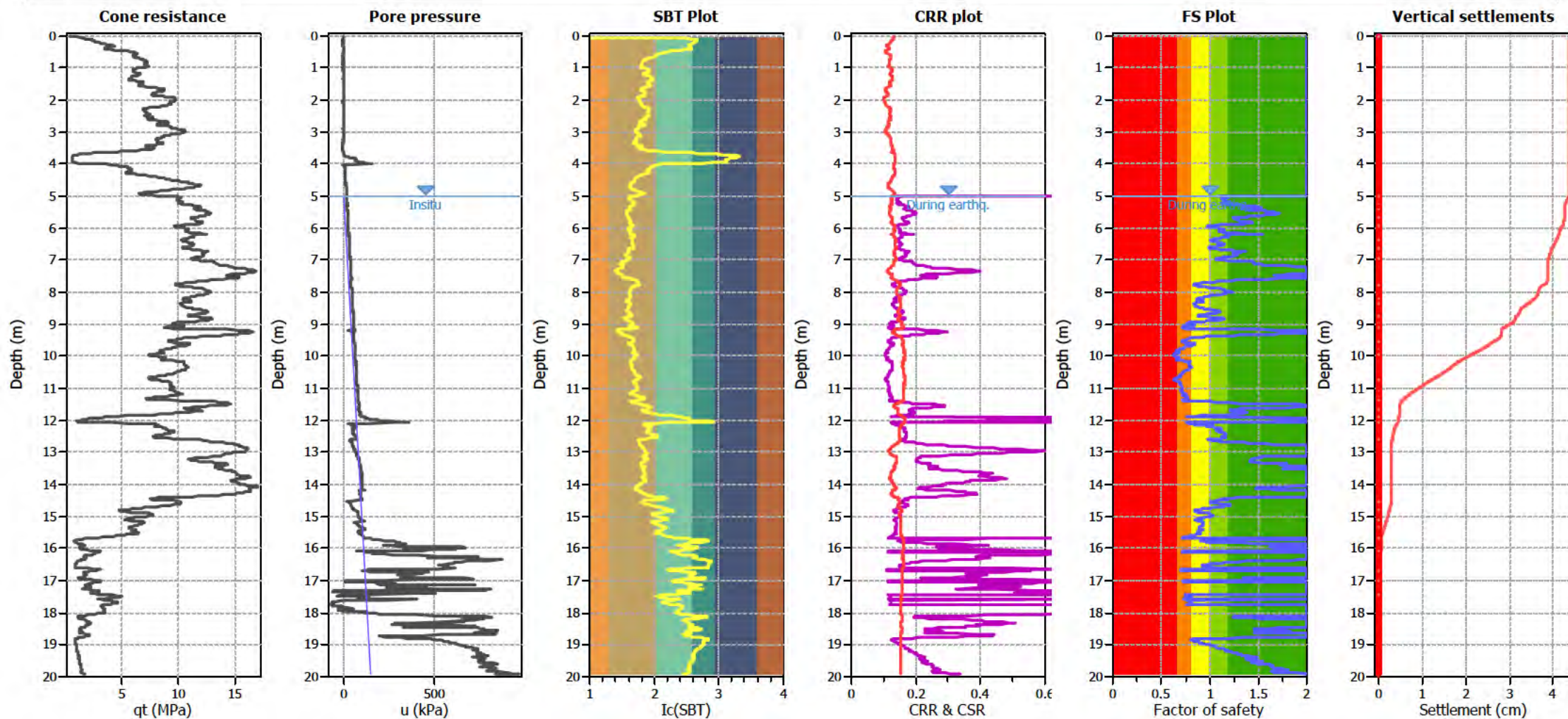
Clay like behavior applied: .
Limit depth applied: No
Limit depth: N/A
MSF method: Method based

Project:

Location:

CPT: CPT-05

Total depth: 19.92 m



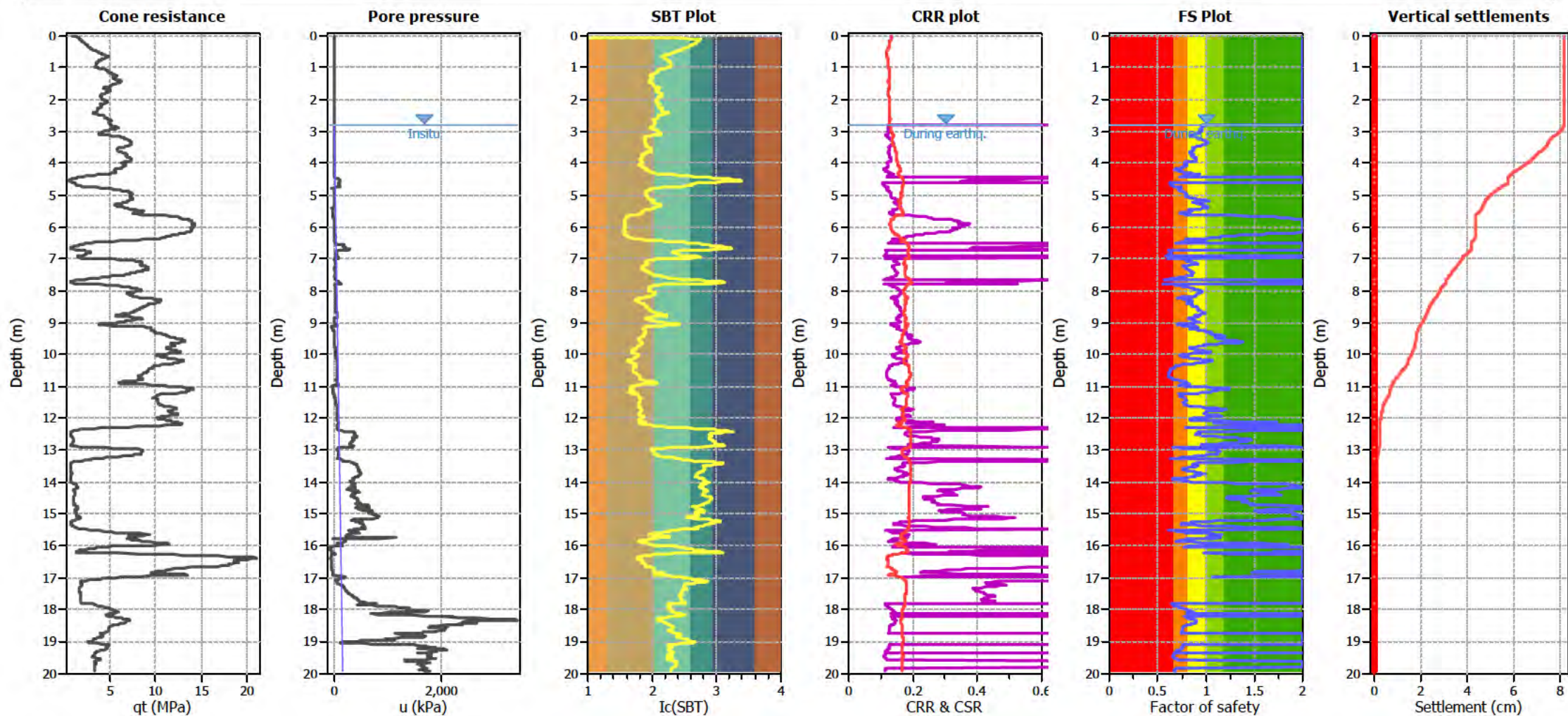
Analysis method:	B&I (2014)	G.W.T. (in-situ):	5.00 m	Use fill:	No	Clay like behavior	
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	5.00 m	Fill height:	N/A	applied:	.
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth applied:	No
Earthquake magnitude M_w :	5.90	Ic cut-off value:	2.60	Trans. detect. applied:	No	Limit depth:	N/A
Peak ground acceleration:	0.25	Unit weight calculation:	Based on SBT	K_0 applied:	Yes	MSF method:	Method based

Project:

Location:

CPT: CPT-06

Total depth: 19.93 m



Analysis method:	B&I (2014)	G.W.T. (in-situ):	2.80 m
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.80 m
Points to test:	Based on Ic value	Average results interval:	3
Earthquake magnitude M_w :	5.90	Ic cut-off value:	2.60
Peak ground acceleration:	0.25	Unit weight calculation:	Based on SBT

Use fill:	No
Fill height:	N/A
Fill weight:	N/A
Trans. detect. applied:	No
K_σ applied:	Yes

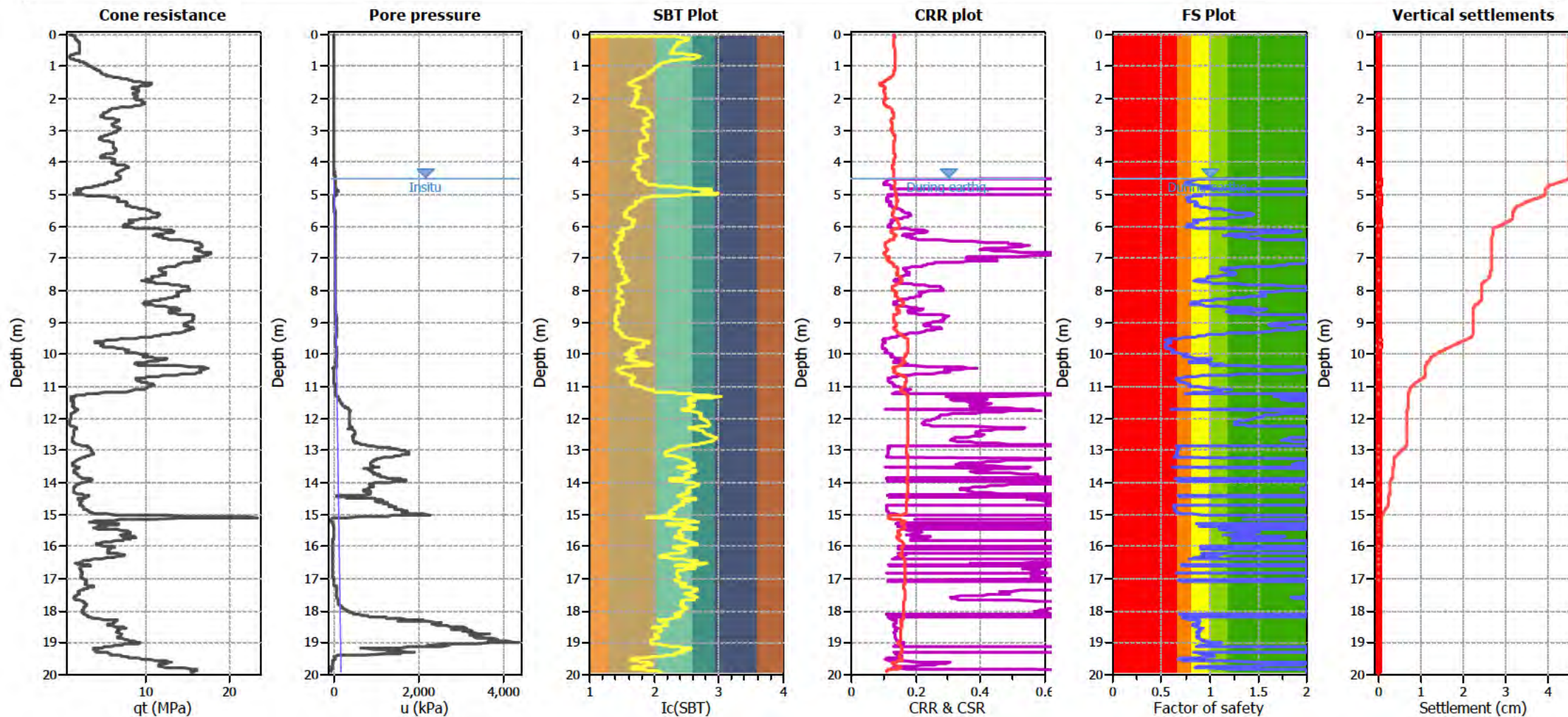
Clay like behavior applied:	.
Limit depth applied:	No
Limit depth:	N/A
MSF method:	Method based

Project:

Location:

CPT: CPT-07

Total depth: 19.92 m



Analysis method: B&I (2014)
Fines correction method: B&I (2014)
Points to test: Based on Ic value
Earthquake magnitude M_w : 5.90
Peak ground acceleration: 0.25

G.W.T. (in-situ): 4.50 m
G.W.T. (earthq.): 4.50 m
Average results interval: 3
Ic cut-off value: 2.60
Unit weight calculation: Based on SBT

Use fill: No
Fill height: N/A
Fill weight: N/A
Trans. detect. applied: No
 K_σ applied: Yes

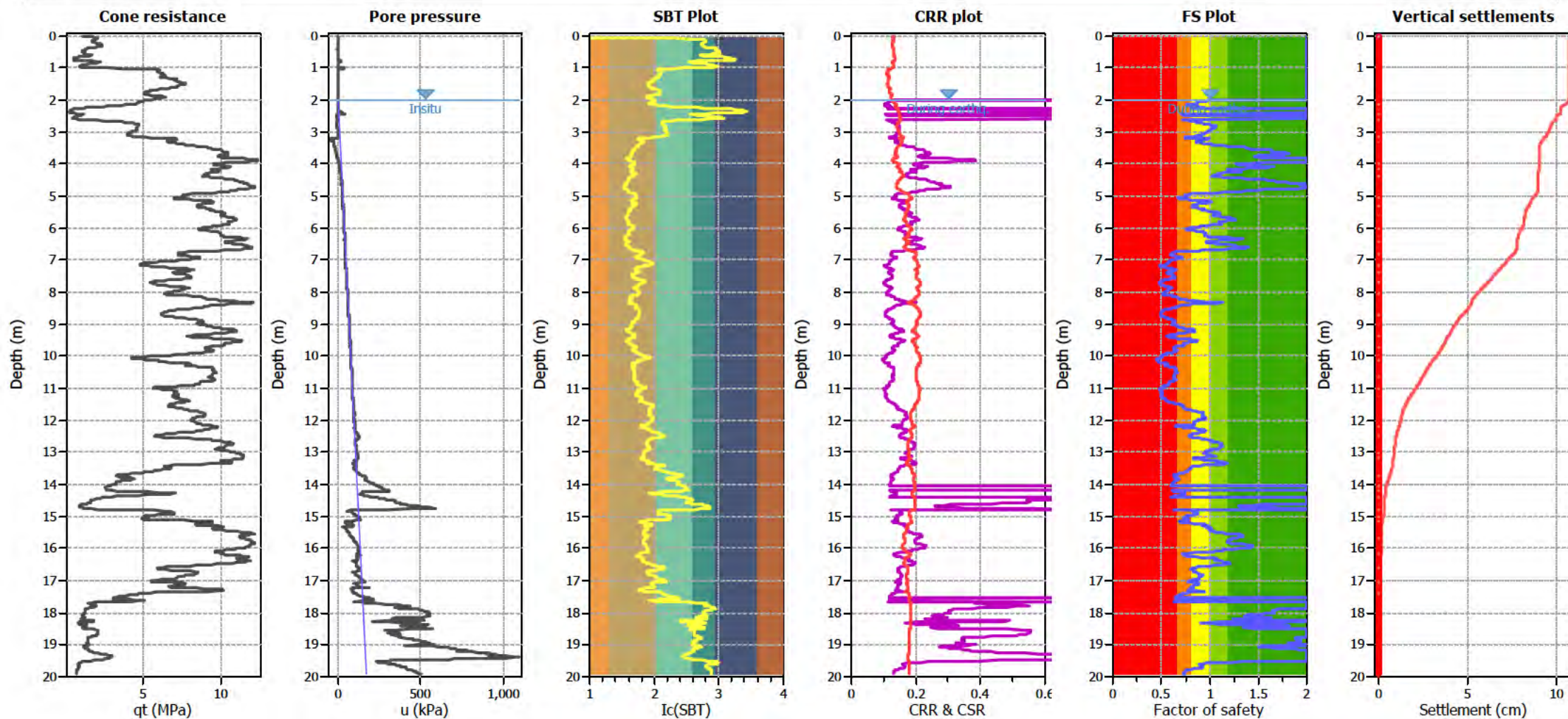
Clay like behavior applied: .
Limit depth applied: No
Limit depth: N/A
MSF method: Method based

Project:

Location:

CPT: CPT-08

Total depth: 19.92 m



Analysis method: B&I (2014)
Fines correction method: B&I (2014)
Points to test: Based on Ic value
Earthquake magnitude M_w : 5.90
Peak ground acceleration: 0.25

G.W.T. (in-situ): 2.00 m
G.W.T. (earthq.): 2.00 m
Average results interval: 3
Ic cut-off value: 2.60
Unit weight calculation: Based on SBT

Use fill: No
Fill height: N/A
Fill weight: N/A
Trans. detect. applied: No
 K_σ applied: Yes

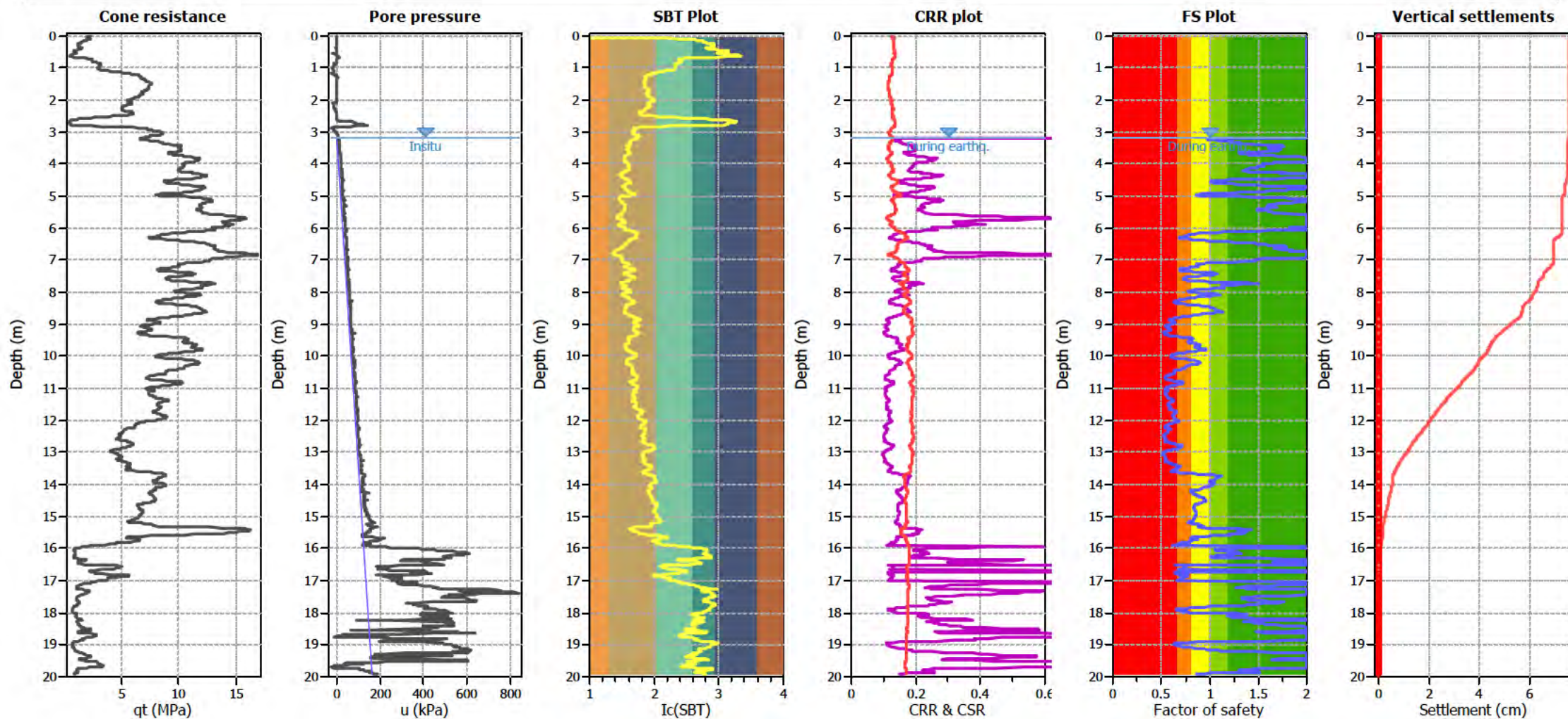
Clay like behavior applied: .
Limit depth applied: No
Limit depth: N/A
MSF method: Method based

Project:

Location:

CPT: CPT-09

Total depth: 19.92 m



Analysis method:	B&I (2014)	G.W.T. (in-situ):	3.20 m
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	3.20 m
Points to test:	Based on Ic value	Average results interval:	3
Earthquake magnitude M_w :	5.90	Ic cut-off value:	2.60
Peak ground acceleration:	0.25	Unit weight calculation:	Based on SBT

Use fill:	No
Fill height:	N/A
Fill weight:	N/A
Trans. detect. applied:	No
K_σ applied:	Yes

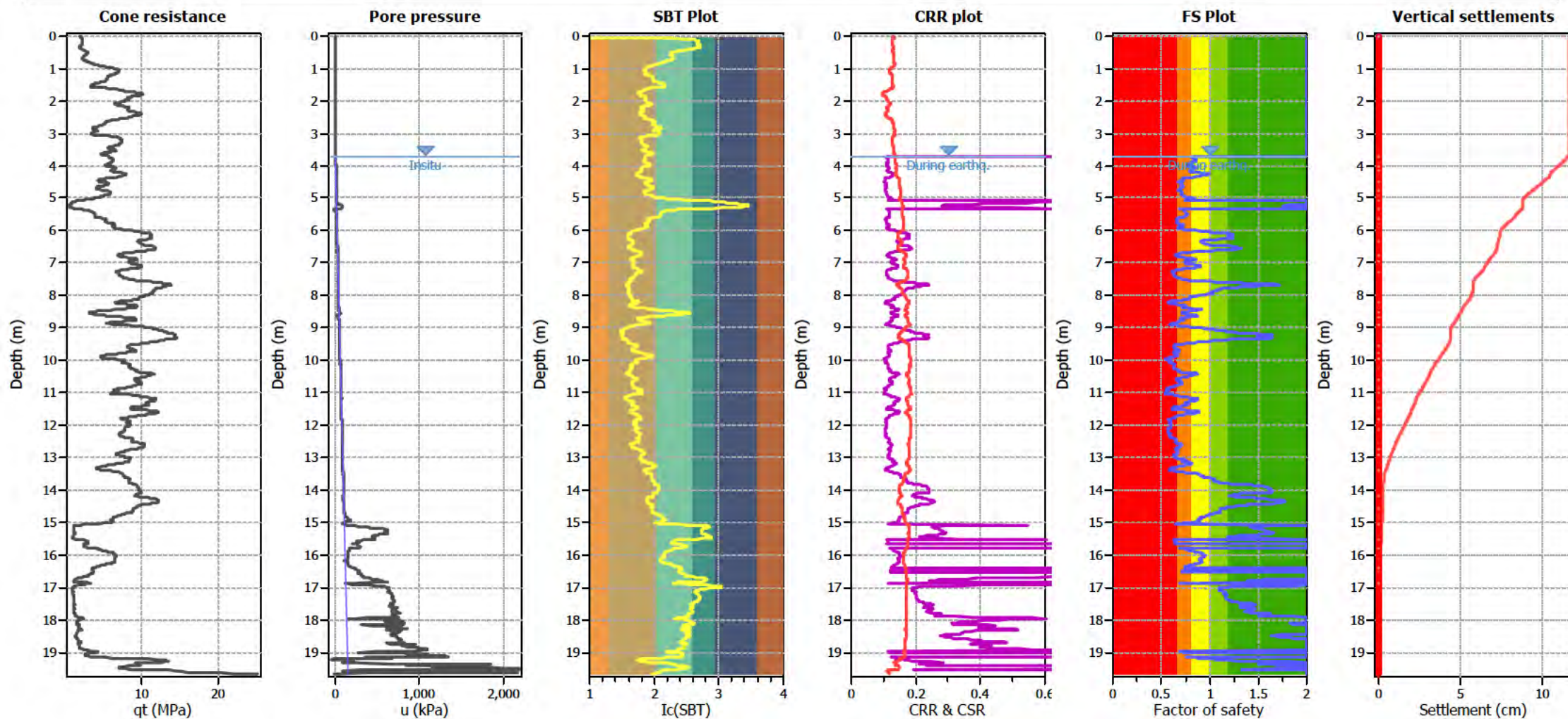
Clay like behavior applied:	.
Limit depth applied:	No
Limit depth:	N/A
MSF method:	Method based

Project:

Location:

CPT: CPT-10

Total depth: 19.67 m



Analysis method: B&I (2014)
Fines correction method: B&I (2014)
Points to test: Based on I_c value
Earthquake magnitude M_w : 5.90
Peak ground acceleration: 0.25

G.W.T. (in-situ): 3.70 m
G.W.T. (earthq.): 3.70 m
Average results interval: 3
 I_c cut-off value: 2.60
Unit weight calculation: Based on SBT

Use fill: No
Fill height: N/A
Fill weight: N/A
Trans. detect. applied: No
 K_σ applied: Yes

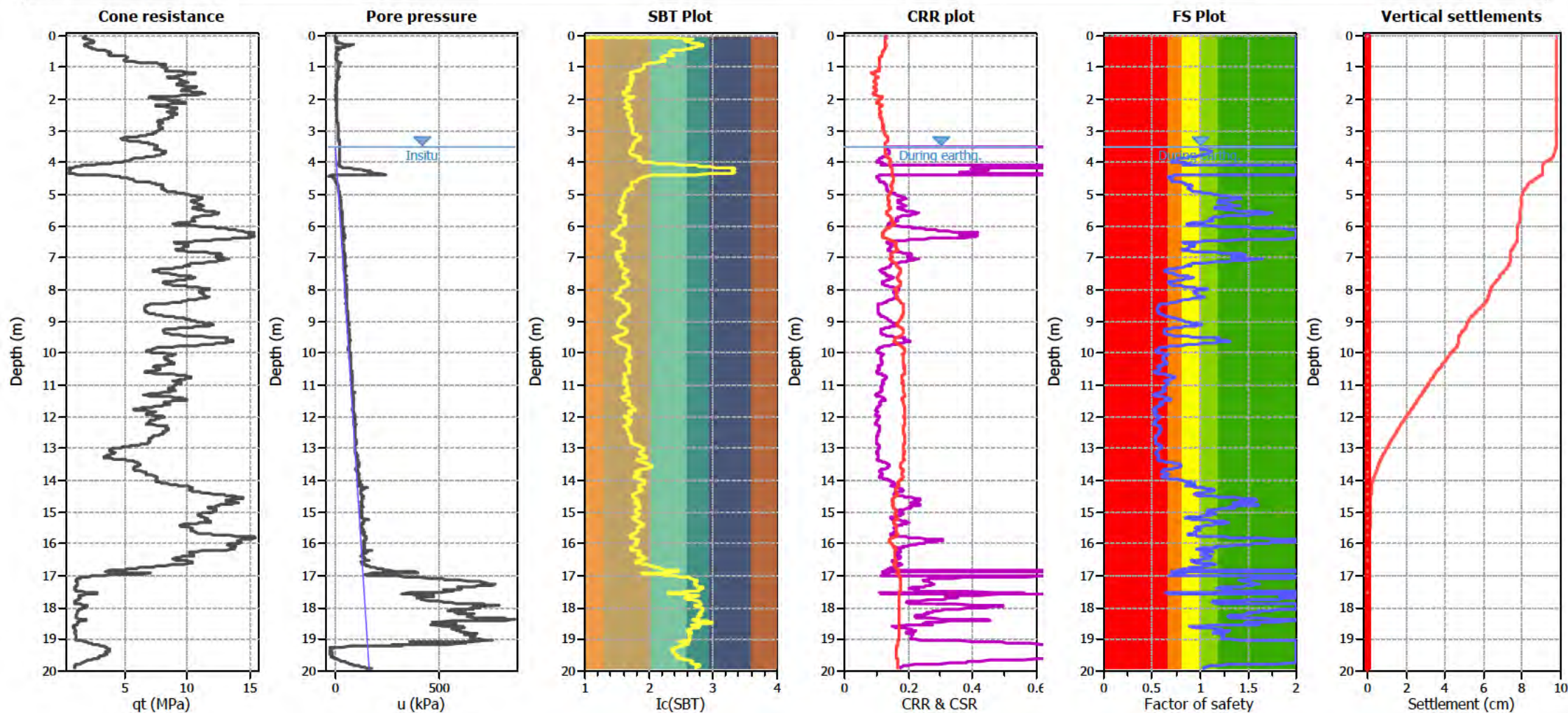
Clay like behavior applied: .
Limit depth applied: No
Limit depth: N/A
MSF method: Method based

Project:

Location:

CPT: CPT-11

Total depth: 19.92 m



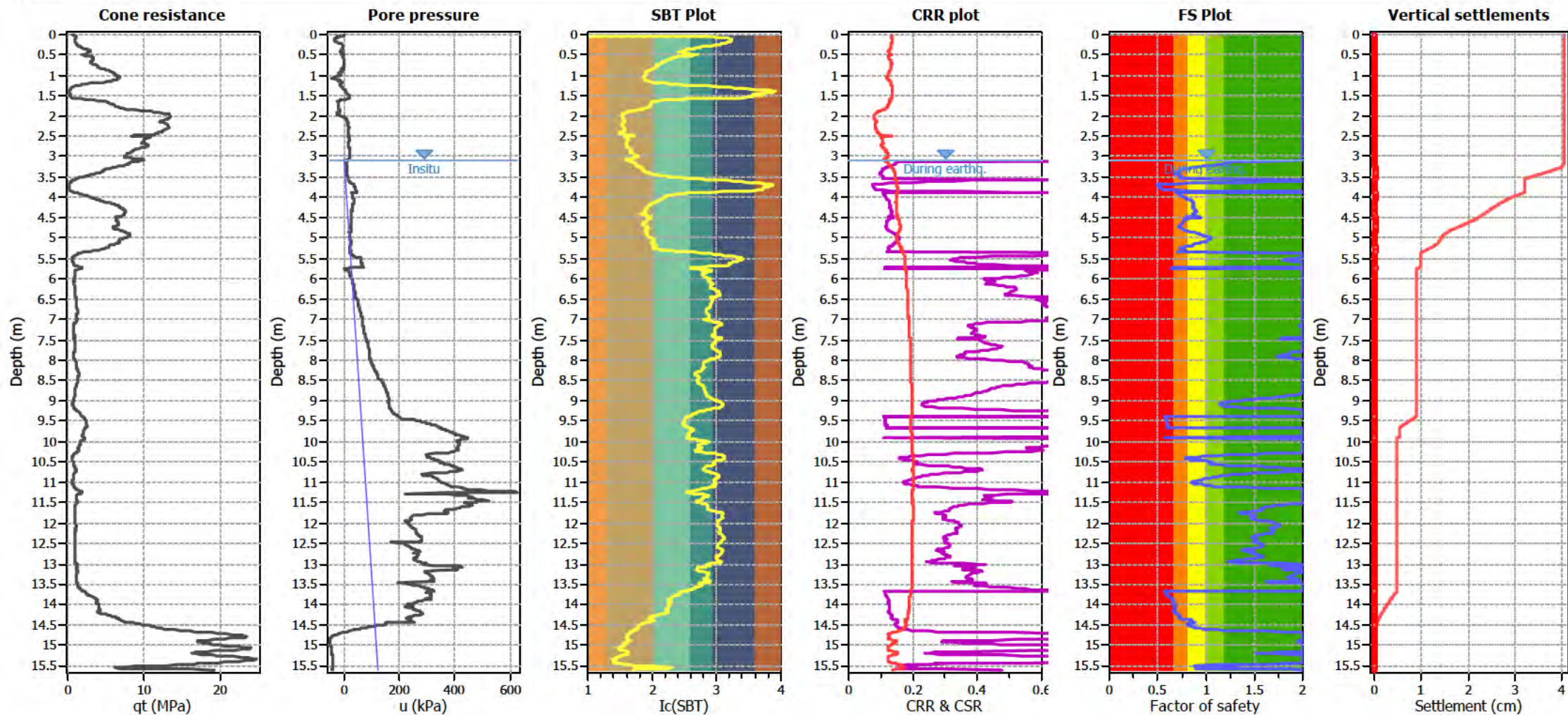
Analysis method:	B&I (2014)	G.W.T. (in-situ):	3.50 m	Use fill:	No	Clay like behavior applied:	.
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	3.50 m	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w :	5.90	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method based
Peak ground acceleration:	0.25	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

Project:

Location:

CPT: CPT_87646

Total depth: 15.61 m



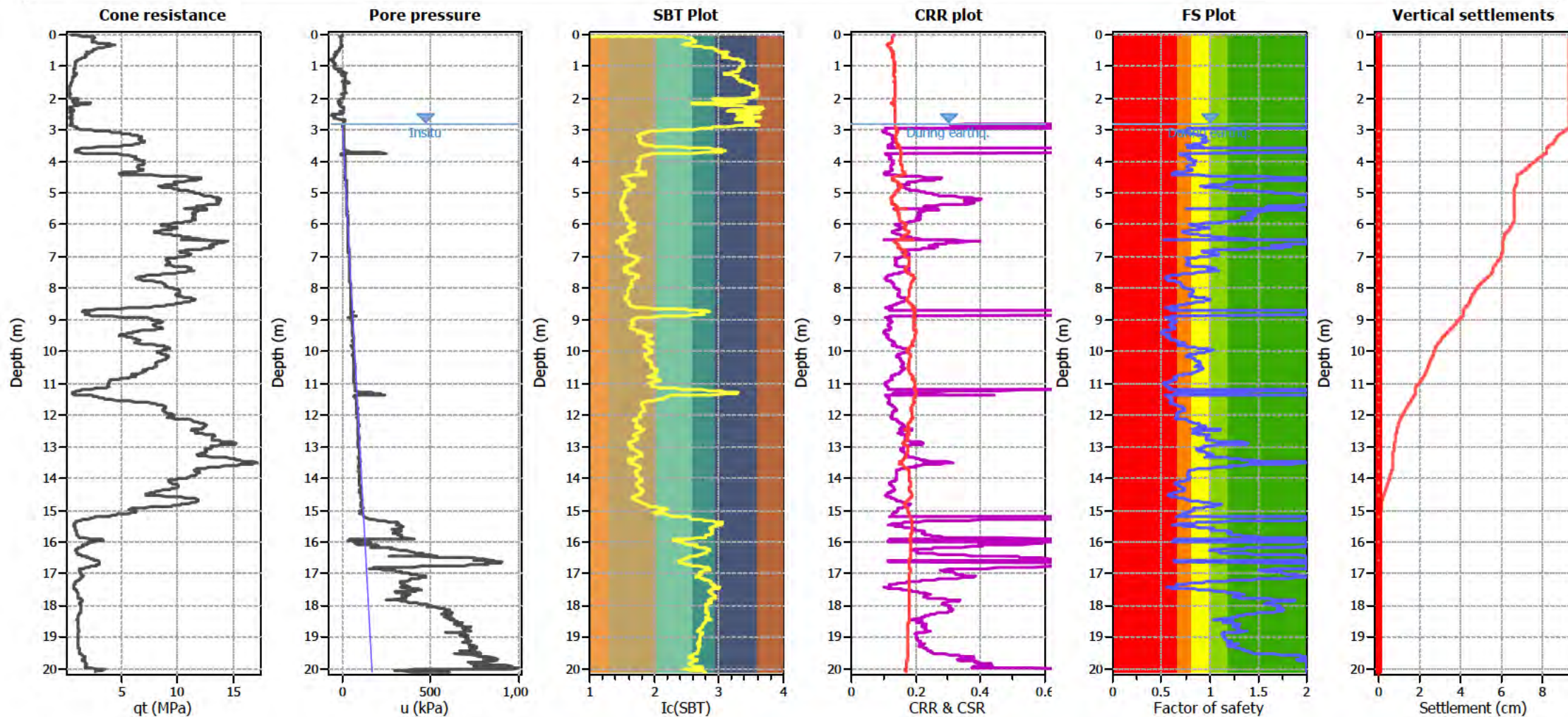
Analysis method:	B&I (2014)	G.W.T. (in-situ):	3.10 m	Use fill:	No	Clay like behavior	
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	3.10 m	Fill height:	N/A	applied:	.
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth applied:	No
Earthquake magnitude M_w :	5.90	Ic cut-off value:	2.60	Trans. detect. applied:	No	Limit depth:	N/A
Peak ground acceleration:	0.25	Unit weight calculation:	Based on SBT	K_0 applied:	Yes	MSF method:	Method based

Project:

Location:

CPT: CPT_87648

Total depth: 20.10 m



Analysis method: B&I (2014)
Fines correction method: B&I (2014)
Points to test: Based on I_c value
Earthquake magnitude M_w : 5.90
Peak ground acceleration: 0.25

G.W.T. (in-situ): 2.80 m
G.W.T. (earthq.): 2.80 m
Average results interval: 3
 I_c cut-off value: 2.60
Unit weight calculation: Based on SBT

Use fill: No
Fill height: N/A
Fill weight: N/A
Trans. detect. applied: No
 K_σ applied: Yes

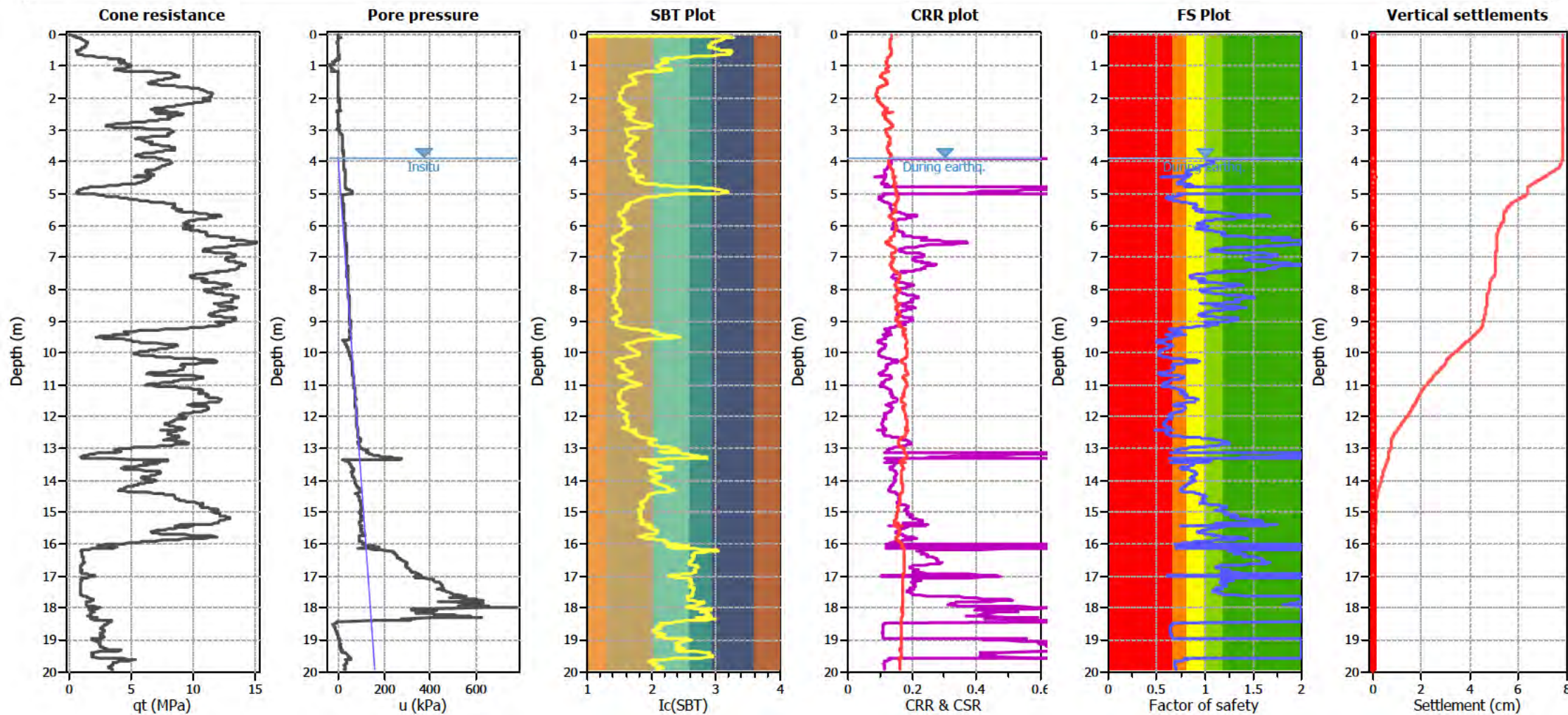
Clay like behavior applied: .
Limit depth applied: No
Limit depth: N/A
MSF method: Method based

Project:

Location:

CPT: CPT_87650

Total depth: 19.93 m



Analysis method: B&I (2014)
Fines correction method: B&I (2014)
Points to test: Based on Ic value
Earthquake magnitude M_w : 5.90
Peak ground acceleration: 0.25

G.W.T. (in-situ): 3.90 m
G.W.T. (earthq.): 3.90 m
Average results interval: 3
Ic cut-off value: 2.60
Unit weight calculation: Based on SBT

Use fill: No
Fill height: N/A
Fill weight: N/A
Trans. detect. applied: No
 K_σ applied: Yes

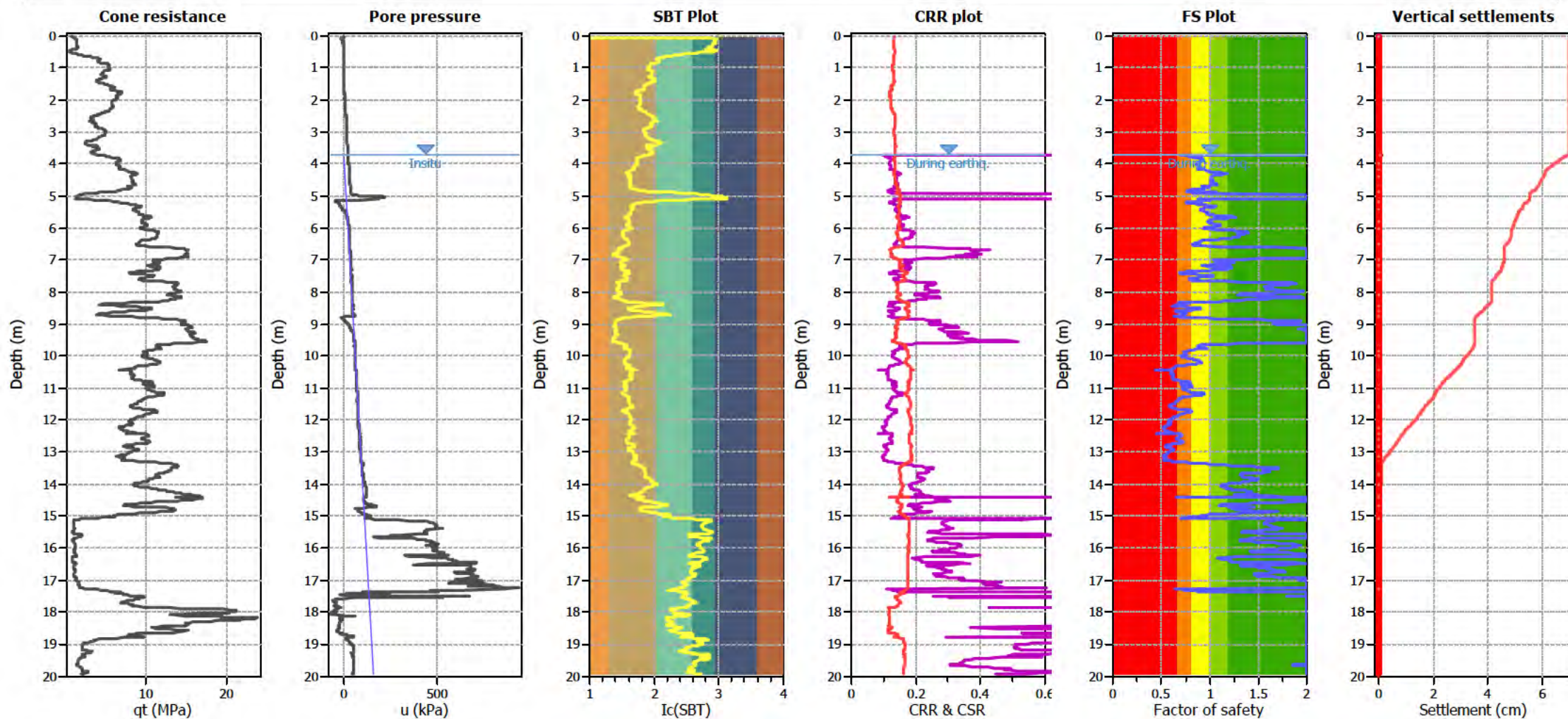
Clay like behavior applied: .
Limit depth applied: No
Limit depth: N/A
MSF method: Method based

Project:

Location:

CPT: CPT_87652

Total depth: 19.93 m



Analysis method: B&I (2014)
Fines correction method: B&I (2014)
Points to test: Based on Ic value
Earthquake magnitude M_w : 5.90
Peak ground acceleration: 0.25

G.W.T. (in-situ): 3.70 m
G.W.T. (earthq.): 3.70 m
Average results interval: 3
Ic cut-off value: 2.60
Unit weight calculation: Based on SBT

Use fill: No
Fill height: N/A
Fill weight: N/A
Trans. detect. applied: No
 K_σ applied: Yes

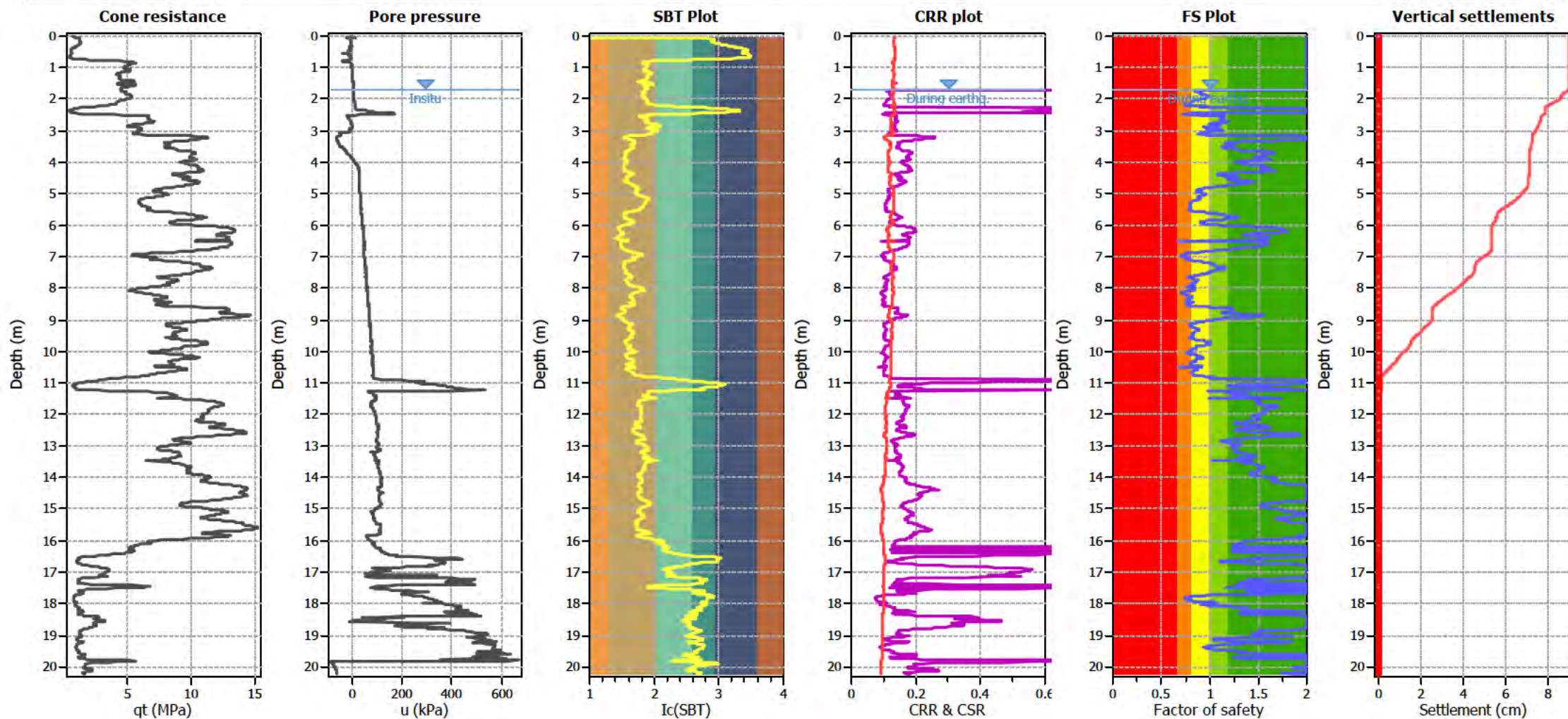
Clay like behavior applied: .
Limit depth applied: No
Limit depth: N/A
MSF method: Method based

Project:

Location:

CPT: CPT_87654

Total depth: 20.23 m



Analysis method: B&I (2014)
Fines correction method: B&I (2014)
Points to test: Based on I_c value
Earthquake magnitude M_w : 5.90
Peak ground acceleration: 0.25

G.W.T. (in-situ): 1.70 m
G.W.T. (earthq.): 1.70 m
Average results interval: 3
 I_c cut-off value: 2.60
Unit weight calculation: Based on SBT

Use fill: No
Fill height: N/A
Fill weight: N/A
Trans. detect. applied: No
 K_σ applied: Yes

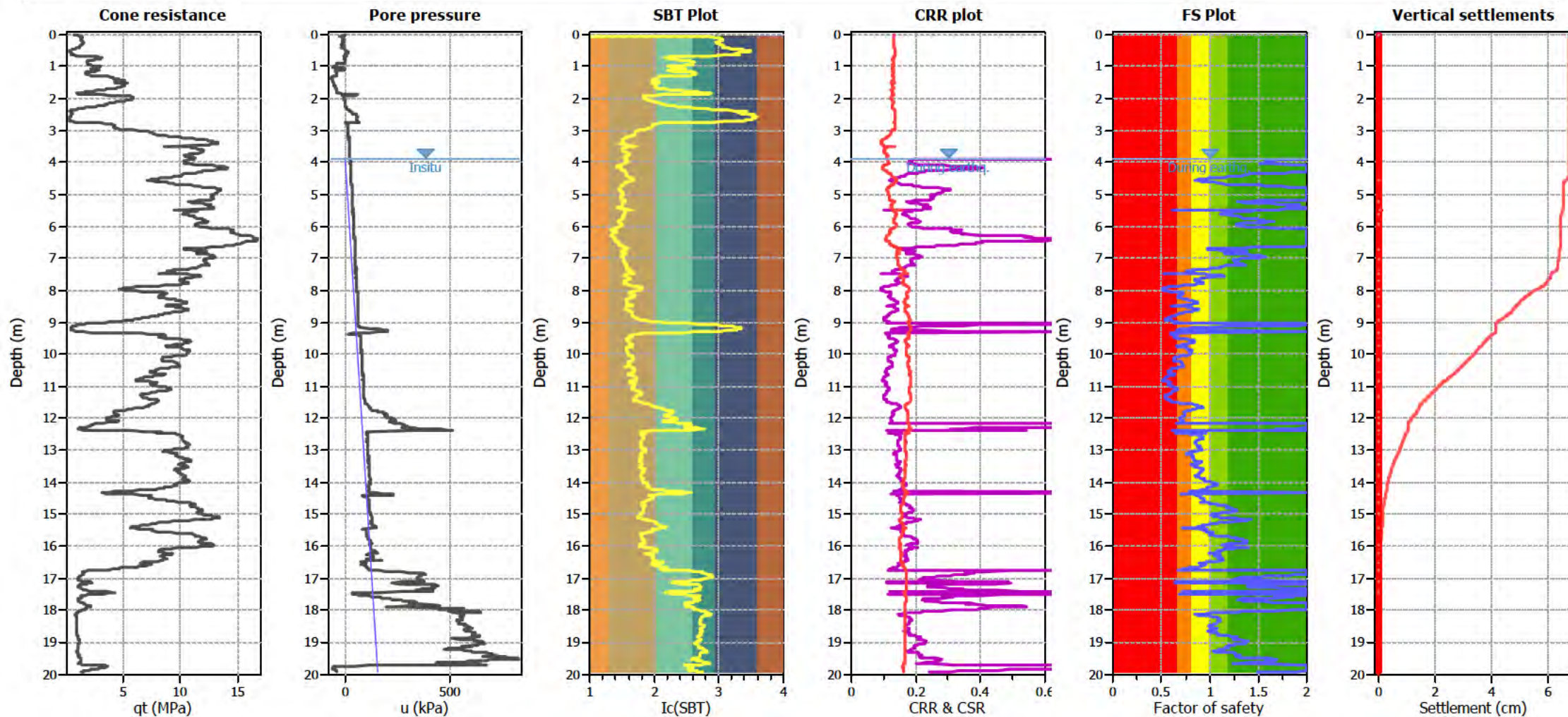
Clay like behavior applied: .
Limit depth applied: No
Limit depth: N/A
MSF method: Method based

Project:

Location:

CPT: CPT_87655

Total depth: 19.93 m



Analysis method: B&I (2014)
Fines correction method: B&I (2014)
Points to test: Based on I_c value
Earthquake magnitude M_w : 5.90
Peak ground acceleration: 0.25

G.W.T. (in-situ): 3.90 m
G.W.T. (earthq.): 3.90 m
Average results interval: 3
 I_c cut-off value: 2.60
Unit weight calculation: Based on SBT

Use fill: No
Fill height: N/A
Fill weight: N/A
Trans. detect. applied: No
 K_σ applied: Yes

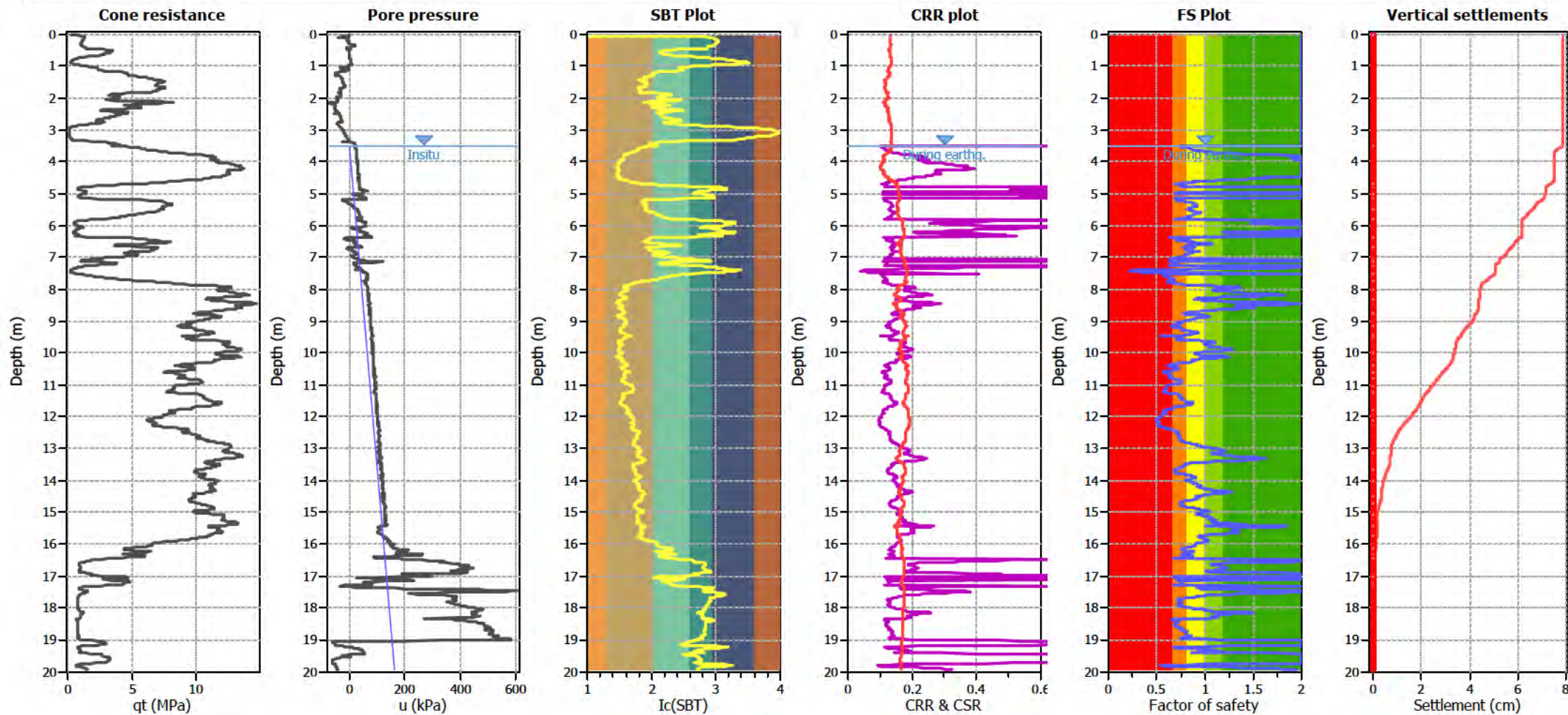
Clay like behavior applied: .
Limit depth applied: No
Limit depth: N/A
MSF method: Method based

Project:

Location:

CPT: CPT_87659

Total depth: 19.93 m



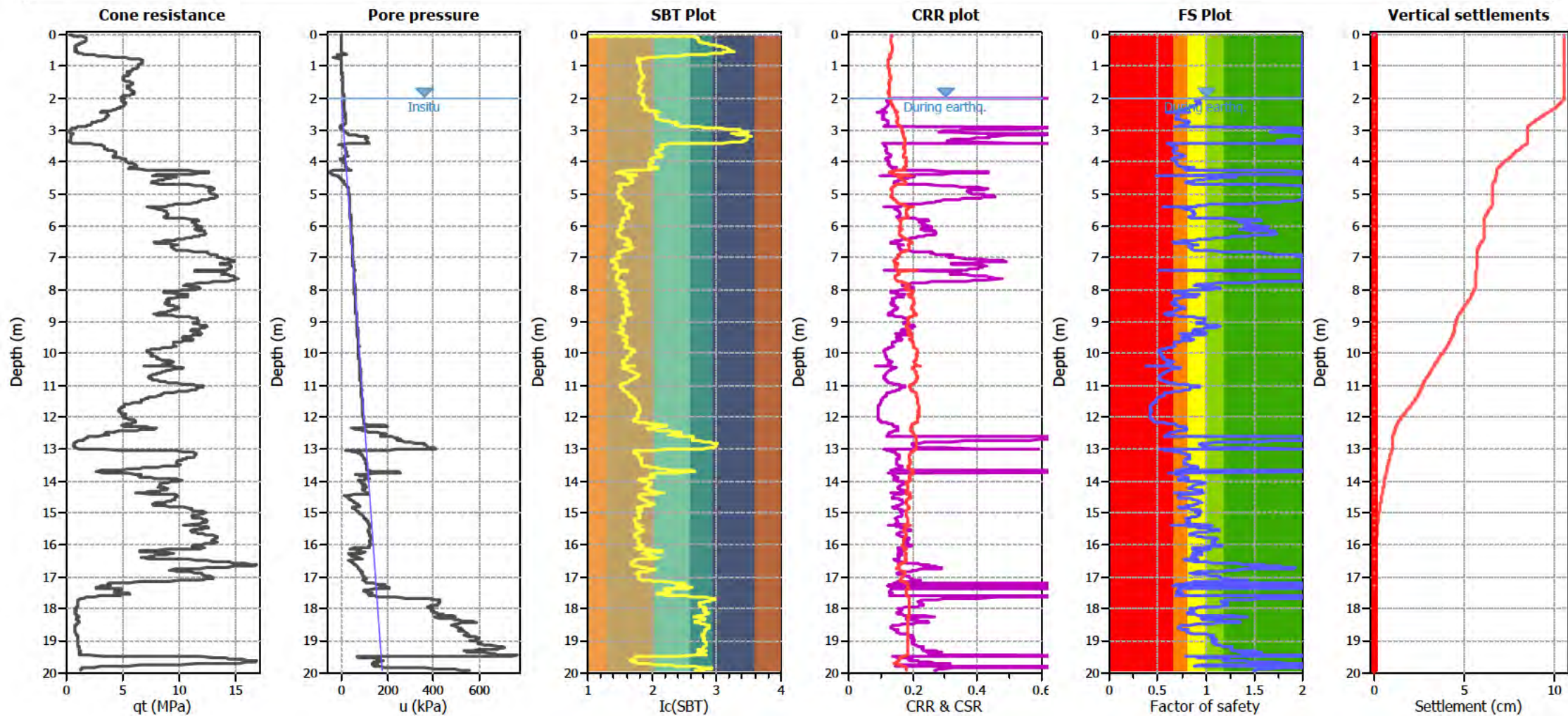
Analysis method:	B&I (2014)	G.W.T. (in-situ):	3.50 m	Use fill:	No	Clay like behavior applied:	.
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	3.50 m	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w :	5.90	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method based
Peak ground acceleration:	0.25	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

Project:

Location:

CPT: CPT_87660

Total depth: 19.93 m



Analysis method: B&I (2014)
Fines correction method: B&I (2014)
Points to test: Based on Ic value
Earthquake magnitude M_w : 5.90
Peak ground acceleration: 0.25

G.W.T. (in-situ): 2.00 m
G.W.T. (earthq.): 2.00 m
Average results interval: 3
Ic cut-off value: 2.60
Unit weight calculation: Based on SBT

Use fill: No
Fill height: N/A
Fill weight: N/A
Trans. detect. applied: No
 K_a applied: Yes

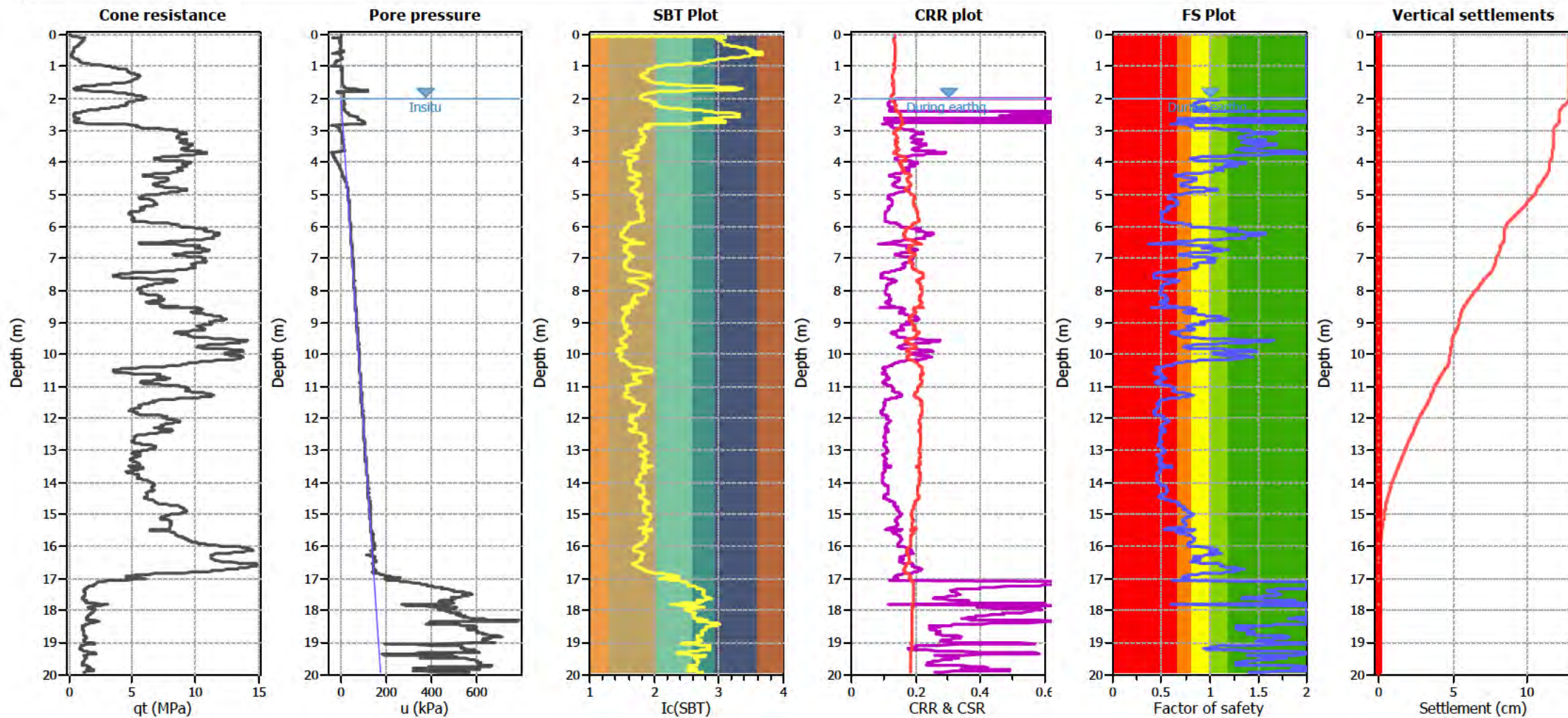
Clay like behavior applied: .
Limit depth applied: No
Limit depth: N/A
MSF method: Method based

Project:

Location:

CPT: CPT_87661

Total depth: 19.93 m



Analysis method: B&I (2014)
Fines correction method: B&I (2014)
Points to test: Based on Ic value
Earthquake magnitude M_w : 5.90
Peak ground acceleration: 0.25

G.W.T. (in-situ): 2.00 m
G.W.T. (earthq.): 2.00 m
Average results interval: 3
Ic cut-off value: 2.60
Unit weight calculation: Based on SBT

Use fill: No
Fill height: N/A
Fill weight: N/A
Trans. detect. applied: No
 K_a applied: Yes

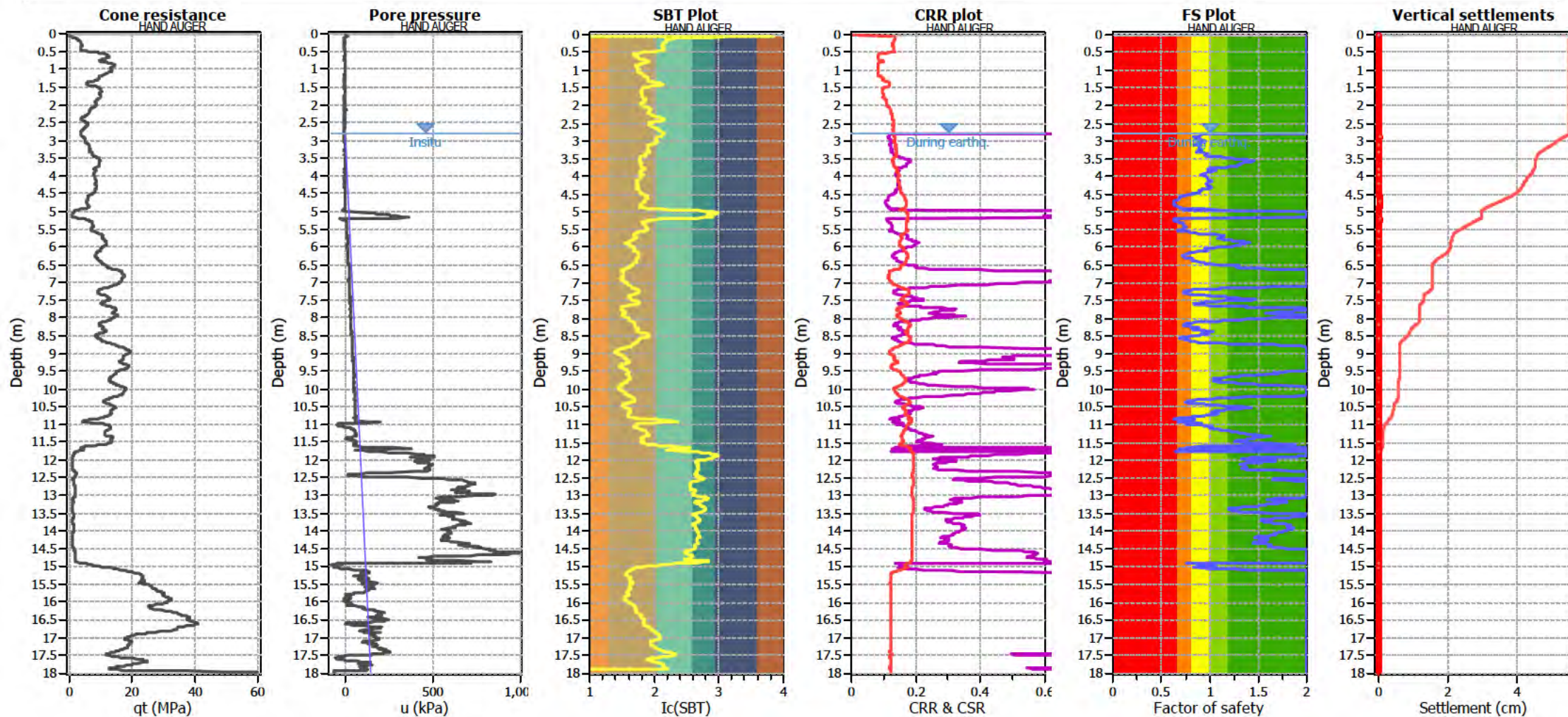
Clay like behavior applied: .
Limit depth applied: No
Limit depth: N/A
MSF method: Method based

Project:

Location:

CPT: CPT_181275

Total depth: 17.97 m



Analysis method: B&I (2014)
Fines correction method: B&I (2014)
Points to test: Based on I_c value
Earthquake magnitude M_w : 5.90
Peak ground acceleration: 0.25

G.W.T. (in-situ): 2.80 m
G.W.T. (earthq.): 2.80 m
Average results interval: 3
 I_c cut-off value: 2.60
Unit weight calculation: Based on SBT

Use fill: No
Fill height: N/A
Fill weight: N/A
Trans. detect. applied: No
 K_o applied: Yes

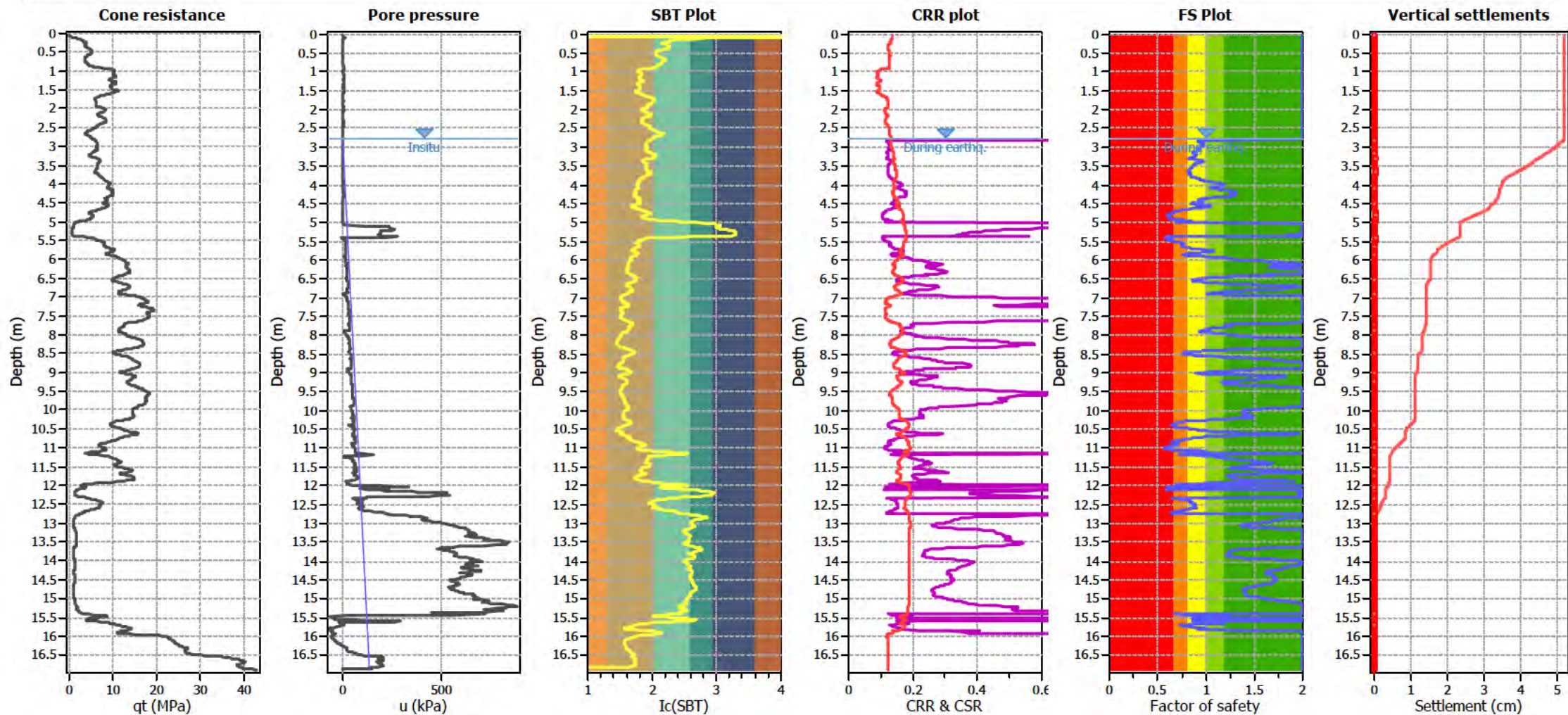
Clay like behavior applied: .
Limit depth applied: No
Limit depth: N/A
MSF method: Method based

Project:

Location:

CPT: CPT_181276

Total depth: 16.90 m



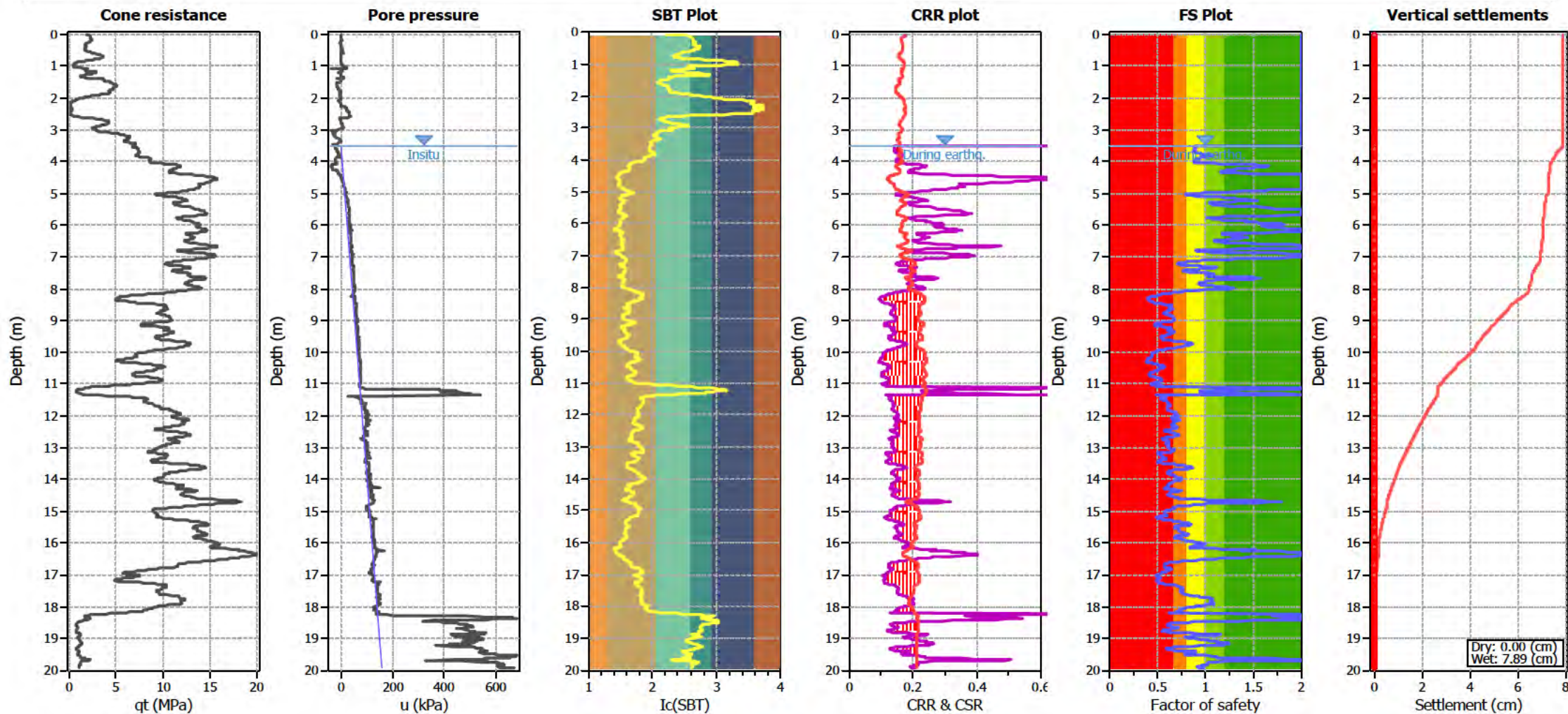
Analysis method:	B&I (2014)	G.W.T. (in-situ):	2.80 m	Use fill:	No	Clay like behavior applied:	
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.80 m	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w :	5.90	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method based
Peak ground acceleration:	0.25	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

Project:

Location:

CPT: CPT-01

Total depth: 19.92 m



Analysis method: B&I (2014)
Fines correction method: B&I (2014)
Points to test: Based on I_c value
Earthquake magnitude M_w : 5.90
Peak ground acceleration: 0.32

G.W.T. (in-situ): 3.50 m
G.W.T. (earthq.): 3.50 m
Average results interval: 3
 I_c cut-off value: 2.60
Unit weight calculation: Based on SBT

Use fill: No
Fill height: N/A
Fill weight: N/A
Trans. detect. applied: No
 K_0 applied: Yes

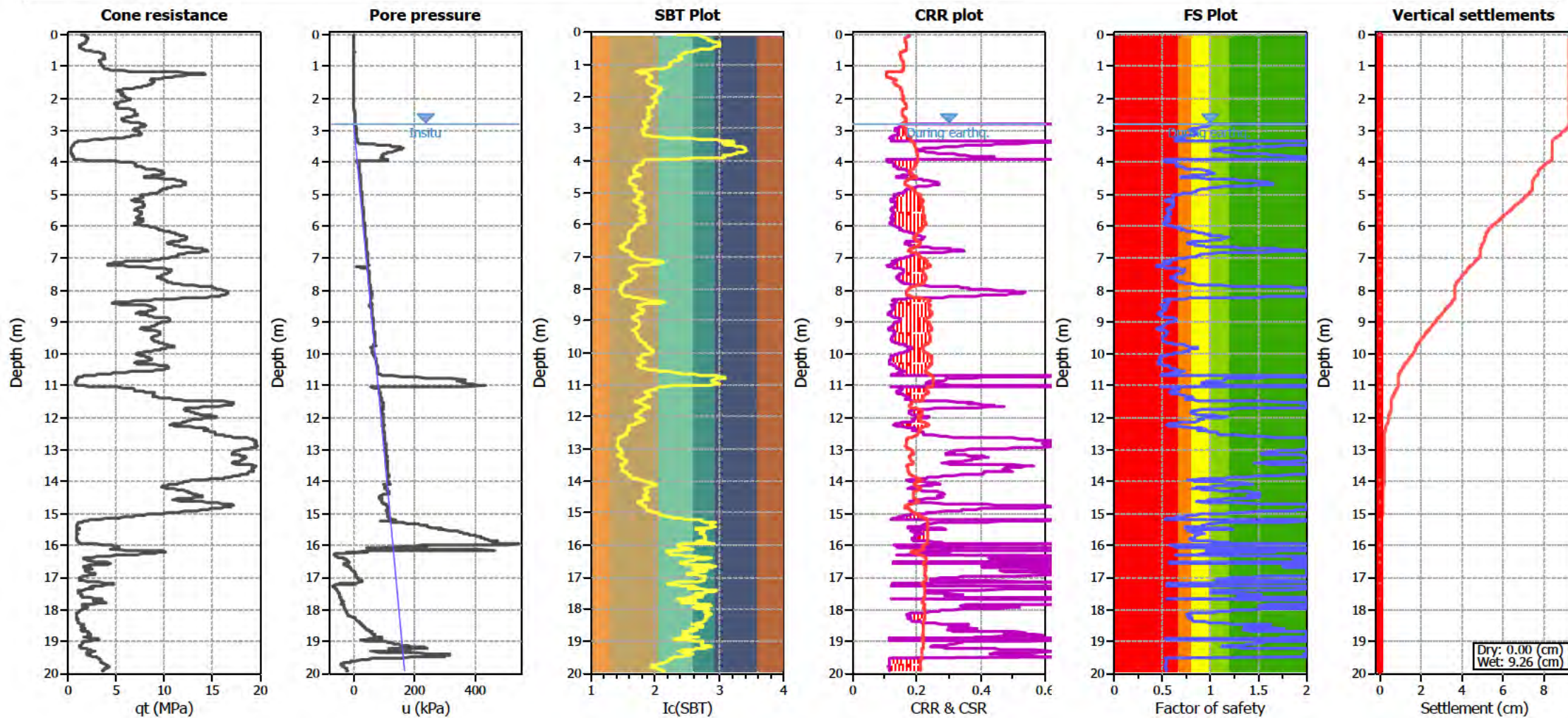
Clay like behavior applied: .
Limit depth applied: No
Limit depth: N/A
MSF method: Method based

Project:

Location:

CPT: CPT-02

Total depth: 19.92 m



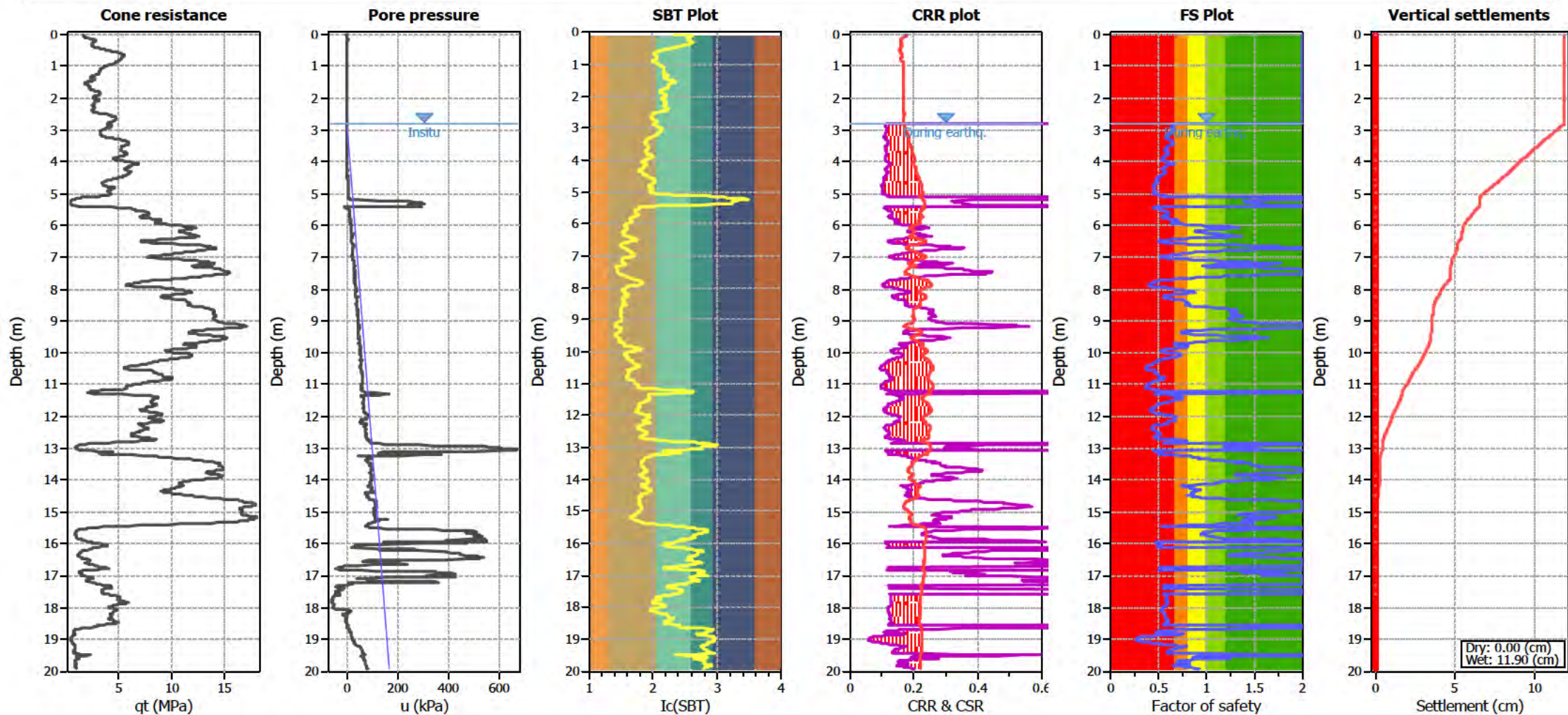
Analysis method:	B&I (2014)	G.W.T. (in-situ):	2.80 m	Use fill:	No	Clay like behavior	
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.80 m	Fill height:	N/A	applied:	.
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth applied:	No
Earthquake magnitude M_w :	5.90	Ic cut-off value:	2.60	Trans. detect. applied:	No	Limit depth:	N/A
Peak ground acceleration:	0.32	Unit weight calculation:	Based on SBT	K_0 applied:	Yes	MSF method:	Method based

Project:

Location:

CPT: CPT-03

Total depth: 19.92 m



Analysis method: B&I (2014)
Fines correction method: B&I (2014)
Points to test: Based on Ic value
Earthquake magnitude M_w : 5.90
Peak ground acceleration: 0.32

G.W.T. (in-situ): 2.80 m
G.W.T. (earthq.): 2.80 m
Average results interval: 3
Ic cut-off value: 2.60
Unit weight calculation: Based on SBT

Use fill: No
Fill height: N/A
Fill weight: N/A
Trans. detect. applied: No
 K_0 applied: Yes

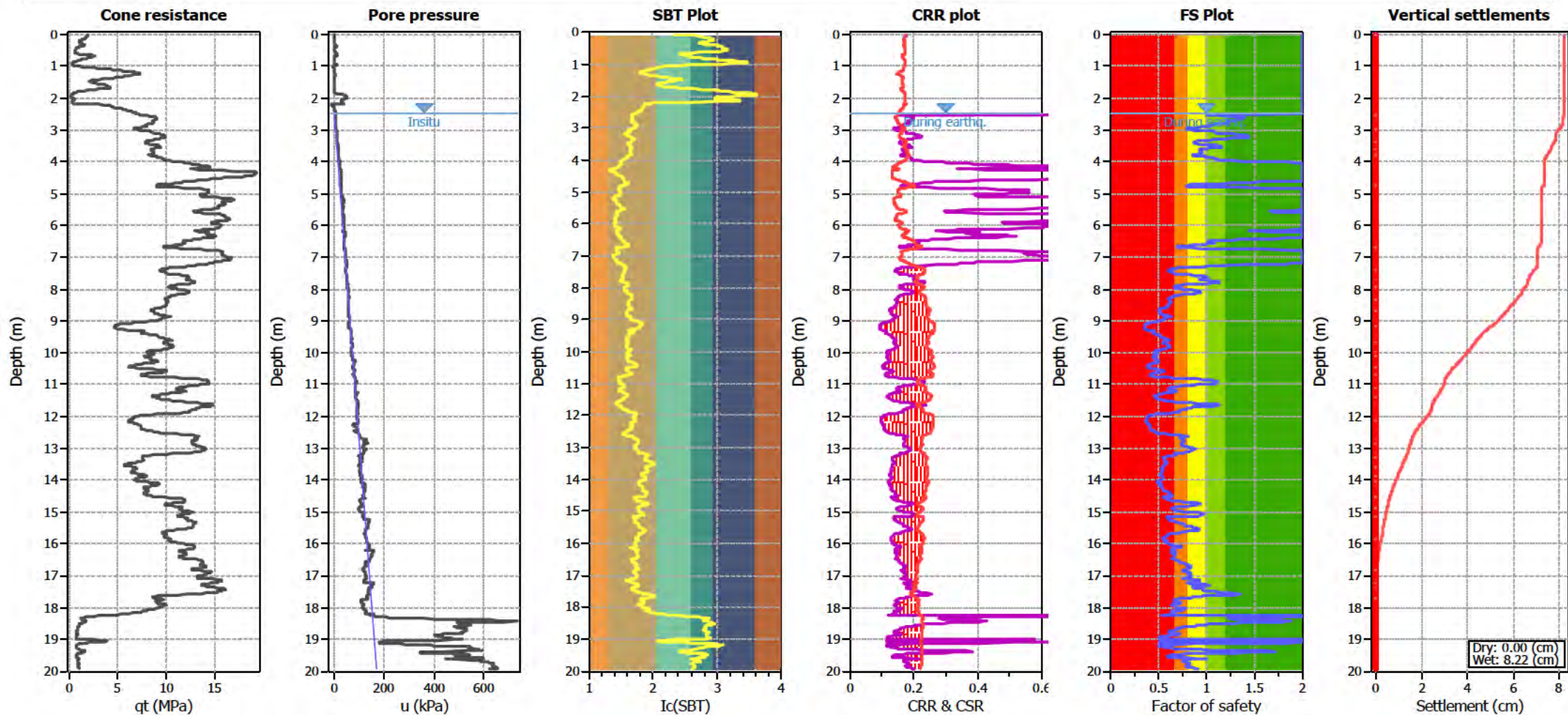
Clay like behavior applied: .
Limit depth applied: No
Limit depth: N/A
MSF method: Method based

Project:

Location:

CPT: CPT-04

Total depth: 19.92 m



Analysis method: B&I (2014)
Fines correction method: B&I (2014)
Points to test: Based on I_c value
Earthquake magnitude M_w : 5.90
Peak ground acceleration: 0.32

G.W.T. (in-situ): 2.50 m
G.W.T. (earthq.): 2.50 m
Average results interval: 3
 I_c cut-off value: 2.60
Unit weight calculation: Based on SBT

Use fill: No
Fill height: N/A
Fill weight: N/A
Trans. detect. applied: No
 K_0 applied: Yes

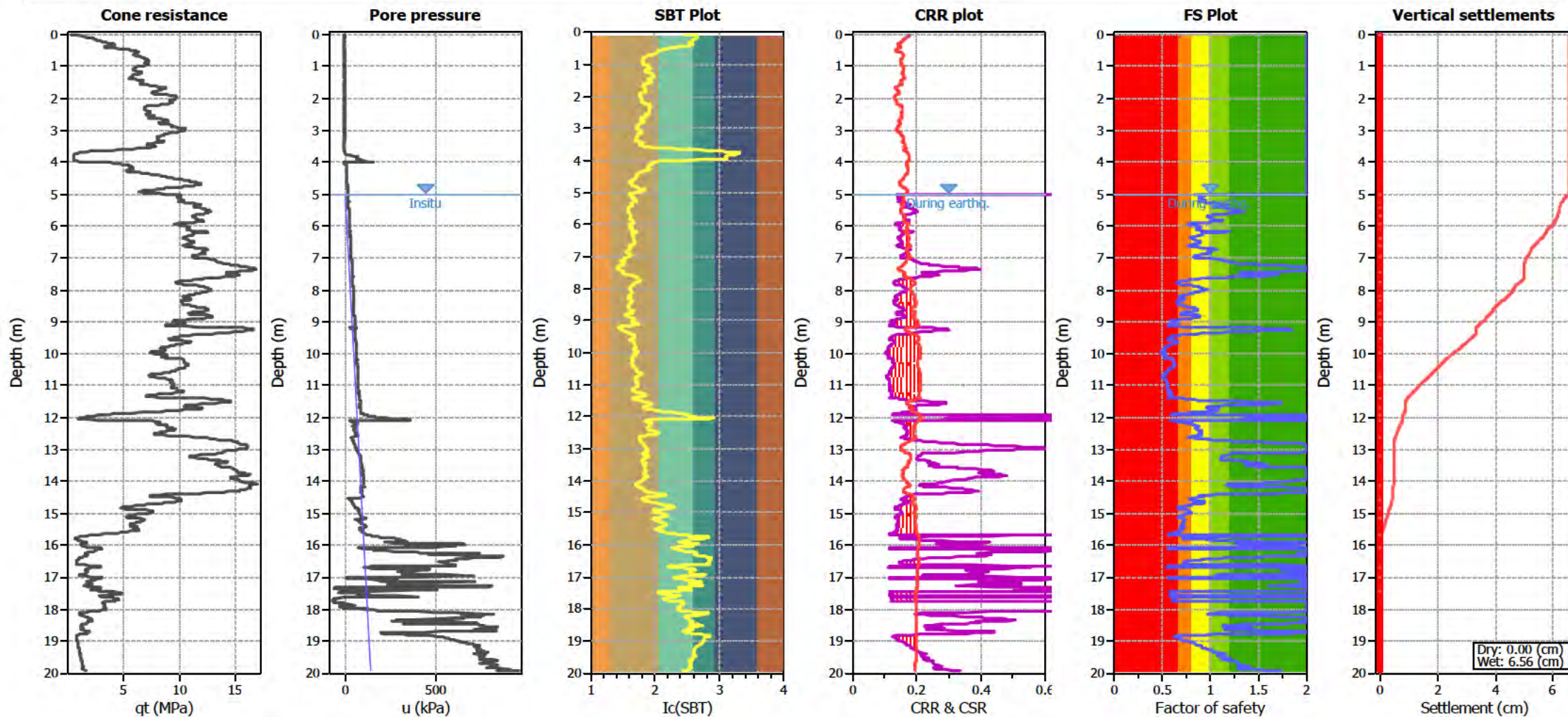
Clay like behavior applied: .
Limit depth applied: No
Limit depth: N/A
MSF method: Method based

Project:

Location:

CPT: CPT-05

Total depth: 19.92 m



Analysis method: B&I (2014)
Fines correction method: B&I (2014)
Points to test: Based on Ic value
Earthquake magnitude M_w : 5.90
Peak ground acceleration: 0.32

G.W.T. (in-situ): 5.00 m
G.W.T. (earthq.): 5.00 m
Average results interval: 3
Ic cut-off value: 2.60
Unit weight calculation: Based on SBT

Use fill: No
Fill height: N/A
Fill weight: N/A
Trans. detect. applied: No
 K_0 applied: Yes

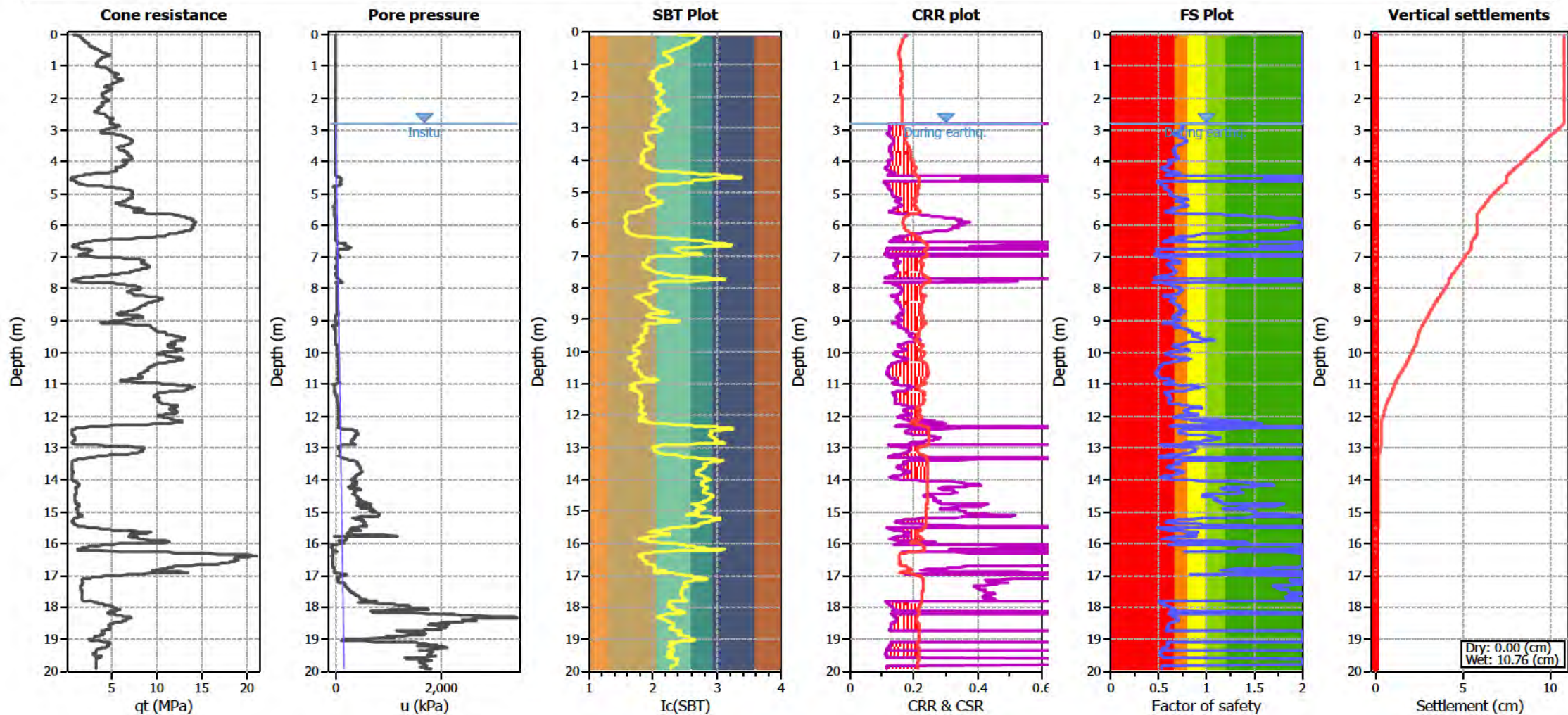
Clay like behavior applied: .
Limit depth applied: No
Limit depth: N/A
MSF method: Method based

Project:

Location:

CPT: CPT-06

Total depth: 19.93 m



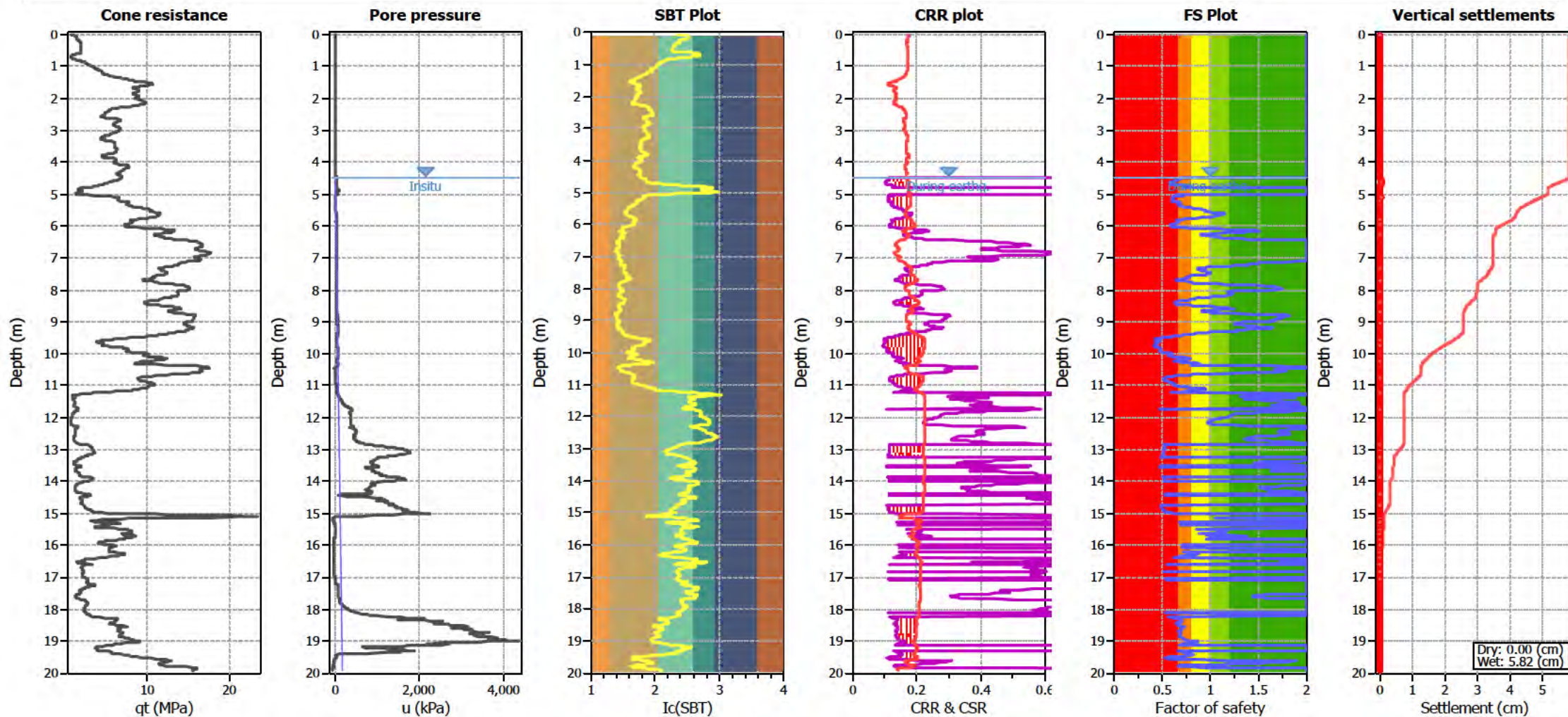
Analysis method:	B&I (2014)	G.W.T. (in-situ):	2.80 m	Use fill:	No	Clay like behavior	
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.80 m	Fill height:	N/A	applied:	.
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth applied:	No
Earthquake magnitude M_w :	5.90	Ic cut-off value:	2.60	Trans. detect. applied:	No	Limit depth:	N/A
Peak ground acceleration:	0.32	Unit weight calculation:	Based on SBT	K_0 applied:	Yes	MSF method:	Method based

Project:

Location:

CPT: CPT-07

Total depth: 19.92 m



Analysis method: B&I (2014)
Fines correction method: B&I (2014)
Points to test: Based on Ic value
Earthquake magnitude M_w : 5.90
Peak ground acceleration: 0.32

G.W.T. (in-situ): 4.50 m
G.W.T. (earthq.): 4.50 m
Average results interval: 3
Ic cut-off value: 2.60
Unit weight calculation: Based on SBT

Use fill: No
Fill height: N/A
Fill weight: N/A
Trans. detect. applied: No
 K_0 applied: Yes

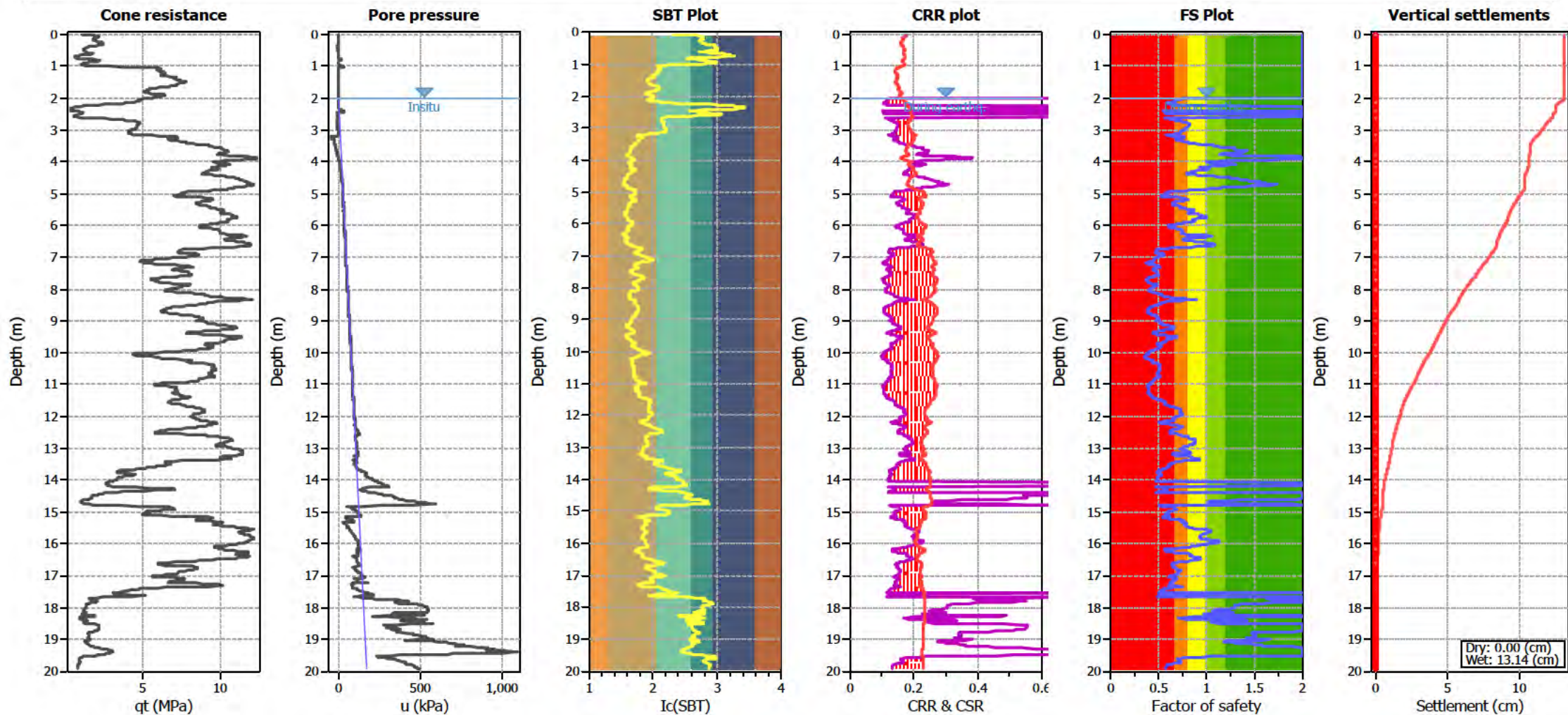
Clay like behavior applied: .
Limit depth applied: No
Limit depth: N/A
MSF method: Method based

Project:

Location:

CPT: CPT-08

Total depth: 19.92 m



Analysis method: B&I (2014)
Fines correction method: B&I (2014)
Points to test: Based on I_c value
Earthquake magnitude M_w : 5.90
Peak ground acceleration: 0.32

G.W.T. (in-situ): 2.00 m
G.W.T. (earthq.): 2.00 m
Average results interval: 3
 I_c cut-off value: 2.60
Unit weight calculation: Based on SBT

Use fill: No
Fill height: N/A
Fill weight: N/A
Trans. detect. applied: No
 K_0 applied: Yes

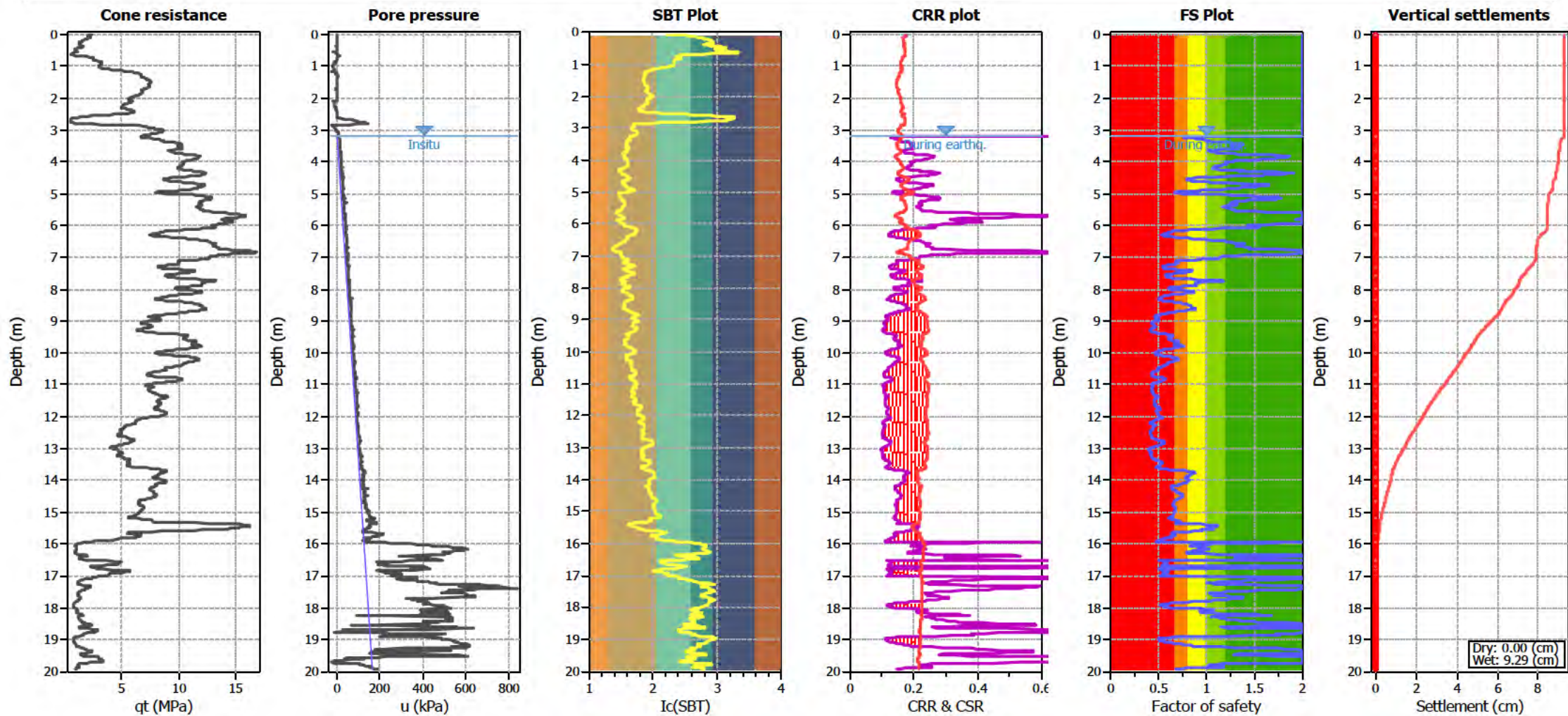
Clay like behavior applied: .
Limit depth applied: No
Limit depth: N/A
MSF method: Method based

Project:

Location:

CPT: CPT-09

Total depth: 19.92 m



Analysis method: B&I (2014)
Fines correction method: B&I (2014)
Points to test: Based on Ic value
Earthquake magnitude M_w : 5.90
Peak ground acceleration: 0.32

G.W.T. (in-situ): 3.20 m
G.W.T. (earthq.): 3.20 m
Average results interval: 3
Ic cut-off value: 2.60
Unit weight calculation: Based on SBT

Use fill: No
Fill height: N/A
Fill weight: N/A
Trans. detect. applied: No
 K_0 applied: Yes

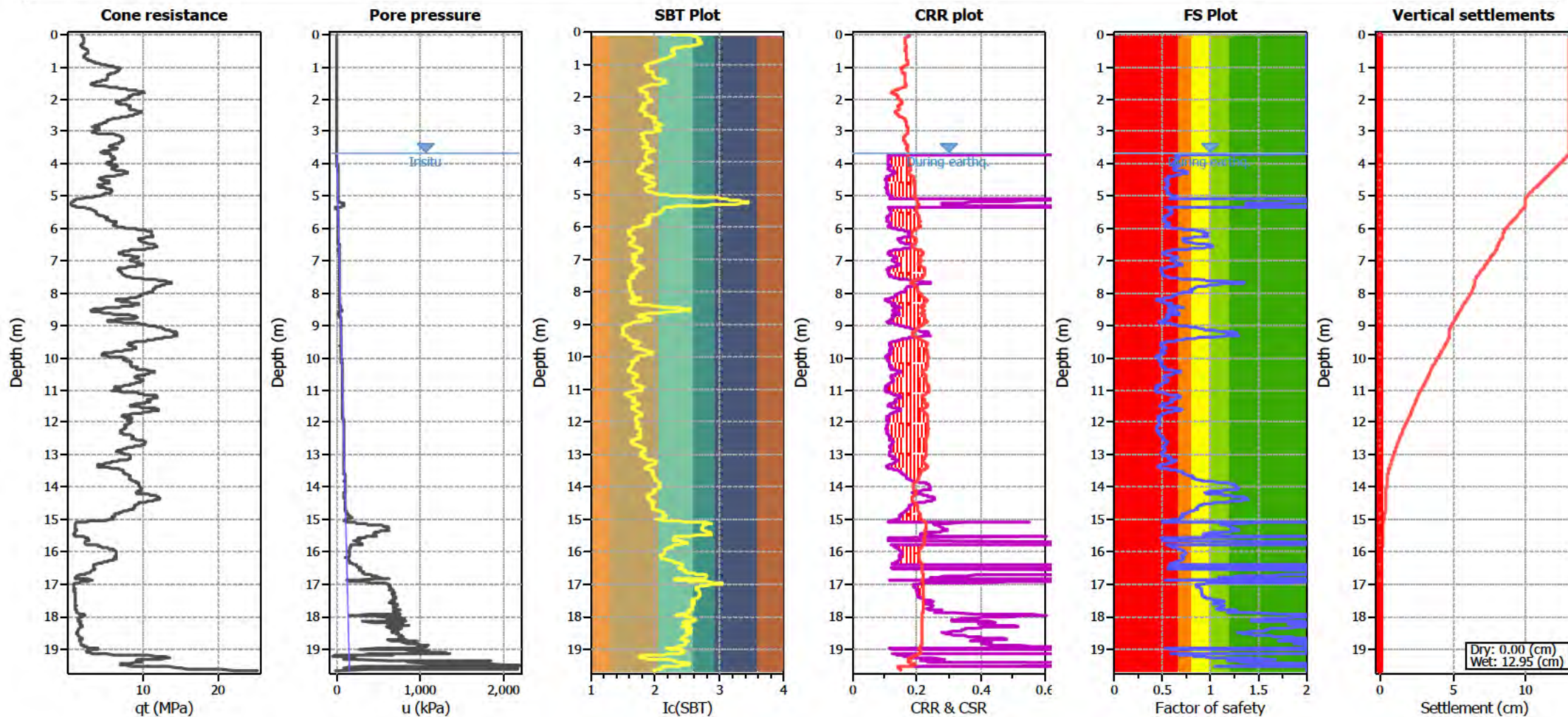
Clay like behavior applied: .
Limit depth applied: No
Limit depth: N/A
MSF method: Method based

Project:

Location:

CPT: CPT-10

Total depth: 19.67 m



Analysis method: B&I (2014)
Fines correction method: B&I (2014)
Points to test: Based on Ic value
Earthquake magnitude M_w : 5.90
Peak ground acceleration: 0.32

G.W.T. (in-situ): 3.70 m
G.W.T. (earthq.): 3.70 m
Average results interval: 3
Ic cut-off value: 2.60
Unit weight calculation: Based on SBT

Use fill: No
Fill height: N/A
Fill weight: N/A
Trans. detect. applied: No
 K_0 applied: Yes

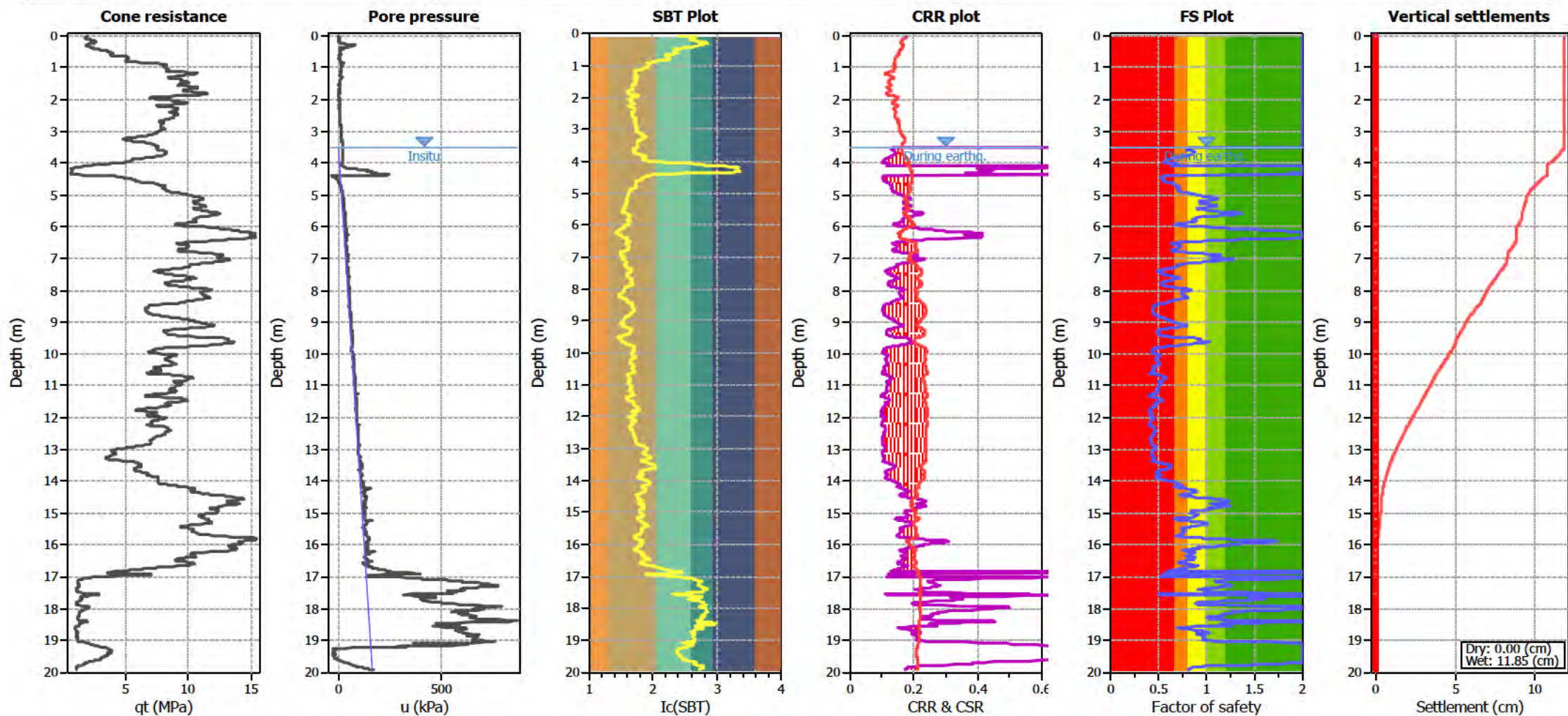
Clay like behavior applied: .
Limit depth applied: No
Limit depth: N/A
MSF method: Method based

Project:

Location:

CPT: CPT-11

Total depth: 19.92 m



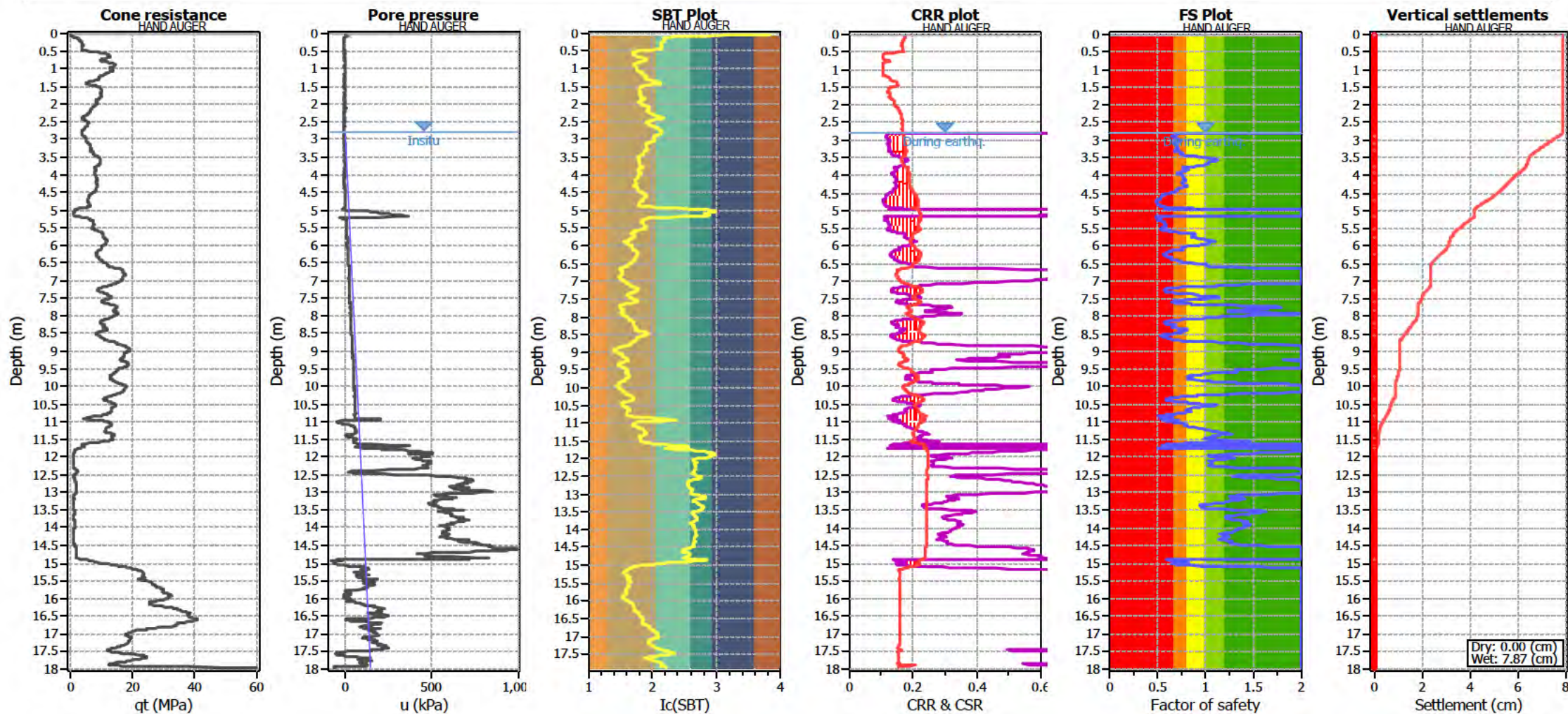
Analysis method:	B&I (2014)	G.W.T. (in-situ):	3.50 m	Use fill:	No	Clay like behavior	
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	3.50 m	Fill height:	N/A	applied:	.
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth applied:	No
Earthquake magnitude M_w :	5.90	Ic cut-off value:	2.60	Trans. detect. applied:	No	Limit depth:	N/A
Peak ground acceleration:	0.32	Unit weight calculation:	Based on SBT	K_0 applied:	Yes	MSF method:	Method based

Project:

Location:

CPT: CPT_181275

Total depth: 17.97 m



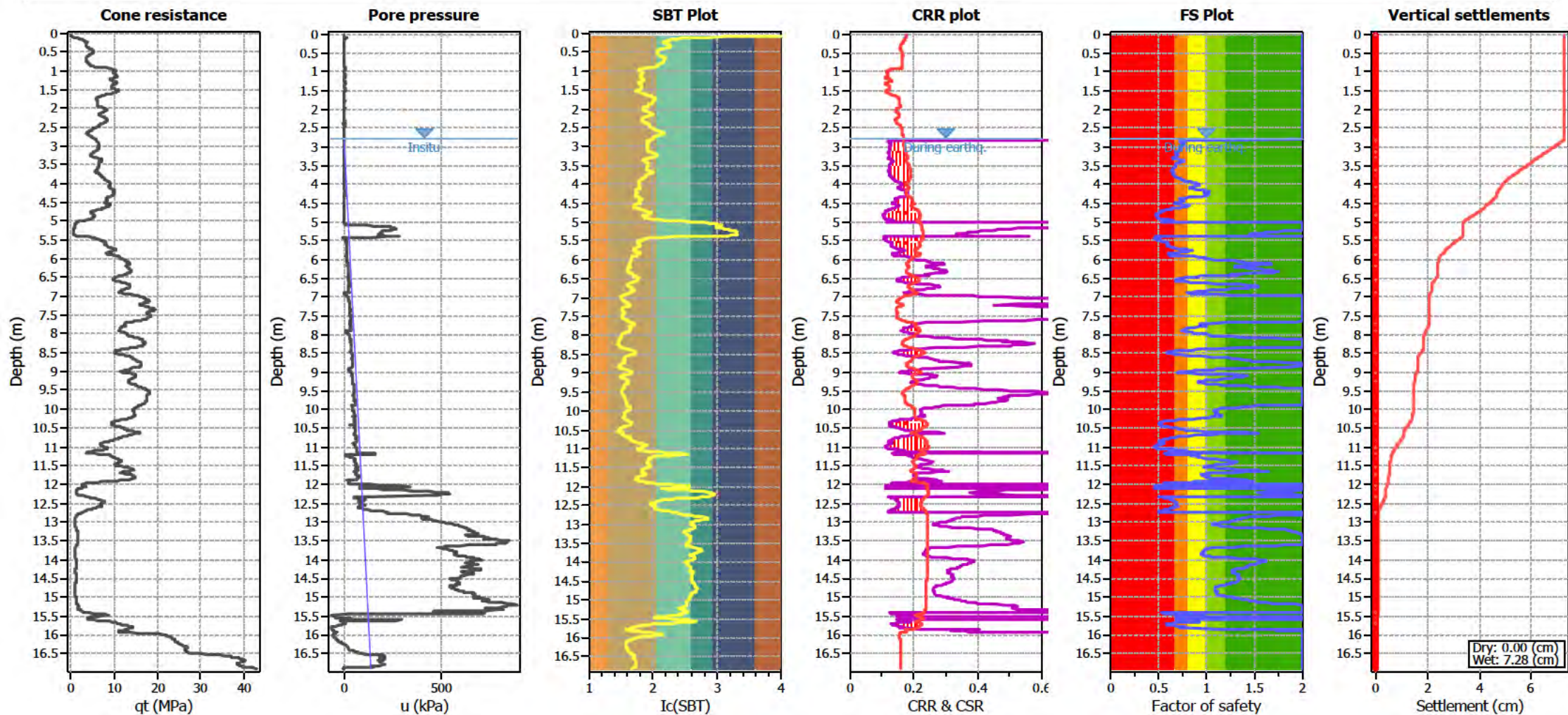
Analysis method:	B&I (2014)	G.W.T. (in-situ):	2.80 m	Use fill:	No	Clay like behavior	
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.80 m	Fill height:	N/A	applied:	.
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth applied:	No
Earthquake magnitude M_w :	5.90	Ic cut-off value:	2.60	Trans. detect. applied:	No	Limit depth:	N/A
Peak ground acceleration:	0.32	Unit weight calculation:	Based on SBT	K_0 applied:	Yes	MSF method:	Method based

Project:

Location:

CPT: CPT_181276

Total depth: 16.90 m



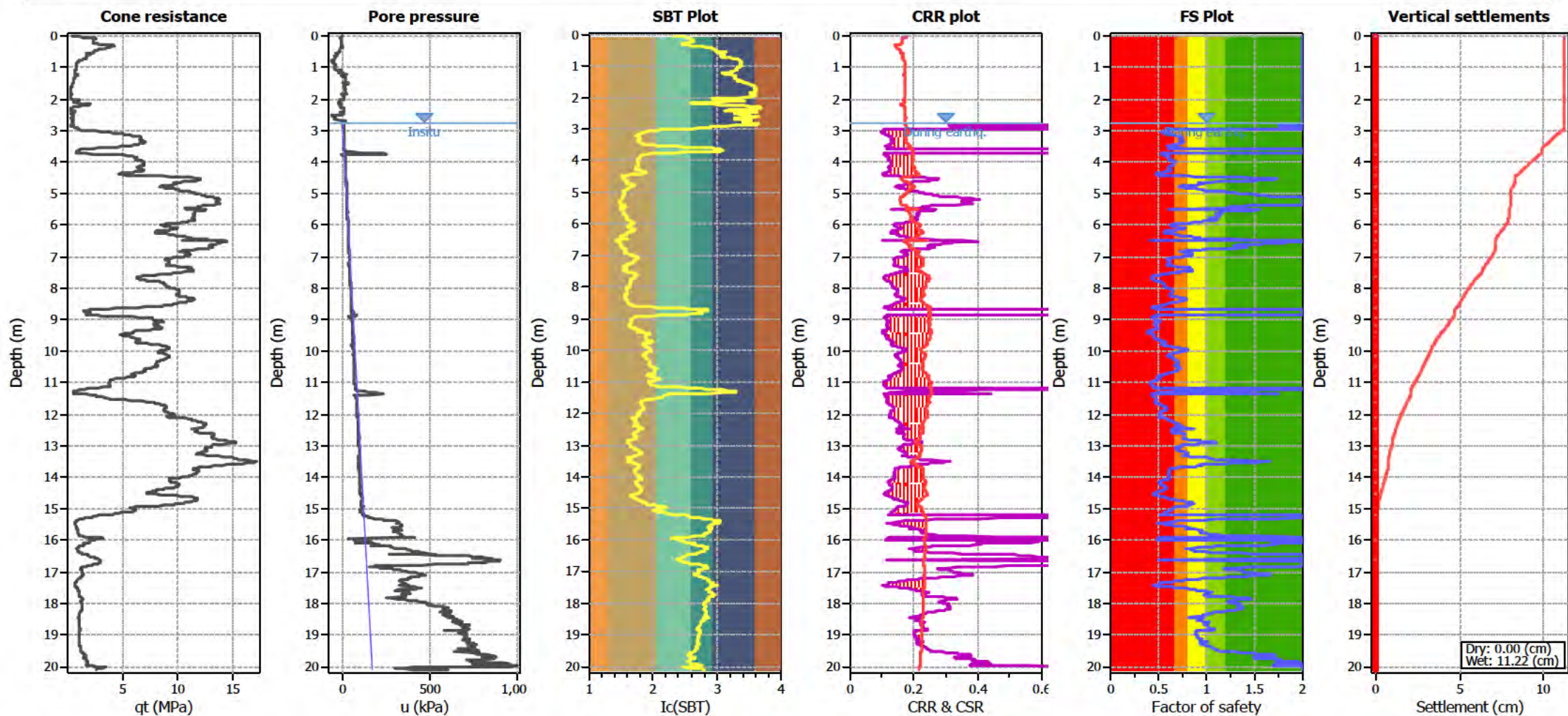
Analysis method:	B&I (2014)	G.W.T. (in-situ):	2.80 m	Use fill:	No	Clay like behavior applied: Limit depth applied: No Limit depth: N/A MSF method: Method based
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.80 m	Fill height:	N/A	
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	
Earthquake magnitude M_w :	5.90	Ic cut-off value:	2.60	Trans. detect. applied:	No	
Peak ground acceleration:	0.32	Unit weight calculation:	Based on SBT	K_0 applied:	Yes	

Project:

Location:

CPT: CPT_87648

Total depth: 20.10 m



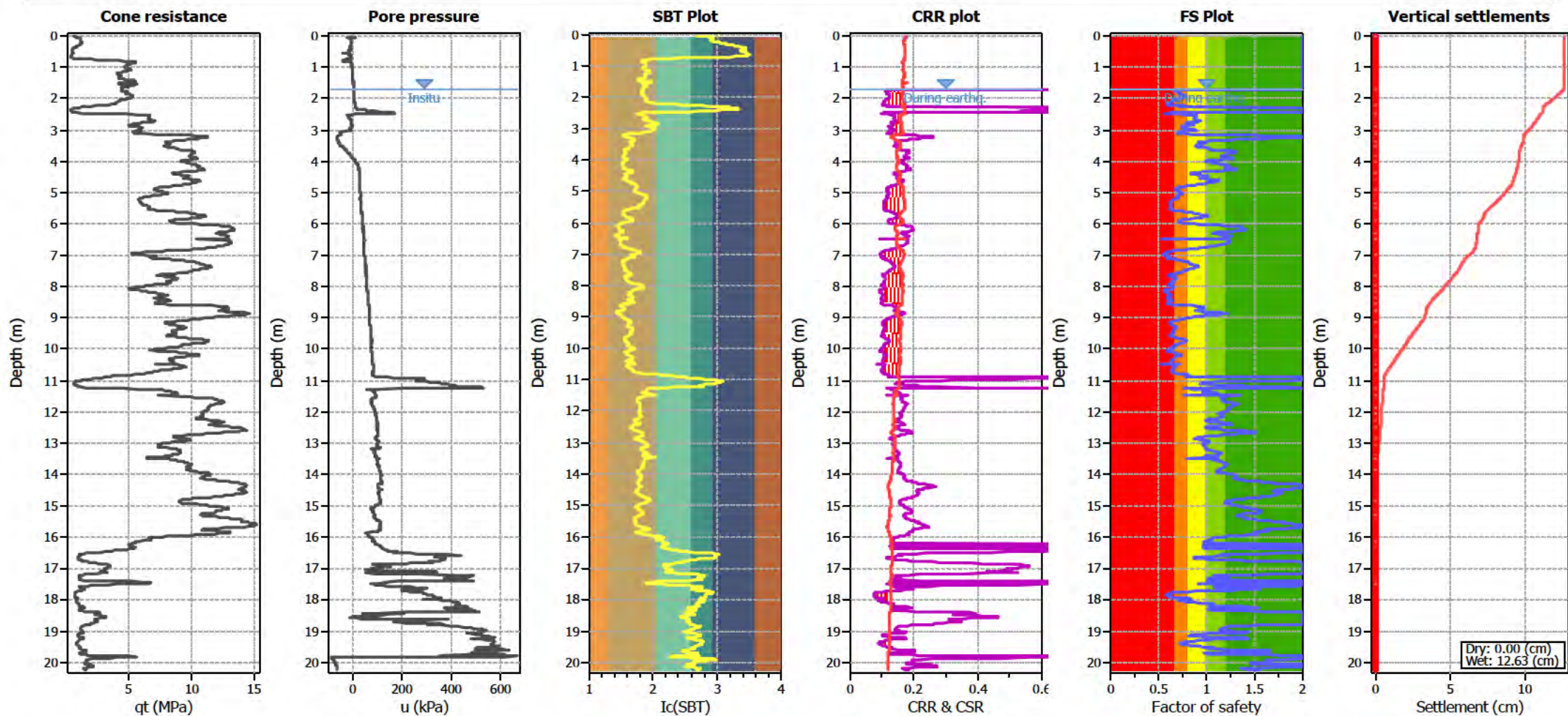
Analysis method:	B&I (2014)	G.W.T. (in-situ):	2.80 m	Use fill:	No	Clay like behavior	
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.80 m	Fill height:	N/A	applied:	.
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth applied:	No
Earthquake magnitude M_w :	5.90	Ic cut-off value:	2.60	Trans. detect. applied:	No	Limit depth:	N/A
Peak ground acceleration:	0.32	Unit weight calculation:	Based on SBT	K_0 applied:	Yes	MSF method:	Method based

Project:

Location:

CPT: CPT_87654

Total depth: 20.23 m



Analysis method: B&I (2014)
Fines correction method: B&I (2014)
Points to test: Based on I_c value
Earthquake magnitude M_w : 5.90
Peak ground acceleration: 0.32

G.W.T. (in-situ): 1.70 m
G.W.T. (earthq.): 1.70 m
Average results interval: 3
 I_c cut-off value: 2.60
Unit weight calculation: Based on SBT

Use fill: No
Fill height: N/A
Fill weight: N/A
Trans. detect. applied: No
 K_σ applied: Yes

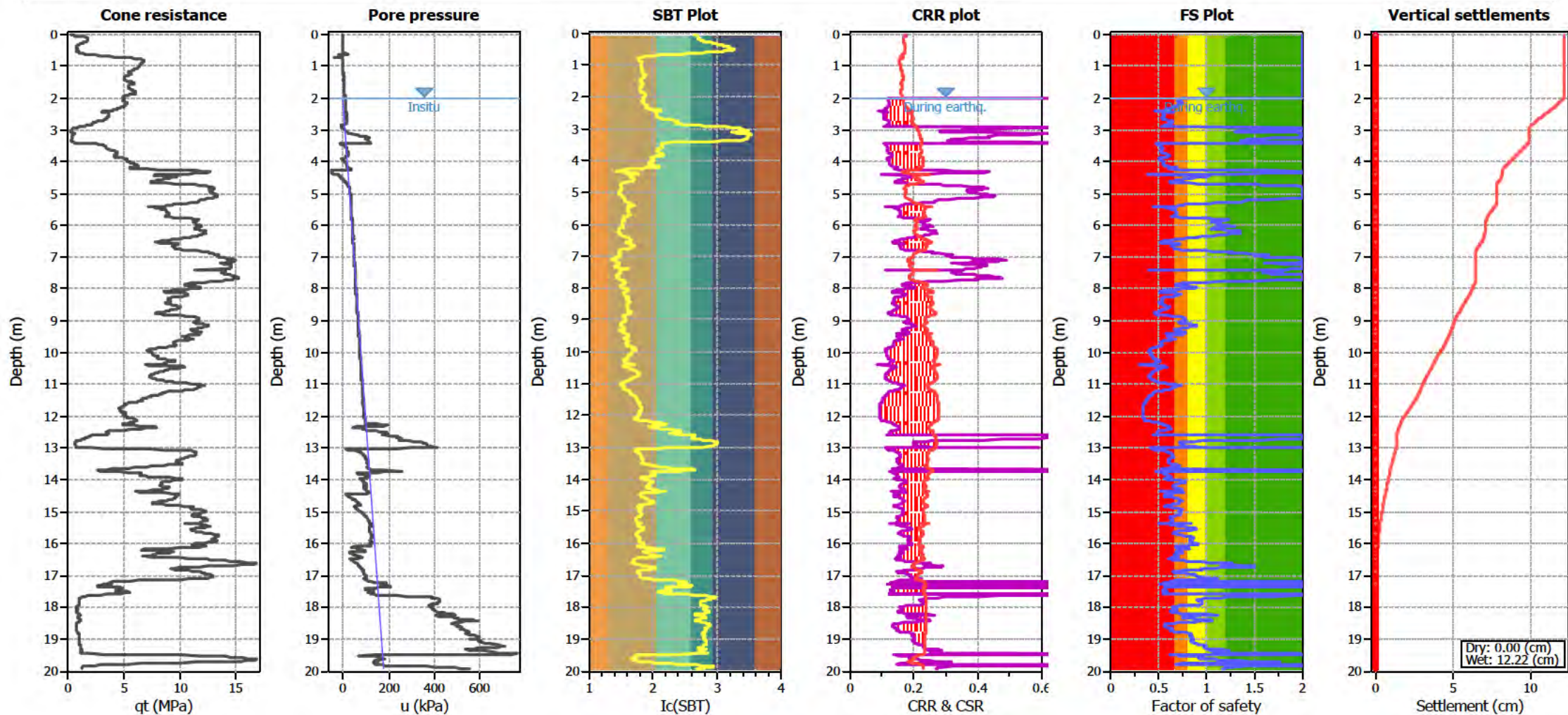
Clay like behavior applied: .
Limit depth applied: No
Limit depth: N/A
MSF method: Method based

Project:

Location:

CPT: CPT_87660

Total depth: 19.93 m



Analysis method: B&I (2014)
Fines correction method: B&I (2014)
Points to test: Based on Ic value
Earthquake magnitude M_w : 5.90
Peak ground acceleration: 0.32

G.W.T. (in-situ): 2.00 m
G.W.T. (earthq.): 2.00 m
Average results interval: 3
Ic cut-off value: 2.60
Unit weight calculation: Based on SBT

Use fill: No
Fill height: N/A
Fill weight: N/A
Trans. detect. applied: No
 K_0 applied: Yes

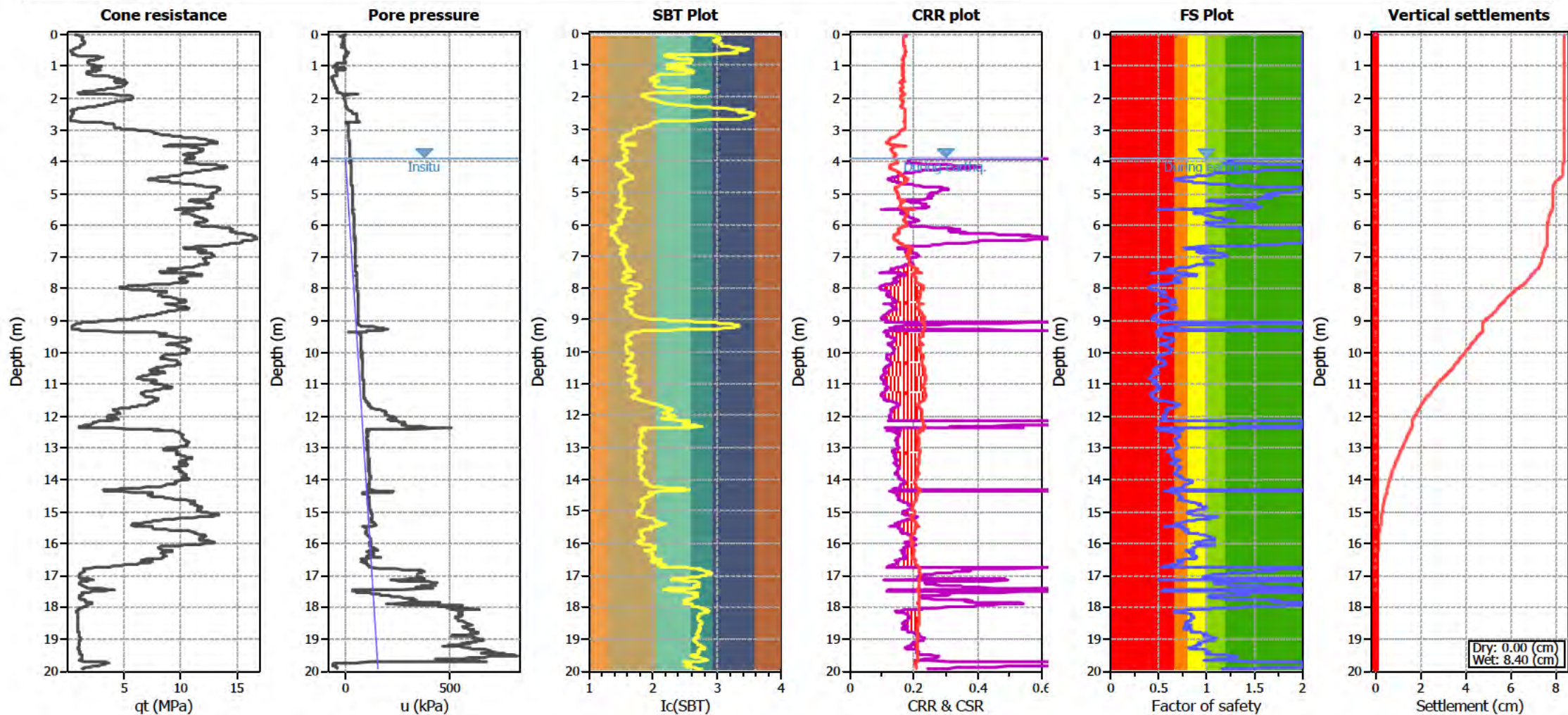
Clay like behavior applied: .
Limit depth applied: No
Limit depth: N/A
MSF method: Method based

Project:

Location:

CPT: CPT_87655

Total depth: 19.93 m



Analysis method: B&I (2014)
Fines correction method: B&I (2014)
Points to test: Based on Ic value
Earthquake magnitude M_w : 5.90
Peak ground acceleration: 0.32

G.W.T. (in-situ): 3.90 m
G.W.T. (earthq.): 3.90 m
Average results interval: 3
Ic cut-off value: 2.60
Unit weight calculation: Based on SBT

Use fill: No
Fill height: N/A
Fill weight: N/A
Trans. detect. applied: No
 K_0 applied: Yes

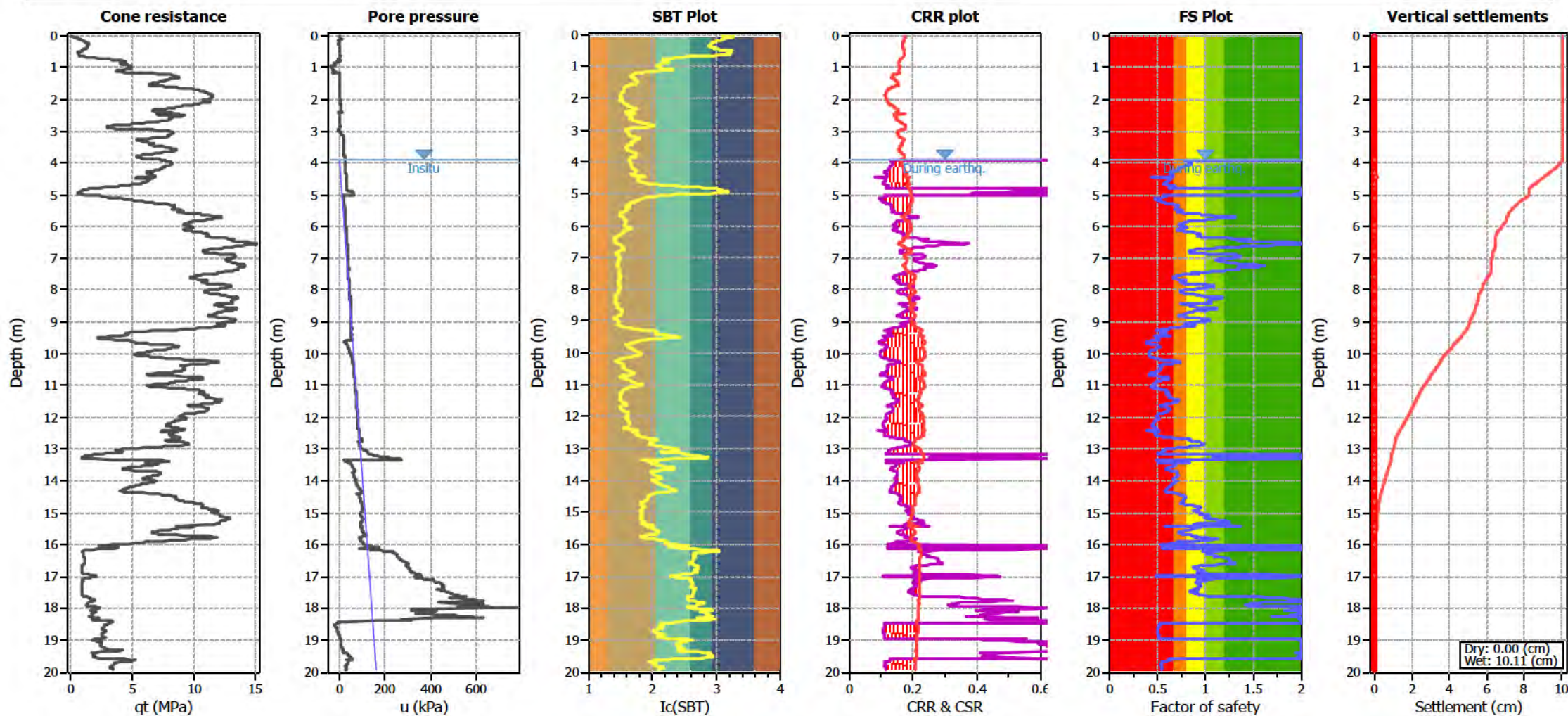
Clay like behavior applied: .
Limit depth applied: No
Limit depth: N/A
MSF method: Method based

Project:

Location:

CPT: CPT_87650

Total depth: 19.93 m



Analysis method: B&I (2014)
Fines correction method: B&I (2014)
Points to test: Based on Ic value
Earthquake magnitude M_w : 5.90
Peak ground acceleration: 0.32

G.W.T. (in-situ): 3.90 m
G.W.T. (earthq.): 3.90 m
Average results interval: 3
Ic cut-off value: 2.60
Unit weight calculation: Based on SBT

Use fill: No
Fill height: N/A
Fill weight: N/A
Trans. detect. applied: No
 K_0 applied: Yes

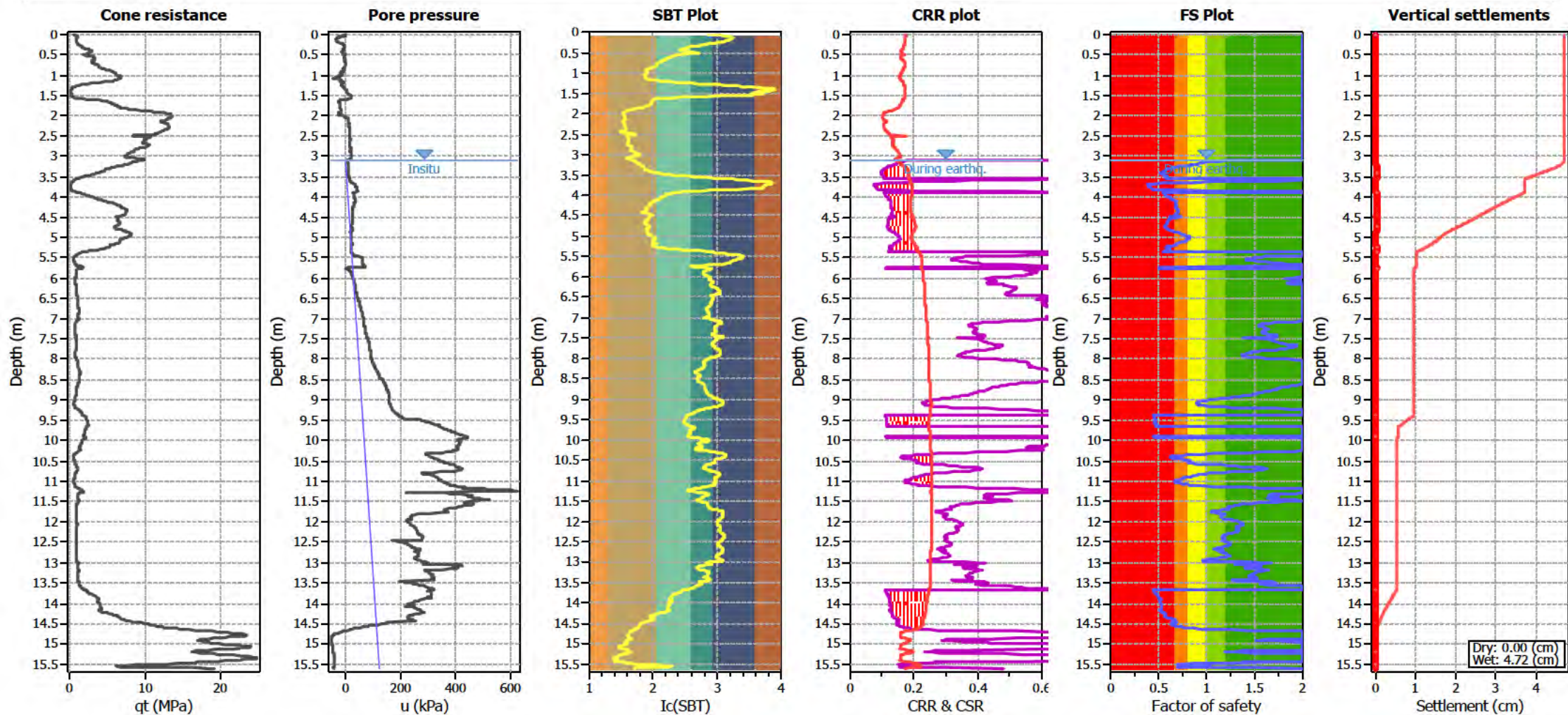
Clay like behavior applied: .
Limit depth applied: No
Limit depth: N/A
MSF method: Method based

Project:

Location:

CPT: CPT_87646

Total depth: 15.61 m



Analysis method: B&I (2014)
Fines correction method: B&I (2014)
Points to test: Based on Ic value
Earthquake magnitude M_w : 5.90
Peak ground acceleration: 0.32

G.W.T. (in-situ): 3.10 m
G.W.T. (earthq.): 3.10 m
Average results interval: 3
Ic cut-off value: 2.60
Unit weight calculation: Based on SBT

Use fill: No
Fill height: N/A
Fill weight: N/A
Trans. detect. applied: No
 K_0 applied: Yes

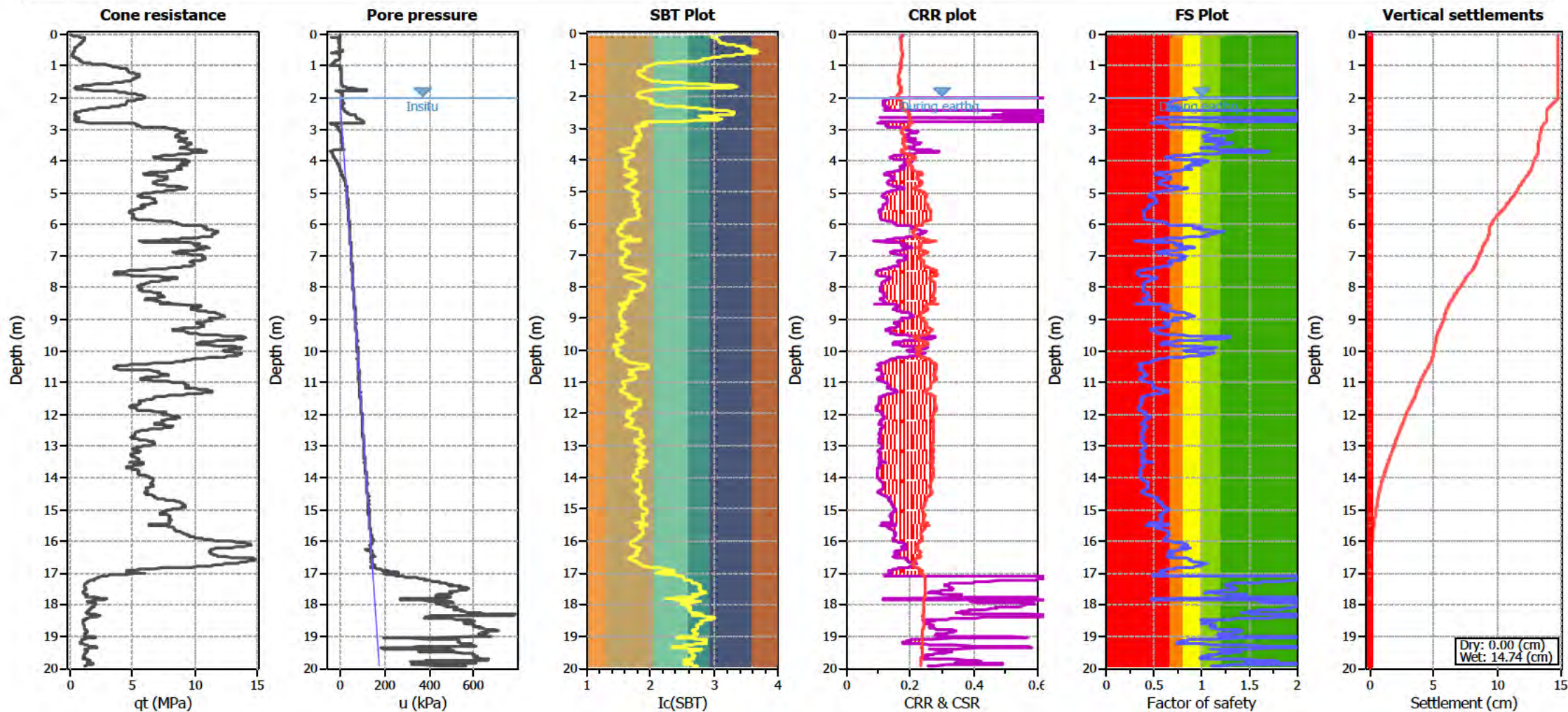
Clay like behavior applied: .
Limit depth applied: No
Limit depth: N/A
MSF method: Method based

Project:

Location:

CPT: CPT_87661

Total depth: 19.93 m



Analysis method: B&I (2014)
Fines correction method: B&I (2014)
Points to test: Based on Ic value
Earthquake magnitude M_w : 5.90
Peak ground acceleration: 0.32

G.W.T. (in-situ): 2.00 m
G.W.T. (earthq.): 2.00 m
Average results interval: 3
Ic cut-off value: 2.60
Unit weight calculation: Based on SBT

Use fill: No
Fill height: N/A
Fill weight: N/A
Trans. detect. applied: No
 K_0 applied: Yes

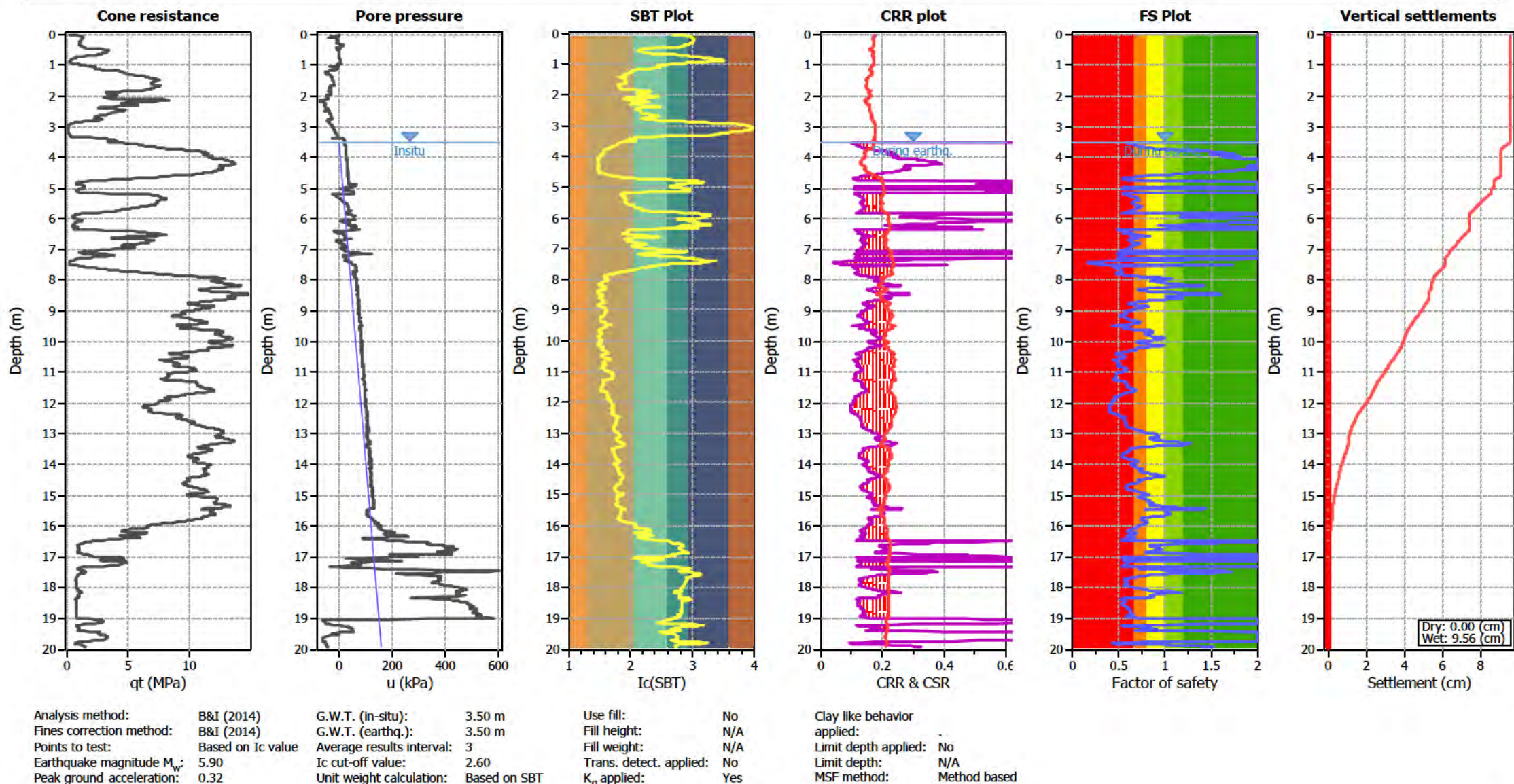
Clay like behavior applied: .
Limit depth applied: No
Limit depth: N/A
MSF method: Method based

Project:

Location:

CPT: CPT_87659

Total depth: 19.93 m

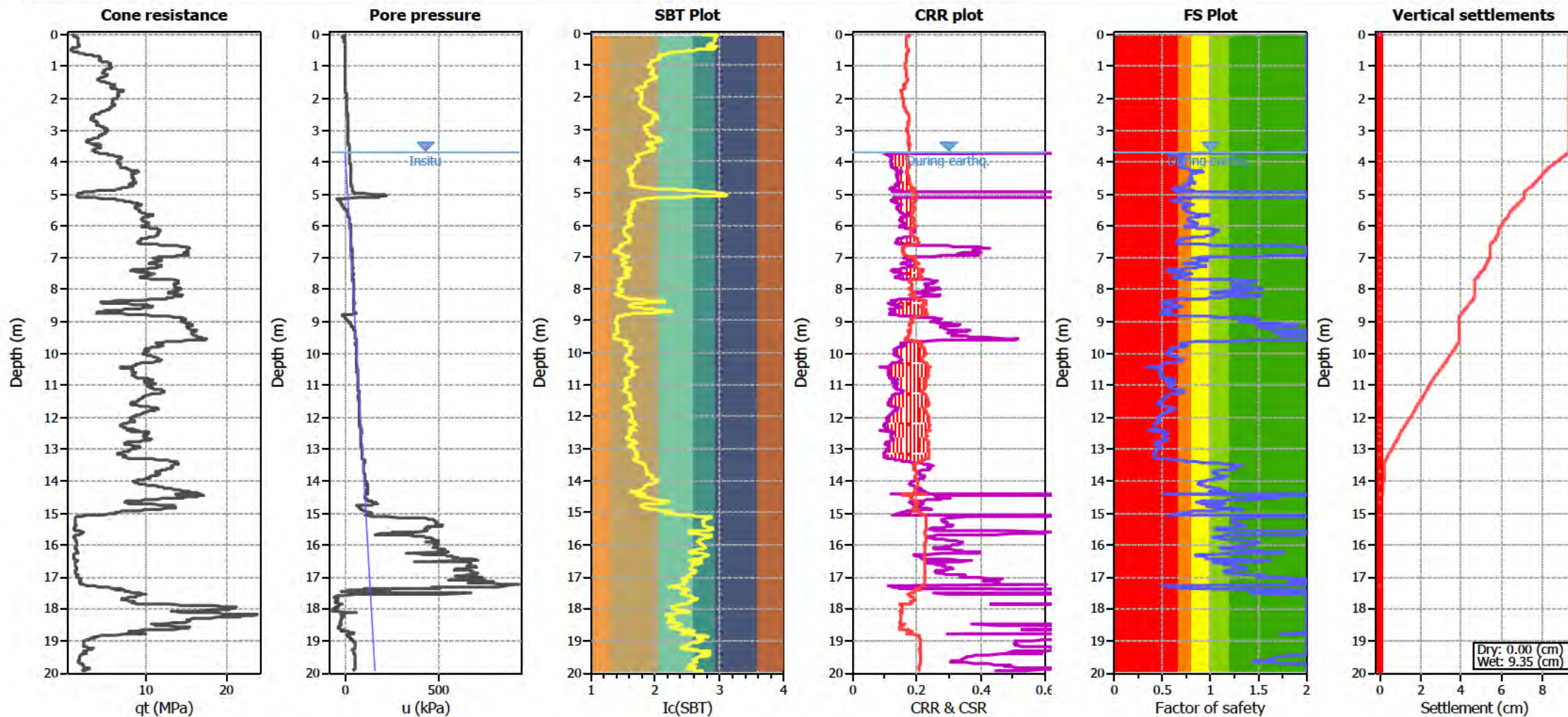


Project:

Location:

CPT: CPT_87652

Total depth: 19.93 m



Analysis method: B&I (2014)
Fines correction method: B&I (2014)
Points to test: Based on Ic value
Earthquake magnitude M_w : 5.90
Peak ground acceleration: 0.32

G.W.T. (in-situ): 3.70 m
G.W.T. (earthq.): 3.70 m
Average results interval: 3
Ic cut-off value: 2.60
Unit weight calculation: Based on SBT

Use fill: No
Fill height: N/A
Fill weight: N/A
Trans. detect. applied: No
 K_0 applied: Yes

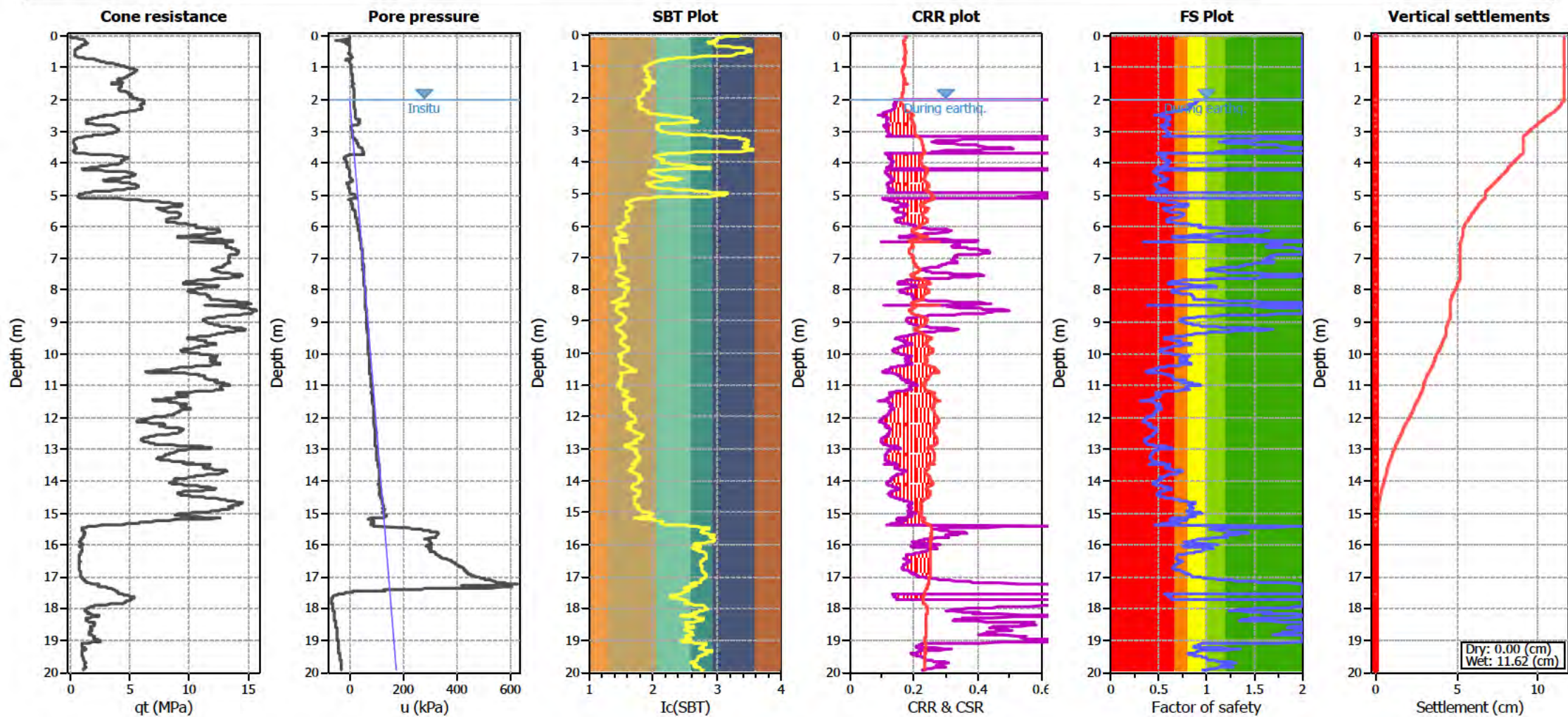
Clay like behavior applied: .
Limit depth applied: No
Limit depth: N/A
MSF method: Method based

Project:

Location:

CPT: CPT_87663

Total depth: 19.93 m



Analysis method: B&I (2014)
Fines correction method: B&I (2014)
Points to test: Based on I_c value
Earthquake magnitude M_w : 5.90
Peak ground acceleration: 0.32

G.W.T. (in-situ): 2.00 m
G.W.T. (earthq.): 2.00 m
Average results interval: 3
 I_c cut-off value: 2.60
Unit weight calculation: Based on SBT

Use fill: No
Fill height: N/A
Fill weight: N/A
Trans. detect. applied: No
 K_σ applied: Yes

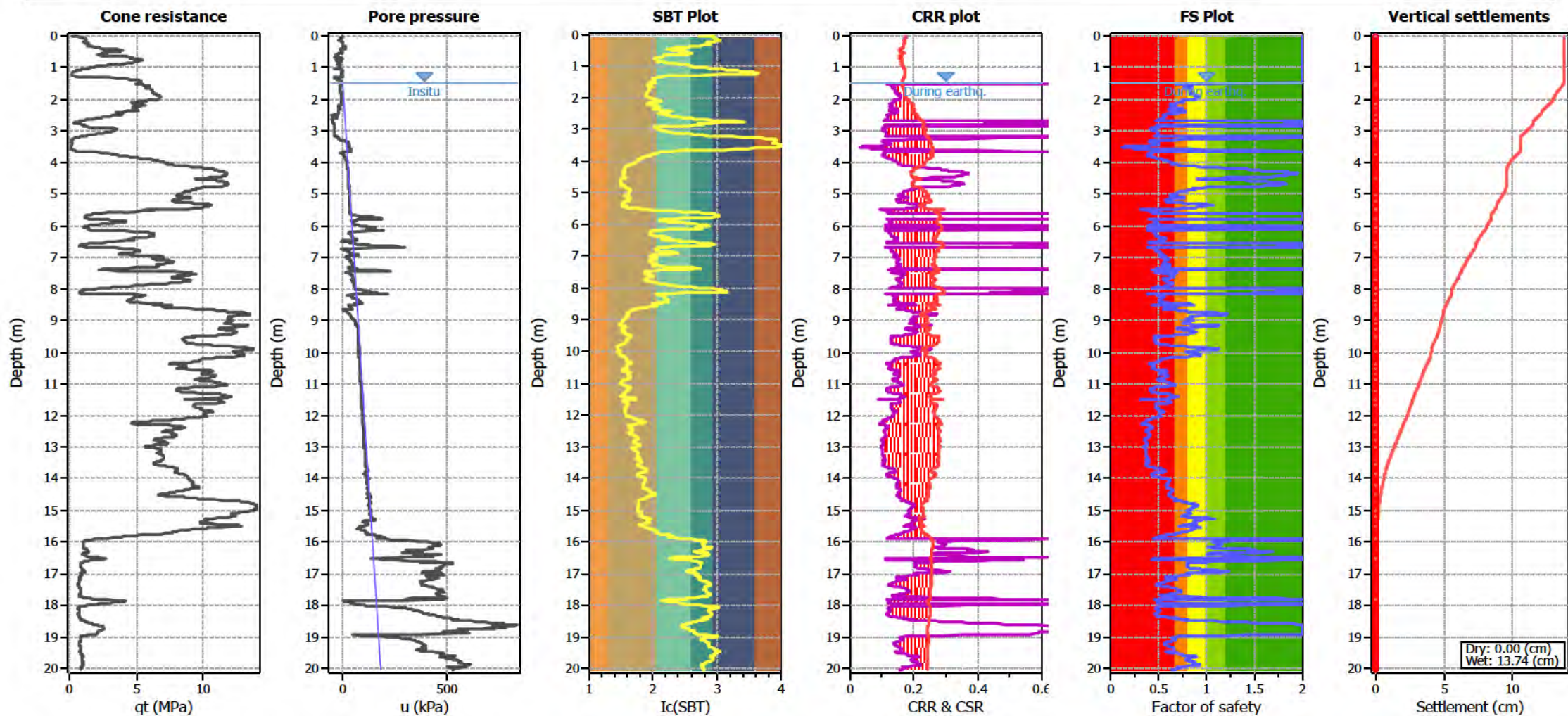
Clay like behavior applied: .
Limit depth applied: No
Limit depth: N/A
MSF method: Method based

Project:

Location:

CPT: CPT_87662

Total depth: 20.03 m



Analysis method: B&I (2014)
 Fines correction method: B&I (2014)
 Points to test: Based on Ic value
 Earthquake magnitude M_w : 5.90
 Peak ground acceleration: 0.32

G.W.T. (in-situ): 1.50 m
 G.W.T. (earthq.): 1.50 m
 Average results interval: 3
 Ic cut-off value: 2.60
 Unit weight calculation: Based on SBT

Use fill: No
 Fill height: N/A
 Fill weight: N/A
 Trans. detect. applied: No
 K_0 applied: Yes

Clay like behavior applied: .
 Limit depth applied: No
 Limit depth: N/A
 MSF method: Method based

Appendix G: Lateral Stretch Summary

	CLIENT:	Saxby Road JV Limited	DESIGNER:	MM
	PROJECT:	Southern Links - Stage 1 Residential	CHECKED:	DMM
			REVISION:	7
	TITLE:	COSEISMIC DISPLACEMENTS - SECTION A	DATE:	21/04/2026
			PROJECT:	HAM2025-0056

WHEN TO USE THIS SHEET:

Use this sheet when calculating the coseismic displacements of a block using liquefied strengths

1. CALCULATE THE PERIOD OF THE SLIDING MASS (T_s)

1D or 2D?	1D	Generally 1D, but see guidance tab for details
H	2.2 m	Maximum height of the sliding mass, measured from within the sliding mass
V_s	180 m/s	Average shear wave velocity of the sliding mass
T_s	0.0489 s	

2. SEISMIC PARAMETERS

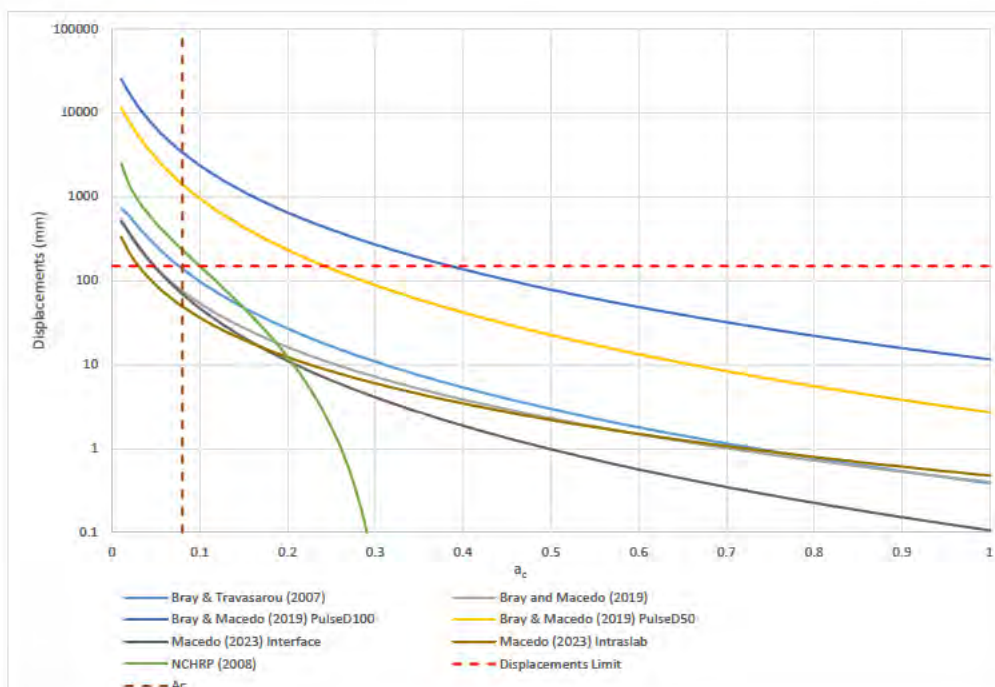
Case	Ordinary Ground Motions	Only applicable to Bray and Macedo (2019). Almost always ordinary ground motions, see guidance tab re pulses
Yield Coefficient (a_y)	0.08 g	
Magnitude (M_w)	5.9	
PGA	0.32 g	
$S_a(1.3T_s)$	0.55 g	Required for Bray (2019) and Macedo (2023)
$S_a(1.5T_s)$	0.55 g	Required for Bray (2007)
PGV	160 cm/s	Only required For Bray (2019) pulses
Source Distance, d	30 km	Only required for NCHRP (2008)

3. RESULTS

Probability of Exceedence:	Bray & Travararou (2007)	Bray and Macedo (2019)	Macedo et al. (2023)	Macedo et al. (2023)	
Probability of Negligible Displacement	0%	0%	0%	1%	
50%	139 mm	75 mm	70 mm	49 mm	
16%	268 mm	154 mm	147 mm	92 mm	
5%	412 mm	246 mm	239 mm	137 mm	
2.5%	507 mm	308 mm	303 mm	167 mm	
0.5%	761 mm	480 mm	481 mm	244 mm	
Applicable Seismic Source	Shallow Crustal	Shallow Crustal	Subduction Interface	Subduction Intralab	

4. CHART OPTIONS

Displacements Limit 150



	CLIENT:	Saxby Road JV Limited	DESIGNER:	MM
	PROJECT:	Southern Links - Stage 1 Residential	CHECKED:	DMM
			REVISION:	7
	TITLE:	COSEISMIC LATERAL STRETCH - SECTION A	DATE:	21/04/2026
			PROJECT:	HAM2025-0056

WHEN TO USE THIS SHEET:
Use this sheet when calculating the coseismic stretch across a block using liquefied strengths

1. CALCULATE THE PERIOD OF THE SLIDING MASS (T_s)

1D or 2D?	1D	Generally 1D, but see guidance tab for details
H	2.2 m	Maximum height of the sliding mass, measured from within the sliding mass
V _s	180 m/s	Average shear wave velocity of the sliding mass
T _s	0.0489 s	

2. SEISMIC PARAMETERS

Magnitude (M _w)	5.9	
PGA	0.32 g	
S _a (1.3T _s)	0.43 g	Required for Bray (2019)
S _a (1.5T _s)	0.43 g	Required for Bray (2007) and Bray (2018)
Source Distance, d	3 km	Only required for NCHRP (2008)

3. RESULTS

Distance from Crest of Slope (m):	a _v (I _h)	Bray & Traversarou (2007)		Bray and Macedo (2019)		Macedo et al. (2023) Interface		Macedo et al. (2023) Intralab			
		Displacement (mm)	Stretch (mm)	Displacement (mm)	Stretch (mm)	Displacement (mm)	Stretch (mm)	Displacement (mm)	Stretch (mm)		
0	0.07	107		58		55		38			
20	0.09	71	36	38	19	34	20	26	12		
Seismic Source		Shallow Crustal		Shallow Crustal		Subduction Interface		Subduction Intralab			

4. CHART OPTIONS

Building platform edge (closest to slope crest)	20
Building platform edge (furthest from slope crest)	100

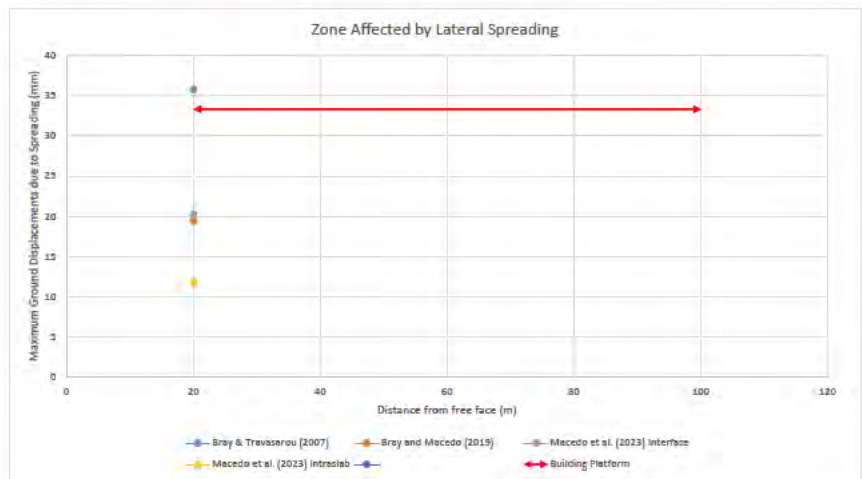
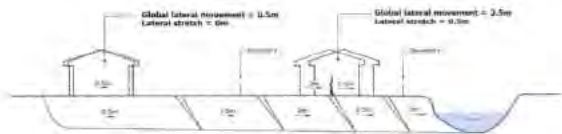


Figure 12.1: Simplified cross-section showing components of lateral ground movement (values illustrative only)



	CLIENT:	Saxby Road JV Limited	DESIGNER:	MM
	PROJECT:	Southern Links - Stage 1 Residential	CHECKED:	DMM
			REVISION:	7
	TITLE:	COSEISMIC DISPLACEMENTS	DATE:	23/04/2026
			PROJECT:	HAM2025-0056

WHEN TO USE THIS SHEET:

Use this sheet when calculating the coseismic displacements of a block using liquefied strengths

1. CALCULATE THE PERIOD OF THE SLIDING MASS (T_s)

1D or 2D?	1D	Generally 1D, but see guidance tab for details
H	4 m	Maximum height of the sliding mass, measured from within the sliding mass
V_s	180 m/s	Average shear wave velocity of the sliding mass
T_s	0.0889 s	

2. SEISMIC PARAMETERS

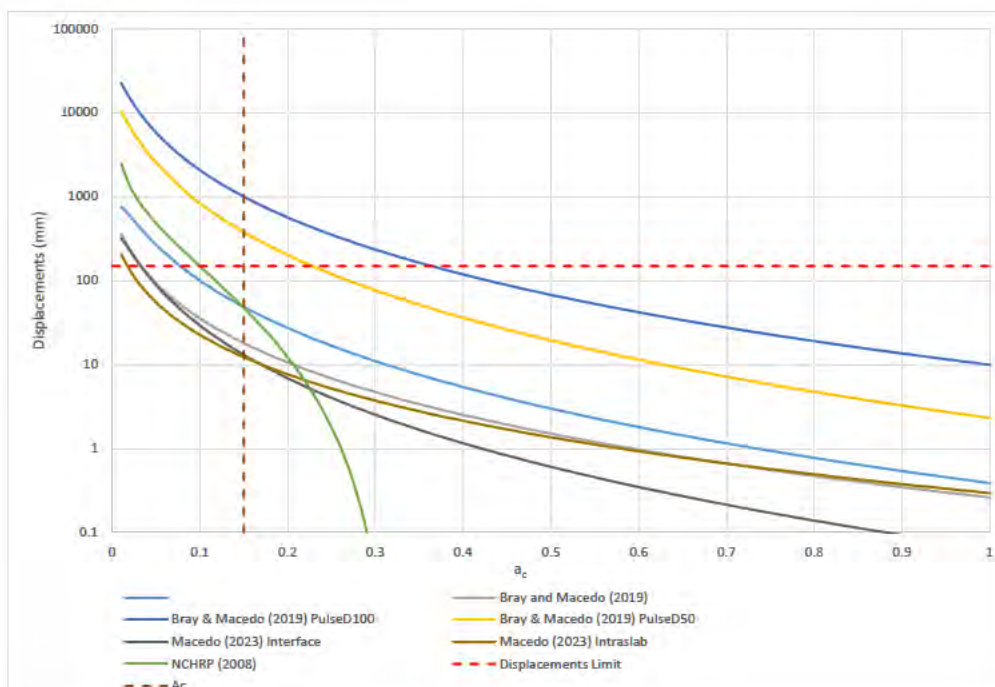
Case	Ordinary Ground Motions	Only applicable to Bray and Macedo (2019). Almost always ordinary ground motions, see guidance tab re pulses
Yield Coefficient (a_y)	0.15 g	
Magnitude (M_w)	5.9	
PGA	0.32 g	
$S_a(1.3T_s)$	0.54 g	Required for Bray (2019) and Macedo (2023)
$S_a(1.5T_s)$	0.54 g	Required for Bray (2007)
PGV	160 cm/s	Only required For Bray (2019) pulses
Source Distance, d	30 km	Only required for NCHRP (2008)

3. RESULTS

Probability of Exceedence:		Bray and Macedo (2019)	Macedo et al. (2023)	Macedo et al. (2023)	
Probability of Negligible Displacement		10%	6%	8%	
50%		16 mm	13 mm	12 mm	
16%		35 mm	28 mm	24 mm	
5%		57 mm	47 mm	36 mm	
2.5%		72 mm	59 mm	43 mm	
0.5%		112 mm	94 mm	64 mm	
Applicable Seismic Source		Shallow Crustal	Subduction Interface	Subduction Intraslab	

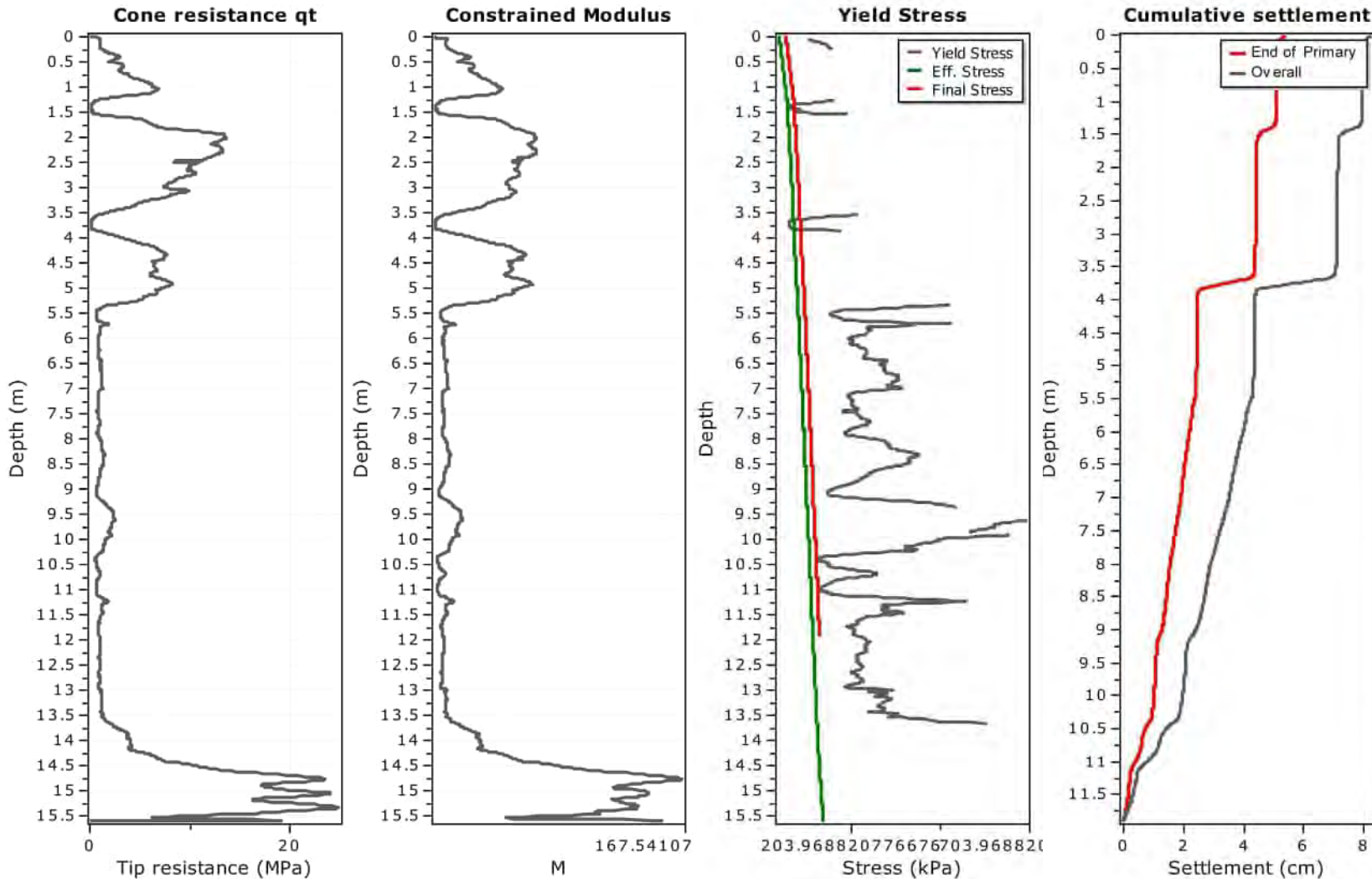
4. CHART OPTIONS

Displacements Limit 150



Appendix H: Static Settlement Summary

Settlements calculation according to theory of elasticity*



Calculation properties

Footing type: Rectangular
Footing width: 100.00 (m)
L/B: 1.0
Footing pressure: 19.00 (kPa)
Embedment depth: 0.00 (m)
Footing is rigid: No
Remove excavation load: No
Apply 20% rule: Yes
Calculate secondary settlements: Yes
Time period for primary consolidation: 6 months
Time period for second. settlements: 600 months

* Primary settlement calculation is performed according to the following formula:

$$S = \sum \frac{\Delta \sigma_v}{M_{CPT}} \Delta z$$

* Secondary (creep) settlement calculation is performed according to the following formula:

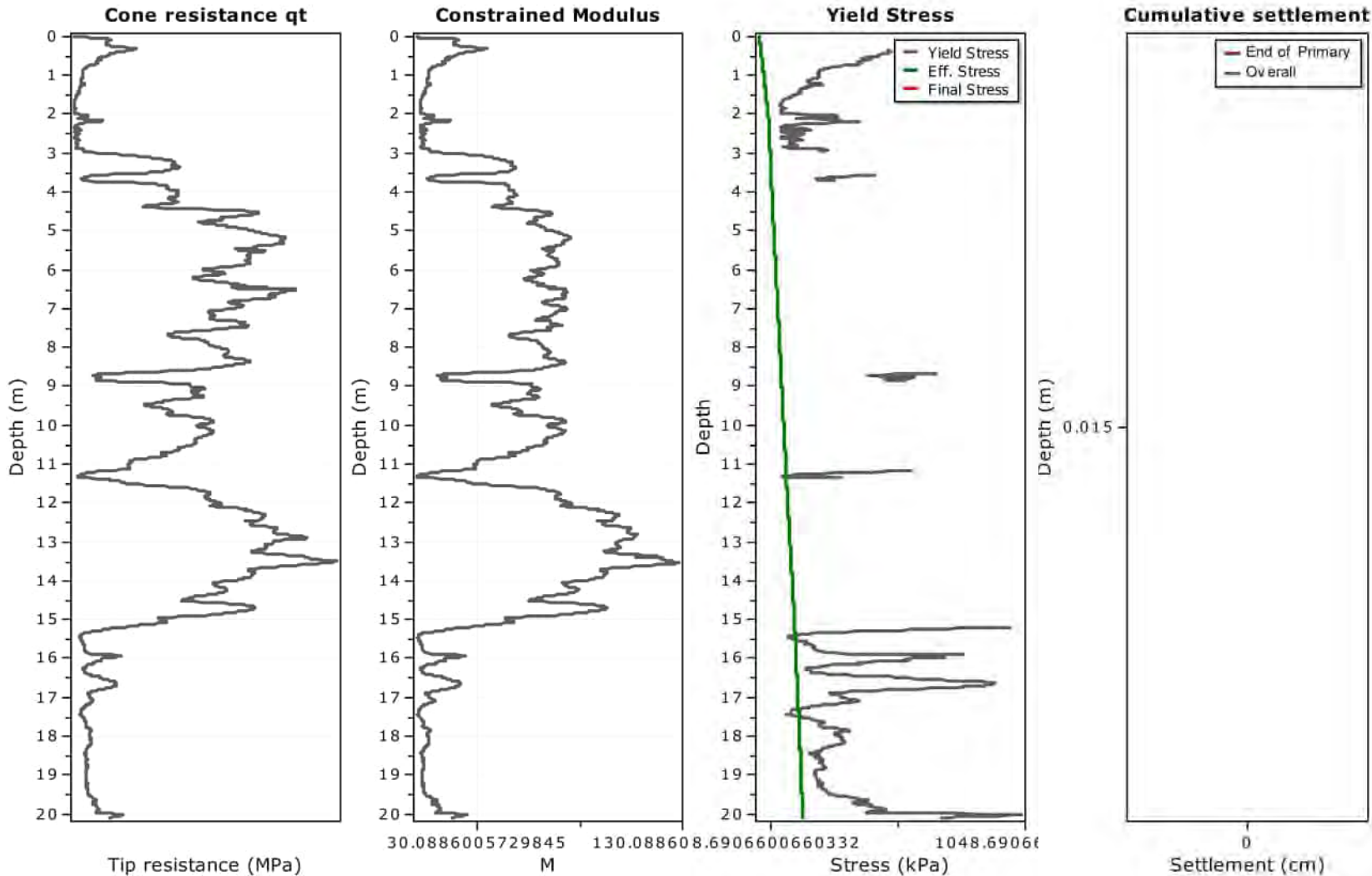
$$S_c = S_p \left(1 - e^{-\frac{t}{t_p}} \right)$$

where t_p is the duration of primary consolidation

:: Tabular results ::										
Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1	0.01	0.02	0.01	0.01	19.00	0.37	1.00	0.051	0.000	0.051
2	0.02	0.03	0.01	0.03	19.00	0.52	1.00	0.036	0.000	0.036
3	0.03	0.04	0.01	0.04	19.00	0.72	1.00	0.026	0.000	0.026
4	0.04	0.05	0.01	0.04	19.00	0.85	1.00	0.022	0.000	0.022
5	0.05	0.06	0.01	0.06	19.00	0.90	1.00	0.021	0.000	0.021
6	0.06	0.07	0.01	0.07	19.00	7.94	1.00	0.002	0.000	0.002
7	0.07	0.08	0.01	0.07	19.00	7.87	1.00	0.002	0.000	0.002
8	0.08	0.09	0.01	0.09	19.00	7.76	1.00	0.002	0.000	0.002
9	0.09	0.10	0.01	0.09	19.00	7.60	1.00	0.003	0.000	0.003
10	0.10	0.11	0.01	0.10	19.00	7.44	1.00	0.003	0.000	0.003
11	0.11	0.12	0.01	0.12	19.00	7.29	1.00	0.003	0.000	0.003
12	0.12	0.13	0.01	0.13	19.00	7.21	1.00	0.003	0.000	0.003
13	0.13	0.14	0.01	0.14	19.00	7.17	1.00	0.003	0.000	0.003
14	0.14	0.15	0.01	0.14	19.00	7.19	1.00	0.003	0.000	0.003
15	0.15	0.16	0.01	0.15	19.00	7.24	1.00	0.003	0.000	0.003
16	0.16	0.17	0.01	0.17	19.00	7.28	1.00	0.003	0.000	0.003
17	0.17	0.18	0.01	0.17	19.00	7.34	1.00	0.003	0.000	0.003
18	0.18	0.19	0.01	0.18	19.00	7.37	1.00	0.003	0.000	0.003
19	0.19	0.20	0.01	0.20	19.00	7.45	1.00	0.003	0.000	0.003
20	0.20	0.21	0.01	0.20	19.00	7.50	1.00	0.003	0.000	0.003
21	0.21	0.22	0.01	0.21	19.00	7.61	1.00	0.002	0.000	0.002
22	0.22	0.23	0.01	0.23	19.00	7.78	1.00	0.002	0.000	0.002
23	0.23	0.24	0.01	0.24	19.00	8.05	1.00	0.002	0.000	0.002
24	0.24	0.25	0.01	0.25	19.00	8.35	1.00	0.002	0.000	0.002
25	0.25	0.26	0.01	0.26	19.00	8.68	1.00	0.002	0.000	0.002
26	0.26	0.27	0.01	0.27	19.00	9.18	1.00	0.002	0.000	0.002
27	0.27	0.28	0.01	0.28	19.00	9.87	1.00	0.002	0.000	0.002
28	0.28	0.29	0.01	0.28	19.00	10.69	1.00	0.002	0.000	0.002
29	0.29	0.30	0.01	0.29	19.00	11.44	1.00	0.002	0.000	0.002
30	0.30	0.31	0.01	0.30	19.00	12.19	1.00	0.002	0.000	0.002
31	0.31	0.32	0.01	0.32	19.00	12.93	1.00	0.001	0.000	0.001
32	0.32	0.33	0.01	0.33	19.00	13.74	1.00	0.001	0.000	0.001
33	0.33	0.34	0.01	0.34	19.00	14.64	1.00	0.001	0.000	0.001
34	0.34	0.35	0.01	0.34	19.00	15.93	1.00	0.001	0.000	0.001
35	0.35	0.36	0.01	0.35	19.00	17.21	1.00	0.001	0.000	0.001
36	0.36	0.37	0.01	0.36	19.00	18.51	1.00	0.001	0.000	0.001
37	0.37	0.38	0.01	0.37	19.00	19.63	1.00	0.001	0.000	0.001
38	0.38	0.39	0.01	0.38	19.00	20.81	1.00	0.001	0.000	0.001
39	0.39	0.40	0.01	0.39	19.00	21.89	1.00	0.001	0.000	0.001
40	0.40	0.41	0.01	0.40	19.00	22.71	1.00	0.001	0.000	0.001
41	0.41	0.42	0.01	0.41	19.00	23.23	1.00	0.001	0.000	0.001
42	0.42	0.43	0.01	0.42	19.00	23.32	1.00	0.001	0.000	0.001
43	0.43	0.44	0.01	0.43	19.00	22.79	1.00	0.001	0.000	0.001
44	0.44	0.45	0.01	0.44	19.00	21.83	1.00	0.001	0.000	0.001
45	0.45	0.46	0.01	0.45	19.00	20.59	1.00	0.001	0.000	0.001
46	0.46	0.47	0.01	0.46	19.00	19.30	1.00	0.001	0.000	0.001

:: Tabular results ::										
Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)

Settlements calculation according to theory of elasticity*



Calculation properties

Footing type: Rectangular
Footing width: 100.00 (m)
L/B: 1.0
Footing pressure: 0.00 (kPa)
Embedment depth: 0.00 (m)
Footing is rigid: No
Remove excavation load: No
Apply 20% rule: Yes
Calculate secondary settlements: Yes
Time period for primary consolidation: 6 months
Time period for second. settlements: 600 months

* Primary settlement calculation is performed according to the following formula:

$$S = \sum \frac{\Delta \sigma_v}{M_{CPT}} \Delta z$$

* Secondary (creep) settlement calculation is performed according to the following formula:

$$S_c = S_p \left(1 - e^{-\frac{t}{t_p}} \right)$$

where t_p is the duration of primary consolidation

:: Tabular results ::

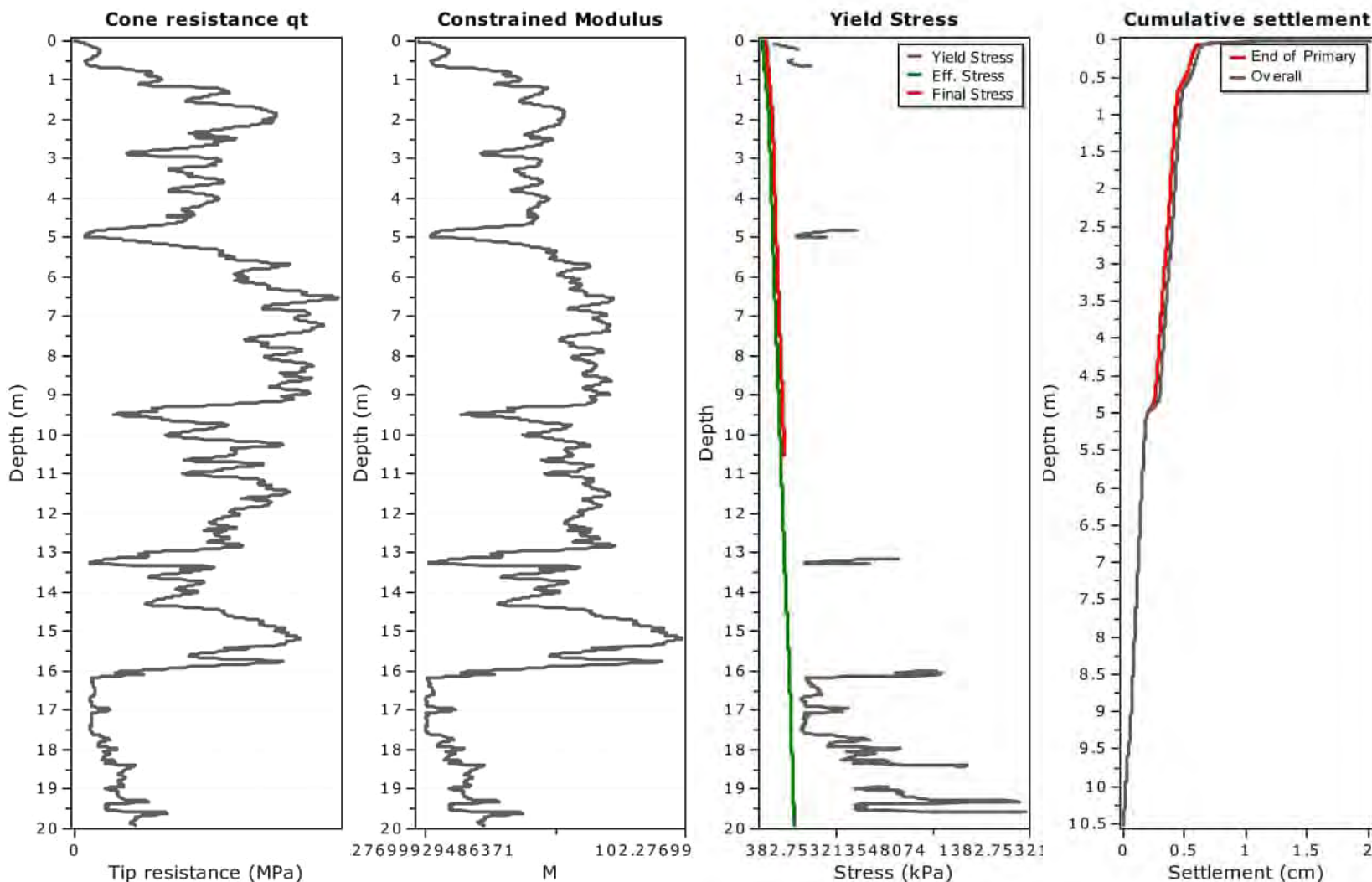
Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1	0.01	0.02	0.01	0.01	0.00	0.39	1.00	0.000	0.000	0.000

Total primary settlement: 0.00
Total secondary settlement: 0.00
Total calculated settlement: 0.00

Abbreviations

- Start depth:
- End depth:
- Thickness:
- Relative depth:
- Iz:
- Delta P:
- Eff. stress:
- M_(CPT):
- Settlement:
- Second. settlement:
- Start depth of soil layer (penetration depth measured from ground free surface)
- End depth of soil layer (penetration depth measured from ground free surface)
- Thickness of soil layer
- Depth of calculation relative to footing
- Stress influence factor
- Footing imposed stress:
- Effective stress
- Constrained modulus from CPT
- Primary settlement
- Secondary settlement due to creep

Settlements calculation according to theory of elasticity*



Calculation properties

Footing type: Rectangular
Footing width: 100.00 (m)
L/B: 1.0
Footing pressure: 19.00 (kPa)
Embedment depth: 0.00 (m)
Footing is rigid: No
Remove excavation load: No
Apply 20% rule: Yes
Calculate secondary settlements: Yes
Time period for primary consolidation: 6 months
Time period for second. settlements: 600 months

* Primary settlement calculation is performed according to the following formula:

$$S = \sum \frac{\Delta \sigma_v}{M_{CPT}} \Delta z$$

* Secondary (creep) settlement calculation is performed according to the following formula:

$$S_c = S_p \left(\frac{t}{t_p} \right)^n$$

where t_p is the duration of primary consolidation

:: Tabular results ::

Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1	0.01	0.02	0.01	0.01	19.00	0.02	1.00	0.897	0.000	0.897
2	0.02	0.03	0.01	0.03	19.00	0.08	1.00	0.240	0.000	0.240
3	0.03	0.04	0.01	0.04	19.00	0.16	1.00	0.120	0.000	0.120
4	0.04	0.05	0.01	0.04	19.00	0.28	1.00	0.067	0.000	0.067
5	0.05	0.06	0.01	0.06	19.00	0.38	1.00	0.050	0.000	0.050
6	0.06	0.07	0.01	0.07	19.00	4.16	1.00	0.005	0.000	0.005
7	0.07	0.08	0.01	0.07	19.00	4.58	1.00	0.004	0.000	0.004
8	0.08	0.09	0.01	0.09	19.00	4.87	1.00	0.004	0.000	0.004
9	0.09	0.10	0.01	0.09	19.00	5.22	1.00	0.004	0.000	0.004
10	0.10	0.11	0.01	0.10	19.00	5.66	1.00	0.003	0.000	0.003
11	0.11	0.12	0.01	0.12	19.00	6.36	1.00	0.003	0.000	0.003
12	0.12	0.13	0.01	0.13	19.00	7.00	1.00	0.003	0.000	0.003
13	0.13	0.14	0.01	0.14	19.00	7.60	1.00	0.003	0.000	0.003
14	0.14	0.15	0.01	0.14	19.00	7.91	1.00	0.002	0.000	0.002
15	0.15	0.16	0.01	0.15	19.00	8.19	1.00	0.002	0.000	0.002
16	0.16	0.17	0.01	0.17	19.00	8.57	1.00	0.002	0.000	0.002
17	0.17	0.18	0.01	0.17	19.00	8.95	1.00	0.002	0.000	0.002
18	0.18	0.19	0.01	0.18	19.00	9.40	1.00	0.002	0.000	0.002
19	0.19	0.20	0.01	0.20	19.00	9.79	1.00	0.002	0.000	0.002
20	0.20	0.21	0.01	0.20	19.00	10.23	1.00	0.002	0.000	0.002
21	0.21	0.22	0.01	0.21	19.00	10.63	1.00	0.002	0.000	0.002
22	0.22	0.23	0.01	0.23	19.00	10.98	1.00	0.002	0.000	0.002
23	0.23	0.24	0.01	0.24	19.00	11.26	1.00	0.002	0.000	0.002
24	0.24	0.25	0.01	0.25	19.00	11.50	1.00	0.002	0.000	0.002
25	0.25	0.26	0.01	0.26	19.00	11.65	1.00	0.002	0.000	0.002
26	0.26	0.27	0.01	0.27	19.00	11.67	1.00	0.002	0.000	0.002
27	0.27	0.28	0.01	0.28	19.00	11.59	1.00	0.002	0.000	0.002
28	0.28	0.29	0.01	0.28	19.00	11.49	1.00	0.002	0.000	0.002
29	0.29	0.30	0.01	0.29	19.00	11.36	1.00	0.002	0.000	0.002
30	0.30	0.31	0.01	0.30	19.00	11.24	1.00	0.002	0.000	0.002
31	0.31	0.32	0.01	0.32	19.00	11.08	1.00	0.002	0.000	0.002
32	0.32	0.33	0.01	0.33	19.00	10.99	1.00	0.002	0.000	0.002
33	0.33	0.34	0.01	0.34	19.00	10.86	1.00	0.002	0.000	0.002
34	0.34	0.35	0.01	0.34	19.00	10.78	1.00	0.002	0.000	0.002
35	0.35	0.36	0.01	0.35	19.00	10.70	1.00	0.002	0.000	0.002
36	0.36	0.37	0.01	0.36	19.00	10.62	1.00	0.002	0.000	0.002
37	0.37	0.38	0.01	0.37	19.00	10.49	1.00	0.002	0.000	0.002
38	0.38	0.39	0.01	0.38	19.00	10.30	1.00	0.002	0.000	0.002
39	0.39	0.40	0.01	0.39	19.00	10.03	1.00	0.002	0.000	0.002
40	0.40	0.41	0.01	0.40	19.00	9.49	1.00	0.002	0.000	0.002
41	0.41	0.42	0.01	0.41	19.00	8.94	1.00	0.002	0.000	0.002
42	0.42	0.43	0.01	0.42	19.00	8.47	1.00	0.002	0.000	0.002
43	0.43	0.44	0.01	0.43	19.00	8.28	1.00	0.002	0.000	0.002
44	0.44	0.45	0.01	0.44	19.00	8.13	1.00	0.002	0.000	0.002
45	0.45	0.46	0.01	0.45	19.00	7.98	1.00	0.002	0.000	0.002
46	0.46	0.47	0.01	0.46	19.00	7.72	1.00	0.002	0.000	0.002

:: Tabular results ::										
Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)

Total primary settlement: 1.98

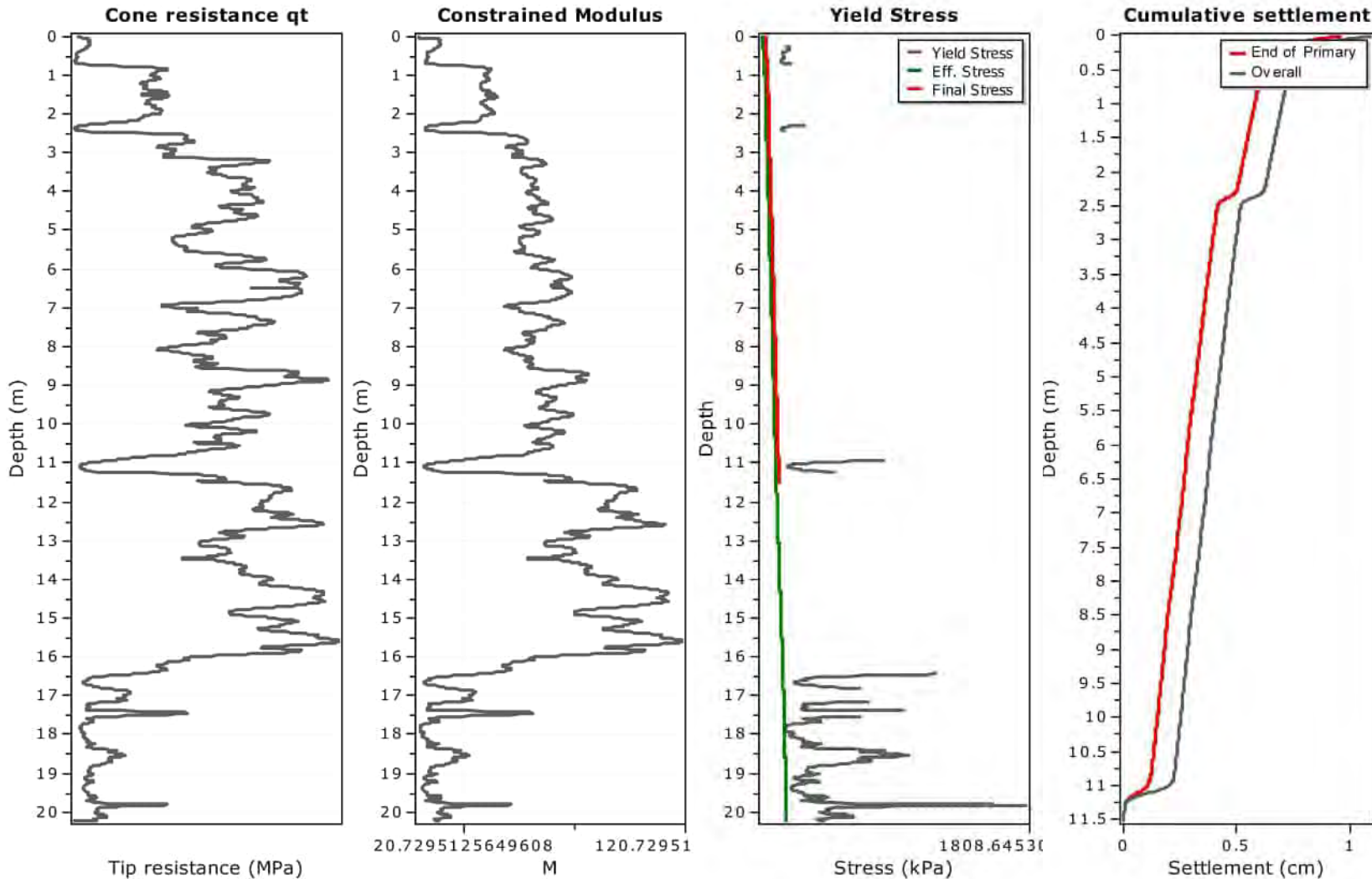
Total secondary settlement: 0.04

Total calculated settlement: 2.02

Abbreviations

- Start depth:Start depth of soil layer (penetration depth measured from ground free surface)
- End depth:End depth of soil layer (penetration depth measured from ground free surface)
- Thickness:Thickness of soil layer
- Relative depth:Depth of calculation relative to footing
- Iz:Stress influence factor
- Delta P:Footing imposed stress:
- Eff. stress:Effective stress
- M_(CPT):Constrained modulus from CPT
- Settlement:Primary settlement
- Second. settlement:Secondary settlements due to creep

Settlements calculation according to theory of elasticity*



Calculation properties

Footing type: Rectangular
Footing width: 100.00 (m)
L/B: 1.0
Footing pressure: 19.00 (kPa)
Embedment depth: 0.00 (m)
Footing is rigid: No
Remove excavation load: No
Apply 20% rule: Yes
Calculate secondary settlements: Yes
Time period for primary consolidation: 6 months
Time period for second. settlements: 600 months

* Primary settlement calculation is performed according to the following formula:

$$S = \sum \frac{\Delta \sigma_v}{M_{CPT}} \Delta z$$

* Secondary (creep) settlement calculation is performed according to the following formula:

$$S_c = S_p \left(\frac{t}{t_p} \right)^n$$

where t_p is the duration of primary consolidation

:: Tabular results ::

Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1	0.01	0.02	0.01	0.01	19.00	0.56	1.00	0.034	0.000	0.034
2	0.02	0.03	0.01	0.03	19.00	0.59	1.00	0.032	0.000	0.032
3	0.03	0.04	0.01	0.04	19.00	0.69	1.00	0.028	0.000	0.028
4	0.04	0.05	0.01	0.04	19.00	0.80	1.00	0.024	0.000	0.024
5	0.05	0.06	0.01	0.06	19.00	0.95	1.00	0.020	0.000	0.020
6	0.06	0.07	0.01	0.07	19.00	9.35	1.00	0.002	0.000	0.002
7	0.07	0.08	0.01	0.07	19.00	9.68	1.00	0.002	0.000	0.002
8	0.08	0.09	0.01	0.09	19.00	9.98	1.00	0.002	0.000	0.002
9	0.09	0.10	0.01	0.09	19.00	10.10	1.00	0.002	0.000	0.002
10	0.10	0.11	0.01	0.10	19.00	9.96	1.00	0.002	0.000	0.002
11	0.11	0.12	0.01	0.12	19.00	9.76	1.00	0.002	0.000	0.002
12	0.12	0.13	0.01	0.13	19.00	9.55	1.00	0.002	0.000	0.002
13	0.13	0.14	0.01	0.14	19.00	9.51	1.00	0.002	0.000	0.002
14	0.14	0.15	0.01	0.14	19.00	9.55	1.00	0.002	0.000	0.002
15	0.15	0.16	0.01	0.15	19.00	9.71	1.00	0.002	0.000	0.002
16	0.16	0.17	0.01	0.17	19.00	9.94	1.00	0.002	0.000	0.002
17	0.17	0.18	0.01	0.17	19.00	10.18	1.00	0.002	0.000	0.002
18	0.18	0.19	0.01	0.18	19.00	10.37	1.00	0.002	0.000	0.002
19	0.19	0.20	0.01	0.20	19.00	10.43	1.00	0.002	0.000	0.002
20	0.20	0.21	0.01	0.20	19.00	10.42	1.00	0.002	0.000	0.002
21	0.21	0.22	0.01	0.21	19.00	10.31	1.00	0.002	0.000	0.002
22	0.22	0.23	0.01	0.23	19.00	10.21	1.00	0.002	0.000	0.002
23	0.23	0.24	0.01	0.24	19.00	10.00	1.00	0.002	0.000	0.002
24	0.24	0.25	0.01	0.25	19.00	9.80	1.00	0.002	0.000	0.002
25	0.25	0.26	0.01	0.26	19.00	9.62	1.00	0.002	0.000	0.002
26	0.26	0.27	0.01	0.27	19.00	9.46	1.00	0.002	0.000	0.002
27	0.27	0.28	0.01	0.28	19.00	9.22	1.00	0.002	0.000	0.002
28	0.28	0.29	0.01	0.28	19.00	8.92	1.00	0.002	0.000	0.002
29	0.29	0.30	0.01	0.29	19.00	8.63	1.00	0.002	0.000	0.002
30	0.30	0.31	0.01	0.30	19.00	8.47	1.00	0.002	0.000	0.002
31	0.31	0.32	0.01	0.32	19.00	8.32	1.00	0.002	0.000	0.002
32	0.32	0.33	0.01	0.33	19.00	8.11	1.00	0.002	0.000	0.002
33	0.33	0.34	0.01	0.34	19.00	7.73	1.00	0.002	0.000	0.002
34	0.34	0.35	0.01	0.34	19.00	7.35	1.00	0.003	0.000	0.003
35	0.35	0.36	0.01	0.35	19.00	7.00	1.00	0.003	0.000	0.003
36	0.36	0.37	0.01	0.36	19.00	6.75	1.00	0.003	0.000	0.003
37	0.37	0.38	0.01	0.37	19.00	6.47	1.00	0.003	0.000	0.003
38	0.38	0.39	0.01	0.38	19.00	6.05	1.00	0.003	0.000	0.003
39	0.39	0.40	0.01	0.39	19.00	5.60	1.00	0.003	0.000	0.003
40	0.40	0.41	0.01	0.40	19.00	5.15	1.00	0.004	0.000	0.004
41	0.41	0.42	0.01	0.41	19.00	4.86	1.00	0.004	0.000	0.004
42	0.42	0.43	0.01	0.42	19.00	4.65	1.00	0.004	0.000	0.004
43	0.43	0.44	0.01	0.43	19.00	4.46	1.00	0.004	0.000	0.005
44	0.44	0.45	0.01	0.44	19.00	4.34	1.00	0.004	0.000	0.005
45	0.45	0.46	0.01	0.45	19.00	4.24	1.00	0.004	0.000	0.005
46	0.46	0.47	0.01	0.46	19.00	4.24	1.00	0.004	0.000	0.005

:: Tabular results ::

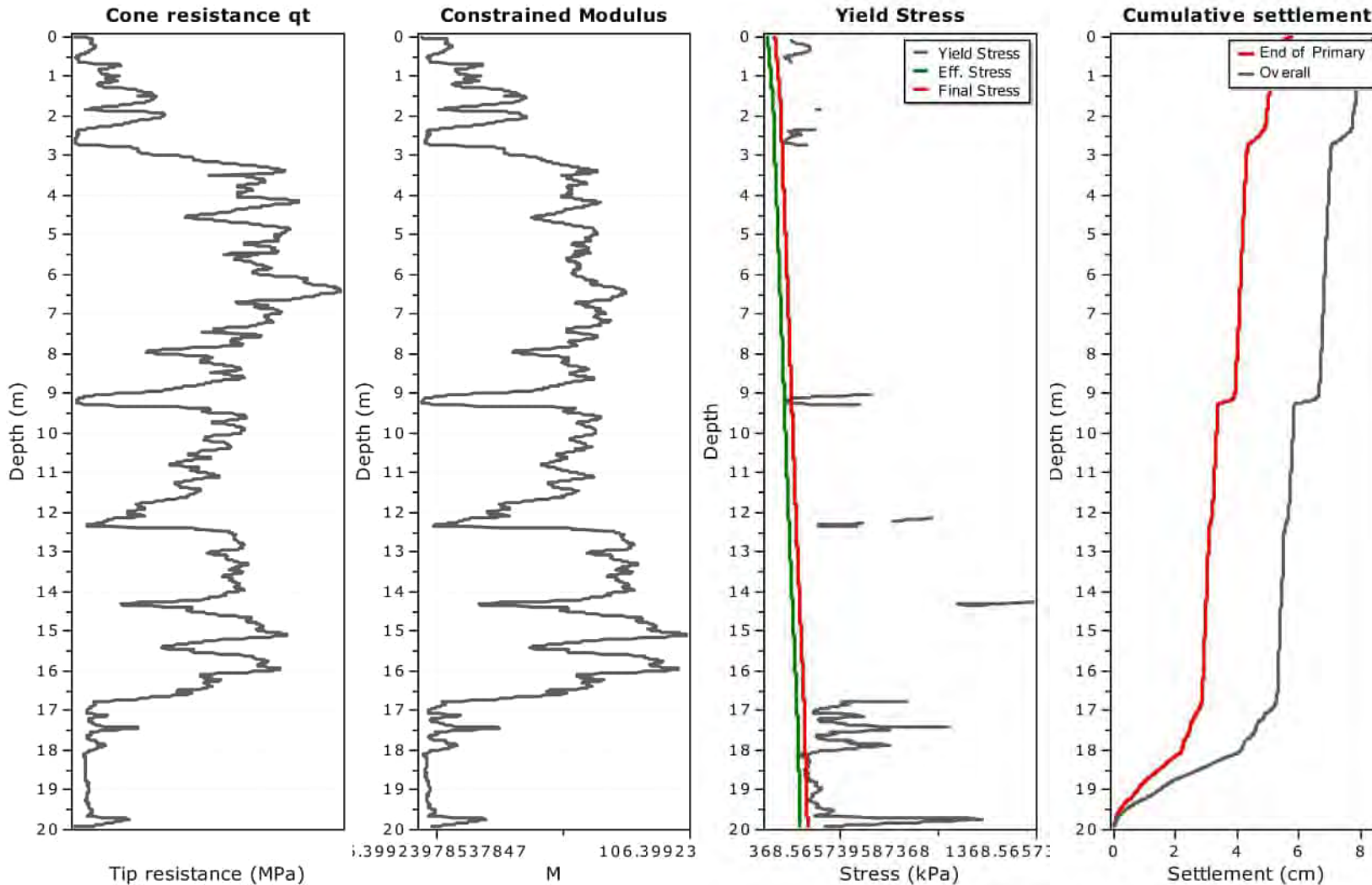
Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1151	11.51	11.52	0.01	11.52	18.84	73.74	0.99	0.000	0.000	0.000

Total primary settlement: 0.96
Total secondary settlement: 0.13
Total calculated settlement: 1.09

Abbreviations

- Start depth:
- End depth:
- Thickness:
- Relative depth:
- Iz:
- Delta P:
- Eff. stress:
- M_(CPT):
- Settlement:
- Second. settlement:
- Start depth of soil layer (penetration depth measured from ground free surface)
- End depth of soil layer (penetration depth measured from ground free surface)
- Thickness of soil layer
- Depth of calculation relative to footing
- Stress influence factor
- Footing imposed stress:
- Effective stress
- Constrained modulus from CPT
- Primary settlement
- Secondary settlement due to creep

Settlements calculation according to theory of elasticity*



Calculation properties

Footing type: Rectangular
Footing width: 100.00 (m)
L/B: 1.0
Footing pressure: 38.00 (kPa)
Embedment depth: 0.00 (m)
Footing is rigid: No
Remove excavation load: No
Apply 20% rule: Yes
Calculate secondary settlements: Yes
Time period for primary consolidation: 6 months
Time period for second. settlements: 600 months

* Primary settlement calculation is performed according to the following formula:

$$S = \sum \frac{\Delta \sigma_v}{M_{CPT}} \Delta z$$

* Secondary (creep) settlement calculation is performed according to the following formula:

$$S_c = S_p \left(1 - e^{-t/t_p} \right)$$

where t_p is the duration of primary consolidation

:: Tabular results ::

Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1	0.01	0.02	0.01	0.01	38.00	0.64	1.00	0.060	0.000	0.060
2	0.02	0.03	0.01	0.03	38.00	0.75	1.00	0.051	0.000	0.051
3	0.03	0.04	0.01	0.04	38.00	0.88	1.00	0.043	0.000	0.043
4	0.04	0.05	0.01	0.04	38.00	1.01	1.00	0.038	0.000	0.038
5	0.05	0.06	0.01	0.06	38.00	1.09	1.00	0.035	0.000	0.035
6	0.06	0.07	0.01	0.07	38.00	10.36	1.00	0.004	0.000	0.004
7	0.07	0.08	0.01	0.07	38.00	10.82	1.00	0.004	0.000	0.004
8	0.08	0.09	0.01	0.09	38.00	10.93	1.00	0.003	0.000	0.003
9	0.09	0.10	0.01	0.09	38.00	10.87	1.00	0.003	0.000	0.003
10	0.10	0.11	0.01	0.10	38.00	10.78	1.00	0.004	0.000	0.004
11	0.11	0.12	0.01	0.12	38.00	10.67	1.00	0.004	0.000	0.004
12	0.12	0.13	0.01	0.13	38.00	10.54	1.00	0.004	0.000	0.004
13	0.13	0.14	0.01	0.14	38.00	10.37	1.00	0.004	0.000	0.004
14	0.14	0.15	0.01	0.14	38.00	10.19	1.00	0.004	0.000	0.004
15	0.15	0.16	0.01	0.15	38.00	10.00	1.00	0.004	0.000	0.004
16	0.16	0.17	0.01	0.17	38.00	9.88	1.00	0.004	0.000	0.004
17	0.17	0.18	0.01	0.17	38.00	9.88	1.00	0.004	0.000	0.004
18	0.18	0.19	0.01	0.18	38.00	10.18	1.00	0.004	0.000	0.004
19	0.19	0.20	0.01	0.20	38.00	10.64	1.00	0.004	0.000	0.004
20	0.20	0.21	0.01	0.20	38.00	11.17	1.00	0.003	0.000	0.003
21	0.21	0.22	0.01	0.21	38.00	11.58	1.00	0.003	0.000	0.003
22	0.22	0.23	0.01	0.23	38.00	12.00	1.00	0.003	0.000	0.003
23	0.23	0.24	0.01	0.24	38.00	12.40	1.00	0.003	0.000	0.003
24	0.24	0.25	0.01	0.25	38.00	12.58	1.00	0.003	0.000	0.003
25	0.25	0.26	0.01	0.26	38.00	12.42	1.00	0.003	0.000	0.003
26	0.26	0.27	0.01	0.27	38.00	12.03	1.00	0.003	0.000	0.003
27	0.27	0.28	0.01	0.28	38.00	11.70	1.00	0.003	0.000	0.003
28	0.28	0.29	0.01	0.28	38.00	11.42	1.00	0.003	0.000	0.003
29	0.29	0.30	0.01	0.29	38.00	11.18	1.00	0.003	0.000	0.003
30	0.30	0.31	0.01	0.30	38.00	10.92	1.00	0.003	0.000	0.003
31	0.31	0.32	0.01	0.32	38.00	10.69	1.00	0.004	0.000	0.004
32	0.32	0.33	0.01	0.33	38.00	10.48	1.00	0.004	0.000	0.004
33	0.33	0.34	0.01	0.34	38.00	10.14	1.00	0.004	0.000	0.004
34	0.34	0.35	0.01	0.34	38.00	9.80	1.00	0.004	0.000	0.004
35	0.35	0.36	0.01	0.35	38.00	9.50	1.00	0.004	0.000	0.004
36	0.36	0.37	0.01	0.36	38.00	9.36	1.00	0.004	0.000	0.004
37	0.37	0.38	0.01	0.37	38.00	9.28	1.00	0.004	0.000	0.004
38	0.38	0.39	0.01	0.38	38.00	9.16	1.00	0.004	0.000	0.004
39	0.39	0.40	0.01	0.39	38.00	8.83	1.00	0.004	0.000	0.004
40	0.40	0.41	0.01	0.40	38.00	8.36	1.00	0.005	0.000	0.005
41	0.41	0.42	0.01	0.41	38.00	7.74	1.00	0.005	0.000	0.005
42	0.42	0.43	0.01	0.42	38.00	7.16	1.00	0.005	0.000	0.006
43	0.43	0.44	0.01	0.43	38.00	6.54	1.00	0.006	0.000	0.006
44	0.44	0.45	0.01	0.44	38.00	5.82	1.00	0.007	0.000	0.007
45	0.45	0.46	0.01	0.45	38.00	5.13	1.00	0.007	0.000	0.008
46	0.46	0.47	0.01	0.46	38.00	4.52	1.00	0.008	0.000	0.009

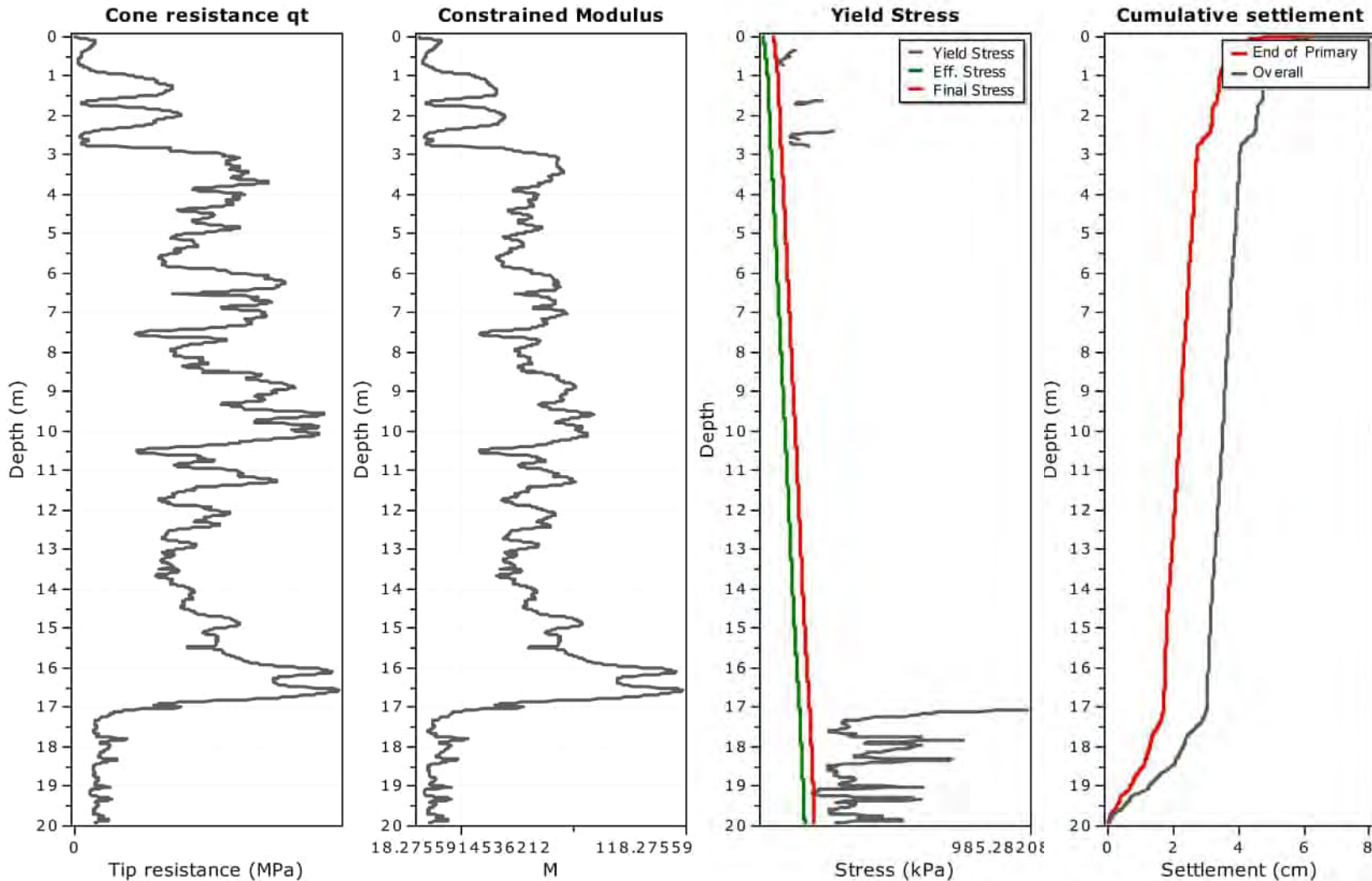
:: Tabular results ::

Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1979	19.79	19.80	0.01	19.80	36.54	22.71	0.96	0.002	0.001	0.003
1980	19.80	19.81	0.01	19.81	36.53	21.48	0.96	0.002	0.002	0.003
1981	19.81	19.82	0.01	19.82	36.53	20.29	0.96	0.002	0.002	0.003
1982	19.82	19.83	0.01	19.83	36.53	19.39	0.96	0.002	0.002	0.004
1983	19.83	19.84	0.01	19.84	36.53	18.46	0.96	0.002	0.002	0.004
1984	19.84	19.85	0.01	19.85	36.53	17.18	0.96	0.002	0.002	0.004
1985	19.85	19.86	0.01	19.86	36.52	15.86	0.96	0.002	0.002	0.004
1986	19.86	19.87	0.01	19.87	36.52	14.49	0.96	0.003	0.002	0.005
1987	19.87	19.88	0.01	19.88	36.52	13.44	0.96	0.003	0.002	0.005
1988	19.88	19.89	0.01	19.89	36.52	12.10	0.96	0.003	0.003	0.006
1989	19.89	19.90	0.01	19.90	36.52	10.90	0.96	0.003	0.003	0.006
1990	19.90	19.91	0.01	19.91	36.51	8.98	0.96	0.004	0.004	0.008
1991	19.91	19.92	0.01	19.92	36.51	7.73	0.96	0.005	0.004	0.009
1992	19.92	19.93	0.01	19.93	36.51	5.98	0.96	0.006	0.006	0.012

Total primary settlement: 5.78**Total secondary settlement: 2.83****Total calculated settlement: 8.61****Abbreviations**

Start depth:	Start depth of soil layer (penetration depth measured from ground free surface)
End depth:	End depth of soil layer (penetration depth measured from ground free surface)
Thickness:	Thickness of soil layer
Relative depth:	Depth of calculation relative to footing
Iz:	Stress influence factor
Delta P:	Footing imposed stress:
Eff. stress:	Effective stress
M _(CPT) :	Constrained modulus from CPT
Settlement:	Primary settlement
Second. settlement:	Secondary settlements due to creep

Settlements calculation according to theory of elasticity*



Calculation properties

Footing type: Rectangular
Footing width: 100.00 (m)
L/B: 1.0
Footing pressure: 38.00 (kPa)
Embedment depth: 0.00 (m)
Footing is rigid: No
Remove excavation load: No
Apply 20% rule: Yes
Calculate secondary settlements: Yes
Time period for primary consolidation: 6 months
Time period for second. settlements: 600 months

* Primary settlement calculation is performed according to the following formula:

$$S = \sum \frac{\Delta \sigma_v}{M_{CPT}} \Delta z$$

* Secondary (creep) settlement calculation is performed according to the following formula:

$$S_c = S_p \left(\frac{t}{t_p} \right)^n$$

where t_p is the duration of primary consolidation

:: Tabular results ::

Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1	0.01	0.02	0.01	0.01	38.00	0.03	1.00	1.291	0.000	1.291
2	0.02	0.03	0.01	0.03	38.00	0.07	1.00	0.554	0.000	0.554
3	0.03	0.04	0.01	0.04	38.00	0.15	1.00	0.257	0.000	0.257
4	0.04	0.05	0.01	0.04	38.00	0.28	1.00	0.138	0.000	0.138
5	0.05	0.06	0.01	0.06	38.00	0.39	1.00	0.097	0.000	0.097
6	0.06	0.07	0.01	0.07	38.00	4.55	1.00	0.008	0.000	0.008
7	0.07	0.08	0.01	0.07	38.00	5.52	1.00	0.007	0.000	0.007
8	0.08	0.09	0.01	0.09	38.00	6.71	1.00	0.006	0.000	0.006
9	0.09	0.10	0.01	0.09	38.00	7.89	1.00	0.005	0.000	0.005
10	0.10	0.11	0.01	0.10	38.00	8.88	1.00	0.004	0.000	0.004
11	0.11	0.12	0.01	0.12	38.00	9.46	1.00	0.004	0.000	0.004
12	0.12	0.13	0.01	0.13	38.00	9.65	1.00	0.004	0.000	0.004
13	0.13	0.14	0.01	0.14	38.00	9.62	1.00	0.004	0.000	0.004
14	0.14	0.15	0.01	0.14	38.00	9.54	1.00	0.004	0.000	0.004
15	0.15	0.16	0.01	0.15	38.00	9.45	1.00	0.004	0.000	0.004
16	0.16	0.17	0.01	0.17	38.00	9.27	1.00	0.004	0.000	0.004
17	0.17	0.18	0.01	0.17	38.00	9.09	1.00	0.004	0.000	0.004
18	0.18	0.19	0.01	0.18	38.00	8.89	1.00	0.004	0.000	0.004
19	0.19	0.20	0.01	0.20	38.00	8.73	1.00	0.004	0.000	0.004
20	0.20	0.21	0.01	0.20	38.00	8.50	1.00	0.004	0.000	0.004
21	0.21	0.22	0.01	0.21	38.00	8.26	1.00	0.005	0.000	0.005
22	0.22	0.23	0.01	0.23	38.00	7.99	1.00	0.005	0.000	0.005
23	0.23	0.24	0.01	0.24	38.00	7.79	1.00	0.005	0.000	0.005
24	0.24	0.25	0.01	0.25	38.00	7.61	1.00	0.005	0.000	0.005
25	0.25	0.26	0.01	0.26	38.00	7.50	1.00	0.005	0.000	0.005
26	0.26	0.27	0.01	0.27	38.00	7.39	1.00	0.005	0.000	0.005
27	0.27	0.28	0.01	0.28	38.00	7.29	1.00	0.005	0.000	0.005
28	0.28	0.29	0.01	0.28	38.00	7.08	1.00	0.005	0.000	0.005
29	0.29	0.30	0.01	0.29	38.00	6.84	1.00	0.006	0.000	0.006
30	0.30	0.31	0.01	0.30	38.00	6.55	1.00	0.006	0.000	0.006
31	0.31	0.32	0.01	0.32	38.00	6.31	1.00	0.006	0.000	0.006
32	0.32	0.33	0.01	0.33	38.00	6.05	1.00	0.006	0.000	0.006
33	0.33	0.34	0.01	0.34	38.00	5.72	1.00	0.007	0.000	0.007
34	0.34	0.35	0.01	0.34	38.00	5.48	1.00	0.007	0.000	0.007
35	0.35	0.36	0.01	0.35	38.00	5.14	1.00	0.007	0.000	0.008
36	0.36	0.37	0.01	0.36	38.00	4.87	1.00	0.008	0.000	0.008
37	0.37	0.38	0.01	0.37	38.00	4.52	1.00	0.008	0.000	0.009
38	0.38	0.39	0.01	0.38	38.00	4.27	1.00	0.009	0.000	0.009
39	0.39	0.40	0.01	0.39	38.00	4.03	1.00	0.009	0.000	0.010
40	0.40	0.41	0.01	0.40	38.00	3.79	1.00	0.010	0.000	0.010
41	0.41	0.42	0.01	0.41	38.00	3.51	1.00	0.011	0.000	0.011
42	0.42	0.43	0.01	0.42	38.00	3.28	1.00	0.012	0.000	0.012
43	0.43	0.44	0.01	0.43	38.00	3.10	1.00	0.012	0.000	0.013
44	0.44	0.45	0.01	0.44	38.00	3.01	1.00	0.013	0.000	0.013
45	0.45	0.46	0.01	0.45	38.00	2.96	1.00	0.013	0.001	0.013
46	0.46	0.47	0.01	0.46	38.00	2.92	1.00	0.013	0.001	0.014

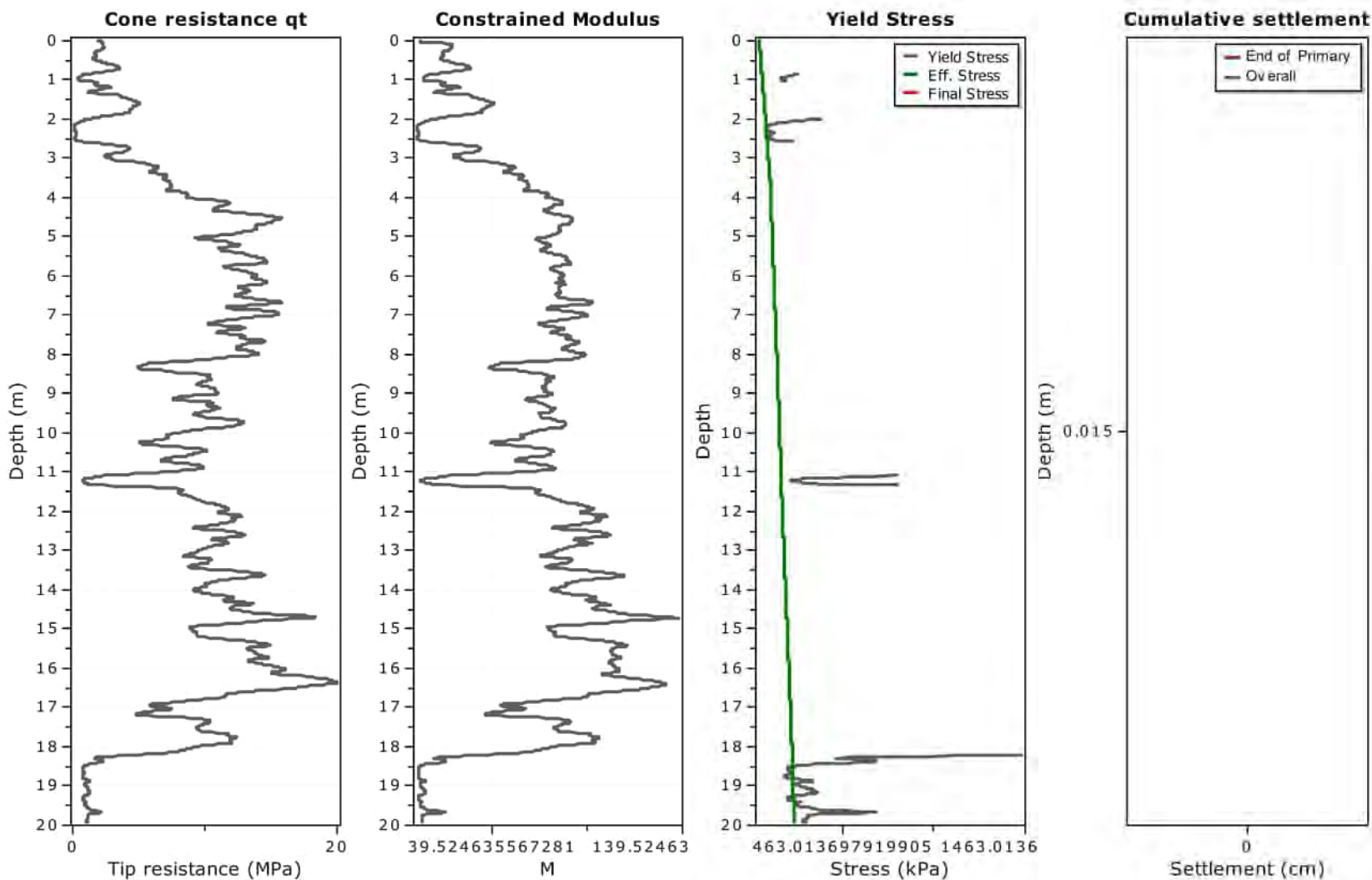
:: Tabular results ::

Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1979	19.79	19.80	0.01	19.80	36.54	10.30	0.96	0.004	0.003	0.006
1980	19.80	19.81	0.01	19.81	36.53	9.65	0.96	0.004	0.003	0.007
1981	19.81	19.82	0.01	19.82	36.53	7.93	0.96	0.005	0.004	0.008
1982	19.82	19.83	0.01	19.83	36.53	7.41	0.96	0.005	0.004	0.009
1983	19.83	19.84	0.01	19.84	36.53	8.82	0.96	0.004	0.003	0.008
1984	19.84	19.85	0.01	19.85	36.53	10.47	0.96	0.003	0.003	0.006
1985	19.85	19.86	0.01	19.86	36.52	11.73	0.96	0.003	0.003	0.006
1986	19.86	19.87	0.01	19.87	36.52	12.33	0.96	0.003	0.002	0.005
1987	19.87	19.88	0.01	19.88	36.52	12.33	0.96	0.003	0.002	0.005
1988	19.88	19.89	0.01	19.89	36.52	11.24	0.96	0.003	0.003	0.006
1989	19.89	19.90	0.01	19.90	36.52	9.60	0.96	0.004	0.003	0.007
1990	19.90	19.91	0.01	19.91	36.51	6.64	0.96	0.005	0.005	0.010
1991	19.91	19.92	0.01	19.92	36.51	5.24	0.96	0.007	0.006	0.013
1992	19.92	19.93	0.01	19.93	36.51	4.59	0.96	0.008	0.007	0.015

Total primary settlement: 6.68**Total secondary settlement: 1.41****Total calculated settlement: 8.08****Abbreviations**

Start depth:	Start depth of soil layer (penetration depth measured from ground free surface)
End depth:	End depth of soil layer (penetration depth measured from ground free surface)
Thickness:	Thickness of soil layer
Relative depth:	Depth of calculation relative to footing
Iz:	Stress influence factor
Delta P:	Footing imposed stress:
Eff. stress:	Effective stress
M _(CPT) :	Constrained modulus from CPT
Settlement:	Primary settlement
Second. settlement:	Secondary settlements due to creep

Settlements calculation according to theory of elasticity*



Calculation properties

Footing type: Rectangular
Footing width: 100.00 (m)
L/B: 1.0
Footing pressure: 0.00 (kPa)
Embedment depth: 0.00 (m)
Footing is rigid: No
Remove excavation load: No
Apply 20% rule: Yes
Calculate secondary settlements: Yes
Time period for primary consolidation: 6 months
Time period for second. settlements: 600 months

* Primary settlement calculation is performed according to the following formula:

$$S = \sum \frac{\Delta \sigma_v}{M_{CPT}} \Delta z$$

* Secondary (creep) settlement calculation is performed according to the following formula:

$$S_c = S_p \left(\frac{t}{t_p} \right)^n$$

where t_p is the duration of primary consolidation

:: Tabular results ::										
Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1	0.01	0.02	0.01	0.01	0.00	1.68	1.00	0.000	0.000	0.000

Total primary settlement: 0.00

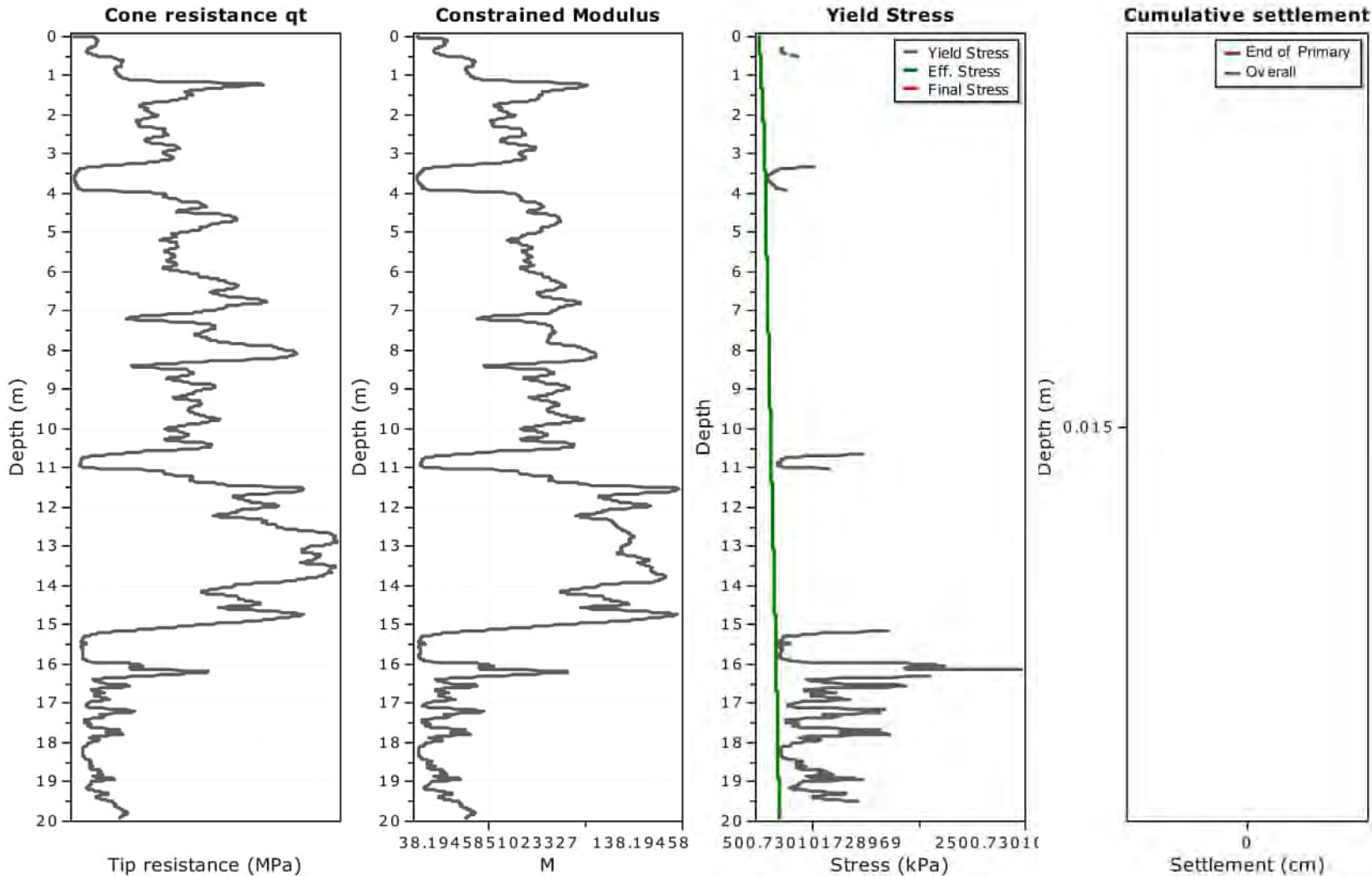
Total secondary settlement: 0.00

Total calculated settlement: 0.00

Abbreviations

- Start depth: Start depth of soil layer (penetration depth measured from ground free surface)
- End depth: End depth of soil layer (penetration depth measured from ground free surface)
- Thickness: Thickness of soil layer
- Relative depth: Depth of calculation relative to footing
- Iz: Stress influence factor
- Delta P: Footing imposed stress:
- Eff. stress: Effective stress
- M_(CPT): Constrained modulus from CPT
- Settlement: Primary settlement
- Second. settlement: Secondary settlement due to creep

Settlements calculation according to theory of elasticity*



Calculation properties

Footing type: Rectangular
Footing width: 100.00 (m)
L/B: 1.0
Footing pressure: 0.00 (kPa)
Embedment depth: 0.00 (m)
Footing is rigid: No
Remove excavation load: No
Apply 20% rule: Yes
Calculate secondary settlements: Yes
Time period for primary consolidation: 6 months
Time period for second. settlements: 600 months

* Primary settlement calculation is performed according to the following formula:

$$S = \sum \frac{\Delta \sigma_v}{M_{CPT}} \Delta z$$

* Secondary (creep) settlement calculation is performed according to the following formula:

$$S_c = S_p \left(\frac{t}{t_p} \right)^n$$

where t_p is the duration of primary consolidation

:: Tabular results ::										
Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1	0.01	0.02	0.01	0.01	0.00	1.25	1.00	0.000	0.000	0.000

Total primary settlement: 0.00

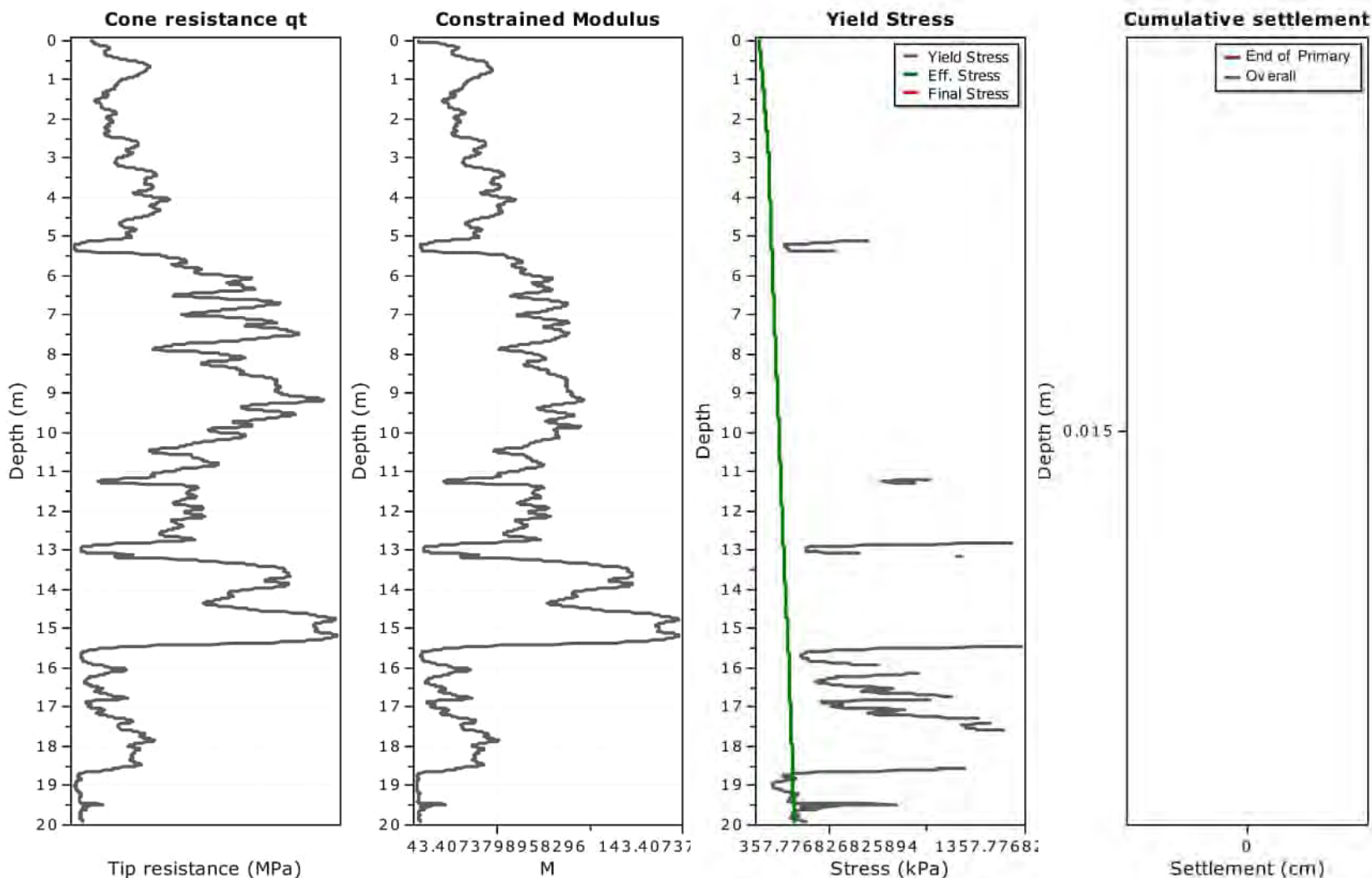
Total secondary settlement: 0.00

Total calculated settlement: 0.00

Abbreviations

- Start depth: Start depth of soil layer (penetration depth measured from ground free surface)
- End depth: End depth of soil layer (penetration depth measured from ground free surface)
- Thickness: Thickness of soil layer
- Relative depth: Depth of calculation relative to footing
- Iz: Stress influence factor
- Delta P: Footing imposed stress:
- Eff. stress: Effective stress
- M_(CPT): Constrained modulus from CPT
- Settlement: Primary settlement
- Second. settlement: Secondary settlement due to creep

Settlements calculation according to theory of elasticity*



Calculation properties

Footing type: Rectangular
Footing width: 100.00 (m)
L/B: 1.0
Footing pressure: 0.00 (kPa)
Embedment depth: 0.00 (m)
Footing is rigid: No
Remove excavation load: No
Apply 20% rule: Yes
Calculate secondary settlements: Yes
Time period for primary consolidation: 6 months
Time period for second. settlements: 600 months

* Primary settlement calculation is performed according to the following formula:

$$S = \sum \frac{\Delta \sigma_v}{M_{CPT}} \Delta z$$

* Secondary (creep) settlement calculation is performed according to the following formula:

$$S_c = S_p \left(\frac{t}{t_p} \right)^n$$

where t_p is the duration of primary consolidation

:: Tabular results ::										
Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1	0.01	0.02	0.01	0.01	0.00	1.45	1.00	0.000	0.000	0.000

Total primary settlement: 0.00

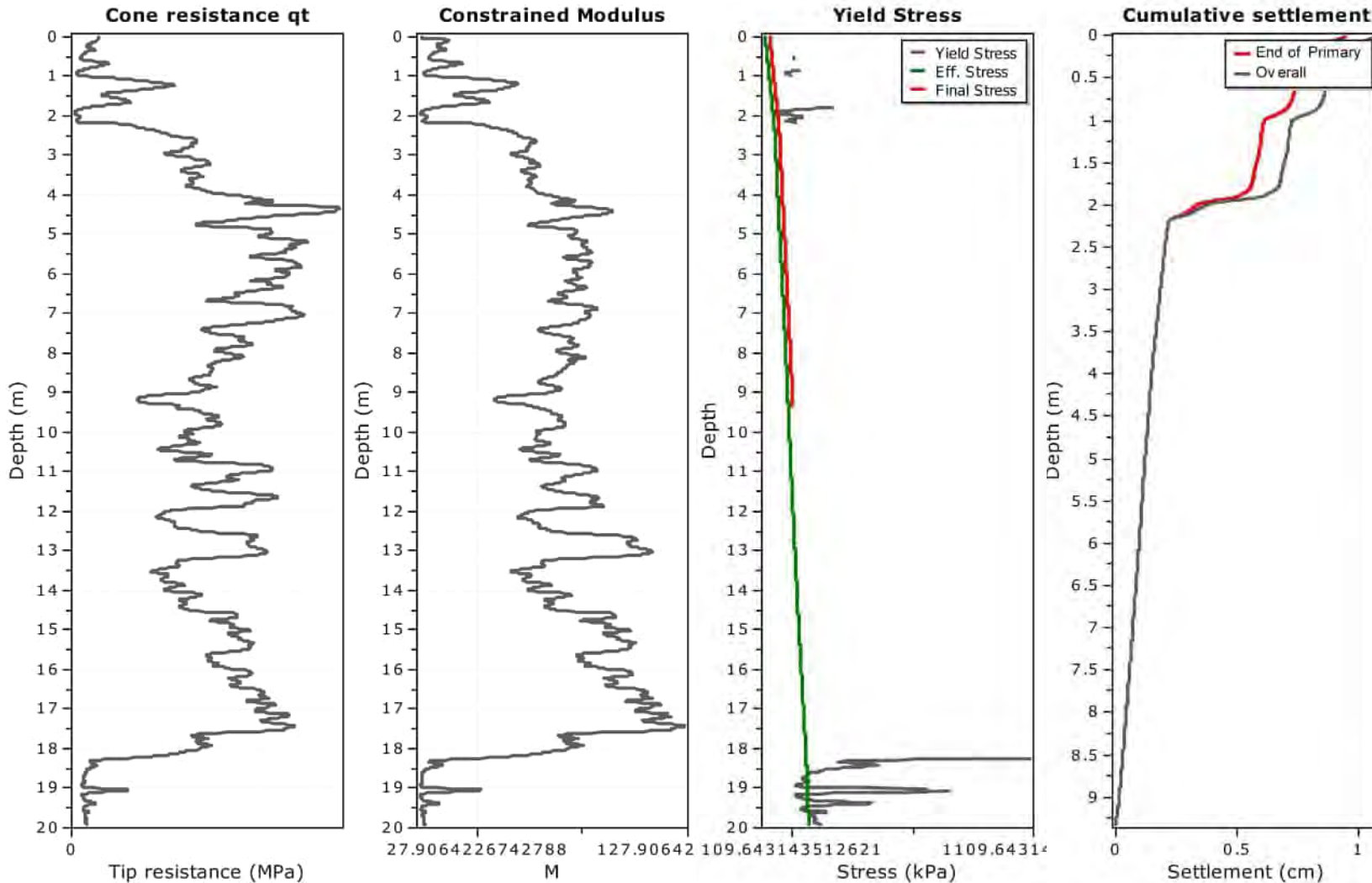
Total secondary settlement: 0.00

Total calculated settlement: 0.00

Abbreviations

- Start depth: Start depth of soil layer (penetration depth measured from ground free surface)
- End depth: End depth of soil layer (penetration depth measured from ground free surface)
- Thickness: Thickness of soil layer
- Relative depth: Depth of calculation relative to footing
- Iz: Stress influence factor
- Delta P: Footing imposed stress:
- Eff. stress: Effective stress
- M_(CPT): Constrained modulus from CPT
- Settlement: Primary settlement
- Second. settlement: Secondary settlements due to creep

Settlements calculation according to theory of elasticity*



Calculation properties

Footing type: Rectangular
Footing width: 100.00 (m)
L/B: 1.0
Footing pressure: 19.00 (kPa)
Embedment depth: 0.00 (m)
Footing is rigid: No
Remove excavation load: No
Apply 20% rule: Yes
Calculate secondary settlements: Yes
Time period for primary consolidation: 6 months
Time period for second. settlements: 600 months

* Primary settlement calculation is performed according to the following formula:

$$S = \sum \frac{\Delta \sigma_v}{M_{CPT}} \Delta z$$

* Secondary (creep) settlement calculation is performed according to the following formula:

$$S_c = S_p \left(\frac{t}{t_p} \right)^n$$

where t_p is the duration of primary consolidation

:: Tabular results ::										
Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1	0.01	0.02	0.01	0.01	19.00	1.69	1.00	0.011	0.000	0.011
2	0.02	0.03	0.01	0.03	19.00	1.70	1.00	0.011	0.000	0.011
3	0.03	0.04	0.01	0.04	19.00	1.70	1.00	0.011	0.000	0.011
4	0.04	0.05	0.01	0.04	19.00	1.70	1.00	0.011	0.000	0.011
5	0.05	0.06	0.01	0.06	19.00	1.69	1.00	0.011	0.000	0.011
6	0.06	0.07	0.01	0.07	19.00	1.67	1.00	0.011	0.000	0.011
7	0.07	0.08	0.01	0.07	19.00	11.32	1.00	0.002	0.000	0.002
8	0.08	0.09	0.01	0.09	19.00	14.42	1.00	0.001	0.000	0.001
9	0.09	0.10	0.01	0.09	19.00	14.32	1.00	0.001	0.000	0.001
10	0.10	0.11	0.01	0.10	19.00	14.11	1.00	0.001	0.000	0.001
11	0.11	0.12	0.01	0.12	19.00	13.80	1.00	0.001	0.000	0.001
12	0.12	0.13	0.01	0.13	19.00	13.41	1.00	0.001	0.000	0.001
13	0.13	0.14	0.01	0.14	19.00	12.85	1.00	0.001	0.000	0.001
14	0.14	0.15	0.01	0.14	19.00	12.26	1.00	0.002	0.000	0.002
15	0.15	0.16	0.01	0.15	19.00	11.64	1.00	0.002	0.000	0.002
16	0.16	0.17	0.01	0.17	19.00	11.03	1.00	0.002	0.000	0.002
17	0.17	0.18	0.01	0.17	19.00	10.42	1.00	0.002	0.000	0.002
18	0.18	0.19	0.01	0.18	19.00	9.86	1.00	0.002	0.000	0.002
19	0.19	0.20	0.01	0.20	19.00	9.34	1.00	0.002	0.000	0.002
20	0.20	0.21	0.01	0.20	19.00	8.92	1.00	0.002	0.000	0.002
21	0.21	0.22	0.01	0.21	19.00	8.62	1.00	0.002	0.000	0.002
22	0.22	0.23	0.01	0.23	19.00	8.48	1.00	0.002	0.000	0.002
23	0.23	0.24	0.01	0.24	19.00	8.45	1.00	0.002	0.000	0.002
24	0.24	0.25	0.01	0.25	19.00	8.57	1.00	0.002	0.000	0.002
25	0.25	0.26	0.01	0.26	19.00	8.78	1.00	0.002	0.000	0.002
26	0.26	0.27	0.01	0.27	19.00	9.13	1.00	0.002	0.000	0.002
27	0.27	0.28	0.01	0.28	19.00	9.60	1.00	0.002	0.000	0.002
28	0.28	0.29	0.01	0.28	19.00	10.16	1.00	0.002	0.000	0.002
29	0.29	0.30	0.01	0.29	19.00	10.81	1.00	0.002	0.000	0.002
30	0.30	0.31	0.01	0.30	19.00	11.45	1.00	0.002	0.000	0.002
31	0.31	0.32	0.01	0.32	19.00	12.12	1.00	0.002	0.000	0.002
32	0.32	0.33	0.01	0.33	19.00	12.63	1.00	0.002	0.000	0.002
33	0.33	0.34	0.01	0.34	19.00	12.80	1.00	0.001	0.000	0.001
34	0.34	0.35	0.01	0.34	19.00	12.55	1.00	0.002	0.000	0.002
35	0.35	0.36	0.01	0.35	19.00	11.79	1.00	0.002	0.000	0.002
36	0.36	0.37	0.01	0.36	19.00	10.82	1.00	0.002	0.000	0.002
37	0.37	0.38	0.01	0.37	19.00	9.62	1.00	0.002	0.000	0.002
38	0.38	0.39	0.01	0.38	19.00	8.69	1.00	0.002	0.000	0.002
39	0.39	0.40	0.01	0.39	19.00	8.01	1.00	0.002	0.000	0.002
40	0.40	0.41	0.01	0.40	19.00	7.64	1.00	0.002	0.000	0.002
41	0.41	0.42	0.01	0.41	19.00	7.28	1.00	0.003	0.000	0.003
42	0.42	0.43	0.01	0.42	19.00	6.86	1.00	0.003	0.000	0.003
43	0.43	0.44	0.01	0.43	19.00	6.50	1.00	0.003	0.000	0.003
44	0.44	0.45	0.01	0.44	19.00	6.20	1.00	0.003	0.000	0.003
45	0.45	0.46	0.01	0.45	19.00	5.99	1.00	0.003	0.000	0.003
46	0.46	0.47	0.01	0.46	19.00	5.77	1.00	0.003	0.000	0.003

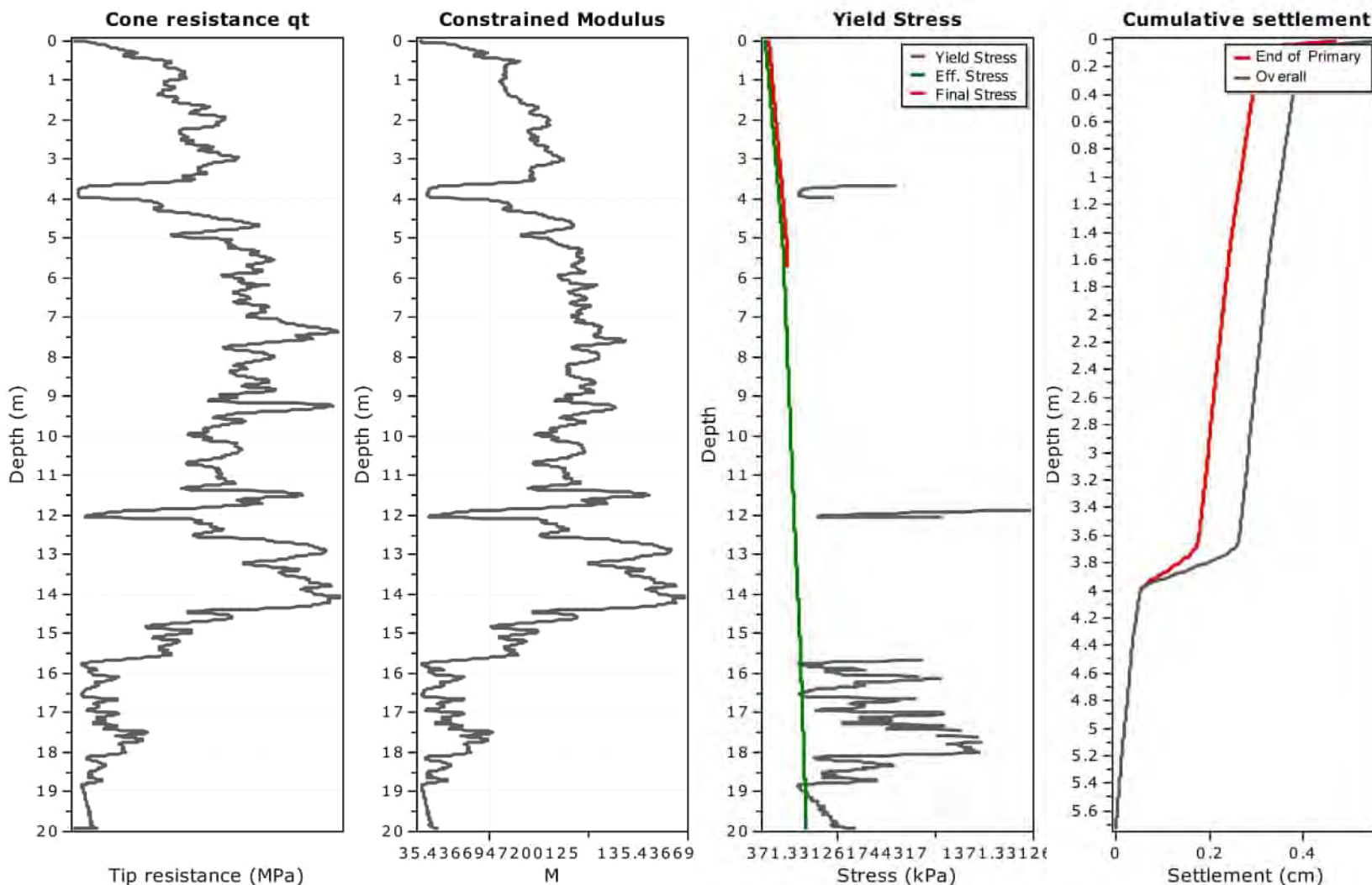
:: Tabular results ::

Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	$M_{(CPT)}$ (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
921	9.21	9.22	0.01	9.22	18.91	36.59	1.00	0.001	0.000	0.001
922	9.22	9.23	0.01	9.23	18.91	37.02	1.00	0.001	0.000	0.001
923	9.23	9.24	0.01	9.24	18.91	37.51	1.00	0.001	0.000	0.001
924	9.24	9.25	0.01	9.25	18.91	37.95	1.00	0.000	0.000	0.000
925	9.25	9.26	0.01	9.26	18.91	38.75	1.00	0.000	0.000	0.000
926	9.26	9.27	0.01	9.27	18.91	40.12	1.00	0.000	0.000	0.000
927	9.27	9.28	0.01	9.28	18.91	43.53	1.00	0.000	0.000	0.000
928	9.28	9.29	0.01	9.29	18.91	45.87	1.00	0.000	0.000	0.000
929	9.29	9.30	0.01	9.30	18.91	48.20	1.00	0.000	0.000	0.000
930	9.30	9.31	0.01	9.31	18.91	50.13	1.00	0.000	0.000	0.000
931	9.31	9.32	0.01	9.32	18.91	51.50	1.00	0.000	0.000	0.000
932	9.32	9.33	0.01	9.33	18.91	52.58	1.00	0.000	0.000	0.000

Total primary settlement: 0.94**Total secondary settlement: 0.13****Total calculated settlement: 1.07****Abbreviations**

Start depth:	Start depth of soil layer (penetration depth measured from ground free surface)
End depth:	End depth of soil layer (penetration depth measured from ground free surface)
Thickness:	Thickness of soil layer
Relative depth:	Depth of calculation relative to footing
Iz:	Stress influence factor
Delta P:	Footing imposed stress:
Eff. stress:	Effective stress
$M_{(CPT)}$:	Constrained modulus from CPT
Settlement:	Primary settlement
Second. settlement:	Secondary settlements due to creep

Settlements calculation according to theory of elasticity*



Calculation properties

Footing type: Rectangular
Footing width: 100.00 (m)
L/B: 1.0
Footing pressure: 19.00 (kPa)
Embedment depth: 0.00 (m)
Footing is rigid: No
Remove excavation load: No
Apply 20% rule: Yes
Calculate secondary settlements: Yes
Time period for primary consolidation: 6 months
Time period for second. settlements: 600 months

* Primary settlement calculation is performed according to the following formula:

$$S = \sum \frac{\Delta \sigma_v}{M_{CPT}} \Delta z$$

* Secondary (creep) settlement calculation is performed according to the following formula:

$$S_c = S_p \left(\frac{t}{t_p} \right)^n$$

where t_p is the duration of primary consolidation

:: Tabular results ::

Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1	0.01	0.02	0.01	0.01	19.00	0.35	1.00	0.055	0.000	0.055
2	0.02	0.03	0.01	0.03	19.00	0.58	1.00	0.033	0.000	0.033
3	0.03	0.04	0.01	0.04	19.00	0.92	1.00	0.021	0.000	0.021
4	0.04	0.05	0.01	0.04	19.00	1.28	1.00	0.015	0.000	0.015
5	0.05	0.06	0.01	0.06	19.00	1.40	1.00	0.014	0.000	0.014
6	0.06	0.07	0.01	0.07	19.00	1.47	1.00	0.013	0.000	0.013
7	0.07	0.08	0.01	0.07	19.00	11.85	1.00	0.002	0.000	0.002
8	0.08	0.09	0.01	0.09	19.00	14.49	1.00	0.001	0.000	0.001
9	0.09	0.10	0.01	0.09	19.00	16.05	1.00	0.001	0.000	0.001
10	0.10	0.11	0.01	0.10	19.00	17.46	1.00	0.001	0.000	0.001
11	0.11	0.12	0.01	0.12	19.00	18.49	1.00	0.001	0.000	0.001
12	0.12	0.13	0.01	0.13	19.00	18.92	1.00	0.001	0.000	0.001
13	0.13	0.14	0.01	0.14	19.00	19.23	1.00	0.001	0.000	0.001
14	0.14	0.15	0.01	0.14	19.00	19.59	1.00	0.001	0.000	0.001
15	0.15	0.16	0.01	0.15	19.00	20.10	1.00	0.001	0.000	0.001
16	0.16	0.17	0.01	0.17	19.00	20.71	1.00	0.001	0.000	0.001
17	0.17	0.18	0.01	0.17	19.00	21.47	1.00	0.001	0.000	0.001
18	0.18	0.19	0.01	0.18	19.00	22.25	1.00	0.001	0.000	0.001
19	0.19	0.20	0.01	0.20	19.00	23.18	1.00	0.001	0.000	0.001
20	0.20	0.21	0.01	0.20	19.00	24.09	1.00	0.001	0.000	0.001
21	0.21	0.22	0.01	0.21	19.00	25.06	1.00	0.001	0.000	0.001
22	0.22	0.23	0.01	0.23	19.00	25.93	1.00	0.001	0.000	0.001
23	0.23	0.24	0.01	0.24	19.00	26.69	1.00	0.001	0.000	0.001
24	0.24	0.25	0.01	0.25	19.00	27.43	1.00	0.001	0.000	0.001
25	0.25	0.26	0.01	0.26	19.00	28.13	1.00	0.001	0.000	0.001
26	0.26	0.27	0.01	0.27	19.00	28.89	1.00	0.001	0.000	0.001
27	0.27	0.28	0.01	0.28	19.00	29.86	1.00	0.001	0.000	0.001
28	0.28	0.29	0.01	0.28	19.00	31.72	1.00	0.001	0.000	0.001
29	0.29	0.30	0.01	0.29	19.00	33.46	1.00	0.001	0.000	0.001
30	0.30	0.31	0.01	0.30	19.00	34.52	1.00	0.001	0.000	0.001
31	0.31	0.32	0.01	0.32	19.00	34.31	1.00	0.001	0.000	0.001
32	0.32	0.33	0.01	0.33	19.00	33.70	1.00	0.001	0.000	0.001
33	0.33	0.34	0.01	0.34	19.00	32.77	1.00	0.001	0.000	0.001
34	0.34	0.35	0.01	0.34	19.00	31.52	1.00	0.001	0.000	0.001
35	0.35	0.36	0.01	0.35	19.00	30.09	1.00	0.001	0.000	0.001
36	0.36	0.37	0.01	0.36	19.00	28.84	1.00	0.001	0.000	0.001
37	0.37	0.38	0.01	0.37	19.00	27.90	1.00	0.001	0.000	0.001
38	0.38	0.39	0.01	0.38	19.00	27.52	1.00	0.001	0.000	0.001
39	0.39	0.40	0.01	0.39	19.00	27.55	1.00	0.001	0.000	0.001
40	0.40	0.41	0.01	0.40	19.00	28.32	1.00	0.001	0.000	0.001
41	0.41	0.42	0.01	0.41	19.00	29.76	1.00	0.001	0.000	0.001
42	0.42	0.43	0.01	0.42	19.00	32.02	1.00	0.001	0.000	0.001
43	0.43	0.44	0.01	0.43	19.00	34.59	1.00	0.001	0.000	0.001
44	0.44	0.45	0.01	0.44	19.00	37.22	1.00	0.001	0.000	0.001
45	0.45	0.46	0.01	0.45	19.00	39.77	1.00	0.000	0.000	0.000
46	0.46	0.47	0.01	0.46	19.00	42.07	1.00	0.000	0.000	0.000

:: Tabular results ::

Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
553	5.53	5.54	0.01	5.54	18.98	82.81	1.00	0.000	0.000	0.000
554	5.54	5.55	0.01	5.55	18.98	82.93	1.00	0.000	0.000	0.000
555	5.55	5.56	0.01	5.56	18.98	82.74	1.00	0.000	0.000	0.000
556	5.56	5.57	0.01	5.57	18.98	82.35	1.00	0.000	0.000	0.000
557	5.57	5.58	0.01	5.58	18.98	81.60	1.00	0.000	0.000	0.000
558	5.58	5.59	0.01	5.59	18.98	81.06	1.00	0.000	0.000	0.000
559	5.59	5.60	0.01	5.60	18.98	80.59	1.00	0.000	0.000	0.000
560	5.60	5.61	0.01	5.61	18.98	80.39	1.00	0.000	0.000	0.000
561	5.61	5.62	0.01	5.62	18.98	80.02	1.00	0.000	0.000	0.000
562	5.62	5.63	0.01	5.63	18.98	79.66	1.00	0.000	0.000	0.000
563	5.63	5.64	0.01	5.64	18.98	79.15	1.00	0.000	0.000	0.000
564	5.64	5.65	0.01	5.65	18.98	78.48	1.00	0.000	0.000	0.000
565	5.65	5.66	0.01	5.66	18.98	77.57	1.00	0.000	0.000	0.000
566	5.66	5.67	0.01	5.67	18.98	76.81	1.00	0.000	0.000	0.000
567	5.67	5.68	0.01	5.68	18.98	76.45	1.00	0.000	0.000	0.000
568	5.68	5.69	0.01	5.69	18.98	76.50	1.00	0.000	0.000	0.000
569	5.69	5.70	0.01	5.70	18.98	76.69	1.00	0.000	0.000	0.000
570	5.70	5.71	0.01	5.71	18.98	77.13	1.00	0.000	0.000	0.000
571	5.71	5.72	0.01	5.72	18.98	77.82	1.00	0.000	0.000	0.000
572	5.72	5.73	0.01	5.73	18.98	78.42	1.00	0.000	0.000	0.000

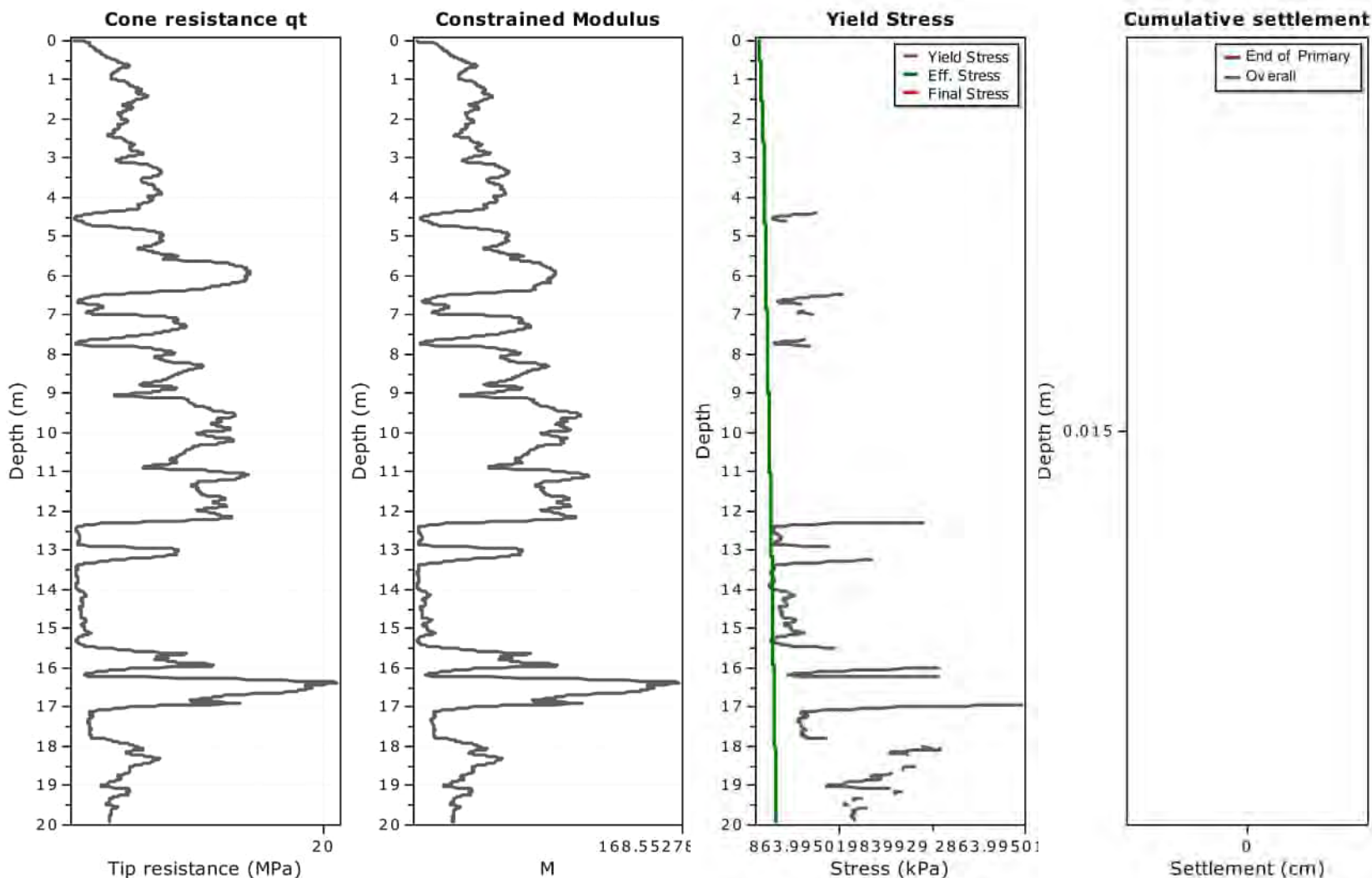
Total primary settlement: 0.47
Total secondary settlement: 0.09

Total calculated settlement: 0.55

Abbreviations

Start depth:	Start depth of soil layer (penetration depth measured from ground free surface)
End depth:	End depth of soil layer (penetration depth measured from ground free surface)
Thickness:	Thickness of soil layer
Relative depth:	Depth of calculation relative to footing
Iz:	Stress influence factor
Delta P:	Footing imposed stress:
Eff. stress:	Effective stress
M _(CPT) :	Constrained modulus from CPT
Settlement:	Primary settlement
Second. settlement:	Secondary settlements due to creep

Settlements calculation according to theory of elasticity*



Calculation properties

Footing type: Rectangular
Footing width: 100.00 (m)
L/B: 1.0
Footing pressure: 0.00 (kPa)
Embedment depth: 0.00 (m)
Footing is rigid: No
Remove excavation load: No
Apply 20% rule: Yes
Calculate secondary settlements: Yes
Time period for primary consolidation: 6 months
Time period for second. settlements: 600 months

* Primary settlement calculation is performed according to the following formula:

$$S = \sum \frac{\Delta \sigma_v}{M_{CPT}} \Delta z$$

* Secondary (creep) settlement calculation is performed according to the following formula:

$$S_c = S_p \left(\frac{t}{t_p} \right)^n$$

where t_p is the duration of primary consolidation

:: Tabular results ::

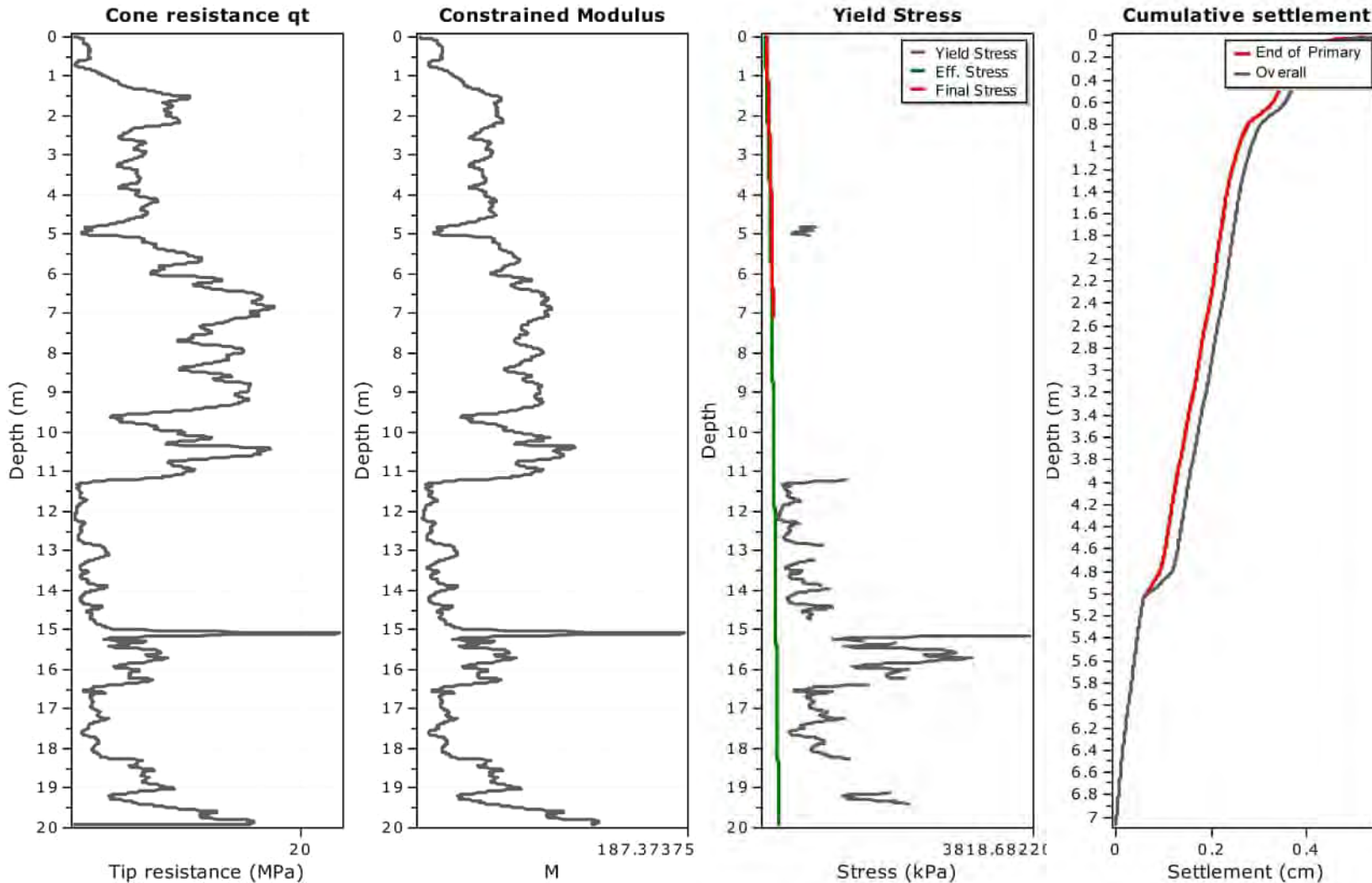
Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1	0.01	0.02	0.01	0.01	0.00	0.72	1.00	0.000	0.000	0.000

Total primary settlement: 0.00
Total secondary settlement: 0.00
Total calculated settlement: 0.00

Abbreviations

- Start depth:
- End depth:
- Thickness:
- Relative depth:
- Iz:
- Delta P:
- Eff. stress:
- M_(CPT):
- Settlement:
- Second. settlement:
- Start depth of soil layer (penetration depth measured from ground free surface)
- End depth of soil layer (penetration depth measured from ground free surface)
- Thickness of soil layer
- Depth of calculation relative to footing
- Stress influence factor
- Footing imposed stress:
- Effective stress
- Constrained modulus from CPT
- Primary settlement
- Secondary settlement due to creep

Settlements calculation according to theory of elasticity*



Calculation properties

Footing type: Rectangular
Footing width: 100.00 (m)
L/B: 1.0
Footing pressure: 19.00 (kPa)
Embedment depth: 0.00 (m)
Footing is rigid: No
Remove excavation load: No
Apply 20% rule: Yes
Calculate secondary settlements: Yes
Time period for primary consolidation: 6 months
Time period for second. settlements: 600 months

* Primary settlement calculation is performed according to the following formula:

$$S = \sum \frac{\Delta \sigma_v}{M_{CPT}} \Delta z$$

* Secondary (creep) settlement calculation is performed according to the following formula:

$$S_c = S_p \left(1 - e^{-t/t_p} \right)$$

where t_p is the duration of primary consolidation

:: Tabular results ::

Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1	0.01	0.02	0.01	0.01	19.00	0.69	1.00	0.027	0.000	0.027
2	0.02	0.03	0.01	0.03	19.00	0.81	1.00	0.023	0.000	0.023
3	0.03	0.04	0.01	0.04	19.00	0.98	1.00	0.019	0.000	0.019
4	0.04	0.05	0.01	0.04	19.00	1.11	1.00	0.017	0.000	0.017
5	0.05	0.06	0.01	0.06	19.00	1.19	1.00	0.016	0.000	0.016
6	0.06	0.07	0.01	0.07	19.00	1.24	1.00	0.015	0.000	0.015
7	0.07	0.08	0.01	0.07	19.00	8.45	1.00	0.002	0.000	0.002
8	0.08	0.09	0.01	0.09	19.00	9.57	1.00	0.002	0.000	0.002
9	0.09	0.10	0.01	0.09	19.00	10.87	1.00	0.002	0.000	0.002
10	0.10	0.11	0.01	0.10	19.00	11.65	1.00	0.002	0.000	0.002
11	0.11	0.12	0.01	0.12	19.00	11.90	1.00	0.002	0.000	0.002
12	0.12	0.13	0.01	0.13	19.00	12.01	1.00	0.002	0.000	0.002
13	0.13	0.14	0.01	0.14	19.00	12.10	1.00	0.002	0.000	0.002
14	0.14	0.15	0.01	0.14	19.00	12.17	1.00	0.002	0.000	0.002
15	0.15	0.16	0.01	0.15	19.00	12.22	1.00	0.002	0.000	0.002
16	0.16	0.17	0.01	0.17	19.00	12.37	1.00	0.002	0.000	0.002
17	0.17	0.18	0.01	0.17	19.00	12.61	1.00	0.002	0.000	0.002
18	0.18	0.19	0.01	0.18	19.00	12.96	1.00	0.001	0.000	0.001
19	0.19	0.20	0.01	0.20	19.00	13.32	1.00	0.001	0.000	0.001
20	0.20	0.21	0.01	0.20	19.00	13.71	1.00	0.001	0.000	0.001
21	0.21	0.22	0.01	0.21	19.00	14.07	1.00	0.001	0.000	0.001
22	0.22	0.23	0.01	0.23	19.00	14.41	1.00	0.001	0.000	0.001
23	0.23	0.24	0.01	0.24	19.00	14.56	1.00	0.001	0.000	0.001
24	0.24	0.25	0.01	0.25	19.00	14.77	1.00	0.001	0.000	0.001
25	0.25	0.26	0.01	0.26	19.00	15.41	1.00	0.001	0.000	0.001
26	0.26	0.27	0.01	0.27	19.00	15.64	1.00	0.001	0.000	0.001
27	0.27	0.28	0.01	0.28	19.00	15.70	1.00	0.001	0.000	0.001
28	0.28	0.29	0.01	0.28	19.00	15.80	1.00	0.001	0.000	0.001
29	0.29	0.30	0.01	0.29	19.00	15.89	1.00	0.001	0.000	0.001
30	0.30	0.31	0.01	0.30	19.00	15.98	1.00	0.001	0.000	0.001
31	0.31	0.32	0.01	0.32	19.00	15.94	1.00	0.001	0.000	0.001
32	0.32	0.33	0.01	0.33	19.00	15.87	1.00	0.001	0.000	0.001
33	0.33	0.34	0.01	0.34	19.00	15.83	1.00	0.001	0.000	0.001
34	0.34	0.35	0.01	0.34	19.00	15.88	1.00	0.001	0.000	0.001
35	0.35	0.36	0.01	0.35	19.00	15.92	1.00	0.001	0.000	0.001
36	0.36	0.37	0.01	0.36	19.00	15.99	1.00	0.001	0.000	0.001
37	0.37	0.38	0.01	0.37	19.00	16.00	1.00	0.001	0.000	0.001
38	0.38	0.39	0.01	0.38	19.00	15.96	1.00	0.001	0.000	0.001
39	0.39	0.40	0.01	0.39	19.00	15.88	1.00	0.001	0.000	0.001
40	0.40	0.41	0.01	0.40	19.00	15.80	1.00	0.001	0.000	0.001
41	0.41	0.42	0.01	0.41	19.00	15.74	1.00	0.001	0.000	0.001
42	0.42	0.43	0.01	0.42	19.00	15.67	1.00	0.001	0.000	0.001
43	0.43	0.44	0.01	0.43	19.00	15.62	1.00	0.001	0.000	0.001
44	0.44	0.45	0.01	0.44	19.00	15.55	1.00	0.001	0.000	0.001
45	0.45	0.46	0.01	0.45	19.00	15.44	1.00	0.001	0.000	0.001
46	0.46	0.47	0.01	0.46	19.00	15.34	1.00	0.001	0.000	0.001

:: Tabular results ::

Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	$M_{(CPT)}$ (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
691	6.91	6.92	0.01	6.92	18.96	90.90	1.00	0.000	0.000	0.000
692	6.92	6.93	0.01	6.93	18.96	89.80	1.00	0.000	0.000	0.000
693	6.93	6.94	0.01	6.94	18.96	88.70	1.00	0.000	0.000	0.000
694	6.94	6.95	0.01	6.95	18.96	88.01	1.00	0.000	0.000	0.000
695	6.95	6.96	0.01	6.96	18.96	87.63	1.00	0.000	0.000	0.000
696	6.96	6.97	0.01	6.97	18.96	87.65	1.00	0.000	0.000	0.000
697	6.97	6.98	0.01	6.98	18.96	87.62	1.00	0.000	0.000	0.000
698	6.98	6.99	0.01	6.99	18.96	87.88	1.00	0.000	0.000	0.000
699	6.99	7.00	0.01	7.00	18.96	88.06	1.00	0.000	0.000	0.000
700	7.00	7.01	0.01	7.01	18.96	88.41	1.00	0.000	0.000	0.000
701	7.01	7.02	0.01	7.02	18.96	88.65	1.00	0.000	0.000	0.000
702	7.02	7.03	0.01	7.03	18.96	88.81	1.00	0.000	0.000	0.000
703	7.03	7.04	0.01	7.04	18.96	88.97	1.00	0.000	0.000	0.000
704	7.04	7.05	0.01	7.05	18.96	89.22	1.00	0.000	0.000	0.000
705	7.05	7.06	0.01	7.06	18.96	89.67	1.00	0.000	0.000	0.000
706	7.06	7.07	0.01	7.07	18.96	90.10	1.00	0.000	0.000	0.000

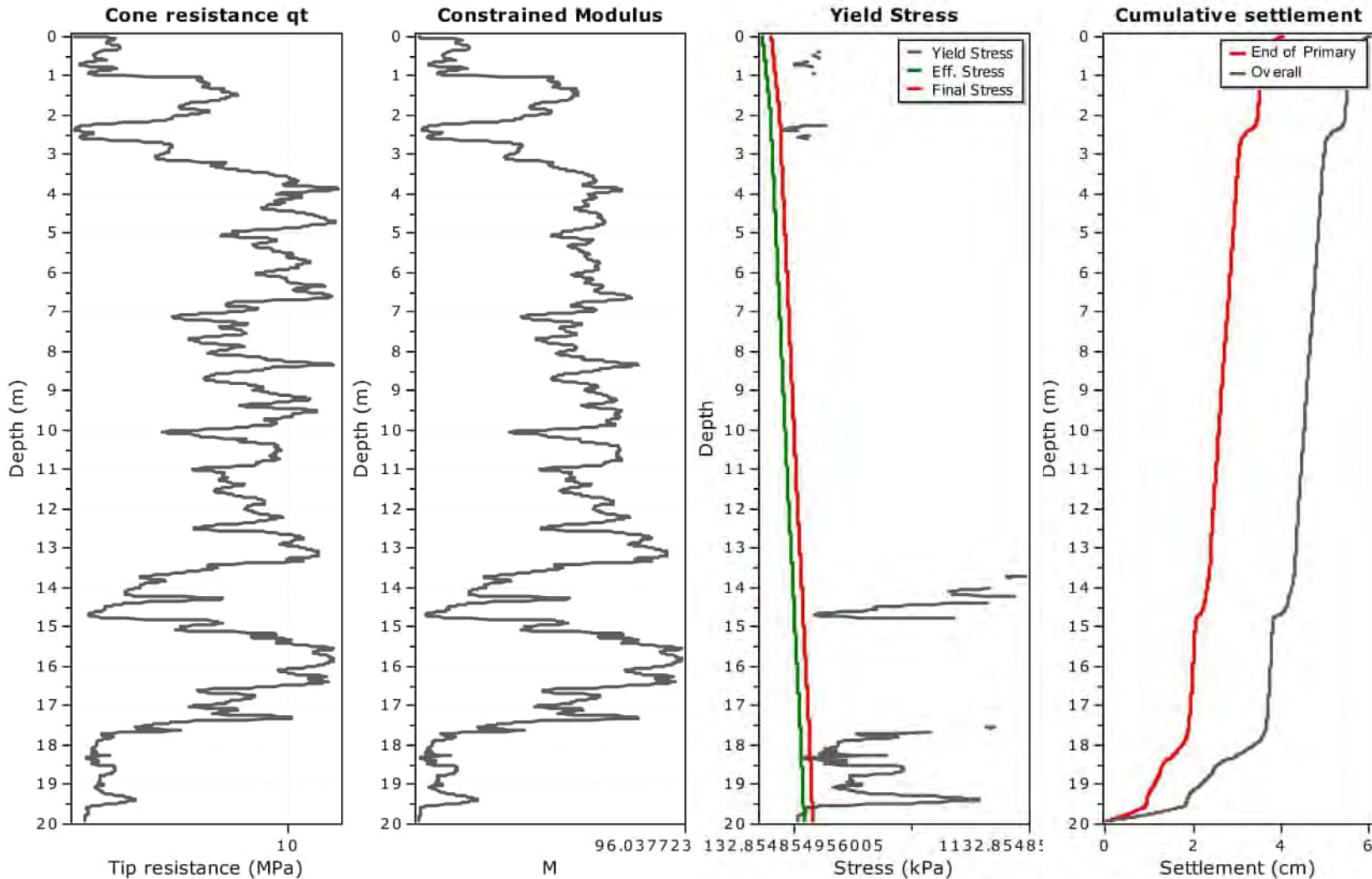
Total primary settlement: 0.52
Total secondary settlement: 0.03

Total calculated settlement: 0.54

Abbreviations

Start depth:	Start depth of soil layer (penetration depth measured from ground free surface)
End depth:	End depth of soil layer (penetration depth measured from ground free surface)
Thickness:	Thickness of soil layer
Relative depth:	Depth of calculation relative to footing
Iz:	Stress influence factor
Delta P:	Footing imposed stress:
Eff. stress:	Effective stress
$M_{(CPT)}$:	Constrained modulus from CPT
Settlement:	Primary settlement
Second. settlement:	Secondary settlements due to creep

Settlements calculation according to theory of elasticity*



Calculation properties

Footing type: Rectangular
Footing width: 100.00 (m)
L/B: 1.0
Footing pressure: 38.00 (kPa)
Embedment depth: 0.00 (m)
Footing is rigid: No
Remove excavation load: No
Apply 20% rule: Yes
Calculate secondary settlements: Yes
Time period for primary consolidation: 6 months
Time period for second. settlements: 600 months

* Primary settlement calculation is performed according to the following formula:

$$S = \sum \frac{\Delta \sigma_v}{M_{CPT}} \Delta z$$

* Secondary (creep) settlement calculation is performed according to the following formula:

$$S_c = S_p \left(1 - e^{-\frac{t}{t_p}} \right)$$

where t_p is the duration of primary consolidation

:: Tabular results ::

Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1	0.01	0.02	0.01	0.01	38.00	0.98	1.00	0.039	0.000	0.039
2	0.02	0.03	0.01	0.03	38.00	1.29	1.00	0.029	0.000	0.029
3	0.03	0.04	0.01	0.04	38.00	1.61	1.00	0.024	0.000	0.024
4	0.04	0.05	0.01	0.04	38.00	1.75	1.00	0.022	0.000	0.022
5	0.05	0.06	0.01	0.06	38.00	1.87	1.00	0.020	0.000	0.020
6	0.06	0.07	0.01	0.07	38.00	1.95	1.00	0.020	0.000	0.020
7	0.07	0.08	0.01	0.07	38.00	13.31	1.00	0.003	0.000	0.003
8	0.08	0.09	0.01	0.09	38.00	16.39	1.00	0.002	0.000	0.002
9	0.09	0.10	0.01	0.09	38.00	15.88	1.00	0.002	0.000	0.002
10	0.10	0.11	0.01	0.10	38.00	15.35	1.00	0.002	0.000	0.002
11	0.11	0.12	0.01	0.12	38.00	14.96	1.00	0.003	0.000	0.003
12	0.12	0.13	0.01	0.13	38.00	14.65	1.00	0.003	0.000	0.003
13	0.13	0.14	0.01	0.14	38.00	14.38	1.00	0.003	0.000	0.003
14	0.14	0.15	0.01	0.14	38.00	14.16	1.00	0.003	0.000	0.003
15	0.15	0.16	0.01	0.15	38.00	14.07	1.00	0.003	0.000	0.003
16	0.16	0.17	0.01	0.17	38.00	14.05	1.00	0.003	0.000	0.003
17	0.17	0.18	0.01	0.17	38.00	14.14	1.00	0.003	0.000	0.003
18	0.18	0.19	0.01	0.18	38.00	14.35	1.00	0.003	0.000	0.003
19	0.19	0.20	0.01	0.20	38.00	14.93	1.00	0.003	0.000	0.003
20	0.20	0.21	0.01	0.20	38.00	15.57	1.00	0.002	0.000	0.002
21	0.21	0.22	0.01	0.21	38.00	16.27	1.00	0.002	0.000	0.002
22	0.22	0.23	0.01	0.23	38.00	16.85	1.00	0.002	0.000	0.002
23	0.23	0.24	0.01	0.24	38.00	17.61	1.00	0.002	0.000	0.002
24	0.24	0.25	0.01	0.25	38.00	18.31	1.00	0.002	0.000	0.002
25	0.25	0.26	0.01	0.26	38.00	18.78	1.00	0.002	0.000	0.002
26	0.26	0.27	0.01	0.27	38.00	18.97	1.00	0.002	0.000	0.002
27	0.27	0.28	0.01	0.28	38.00	18.98	1.00	0.002	0.000	0.002
28	0.28	0.29	0.01	0.28	38.00	19.00	1.00	0.002	0.000	0.002
29	0.29	0.30	0.01	0.29	38.00	18.99	1.00	0.002	0.000	0.002
30	0.30	0.31	0.01	0.30	38.00	19.00	1.00	0.002	0.000	0.002
31	0.31	0.32	0.01	0.32	38.00	18.96	1.00	0.002	0.000	0.002
32	0.32	0.33	0.01	0.33	38.00	18.68	1.00	0.002	0.000	0.002
33	0.33	0.34	0.01	0.34	38.00	17.96	1.00	0.002	0.000	0.002
34	0.34	0.35	0.01	0.34	38.00	16.81	1.00	0.002	0.000	0.002
35	0.35	0.36	0.01	0.35	38.00	15.73	1.00	0.002	0.000	0.002
36	0.36	0.37	0.01	0.36	38.00	14.46	1.00	0.003	0.000	0.003
37	0.37	0.38	0.01	0.37	38.00	13.19	1.00	0.003	0.000	0.003
38	0.38	0.39	0.01	0.38	38.00	11.96	1.00	0.003	0.000	0.003
39	0.39	0.40	0.01	0.39	38.00	11.39	1.00	0.003	0.000	0.003
40	0.40	0.41	0.01	0.40	38.00	11.19	1.00	0.003	0.000	0.003
41	0.41	0.42	0.01	0.41	38.00	10.99	1.00	0.003	0.000	0.003
42	0.42	0.43	0.01	0.42	38.00	10.64	1.00	0.004	0.000	0.004
43	0.43	0.44	0.01	0.43	38.00	10.25	1.00	0.004	0.000	0.004
44	0.44	0.45	0.01	0.44	38.00	9.86	1.00	0.004	0.000	0.004
45	0.45	0.46	0.01	0.45	38.00	9.69	1.00	0.004	0.000	0.004
46	0.46	0.47	0.01	0.46	38.00	9.44	1.00	0.004	0.000	0.004

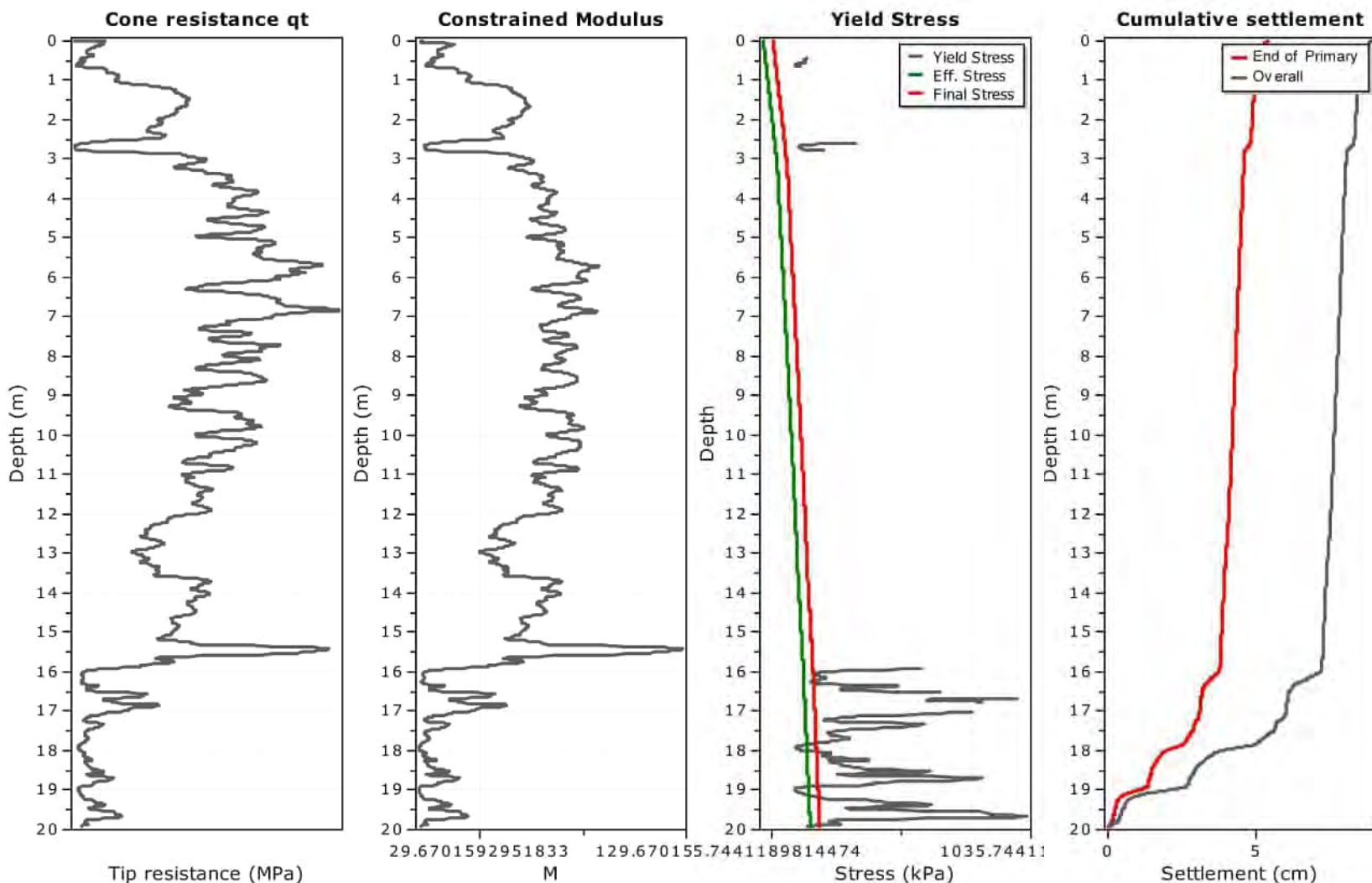
:: Tabular results ::

Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	$M_{(CPT)}$ (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1979	19.79	19.80	0.01	19.80	36.54	1.24	0.96	0.029	0.028	0.058
1980	19.80	19.81	0.01	19.81	36.53	1.21	0.96	0.030	0.029	0.059
1981	19.81	19.82	0.01	19.82	36.53	1.20	0.96	0.030	0.029	0.060
1982	19.82	19.83	0.01	19.83	36.53	1.19	0.96	0.031	0.030	0.060
1983	19.83	19.84	0.01	19.84	36.53	1.19	0.96	0.031	0.030	0.061
1984	19.84	19.85	0.01	19.85	36.53	1.18	0.96	0.031	0.030	0.061
1985	19.85	19.86	0.01	19.86	36.52	1.17	0.96	0.031	0.030	0.061
1986	19.86	19.87	0.01	19.87	36.52	1.16	0.96	0.031	0.030	0.062
1987	19.87	19.88	0.01	19.88	36.52	1.15	0.96	0.032	0.031	0.062
1988	19.88	19.89	0.01	19.89	36.52	1.15	0.96	0.032	0.031	0.062
1989	19.89	19.90	0.01	19.90	36.52	1.14	0.96	0.032	0.031	0.063
1990	19.90	19.91	0.01	19.91	36.51	1.14	0.96	0.032	0.031	0.063
1991	19.91	19.92	0.01	19.92	36.51	1.15	0.96	0.032	0.031	0.063

Total primary settlement: 4.03**Total secondary settlement: 2.00****Total calculated settlement: 6.03****Abbreviations**

Start depth:	Start depth of soil layer (penetration depth measured from ground free surface)
End depth:	End depth of soil layer (penetration depth measured from ground free surface)
Thickness:	Thickness of soil layer
Relative depth:	Depth of calculation relative to footing
Iz:	Stress influence factor
Delta P:	Footing imposed stress:
Eff. stress:	Effective stress
$M_{(CPT)}$:	Constrained modulus from CPT
Settlement:	Primary settlement
Second. settlement:	Secondary settlements due to creep

Settlements calculation according to theory of elasticity*



Calculation properties

Footing type: Rectangular
Footing width: 100.00 (m)
L/B: 1.0
Footing pressure: 38.00 (kPa)
Embedment depth: 0.00 (m)
Footing is rigid: No
Remove excavation load: No
Apply 20% rule: Yes
Calculate secondary settlements: Yes
Time period for primary consolidation: 6 months
Time period for second. settlements: 600 months

* Primary settlement calculation is performed according to the following formula:

$$S = \sum \frac{\Delta \sigma_v}{M_{CPT}} \Delta z$$

* Secondary (creep) settlement calculation is performed according to the following formula:

$$S_c = S_p \left(\frac{t - t_p}{t_p} \right)^n$$

where t_p is the duration of primary consolidation

:: Tabular results ::

Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1	0.01	0.02	0.01	0.01	38.00	2.07	1.00	0.018	0.000	0.018
2	0.02	0.03	0.01	0.03	38.00	1.94	1.00	0.020	0.000	0.020
3	0.03	0.04	0.01	0.04	38.00	1.82	1.00	0.021	0.000	0.021
4	0.04	0.05	0.01	0.04	38.00	1.77	1.00	0.021	0.000	0.021
5	0.05	0.06	0.01	0.06	38.00	1.84	1.00	0.021	0.000	0.021
6	0.06	0.07	0.01	0.07	38.00	1.93	1.00	0.020	0.000	0.020
7	0.07	0.08	0.01	0.07	38.00	12.77	1.00	0.003	0.000	0.003
8	0.08	0.09	0.01	0.09	38.00	15.88	1.00	0.002	0.000	0.002
9	0.09	0.10	0.01	0.09	38.00	17.87	1.00	0.002	0.000	0.002
10	0.10	0.11	0.01	0.10	38.00	17.50	1.00	0.002	0.000	0.002
11	0.11	0.12	0.01	0.12	38.00	16.79	1.00	0.002	0.000	0.002
12	0.12	0.13	0.01	0.13	38.00	16.00	1.00	0.002	0.000	0.002
13	0.13	0.14	0.01	0.14	38.00	15.15	1.00	0.003	0.000	0.003
14	0.14	0.15	0.01	0.14	38.00	14.44	1.00	0.003	0.000	0.003
15	0.15	0.16	0.01	0.15	38.00	13.89	1.00	0.003	0.000	0.003
16	0.16	0.17	0.01	0.17	38.00	13.39	1.00	0.003	0.000	0.003
17	0.17	0.18	0.01	0.17	38.00	12.95	1.00	0.003	0.000	0.003
18	0.18	0.19	0.01	0.18	38.00	12.56	1.00	0.003	0.000	0.003
19	0.19	0.20	0.01	0.20	38.00	12.23	1.00	0.003	0.000	0.003
20	0.20	0.21	0.01	0.20	38.00	11.83	1.00	0.003	0.000	0.003
21	0.21	0.22	0.01	0.21	38.00	11.35	1.00	0.003	0.000	0.003
22	0.22	0.23	0.01	0.23	38.00	10.85	1.00	0.004	0.000	0.004
23	0.23	0.24	0.01	0.24	38.00	10.35	1.00	0.004	0.000	0.004
24	0.24	0.25	0.01	0.25	38.00	9.96	1.00	0.004	0.000	0.004
25	0.25	0.26	0.01	0.26	38.00	9.74	1.00	0.004	0.000	0.004
26	0.26	0.27	0.01	0.27	38.00	9.68	1.00	0.004	0.000	0.004
27	0.27	0.28	0.01	0.28	38.00	9.64	1.00	0.004	0.000	0.004
28	0.28	0.29	0.01	0.28	38.00	9.52	1.00	0.004	0.000	0.004
29	0.29	0.30	0.01	0.29	38.00	9.43	1.00	0.004	0.000	0.004
30	0.30	0.31	0.01	0.30	38.00	9.37	1.00	0.004	0.000	0.004
31	0.31	0.32	0.01	0.32	38.00	9.45	1.00	0.004	0.000	0.004
32	0.32	0.33	0.01	0.33	38.00	9.61	1.00	0.004	0.000	0.004
33	0.33	0.34	0.01	0.34	38.00	9.91	1.00	0.004	0.000	0.004
34	0.34	0.35	0.01	0.34	38.00	10.43	1.00	0.004	0.000	0.004
35	0.35	0.36	0.01	0.35	38.00	11.20	1.00	0.003	0.000	0.003
36	0.36	0.37	0.01	0.36	38.00	12.15	1.00	0.003	0.000	0.003
37	0.37	0.38	0.01	0.37	38.00	12.55	1.00	0.003	0.000	0.003
38	0.38	0.39	0.01	0.38	38.00	12.44	1.00	0.003	0.000	0.003
39	0.39	0.40	0.01	0.39	38.00	11.82	1.00	0.003	0.000	0.003
40	0.40	0.41	0.01	0.40	38.00	11.16	1.00	0.003	0.000	0.003
41	0.41	0.42	0.01	0.41	38.00	10.37	1.00	0.004	0.000	0.004
42	0.42	0.43	0.01	0.42	38.00	9.34	1.00	0.004	0.000	0.004
43	0.43	0.44	0.01	0.43	38.00	8.41	1.00	0.005	0.000	0.005
44	0.44	0.45	0.01	0.44	38.00	7.63	1.00	0.005	0.000	0.005
45	0.45	0.46	0.01	0.45	38.00	7.12	1.00	0.005	0.000	0.006
46	0.46	0.47	0.01	0.46	38.00	6.65	1.00	0.006	0.000	0.006

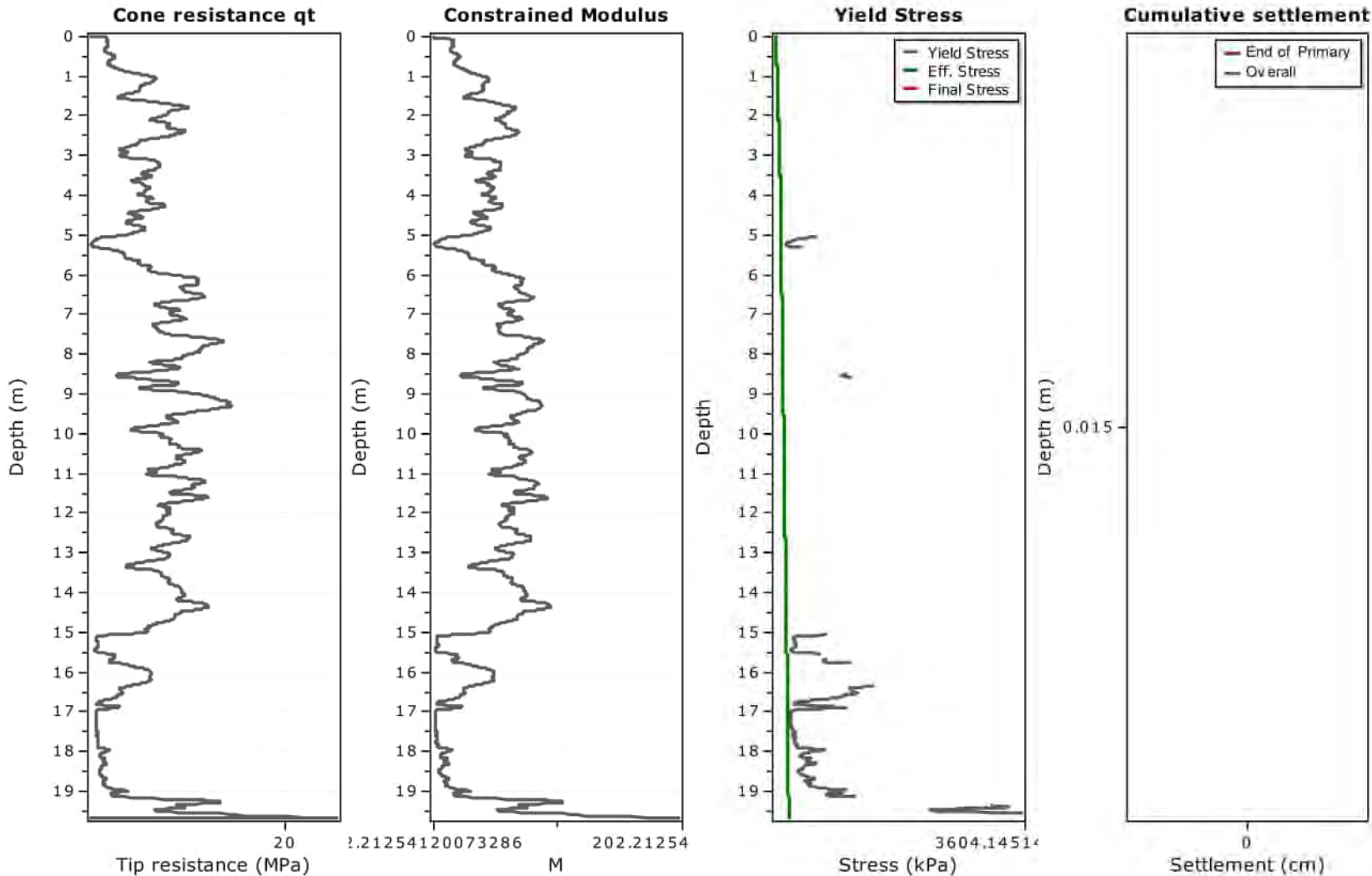
:: Tabular results ::

Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	$M_{(CPT)}$ (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1979	19.79	19.80	0.01	19.80	36.54	3.59	0.96	0.010	0.010	0.020
1980	19.80	19.81	0.01	19.81	36.53	3.39	0.96	0.011	0.011	0.021
1981	19.81	19.82	0.01	19.82	36.53	3.30	0.96	0.011	0.011	0.022
1982	19.82	19.83	0.01	19.83	36.53	3.36	0.96	0.011	0.011	0.022
1983	19.83	19.84	0.01	19.84	36.53	3.66	0.96	0.010	0.010	0.020
1984	19.84	19.85	0.01	19.85	36.53	4.07	0.96	0.009	0.009	0.018
1985	19.85	19.86	0.01	19.86	36.52	4.43	0.96	0.008	0.008	0.016
1986	19.86	19.87	0.01	19.87	36.52	4.50	0.96	0.008	0.008	0.016
1987	19.87	19.88	0.01	19.88	36.52	3.82	0.96	0.010	0.009	0.019
1988	19.88	19.89	0.01	19.89	36.52	2.93	0.96	0.012	0.012	0.025
1989	19.89	19.90	0.01	19.90	36.52	2.15	0.96	0.017	0.017	0.034
1990	19.90	19.91	0.01	19.91	36.51	1.76	0.96	0.021	0.021	0.041
1991	19.91	19.92	0.01	19.92	36.51	1.57	0.96	0.023	0.023	0.046

Total primary settlement: 5.40**Total secondary settlement: 3.46****Total calculated settlement: 8.86****Abbreviations**

Start depth:	Start depth of soil layer (penetration depth measured from ground free surface)
End depth:	End depth of soil layer (penetration depth measured from ground free surface)
Thickness:	Thickness of soil layer
Relative depth:	Depth of calculation relative to footing
Iz:	Stress influence factor
Delta P:	Footing imposed stress:
Eff. stress:	Effective stress
$M_{(CPT)}$:	Constrained modulus from CPT
Settlement:	Primary settlement
Second. settlement:	Secondary settlements due to creep

Settlements calculation according to theory of elasticity*



Calculation properties

Footing type: Rectangular
Footing width: 100.00 (m)
L/B: 1.0
Footing pressure: 0.00 (kPa)
Embedment depth: 0.00 (m)
Footing is rigid: No
Remove excavation load: No
Apply 20% rule: Yes
Calculate secondary settlements: Yes
Time period for primary consolidation: 6 months
Time period for second. settlements: 600 months

* Primary settlement calculation is performed according to the following formula:

$$S = \sum \frac{\Delta \sigma_v}{M_{CPT}} \Delta z$$

* Secondary (creep) settlement calculation is performed according to the following formula:

$$S_c = S_p \left(\frac{t}{t_p} \right)^n$$

where t_p is the duration of primary consolidation

:: Tabular results ::

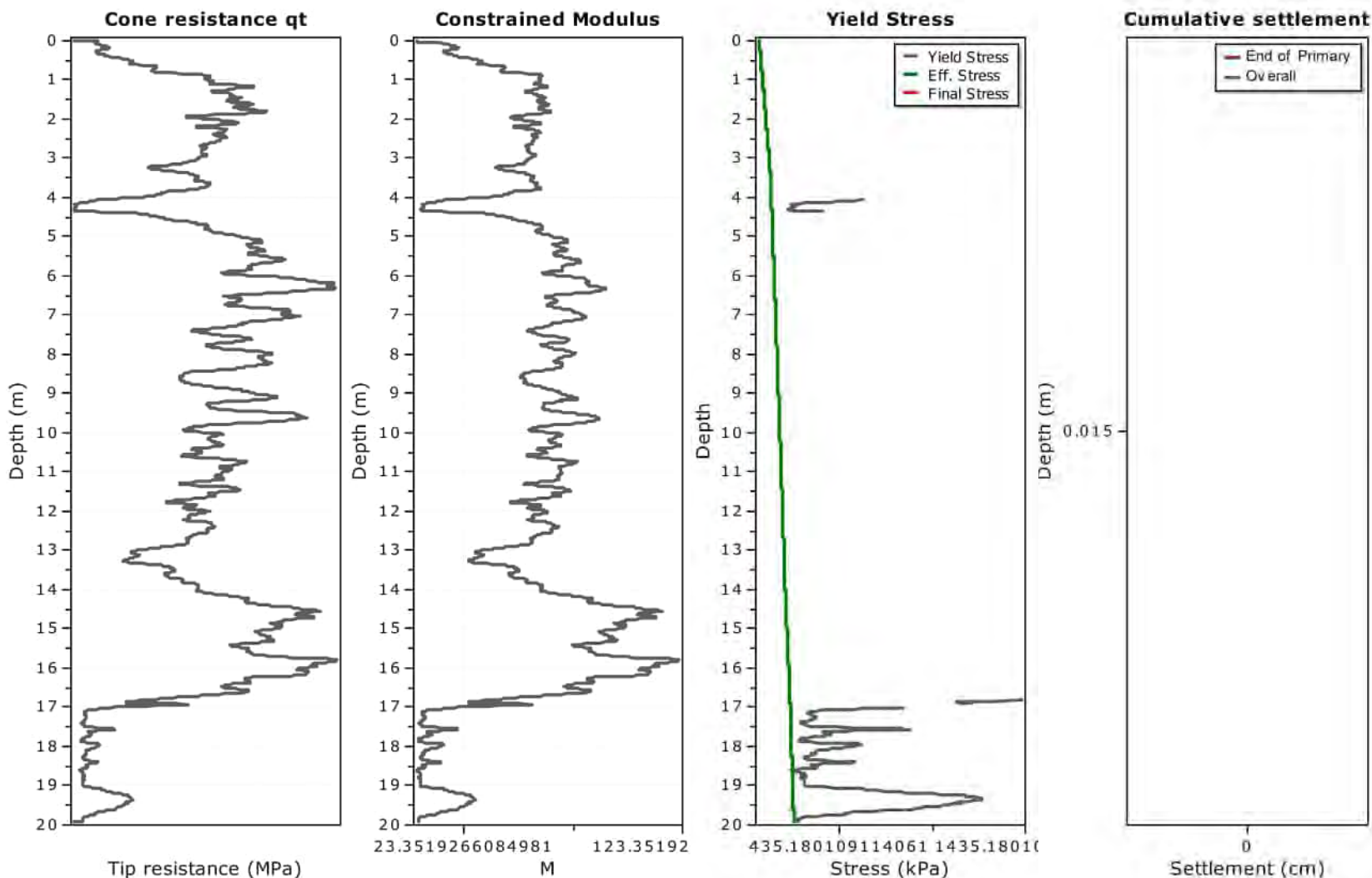
Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1	0.01	0.02	0.01	0.01	0.00	1.57	1.00	0.000	0.000	0.000

Total primary settlement: 0.00
Total secondary settlement: 0.00
Total calculated settlement: 0.00

Abbreviations

- Start depth:
- End depth:
- Thickness:
- Relative depth:
- Iz:
- Delta P:
- Eff. stress:
- M_(CPT):
- Settlement:
- Second. settlement:
- Start depth of soil layer (penetration depth measured from ground free surface)
- End depth of soil layer (penetration depth measured from ground free surface)
- Thickness of soil layer
- Depth of calculation relative to footing
- Stress influence factor
- Footing imposed stress:
- Effective stress
- Constrained modulus from CPT
- Primary settlement
- Secondary settlement due to creep

Settlements calculation according to theory of elasticity*



Calculation properties

Footing type: Rectangular
Footing width: 100.00 (m)
L/B: 1.0
Footing pressure: 0.00 (kPa)
Embedment depth: 0.00 (m)
Footing is rigid: No
Remove excavation load: No
Apply 20% rule: Yes
Calculate secondary settlements: Yes
Time period for primary consolidation: 6 months
Time period for second. settlements: 600 months

* Primary settlement calculation is performed according to the following formula:

$$S = \sum \frac{\Delta \sigma_v}{M_{CPT}} \Delta z$$

* Secondary (creep) settlement calculation is performed according to the following formula:

$$S_c = S_p \left(\frac{t}{t_p} \right)^n$$

where t_p is the duration of primary consolidation

:: Tabular results ::

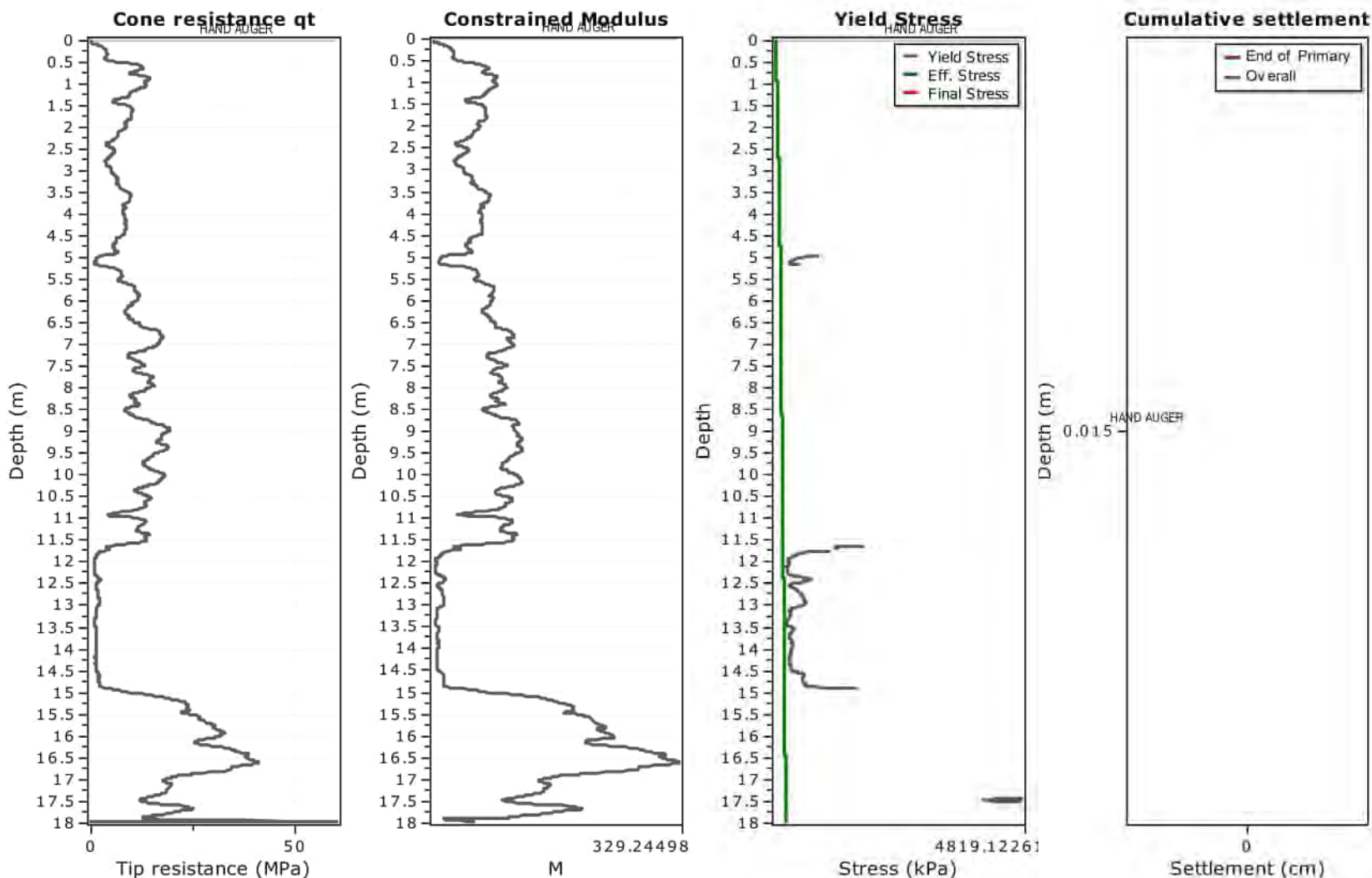
Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1	0.01	0.02	0.01	0.01	0.00	1.63	1.00	0.000	0.000	0.000

Total primary settlement: 0.00
Total secondary settlement: 0.00
Total calculated settlement: 0.00

Abbreviations

- Start depth:
- End depth:
- Thickness:
- Relative depth:
- Iz:
- Delta P:
- Eff. stress:
- M_(CPT):
- Settlement:
- Second. settlement:
- Start depth of soil layer (penetration depth measured from ground free surface)
- End depth of soil layer (penetration depth measured from ground free surface)
- Thickness of soil layer
- Depth of calculation relative to footing
- Stress influence factor
- Footing imposed stress:
- Effective stress
- Constrained modulus from CPT
- Primary settlement
- Secondary settlement due to creep

Settlements calculation according to theory of elasticity*



Calculation properties

Footing type: Rectangular
Footing width: 100.00 (m)
L/B: 1.0
Footing pressure: 0.00 (kPa)
Embedment depth: 0.00 (m)
Footing is rigid: No
Remove excavation load: No
Apply 20% rule: Yes
Calculate secondary settlements: Yes
Time period for primary consolidation: 6 months
Time period for second. settlements: 600 months

* Primary settlement calculation is performed according to the following formula:

$$S = \sum \frac{\Delta \sigma_v}{M_{CPT}} \Delta z$$

* Secondary (creep) settlement calculation is performed according to the following formula:

$$S_c = S_p \left(1 - e^{-\frac{t}{t_p}} \right)$$

where t_p is the duration of primary consolidation

:: Tabular results ::

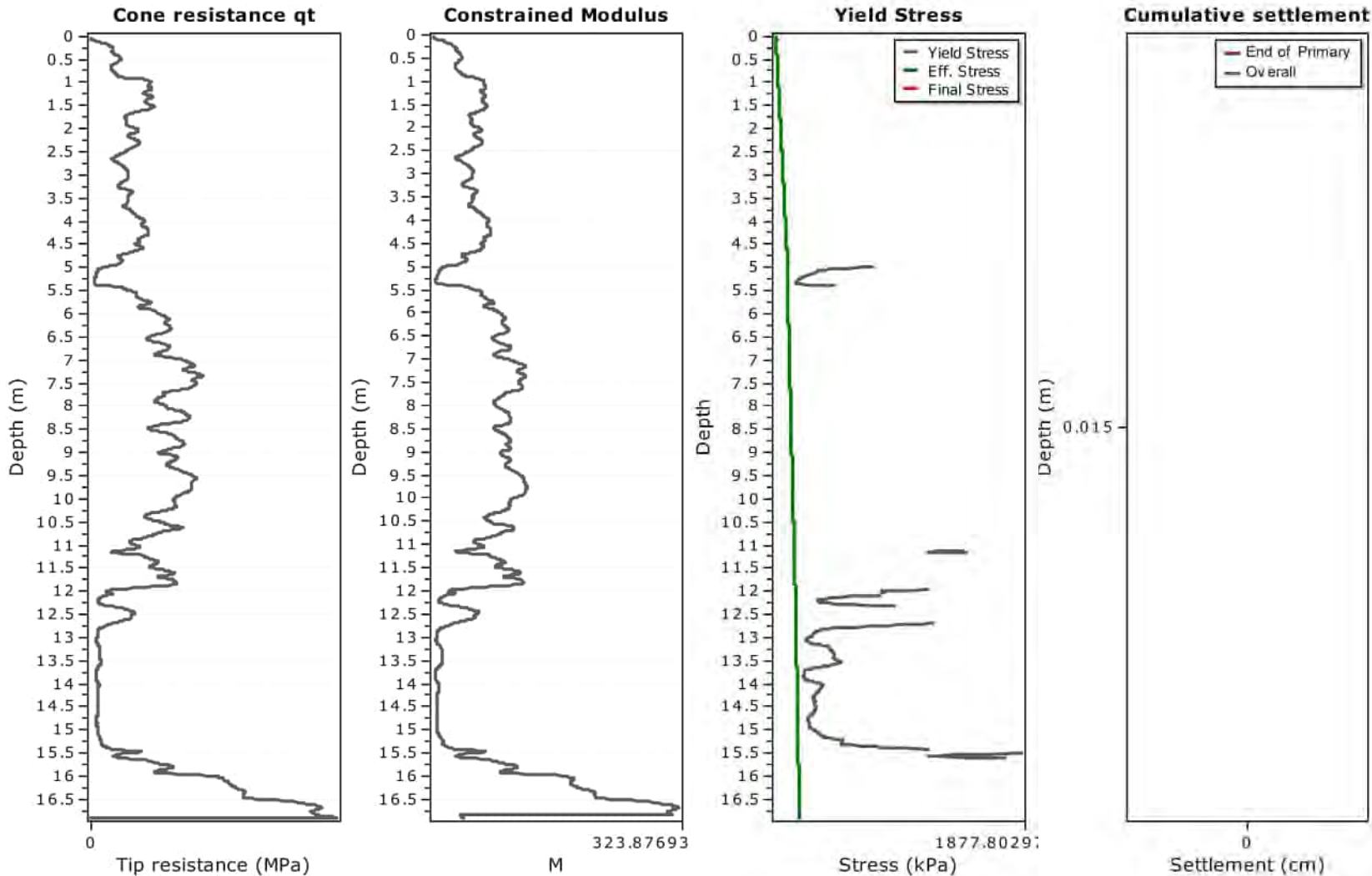
Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1	0.01	0.02	0.01	0.01	0.00	0.00	1.00	0.000	0.000	0.000

Total primary settlement: 0.00
Total secondary settlement: 0.00
Total calculated settlement: 0.00

Abbreviations

- Start depth:
- End depth:
- Thickness:
- Relative depth:
- Iz:
- Delta P:
- Eff. stress:
- M_(CPT):
- Settlement:
- Second. settlement:
- Start depth of soil layer (penetration depth measured from ground free surface)
- End depth of soil layer (penetration depth measured from ground free surface)
- Thickness of soil layer
- Depth of calculation relative to footing
- Stress influence factor
- Footing imposed stress:
- Effective stress
- Constrained modulus from CPT
- Primary settlement
- Secondary settlement due to creep

Settlements calculation according to theory of elasticity*



Calculation properties

Footing type: Rectangular
Footing width: 100.00 (m)
L/B: 1.0
Footing pressure: 0.00 (kPa)
Embedment depth: 0.00 (m)
Footing is rigid: No
Remove excavation load: No
Apply 20% rule: Yes
Calculate secondary settlements: Yes
Time period for primary consolidation: 6 months
Time period for second. settlements: 600 months

* Primary settlement calculation is performed according to the following formula:

$$S = \sum \frac{\Delta \sigma_v}{M_{CPT}} \Delta z$$

* Secondary (creep) settlement calculation is performed according to the following formula:

$$S_c = S_p \left(\frac{t}{t_p} \right)^n$$

where t_p is the duration of primary consolidation

:: Tabular results ::

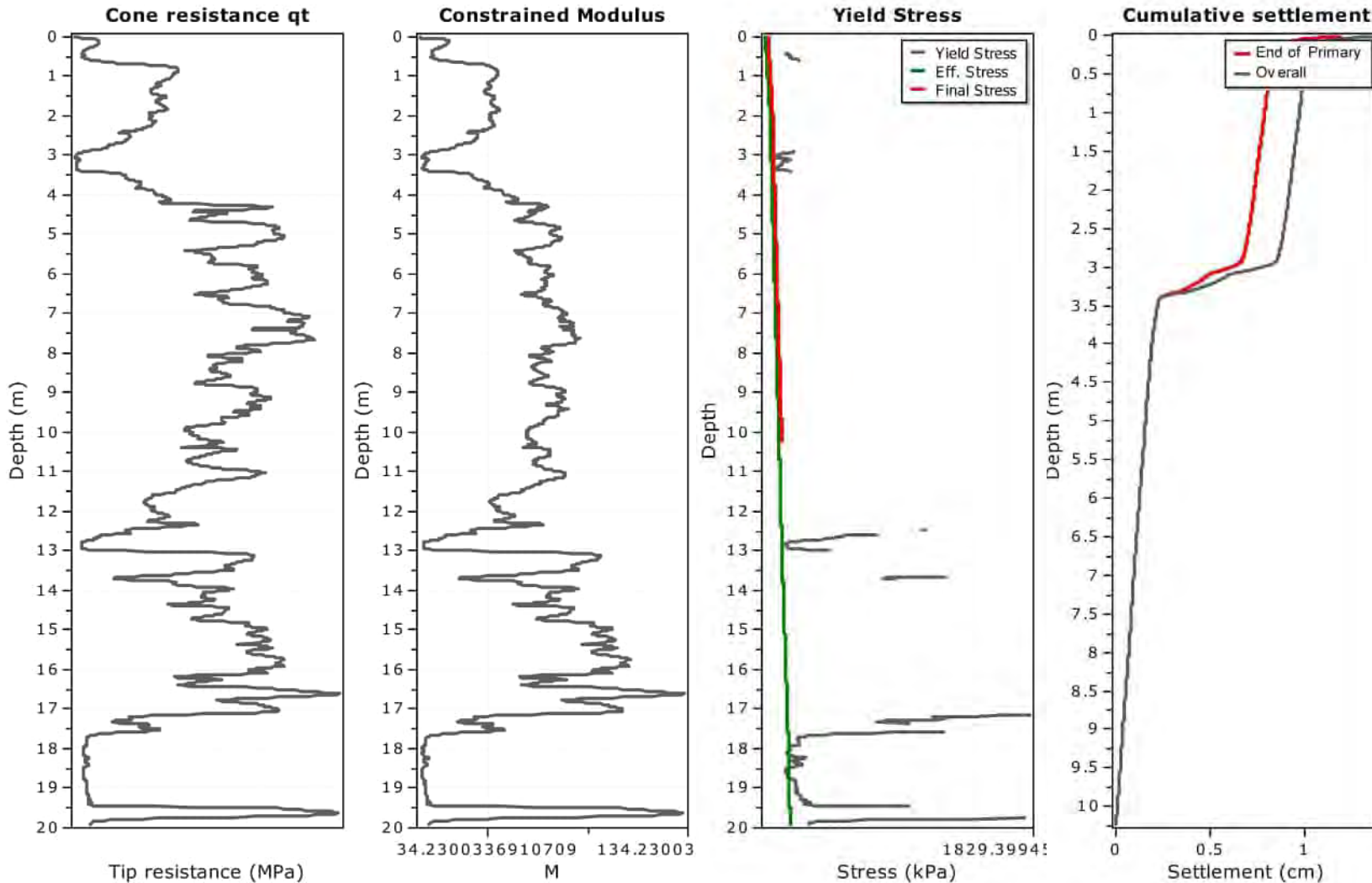
Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1	0.01	0.02	0.01	0.01	0.00	0.00	1.00	0.000	0.000	0.000

Total primary settlement: 0.00
Total secondary settlement: 0.00
Total calculated settlement: 0.00

Abbreviations

- Start depth:
- End depth:
- Thickness:
- Relative depth:
- Iz:
- Delta P:
- Eff. stress:
- M_(CPT):
- Settlement:
- Second. settlement:
- Start depth of soil layer (penetration depth measured from ground free surface)
- End depth of soil layer (penetration depth measured from ground free surface)
- Thickness of soil layer
- Depth of calculation relative to footing
- Stress influence factor
- Footing imposed stress:
- Effective stress
- Constrained modulus from CPT
- Primary settlement
- Secondary settlement due to creep

Settlements calculation according to theory of elasticity*



Calculation properties

Footing type: Rectangular
Footing width: 100.00 (m)
L/B: 1.0
Footing pressure: 19.00 (kPa)
Embedment depth: 0.00 (m)
Footing is rigid: No
Remove excavation load: No
Apply 20% rule: Yes
Calculate secondary settlements: Yes
Time period for primary consolidation: 6 months
Time period for second. settlements: 600 months

* Primary settlement calculation is performed according to the following formula:

$$S = \sum \frac{\Delta \sigma_v}{M_{CPT}} \Delta z$$

* Secondary (creep) settlement calculation is performed according to the following formula:

$$S_c = S_p \left(\frac{t}{t_p} \right)^n$$

where t_p is the duration of primary consolidation

:: Tabular results ::

Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1	0.01	0.02	0.01	0.01	19.00	0.22	1.00	0.086	0.000	0.086
2	0.02	0.03	0.01	0.03	19.00	0.30	1.00	0.063	0.000	0.063
3	0.03	0.04	0.01	0.04	19.00	0.44	1.00	0.044	0.000	0.044
4	0.04	0.05	0.01	0.04	19.00	0.60	1.00	0.032	0.000	0.032
5	0.05	0.06	0.01	0.06	19.00	0.83	1.00	0.023	0.000	0.023
6	0.06	0.07	0.01	0.07	19.00	9.69	1.00	0.002	0.000	0.002
7	0.07	0.08	0.01	0.07	19.00	11.80	1.00	0.002	0.000	0.002
8	0.08	0.09	0.01	0.09	19.00	13.24	1.00	0.001	0.000	0.001
9	0.09	0.10	0.01	0.09	19.00	13.98	1.00	0.001	0.000	0.001
10	0.10	0.11	0.01	0.10	19.00	14.17	1.00	0.001	0.000	0.001
11	0.11	0.12	0.01	0.12	19.00	14.20	1.00	0.001	0.000	0.001
12	0.12	0.13	0.01	0.13	19.00	14.15	1.00	0.001	0.000	0.001
13	0.13	0.14	0.01	0.14	19.00	14.11	1.00	0.001	0.000	0.001
14	0.14	0.15	0.01	0.14	19.00	14.03	1.00	0.001	0.000	0.001
15	0.15	0.16	0.01	0.15	19.00	13.97	1.00	0.001	0.000	0.001
16	0.16	0.17	0.01	0.17	19.00	13.93	1.00	0.001	0.000	0.001
17	0.17	0.18	0.01	0.17	19.00	13.94	1.00	0.001	0.000	0.001
18	0.18	0.19	0.01	0.18	19.00	13.94	1.00	0.001	0.000	0.001
19	0.19	0.20	0.01	0.20	19.00	13.83	1.00	0.001	0.000	0.001
20	0.20	0.21	0.01	0.20	19.00	13.61	1.00	0.001	0.000	0.001
21	0.21	0.22	0.01	0.21	19.00	13.23	1.00	0.001	0.000	0.001
22	0.22	0.23	0.01	0.23	19.00	12.74	1.00	0.001	0.000	0.001
23	0.23	0.24	0.01	0.24	19.00	12.19	1.00	0.002	0.000	0.002
24	0.24	0.25	0.01	0.25	19.00	11.82	1.00	0.002	0.000	0.002
25	0.25	0.26	0.01	0.26	19.00	11.41	1.00	0.002	0.000	0.002
26	0.26	0.27	0.01	0.27	19.00	10.96	1.00	0.002	0.000	0.002
27	0.27	0.28	0.01	0.28	19.00	10.37	1.00	0.002	0.000	0.002
28	0.28	0.29	0.01	0.28	19.00	9.80	1.00	0.002	0.000	0.002
29	0.29	0.30	0.01	0.29	19.00	9.11	1.00	0.002	0.000	0.002
30	0.30	0.31	0.01	0.30	19.00	8.44	1.00	0.002	0.000	0.002
31	0.31	0.32	0.01	0.32	19.00	7.86	1.00	0.002	0.000	0.002
32	0.32	0.33	0.01	0.33	19.00	7.50	1.00	0.003	0.000	0.003
33	0.33	0.34	0.01	0.34	19.00	7.16	1.00	0.003	0.000	0.003
34	0.34	0.35	0.01	0.34	19.00	6.87	1.00	0.003	0.000	0.003
35	0.35	0.36	0.01	0.35	19.00	6.61	1.00	0.003	0.000	0.003
36	0.36	0.37	0.01	0.36	19.00	6.39	1.00	0.003	0.000	0.003
37	0.37	0.38	0.01	0.37	19.00	6.19	1.00	0.003	0.000	0.003
38	0.38	0.39	0.01	0.38	19.00	6.05	1.00	0.003	0.000	0.003
39	0.39	0.40	0.01	0.39	19.00	5.96	1.00	0.003	0.000	0.003
40	0.40	0.41	0.01	0.40	19.00	5.86	1.00	0.003	0.000	0.003
41	0.41	0.42	0.01	0.41	19.00	5.76	1.00	0.003	0.000	0.003
42	0.42	0.43	0.01	0.42	19.00	5.71	1.00	0.003	0.000	0.004
43	0.43	0.44	0.01	0.43	19.00	5.73	1.00	0.003	0.000	0.004
44	0.44	0.45	0.01	0.44	19.00	5.88	1.00	0.003	0.000	0.003
45	0.45	0.46	0.01	0.45	19.00	6.15	1.00	0.003	0.000	0.003
46	0.46	0.47	0.01	0.46	19.00	6.48	1.00	0.003	0.000	0.003

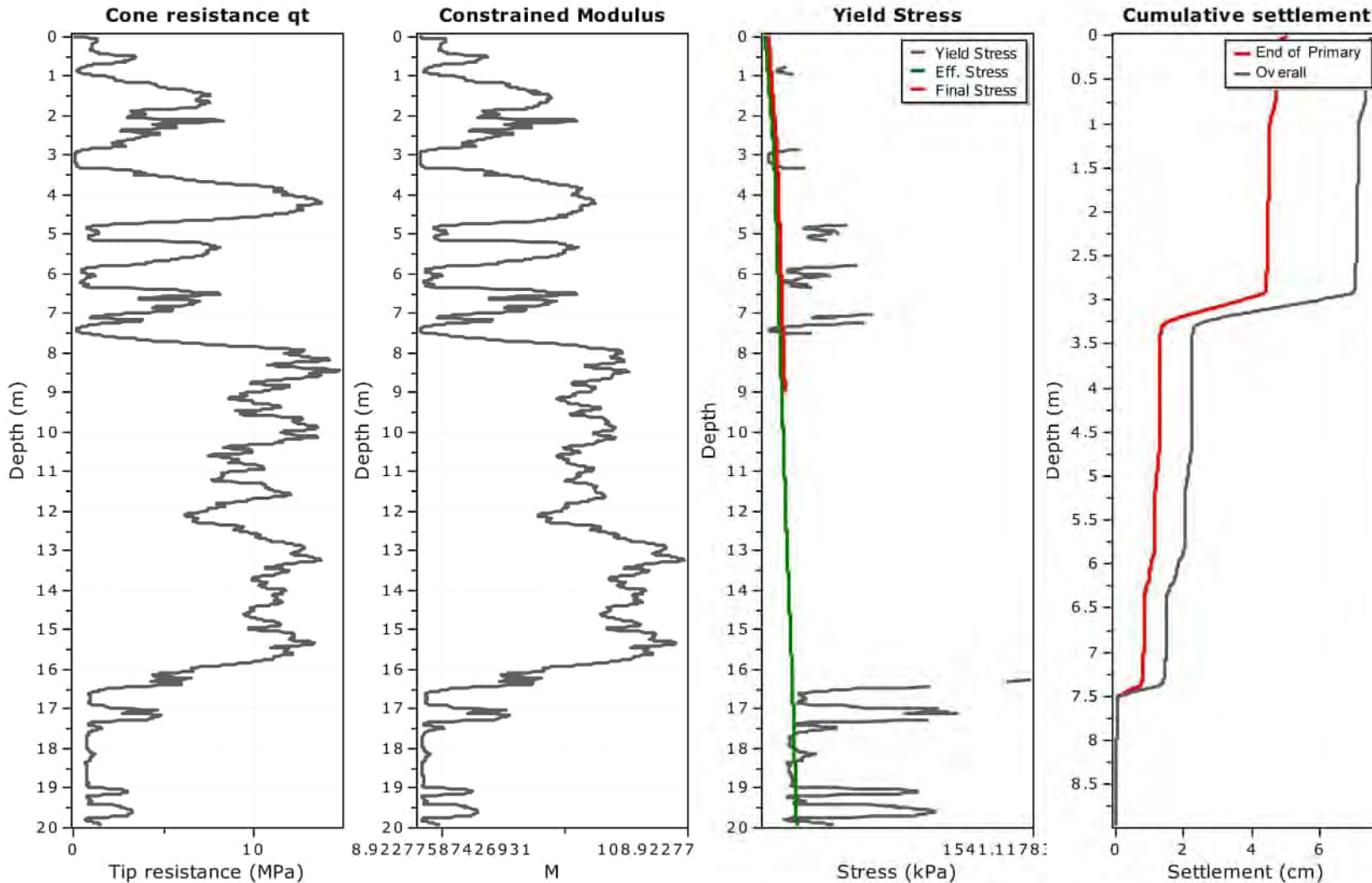
:: Tabular results ::

Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1013	10.13	10.14	0.01	10.14	18.89	53.62	0.99	0.000	0.000	0.000
1014	10.14	10.15	0.01	10.15	18.89	53.59	0.99	0.000	0.000	0.000
1015	10.15	10.16	0.01	10.16	18.89	53.87	0.99	0.000	0.000	0.000
1016	10.16	10.17	0.01	10.17	18.89	53.98	0.99	0.000	0.000	0.000
1017	10.17	10.18	0.01	10.18	18.89	54.50	0.99	0.000	0.000	0.000
1018	10.18	10.19	0.01	10.19	18.89	54.95	0.99	0.000	0.000	0.000
1019	10.19	10.20	0.01	10.20	18.89	55.75	0.99	0.000	0.000	0.000
1020	10.20	10.21	0.01	10.21	18.89	55.95	0.99	0.000	0.000	0.000
1021	10.21	10.22	0.01	10.22	18.88	56.08	0.99	0.000	0.000	0.000
1022	10.22	10.23	0.01	10.23	18.88	56.12	0.99	0.000	0.000	0.000
1023	10.23	10.24	0.01	10.24	18.88	56.55	0.99	0.000	0.000	0.000

Total primary settlement: 1.18**Total secondary settlement: 0.19****Total calculated settlement: 1.37****Abbreviations**

Start depth:	Start depth of soil layer (penetration depth measured from ground free surface)
End depth:	End depth of soil layer (penetration depth measured from ground free surface)
Thickness:	Thickness of soil layer
Relative depth:	Depth of calculation relative to footing
Iz:	Stress influence factor
Delta P:	Footing imposed stress:
Eff. stress:	Effective stress
M _(CPT) :	Constrained modulus from CPT
Settlement:	Primary settlement
Second. settlement:	Secondary settlements due to creep

Settlements calculation according to theory of elasticity*



Calculation properties

Footing type: Rectangular
Footing width: 100.00 (m)
L/B: 1.0
Footing pressure: 19.00 (kPa)
Embedment depth: 0.00 (m)
Footing is rigid: No
Remove excavation load: No
Apply 20% rule: Yes
Calculate secondary settlements: Yes
Time period for primary consolidation: 6 months
Time period for second. settlements: 600 months

* Primary settlement calculation is performed according to the following formula:

$$S = \sum \frac{\Delta \sigma_v}{M_{CPT}} \Delta z$$

* Secondary (creep) settlement calculation is performed according to the following formula:

$$S_c = S_p \left(\frac{t}{t_p} \right)^n$$

where t_p is the duration of primary consolidation

:: Tabular results ::

Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1	0.01	0.02	0.01	0.01	19.00	0.23	1.00	0.081	0.000	0.081
2	0.02	0.03	0.01	0.03	19.00	0.41	1.00	0.046	0.000	0.046
3	0.03	0.04	0.01	0.04	19.00	0.65	1.00	0.029	0.000	0.029
4	0.04	0.05	0.01	0.04	19.00	0.86	1.00	0.022	0.000	0.022
5	0.05	0.06	0.01	0.06	19.00	1.01	1.00	0.019	0.000	0.019
6	0.06	0.07	0.01	0.07	19.00	9.82	1.00	0.002	0.000	0.002
7	0.07	0.08	0.01	0.07	19.00	10.25	1.00	0.002	0.000	0.002
8	0.08	0.09	0.01	0.09	19.00	10.52	1.00	0.002	0.000	0.002
9	0.09	0.10	0.01	0.09	19.00	10.65	1.00	0.002	0.000	0.002
10	0.10	0.11	0.01	0.10	19.00	10.64	1.00	0.002	0.000	0.002
11	0.11	0.12	0.01	0.12	19.00	10.41	1.00	0.002	0.000	0.002
12	0.12	0.13	0.01	0.13	19.00	10.20	1.00	0.002	0.000	0.002
13	0.13	0.14	0.01	0.14	19.00	9.95	1.00	0.002	0.000	0.002
14	0.14	0.15	0.01	0.14	19.00	9.77	1.00	0.002	0.000	0.002
15	0.15	0.16	0.01	0.15	19.00	9.58	1.00	0.002	0.000	0.002
16	0.16	0.17	0.01	0.17	19.00	9.39	1.00	0.002	0.000	0.002
17	0.17	0.18	0.01	0.17	19.00	9.23	1.00	0.002	0.000	0.002
18	0.18	0.19	0.01	0.18	19.00	9.05	1.00	0.002	0.000	0.002
19	0.19	0.20	0.01	0.20	19.00	8.83	1.00	0.002	0.000	0.002
20	0.20	0.21	0.01	0.20	19.00	8.60	1.00	0.002	0.000	0.002
21	0.21	0.22	0.01	0.21	19.00	8.44	1.00	0.002	0.000	0.002
22	0.22	0.23	0.01	0.23	19.00	8.37	1.00	0.002	0.000	0.002
23	0.23	0.24	0.01	0.24	19.00	8.34	1.00	0.002	0.000	0.002
24	0.24	0.25	0.01	0.25	19.00	8.34	1.00	0.002	0.000	0.002
25	0.25	0.26	0.01	0.26	19.00	8.36	1.00	0.002	0.000	0.002
26	0.26	0.27	0.01	0.27	19.00	8.40	1.00	0.002	0.000	0.002
27	0.27	0.28	0.01	0.28	19.00	8.38	1.00	0.002	0.000	0.002
28	0.28	0.29	0.01	0.28	19.00	8.29	1.00	0.002	0.000	0.002
29	0.29	0.30	0.01	0.29	19.00	8.15	1.00	0.002	0.000	0.002
30	0.30	0.31	0.01	0.30	19.00	7.93	1.00	0.002	0.000	0.002
31	0.31	0.32	0.01	0.32	19.00	7.76	1.00	0.002	0.000	0.002
32	0.32	0.33	0.01	0.33	19.00	7.68	1.00	0.002	0.000	0.002
33	0.33	0.34	0.01	0.34	19.00	7.83	1.00	0.002	0.000	0.002
34	0.34	0.35	0.01	0.34	19.00	8.14	1.00	0.002	0.000	0.002
35	0.35	0.36	0.01	0.35	19.00	8.52	1.00	0.002	0.000	0.002
36	0.36	0.37	0.01	0.36	19.00	8.91	1.00	0.002	0.000	0.002
37	0.37	0.38	0.01	0.37	19.00	9.33	1.00	0.002	0.000	0.002
38	0.38	0.39	0.01	0.38	19.00	9.78	1.00	0.002	0.000	0.002
39	0.39	0.40	0.01	0.39	19.00	10.25	1.00	0.002	0.000	0.002
40	0.40	0.41	0.01	0.40	19.00	10.65	1.00	0.002	0.000	0.002
41	0.41	0.42	0.01	0.41	19.00	10.88	1.00	0.002	0.000	0.002
42	0.42	0.43	0.01	0.42	19.00	10.98	1.00	0.002	0.000	0.002
43	0.43	0.44	0.01	0.43	19.00	11.45	1.00	0.002	0.000	0.002
44	0.44	0.45	0.01	0.44	19.00	12.77	1.00	0.001	0.000	0.001
45	0.45	0.46	0.01	0.45	19.00	15.29	1.00	0.001	0.000	0.001
46	0.46	0.47	0.01	0.46	19.00	18.70	1.00	0.001	0.000	0.001

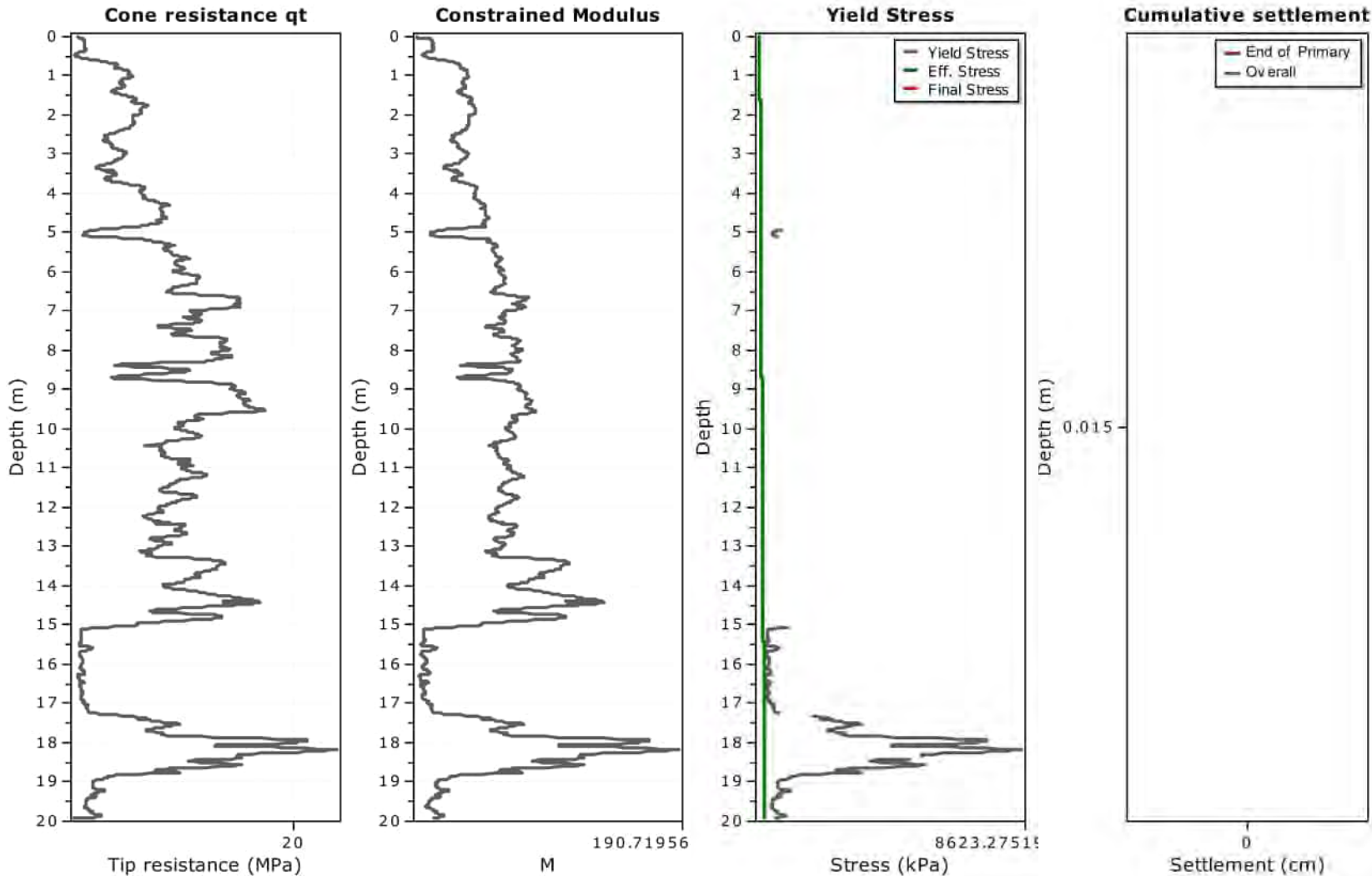
:: Tabular results ::

Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
875	8.75	8.76	0.01	8.76	18.93	62.71	1.00	0.000	0.000	0.000
876	8.76	8.77	0.01	8.77	18.93	61.95	1.00	0.000	0.000	0.000
877	8.77	8.78	0.01	8.78	18.93	61.57	1.00	0.000	0.000	0.000
878	8.78	8.79	0.01	8.79	18.93	61.47	1.00	0.000	0.000	0.000
879	8.79	8.80	0.01	8.80	18.93	61.84	1.00	0.000	0.000	0.000
880	8.80	8.81	0.01	8.81	18.93	62.67	1.00	0.000	0.000	0.000
881	8.81	8.82	0.01	8.82	18.92	63.89	1.00	0.000	0.000	0.000
882	8.82	8.83	0.01	8.83	18.92	65.18	1.00	0.000	0.000	0.000
883	8.83	8.84	0.01	8.84	18.92	66.37	1.00	0.000	0.000	0.000
884	8.84	8.85	0.01	8.85	18.92	67.85	1.00	0.000	0.000	0.000
885	8.85	8.86	0.01	8.86	18.92	69.19	1.00	0.000	0.000	0.000
886	8.86	8.87	0.01	8.87	18.92	70.29	1.00	0.000	0.000	0.000
887	8.87	8.88	0.01	8.88	18.92	70.75	1.00	0.000	0.000	0.000
888	8.88	8.89	0.01	8.89	18.92	71.17	1.00	0.000	0.000	0.000
889	8.89	8.90	0.01	8.90	18.92	71.34	1.00	0.000	0.000	0.000
890	8.90	8.91	0.01	8.91	18.92	71.37	1.00	0.000	0.000	0.000
891	8.91	8.92	0.01	8.92	18.92	70.93	1.00	0.000	0.000	0.000
892	8.92	8.93	0.01	8.93	18.92	70.45	1.00	0.000	0.000	0.000
893	8.93	8.94	0.01	8.94	18.92	70.13	1.00	0.000	0.000	0.000
894	8.94	8.95	0.01	8.95	18.92	70.04	1.00	0.000	0.000	0.000
895	8.95	8.96	0.01	8.96	18.92	70.04	1.00	0.000	0.000	0.000

Total primary settlement: 5.00**Total secondary settlement: 2.64****Total calculated settlement: 7.64****Abbreviations**

Start depth:	Start depth of soil layer (penetration depth measured from ground free surface)
End depth:	End depth of soil layer (penetration depth measured from ground free surface)
Thickness:	Thickness of soil layer
Relative depth:	Depth of calculation relative to footing
Iz:	Stress influence factor
Delta P:	Footing imposed stress:
Eff. stress:	Effective stress
M _(CPT) :	Constrained modulus from CPT
Settlement:	Primary settlement
Second. settlement:	Secondary settlements due to creep

Settlements calculation according to theory of elasticity*



Calculation properties

Footing type: Rectangular
Footing width: 100.00 (m)
L/B: 1.0
Footing pressure: 0.00 (kPa)
Embedment depth: 0.00 (m)
Footing is rigid: No
Remove excavation load: No
Apply 20% rule: Yes
Calculate secondary settlements: Yes
Time period for primary consolidation: 6 months
Time period for second. settlements: 600 months

* Primary settlement calculation is performed according to the following formula:

$$S = \sum \frac{\Delta \sigma_v}{M_{CPT}} \Delta z$$

* Secondary (creep) settlement calculation is performed according to the following formula:

$$S_c = S_p \left(\frac{t}{t_p} \right)^n$$

where t_p is the duration of primary consolidation

:: Tabular results ::

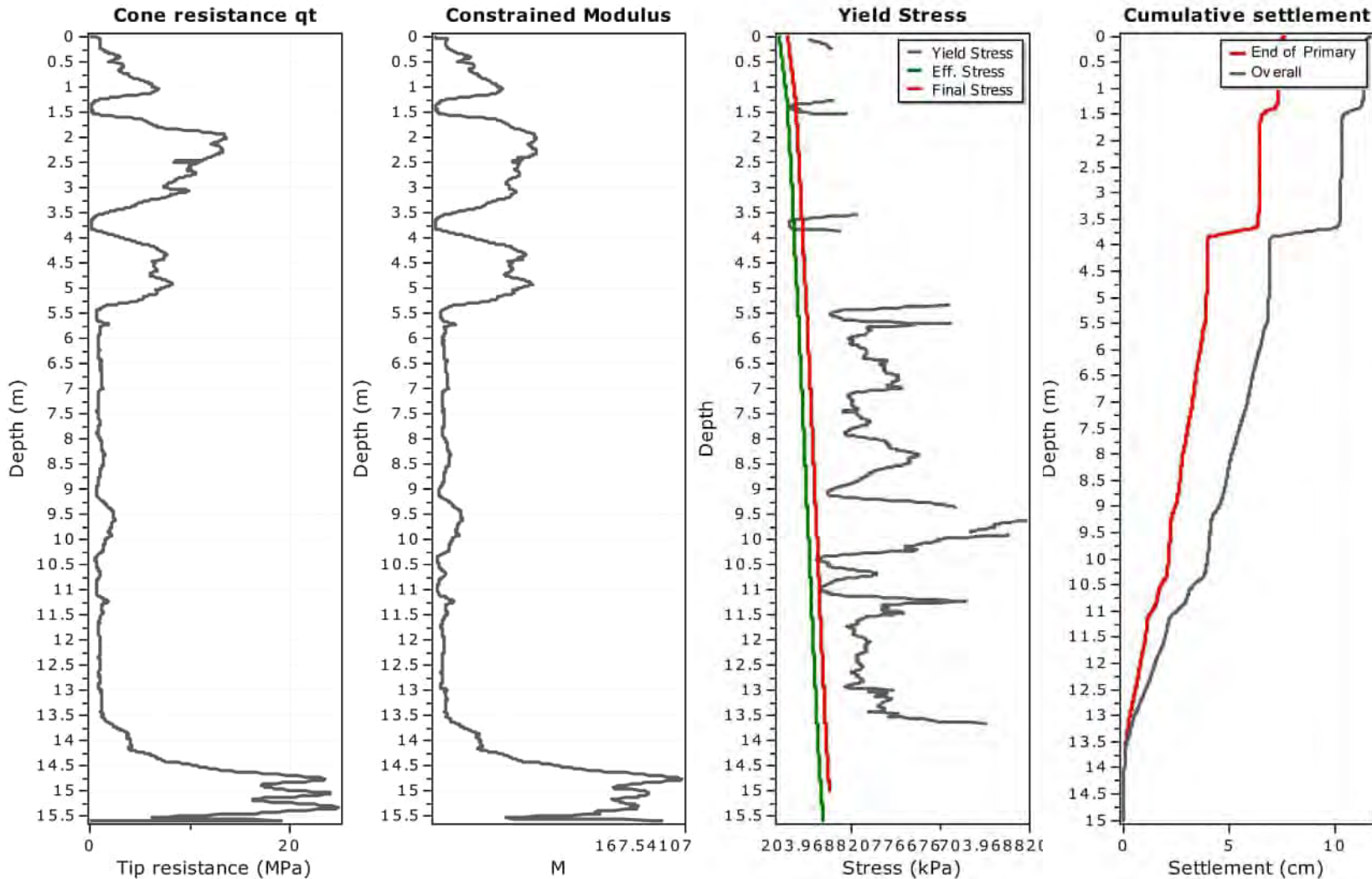
Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1	0.01	0.02	0.01	0.01	0.00	0.72	1.00	0.000	0.000	0.000

Total primary settlement: 0.00
Total secondary settlement: 0.00
Total calculated settlement: 0.00

Abbreviations

- Start depth:
- End depth:
- Thickness:
- Relative depth:
- Iz:
- Delta P:
- Eff. stress:
- M_(CPT):
- Settlement:
- Second. settlement:
- Start depth of soil layer (penetration depth measured from ground free surface)
- End depth of soil layer (penetration depth measured from ground free surface)
- Thickness of soil layer
- Depth of calculation relative to footing
- Stress influence factor
- Footing imposed stress:
- Effective stress
- Constrained modulus from CPT
- Primary settlement
- Secondary settlement due to creep

Settlements calculation according to theory of elasticity*



Calculation properties

Footing type: Rectangular
Footing width: 100.00 (m)
L/B: 1.0
Footing pressure: 24.00 (kPa)
Embedment depth: 0.00 (m)
Footing is rigid: No
Remove excavation load: No
Apply 20% rule: Yes
Calculate secondary settlements: Yes
Time period for primary consolidation: 6 months
Time period for second. settlements: 1200 months

* Primary settlement calculation is performed according to the following formula:

$$S = \sum \frac{\Delta \sigma_v}{M_{CPT}} \Delta z$$

* Secondary (creep) settlement calculation is performed according to the following formula:

$$S_c = S_p \left(\frac{t}{t_p} \right)^n$$

where t_p is the duration of primary consolidation

:: Tabular results ::

Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1	0.01	0.02	0.01	0.01	24.00	0.37	1.00	0.064	0.000	0.064
2	0.02	0.03	0.01	0.03	24.00	0.52	1.00	0.046	0.000	0.046
3	0.03	0.04	0.01	0.04	24.00	0.72	1.00	0.033	0.000	0.033
4	0.04	0.05	0.01	0.04	24.00	0.85	1.00	0.028	0.000	0.028
5	0.05	0.06	0.01	0.06	24.00	0.90	1.00	0.027	0.000	0.027
6	0.06	0.07	0.01	0.07	24.00	7.94	1.00	0.003	0.000	0.003
7	0.07	0.08	0.01	0.07	24.00	7.87	1.00	0.003	0.000	0.003
8	0.08	0.09	0.01	0.09	24.00	7.76	1.00	0.003	0.000	0.003
9	0.09	0.10	0.01	0.09	24.00	7.60	1.00	0.003	0.000	0.003
10	0.10	0.11	0.01	0.10	24.00	7.44	1.00	0.003	0.000	0.003
11	0.11	0.12	0.01	0.12	24.00	7.29	1.00	0.003	0.000	0.003
12	0.12	0.13	0.01	0.13	24.00	7.21	1.00	0.003	0.000	0.003
13	0.13	0.14	0.01	0.14	24.00	7.17	1.00	0.003	0.000	0.003
14	0.14	0.15	0.01	0.14	24.00	7.19	1.00	0.003	0.000	0.003
15	0.15	0.16	0.01	0.15	24.00	7.24	1.00	0.003	0.000	0.003
16	0.16	0.17	0.01	0.17	24.00	7.28	1.00	0.003	0.000	0.003
17	0.17	0.18	0.01	0.17	24.00	7.34	1.00	0.003	0.000	0.003
18	0.18	0.19	0.01	0.18	24.00	7.37	1.00	0.003	0.000	0.003
19	0.19	0.20	0.01	0.20	24.00	7.45	1.00	0.003	0.000	0.003
20	0.20	0.21	0.01	0.20	24.00	7.50	1.00	0.003	0.000	0.003
21	0.21	0.22	0.01	0.21	24.00	7.61	1.00	0.003	0.000	0.003
22	0.22	0.23	0.01	0.23	24.00	7.78	1.00	0.003	0.000	0.003
23	0.23	0.24	0.01	0.24	24.00	8.05	1.00	0.003	0.000	0.003
24	0.24	0.25	0.01	0.25	24.00	8.35	1.00	0.003	0.000	0.003
25	0.25	0.26	0.01	0.26	24.00	8.68	1.00	0.003	0.000	0.003
26	0.26	0.27	0.01	0.27	24.00	9.18	1.00	0.003	0.000	0.003
27	0.27	0.28	0.01	0.28	24.00	9.87	1.00	0.002	0.000	0.002
28	0.28	0.29	0.01	0.28	24.00	10.69	1.00	0.002	0.000	0.002
29	0.29	0.30	0.01	0.29	24.00	11.44	1.00	0.002	0.000	0.002
30	0.30	0.31	0.01	0.30	24.00	12.19	1.00	0.002	0.000	0.002
31	0.31	0.32	0.01	0.32	24.00	12.93	1.00	0.002	0.000	0.002
32	0.32	0.33	0.01	0.33	24.00	13.74	1.00	0.002	0.000	0.002
33	0.33	0.34	0.01	0.34	24.00	14.64	1.00	0.002	0.000	0.002
34	0.34	0.35	0.01	0.34	24.00	15.93	1.00	0.002	0.000	0.002
35	0.35	0.36	0.01	0.35	24.00	17.21	1.00	0.001	0.000	0.001
36	0.36	0.37	0.01	0.36	24.00	18.51	1.00	0.001	0.000	0.001
37	0.37	0.38	0.01	0.37	24.00	19.63	1.00	0.001	0.000	0.001
38	0.38	0.39	0.01	0.38	24.00	20.81	1.00	0.001	0.000	0.001
39	0.39	0.40	0.01	0.39	24.00	21.89	1.00	0.001	0.000	0.001
40	0.40	0.41	0.01	0.40	24.00	22.71	1.00	0.001	0.000	0.001
41	0.41	0.42	0.01	0.41	24.00	23.23	1.00	0.001	0.000	0.001
42	0.42	0.43	0.01	0.42	24.00	23.32	1.00	0.001	0.000	0.001
43	0.43	0.44	0.01	0.43	24.00	22.79	1.00	0.001	0.000	0.001
44	0.44	0.45	0.01	0.44	24.00	21.83	1.00	0.001	0.000	0.001
45	0.45	0.46	0.01	0.45	24.00	20.59	1.00	0.001	0.000	0.001
46	0.46	0.47	0.01	0.46	24.00	19.30	1.00	0.001	0.000	0.001

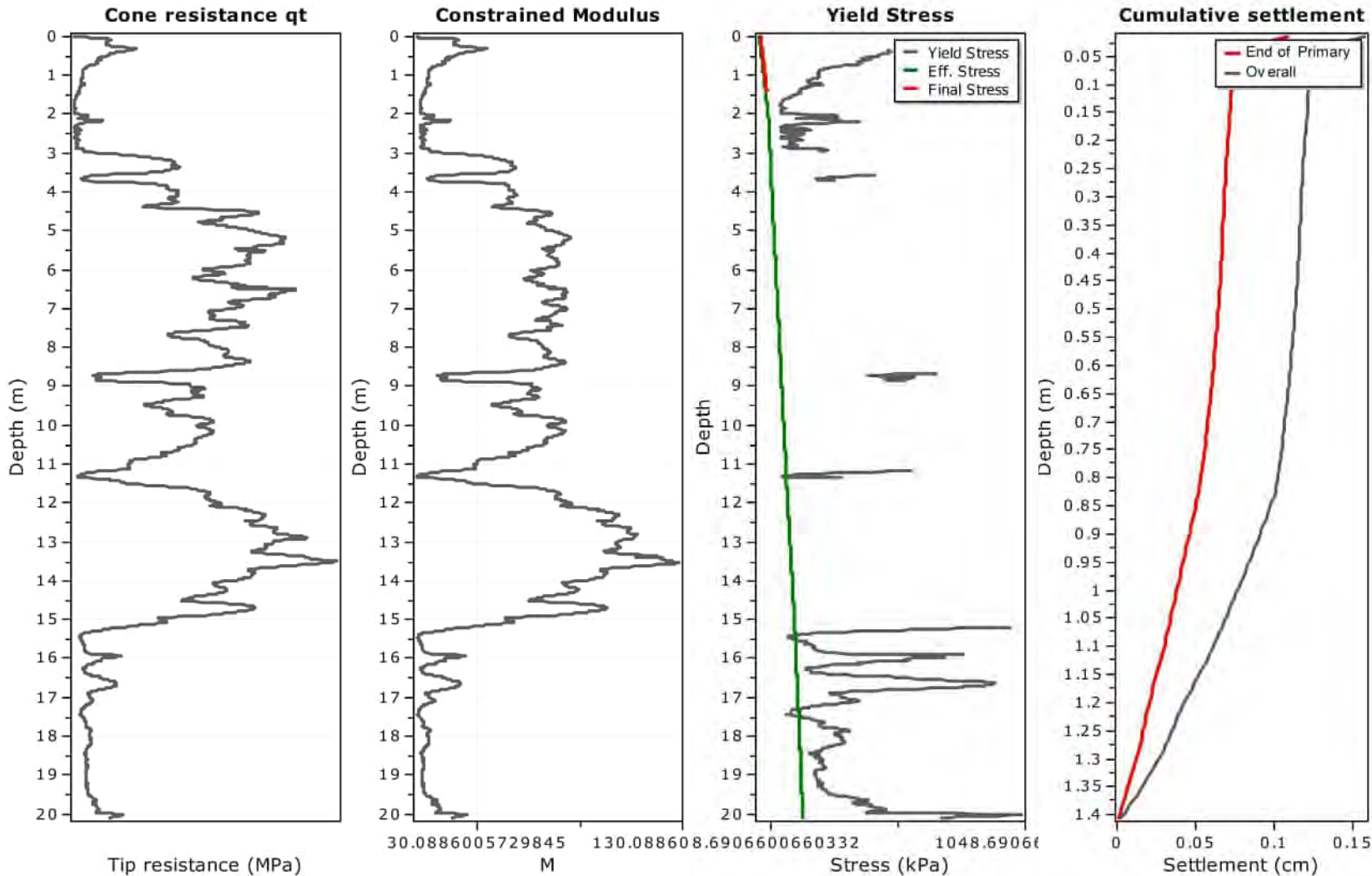
:: Tabular results ::

Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1473	14.73	14.74	0.01	14.74	23.59	155.66	0.98	0.000	0.000	0.000
1474	14.74	14.75	0.01	14.75	23.59	157.88	0.98	0.000	0.000	0.000
1475	14.75	14.76	0.01	14.76	23.58	160.25	0.98	0.000	0.000	0.000
1476	14.76	14.77	0.01	14.77	23.58	162.08	0.98	0.000	0.000	0.000
1477	14.77	14.78	0.01	14.78	23.58	164.05	0.98	0.000	0.000	0.000
1478	14.78	14.79	0.01	14.79	23.58	165.00	0.98	0.000	0.000	0.000
1479	14.79	14.80	0.01	14.80	23.58	165.29	0.98	0.000	0.000	0.000
1480	14.80	14.81	0.01	14.81	23.58	164.35	0.98	0.000	0.000	0.000
1481	14.81	14.82	0.01	14.82	23.58	160.36	0.98	0.000	0.000	0.000
1482	14.82	14.83	0.01	14.83	23.58	155.37	0.98	0.000	0.000	0.000
1483	14.83	14.84	0.01	14.84	23.58	150.15	0.98	0.000	0.000	0.000
1484	14.84	14.85	0.01	14.85	23.58	146.99	0.98	0.000	0.000	0.000
1485	14.85	14.86	0.01	14.86	23.58	143.62	0.98	0.000	0.000	0.000
1486	14.86	14.87	0.01	14.87	23.58	140.31	0.98	0.000	0.000	0.000
1487	14.87	14.88	0.01	14.88	23.58	137.15	0.98	0.000	0.000	0.000
1488	14.88	14.89	0.01	14.89	23.57	134.84	0.98	0.000	0.000	0.000
1489	14.89	14.90	0.01	14.90	23.57	131.09	0.98	0.000	0.000	0.000
1490	14.90	14.91	0.01	14.91	23.57	127.33	0.98	0.000	0.000	0.000
1491	14.91	14.92	0.01	14.92	23.57	123.87	0.98	0.000	0.000	0.000
1492	14.92	14.93	0.01	14.93	23.57	122.08	0.98	0.000	0.000	0.000
1493	14.93	14.94	0.01	14.94	23.57	120.22	0.98	0.000	0.000	0.000
1494	14.94	14.95	0.01	14.95	23.57	119.05	0.98	0.000	0.000	0.000
1495	14.95	14.96	0.01	14.96	23.57	118.84	0.98	0.000	0.000	0.000
1496	14.96	14.97	0.01	14.97	23.57	120.69	0.98	0.000	0.000	0.000
1497	14.97	14.98	0.01	14.98	23.57	123.12	0.98	0.000	0.000	0.000
1498	14.98	14.99	0.01	14.99	23.57	127.05	0.98	0.000	0.000	0.000
1499	14.99	15.00	0.01	15.00	23.57	131.77	0.98	0.000	0.000	0.000
1500	15.00	15.01	0.01	15.01	23.56	137.01	0.98	0.000	0.000	0.000
1501	15.01	15.02	0.01	15.02	23.56	140.02	0.98	0.000	0.000	0.000

Total primary settlement: 7.61**Total secondary settlement: 4.02****Total calculated settlement: 11.63****Abbreviations**

Start depth:	Start depth of soil layer (penetration depth measured from ground free surface)
End depth:	End depth of soil layer (penetration depth measured from ground free surface)
Thickness:	Thickness of soil layer
Relative depth:	Depth of calculation relative to footing
Iz:	Stress influence factor
Delta P:	Footing imposed stress:
Eff. stress:	Effective stress
M _(CPT) :	Constrained modulus from CPT
Settlement:	Primary settlement
Second. settlement:	Secondary settlements due to creep

Settlements calculation according to theory of elasticity*



Calculation properties

Footing type: Rectangular
Footing width: 100.00 (m)
L/B: 1.0
Footing pressure: 5.00 (kPa)
Embedment depth: 0.00 (m)
Footing is rigid: No
Remove excavation load: No
Apply 20% rule: Yes
Calculate secondary settlements: Yes
Time period for primary consolidation: 6 months
Time period for second. settlements: 1200 months

* Primary settlement calculation is performed according to the following formula:

$$S = \sum \frac{\Delta \sigma_v}{M_{CPT}} \Delta z$$

* Secondary (creep) settlement calculation is performed according to the following formula:

$$S_c = S_p \left(\frac{t}{t_p} \right)^n$$

where t_p is the duration of primary consolidation

:: Tabular results ::

Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1	0.01	0.02	0.01	0.01	5.00	0.39	1.00	0.013	0.000	0.013
2	0.02	0.03	0.01	0.03	5.00	0.59	1.00	0.008	0.000	0.008
3	0.03	0.04	0.01	0.04	5.00	0.89	1.00	0.006	0.000	0.006
4	0.04	0.05	0.01	0.04	5.00	1.19	1.00	0.004	0.000	0.004
5	0.05	0.06	0.01	0.06	5.00	1.56	1.00	0.003	0.000	0.003
6	0.06	0.07	0.01	0.07	5.00	13.48	1.00	0.000	0.000	0.000
7	0.07	0.08	0.01	0.07	5.00	17.99	1.00	0.000	0.000	0.000
8	0.08	0.09	0.01	0.09	5.00	20.42	1.00	0.000	0.000	0.000
9	0.09	0.10	0.01	0.09	5.00	20.81	1.00	0.000	0.000	0.000
10	0.10	0.11	0.01	0.10	5.00	20.53	1.00	0.000	0.000	0.000
11	0.11	0.12	0.01	0.12	5.00	19.92	1.00	0.000	0.000	0.000
12	0.12	0.13	0.01	0.13	5.00	19.35	1.00	0.000	0.000	0.000
13	0.13	0.14	0.01	0.14	5.00	19.03	1.00	0.000	0.000	0.000
14	0.14	0.15	0.01	0.14	5.00	18.75	1.00	0.000	0.000	0.000
15	0.15	0.16	0.01	0.15	5.00	18.55	1.00	0.000	0.000	0.000
16	0.16	0.17	0.01	0.17	5.00	18.52	1.00	0.000	0.000	0.000
17	0.17	0.18	0.01	0.17	5.00	18.73	1.00	0.000	0.000	0.000
18	0.18	0.19	0.01	0.18	5.00	18.98	1.00	0.000	0.000	0.000
19	0.19	0.20	0.01	0.20	5.00	18.96	1.00	0.000	0.000	0.000
20	0.20	0.21	0.01	0.20	5.00	18.72	1.00	0.000	0.000	0.000
21	0.21	0.22	0.01	0.21	5.00	18.68	1.00	0.000	0.000	0.000
22	0.22	0.23	0.01	0.23	5.00	18.84	1.00	0.000	0.000	0.000
23	0.23	0.24	0.01	0.24	5.00	19.33	1.00	0.000	0.000	0.000
24	0.24	0.25	0.01	0.25	5.00	20.21	1.00	0.000	0.000	0.000
25	0.25	0.26	0.01	0.26	5.00	21.44	1.00	0.000	0.000	0.000
26	0.26	0.27	0.01	0.27	5.00	22.91	1.00	0.000	0.000	0.000
27	0.27	0.28	0.01	0.28	5.00	24.38	1.00	0.000	0.000	0.000
28	0.28	0.29	0.01	0.28	5.00	27.14	1.00	0.000	0.000	0.000
29	0.29	0.30	0.01	0.29	5.00	30.26	1.00	0.000	0.000	0.000
30	0.30	0.31	0.01	0.30	5.00	33.20	1.00	0.000	0.000	0.000
31	0.31	0.32	0.01	0.32	5.00	34.43	1.00	0.000	0.000	0.000
32	0.32	0.33	0.01	0.33	5.00	34.42	1.00	0.000	0.000	0.000
33	0.33	0.34	0.01	0.34	5.00	33.67	1.00	0.000	0.000	0.000
34	0.34	0.35	0.01	0.34	5.00	32.44	1.00	0.000	0.000	0.000
35	0.35	0.36	0.01	0.35	5.00	31.36	1.00	0.000	0.000	0.000
36	0.36	0.37	0.01	0.36	5.00	30.34	1.00	0.000	0.000	0.000
37	0.37	0.38	0.01	0.37	5.00	29.52	1.00	0.000	0.000	0.000
38	0.38	0.39	0.01	0.38	5.00	28.39	1.00	0.000	0.000	0.000
39	0.39	0.40	0.01	0.39	5.00	27.01	1.00	0.000	0.000	0.000
40	0.40	0.41	0.01	0.40	5.00	25.38	1.00	0.000	0.000	0.000
41	0.41	0.42	0.01	0.41	5.00	24.10	1.00	0.000	0.000	0.000
42	0.42	0.43	0.01	0.42	5.00	23.07	1.00	0.000	0.000	0.000
43	0.43	0.44	0.01	0.43	5.00	22.39	1.00	0.000	0.000	0.000
44	0.44	0.45	0.01	0.44	5.00	21.74	1.00	0.000	0.000	0.000
45	0.45	0.46	0.01	0.45	5.00	21.03	1.00	0.000	0.000	0.000
46	0.46	0.47	0.01	0.46	5.00	20.42	1.00	0.000	0.000	0.000

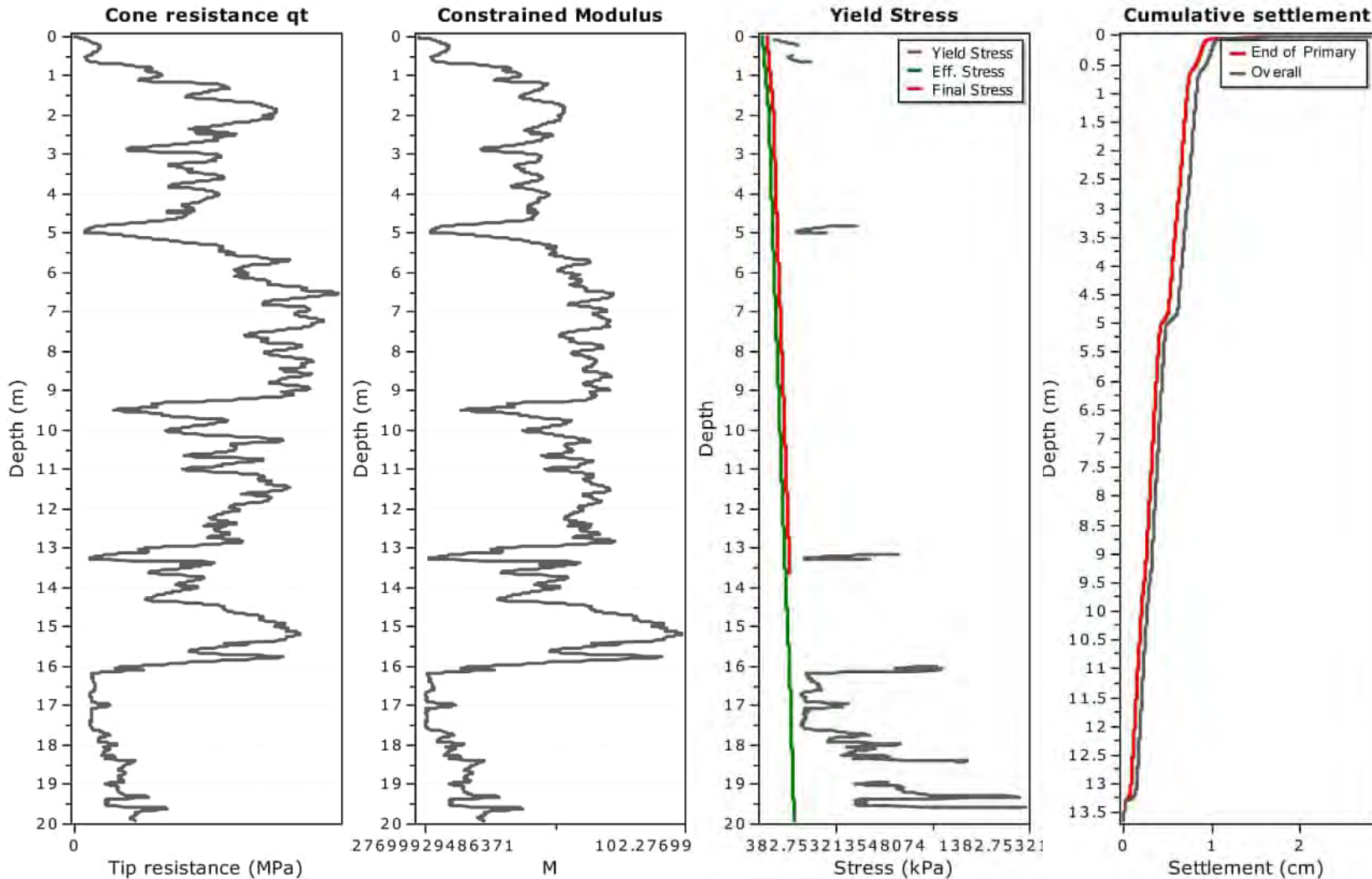
:: Tabular results ::

Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
139	1.39	1.40	0.01	1.39	5.00	4.24	1.00	0.001	0.001	0.003
140	1.40	1.41	0.01	1.40	5.00	4.27	1.00	0.001	0.001	0.003

Total primary settlement: 0.11**Total secondary settlement: 0.05****Total calculated settlement: 0.16****Abbreviations**

Start depth:	Start depth of soil layer (penetration depth measured from ground free surface)
End depth:	End depth of soil layer (penetration depth measured from ground free surface)
Thickness:	Thickness of soil layer
Relative depth:	Depth of calculation relative to footing
Iz:	Stress influence factor
Delta P:	Footing imposed stress:
Eff. stress:	Effective stress
M _(CPT) :	Constrained modulus from CPT
Settlement:	Primary settlement
Second. settlement:	Secondary settlements due to creep

Settlements calculation according to theory of elasticity*



Calculation properties

Footing type: Rectangular
Footing width: 100.00 (m)
L/B: 1.0
Footing pressure: 24.00 (kPa)
Embedment depth: 0.00 (m)
Footing is rigid: No
Remove excavation load: No
Apply 20% rule: Yes
Calculate secondary settlements: Yes
Time period for primary consolidation: 6 months
Time period for second. settlements: 1200 months

* Primary settlement calculation is performed according to the following formula:

$$S = \sum \frac{\Delta \sigma_v}{M_{CPT}} \Delta z$$

* Secondary (creep) settlement calculation is performed according to the following formula:

$$S_c = S_p \left(\frac{t}{t_p} \right)^n$$

where t_p is the duration of primary consolidation

:: Tabular results ::										
Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1	0.01	0.02	0.01	0.01	24.00	0.02	1.00	1.133	0.000	1.133
2	0.02	0.03	0.01	0.03	24.00	0.08	1.00	0.303	0.000	0.303
3	0.03	0.04	0.01	0.04	24.00	0.16	1.00	0.151	0.000	0.151
4	0.04	0.05	0.01	0.04	24.00	0.28	1.00	0.085	0.000	0.085
5	0.05	0.06	0.01	0.06	24.00	0.38	1.00	0.063	0.000	0.063
6	0.06	0.07	0.01	0.07	24.00	4.16	1.00	0.006	0.000	0.006
7	0.07	0.08	0.01	0.07	24.00	4.58	1.00	0.005	0.000	0.005
8	0.08	0.09	0.01	0.09	24.00	4.87	1.00	0.005	0.000	0.005
9	0.09	0.10	0.01	0.09	24.00	5.22	1.00	0.005	0.000	0.005
10	0.10	0.11	0.01	0.10	24.00	5.66	1.00	0.004	0.000	0.004
11	0.11	0.12	0.01	0.12	24.00	6.36	1.00	0.004	0.000	0.004
12	0.12	0.13	0.01	0.13	24.00	7.00	1.00	0.003	0.000	0.003
13	0.13	0.14	0.01	0.14	24.00	7.60	1.00	0.003	0.000	0.003
14	0.14	0.15	0.01	0.14	24.00	7.91	1.00	0.003	0.000	0.003
15	0.15	0.16	0.01	0.15	24.00	8.19	1.00	0.003	0.000	0.003
16	0.16	0.17	0.01	0.17	24.00	8.57	1.00	0.003	0.000	0.003
17	0.17	0.18	0.01	0.17	24.00	8.95	1.00	0.003	0.000	0.003
18	0.18	0.19	0.01	0.18	24.00	9.40	1.00	0.003	0.000	0.003
19	0.19	0.20	0.01	0.20	24.00	9.79	1.00	0.002	0.000	0.002
20	0.20	0.21	0.01	0.20	24.00	10.23	1.00	0.002	0.000	0.002
21	0.21	0.22	0.01	0.21	24.00	10.63	1.00	0.002	0.000	0.002
22	0.22	0.23	0.01	0.23	24.00	10.98	1.00	0.002	0.000	0.002
23	0.23	0.24	0.01	0.24	24.00	11.26	1.00	0.002	0.000	0.002
24	0.24	0.25	0.01	0.25	24.00	11.50	1.00	0.002	0.000	0.002
25	0.25	0.26	0.01	0.26	24.00	11.65	1.00	0.002	0.000	0.002
26	0.26	0.27	0.01	0.27	24.00	11.67	1.00	0.002	0.000	0.002
27	0.27	0.28	0.01	0.28	24.00	11.59	1.00	0.002	0.000	0.002
28	0.28	0.29	0.01	0.28	24.00	11.49	1.00	0.002	0.000	0.002
29	0.29	0.30	0.01	0.29	24.00	11.36	1.00	0.002	0.000	0.002
30	0.30	0.31	0.01	0.30	24.00	11.24	1.00	0.002	0.000	0.002
31	0.31	0.32	0.01	0.32	24.00	11.08	1.00	0.002	0.000	0.002
32	0.32	0.33	0.01	0.33	24.00	10.99	1.00	0.002	0.000	0.002
33	0.33	0.34	0.01	0.34	24.00	10.86	1.00	0.002	0.000	0.002
34	0.34	0.35	0.01	0.34	24.00	10.78	1.00	0.002	0.000	0.002
35	0.35	0.36	0.01	0.35	24.00	10.70	1.00	0.002	0.000	0.002
36	0.36	0.37	0.01	0.36	24.00	10.62	1.00	0.002	0.000	0.002
37	0.37	0.38	0.01	0.37	24.00	10.49	1.00	0.002	0.000	0.002
38	0.38	0.39	0.01	0.38	24.00	10.30	1.00	0.002	0.000	0.002
39	0.39	0.40	0.01	0.39	24.00	10.03	1.00	0.002	0.000	0.002
40	0.40	0.41	0.01	0.40	24.00	9.49	1.00	0.003	0.000	0.003
41	0.41	0.42	0.01	0.41	24.00	8.94	1.00	0.003	0.000	0.003
42	0.42	0.43	0.01	0.42	24.00	8.47	1.00	0.003	0.000	0.003
43	0.43	0.44	0.01	0.43	24.00	8.28	1.00	0.003	0.000	0.003
44	0.44	0.45	0.01	0.44	24.00	8.13	1.00	0.003	0.000	0.003
45	0.45	0.46	0.01	0.45	24.00	7.98	1.00	0.003	0.000	0.003
46	0.46	0.47	0.01	0.46	24.00	7.72	1.00	0.003	0.000	0.003

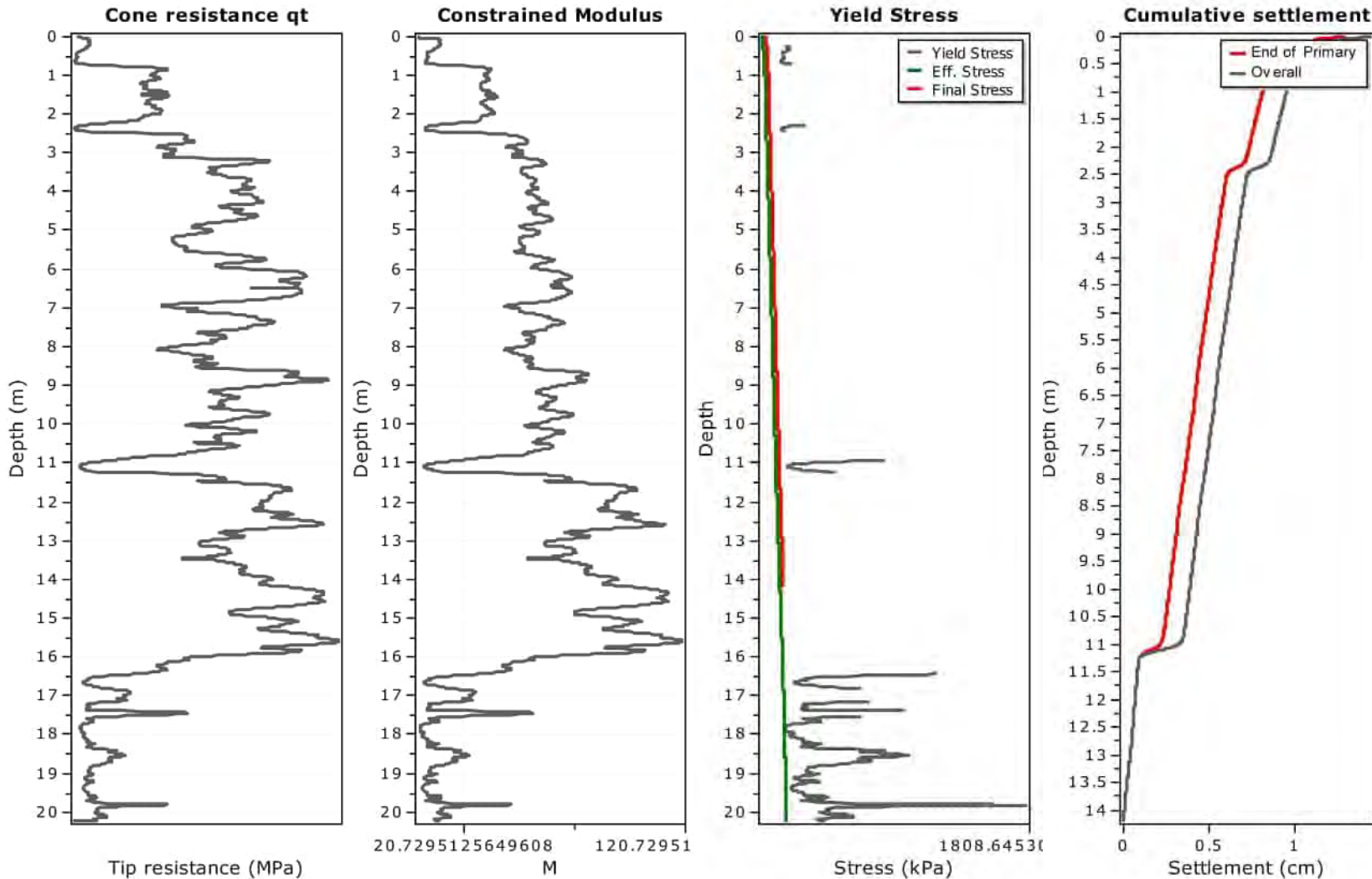
:: Tabular results ::

Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1335	13.35	13.36	0.01	13.36	23.69	56.95	0.99	0.000	0.000	0.000
1336	13.36	13.37	0.01	13.37	23.69	60.08	0.99	0.000	0.000	0.000
1337	13.37	13.38	0.01	13.38	23.68	61.43	0.99	0.000	0.000	0.000
1338	13.38	13.39	0.01	13.39	23.68	61.85	0.99	0.000	0.000	0.000
1339	13.39	13.40	0.01	13.40	23.68	61.43	0.99	0.000	0.000	0.000
1340	13.40	13.41	0.01	13.41	23.68	60.29	0.99	0.000	0.000	0.000
1341	13.41	13.42	0.01	13.42	23.68	48.76	0.99	0.000	0.000	0.000
1342	13.42	13.43	0.01	13.43	23.68	47.39	0.99	0.000	0.000	0.000
1343	13.43	13.44	0.01	13.44	23.68	46.57	0.99	0.001	0.000	0.001
1344	13.44	13.45	0.01	13.45	23.68	55.80	0.99	0.000	0.000	0.000
1345	13.45	13.46	0.01	13.46	23.68	54.98	0.99	0.000	0.000	0.000
1346	13.46	13.47	0.01	13.47	23.68	54.23	0.99	0.000	0.000	0.000
1347	13.47	13.48	0.01	13.48	23.68	53.44	0.99	0.000	0.000	0.000
1348	13.48	13.49	0.01	13.49	23.68	52.49	0.99	0.000	0.000	0.000
1349	13.49	13.50	0.01	13.50	23.68	51.13	0.99	0.000	0.000	0.000
1350	13.50	13.51	0.01	13.51	23.68	49.89	0.99	0.000	0.000	0.000
1351	13.51	13.52	0.01	13.52	23.68	48.34	0.99	0.000	0.000	0.000
1352	13.52	13.53	0.01	13.53	23.67	46.76	0.99	0.001	0.000	0.001
1353	13.53	13.54	0.01	13.54	23.67	45.09	0.99	0.001	0.000	0.001
1354	13.54	13.55	0.01	13.55	23.67	43.54	0.99	0.001	0.000	0.001
1355	13.55	13.56	0.01	13.56	23.67	41.18	0.99	0.001	0.000	0.001
1356	13.56	13.57	0.01	13.57	23.67	38.57	0.99	0.001	0.000	0.001
1357	13.57	13.58	0.01	13.58	23.67	36.05	0.99	0.001	0.000	0.001
1358	13.58	13.59	0.01	13.59	23.67	34.43	0.99	0.001	0.000	0.001
1359	13.59	13.60	0.01	13.60	23.67	33.33	0.99	0.001	0.000	0.001
1360	13.60	13.61	0.01	13.61	23.67	32.44	0.99	0.001	0.000	0.001
1361	13.61	13.62	0.01	13.62	23.67	32.02	0.99	0.001	0.000	0.001
1362	13.62	13.63	0.01	13.63	23.67	31.75	0.99	0.001	0.000	0.001
1363	13.63	13.64	0.01	13.64	23.67	32.35	0.99	0.001	0.000	0.001

Total primary settlement: 2.68**Total secondary settlement: 0.11****Total calculated settlement: 2.79****Abbreviations**

Start depth:	Start depth of soil layer (penetration depth measured from ground free surface)
End depth:	End depth of soil layer (penetration depth measured from ground free surface)
Thickness:	Thickness of soil layer
Relative depth:	Depth of calculation relative to footing
Iz:	Stress influence factor
Delta P:	Footing imposed stress:
Eff. stress:	Effective stress
M _(CPT) :	Constrained modulus from CPT
Settlement:	Primary settlement
Second. settlement:	Secondary settlements due to creep

Settlements calculation according to theory of elasticity*



Calculation properties

Footing type: Rectangular
Footing width: 100.00 (m)
L/B: 1.0
Footing pressure: 24.00 (kPa)
Embedment depth: 0.00 (m)
Footing is rigid: No
Remove excavation load: No
Apply 20% rule: Yes
Calculate secondary settlements: Yes
Time period for primary consolidation: 6 months
Time period for second. settlements: 1200 months

* Primary settlement calculation is performed according to the following formula:

$$S = \sum \frac{\Delta \sigma_v}{M_{CPT}} \Delta z$$

* Secondary (creep) settlement calculation is performed according to the following formula:

$$S_c = S_p \left(\frac{t}{t_p} \right)^n$$

where t_p is the duration of primary consolidation

:: Tabular results ::

Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1	0.01	0.02	0.01	0.01	24.00	0.56	1.00	0.043	0.000	0.043
2	0.02	0.03	0.01	0.03	24.00	0.59	1.00	0.040	0.000	0.040
3	0.03	0.04	0.01	0.04	24.00	0.69	1.00	0.035	0.000	0.035
4	0.04	0.05	0.01	0.04	24.00	0.80	1.00	0.030	0.000	0.030
5	0.05	0.06	0.01	0.06	24.00	0.95	1.00	0.025	0.000	0.025
6	0.06	0.07	0.01	0.07	24.00	9.35	1.00	0.003	0.000	0.003
7	0.07	0.08	0.01	0.07	24.00	9.68	1.00	0.002	0.000	0.002
8	0.08	0.09	0.01	0.09	24.00	9.98	1.00	0.002	0.000	0.002
9	0.09	0.10	0.01	0.09	24.00	10.10	1.00	0.002	0.000	0.002
10	0.10	0.11	0.01	0.10	24.00	9.96	1.00	0.002	0.000	0.002
11	0.11	0.12	0.01	0.12	24.00	9.76	1.00	0.002	0.000	0.002
12	0.12	0.13	0.01	0.13	24.00	9.55	1.00	0.003	0.000	0.003
13	0.13	0.14	0.01	0.14	24.00	9.51	1.00	0.003	0.000	0.003
14	0.14	0.15	0.01	0.14	24.00	9.55	1.00	0.003	0.000	0.003
15	0.15	0.16	0.01	0.15	24.00	9.71	1.00	0.002	0.000	0.002
16	0.16	0.17	0.01	0.17	24.00	9.94	1.00	0.002	0.000	0.002
17	0.17	0.18	0.01	0.17	24.00	10.18	1.00	0.002	0.000	0.002
18	0.18	0.19	0.01	0.18	24.00	10.37	1.00	0.002	0.000	0.002
19	0.19	0.20	0.01	0.20	24.00	10.43	1.00	0.002	0.000	0.002
20	0.20	0.21	0.01	0.20	24.00	10.42	1.00	0.002	0.000	0.002
21	0.21	0.22	0.01	0.21	24.00	10.31	1.00	0.002	0.000	0.002
22	0.22	0.23	0.01	0.23	24.00	10.21	1.00	0.002	0.000	0.002
23	0.23	0.24	0.01	0.24	24.00	10.00	1.00	0.002	0.000	0.002
24	0.24	0.25	0.01	0.25	24.00	9.80	1.00	0.002	0.000	0.002
25	0.25	0.26	0.01	0.26	24.00	9.62	1.00	0.002	0.000	0.002
26	0.26	0.27	0.01	0.27	24.00	9.46	1.00	0.003	0.000	0.003
27	0.27	0.28	0.01	0.28	24.00	9.22	1.00	0.003	0.000	0.003
28	0.28	0.29	0.01	0.28	24.00	8.92	1.00	0.003	0.000	0.003
29	0.29	0.30	0.01	0.29	24.00	8.63	1.00	0.003	0.000	0.003
30	0.30	0.31	0.01	0.30	24.00	8.47	1.00	0.003	0.000	0.003
31	0.31	0.32	0.01	0.32	24.00	8.32	1.00	0.003	0.000	0.003
32	0.32	0.33	0.01	0.33	24.00	8.11	1.00	0.003	0.000	0.003
33	0.33	0.34	0.01	0.34	24.00	7.73	1.00	0.003	0.000	0.003
34	0.34	0.35	0.01	0.34	24.00	7.35	1.00	0.003	0.000	0.003
35	0.35	0.36	0.01	0.35	24.00	7.00	1.00	0.003	0.000	0.003
36	0.36	0.37	0.01	0.36	24.00	6.75	1.00	0.004	0.000	0.004
37	0.37	0.38	0.01	0.37	24.00	6.47	1.00	0.004	0.000	0.004
38	0.38	0.39	0.01	0.38	24.00	6.05	1.00	0.004	0.000	0.004
39	0.39	0.40	0.01	0.39	24.00	5.60	1.00	0.004	0.000	0.004
40	0.40	0.41	0.01	0.40	24.00	5.15	1.00	0.005	0.000	0.005
41	0.41	0.42	0.01	0.41	24.00	4.86	1.00	0.005	0.000	0.005
42	0.42	0.43	0.01	0.42	24.00	4.65	1.00	0.005	0.000	0.005
43	0.43	0.44	0.01	0.43	24.00	4.46	1.00	0.005	0.000	0.006
44	0.44	0.45	0.01	0.44	24.00	4.34	1.00	0.006	0.000	0.006
45	0.45	0.46	0.01	0.45	24.00	4.24	1.00	0.006	0.000	0.006
46	0.46	0.47	0.01	0.46	24.00	4.24	1.00	0.006	0.000	0.006

:: Tabular results ::										
Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)

Total primary settlement: 1.29

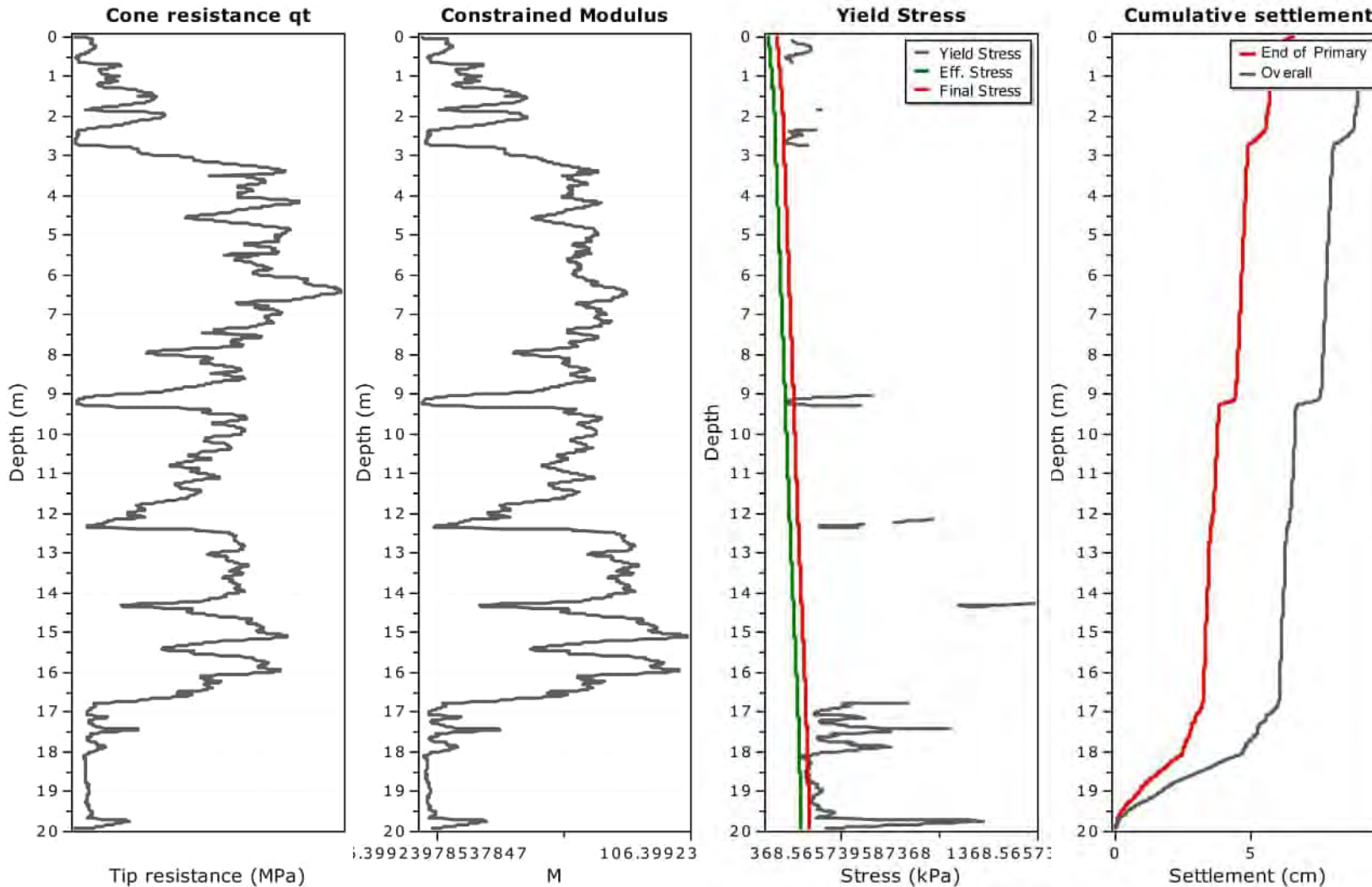
Total secondary settlement: 0.16

Total calculated settlement: 1.44

Abbreviations

- Start depth:Start depth of soil layer (penetration depth measured from ground free surface)
- End depth:End depth of soil layer (penetration depth measured from ground free surface)
- Thickness:Thickness of soil layer
- Relative depth:Depth of calculation relative to footing
- Iz:Stress influence factor
- Delta P:Footing imposed stress:
- Eff. stress:Effective stress
- M_(CPT):Constrained modulus from CPT
- Settlement:Primary settlement
- Second. settlement:Secondary settlements due to creep

Settlements calculation according to theory of elasticity*



Calculation properties

Footing type: Rectangular
Footing width: 100.00 (m)
L/B: 1.0
Footing pressure: 43.00 (kPa)
Embedment depth: 0.00 (m)
Footing is rigid: No
Remove excavation load: No
Apply 20% rule: Yes
Calculate secondary settlements: Yes
Time period for primary consolidation: 6 months
Time period for second. settlements: 1200 months

* Primary settlement calculation is performed according to the following formula:

$$S = \sum \frac{\Delta \sigma_v}{M_{CPT}} \Delta z$$

* Secondary (creep) settlement calculation is performed according to the following formula:

$$S_c = S_p \left(1 - e^{-t/t_p} \right)$$

where t_p is the duration of primary consolidation

:: Tabular results ::

Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1	0.01	0.02	0.01	0.01	43.00	0.64	1.00	0.067	0.000	0.067
2	0.02	0.03	0.01	0.03	43.00	0.75	1.00	0.058	0.000	0.058
3	0.03	0.04	0.01	0.04	43.00	0.88	1.00	0.049	0.000	0.049
4	0.04	0.05	0.01	0.04	43.00	1.01	1.00	0.043	0.000	0.043
5	0.05	0.06	0.01	0.06	43.00	1.09	1.00	0.039	0.000	0.039
6	0.06	0.07	0.01	0.07	43.00	10.36	1.00	0.004	0.000	0.004
7	0.07	0.08	0.01	0.07	43.00	10.82	1.00	0.004	0.000	0.004
8	0.08	0.09	0.01	0.09	43.00	10.93	1.00	0.004	0.000	0.004
9	0.09	0.10	0.01	0.09	43.00	10.87	1.00	0.004	0.000	0.004
10	0.10	0.11	0.01	0.10	43.00	10.78	1.00	0.004	0.000	0.004
11	0.11	0.12	0.01	0.12	43.00	10.67	1.00	0.004	0.000	0.004
12	0.12	0.13	0.01	0.13	43.00	10.54	1.00	0.004	0.000	0.004
13	0.13	0.14	0.01	0.14	43.00	10.37	1.00	0.004	0.000	0.004
14	0.14	0.15	0.01	0.14	43.00	10.19	1.00	0.004	0.000	0.004
15	0.15	0.16	0.01	0.15	43.00	10.00	1.00	0.004	0.000	0.004
16	0.16	0.17	0.01	0.17	43.00	9.88	1.00	0.004	0.000	0.004
17	0.17	0.18	0.01	0.17	43.00	9.88	1.00	0.004	0.000	0.004
18	0.18	0.19	0.01	0.18	43.00	10.18	1.00	0.004	0.000	0.004
19	0.19	0.20	0.01	0.20	43.00	10.64	1.00	0.004	0.000	0.004
20	0.20	0.21	0.01	0.20	43.00	11.17	1.00	0.004	0.000	0.004
21	0.21	0.22	0.01	0.21	43.00	11.58	1.00	0.004	0.000	0.004
22	0.22	0.23	0.01	0.23	43.00	12.00	1.00	0.004	0.000	0.004
23	0.23	0.24	0.01	0.24	43.00	12.40	1.00	0.003	0.000	0.003
24	0.24	0.25	0.01	0.25	43.00	12.58	1.00	0.003	0.000	0.003
25	0.25	0.26	0.01	0.26	43.00	12.42	1.00	0.003	0.000	0.003
26	0.26	0.27	0.01	0.27	43.00	12.03	1.00	0.004	0.000	0.004
27	0.27	0.28	0.01	0.28	43.00	11.70	1.00	0.004	0.000	0.004
28	0.28	0.29	0.01	0.28	43.00	11.42	1.00	0.004	0.000	0.004
29	0.29	0.30	0.01	0.29	43.00	11.18	1.00	0.004	0.000	0.004
30	0.30	0.31	0.01	0.30	43.00	10.92	1.00	0.004	0.000	0.004
31	0.31	0.32	0.01	0.32	43.00	10.69	1.00	0.004	0.000	0.004
32	0.32	0.33	0.01	0.33	43.00	10.48	1.00	0.004	0.000	0.004
33	0.33	0.34	0.01	0.34	43.00	10.14	1.00	0.004	0.000	0.004
34	0.34	0.35	0.01	0.34	43.00	9.80	1.00	0.004	0.000	0.004
35	0.35	0.36	0.01	0.35	43.00	9.50	1.00	0.005	0.000	0.005
36	0.36	0.37	0.01	0.36	43.00	9.36	1.00	0.005	0.000	0.005
37	0.37	0.38	0.01	0.37	43.00	9.28	1.00	0.005	0.000	0.005
38	0.38	0.39	0.01	0.38	43.00	9.16	1.00	0.005	0.000	0.005
39	0.39	0.40	0.01	0.39	43.00	8.83	1.00	0.005	0.000	0.005
40	0.40	0.41	0.01	0.40	43.00	8.36	1.00	0.005	0.000	0.005
41	0.41	0.42	0.01	0.41	43.00	7.74	1.00	0.006	0.000	0.006
42	0.42	0.43	0.01	0.42	43.00	7.16	1.00	0.006	0.000	0.006
43	0.43	0.44	0.01	0.43	43.00	6.54	1.00	0.007	0.000	0.007
44	0.44	0.45	0.01	0.44	43.00	5.82	1.00	0.007	0.000	0.008
45	0.45	0.46	0.01	0.45	43.00	5.13	1.00	0.008	0.000	0.009
46	0.46	0.47	0.01	0.46	43.00	4.52	1.00	0.010	0.000	0.010

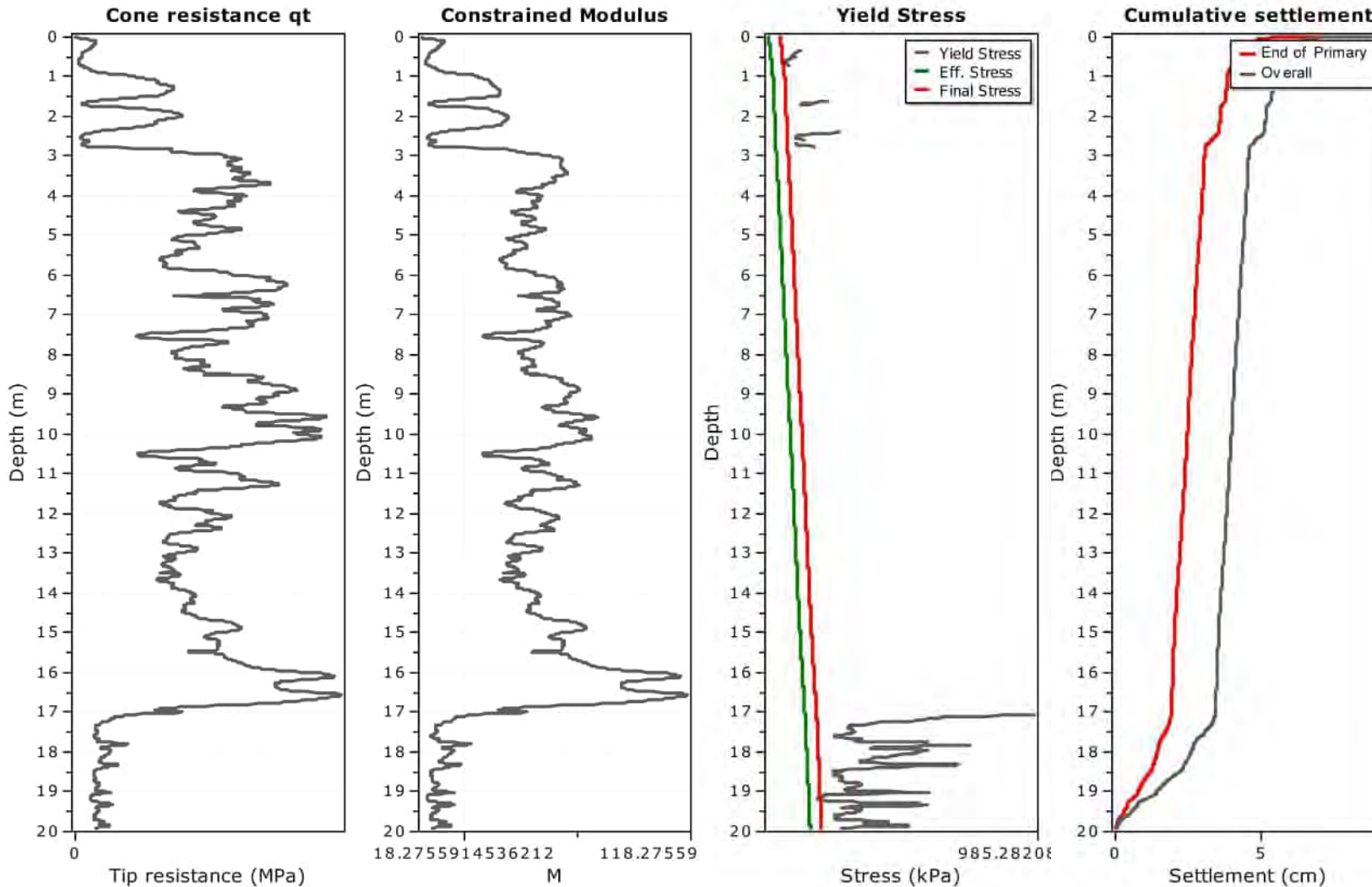
:: Tabular results ::

Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1979	19.79	19.80	0.01	19.80	41.34	22.71	0.96	0.002	0.002	0.004
1980	19.80	19.81	0.01	19.81	41.34	21.48	0.96	0.002	0.002	0.004
1981	19.81	19.82	0.01	19.82	41.34	20.29	0.96	0.002	0.002	0.004
1982	19.82	19.83	0.01	19.83	41.34	19.39	0.96	0.002	0.002	0.004
1983	19.83	19.84	0.01	19.84	41.33	18.46	0.96	0.002	0.002	0.004
1984	19.84	19.85	0.01	19.85	41.33	17.18	0.96	0.002	0.002	0.005
1985	19.85	19.86	0.01	19.86	41.33	15.86	0.96	0.003	0.002	0.005
1986	19.86	19.87	0.01	19.87	41.33	14.49	0.96	0.003	0.003	0.006
1987	19.87	19.88	0.01	19.88	41.32	13.44	0.96	0.003	0.003	0.006
1988	19.88	19.89	0.01	19.89	41.32	12.10	0.96	0.003	0.003	0.007
1989	19.89	19.90	0.01	19.90	41.32	10.90	0.96	0.004	0.004	0.007
1990	19.90	19.91	0.01	19.91	41.32	8.98	0.96	0.005	0.004	0.009
1991	19.91	19.92	0.01	19.92	41.32	7.73	0.96	0.005	0.005	0.010
1992	19.92	19.93	0.01	19.93	41.31	5.98	0.96	0.007	0.006	0.013

Total primary settlement: 6.54**Total secondary settlement: 3.26****Total calculated settlement: 9.80****Abbreviations**

Start depth:	Start depth of soil layer (penetration depth measured from ground free surface)
End depth:	End depth of soil layer (penetration depth measured from ground free surface)
Thickness:	Thickness of soil layer
Relative depth:	Depth of calculation relative to footing
Iz:	Stress influence factor
Delta P:	Footing imposed stress:
Eff. stress:	Effective stress
M _(CPT) :	Constrained modulus from CPT
Settlement:	Primary settlement
Second. settlement:	Secondary settlements due to creep

Settlements calculation according to theory of elasticity*



Calculation properties

Footing type: Rectangular
Footing width: 100.00 (m)
L/B: 1.0
Footing pressure: 43.00 (kPa)
Embedment depth: 0.00 (m)
Footing is rigid: No
Remove excavation load: No
Apply 20% rule: Yes
Calculate secondary settlements: Yes
Time period for primary consolidation: 6 months
Time period for second. settlements: 1200 months

* Primary settlement calculation is performed according to the following formula:

$$S = \sum \frac{\Delta \sigma_v}{M_{CPT}} \Delta z$$

* Secondary (creep) settlement calculation is performed according to the following formula:

$$S_c = S_p \left(\frac{t}{t_p} \right)^n$$

where t_p is the duration of primary consolidation

:: Tabular results ::

Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1	0.01	0.02	0.01	0.01	43.00	0.03	1.00	1.461	0.000	1.461
2	0.02	0.03	0.01	0.03	43.00	0.07	1.00	0.627	0.000	0.627
3	0.03	0.04	0.01	0.04	43.00	0.15	1.00	0.290	0.000	0.290
4	0.04	0.05	0.01	0.04	43.00	0.28	1.00	0.156	0.000	0.156
5	0.05	0.06	0.01	0.06	43.00	0.39	1.00	0.110	0.000	0.110
6	0.06	0.07	0.01	0.07	43.00	4.55	1.00	0.009	0.000	0.009
7	0.07	0.08	0.01	0.07	43.00	5.52	1.00	0.008	0.000	0.008
8	0.08	0.09	0.01	0.09	43.00	6.71	1.00	0.006	0.000	0.006
9	0.09	0.10	0.01	0.09	43.00	7.89	1.00	0.005	0.000	0.005
10	0.10	0.11	0.01	0.10	43.00	8.88	1.00	0.005	0.000	0.005
11	0.11	0.12	0.01	0.12	43.00	9.46	1.00	0.005	0.000	0.005
12	0.12	0.13	0.01	0.13	43.00	9.65	1.00	0.004	0.000	0.004
13	0.13	0.14	0.01	0.14	43.00	9.62	1.00	0.004	0.000	0.004
14	0.14	0.15	0.01	0.14	43.00	9.54	1.00	0.005	0.000	0.005
15	0.15	0.16	0.01	0.15	43.00	9.45	1.00	0.005	0.000	0.005
16	0.16	0.17	0.01	0.17	43.00	9.27	1.00	0.005	0.000	0.005
17	0.17	0.18	0.01	0.17	43.00	9.09	1.00	0.005	0.000	0.005
18	0.18	0.19	0.01	0.18	43.00	8.89	1.00	0.005	0.000	0.005
19	0.19	0.20	0.01	0.20	43.00	8.73	1.00	0.005	0.000	0.005
20	0.20	0.21	0.01	0.20	43.00	8.50	1.00	0.005	0.000	0.005
21	0.21	0.22	0.01	0.21	43.00	8.26	1.00	0.005	0.000	0.005
22	0.22	0.23	0.01	0.23	43.00	7.99	1.00	0.005	0.000	0.005
23	0.23	0.24	0.01	0.24	43.00	7.79	1.00	0.006	0.000	0.006
24	0.24	0.25	0.01	0.25	43.00	7.61	1.00	0.006	0.000	0.006
25	0.25	0.26	0.01	0.26	43.00	7.50	1.00	0.006	0.000	0.006
26	0.26	0.27	0.01	0.27	43.00	7.39	1.00	0.006	0.000	0.006
27	0.27	0.28	0.01	0.28	43.00	7.29	1.00	0.006	0.000	0.006
28	0.28	0.29	0.01	0.28	43.00	7.08	1.00	0.006	0.000	0.006
29	0.29	0.30	0.01	0.29	43.00	6.84	1.00	0.006	0.000	0.006
30	0.30	0.31	0.01	0.30	43.00	6.55	1.00	0.007	0.000	0.007
31	0.31	0.32	0.01	0.32	43.00	6.31	1.00	0.007	0.000	0.007
32	0.32	0.33	0.01	0.33	43.00	6.05	1.00	0.007	0.000	0.007
33	0.33	0.34	0.01	0.34	43.00	5.72	1.00	0.008	0.000	0.008
34	0.34	0.35	0.01	0.34	43.00	5.48	1.00	0.008	0.000	0.008
35	0.35	0.36	0.01	0.35	43.00	5.14	1.00	0.008	0.000	0.009
36	0.36	0.37	0.01	0.36	43.00	4.87	1.00	0.009	0.000	0.009
37	0.37	0.38	0.01	0.37	43.00	4.52	1.00	0.010	0.000	0.010
38	0.38	0.39	0.01	0.38	43.00	4.27	1.00	0.010	0.000	0.010
39	0.39	0.40	0.01	0.39	43.00	4.03	1.00	0.011	0.000	0.011
40	0.40	0.41	0.01	0.40	43.00	3.79	1.00	0.011	0.000	0.012
41	0.41	0.42	0.01	0.41	43.00	3.51	1.00	0.012	0.000	0.013
42	0.42	0.43	0.01	0.42	43.00	3.28	1.00	0.013	0.000	0.014
43	0.43	0.44	0.01	0.43	43.00	3.10	1.00	0.014	0.001	0.014
44	0.44	0.45	0.01	0.44	43.00	3.01	1.00	0.014	0.001	0.015
45	0.45	0.46	0.01	0.45	43.00	2.96	1.00	0.015	0.001	0.015
46	0.46	0.47	0.01	0.46	43.00	2.92	1.00	0.015	0.001	0.015

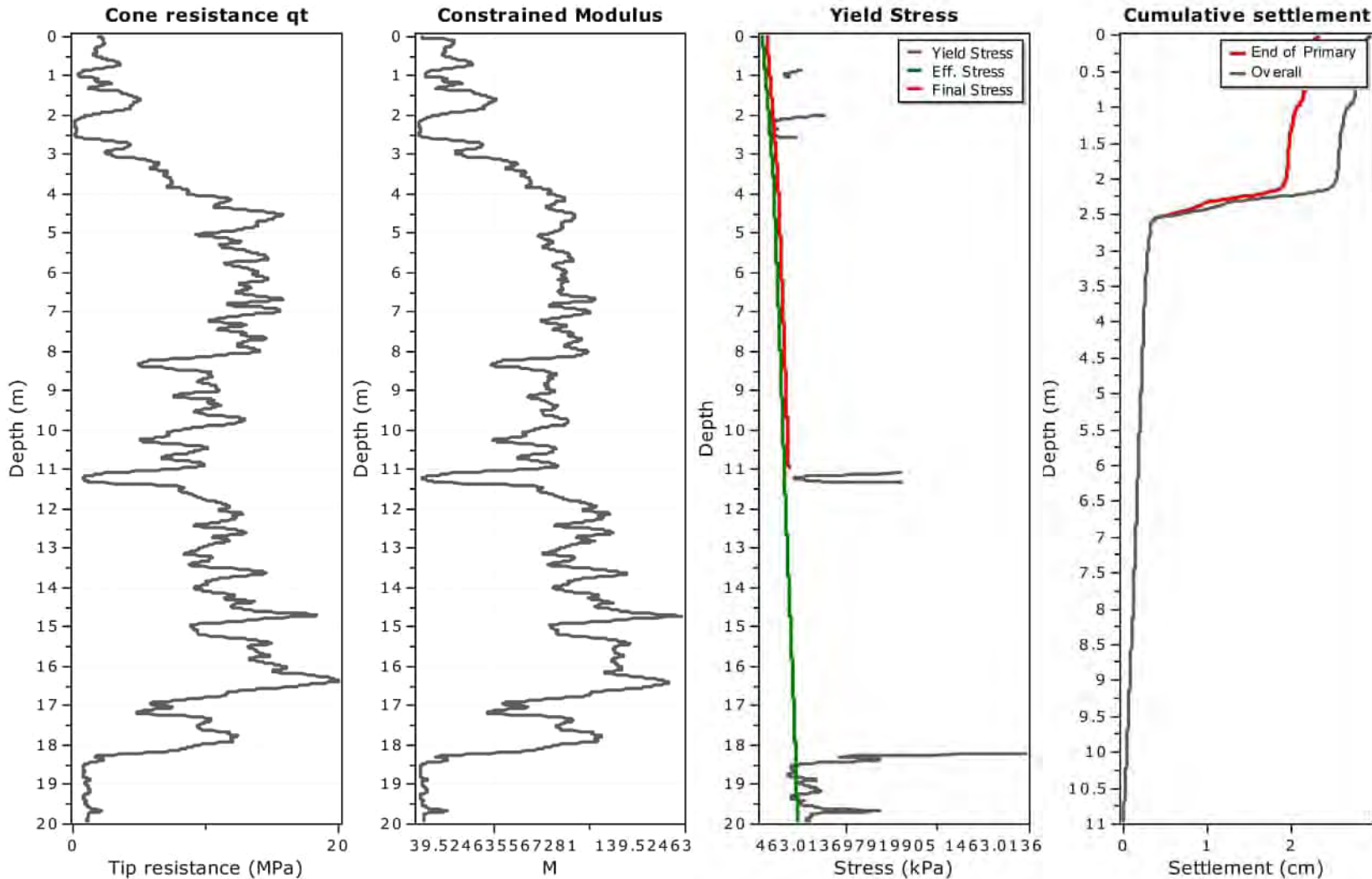
:: Tabular results ::

Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1979	19.79	19.80	0.01	19.80	41.34	10.30	0.96	0.004	0.003	0.007
1980	19.80	19.81	0.01	19.81	41.34	9.65	0.96	0.004	0.004	0.008
1981	19.81	19.82	0.01	19.82	41.34	7.93	0.96	0.005	0.004	0.010
1982	19.82	19.83	0.01	19.83	41.34	7.41	0.96	0.006	0.005	0.010
1983	19.83	19.84	0.01	19.84	41.33	8.82	0.96	0.005	0.004	0.009
1984	19.84	19.85	0.01	19.85	41.33	10.47	0.96	0.004	0.003	0.007
1985	19.85	19.86	0.01	19.86	41.33	11.73	0.96	0.004	0.003	0.007
1986	19.86	19.87	0.01	19.87	41.33	12.33	0.96	0.003	0.003	0.006
1987	19.87	19.88	0.01	19.88	41.32	12.33	0.96	0.003	0.003	0.006
1988	19.88	19.89	0.01	19.89	41.32	11.24	0.96	0.004	0.003	0.007
1989	19.89	19.90	0.01	19.90	41.32	9.60	0.96	0.004	0.004	0.008
1990	19.90	19.91	0.01	19.91	41.32	6.64	0.96	0.006	0.005	0.011
1991	19.91	19.92	0.01	19.92	41.32	5.24	0.96	0.008	0.007	0.015
1992	19.92	19.93	0.01	19.93	41.31	4.59	0.96	0.009	0.008	0.017

Total primary settlement: 7.55**Total secondary settlement: 1.62****Total calculated settlement: 9.17****Abbreviations**

Start depth:	Start depth of soil layer (penetration depth measured from ground free surface)
End depth:	End depth of soil layer (penetration depth measured from ground free surface)
Thickness:	Thickness of soil layer
Relative depth:	Depth of calculation relative to footing
Iz:	Stress influence factor
Delta P:	Footing imposed stress:
Eff. stress:	Effective stress
M _(CPT) :	Constrained modulus from CPT
Settlement:	Primary settlement
Second. settlement:	Secondary settlements due to creep

Settlements calculation according to theory of elasticity*



Calculation properties

Footing type: Rectangular
Footing width: 100.00 (m)
L/B: 1.0
Footing pressure: 24.00 (kPa)
Embedment depth: 0.00 (m)
Footing is rigid: No
Remove excavation load: No
Apply 20% rule: Yes
Calculate secondary settlements: Yes
Time period for primary consolidation: 6 months
Time period for second. settlements: 1200 months

* Primary settlement calculation is performed according to the following formula:

$$S = \sum \frac{\Delta \sigma_v}{M_{CPT}} \Delta z$$

* Secondary (creep) settlement calculation is performed according to the following formula:

$$S_c = S_p \left(\frac{t}{t_p} \right)^n$$

where t_p is the duration of primary consolidation

:: Tabular results ::										
Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1	0.01	0.02	0.01	0.01	24.00	1.68	1.00	0.014	0.000	0.014
2	0.02	0.03	0.01	0.03	24.00	1.78	1.00	0.014	0.000	0.014
3	0.03	0.04	0.01	0.04	24.00	1.90	1.00	0.013	0.000	0.013
4	0.04	0.05	0.01	0.04	24.00	2.00	1.00	0.012	0.000	0.012
5	0.05	0.06	0.01	0.06	24.00	2.02	1.00	0.012	0.000	0.012
6	0.06	0.07	0.01	0.07	24.00	2.03	1.00	0.012	0.000	0.012
7	0.07	0.08	0.01	0.07	24.00	13.14	1.00	0.002	0.000	0.002
8	0.08	0.09	0.01	0.09	24.00	16.52	1.00	0.001	0.000	0.001
9	0.09	0.10	0.01	0.09	24.00	18.46	1.00	0.001	0.000	0.001
10	0.10	0.11	0.01	0.10	24.00	18.31	1.00	0.001	0.000	0.001
11	0.11	0.12	0.01	0.12	24.00	18.25	1.00	0.001	0.000	0.001
12	0.12	0.13	0.01	0.13	24.00	18.22	1.00	0.001	0.000	0.001
13	0.13	0.14	0.01	0.14	24.00	18.25	1.00	0.001	0.000	0.001
14	0.14	0.15	0.01	0.14	24.00	18.40	1.00	0.001	0.000	0.001
15	0.15	0.16	0.01	0.15	24.00	18.65	1.00	0.001	0.000	0.001
16	0.16	0.17	0.01	0.17	24.00	18.86	1.00	0.001	0.000	0.001
17	0.17	0.18	0.01	0.17	24.00	18.91	1.00	0.001	0.000	0.001
18	0.18	0.19	0.01	0.18	24.00	18.76	1.00	0.001	0.000	0.001
19	0.19	0.20	0.01	0.20	24.00	18.66	1.00	0.001	0.000	0.001
20	0.20	0.21	0.01	0.20	24.00	18.44	1.00	0.001	0.000	0.001
21	0.21	0.22	0.01	0.21	24.00	18.29	1.00	0.001	0.000	0.001
22	0.22	0.23	0.01	0.23	24.00	17.95	1.00	0.001	0.000	0.001
23	0.23	0.24	0.01	0.24	24.00	17.66	1.00	0.001	0.000	0.001
24	0.24	0.25	0.01	0.25	24.00	17.24	1.00	0.001	0.000	0.001
25	0.25	0.26	0.01	0.26	24.00	16.62	1.00	0.001	0.000	0.001
26	0.26	0.27	0.01	0.27	24.00	15.87	1.00	0.002	0.000	0.002
27	0.27	0.28	0.01	0.28	24.00	15.07	1.00	0.002	0.000	0.002
28	0.28	0.29	0.01	0.28	24.00	14.50	1.00	0.002	0.000	0.002
29	0.29	0.30	0.01	0.29	24.00	13.96	1.00	0.002	0.000	0.002
30	0.30	0.31	0.01	0.30	24.00	13.58	1.00	0.002	0.000	0.002
31	0.31	0.32	0.01	0.32	24.00	13.27	1.00	0.002	0.000	0.002
32	0.32	0.33	0.01	0.33	24.00	13.24	1.00	0.002	0.000	0.002
33	0.33	0.34	0.01	0.34	24.00	13.34	1.00	0.002	0.000	0.002
34	0.34	0.35	0.01	0.34	24.00	13.65	1.00	0.002	0.000	0.002
35	0.35	0.36	0.01	0.35	24.00	13.96	1.00	0.002	0.000	0.002
36	0.36	0.37	0.01	0.36	24.00	14.20	1.00	0.002	0.000	0.002
37	0.37	0.38	0.01	0.37	24.00	14.27	1.00	0.002	0.000	0.002
38	0.38	0.39	0.01	0.38	24.00	14.22	1.00	0.002	0.000	0.002
39	0.39	0.40	0.01	0.39	24.00	14.17	1.00	0.002	0.000	0.002
40	0.40	0.41	0.01	0.40	24.00	14.13	1.00	0.002	0.000	0.002
41	0.41	0.42	0.01	0.41	24.00	14.04	1.00	0.002	0.000	0.002
42	0.42	0.43	0.01	0.42	24.00	13.82	1.00	0.002	0.000	0.002
43	0.43	0.44	0.01	0.43	24.00	13.40	1.00	0.002	0.000	0.002
44	0.44	0.45	0.01	0.44	24.00	12.98	1.00	0.002	0.000	0.002
45	0.45	0.46	0.01	0.45	24.00	12.70	1.00	0.002	0.000	0.002
46	0.46	0.47	0.01	0.46	24.00	12.62	1.00	0.002	0.000	0.002

:: Tabular results ::

Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1059	10.59	10.60	0.01	10.60	23.84	66.98	0.99	0.000	0.000	0.000
1060	10.60	10.61	0.01	10.61	23.84	64.25	0.99	0.000	0.000	0.000
1061	10.61	10.62	0.01	10.62	23.84	62.15	0.99	0.000	0.000	0.000
1062	10.62	10.63	0.01	10.63	23.84	59.53	0.99	0.000	0.000	0.000
1063	10.63	10.64	0.01	10.64	23.84	57.87	0.99	0.000	0.000	0.000
1064	10.64	10.65	0.01	10.65	23.84	55.86	0.99	0.000	0.000	0.000
1065	10.65	10.66	0.01	10.66	23.84	54.73	0.99	0.000	0.000	0.000
1066	10.66	10.67	0.01	10.67	23.84	53.87	0.99	0.000	0.000	0.000
1067	10.67	10.68	0.01	10.68	23.83	53.14	0.99	0.000	0.000	0.000
1068	10.68	10.69	0.01	10.69	23.83	52.53	0.99	0.000	0.000	0.000
1069	10.69	10.70	0.01	10.70	23.83	52.13	0.99	0.000	0.000	0.000
1070	10.70	10.71	0.01	10.71	23.83	51.98	0.99	0.000	0.000	0.000
1071	10.71	10.72	0.01	10.72	23.83	52.14	0.99	0.000	0.000	0.000
1072	10.72	10.73	0.01	10.73	23.83	52.69	0.99	0.000	0.000	0.000
1073	10.73	10.74	0.01	10.74	23.83	53.75	0.99	0.000	0.000	0.000
1074	10.74	10.75	0.01	10.75	23.83	55.18	0.99	0.000	0.000	0.000
1075	10.75	10.76	0.01	10.76	23.83	57.54	0.99	0.000	0.000	0.000
1076	10.76	10.77	0.01	10.77	23.83	58.75	0.99	0.000	0.000	0.000
1077	10.77	10.78	0.01	10.78	23.83	60.07	0.99	0.000	0.000	0.000
1078	10.78	10.79	0.01	10.79	23.83	61.39	0.99	0.000	0.000	0.000
1079	10.79	10.80	0.01	10.80	23.83	62.75	0.99	0.000	0.000	0.000
1080	10.80	10.81	0.01	10.81	23.83	63.89	0.99	0.000	0.000	0.000
1081	10.81	10.82	0.01	10.82	23.83	64.98	0.99	0.000	0.000	0.000
1082	10.82	10.83	0.01	10.83	23.83	66.71	0.99	0.000	0.000	0.000
1083	10.83	10.84	0.01	10.84	23.83	68.23	0.99	0.000	0.000	0.000
1084	10.84	10.85	0.01	10.85	23.83	69.51	0.99	0.000	0.000	0.000
1085	10.85	10.86	0.01	10.86	23.83	69.92	0.99	0.000	0.000	0.000
1086	10.86	10.87	0.01	10.87	23.83	70.43	0.99	0.000	0.000	0.000
1087	10.87	10.88	0.01	10.88	23.83	70.93	0.99	0.000	0.000	0.000
1088	10.88	10.89	0.01	10.89	23.83	71.88	0.99	0.000	0.000	0.000
1089	10.89	10.90	0.01	10.90	23.82	72.66	0.99	0.000	0.000	0.000
1090	10.90	10.91	0.01	10.91	23.82	73.10	0.99	0.000	0.000	0.000
1091	10.91	10.92	0.01	10.92	23.82	72.85	0.99	0.000	0.000	0.000
1092	10.92	10.93	0.01	10.93	23.82	72.39	0.99	0.000	0.000	0.000
1093	10.93	10.94	0.01	10.94	23.82	71.88	0.99	0.000	0.000	0.000
1094	10.94	10.95	0.01	10.95	23.82	70.98	0.99	0.000	0.000	0.000
1095	10.95	10.96	0.01	10.96	23.82	68.83	0.99	0.000	0.000	0.000

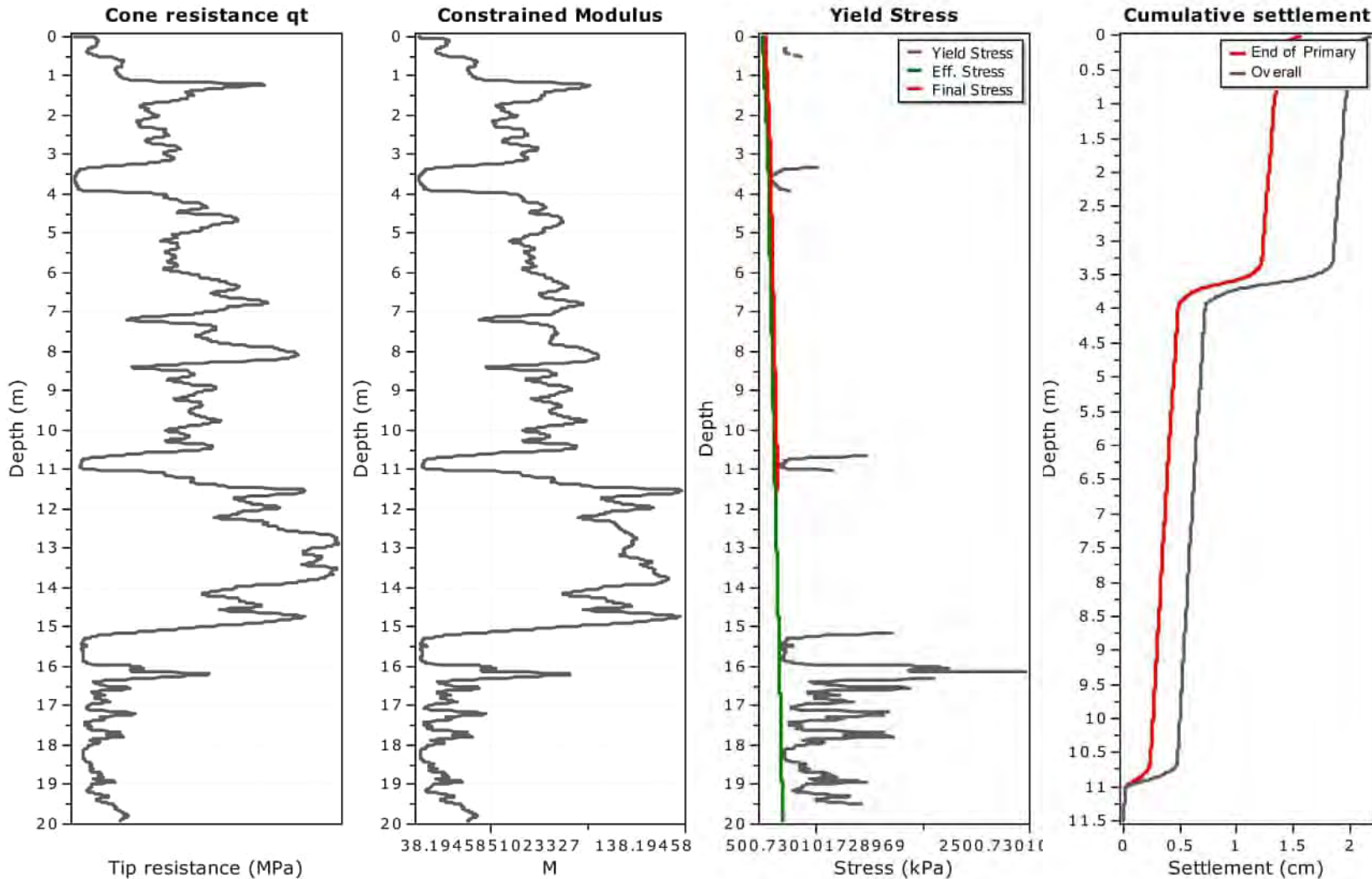
Total primary settlement: 2.32
Total secondary settlement: 0.61

Total calculated settlement: 2.94

Abbreviations

Start depth:	Start depth of soil layer (penetration depth measured from ground free surface)
End depth:	End depth of soil layer (penetration depth measured from ground free surface)
Thickness:	Thickness of soil layer
Relative depth:	Depth of calculation relative to footing
Iz:	Stress influence factor
Delta P:	Footing imposed stress:
Eff. stress:	Effective stress
M _(CPT) :	Constrained modulus from CPT
Settlement:	Primary settlement
Second. settlement:	Secondary settlement due to creep

Settlements calculation according to theory of elasticity*



Calculation properties

Footing type: Rectangular
Footing width: 100.00 (m)
L/B: 1.0
Footing pressure: 24.00 (kPa)
Embedment depth: 0.00 (m)
Footing is rigid: No
Remove excavation load: No
Apply 20% rule: Yes
Calculate secondary settlements: Yes
Time period for primary consolidation: 6 months
Time period for second. settlements: 1200 months

* Primary settlement calculation is performed according to the following formula:

$$S = \sum \frac{\Delta \sigma_v}{M_{CPT}} \Delta z$$

* Secondary (creep) settlement calculation is performed according to the following formula:

$$S_c = S_p \left(\frac{t}{t_p} \right)^n$$

where t_p is the duration of primary consolidation

:: Tabular results ::

Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1	0.01	0.02	0.01	0.01	24.00	1.25	1.00	0.019	0.000	0.019
2	0.02	0.03	0.01	0.03	24.00	1.36	1.00	0.018	0.000	0.018
3	0.03	0.04	0.01	0.04	24.00	1.54	1.00	0.016	0.000	0.016
4	0.04	0.05	0.01	0.04	24.00	1.61	1.00	0.015	0.000	0.015
5	0.05	0.06	0.01	0.06	24.00	1.69	1.00	0.014	0.000	0.014
6	0.06	0.07	0.01	0.07	24.00	1.73	1.00	0.014	0.000	0.014
7	0.07	0.08	0.01	0.07	24.00	12.68	1.00	0.002	0.000	0.002
8	0.08	0.09	0.01	0.09	24.00	16.08	1.00	0.001	0.000	0.001
9	0.09	0.10	0.01	0.09	24.00	16.26	1.00	0.001	0.000	0.001
10	0.10	0.11	0.01	0.10	24.00	16.34	1.00	0.001	0.000	0.001
11	0.11	0.12	0.01	0.12	24.00	16.27	1.00	0.001	0.000	0.001
12	0.12	0.13	0.01	0.13	24.00	16.19	1.00	0.001	0.000	0.001
13	0.13	0.14	0.01	0.14	24.00	15.85	1.00	0.002	0.000	0.002
14	0.14	0.15	0.01	0.14	24.00	15.46	1.00	0.002	0.000	0.002
15	0.15	0.16	0.01	0.15	24.00	15.08	1.00	0.002	0.000	0.002
16	0.16	0.17	0.01	0.17	24.00	14.90	1.00	0.002	0.000	0.002
17	0.17	0.18	0.01	0.17	24.00	14.82	1.00	0.002	0.000	0.002
18	0.18	0.19	0.01	0.18	24.00	14.79	1.00	0.002	0.000	0.002
19	0.19	0.20	0.01	0.20	24.00	14.82	1.00	0.002	0.000	0.002
20	0.20	0.21	0.01	0.20	24.00	14.98	1.00	0.002	0.000	0.002
21	0.21	0.22	0.01	0.21	24.00	15.19	1.00	0.002	0.000	0.002
22	0.22	0.23	0.01	0.23	24.00	15.35	1.00	0.002	0.000	0.002
23	0.23	0.24	0.01	0.24	24.00	15.15	1.00	0.002	0.000	0.002
24	0.24	0.25	0.01	0.25	24.00	14.66	1.00	0.002	0.000	0.002
25	0.25	0.26	0.01	0.26	24.00	14.12	1.00	0.002	0.000	0.002
26	0.26	0.27	0.01	0.27	24.00	13.63	1.00	0.002	0.000	0.002
27	0.27	0.28	0.01	0.28	24.00	13.11	1.00	0.002	0.000	0.002
28	0.28	0.29	0.01	0.28	24.00	12.49	1.00	0.002	0.000	0.002
29	0.29	0.30	0.01	0.29	24.00	11.85	1.00	0.002	0.000	0.002
30	0.30	0.31	0.01	0.30	24.00	11.25	1.00	0.002	0.000	0.002
31	0.31	0.32	0.01	0.32	24.00	10.69	1.00	0.002	0.000	0.002
32	0.32	0.33	0.01	0.33	24.00	10.19	1.00	0.002	0.000	0.002
33	0.33	0.34	0.01	0.34	24.00	9.93	1.00	0.002	0.000	0.002
34	0.34	0.35	0.01	0.34	24.00	9.86	1.00	0.002	0.000	0.002
35	0.35	0.36	0.01	0.35	24.00	9.85	1.00	0.002	0.000	0.002
36	0.36	0.37	0.01	0.36	24.00	9.84	1.00	0.002	0.000	0.003
37	0.37	0.38	0.01	0.37	24.00	9.72	1.00	0.002	0.000	0.003
38	0.38	0.39	0.01	0.38	24.00	9.64	1.00	0.002	0.000	0.003
39	0.39	0.40	0.01	0.39	24.00	9.56	1.00	0.003	0.000	0.003
40	0.40	0.41	0.01	0.40	24.00	9.59	1.00	0.003	0.000	0.003
41	0.41	0.42	0.01	0.41	24.00	9.78	1.00	0.002	0.000	0.002
42	0.42	0.43	0.01	0.42	24.00	10.03	1.00	0.002	0.000	0.002
43	0.43	0.44	0.01	0.43	24.00	10.54	1.00	0.002	0.000	0.002
44	0.44	0.45	0.01	0.44	24.00	11.43	1.00	0.002	0.000	0.002
45	0.45	0.46	0.01	0.45	24.00	12.24	1.00	0.002	0.000	0.002
46	0.46	0.47	0.01	0.46	24.00	12.80	1.00	0.002	0.000	0.002

:: Tabular results ::										
Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)

Total primary settlement: 1.55

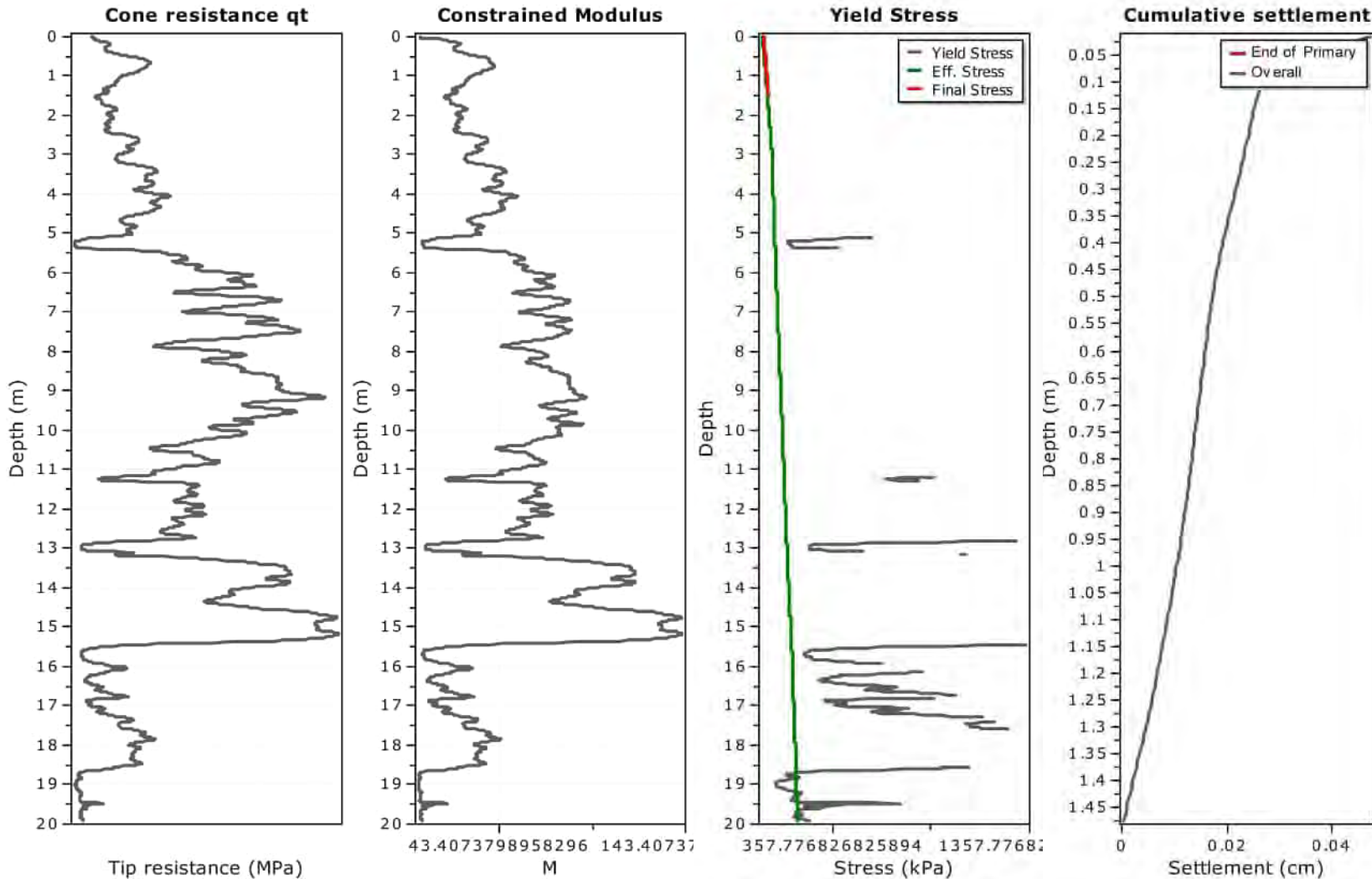
Total secondary settlement: 0.63

Total calculated settlement: 2.18

Abbreviations

- Start depth:Start depth of soil layer (penetration depth measured from ground free surface)
- End depth:End depth of soil layer (penetration depth measured from ground free surface)
- Thickness:Thickness of soil layer
- Relative depth:Depth of calculation relative to footing
- Iz:Stress influence factor
- Delta P:Footing imposed stress:
- Eff. stress:Effective stress
- M_(CPT):Constrained modulus from CPT
- Settlement:Primary settlement
- Second. settlement:Secondary settlements due to creep

Settlements calculation according to theory of elasticity*



Calculation properties

Footing type: Rectangular
Footing width: 100.00 (m)
L/B: 1.0
Footing pressure: 5.00 (kPa)
Embedment depth: 0.00 (m)
Footing is rigid: No
Remove excavation load: No
Apply 20% rule: Yes
Calculate secondary settlements: Yes
Time period for primary consolidation: 6 months
Time period for second. settlements: 1200 months

* Primary settlement calculation is performed according to the following formula:

$$S = \sum \frac{\Delta \sigma_v}{M_{CPT}} \Delta z$$

* Secondary (creep) settlement calculation is performed according to the following formula:

$$S_c = S_p \left(\frac{t}{t_p} \right)^n$$

where t_p is the duration of primary consolidation

:: Tabular results ::

Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1	0.01	0.02	0.01	0.01	5.00	1.45	1.00	0.003	0.000	0.003
2	0.02	0.03	0.01	0.03	5.00	1.47	1.00	0.003	0.000	0.003
3	0.03	0.04	0.01	0.04	5.00	1.50	1.00	0.003	0.000	0.003
4	0.04	0.05	0.01	0.04	5.00	1.56	1.00	0.003	0.000	0.003
5	0.05	0.06	0.01	0.06	5.00	1.58	1.00	0.003	0.000	0.003
6	0.06	0.07	0.01	0.07	5.00	1.60	1.00	0.003	0.000	0.003
7	0.07	0.08	0.01	0.07	5.00	11.03	1.00	0.000	0.000	0.000
8	0.08	0.09	0.01	0.09	5.00	13.75	1.00	0.000	0.000	0.000
9	0.09	0.10	0.01	0.09	5.00	15.00	1.00	0.000	0.000	0.000
10	0.10	0.11	0.01	0.10	5.00	15.48	1.00	0.000	0.000	0.000
11	0.11	0.12	0.01	0.12	5.00	16.19	1.00	0.000	0.000	0.000
12	0.12	0.13	0.01	0.13	5.00	17.09	1.00	0.000	0.000	0.000
13	0.13	0.14	0.01	0.14	5.00	18.18	1.00	0.000	0.000	0.000
14	0.14	0.15	0.01	0.14	5.00	19.51	1.00	0.000	0.000	0.000
15	0.15	0.16	0.01	0.15	5.00	20.77	1.00	0.000	0.000	0.000
16	0.16	0.17	0.01	0.17	5.00	21.84	1.00	0.000	0.000	0.000
17	0.17	0.18	0.01	0.17	5.00	22.42	1.00	0.000	0.000	0.000
18	0.18	0.19	0.01	0.18	5.00	22.74	1.00	0.000	0.000	0.000
19	0.19	0.20	0.01	0.20	5.00	22.71	1.00	0.000	0.000	0.000
20	0.20	0.21	0.01	0.20	5.00	22.54	1.00	0.000	0.000	0.000
21	0.21	0.22	0.01	0.21	5.00	22.27	1.00	0.000	0.000	0.000
22	0.22	0.23	0.01	0.23	5.00	21.97	1.00	0.000	0.000	0.000
23	0.23	0.24	0.01	0.24	5.00	21.68	1.00	0.000	0.000	0.000
24	0.24	0.25	0.01	0.25	5.00	21.29	1.00	0.000	0.000	0.000
25	0.25	0.26	0.01	0.26	5.00	20.84	1.00	0.000	0.000	0.000
26	0.26	0.27	0.01	0.27	5.00	20.31	1.00	0.000	0.000	0.000
27	0.27	0.28	0.01	0.28	5.00	19.92	1.00	0.000	0.000	0.000
28	0.28	0.29	0.01	0.28	5.00	19.71	1.00	0.000	0.000	0.000
29	0.29	0.30	0.01	0.29	5.00	19.66	1.00	0.000	0.000	0.000
30	0.30	0.31	0.01	0.30	5.00	19.67	1.00	0.000	0.000	0.000
31	0.31	0.32	0.01	0.32	5.00	19.76	1.00	0.000	0.000	0.000
32	0.32	0.33	0.01	0.33	5.00	19.82	1.00	0.000	0.000	0.000
33	0.33	0.34	0.01	0.34	5.00	19.82	1.00	0.000	0.000	0.000
34	0.34	0.35	0.01	0.34	5.00	19.79	1.00	0.000	0.000	0.000
35	0.35	0.36	0.01	0.35	5.00	19.85	1.00	0.000	0.000	0.000
36	0.36	0.37	0.01	0.36	5.00	20.06	1.00	0.000	0.000	0.000
37	0.37	0.38	0.01	0.37	5.00	20.45	1.00	0.000	0.000	0.000
38	0.38	0.39	0.01	0.38	5.00	21.09	1.00	0.000	0.000	0.000
39	0.39	0.40	0.01	0.39	5.00	21.93	1.00	0.000	0.000	0.000
40	0.40	0.41	0.01	0.40	5.00	22.83	1.00	0.000	0.000	0.000
41	0.41	0.42	0.01	0.41	5.00	23.68	1.00	0.000	0.000	0.000
42	0.42	0.43	0.01	0.42	5.00	24.49	1.00	0.000	0.000	0.000
43	0.43	0.44	0.01	0.43	5.00	25.24	1.00	0.000	0.000	0.000
44	0.44	0.45	0.01	0.44	5.00	26.11	1.00	0.000	0.000	0.000
45	0.45	0.46	0.01	0.45	5.00	27.02	1.00	0.000	0.000	0.000
46	0.46	0.47	0.01	0.46	5.00	28.03	1.00	0.000	0.000	0.000

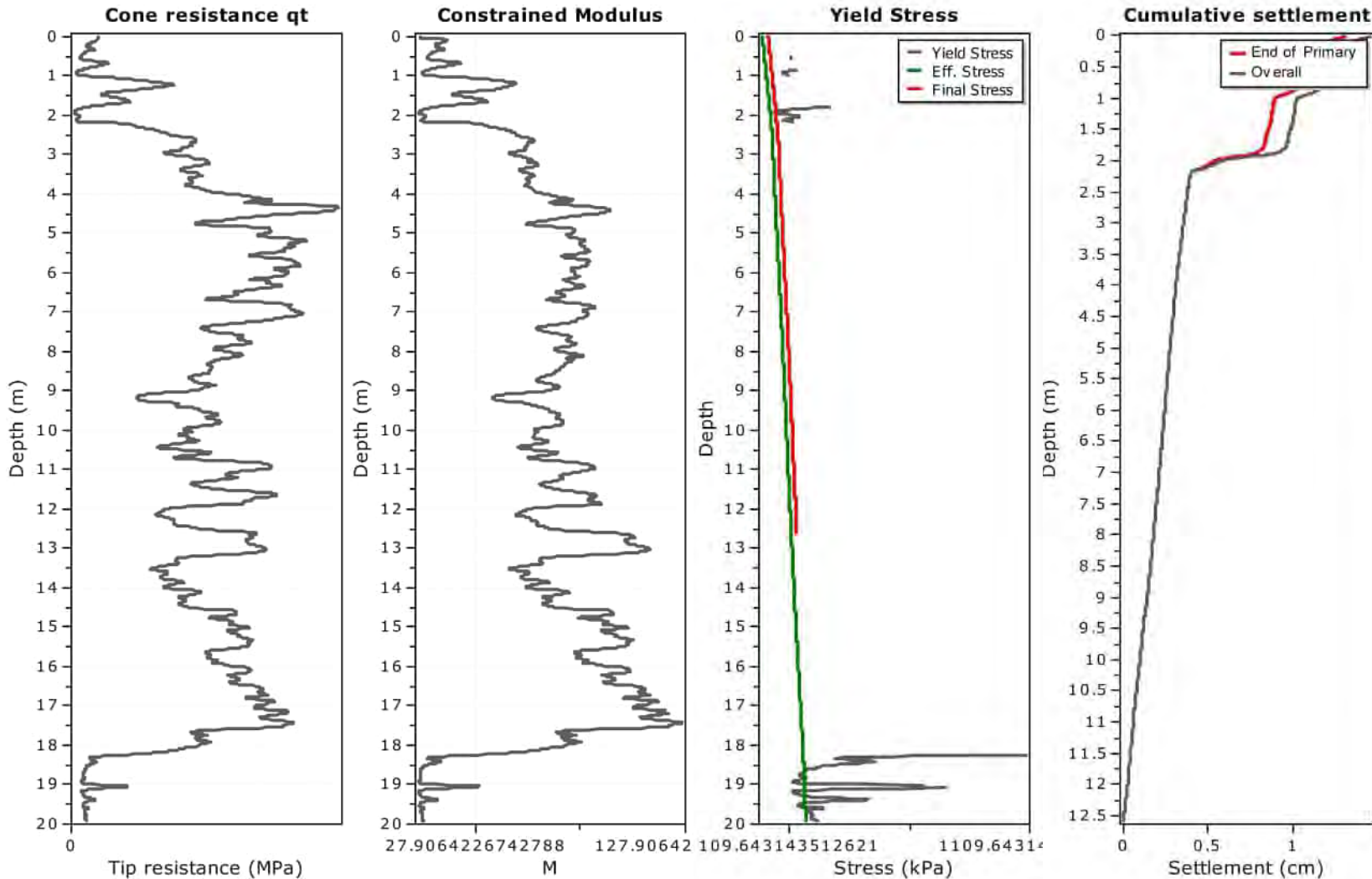
:: Tabular results ::

Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	$M_{(CPT)}$ (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
139	1.39	1.40	0.01	1.39	5.00	21.22	1.00	0.000	0.000	0.000
140	1.40	1.41	0.01	1.40	5.00	21.54	1.00	0.000	0.000	0.000
141	1.41	1.42	0.01	1.41	5.00	21.62	1.00	0.000	0.000	0.000
142	1.42	1.43	0.01	1.42	5.00	21.52	1.00	0.000	0.000	0.000
143	1.43	1.44	0.01	1.43	5.00	21.28	1.00	0.000	0.000	0.000
144	1.44	1.45	0.01	1.44	5.00	20.84	1.00	0.000	0.000	0.000
145	1.45	1.46	0.01	1.45	5.00	19.97	1.00	0.000	0.000	0.000
146	1.46	1.47	0.01	1.46	5.00	19.00	1.00	0.000	0.000	0.000
147	1.47	1.48	0.01	1.47	5.00	18.04	1.00	0.000	0.000	0.000

Total primary settlement: 0.05**Total secondary settlement: 0.00****Total calculated settlement: 0.05****Abbreviations**

Start depth:	Start depth of soil layer (penetration depth measured from ground free surface)
End depth:	End depth of soil layer (penetration depth measured from ground free surface)
Thickness:	Thickness of soil layer
Relative depth:	Depth of calculation relative to footing
Iz:	Stress influence factor
Delta P:	Footing imposed stress:
Eff. stress:	Effective stress
$M_{(CPT)}$:	Constrained modulus from CPT
Settlement:	Primary settlement
Second. settlement:	Secondary settlement due to creep

Settlements calculation according to theory of elasticity*



Calculation properties

Footing type: Rectangular
Footing width: 100.00 (m)
L/B: 1.0
Footing pressure: 24.00 (kPa)
Embedment depth: 0.00 (m)
Footing is rigid: No
Remove excavation load: No
Apply 20% rule: Yes
Calculate secondary settlements: Yes
Time period for primary consolidation: 6 months
Time period for second. settlements: 1200 months

* Primary settlement calculation is performed according to the following formula:

$$S = \sum \frac{\Delta \sigma_v}{M_{CPT}} \Delta z$$

* Secondary (creep) settlement calculation is performed according to the following formula:

$$S_c = S_p \left(\frac{t}{t_p} \right)^n$$

where t_p is the duration of primary consolidation

:: Tabular results ::

Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1	0.01	0.02	0.01	0.01	24.00	1.69	1.00	0.014	0.000	0.014
2	0.02	0.03	0.01	0.03	24.00	1.70	1.00	0.014	0.000	0.014
3	0.03	0.04	0.01	0.04	24.00	1.70	1.00	0.014	0.000	0.014
4	0.04	0.05	0.01	0.04	24.00	1.70	1.00	0.014	0.000	0.014
5	0.05	0.06	0.01	0.06	24.00	1.69	1.00	0.014	0.000	0.014
6	0.06	0.07	0.01	0.07	24.00	1.67	1.00	0.014	0.000	0.014
7	0.07	0.08	0.01	0.07	24.00	11.32	1.00	0.002	0.000	0.002
8	0.08	0.09	0.01	0.09	24.00	14.42	1.00	0.002	0.000	0.002
9	0.09	0.10	0.01	0.09	24.00	14.32	1.00	0.002	0.000	0.002
10	0.10	0.11	0.01	0.10	24.00	14.11	1.00	0.002	0.000	0.002
11	0.11	0.12	0.01	0.12	24.00	13.80	1.00	0.002	0.000	0.002
12	0.12	0.13	0.01	0.13	24.00	13.41	1.00	0.002	0.000	0.002
13	0.13	0.14	0.01	0.14	24.00	12.85	1.00	0.002	0.000	0.002
14	0.14	0.15	0.01	0.14	24.00	12.26	1.00	0.002	0.000	0.002
15	0.15	0.16	0.01	0.15	24.00	11.64	1.00	0.002	0.000	0.002
16	0.16	0.17	0.01	0.17	24.00	11.03	1.00	0.002	0.000	0.002
17	0.17	0.18	0.01	0.17	24.00	10.42	1.00	0.002	0.000	0.002
18	0.18	0.19	0.01	0.18	24.00	9.86	1.00	0.002	0.000	0.002
19	0.19	0.20	0.01	0.20	24.00	9.34	1.00	0.003	0.000	0.003
20	0.20	0.21	0.01	0.20	24.00	8.92	1.00	0.003	0.000	0.003
21	0.21	0.22	0.01	0.21	24.00	8.62	1.00	0.003	0.000	0.003
22	0.22	0.23	0.01	0.23	24.00	8.48	1.00	0.003	0.000	0.003
23	0.23	0.24	0.01	0.24	24.00	8.45	1.00	0.003	0.000	0.003
24	0.24	0.25	0.01	0.25	24.00	8.57	1.00	0.003	0.000	0.003
25	0.25	0.26	0.01	0.26	24.00	8.78	1.00	0.003	0.000	0.003
26	0.26	0.27	0.01	0.27	24.00	9.13	1.00	0.003	0.000	0.003
27	0.27	0.28	0.01	0.28	24.00	9.60	1.00	0.003	0.000	0.003
28	0.28	0.29	0.01	0.28	24.00	10.16	1.00	0.002	0.000	0.002
29	0.29	0.30	0.01	0.29	24.00	10.81	1.00	0.002	0.000	0.002
30	0.30	0.31	0.01	0.30	24.00	11.45	1.00	0.002	0.000	0.002
31	0.31	0.32	0.01	0.32	24.00	12.12	1.00	0.002	0.000	0.002
32	0.32	0.33	0.01	0.33	24.00	12.63	1.00	0.002	0.000	0.002
33	0.33	0.34	0.01	0.34	24.00	12.80	1.00	0.002	0.000	0.002
34	0.34	0.35	0.01	0.34	24.00	12.55	1.00	0.002	0.000	0.002
35	0.35	0.36	0.01	0.35	24.00	11.79	1.00	0.002	0.000	0.002
36	0.36	0.37	0.01	0.36	24.00	10.82	1.00	0.002	0.000	0.002
37	0.37	0.38	0.01	0.37	24.00	9.62	1.00	0.002	0.000	0.002
38	0.38	0.39	0.01	0.38	24.00	8.69	1.00	0.003	0.000	0.003
39	0.39	0.40	0.01	0.39	24.00	8.01	1.00	0.003	0.000	0.003
40	0.40	0.41	0.01	0.40	24.00	7.64	1.00	0.003	0.000	0.003
41	0.41	0.42	0.01	0.41	24.00	7.28	1.00	0.003	0.000	0.003
42	0.42	0.43	0.01	0.42	24.00	6.86	1.00	0.003	0.000	0.003
43	0.43	0.44	0.01	0.43	24.00	6.50	1.00	0.004	0.000	0.004
44	0.44	0.45	0.01	0.44	24.00	6.20	1.00	0.004	0.000	0.004
45	0.45	0.46	0.01	0.45	24.00	5.99	1.00	0.004	0.000	0.004
46	0.46	0.47	0.01	0.46	24.00	5.77	1.00	0.004	0.000	0.004

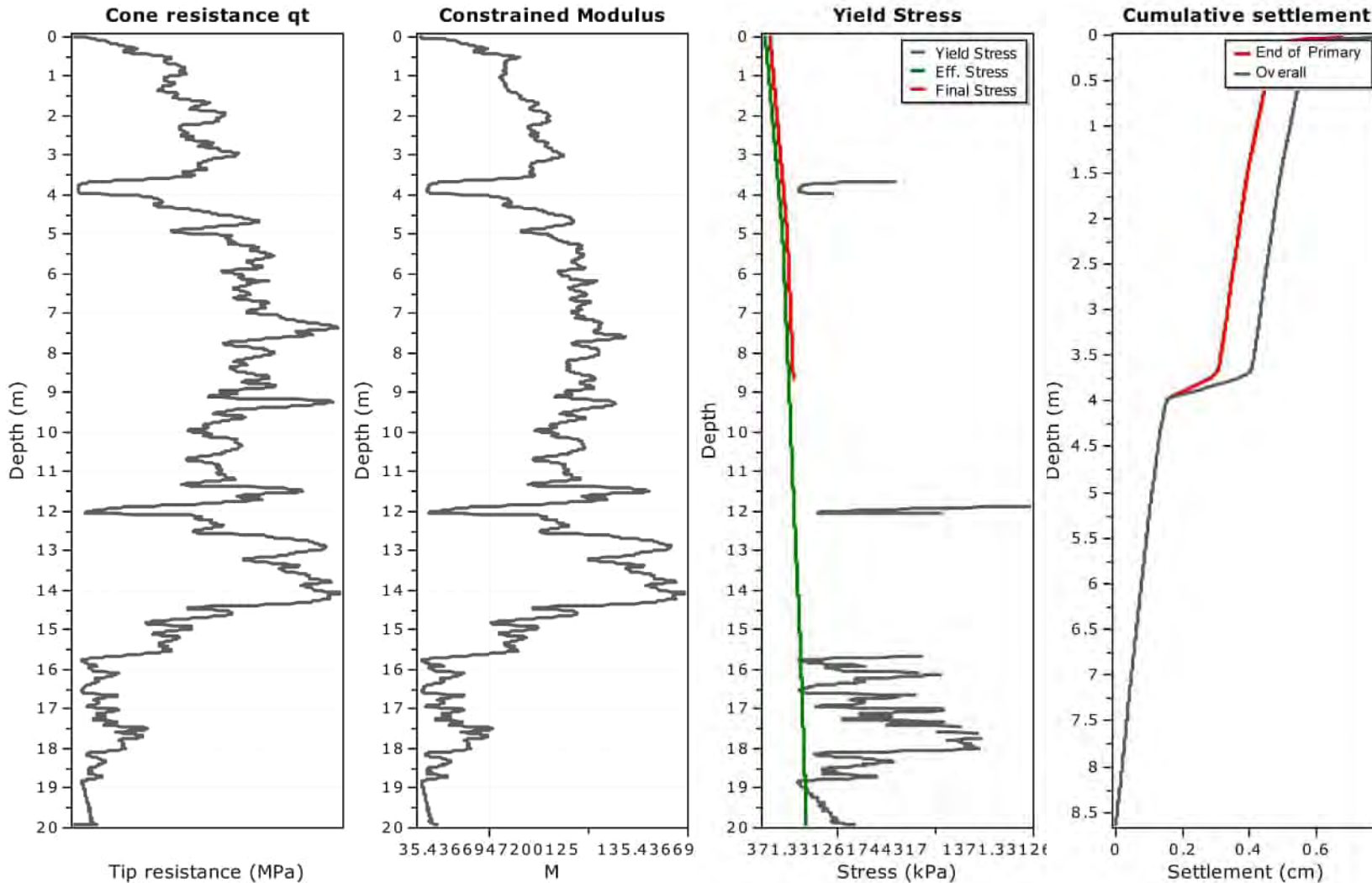
:: Tabular results ::

Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1243	12.43	12.44	0.01	12.44	23.74	58.79	0.99	0.000	0.000	0.000
1244	12.44	12.45	0.01	12.45	23.74	59.86	0.99	0.000	0.000	0.000
1245	12.45	12.46	0.01	12.46	23.74	60.71	0.99	0.000	0.000	0.000
1246	12.46	12.47	0.01	12.47	23.74	61.09	0.99	0.000	0.000	0.000
1247	12.47	12.48	0.01	12.48	23.74	61.43	0.99	0.000	0.000	0.000
1248	12.48	12.49	0.01	12.49	23.74	61.77	0.99	0.000	0.000	0.000
1249	12.49	12.50	0.01	12.50	23.74	62.28	0.99	0.000	0.000	0.000
1250	12.50	12.51	0.01	12.51	23.74	63.30	0.99	0.000	0.000	0.000
1251	12.51	12.52	0.01	12.52	23.74	64.44	0.99	0.000	0.000	0.000
1252	12.52	12.53	0.01	12.53	23.74	65.75	0.99	0.000	0.000	0.000
1253	12.53	12.54	0.01	12.54	23.74	67.74	0.99	0.000	0.000	0.000
1254	12.54	12.55	0.01	12.55	23.74	69.99	0.99	0.000	0.000	0.000
1255	12.55	12.56	0.01	12.56	23.74	73.14	0.99	0.000	0.000	0.000
1256	12.56	12.57	0.01	12.57	23.74	76.22	0.99	0.000	0.000	0.000
1257	12.57	12.58	0.01	12.58	23.74	78.91	0.99	0.000	0.000	0.000
1258	12.58	12.59	0.01	12.59	23.73	81.37	0.99	0.000	0.000	0.000

Total primary settlement: 1.31**Total secondary settlement: 0.15****Total calculated settlement: 1.46****Abbreviations**

Start depth:	Start depth of soil layer (penetration depth measured from ground free surface)
End depth:	End depth of soil layer (penetration depth measured from ground free surface)
Thickness:	Thickness of soil layer
Relative depth:	Depth of calculation relative to footing
Iz:	Stress influence factor
Delta P:	Footing imposed stress:
Eff. stress:	Effective stress
M _(CPT) :	Constrained modulus from CPT
Settlement:	Primary settlement
Second. settlement:	Secondary settlements due to creep

Settlements calculation according to theory of elasticity*



Calculation properties

Footing type: Rectangular
Footing width: 100.00 (m)
L/B: 1.0
Footing pressure: 24.00 (kPa)
Embedment depth: 0.00 (m)
Footing is rigid: No
Remove excavation load: No
Apply 20% rule: Yes
Calculate secondary settlements: Yes
Time period for primary consolidation: 6 months
Time period for second. settlements: 1200 months

* Primary settlement calculation is performed according to the following formula:

$$S = \sum \frac{\Delta \sigma_v}{M_{CPT}} \Delta z$$

* Secondary (creep) settlement calculation is performed according to the following formula:

$$S_c = S_p \left(\frac{t}{t_p} \right)^n$$

where t_p is the duration of primary consolidation

:: Tabular results ::

Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1	0.01	0.02	0.01	0.01	24.00	0.35	1.00	0.069	0.000	0.069
2	0.02	0.03	0.01	0.03	24.00	0.58	1.00	0.041	0.000	0.041
3	0.03	0.04	0.01	0.04	24.00	0.92	1.00	0.026	0.000	0.026
4	0.04	0.05	0.01	0.04	24.00	1.28	1.00	0.019	0.000	0.019
5	0.05	0.06	0.01	0.06	24.00	1.40	1.00	0.017	0.000	0.017
6	0.06	0.07	0.01	0.07	24.00	1.47	1.00	0.016	0.000	0.016
7	0.07	0.08	0.01	0.07	24.00	11.85	1.00	0.002	0.000	0.002
8	0.08	0.09	0.01	0.09	24.00	14.49	1.00	0.002	0.000	0.002
9	0.09	0.10	0.01	0.09	24.00	16.05	1.00	0.001	0.000	0.001
10	0.10	0.11	0.01	0.10	24.00	17.46	1.00	0.001	0.000	0.001
11	0.11	0.12	0.01	0.12	24.00	18.49	1.00	0.001	0.000	0.001
12	0.12	0.13	0.01	0.13	24.00	18.92	1.00	0.001	0.000	0.001
13	0.13	0.14	0.01	0.14	24.00	19.23	1.00	0.001	0.000	0.001
14	0.14	0.15	0.01	0.14	24.00	19.59	1.00	0.001	0.000	0.001
15	0.15	0.16	0.01	0.15	24.00	20.10	1.00	0.001	0.000	0.001
16	0.16	0.17	0.01	0.17	24.00	20.71	1.00	0.001	0.000	0.001
17	0.17	0.18	0.01	0.17	24.00	21.47	1.00	0.001	0.000	0.001
18	0.18	0.19	0.01	0.18	24.00	22.25	1.00	0.001	0.000	0.001
19	0.19	0.20	0.01	0.20	24.00	23.18	1.00	0.001	0.000	0.001
20	0.20	0.21	0.01	0.20	24.00	24.09	1.00	0.001	0.000	0.001
21	0.21	0.22	0.01	0.21	24.00	25.06	1.00	0.001	0.000	0.001
22	0.22	0.23	0.01	0.23	24.00	25.93	1.00	0.001	0.000	0.001
23	0.23	0.24	0.01	0.24	24.00	26.69	1.00	0.001	0.000	0.001
24	0.24	0.25	0.01	0.25	24.00	27.43	1.00	0.001	0.000	0.001
25	0.25	0.26	0.01	0.26	24.00	28.13	1.00	0.001	0.000	0.001
26	0.26	0.27	0.01	0.27	24.00	28.89	1.00	0.001	0.000	0.001
27	0.27	0.28	0.01	0.28	24.00	29.86	1.00	0.001	0.000	0.001
28	0.28	0.29	0.01	0.28	24.00	31.72	1.00	0.001	0.000	0.001
29	0.29	0.30	0.01	0.29	24.00	33.46	1.00	0.001	0.000	0.001
30	0.30	0.31	0.01	0.30	24.00	34.52	1.00	0.001	0.000	0.001
31	0.31	0.32	0.01	0.32	24.00	34.31	1.00	0.001	0.000	0.001
32	0.32	0.33	0.01	0.33	24.00	33.70	1.00	0.001	0.000	0.001
33	0.33	0.34	0.01	0.34	24.00	32.77	1.00	0.001	0.000	0.001
34	0.34	0.35	0.01	0.34	24.00	31.52	1.00	0.001	0.000	0.001
35	0.35	0.36	0.01	0.35	24.00	30.09	1.00	0.001	0.000	0.001
36	0.36	0.37	0.01	0.36	24.00	28.84	1.00	0.001	0.000	0.001
37	0.37	0.38	0.01	0.37	24.00	27.90	1.00	0.001	0.000	0.001
38	0.38	0.39	0.01	0.38	24.00	27.52	1.00	0.001	0.000	0.001
39	0.39	0.40	0.01	0.39	24.00	27.55	1.00	0.001	0.000	0.001
40	0.40	0.41	0.01	0.40	24.00	28.32	1.00	0.001	0.000	0.001
41	0.41	0.42	0.01	0.41	24.00	29.76	1.00	0.001	0.000	0.001
42	0.42	0.43	0.01	0.42	24.00	32.02	1.00	0.001	0.000	0.001
43	0.43	0.44	0.01	0.43	24.00	34.59	1.00	0.001	0.000	0.001
44	0.44	0.45	0.01	0.44	24.00	37.22	1.00	0.001	0.000	0.001
45	0.45	0.46	0.01	0.45	24.00	39.77	1.00	0.001	0.000	0.001
46	0.46	0.47	0.01	0.46	24.00	42.07	1.00	0.001	0.000	0.001

:: Tabular results ::

Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
829	8.29	8.30	0.01	8.30	23.92	75.83	1.00	0.000	0.000	0.000
830	8.30	8.31	0.01	8.31	23.92	76.15	1.00	0.000	0.000	0.000
831	8.31	8.32	0.01	8.32	23.92	76.07	1.00	0.000	0.000	0.000
832	8.32	8.33	0.01	8.33	23.92	75.58	1.00	0.000	0.000	0.000
833	8.33	8.34	0.01	8.34	23.92	75.06	1.00	0.000	0.000	0.000
834	8.34	8.35	0.01	8.35	23.92	74.66	1.00	0.000	0.000	0.000
835	8.35	8.36	0.01	8.36	23.92	74.79	1.00	0.000	0.000	0.000
836	8.36	8.37	0.01	8.37	23.92	75.38	1.00	0.000	0.000	0.000
837	8.37	8.38	0.01	8.38	23.92	76.04	1.00	0.000	0.000	0.000
838	8.38	8.39	0.01	8.39	23.92	76.29	1.00	0.000	0.000	0.000
839	8.39	8.40	0.01	8.40	23.92	75.97	1.00	0.000	0.000	0.000
840	8.40	8.41	0.01	8.41	23.92	75.33	1.00	0.000	0.000	0.000
841	8.41	8.42	0.01	8.42	23.92	74.81	1.00	0.000	0.000	0.000
842	8.42	8.43	0.01	8.43	23.92	74.50	1.00	0.000	0.000	0.000
843	8.43	8.44	0.01	8.44	23.92	74.61	1.00	0.000	0.000	0.000
844	8.44	8.45	0.01	8.45	23.92	74.84	1.00	0.000	0.000	0.000
845	8.45	8.46	0.01	8.46	23.92	75.25	1.00	0.000	0.000	0.000
846	8.46	8.47	0.01	8.47	23.92	75.62	1.00	0.000	0.000	0.000
847	8.47	8.48	0.01	8.48	23.92	76.20	1.00	0.000	0.000	0.000
848	8.48	8.49	0.01	8.49	23.92	76.88	1.00	0.000	0.000	0.000
849	8.49	8.50	0.01	8.50	23.91	77.62	1.00	0.000	0.000	0.000
850	8.50	8.51	0.01	8.51	23.91	78.26	1.00	0.000	0.000	0.000
851	8.51	8.52	0.01	8.52	23.91	79.04	1.00	0.000	0.000	0.000
852	8.52	8.53	0.01	8.53	23.91	80.07	1.00	0.000	0.000	0.000
853	8.53	8.54	0.01	8.54	23.91	81.13	1.00	0.000	0.000	0.000
854	8.54	8.55	0.01	8.55	23.91	82.12	1.00	0.000	0.000	0.000
855	8.55	8.56	0.01	8.56	23.91	83.03	1.00	0.000	0.000	0.000
856	8.56	8.57	0.01	8.57	23.91	84.16	1.00	0.000	0.000	0.000
857	8.57	8.58	0.01	8.58	23.91	85.07	1.00	0.000	0.000	0.000
858	8.58	8.59	0.01	8.59	23.91	85.89	1.00	0.000	0.000	0.000
859	8.59	8.60	0.01	8.60	23.91	86.41	1.00	0.000	0.000	0.000
860	8.60	8.61	0.01	8.61	23.91	87.00	1.00	0.000	0.000	0.000
861	8.61	8.62	0.01	8.62	23.91	87.58	1.00	0.000	0.000	0.000
862	8.62	8.63	0.01	8.63	23.91	88.13	1.00	0.000	0.000	0.000
863	8.63	8.64	0.01	8.64	23.91	88.61	1.00	0.000	0.000	0.000

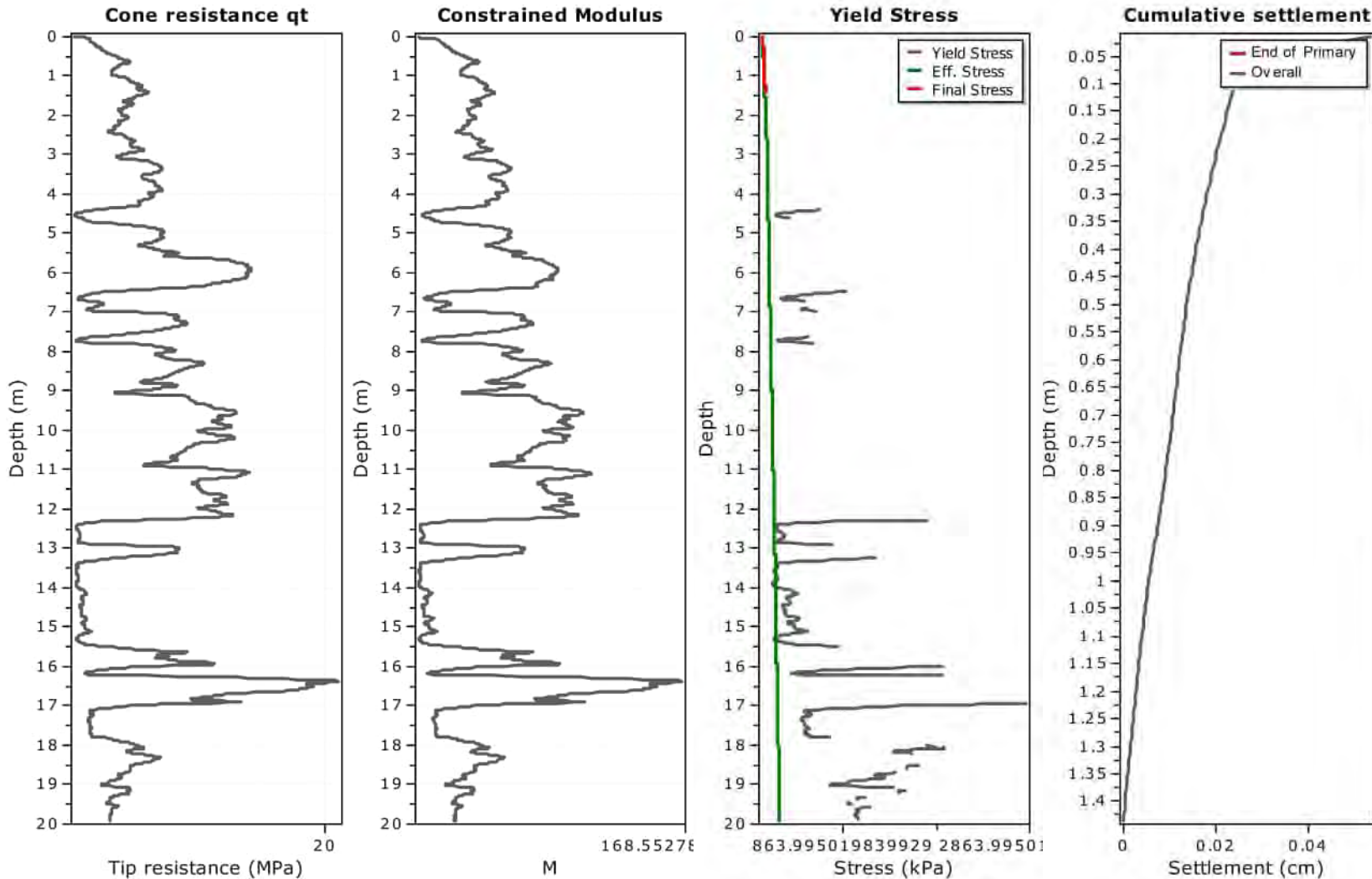
Total primary settlement: 0.68
Total secondary settlement: 0.10

Total calculated settlement: 0.78

Abbreviations

Start depth:	Start depth of soil layer (penetration depth measured from ground free surface)
End depth:	End depth of soil layer (penetration depth measured from ground free surface)
Thickness:	Thickness of soil layer
Relative depth:	Depth of calculation relative to footing
Iz:	Stress influence factor
Delta P:	Footing imposed stress:
Eff. stress:	Effective stress
M _(CPT) :	Constrained modulus from CPT
Settlement:	Primary settlement
Second. settlement:	Secondary settlements due to creep

Settlements calculation according to theory of elasticity*



Calculation properties

Footing type: Rectangular
Footing width: 100.00 (m)
L/B: 1.0
Footing pressure: 5.00 (kPa)
Embedment depth: 0.00 (m)
Footing is rigid: No
Remove excavation load: No
Apply 20% rule: Yes
Calculate secondary settlements: Yes
Time period for primary consolidation: 6 months
Time period for second. settlements: 1200 months

* Primary settlement calculation is performed according to the following formula:

$$S = \sum \frac{\Delta \sigma_v}{M_{CPT}} \Delta z$$

* Secondary (creep) settlement calculation is performed according to the following formula:

$$S_c = S_p \left(\frac{t}{t_p} \right)^n$$

where t_p is the duration of primary consolidation

:: Tabular results ::

Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1	0.01	0.02	0.01	0.01	5.00	0.72	1.00	0.007	0.000	0.007
2	0.02	0.03	0.01	0.03	5.00	0.90	1.00	0.006	0.000	0.006
3	0.03	0.04	0.01	0.04	5.00	1.14	1.00	0.004	0.000	0.004
4	0.04	0.05	0.01	0.04	5.00	1.29	1.00	0.004	0.000	0.004
5	0.05	0.06	0.01	0.06	5.00	1.39	1.00	0.004	0.000	0.004
6	0.06	0.07	0.01	0.07	5.00	1.44	1.00	0.003	0.000	0.003
7	0.07	0.08	0.01	0.07	5.00	10.67	1.00	0.000	0.000	0.000
8	0.08	0.09	0.01	0.09	5.00	13.18	1.00	0.000	0.000	0.000
9	0.09	0.10	0.01	0.09	5.00	13.29	1.00	0.000	0.000	0.000
10	0.10	0.11	0.01	0.10	5.00	13.42	1.00	0.000	0.000	0.000
11	0.11	0.12	0.01	0.12	5.00	13.58	1.00	0.000	0.000	0.000
12	0.12	0.13	0.01	0.13	5.00	13.91	1.00	0.000	0.000	0.000
13	0.13	0.14	0.01	0.14	5.00	14.29	1.00	0.000	0.000	0.000
14	0.14	0.15	0.01	0.14	5.00	14.62	1.00	0.000	0.000	0.000
15	0.15	0.16	0.01	0.15	5.00	14.94	1.00	0.000	0.000	0.000
16	0.16	0.17	0.01	0.17	5.00	15.24	1.00	0.000	0.000	0.000
17	0.17	0.18	0.01	0.17	5.00	15.68	1.00	0.000	0.000	0.000
18	0.18	0.19	0.01	0.18	5.00	16.07	1.00	0.000	0.000	0.000
19	0.19	0.20	0.01	0.20	5.00	16.47	1.00	0.000	0.000	0.000
20	0.20	0.21	0.01	0.20	5.00	16.82	1.00	0.000	0.000	0.000
21	0.21	0.22	0.01	0.21	5.00	17.06	1.00	0.000	0.000	0.000
22	0.22	0.23	0.01	0.23	5.00	17.25	1.00	0.000	0.000	0.000
23	0.23	0.24	0.01	0.24	5.00	17.43	1.00	0.000	0.000	0.000
24	0.24	0.25	0.01	0.25	5.00	17.68	1.00	0.000	0.000	0.000
25	0.25	0.26	0.01	0.26	5.00	18.06	1.00	0.000	0.000	0.000
26	0.26	0.27	0.01	0.27	5.00	18.58	1.00	0.000	0.000	0.000
27	0.27	0.28	0.01	0.28	5.00	19.06	1.00	0.000	0.000	0.000
28	0.28	0.29	0.01	0.28	5.00	19.41	1.00	0.000	0.000	0.000
29	0.29	0.30	0.01	0.29	5.00	19.66	1.00	0.000	0.000	0.000
30	0.30	0.31	0.01	0.30	5.00	19.87	1.00	0.000	0.000	0.000
31	0.31	0.32	0.01	0.32	5.00	20.09	1.00	0.000	0.000	0.000
32	0.32	0.33	0.01	0.33	5.00	20.33	1.00	0.000	0.000	0.000
33	0.33	0.34	0.01	0.34	5.00	20.46	1.00	0.000	0.000	0.000
34	0.34	0.35	0.01	0.34	5.00	20.59	1.00	0.000	0.000	0.000
35	0.35	0.36	0.01	0.35	5.00	20.73	1.00	0.000	0.000	0.000
36	0.36	0.37	0.01	0.36	5.00	21.12	1.00	0.000	0.000	0.000
37	0.37	0.38	0.01	0.37	5.00	21.62	1.00	0.000	0.000	0.000
38	0.38	0.39	0.01	0.38	5.00	22.33	1.00	0.000	0.000	0.000
39	0.39	0.40	0.01	0.39	5.00	22.90	1.00	0.000	0.000	0.000
40	0.40	0.41	0.01	0.40	5.00	23.38	1.00	0.000	0.000	0.000
41	0.41	0.42	0.01	0.41	5.00	23.65	1.00	0.000	0.000	0.000
42	0.42	0.43	0.01	0.42	5.00	24.07	1.00	0.000	0.000	0.000
43	0.43	0.44	0.01	0.43	5.00	24.62	1.00	0.000	0.000	0.000
44	0.44	0.45	0.01	0.44	5.00	25.34	1.00	0.000	0.000	0.000
45	0.45	0.46	0.01	0.45	5.00	26.14	1.00	0.000	0.000	0.000
46	0.46	0.47	0.01	0.46	5.00	26.94	1.00	0.000	0.000	0.000

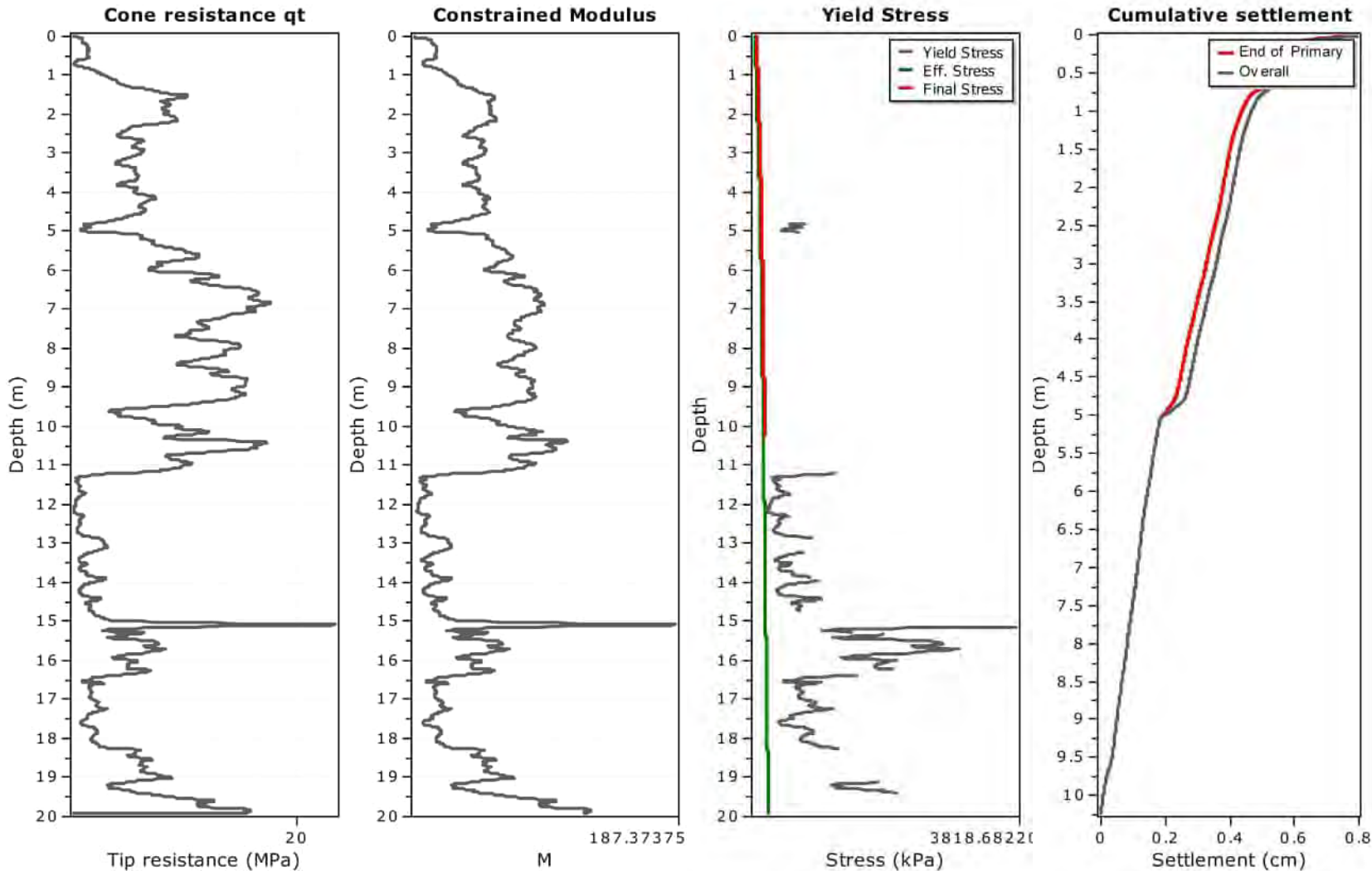
:: Tabular results ::

Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	$M_{(CPT)}$ (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
139	1.39	1.40	0.01	1.39	5.00	46.02	1.00	0.000	0.000	0.000
140	1.40	1.41	0.01	1.40	5.00	46.70	1.00	0.000	0.000	0.000
141	1.41	1.42	0.01	1.41	5.00	47.21	1.00	0.000	0.000	0.000
142	1.42	1.43	0.01	1.42	5.00	47.50	1.00	0.000	0.000	0.000
143	1.43	1.44	0.01	1.43	5.00	47.71	1.00	0.000	0.000	0.000

Total primary settlement: 0.05**Total secondary settlement: 0.00****Total calculated settlement: 0.05****Abbreviations**

Start depth:	Start depth of soil layer (penetration depth measured from ground free surface)
End depth:	End depth of soil layer (penetration depth measured from ground free surface)
Thickness:	Thickness of soil layer
Relative depth:	Depth of calculation relative to footing
Iz:	Stress influence factor
Delta P:	Footing imposed stress:
Eff. stress:	Effective stress
$M_{(CPT)}$:	Constrained modulus from CPT
Settlement:	Primary settlement
Second. settlement:	Secondary settlements due to creep

Settlements calculation according to theory of elasticity*



Calculation properties

Footing type: Rectangular
Footing width: 100.00 (m)
L/B: 1.0
Footing pressure: 24.00 (kPa)
Embedment depth: 0.00 (m)
Footing is rigid: No
Remove excavation load: No
Apply 20% rule: Yes
Calculate secondary settlements: Yes
Time period for primary consolidation: 6 months
Time period for second. settlements: 1200 months

* Primary settlement calculation is performed according to the following formula:

$$S = \sum \frac{\Delta \sigma_v}{M_{CPT}} \Delta z$$

* Secondary (creep) settlement calculation is performed according to the following formula:

$$S_c = S_p \left(\frac{t}{t_p} \right)^n$$

where t_p is the duration of primary consolidation

:: Tabular results ::

Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1	0.01	0.02	0.01	0.01	24.00	0.69	1.00	0.035	0.000	0.035
2	0.02	0.03	0.01	0.03	24.00	0.81	1.00	0.030	0.000	0.030
3	0.03	0.04	0.01	0.04	24.00	0.98	1.00	0.024	0.000	0.024
4	0.04	0.05	0.01	0.04	24.00	1.11	1.00	0.022	0.000	0.022
5	0.05	0.06	0.01	0.06	24.00	1.19	1.00	0.020	0.000	0.020
6	0.06	0.07	0.01	0.07	24.00	1.24	1.00	0.019	0.000	0.019
7	0.07	0.08	0.01	0.07	24.00	8.45	1.00	0.003	0.000	0.003
8	0.08	0.09	0.01	0.09	24.00	9.57	1.00	0.003	0.000	0.003
9	0.09	0.10	0.01	0.09	24.00	10.87	1.00	0.002	0.000	0.002
10	0.10	0.11	0.01	0.10	24.00	11.65	1.00	0.002	0.000	0.002
11	0.11	0.12	0.01	0.12	24.00	11.90	1.00	0.002	0.000	0.002
12	0.12	0.13	0.01	0.13	24.00	12.01	1.00	0.002	0.000	0.002
13	0.13	0.14	0.01	0.14	24.00	12.10	1.00	0.002	0.000	0.002
14	0.14	0.15	0.01	0.14	24.00	12.17	1.00	0.002	0.000	0.002
15	0.15	0.16	0.01	0.15	24.00	12.22	1.00	0.002	0.000	0.002
16	0.16	0.17	0.01	0.17	24.00	12.37	1.00	0.002	0.000	0.002
17	0.17	0.18	0.01	0.17	24.00	12.61	1.00	0.002	0.000	0.002
18	0.18	0.19	0.01	0.18	24.00	12.96	1.00	0.002	0.000	0.002
19	0.19	0.20	0.01	0.20	24.00	13.32	1.00	0.002	0.000	0.002
20	0.20	0.21	0.01	0.20	24.00	13.71	1.00	0.002	0.000	0.002
21	0.21	0.22	0.01	0.21	24.00	14.07	1.00	0.002	0.000	0.002
22	0.22	0.23	0.01	0.23	24.00	14.41	1.00	0.002	0.000	0.002
23	0.23	0.24	0.01	0.24	24.00	14.56	1.00	0.002	0.000	0.002
24	0.24	0.25	0.01	0.25	24.00	14.77	1.00	0.002	0.000	0.002
25	0.25	0.26	0.01	0.26	24.00	15.41	1.00	0.002	0.000	0.002
26	0.26	0.27	0.01	0.27	24.00	15.64	1.00	0.002	0.000	0.002
27	0.27	0.28	0.01	0.28	24.00	15.70	1.00	0.002	0.000	0.002
28	0.28	0.29	0.01	0.28	24.00	15.80	1.00	0.002	0.000	0.002
29	0.29	0.30	0.01	0.29	24.00	15.89	1.00	0.002	0.000	0.002
30	0.30	0.31	0.01	0.30	24.00	15.98	1.00	0.002	0.000	0.002
31	0.31	0.32	0.01	0.32	24.00	15.94	1.00	0.002	0.000	0.002
32	0.32	0.33	0.01	0.33	24.00	15.87	1.00	0.002	0.000	0.002
33	0.33	0.34	0.01	0.34	24.00	15.83	1.00	0.002	0.000	0.002
34	0.34	0.35	0.01	0.34	24.00	15.88	1.00	0.002	0.000	0.002
35	0.35	0.36	0.01	0.35	24.00	15.92	1.00	0.002	0.000	0.002
36	0.36	0.37	0.01	0.36	24.00	15.99	1.00	0.002	0.000	0.002
37	0.37	0.38	0.01	0.37	24.00	16.00	1.00	0.002	0.000	0.002
38	0.38	0.39	0.01	0.38	24.00	15.96	1.00	0.002	0.000	0.002
39	0.39	0.40	0.01	0.39	24.00	15.88	1.00	0.002	0.000	0.002
40	0.40	0.41	0.01	0.40	24.00	15.80	1.00	0.002	0.000	0.002
41	0.41	0.42	0.01	0.41	24.00	15.74	1.00	0.002	0.000	0.002
42	0.42	0.43	0.01	0.42	24.00	15.67	1.00	0.002	0.000	0.002
43	0.43	0.44	0.01	0.43	24.00	15.62	1.00	0.002	0.000	0.002
44	0.44	0.45	0.01	0.44	24.00	15.55	1.00	0.002	0.000	0.002
45	0.45	0.46	0.01	0.45	24.00	15.44	1.00	0.002	0.000	0.002
46	0.46	0.47	0.01	0.46	24.00	15.34	1.00	0.002	0.000	0.002

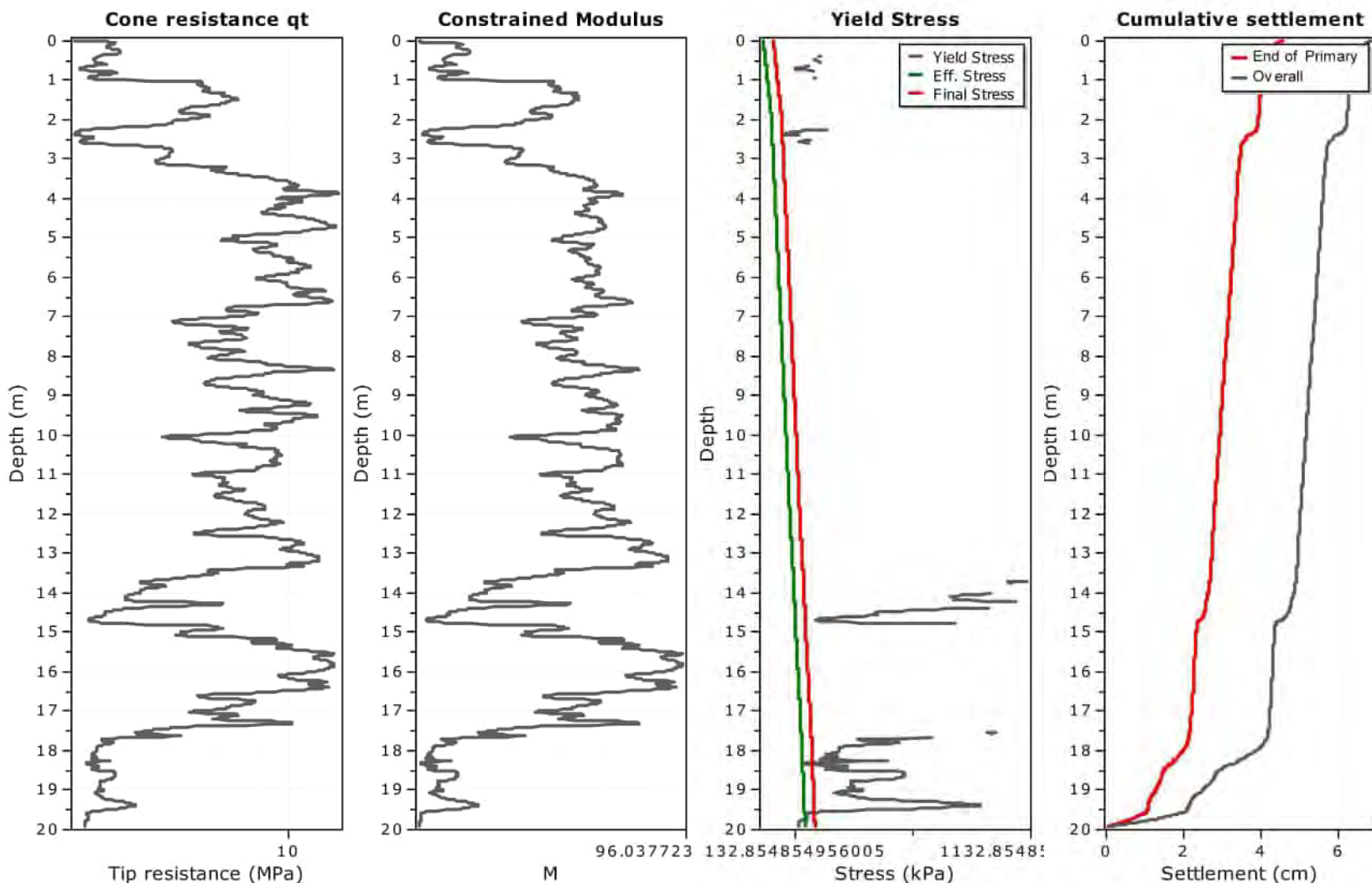
:: Tabular results ::

Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1013	10.13	10.14	0.01	10.14	23.86	89.73	0.99	0.000	0.000	0.000
1014	10.14	10.15	0.01	10.15	23.86	91.44	0.99	0.000	0.000	0.000
1015	10.15	10.16	0.01	10.16	23.86	86.97	0.99	0.000	0.000	0.000
1016	10.16	10.17	0.01	10.17	23.86	84.39	0.99	0.000	0.000	0.000
1017	10.17	10.18	0.01	10.18	23.86	82.08	0.99	0.000	0.000	0.000
1018	10.18	10.19	0.01	10.19	23.86	85.40	0.99	0.000	0.000	0.000
1019	10.19	10.20	0.01	10.20	23.86	86.78	0.99	0.000	0.000	0.000
1020	10.20	10.21	0.01	10.21	23.85	86.47	0.99	0.000	0.000	0.000
1021	10.21	10.22	0.01	10.22	23.85	83.79	0.99	0.000	0.000	0.000
1022	10.22	10.23	0.01	10.23	23.85	81.05	0.99	0.000	0.000	0.000
1023	10.23	10.24	0.01	10.24	23.85	78.42	0.99	0.000	0.000	0.000

Total primary settlement: 0.76**Total secondary settlement: 0.03****Total calculated settlement: 0.79****Abbreviations**

Start depth:	Start depth of soil layer (penetration depth measured from ground free surface)
End depth:	End depth of soil layer (penetration depth measured from ground free surface)
Thickness:	Thickness of soil layer
Relative depth:	Depth of calculation relative to footing
Iz:	Stress influence factor
Delta P:	Footing imposed stress:
Eff. stress:	Effective stress
M _(CPT) :	Constrained modulus from CPT
Settlement:	Primary settlement
Second. settlement:	Secondary settlements due to creep

Settlements calculation according to theory of elasticity*



Calculation properties

Footing type: Rectangular
Footing width: 100.00 (m)
L/B: 1.0
Footing pressure: 43.00 (kPa)
Embedment depth: 0.00 (m)
Footing is rigid: No
Remove excavation load: No
Apply 20% rule: Yes
Calculate secondary settlements: Yes
Time period for primary consolidation: 6 months
Time period for second. settlements: 1200 months

* Primary settlement calculation is performed according to the following formula:

$$S = \sum \frac{\Delta \sigma_v}{M_{CPT}} \Delta z$$

* Secondary (creep) settlement calculation is performed according to the following formula:

$$S_c = S_p \left(\frac{t}{t_p} \right)^n$$

where t_p is the duration of primary consolidation

:: Tabular results ::

Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1	0.01	0.02	0.01	0.01	43.00	0.98	1.00	0.044	0.000	0.044
2	0.02	0.03	0.01	0.03	43.00	1.29	1.00	0.033	0.000	0.033
3	0.03	0.04	0.01	0.04	43.00	1.61	1.00	0.027	0.000	0.027
4	0.04	0.05	0.01	0.04	43.00	1.75	1.00	0.025	0.000	0.025
5	0.05	0.06	0.01	0.06	43.00	1.87	1.00	0.023	0.000	0.023
6	0.06	0.07	0.01	0.07	43.00	1.95	1.00	0.022	0.000	0.022
7	0.07	0.08	0.01	0.07	43.00	13.31	1.00	0.003	0.000	0.003
8	0.08	0.09	0.01	0.09	43.00	16.39	1.00	0.003	0.000	0.003
9	0.09	0.10	0.01	0.09	43.00	15.88	1.00	0.003	0.000	0.003
10	0.10	0.11	0.01	0.10	43.00	15.35	1.00	0.003	0.000	0.003
11	0.11	0.12	0.01	0.12	43.00	14.96	1.00	0.003	0.000	0.003
12	0.12	0.13	0.01	0.13	43.00	14.65	1.00	0.003	0.000	0.003
13	0.13	0.14	0.01	0.14	43.00	14.38	1.00	0.003	0.000	0.003
14	0.14	0.15	0.01	0.14	43.00	14.16	1.00	0.003	0.000	0.003
15	0.15	0.16	0.01	0.15	43.00	14.07	1.00	0.003	0.000	0.003
16	0.16	0.17	0.01	0.17	43.00	14.05	1.00	0.003	0.000	0.003
17	0.17	0.18	0.01	0.17	43.00	14.14	1.00	0.003	0.000	0.003
18	0.18	0.19	0.01	0.18	43.00	14.35	1.00	0.003	0.000	0.003
19	0.19	0.20	0.01	0.20	43.00	14.93	1.00	0.003	0.000	0.003
20	0.20	0.21	0.01	0.20	43.00	15.57	1.00	0.003	0.000	0.003
21	0.21	0.22	0.01	0.21	43.00	16.27	1.00	0.003	0.000	0.003
22	0.22	0.23	0.01	0.23	43.00	16.85	1.00	0.003	0.000	0.003
23	0.23	0.24	0.01	0.24	43.00	17.61	1.00	0.002	0.000	0.002
24	0.24	0.25	0.01	0.25	43.00	18.31	1.00	0.002	0.000	0.002
25	0.25	0.26	0.01	0.26	43.00	18.78	1.00	0.002	0.000	0.002
26	0.26	0.27	0.01	0.27	43.00	18.97	1.00	0.002	0.000	0.002
27	0.27	0.28	0.01	0.28	43.00	18.98	1.00	0.002	0.000	0.002
28	0.28	0.29	0.01	0.28	43.00	19.00	1.00	0.002	0.000	0.002
29	0.29	0.30	0.01	0.29	43.00	18.99	1.00	0.002	0.000	0.002
30	0.30	0.31	0.01	0.30	43.00	19.00	1.00	0.002	0.000	0.002
31	0.31	0.32	0.01	0.32	43.00	18.96	1.00	0.002	0.000	0.002
32	0.32	0.33	0.01	0.33	43.00	18.68	1.00	0.002	0.000	0.002
33	0.33	0.34	0.01	0.34	43.00	17.96	1.00	0.002	0.000	0.002
34	0.34	0.35	0.01	0.34	43.00	16.81	1.00	0.003	0.000	0.003
35	0.35	0.36	0.01	0.35	43.00	15.73	1.00	0.003	0.000	0.003
36	0.36	0.37	0.01	0.36	43.00	14.46	1.00	0.003	0.000	0.003
37	0.37	0.38	0.01	0.37	43.00	13.19	1.00	0.003	0.000	0.003
38	0.38	0.39	0.01	0.38	43.00	11.96	1.00	0.004	0.000	0.004
39	0.39	0.40	0.01	0.39	43.00	11.39	1.00	0.004	0.000	0.004
40	0.40	0.41	0.01	0.40	43.00	11.19	1.00	0.004	0.000	0.004
41	0.41	0.42	0.01	0.41	43.00	10.99	1.00	0.004	0.000	0.004
42	0.42	0.43	0.01	0.42	43.00	10.64	1.00	0.004	0.000	0.004
43	0.43	0.44	0.01	0.43	43.00	10.25	1.00	0.004	0.000	0.004
44	0.44	0.45	0.01	0.44	43.00	9.86	1.00	0.004	0.000	0.004
45	0.45	0.46	0.01	0.45	43.00	9.69	1.00	0.004	0.000	0.004
46	0.46	0.47	0.01	0.46	43.00	9.44	1.00	0.005	0.000	0.005

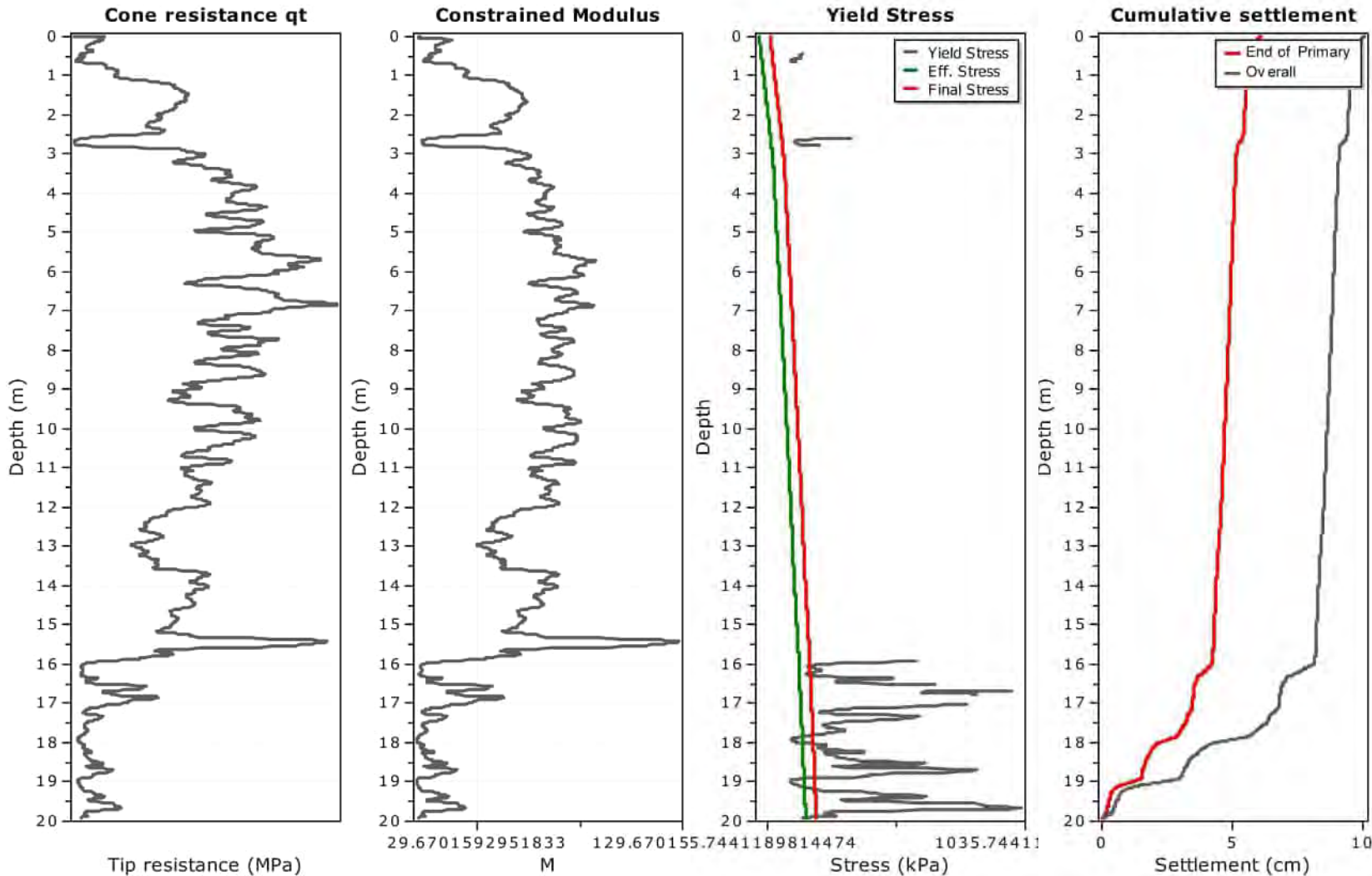
:: Tabular results ::

Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	$M_{(CPT)}$ (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1979	19.79	19.80	0.01	19.80	41.34	1.24	0.96	0.033	0.033	0.066
1980	19.80	19.81	0.01	19.81	41.34	1.21	0.96	0.034	0.033	0.067
1981	19.81	19.82	0.01	19.82	41.34	1.20	0.96	0.034	0.034	0.068
1982	19.82	19.83	0.01	19.83	41.34	1.19	0.96	0.035	0.034	0.069
1983	19.83	19.84	0.01	19.84	41.33	1.19	0.96	0.035	0.034	0.069
1984	19.84	19.85	0.01	19.85	41.33	1.18	0.96	0.035	0.034	0.069
1985	19.85	19.86	0.01	19.86	41.33	1.17	0.96	0.035	0.035	0.070
1986	19.86	19.87	0.01	19.87	41.33	1.16	0.96	0.036	0.035	0.071
1987	19.87	19.88	0.01	19.88	41.32	1.15	0.96	0.036	0.035	0.071
1988	19.88	19.89	0.01	19.89	41.32	1.15	0.96	0.036	0.035	0.071
1989	19.89	19.90	0.01	19.90	41.32	1.14	0.96	0.036	0.036	0.072
1990	19.90	19.91	0.01	19.91	41.32	1.14	0.96	0.036	0.036	0.072
1991	19.91	19.92	0.01	19.92	41.32	1.15	0.96	0.036	0.035	0.071

Total primary settlement: 4.56**Total secondary settlement: 2.30****Total calculated settlement: 6.86****Abbreviations**

Start depth:	Start depth of soil layer (penetration depth measured from ground free surface)
End depth:	End depth of soil layer (penetration depth measured from ground free surface)
Thickness:	Thickness of soil layer
Relative depth:	Depth of calculation relative to footing
Iz:	Stress influence factor
Delta P:	Footing imposed stress:
Eff. stress:	Effective stress
$M_{(CPT)}$:	Constrained modulus from CPT
Settlement:	Primary settlement
Second. settlement:	Secondary settlements due to creep

Settlements calculation according to theory of elasticity*



Calculation properties

Footing type: Rectangular
Footing width: 100.00 (m)
L/B: 1.0
Footing pressure: 43.00 (kPa)
Embedment depth: 0.00 (m)
Footing is rigid: No
Remove excavation load: No
Apply 20% rule: Yes
Calculate secondary settlements: Yes
Time period for primary consolidation: 6 months
Time period for second. settlements: 1200 months

* Primary settlement calculation is performed according to the following formula:

$$S = \sum \frac{\Delta \sigma_v}{M_{CPT}} \Delta z$$

* Secondary (creep) settlement calculation is performed according to the following formula:

$$S_c = S_p \left(\frac{t}{t_p} \right)^n$$

where t_p is the duration of primary consolidation

:: Tabular results ::

Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1	0.01	0.02	0.01	0.01	43.00	2.07	1.00	0.021	0.000	0.021
2	0.02	0.03	0.01	0.03	43.00	1.94	1.00	0.022	0.000	0.022
3	0.03	0.04	0.01	0.04	43.00	1.82	1.00	0.024	0.000	0.024
4	0.04	0.05	0.01	0.04	43.00	1.77	1.00	0.024	0.000	0.024
5	0.05	0.06	0.01	0.06	43.00	1.84	1.00	0.023	0.000	0.023
6	0.06	0.07	0.01	0.07	43.00	1.93	1.00	0.022	0.000	0.022
7	0.07	0.08	0.01	0.07	43.00	12.77	1.00	0.003	0.000	0.003
8	0.08	0.09	0.01	0.09	43.00	15.88	1.00	0.003	0.000	0.003
9	0.09	0.10	0.01	0.09	43.00	17.87	1.00	0.002	0.000	0.002
10	0.10	0.11	0.01	0.10	43.00	17.50	1.00	0.002	0.000	0.002
11	0.11	0.12	0.01	0.12	43.00	16.79	1.00	0.003	0.000	0.003
12	0.12	0.13	0.01	0.13	43.00	16.00	1.00	0.003	0.000	0.003
13	0.13	0.14	0.01	0.14	43.00	15.15	1.00	0.003	0.000	0.003
14	0.14	0.15	0.01	0.14	43.00	14.44	1.00	0.003	0.000	0.003
15	0.15	0.16	0.01	0.15	43.00	13.89	1.00	0.003	0.000	0.003
16	0.16	0.17	0.01	0.17	43.00	13.39	1.00	0.003	0.000	0.003
17	0.17	0.18	0.01	0.17	43.00	12.95	1.00	0.003	0.000	0.003
18	0.18	0.19	0.01	0.18	43.00	12.56	1.00	0.003	0.000	0.003
19	0.19	0.20	0.01	0.20	43.00	12.23	1.00	0.004	0.000	0.004
20	0.20	0.21	0.01	0.20	43.00	11.83	1.00	0.004	0.000	0.004
21	0.21	0.22	0.01	0.21	43.00	11.35	1.00	0.004	0.000	0.004
22	0.22	0.23	0.01	0.23	43.00	10.85	1.00	0.004	0.000	0.004
23	0.23	0.24	0.01	0.24	43.00	10.35	1.00	0.004	0.000	0.004
24	0.24	0.25	0.01	0.25	43.00	9.96	1.00	0.004	0.000	0.004
25	0.25	0.26	0.01	0.26	43.00	9.74	1.00	0.004	0.000	0.004
26	0.26	0.27	0.01	0.27	43.00	9.68	1.00	0.004	0.000	0.004
27	0.27	0.28	0.01	0.28	43.00	9.64	1.00	0.004	0.000	0.004
28	0.28	0.29	0.01	0.28	43.00	9.52	1.00	0.005	0.000	0.005
29	0.29	0.30	0.01	0.29	43.00	9.43	1.00	0.005	0.000	0.005
30	0.30	0.31	0.01	0.30	43.00	9.37	1.00	0.005	0.000	0.005
31	0.31	0.32	0.01	0.32	43.00	9.45	1.00	0.005	0.000	0.005
32	0.32	0.33	0.01	0.33	43.00	9.61	1.00	0.004	0.000	0.004
33	0.33	0.34	0.01	0.34	43.00	9.91	1.00	0.004	0.000	0.004
34	0.34	0.35	0.01	0.34	43.00	10.43	1.00	0.004	0.000	0.004
35	0.35	0.36	0.01	0.35	43.00	11.20	1.00	0.004	0.000	0.004
36	0.36	0.37	0.01	0.36	43.00	12.15	1.00	0.004	0.000	0.004
37	0.37	0.38	0.01	0.37	43.00	12.55	1.00	0.003	0.000	0.003
38	0.38	0.39	0.01	0.38	43.00	12.44	1.00	0.003	0.000	0.003
39	0.39	0.40	0.01	0.39	43.00	11.82	1.00	0.004	0.000	0.004
40	0.40	0.41	0.01	0.40	43.00	11.16	1.00	0.004	0.000	0.004
41	0.41	0.42	0.01	0.41	43.00	10.37	1.00	0.004	0.000	0.004
42	0.42	0.43	0.01	0.42	43.00	9.34	1.00	0.005	0.000	0.005
43	0.43	0.44	0.01	0.43	43.00	8.41	1.00	0.005	0.000	0.005
44	0.44	0.45	0.01	0.44	43.00	7.63	1.00	0.006	0.000	0.006
45	0.45	0.46	0.01	0.45	43.00	7.12	1.00	0.006	0.000	0.006
46	0.46	0.47	0.01	0.46	43.00	6.65	1.00	0.006	0.000	0.007

:: Tabular results ::

Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	$M_{(CPT)}$ (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1979	19.79	19.80	0.01	19.80	41.34	3.59	0.96	0.012	0.012	0.023
1980	19.80	19.81	0.01	19.81	41.34	3.39	0.96	0.012	0.012	0.024
1981	19.81	19.82	0.01	19.82	41.34	3.30	0.96	0.013	0.013	0.025
1982	19.82	19.83	0.01	19.83	41.34	3.36	0.96	0.012	0.012	0.025
1983	19.83	19.84	0.01	19.84	41.33	3.66	0.96	0.011	0.011	0.023
1984	19.84	19.85	0.01	19.85	41.33	4.07	0.96	0.010	0.010	0.020
1985	19.85	19.86	0.01	19.86	41.33	4.43	0.96	0.009	0.009	0.019
1986	19.86	19.87	0.01	19.87	41.33	4.50	0.96	0.009	0.009	0.018
1987	19.87	19.88	0.01	19.88	41.32	3.82	0.96	0.011	0.011	0.022
1988	19.88	19.89	0.01	19.89	41.32	2.93	0.96	0.014	0.014	0.028
1989	19.89	19.90	0.01	19.90	41.32	2.15	0.96	0.019	0.019	0.039
1990	19.90	19.91	0.01	19.91	41.32	1.76	0.96	0.024	0.024	0.047
1991	19.91	19.92	0.01	19.92	41.32	1.57	0.96	0.026	0.027	0.053

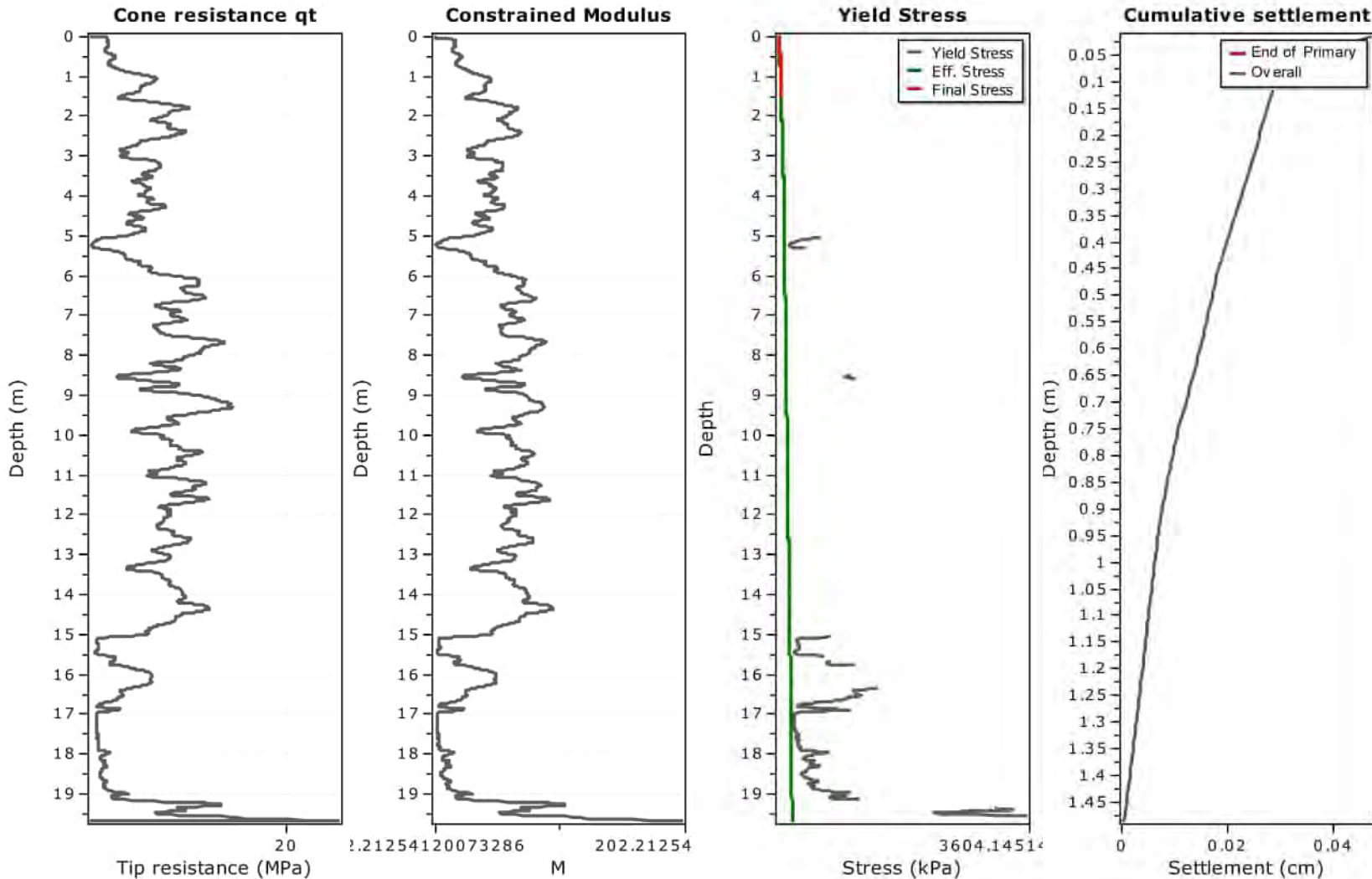
Total primary settlement: 6.11
Total secondary settlement: 3.98

Total calculated settlement: 10.09

Abbreviations

Start depth:	Start depth of soil layer (penetration depth measured from ground free surface)
End depth:	End depth of soil layer (penetration depth measured from ground free surface)
Thickness:	Thickness of soil layer
Relative depth:	Depth of calculation relative to footing
Iz:	Stress influence factor
Delta P:	Footing imposed stress:
Eff. stress:	Effective stress
$M_{(CPT)}$:	Constrained modulus from CPT
Settlement:	Primary settlement
Second. settlement:	Secondary settlements due to creep

Settlements calculation according to theory of elasticity*



Calculation properties

Footing type: Rectangular
Footing width: 100.00 (m)
L/B: 1.0
Footing pressure: 5.00 (kPa)
Embedment depth: 0.00 (m)
Footing is rigid: No
Remove excavation load: No
Apply 20% rule: Yes
Calculate secondary settlements: Yes
Time period for primary consolidation: 6 months
Time period for second. settlements: 1200 months

* Primary settlement calculation is performed according to the following formula:

$$S = \sum \frac{\Delta \sigma_v}{M_{CPT}} \Delta z$$

* Secondary (creep) settlement calculation is performed according to the following formula:

$$S_c = S_p \left(\frac{t}{t_p} \right)^n$$

where t_p is the duration of primary consolidation

:: Tabular results ::

Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1	0.01	0.02	0.01	0.01	5.00	1.57	1.00	0.003	0.000	0.003
2	0.02	0.03	0.01	0.03	5.00	1.67	1.00	0.003	0.000	0.003
3	0.03	0.04	0.01	0.04	5.00	1.78	1.00	0.003	0.000	0.003
4	0.04	0.05	0.01	0.04	5.00	1.81	1.00	0.003	0.000	0.003
5	0.05	0.06	0.01	0.06	5.00	1.82	1.00	0.003	0.000	0.003
6	0.06	0.07	0.01	0.07	5.00	1.84	1.00	0.003	0.000	0.003
7	0.07	0.08	0.01	0.07	5.00	12.27	1.00	0.000	0.000	0.000
8	0.08	0.09	0.01	0.09	5.00	15.89	1.00	0.000	0.000	0.000
9	0.09	0.10	0.01	0.09	5.00	17.26	1.00	0.000	0.000	0.000
10	0.10	0.11	0.01	0.10	5.00	17.37	1.00	0.000	0.000	0.000
11	0.11	0.12	0.01	0.12	5.00	17.29	1.00	0.000	0.000	0.000
12	0.12	0.13	0.01	0.13	5.00	17.12	1.00	0.000	0.000	0.000
13	0.13	0.14	0.01	0.14	5.00	16.91	1.00	0.000	0.000	0.000
14	0.14	0.15	0.01	0.14	5.00	16.78	1.00	0.000	0.000	0.000
15	0.15	0.16	0.01	0.15	5.00	16.75	1.00	0.000	0.000	0.000
16	0.16	0.17	0.01	0.17	5.00	16.79	1.00	0.000	0.000	0.000
17	0.17	0.18	0.01	0.17	5.00	16.84	1.00	0.000	0.000	0.000
18	0.18	0.19	0.01	0.18	5.00	16.86	1.00	0.000	0.000	0.000
19	0.19	0.20	0.01	0.20	5.00	16.84	1.00	0.000	0.000	0.000
20	0.20	0.21	0.01	0.20	5.00	16.83	1.00	0.000	0.000	0.000
21	0.21	0.22	0.01	0.21	5.00	16.86	1.00	0.000	0.000	0.000
22	0.22	0.23	0.01	0.23	5.00	16.99	1.00	0.000	0.000	0.000
23	0.23	0.24	0.01	0.24	5.00	17.13	1.00	0.000	0.000	0.000
24	0.24	0.25	0.01	0.25	5.00	17.25	1.00	0.000	0.000	0.000
25	0.25	0.26	0.01	0.26	5.00	17.17	1.00	0.000	0.000	0.000
26	0.26	0.27	0.01	0.27	5.00	16.99	1.00	0.000	0.000	0.000
27	0.27	0.28	0.01	0.28	5.00	16.64	1.00	0.000	0.000	0.000
28	0.28	0.29	0.01	0.28	5.00	16.22	1.00	0.000	0.000	0.000
29	0.29	0.30	0.01	0.29	5.00	15.66	1.00	0.000	0.000	0.000
30	0.30	0.31	0.01	0.30	5.00	15.19	1.00	0.000	0.000	0.000
31	0.31	0.32	0.01	0.32	5.00	14.90	1.00	0.000	0.000	0.000
32	0.32	0.33	0.01	0.33	5.00	14.76	1.00	0.000	0.000	0.000
33	0.33	0.34	0.01	0.34	5.00	14.66	1.00	0.000	0.000	0.000
34	0.34	0.35	0.01	0.34	5.00	14.61	1.00	0.000	0.000	0.000
35	0.35	0.36	0.01	0.35	5.00	14.64	1.00	0.000	0.000	0.000
36	0.36	0.37	0.01	0.36	5.00	14.84	1.00	0.000	0.000	0.000
37	0.37	0.38	0.01	0.37	5.00	15.11	1.00	0.000	0.000	0.000
38	0.38	0.39	0.01	0.38	5.00	15.53	1.00	0.000	0.000	0.000
39	0.39	0.40	0.01	0.39	5.00	16.03	1.00	0.000	0.000	0.000
40	0.40	0.41	0.01	0.40	5.00	16.57	1.00	0.000	0.000	0.000
41	0.41	0.42	0.01	0.41	5.00	17.17	1.00	0.000	0.000	0.000
42	0.42	0.43	0.01	0.42	5.00	17.82	1.00	0.000	0.000	0.000
43	0.43	0.44	0.01	0.43	5.00	18.55	1.00	0.000	0.000	0.000
44	0.44	0.45	0.01	0.44	5.00	19.34	1.00	0.000	0.000	0.000
45	0.45	0.46	0.01	0.45	5.00	20.06	1.00	0.000	0.000	0.000
46	0.46	0.47	0.01	0.46	5.00	20.76	1.00	0.000	0.000	0.000

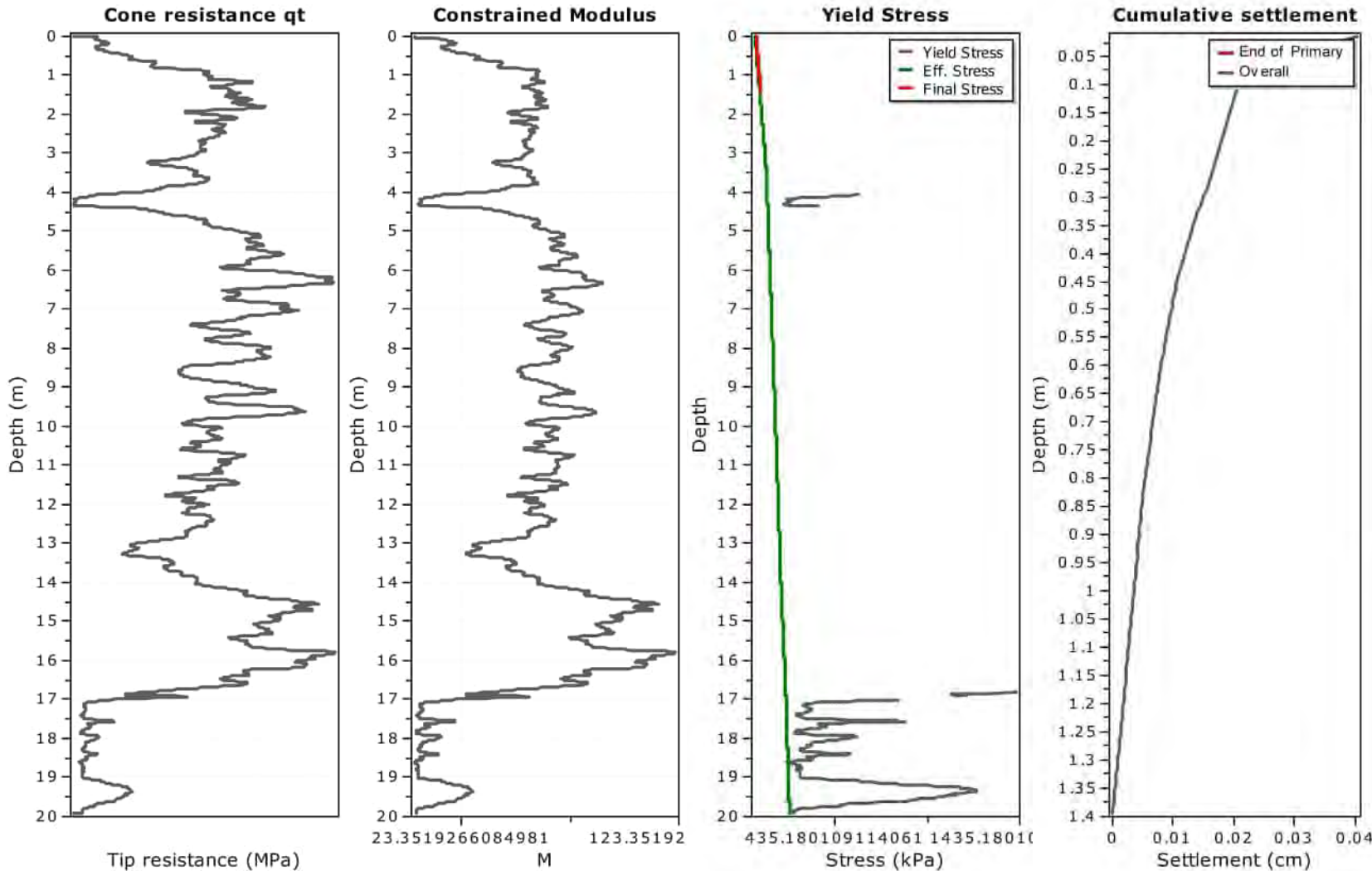
:: Tabular results ::

Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	$M_{(CPT)}$ (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
139	1.39	1.40	0.01	1.39	5.00	40.71	1.00	0.000	0.000	0.000
140	1.40	1.41	0.01	1.40	5.00	40.12	1.00	0.000	0.000	0.000
141	1.41	1.42	0.01	1.41	5.00	38.74	1.00	0.000	0.000	0.000
142	1.42	1.43	0.01	1.42	5.00	37.18	1.00	0.000	0.000	0.000
143	1.43	1.44	0.01	1.43	5.00	35.20	1.00	0.000	0.000	0.000
144	1.44	1.45	0.01	1.44	5.00	33.39	1.00	0.000	0.000	0.000
145	1.45	1.46	0.01	1.45	5.00	31.87	1.00	0.000	0.000	0.000
146	1.46	1.47	0.01	1.46	5.00	31.09	1.00	0.000	0.000	0.000
147	1.47	1.48	0.01	1.47	5.00	30.46	1.00	0.000	0.000	0.000
148	1.48	1.49	0.01	1.48	5.00	29.88	1.00	0.000	0.000	0.000

Total primary settlement: 0.05**Total secondary settlement: 0.00****Total calculated settlement: 0.05****Abbreviations**

Start depth:	Start depth of soil layer (penetration depth measured from ground free surface)
End depth:	End depth of soil layer (penetration depth measured from ground free surface)
Thickness:	Thickness of soil layer
Relative depth:	Depth of calculation relative to footing
Iz:	Stress influence factor
Delta P:	Footing imposed stress:
Eff. stress:	Effective stress
$M_{(CPT)}$:	Constrained modulus from CPT
Settlement:	Primary settlement
Second. settlement:	Secondary settlements due to creep

Settlements calculation according to theory of elasticity*



Calculation properties

Footing type: Rectangular
Footing width: 100.00 (m)
L/B: 1.0
Footing pressure: 5.00 (kPa)
Embedment depth: 0.00 (m)
Footing is rigid: No
Remove excavation load: No
Apply 20% rule: Yes
Calculate secondary settlements: Yes
Time period for primary consolidation: 6 months
Time period for second. settlements: 1200 months

* Primary settlement calculation is performed according to the following formula:

$$S = \sum \frac{\Delta \sigma_v}{M_{CPT}} \Delta z$$

* Secondary (creep) settlement calculation is performed according to the following formula:

$$S_c = S_p \left(\frac{t}{t_p} \right)^n$$

where t_p is the duration of primary consolidation

:: Tabular results ::

Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1	0.01	0.02	0.01	0.01	5.00	1.63	1.00	0.003	0.000	0.003
2	0.02	0.03	0.01	0.03	5.00	1.69	1.00	0.003	0.000	0.003
3	0.03	0.04	0.01	0.04	5.00	1.73	1.00	0.003	0.000	0.003
4	0.04	0.05	0.01	0.04	5.00	1.61	1.00	0.003	0.000	0.003
5	0.05	0.06	0.01	0.06	5.00	1.56	1.00	0.003	0.000	0.003
6	0.06	0.07	0.01	0.07	5.00	1.53	1.00	0.003	0.000	0.003
7	0.07	0.08	0.01	0.07	5.00	11.18	1.00	0.000	0.000	0.000
8	0.08	0.09	0.01	0.09	5.00	14.18	1.00	0.000	0.000	0.000
9	0.09	0.10	0.01	0.09	5.00	14.78	1.00	0.000	0.000	0.000
10	0.10	0.11	0.01	0.10	5.00	15.46	1.00	0.000	0.000	0.000
11	0.11	0.12	0.01	0.12	5.00	16.10	1.00	0.000	0.000	0.000
12	0.12	0.13	0.01	0.13	5.00	16.72	1.00	0.000	0.000	0.000
13	0.13	0.14	0.01	0.14	5.00	17.46	1.00	0.000	0.000	0.000
14	0.14	0.15	0.01	0.14	5.00	18.32	1.00	0.000	0.000	0.000
15	0.15	0.16	0.01	0.15	5.00	18.95	1.00	0.000	0.000	0.000
16	0.16	0.17	0.01	0.17	5.00	19.51	1.00	0.000	0.000	0.000
17	0.17	0.18	0.01	0.17	5.00	19.93	1.00	0.000	0.000	0.000
18	0.18	0.19	0.01	0.18	5.00	20.41	1.00	0.000	0.000	0.000
19	0.19	0.20	0.01	0.20	5.00	20.49	1.00	0.000	0.000	0.000
20	0.20	0.21	0.01	0.20	5.00	20.20	1.00	0.000	0.000	0.000
21	0.21	0.22	0.01	0.21	5.00	19.61	1.00	0.000	0.000	0.000
22	0.22	0.23	0.01	0.23	5.00	18.88	1.00	0.000	0.000	0.000
23	0.23	0.24	0.01	0.24	5.00	18.04	1.00	0.000	0.000	0.000
24	0.24	0.25	0.01	0.25	5.00	16.93	1.00	0.000	0.000	0.000
25	0.25	0.26	0.01	0.26	5.00	15.96	1.00	0.000	0.000	0.000
26	0.26	0.27	0.01	0.27	5.00	15.08	1.00	0.000	0.000	0.000
27	0.27	0.28	0.01	0.28	5.00	14.50	1.00	0.000	0.000	0.000
28	0.28	0.29	0.01	0.28	5.00	14.13	1.00	0.000	0.000	0.000
29	0.29	0.30	0.01	0.29	5.00	13.96	1.00	0.000	0.000	0.000
30	0.30	0.31	0.01	0.30	5.00	14.08	1.00	0.000	0.000	0.000
31	0.31	0.32	0.01	0.32	5.00	14.31	1.00	0.000	0.000	0.000
32	0.32	0.33	0.01	0.33	5.00	14.74	1.00	0.000	0.000	0.000
33	0.33	0.34	0.01	0.34	5.00	15.28	1.00	0.000	0.000	0.000
34	0.34	0.35	0.01	0.34	5.00	15.97	1.00	0.000	0.000	0.000
35	0.35	0.36	0.01	0.35	5.00	16.62	1.00	0.000	0.000	0.000
36	0.36	0.37	0.01	0.36	5.00	17.38	1.00	0.000	0.000	0.000
37	0.37	0.38	0.01	0.37	5.00	17.96	1.00	0.000	0.000	0.000
38	0.38	0.39	0.01	0.38	5.00	18.45	1.00	0.000	0.000	0.000
39	0.39	0.40	0.01	0.39	5.00	18.59	1.00	0.000	0.000	0.000
40	0.40	0.41	0.01	0.40	5.00	19.08	1.00	0.000	0.000	0.000
41	0.41	0.42	0.01	0.41	5.00	19.80	1.00	0.000	0.000	0.000
42	0.42	0.43	0.01	0.42	5.00	20.92	1.00	0.000	0.000	0.000
43	0.43	0.44	0.01	0.43	5.00	22.14	1.00	0.000	0.000	0.000
44	0.44	0.45	0.01	0.44	5.00	23.51	1.00	0.000	0.000	0.000
45	0.45	0.46	0.01	0.45	5.00	25.17	1.00	0.000	0.000	0.000
46	0.46	0.47	0.01	0.46	5.00	26.55	1.00	0.000	0.000	0.000

:: Tabular results ::

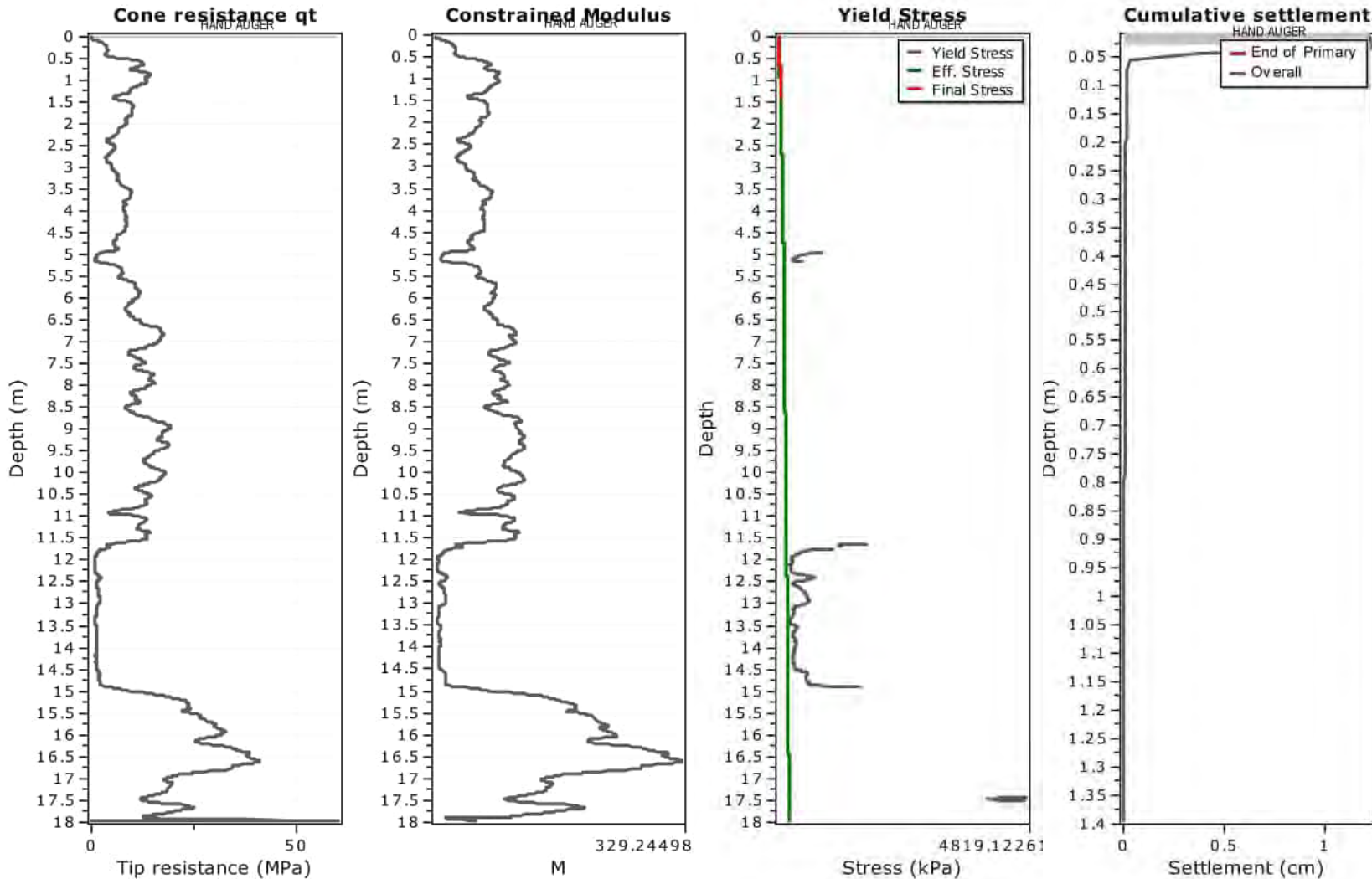
Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
139	1.39	1.40	0.01	1.39	5.00	56.41	1.00	0.000	0.000	0.000

Total primary settlement: 0.04
Total secondary settlement: 0.00
Total calculated settlement: 0.04

Abbreviations

- Start depth:
- End depth:
- Thickness:
- Relative depth:
- Iz:
- Delta P:
- Eff. stress:
- M_(CPT):
- Settlement:
- Second. settlement:
- Start depth of soil layer (penetration depth measured from ground free surface)
- End depth of soil layer (penetration depth measured from ground free surface)
- Thickness of soil layer
- Depth of calculation relative to footing
- Stress influence factor
- Footing imposed stress:
- Effective stress
- Constrained modulus from CPT
- Primary settlement
- Secondary settlement due to creep

Settlements calculation according to theory of elasticity*



Calculation properties

Footing type: Rectangular
Footing width: 100.00 (m)
L/B: 1.0
Footing pressure: 5.00 (kPa)
Embedment depth: 0.00 (m)
Footing is rigid: No
Remove excavation load: No
Apply 20% rule: Yes
Calculate secondary settlements: Yes
Time period for primary consolidation: 6 months
Time period for second. settlements: 1200 months

* Primary settlement calculation is performed according to the following formula:

$$S = \sum \frac{\Delta \sigma_v}{M_{CPT}} \Delta z$$

* Secondary (creep) settlement calculation is performed according to the following formula:

$$S_c = S_p \left(1 - e^{-t/t_p} \right)$$

where t_p is the duration of primary consolidation

:: Tabular results ::

Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1	0.01	0.02	0.01	0.01	5.00	0.00	1.00	0.000	0.000	0.000
2	0.02	0.03	0.01	0.03	5.00	0.00	1.00	0.000	0.000	0.000
3	0.03	0.04	0.01	0.04	5.00	0.01	1.00	0.861	0.000	0.861
4	0.04	0.05	0.01	0.04	5.00	0.02	1.00	0.330	0.000	0.330
5	0.05	0.06	0.01	0.06	5.00	0.36	1.00	0.014	0.000	0.014
6	0.06	0.07	0.01	0.07	5.00	1.56	1.00	0.003	0.000	0.003
7	0.07	0.08	0.01	0.07	5.00	3.51	1.00	0.001	0.000	0.001
8	0.08	0.09	0.01	0.09	5.00	5.85	1.00	0.001	0.000	0.001
9	0.09	0.10	0.01	0.10	5.00	7.51	1.00	0.001	0.000	0.001
10	0.10	0.11	0.01	0.10	5.00	9.06	1.00	0.001	0.000	0.001
11	0.11	0.12	0.01	0.12	5.00	10.60	1.00	0.000	0.000	0.000
12	0.12	0.13	0.01	0.13	5.00	12.53	1.00	0.000	0.000	0.000
13	0.13	0.14	0.01	0.14	5.00	13.83	1.00	0.000	0.000	0.000
14	0.14	0.15	0.01	0.14	5.00	15.86	1.00	0.000	0.000	0.000
15	0.15	0.16	0.01	0.15	5.00	17.16	1.00	0.000	0.000	0.000
16	0.16	0.17	0.01	0.17	5.00	18.13	1.00	0.000	0.000	0.000
17	0.17	0.18	0.01	0.17	5.00	19.12	1.00	0.000	0.000	0.000
18	0.18	0.19	0.01	0.18	5.00	20.16	1.00	0.000	0.000	0.000
19	0.19	0.20	0.01	0.20	5.00	21.15	1.00	0.000	0.000	0.000
20	0.20	0.21	0.01	0.20	5.00	21.83	1.00	0.000	0.000	0.000
21	0.21	0.22	0.01	0.21	5.00	22.72	1.00	0.000	0.000	0.000
22	0.22	0.23	0.01	0.23	5.00	23.53	1.00	0.000	0.000	0.000
23	0.23	0.24	0.01	0.23	5.00	24.19	1.00	0.000	0.000	0.000
24	0.24	0.25	0.01	0.24	5.00	24.47	1.00	0.000	0.000	0.000
25	0.25	0.26	0.01	0.26	5.00	24.97	1.00	0.000	0.000	0.000
26	0.26	0.27	0.01	0.27	5.00	25.46	1.00	0.000	0.000	0.000
27	0.27	0.28	0.01	0.28	5.00	25.89	1.00	0.000	0.000	0.000
28	0.28	0.29	0.01	0.28	5.00	26.26	1.00	0.000	0.000	0.000
29	0.29	0.30	0.01	0.29	5.00	26.58	1.00	0.000	0.000	0.000
30	0.30	0.31	0.01	0.30	5.00	26.86	1.00	0.000	0.000	0.000
31	0.31	0.32	0.01	0.32	5.00	27.02	1.00	0.000	0.000	0.000
32	0.32	0.33	0.01	0.33	5.00	27.06	1.00	0.000	0.000	0.000
33	0.33	0.34	0.01	0.34	5.00	27.06	1.00	0.000	0.000	0.000
34	0.34	0.35	0.01	0.34	5.00	26.89	1.00	0.000	0.000	0.000
35	0.35	0.36	0.01	0.35	5.00	26.72	1.00	0.000	0.000	0.000
36	0.36	0.37	0.01	0.36	5.00	26.45	1.00	0.000	0.000	0.000
37	0.37	0.38	0.01	0.38	5.00	26.20	1.00	0.000	0.000	0.000
38	0.38	0.39	0.01	0.39	5.00	25.96	1.00	0.000	0.000	0.000
39	0.39	0.40	0.01	0.40	5.00	25.79	1.00	0.000	0.000	0.000
40	0.40	0.41	0.01	0.41	5.00	25.54	1.00	0.000	0.000	0.000
41	0.41	0.42	0.01	0.41	5.00	25.37	1.00	0.000	0.000	0.000
42	0.42	0.43	0.01	0.42	5.00	25.25	1.00	0.000	0.000	0.000
43	0.43	0.44	0.01	0.43	5.00	25.44	1.00	0.000	0.000	0.000
44	0.44	0.45	0.01	0.45	5.00	25.72	1.00	0.000	0.000	0.000
45	0.45	0.46	0.01	0.46	5.00	26.45	1.00	0.000	0.000	0.000
46	0.46	0.47	0.01	0.47	5.00	27.36	1.00	0.000	0.000	0.000

:: Tabular results ::

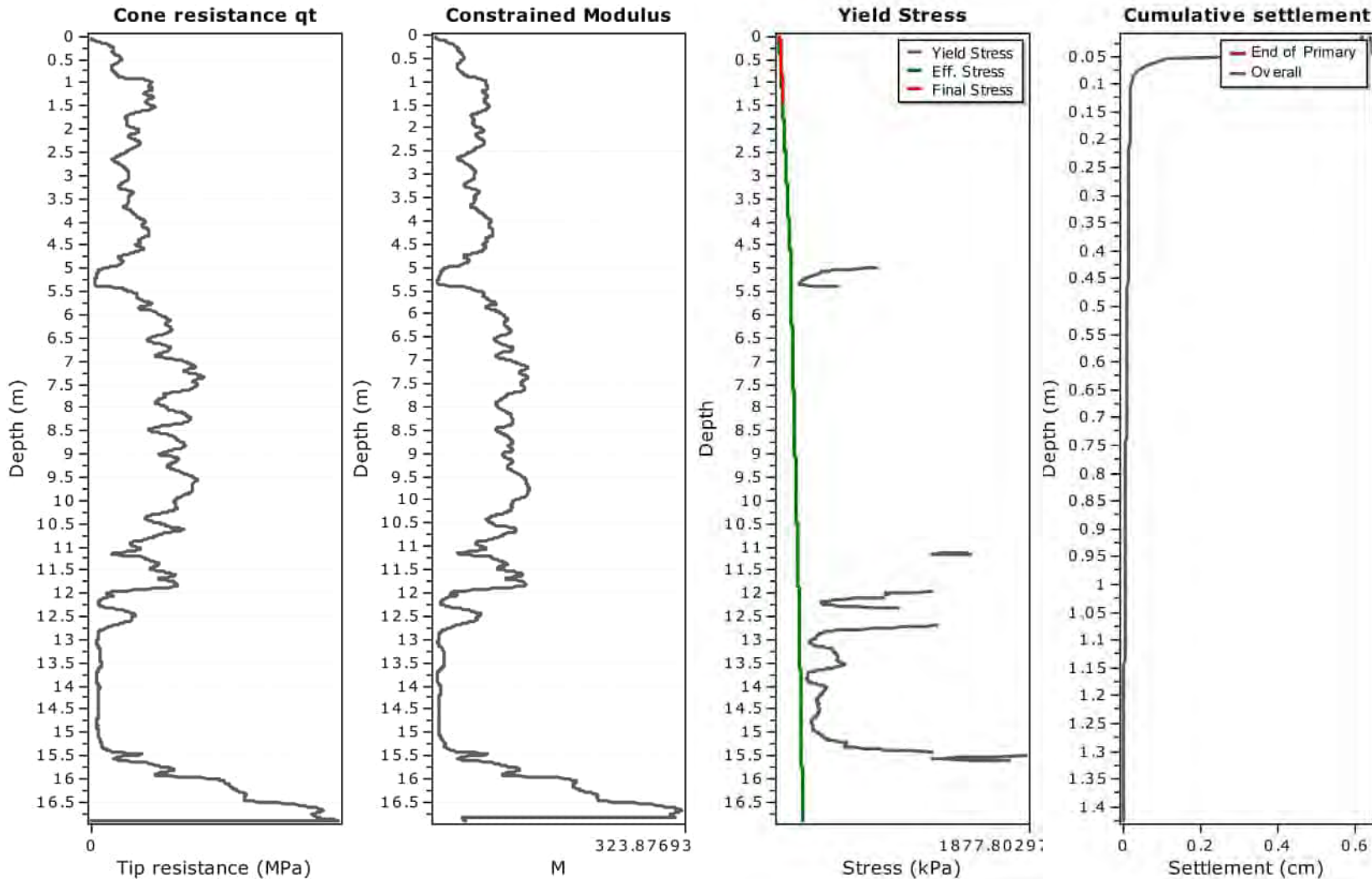
Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
139	1.39	1.40	0.01	1.40	5.00	42.46	1.00	0.000	0.000	0.000

Total primary settlement: 1.23
Total secondary settlement: 0.00
Total calculated settlement: 1.23

Abbreviations

- Start depth:
- End depth:
- Thickness:
- Relative depth:
- Iz:
- Delta P:
- Eff. stress:
- M_(CPT):
- Settlement:
- Second. settlement:
- Start depth of soil layer (penetration depth measured from ground free surface)
- End depth of soil layer (penetration depth measured from ground free surface)
- Thickness of soil layer
- Depth of calculation relative to footing
- Stress influence factor
- Footing imposed stress:
- Effective stress
- Constrained modulus from CPT
- Primary settlement
- Secondary settlement due to creep

Settlements calculation according to theory of elasticity*



Calculation properties

Footing type: Rectangular
Footing width: 100.00 (m)
L/B: 1.0
Footing pressure: 5.00 (kPa)
Embedment depth: 0.00 (m)
Footing is rigid: No
Remove excavation load: No
Apply 20% rule: Yes
Calculate secondary settlements: Yes
Time period for primary consolidation: 6 months
Time period for second. settlements: 1200 months

* Primary settlement calculation is performed according to the following formula:

$$S = \sum \frac{\Delta \sigma_v}{M_{CPT}} \Delta z$$

* Secondary (creep) settlement calculation is performed according to the following formula:

$$S_c = S_p \left(\frac{t}{t_p} \right)^n$$

where t_p is the duration of primary consolidation

:: Tabular results ::

Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1	0.01	0.02	0.01	0.01	5.00	0.00	1.00	0.000	0.000	0.000
2	0.02	0.03	0.01	0.03	5.00	0.00	1.00	0.000	0.000	0.000
3	0.03	0.04	0.01	0.04	5.00	0.00	1.00	0.000	0.000	0.000
4	0.04	0.05	0.01	0.04	5.00	0.01	1.00	0.508	0.018	0.526
5	0.05	0.06	0.01	0.06	5.00	0.10	1.00	0.050	0.002	0.052
6	0.06	0.07	0.01	0.07	5.00	0.21	1.00	0.024	0.001	0.025
7	0.07	0.08	0.01	0.07	5.00	0.45	1.00	0.011	0.001	0.012
8	0.08	0.09	0.01	0.09	5.00	1.02	1.00	0.005	0.000	0.005
9	0.09	0.10	0.01	0.10	5.00	2.99	1.00	0.002	0.000	0.002
10	0.10	0.11	0.01	0.10	5.00	5.41	1.00	0.001	0.000	0.001
11	0.11	0.12	0.01	0.12	5.00	8.15	1.00	0.001	0.000	0.001
12	0.12	0.13	0.01	0.13	5.00	10.41	1.00	0.000	0.000	0.000
13	0.13	0.14	0.01	0.14	5.00	12.07	1.00	0.000	0.000	0.000
14	0.14	0.15	0.01	0.14	5.00	13.39	1.00	0.000	0.000	0.000
15	0.15	0.16	0.01	0.15	5.00	14.71	1.00	0.000	0.000	0.000
16	0.16	0.17	0.01	0.17	5.00	15.94	1.00	0.000	0.000	0.000
17	0.17	0.18	0.01	0.17	5.00	18.39	1.00	0.000	0.000	0.000
18	0.18	0.19	0.01	0.18	5.00	20.47	1.00	0.000	0.000	0.000
19	0.19	0.20	0.01	0.20	5.00	22.27	1.00	0.000	0.000	0.000
20	0.20	0.21	0.01	0.20	5.00	22.81	1.00	0.000	0.000	0.000
21	0.21	0.22	0.01	0.21	5.00	23.24	1.00	0.000	0.000	0.000
22	0.22	0.23	0.01	0.23	5.00	23.74	1.00	0.000	0.000	0.000
23	0.23	0.24	0.01	0.23	5.00	24.28	1.00	0.000	0.000	0.000
24	0.24	0.25	0.01	0.24	5.00	25.57	1.00	0.000	0.000	0.000
25	0.25	0.26	0.01	0.26	5.00	26.70	1.00	0.000	0.000	0.000
26	0.26	0.27	0.01	0.27	5.00	27.57	1.00	0.000	0.000	0.000
27	0.27	0.28	0.01	0.28	5.00	27.63	1.00	0.000	0.000	0.000
28	0.28	0.29	0.01	0.28	5.00	27.97	1.00	0.000	0.000	0.000
29	0.29	0.30	0.01	0.29	5.00	28.59	1.00	0.000	0.000	0.000
30	0.30	0.31	0.01	0.30	5.00	29.15	1.00	0.000	0.000	0.000
31	0.31	0.32	0.01	0.32	5.00	29.37	1.00	0.000	0.000	0.000
32	0.32	0.33	0.01	0.33	5.00	29.08	1.00	0.000	0.000	0.000
33	0.33	0.34	0.01	0.34	5.00	28.97	1.00	0.000	0.000	0.000
34	0.34	0.35	0.01	0.34	5.00	29.26	1.00	0.000	0.000	0.000
35	0.35	0.36	0.01	0.35	5.00	29.74	1.00	0.000	0.000	0.000
36	0.36	0.37	0.01	0.36	5.00	30.22	1.00	0.000	0.000	0.000
37	0.37	0.38	0.01	0.38	5.00	31.15	1.00	0.000	0.000	0.000
38	0.38	0.39	0.01	0.39	5.00	32.19	1.00	0.000	0.000	0.000
39	0.39	0.40	0.01	0.40	5.00	33.56	1.00	0.000	0.000	0.000
40	0.40	0.41	0.01	0.41	5.00	34.09	1.00	0.000	0.000	0.000
41	0.41	0.42	0.01	0.41	5.00	34.57	1.00	0.000	0.000	0.000
42	0.42	0.43	0.01	0.42	5.00	34.93	1.00	0.000	0.000	0.000
43	0.43	0.44	0.01	0.43	5.00	35.26	1.00	0.000	0.000	0.000
44	0.44	0.45	0.01	0.45	5.00	35.56	1.00	0.000	0.000	0.000
45	0.45	0.46	0.01	0.46	5.00	35.84	1.00	0.000	0.000	0.000
46	0.46	0.47	0.01	0.47	5.00	36.01	1.00	0.000	0.000	0.000

:: Tabular results ::

Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	$M_{(CPT)}$ (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
139	1.39	1.40	0.01	1.40	5.00	63.74	1.00	0.000	0.000	0.000
140	1.40	1.41	0.01	1.41	5.00	63.73	1.00	0.000	0.000	0.000
141	1.41	1.42	0.01	1.42	5.00	63.66	1.00	0.000	0.000	0.000
142	1.42	1.43	0.01	1.43	5.00	63.68	1.00	0.000	0.000	0.000

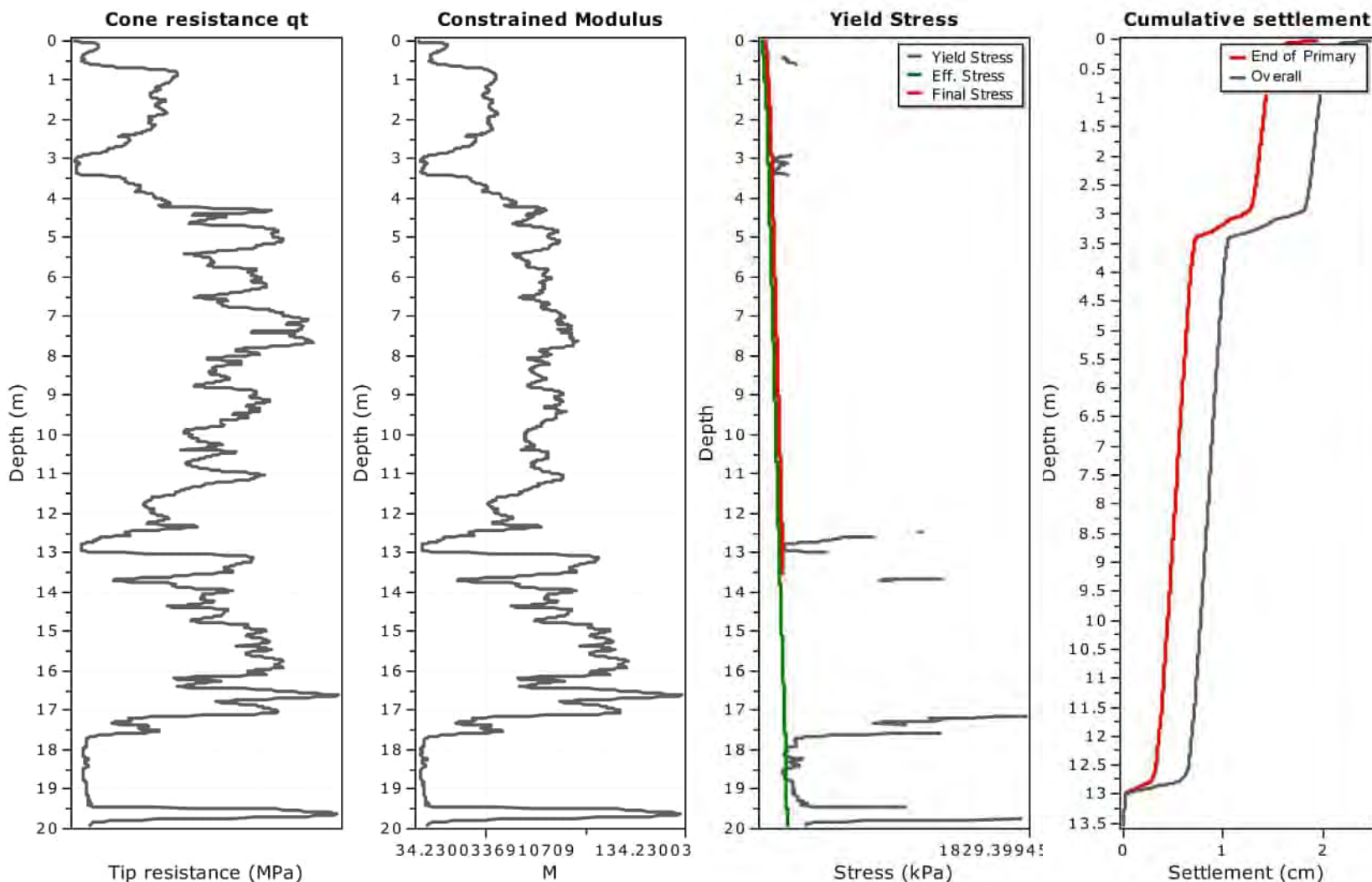
Total primary settlement: 0.62
Total secondary settlement: 0.02

Total calculated settlement: 0.64

Abbreviations

Start depth:	Start depth of soil layer (penetration depth measured from ground free surface)
End depth:	End depth of soil layer (penetration depth measured from ground free surface)
Thickness:	Thickness of soil layer
Relative depth:	Depth of calculation relative to footing
Iz:	Stress influence factor
Delta P:	Footing imposed stress:
Eff. stress:	Effective stress
$M_{(CPT)}$:	Constrained modulus from CPT
Settlement:	Primary settlement
Second. settlement:	Secondary settlements due to creep

Settlements calculation according to theory of elasticity*



Calculation properties

Footing type: Rectangular
Footing width: 100.00 (m)
L/B: 1.0
Footing pressure: 24.00 (kPa)
Embedment depth: 0.00 (m)
Footing is rigid: No
Remove excavation load: No
Apply 20% rule: Yes
Calculate secondary settlements: Yes
Time period for primary consolidation: 6 months
Time period for second. settlements: 1200 months

* Primary settlement calculation is performed according to the following formula:

$$S = \sum \frac{\Delta \sigma_v}{M_{CPT}} \Delta z$$

* Secondary (creep) settlement calculation is performed according to the following formula:

$$S_c = S_p \left(\frac{t}{t_p} \right)^n$$

where t_p is the duration of primary consolidation

:: Tabular results ::

Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1	0.01	0.02	0.01	0.01	24.00	0.22	1.00	0.109	0.000	0.109
2	0.02	0.03	0.01	0.03	24.00	0.30	1.00	0.079	0.000	0.079
3	0.03	0.04	0.01	0.04	24.00	0.44	1.00	0.055	0.000	0.055
4	0.04	0.05	0.01	0.04	24.00	0.60	1.00	0.040	0.000	0.040
5	0.05	0.06	0.01	0.06	24.00	0.83	1.00	0.029	0.000	0.029
6	0.06	0.07	0.01	0.07	24.00	9.69	1.00	0.002	0.000	0.002
7	0.07	0.08	0.01	0.07	24.00	11.80	1.00	0.002	0.000	0.002
8	0.08	0.09	0.01	0.09	24.00	13.24	1.00	0.002	0.000	0.002
9	0.09	0.10	0.01	0.09	24.00	13.98	1.00	0.002	0.000	0.002
10	0.10	0.11	0.01	0.10	24.00	14.17	1.00	0.002	0.000	0.002
11	0.11	0.12	0.01	0.12	24.00	14.20	1.00	0.002	0.000	0.002
12	0.12	0.13	0.01	0.13	24.00	14.15	1.00	0.002	0.000	0.002
13	0.13	0.14	0.01	0.14	24.00	14.11	1.00	0.002	0.000	0.002
14	0.14	0.15	0.01	0.14	24.00	14.03	1.00	0.002	0.000	0.002
15	0.15	0.16	0.01	0.15	24.00	13.97	1.00	0.002	0.000	0.002
16	0.16	0.17	0.01	0.17	24.00	13.93	1.00	0.002	0.000	0.002
17	0.17	0.18	0.01	0.17	24.00	13.94	1.00	0.002	0.000	0.002
18	0.18	0.19	0.01	0.18	24.00	13.94	1.00	0.002	0.000	0.002
19	0.19	0.20	0.01	0.20	24.00	13.83	1.00	0.002	0.000	0.002
20	0.20	0.21	0.01	0.20	24.00	13.61	1.00	0.002	0.000	0.002
21	0.21	0.22	0.01	0.21	24.00	13.23	1.00	0.002	0.000	0.002
22	0.22	0.23	0.01	0.23	24.00	12.74	1.00	0.002	0.000	0.002
23	0.23	0.24	0.01	0.24	24.00	12.19	1.00	0.002	0.000	0.002
24	0.24	0.25	0.01	0.25	24.00	11.82	1.00	0.002	0.000	0.002
25	0.25	0.26	0.01	0.26	24.00	11.41	1.00	0.002	0.000	0.002
26	0.26	0.27	0.01	0.27	24.00	10.96	1.00	0.002	0.000	0.002
27	0.27	0.28	0.01	0.28	24.00	10.37	1.00	0.002	0.000	0.002
28	0.28	0.29	0.01	0.28	24.00	9.80	1.00	0.002	0.000	0.002
29	0.29	0.30	0.01	0.29	24.00	9.11	1.00	0.003	0.000	0.003
30	0.30	0.31	0.01	0.30	24.00	8.44	1.00	0.003	0.000	0.003
31	0.31	0.32	0.01	0.32	24.00	7.86	1.00	0.003	0.000	0.003
32	0.32	0.33	0.01	0.33	24.00	7.50	1.00	0.003	0.000	0.003
33	0.33	0.34	0.01	0.34	24.00	7.16	1.00	0.003	0.000	0.003
34	0.34	0.35	0.01	0.34	24.00	6.87	1.00	0.003	0.000	0.003
35	0.35	0.36	0.01	0.35	24.00	6.61	1.00	0.004	0.000	0.004
36	0.36	0.37	0.01	0.36	24.00	6.39	1.00	0.004	0.000	0.004
37	0.37	0.38	0.01	0.37	24.00	6.19	1.00	0.004	0.000	0.004
38	0.38	0.39	0.01	0.38	24.00	6.05	1.00	0.004	0.000	0.004
39	0.39	0.40	0.01	0.39	24.00	5.96	1.00	0.004	0.000	0.004
40	0.40	0.41	0.01	0.40	24.00	5.86	1.00	0.004	0.000	0.004
41	0.41	0.42	0.01	0.41	24.00	5.76	1.00	0.004	0.000	0.004
42	0.42	0.43	0.01	0.42	24.00	5.71	1.00	0.004	0.000	0.004
43	0.43	0.44	0.01	0.43	24.00	5.73	1.00	0.004	0.000	0.004
44	0.44	0.45	0.01	0.44	24.00	5.88	1.00	0.004	0.000	0.004
45	0.45	0.46	0.01	0.45	24.00	6.15	1.00	0.004	0.000	0.004
46	0.46	0.47	0.01	0.46	24.00	6.48	1.00	0.004	0.000	0.004

:: Tabular results ::

Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1335	13.35	13.36	0.01	13.36	23.69	78.56	0.99	0.000	0.000	0.000
1336	13.36	13.37	0.01	13.37	23.69	77.80	0.99	0.000	0.000	0.000
1337	13.37	13.38	0.01	13.38	23.68	76.76	0.99	0.000	0.000	0.000
1338	13.38	13.39	0.01	13.39	23.68	76.14	0.99	0.000	0.000	0.000
1339	13.39	13.40	0.01	13.40	23.68	75.78	0.99	0.000	0.000	0.000
1340	13.40	13.41	0.01	13.41	23.68	75.84	0.99	0.000	0.000	0.000
1341	13.41	13.42	0.01	13.42	23.68	75.85	0.99	0.000	0.000	0.000
1342	13.42	13.43	0.01	13.43	23.68	75.84	0.99	0.000	0.000	0.000
1343	13.43	13.44	0.01	13.44	23.68	75.89	0.99	0.000	0.000	0.000
1344	13.44	13.45	0.01	13.45	23.68	75.87	0.99	0.000	0.000	0.000
1345	13.45	13.46	0.01	13.46	23.68	76.13	0.99	0.000	0.000	0.000
1346	13.46	13.47	0.01	13.47	23.68	77.10	0.99	0.000	0.000	0.000
1347	13.47	13.48	0.01	13.48	23.68	78.25	0.99	0.000	0.000	0.000
1348	13.48	13.49	0.01	13.49	23.68	79.50	0.99	0.000	0.000	0.000
1349	13.49	13.50	0.01	13.50	23.68	79.54	0.99	0.000	0.000	0.000
1350	13.50	13.51	0.01	13.51	23.68	78.67	0.99	0.000	0.000	0.000
1351	13.51	13.52	0.01	13.52	23.68	76.74	0.99	0.000	0.000	0.000
1352	13.52	13.53	0.01	13.53	23.67	73.28	0.99	0.000	0.000	0.000
1353	13.53	13.54	0.01	13.54	23.67	69.79	0.99	0.000	0.000	0.000

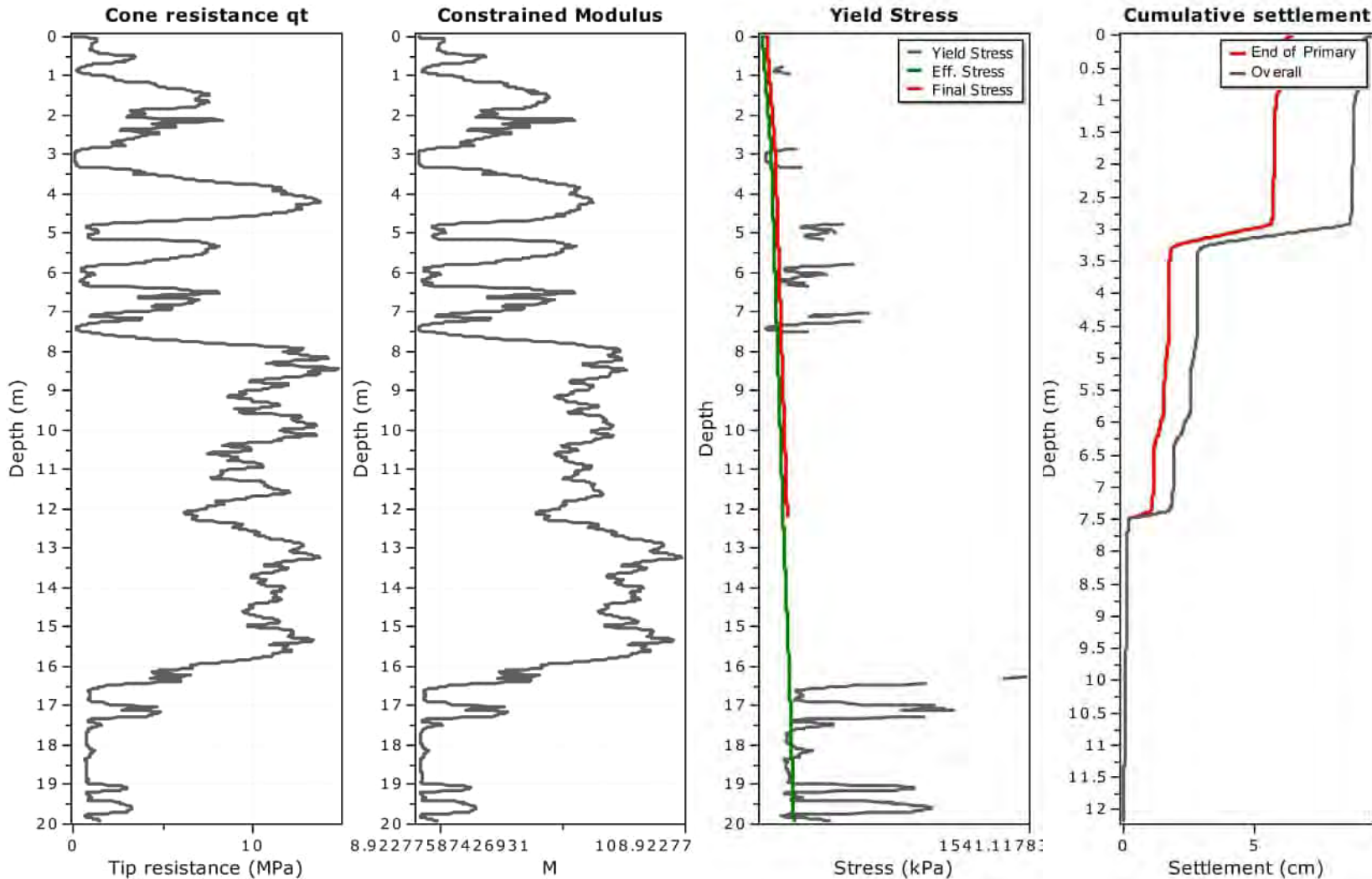
Total primary settlement: 1.92
Total secondary settlement: 0.55

Total calculated settlement: 2.47

Abbreviations

Start depth:	Start depth of soil layer (penetration depth measured from ground free surface)
End depth:	End depth of soil layer (penetration depth measured from ground free surface)
Thickness:	Thickness of soil layer
Relative depth:	Depth of calculation relative to footing
Iz:	Stress influence factor
Delta P:	Footing imposed stress:
Eff. stress:	Effective stress
M _(CPT) :	Constrained modulus from CPT
Settlement:	Primary settlement
Second. settlement:	Secondary settlements due to creep

Settlements calculation according to theory of elasticity*



Calculation properties

Footing type: Rectangular
Footing width: 100.00 (m)
L/B: 1.0
Footing pressure: 24.00 (kPa)
Embedment depth: 0.00 (m)
Footing is rigid: No
Remove excavation load: No
Apply 20% rule: Yes
Calculate secondary settlements: Yes
Time period for primary consolidation: 6 months
Time period for second. settlements: 1200 months

* Primary settlement calculation is performed according to the following formula:

$$S = \sum \frac{\Delta \sigma_v}{M_{CPT}} \Delta z$$

* Secondary (creep) settlement calculation is performed according to the following formula:

$$S_c = S_p \left(1 - e^{-\frac{t}{t_p}} \right)$$

where t_p is the duration of primary consolidation

:: Tabular results ::

Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1	0.01	0.02	0.01	0.01	24.00	0.23	1.00	0.103	0.000	0.103
2	0.02	0.03	0.01	0.03	24.00	0.41	1.00	0.058	0.000	0.058
3	0.03	0.04	0.01	0.04	24.00	0.65	1.00	0.037	0.000	0.037
4	0.04	0.05	0.01	0.04	24.00	0.86	1.00	0.028	0.000	0.028
5	0.05	0.06	0.01	0.06	24.00	1.01	1.00	0.024	0.000	0.024
6	0.06	0.07	0.01	0.07	24.00	9.82	1.00	0.002	0.000	0.002
7	0.07	0.08	0.01	0.07	24.00	10.25	1.00	0.002	0.000	0.002
8	0.08	0.09	0.01	0.09	24.00	10.52	1.00	0.002	0.000	0.002
9	0.09	0.10	0.01	0.09	24.00	10.65	1.00	0.002	0.000	0.002
10	0.10	0.11	0.01	0.10	24.00	10.64	1.00	0.002	0.000	0.002
11	0.11	0.12	0.01	0.12	24.00	10.41	1.00	0.002	0.000	0.002
12	0.12	0.13	0.01	0.13	24.00	10.20	1.00	0.002	0.000	0.002
13	0.13	0.14	0.01	0.14	24.00	9.95	1.00	0.002	0.000	0.002
14	0.14	0.15	0.01	0.14	24.00	9.77	1.00	0.002	0.000	0.002
15	0.15	0.16	0.01	0.15	24.00	9.58	1.00	0.003	0.000	0.003
16	0.16	0.17	0.01	0.17	24.00	9.39	1.00	0.003	0.000	0.003
17	0.17	0.18	0.01	0.17	24.00	9.23	1.00	0.003	0.000	0.003
18	0.18	0.19	0.01	0.18	24.00	9.05	1.00	0.003	0.000	0.003
19	0.19	0.20	0.01	0.20	24.00	8.83	1.00	0.003	0.000	0.003
20	0.20	0.21	0.01	0.20	24.00	8.60	1.00	0.003	0.000	0.003
21	0.21	0.22	0.01	0.21	24.00	8.44	1.00	0.003	0.000	0.003
22	0.22	0.23	0.01	0.23	24.00	8.37	1.00	0.003	0.000	0.003
23	0.23	0.24	0.01	0.24	24.00	8.34	1.00	0.003	0.000	0.003
24	0.24	0.25	0.01	0.25	24.00	8.34	1.00	0.003	0.000	0.003
25	0.25	0.26	0.01	0.26	24.00	8.36	1.00	0.003	0.000	0.003
26	0.26	0.27	0.01	0.27	24.00	8.40	1.00	0.003	0.000	0.003
27	0.27	0.28	0.01	0.28	24.00	8.38	1.00	0.003	0.000	0.003
28	0.28	0.29	0.01	0.28	24.00	8.29	1.00	0.003	0.000	0.003
29	0.29	0.30	0.01	0.29	24.00	8.15	1.00	0.003	0.000	0.003
30	0.30	0.31	0.01	0.30	24.00	7.93	1.00	0.003	0.000	0.003
31	0.31	0.32	0.01	0.32	24.00	7.76	1.00	0.003	0.000	0.003
32	0.32	0.33	0.01	0.33	24.00	7.68	1.00	0.003	0.000	0.003
33	0.33	0.34	0.01	0.34	24.00	7.83	1.00	0.003	0.000	0.003
34	0.34	0.35	0.01	0.34	24.00	8.14	1.00	0.003	0.000	0.003
35	0.35	0.36	0.01	0.35	24.00	8.52	1.00	0.003	0.000	0.003
36	0.36	0.37	0.01	0.36	24.00	8.91	1.00	0.003	0.000	0.003
37	0.37	0.38	0.01	0.37	24.00	9.33	1.00	0.003	0.000	0.003
38	0.38	0.39	0.01	0.38	24.00	9.78	1.00	0.002	0.000	0.002
39	0.39	0.40	0.01	0.39	24.00	10.25	1.00	0.002	0.000	0.002
40	0.40	0.41	0.01	0.40	24.00	10.65	1.00	0.002	0.000	0.002
41	0.41	0.42	0.01	0.41	24.00	10.88	1.00	0.002	0.000	0.002
42	0.42	0.43	0.01	0.42	24.00	10.98	1.00	0.002	0.000	0.002
43	0.43	0.44	0.01	0.43	24.00	11.45	1.00	0.002	0.000	0.002
44	0.44	0.45	0.01	0.44	24.00	12.77	1.00	0.002	0.000	0.002
45	0.45	0.46	0.01	0.45	24.00	15.29	1.00	0.002	0.000	0.002
46	0.46	0.47	0.01	0.46	24.00	18.70	1.00	0.001	0.000	0.001

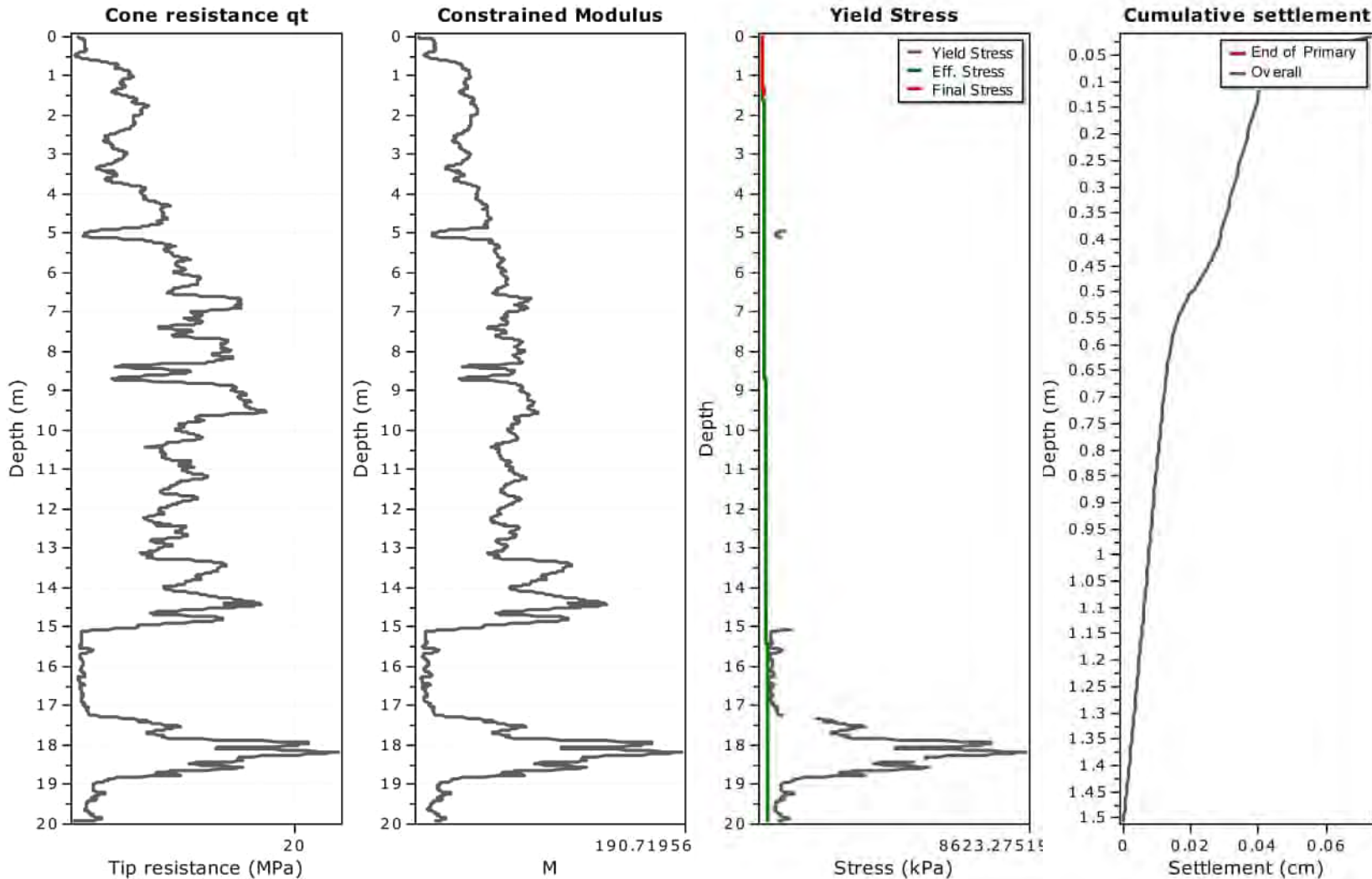
:: Tabular results ::

Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1197	11.97	11.98	0.01	11.98	23.77	57.70	0.99	0.000	0.000	0.000
1198	11.98	11.99	0.01	11.99	23.77	57.75	0.99	0.000	0.000	0.000
1199	11.99	12.00	0.01	12.00	23.77	57.64	0.99	0.000	0.000	0.000
1200	12.00	12.01	0.01	12.01	23.77	57.47	0.99	0.000	0.000	0.000
1201	12.01	12.02	0.01	12.02	23.77	57.07	0.99	0.000	0.000	0.000
1202	12.02	12.03	0.01	12.03	23.77	56.43	0.99	0.000	0.000	0.000
1203	12.03	12.04	0.01	12.04	23.77	54.92	0.99	0.000	0.000	0.000
1204	12.04	12.05	0.01	12.05	23.77	53.17	0.99	0.000	0.000	0.000
1205	12.05	12.06	0.01	12.06	23.77	51.38	0.99	0.000	0.000	0.000
1206	12.06	12.07	0.01	12.07	23.76	50.22	0.99	0.000	0.000	0.000
1207	12.07	12.08	0.01	12.08	23.76	49.20	0.99	0.000	0.000	0.000
1208	12.08	12.09	0.01	12.09	23.76	48.50	0.99	0.000	0.000	0.000
1209	12.09	12.10	0.01	12.10	23.76	48.03	0.99	0.000	0.000	0.000
1210	12.10	12.11	0.01	12.11	23.76	47.93	0.99	0.000	0.000	0.000
1211	12.11	12.12	0.01	12.12	23.76	47.99	0.99	0.000	0.000	0.000
1212	12.12	12.13	0.01	12.13	23.76	48.28	0.99	0.000	0.000	0.000
1213	12.13	12.14	0.01	12.14	23.76	48.77	0.99	0.000	0.000	0.000
1214	12.14	12.15	0.01	12.15	23.76	49.69	0.99	0.000	0.000	0.000
1215	12.15	12.16	0.01	12.16	23.76	50.59	0.99	0.000	0.000	0.000
1216	12.16	12.17	0.01	12.17	23.76	51.55	0.99	0.000	0.000	0.000
1217	12.17	12.18	0.01	12.18	23.76	52.13	0.99	0.000	0.000	0.000

Total primary settlement: 6.43**Total secondary settlement: 3.04****Total calculated settlement: 9.47****Abbreviations**

Start depth:	Start depth of soil layer (penetration depth measured from ground free surface)
End depth:	End depth of soil layer (penetration depth measured from ground free surface)
Thickness:	Thickness of soil layer
Relative depth:	Depth of calculation relative to footing
Iz:	Stress influence factor
Delta P:	Footing imposed stress:
Eff. stress:	Effective stress
M _(CPT) :	Constrained modulus from CPT
Settlement:	Primary settlement
Second. settlement:	Secondary settlements due to creep

Settlements calculation according to theory of elasticity*



Calculation properties

Footing type: Rectangular
Footing width: 100.00 (m)
L/B: 1.0
Footing pressure: 5.00 (kPa)
Embedment depth: 0.00 (m)
Footing is rigid: No
Remove excavation load: No
Apply 20% rule: Yes
Calculate secondary settlements: Yes
Time period for primary consolidation: 6 months
Time period for second. settlements: 1200 months

* Primary settlement calculation is performed according to the following formula:

$$S = \sum \frac{\Delta \sigma_v}{M_{CPT}} \Delta z$$

* Secondary (creep) settlement calculation is performed according to the following formula:

$$S_c = S_p \left(\frac{t}{t_p} \right)^n$$

where t_p is the duration of primary consolidation

:: Tabular results ::

Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	M _(CPT) (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
1	0.01	0.02	0.01	0.01	5.00	0.72	1.00	0.007	0.000	0.007
2	0.02	0.03	0.01	0.03	5.00	0.77	1.00	0.007	0.000	0.007
3	0.03	0.04	0.01	0.04	5.00	0.82	1.00	0.006	0.000	0.006
4	0.04	0.05	0.01	0.04	5.00	0.90	1.00	0.006	0.000	0.006
5	0.05	0.06	0.01	0.06	5.00	0.99	1.00	0.005	0.000	0.005
6	0.06	0.07	0.01	0.07	5.00	9.60	1.00	0.001	0.000	0.001
7	0.07	0.08	0.01	0.07	5.00	10.07	1.00	0.000	0.000	0.000
8	0.08	0.09	0.01	0.09	5.00	10.41	1.00	0.000	0.000	0.000
9	0.09	0.10	0.01	0.09	5.00	10.72	1.00	0.000	0.000	0.000
10	0.10	0.11	0.01	0.10	5.00	10.97	1.00	0.000	0.000	0.000
11	0.11	0.12	0.01	0.12	5.00	11.21	1.00	0.000	0.000	0.000
12	0.12	0.13	0.01	0.13	5.00	11.40	1.00	0.000	0.000	0.000
13	0.13	0.14	0.01	0.14	5.00	11.61	1.00	0.000	0.000	0.000
14	0.14	0.15	0.01	0.14	5.00	11.87	1.00	0.000	0.000	0.000
15	0.15	0.16	0.01	0.15	5.00	12.06	1.00	0.000	0.000	0.000
16	0.16	0.17	0.01	0.17	5.00	12.13	1.00	0.000	0.000	0.000
17	0.17	0.18	0.01	0.17	5.00	12.06	1.00	0.000	0.000	0.000
18	0.18	0.19	0.01	0.18	5.00	11.92	1.00	0.000	0.000	0.000
19	0.19	0.20	0.01	0.20	5.00	11.80	1.00	0.000	0.000	0.000
20	0.20	0.21	0.01	0.20	5.00	11.69	1.00	0.000	0.000	0.000
21	0.21	0.22	0.01	0.21	5.00	11.67	1.00	0.000	0.000	0.000
22	0.22	0.23	0.01	0.23	5.00	11.71	1.00	0.000	0.000	0.000
23	0.23	0.24	0.01	0.24	5.00	11.80	1.00	0.000	0.000	0.000
24	0.24	0.25	0.01	0.25	5.00	11.92	1.00	0.000	0.000	0.000
25	0.25	0.26	0.01	0.26	5.00	12.02	1.00	0.000	0.000	0.000
26	0.26	0.27	0.01	0.27	5.00	12.10	1.00	0.000	0.000	0.000
27	0.27	0.28	0.01	0.28	5.00	12.14	1.00	0.000	0.000	0.000
28	0.28	0.29	0.01	0.28	5.00	12.15	1.00	0.000	0.000	0.000
29	0.29	0.30	0.01	0.29	5.00	12.13	1.00	0.000	0.000	0.000
30	0.30	0.31	0.01	0.30	5.00	12.11	1.00	0.000	0.000	0.000
31	0.31	0.32	0.01	0.32	5.00	12.07	1.00	0.000	0.000	0.000
32	0.32	0.33	0.01	0.33	5.00	12.17	1.00	0.000	0.000	0.000
33	0.33	0.34	0.01	0.34	5.00	12.30	1.00	0.000	0.000	0.000
34	0.34	0.35	0.01	0.34	5.00	12.49	1.00	0.000	0.000	0.000
35	0.35	0.36	0.01	0.35	5.00	12.42	1.00	0.000	0.000	0.000
36	0.36	0.37	0.01	0.36	5.00	12.07	1.00	0.000	0.000	0.000
37	0.37	0.38	0.01	0.37	5.00	11.55	1.00	0.000	0.000	0.000
38	0.38	0.39	0.01	0.38	5.00	11.13	1.00	0.000	0.000	0.000
39	0.39	0.40	0.01	0.39	5.00	10.74	1.00	0.000	0.000	0.000
40	0.40	0.41	0.01	0.40	5.00	9.65	1.00	0.001	0.000	0.001
41	0.41	0.42	0.01	0.41	5.00	8.24	1.00	0.001	0.000	0.001
42	0.42	0.43	0.01	0.42	5.00	6.80	1.00	0.001	0.000	0.001
43	0.43	0.44	0.01	0.43	5.00	6.15	1.00	0.001	0.000	0.001
44	0.44	0.45	0.01	0.44	5.00	5.91	1.00	0.001	0.000	0.001
45	0.45	0.46	0.01	0.45	5.00	5.94	1.00	0.001	0.000	0.001
46	0.46	0.47	0.01	0.46	5.00	6.05	1.00	0.001	0.000	0.001

:: Tabular results ::

Point No	Start depth (m)	End depth (m)	Thickness (m)	Relative depth (m)	Delta P (kPa)	$M_{(CPT)}$ (MPa)	Iz	Settlement (cm)	Second. settlement (cm)	Overall settlement (cm)
139	1.39	1.40	0.01	1.39	5.00	31.06	1.00	0.000	0.000	0.000
140	1.40	1.41	0.01	1.40	5.00	30.34	1.00	0.000	0.000	0.000
141	1.41	1.42	0.01	1.41	5.00	29.81	1.00	0.000	0.000	0.000
142	1.42	1.43	0.01	1.42	5.00	29.68	1.00	0.000	0.000	0.000
143	1.43	1.44	0.01	1.43	5.00	30.05	1.00	0.000	0.000	0.000
144	1.44	1.45	0.01	1.44	5.00	30.72	1.00	0.000	0.000	0.000
145	1.45	1.46	0.01	1.45	5.00	31.50	1.00	0.000	0.000	0.000
146	1.46	1.47	0.01	1.46	5.00	32.14	1.00	0.000	0.000	0.000
147	1.47	1.48	0.01	1.47	5.00	32.82	1.00	0.000	0.000	0.000
148	1.48	1.49	0.01	1.48	5.00	33.50	1.00	0.000	0.000	0.000
149	1.49	1.50	0.01	1.49	5.00	34.16	1.00	0.000	0.000	0.000
150	1.50	1.51	0.01	1.50	5.00	34.65	1.00	0.000	0.000	0.000

Total primary settlement: 0.07**Total secondary settlement: 0.00****Total calculated settlement: 0.07****Abbreviations**

Start depth:	Start depth of soil layer (penetration depth measured from ground free surface)
End depth:	End depth of soil layer (penetration depth measured from ground free surface)
Thickness:	Thickness of soil layer
Relative depth:	Depth of calculation relative to footing
Iz:	Stress influence factor
Delta P:	Footing imposed stress:
Eff. stress:	Effective stress
$M_{(CPT)}$:	Constrained modulus from CPT
Settlement:	Primary settlement
Second. settlement:	Secondary settlements due to creep

Appendix I: Wetland Design Memorandum

TECHNICAL MEMORANDUM

WETLAND A DESIGN REVIEW

To	Southern Links 1 project team	From	Mark McVinnie, David MacPherson
Attention	c/o Dillon Kelliher (Colliers Project Leaders)	Date	28 August 2026
Email	[REDACTED]	Reference	HAM2025-0056AK Rev 4
Cc		Pages	8 (excluding the appendices)
Subject	Wetland A Design Review		

1.0 INTRODUCTION

The purpose of this memorandum is to analyse the effects of the confined aquifer on the stormwater design and support Maven's engineering designs.

This memorandum outlines the analysis results and provides preliminary design options for pond stability.

2.0 PROPOSED DEVELOPMENT

The proposed development for the Southern Links 1 Residential Development includes constructing approximately 938 lots with associated infrastructure across the 46Ha site. Original landform is to be modified with maximum proposed cut levels of 5m and proposed fill levels of up to 2m.

Six stormwater wetlands are proposed across the development. It is understood that they will be up to 4.8m deep with maximum batter slopes of 1V:3H. Plans provided by Maven Associates are attached in *Error! Reference source not found.A*.

3.0 HYDROGEOLOGY

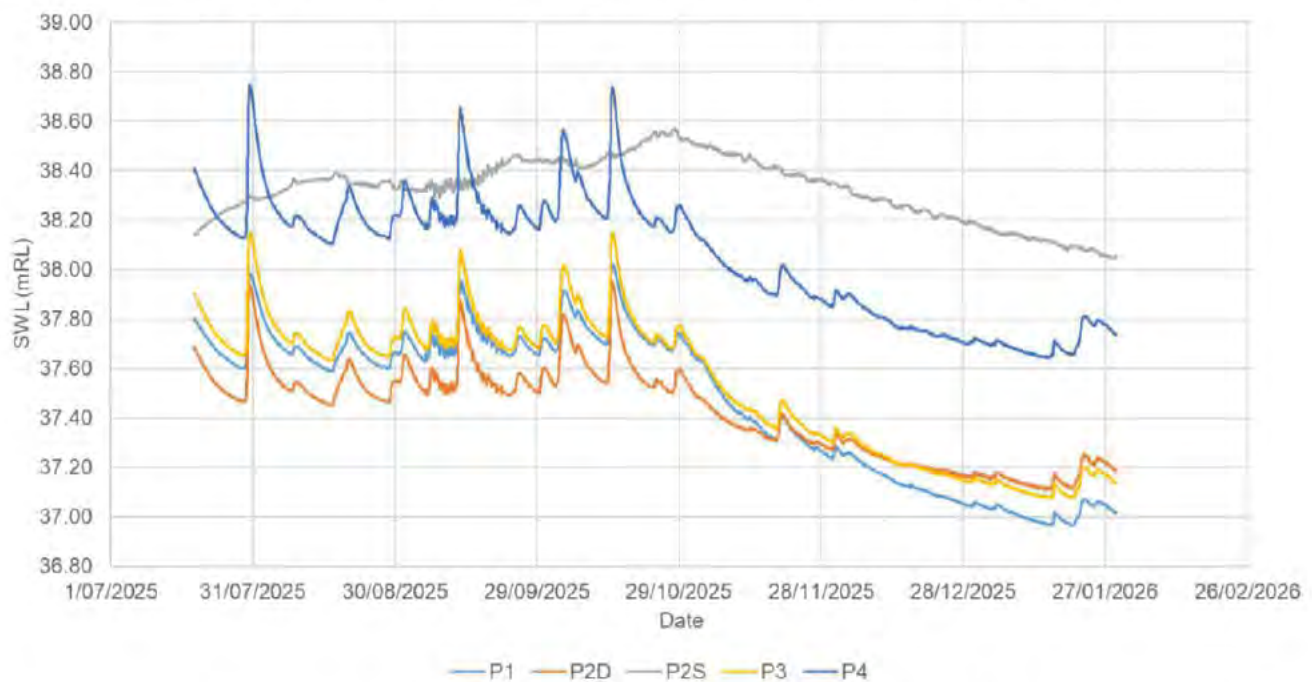
The WGA Hydrogeological Effects Assessment identified a low-permeability aquitard layer running beneath the site, which has a confining effect on the underlying deep aquifer, resulting in a measured pressure head of up to 1.35m above the deep aquifer. WGA carried out investigations, testing, and monitoring across the site at locations shown in *Appendix B*. This thin confining silt layer has been encountered across the site in investigations by CMW and WGA. The overall groundwater regime is shown in *Figure 1*.

Figure 1: Wetland A Hydrogeology. Source: WGA



Groundwater monitoring data is presented in **Figure 2**.

Figure 2: Groundwater Monitoring Data. P2 is within Wetland A. Source: WGA



Further discussion of the overall site hydrogeological regime is presented in the WGA Hydrological Effects Assessment.

Excavating the proposed stormwater ponds will remove the existing soil overburden pressure; and, without implementation of mitigation options (as later outlined in this memorandum), the uplift pressure from the confined aquifer could rupture the aquitard layer and destabilise the ponds.

The results of analyses of the field data have been utilised in the development of a 2D cross section model. Detailed descriptions of the hydrogeology and hydraulic testing of the site used to build the model are provided in the Hydrological Effects Assessment.

4.0 UPLIFT ASSESSMENT

An effective stress assessment was undertaken to assess the minimum thickness of overburden pressure that would need to be left in place when constructing the wetland. 13.9kPa uplift pressure is acting on the silt (using the measured maximum groundwater level). Adopting a factor of safety against uplift of 1.2, a minimum of 16.7kPa of overburden pressure would need to be maintained above the top of the silt layer. Using a unit weight of 16kN/m³, this equates to a minimum overburden thickness of 1.05m or an RL of 37.61m.

This would result in lifting the pond base by 1.31m (above the current proposed level) to maintain a suitable factor of safety against uplift.

Recommendations are discussed in Section 6.0.

5.0 SLOPE STABILITY ASSESSMENT

5.1 Design Criteria

The stability of the ponds under a range of design conditions is expressed in terms of a factor of safety, which is defined as the ratio of the resisting forces to destabilising forces acting on a slope. Table 1 below presents the recommended performance standards¹ for slope stability assessment:

Table 1: Slope Stability Factor of Safety Criteria

Condition	Required Factor of Safety
Static long-term conditions (drained soil conditions, normal groundwater)	1.5
Transient short-term worst case conditions (elevated groundwater and pore water pressures)	1.3
Seismic (ULS) case*	1.0
Note: *Factor of safety < 1.0 acceptable where displacement-based approach is adopted.	

5.2 Changes to the WGA Model

The following changes were made to the WGA groundwater model to assist with our analysis:

- The model size was reduced to focus on the Wetland A area. This improved model computation time significantly with little difference in the modelled water levels in the area of interest.
- The boundary conditions were altered slightly to include a fixed water pressure head of RL38m beneath the silt layer to more accurately represent the pore-water pressures around the toe of the batter slope.

These changes resulted in similar modelled water levels to WGA.

5.3 Analysis

Slope stability analyses were undertaken using the Morgenstern-Price method of slices under both circular and translational failure mechanisms using the proprietary software Slide2. Groundwater pressures were

¹ CoLab, (October 2025). Regional Infrastructure Technical Specification (RITS) V2, Table 16: Proposed factors for safety for different slope stability scenarios

calculated using the Slide2 finite element groundwater module and subsequently used for stability assessment. Analyses were completed for a various conditions stated in **Table 1** based on the following:

- Static long-term conditions were analysed for the prevailing case with the groundwater table based on the modelled groundwater table.
- When analysing transient conditions, the water pressure heads on the model boundary conditions were increased by 0.5m and a vertical infiltration provided by WGA was introduced to the model.
- Seismic displacements were estimated based on a Newmark Sliding Block approach using 50th percentile correlations published in Ambraseys & Srbulov (1995)² and Jibson (2007)³ for thin, translational rigid sliding block cases, and Bray & Travarasrou (2007)⁴ and Bray and Macedo (2019)⁵ for flexible sliding mass cases.
- An additional static case was run modelling a 200mm wide gap in the confining silt layer to assess the affect on the hydraulic gradient.
- A 10 kPa dead load was used to model single-story residential dwellings at the crest of the slope.

The following slopes have been assessed:

- Section A: 4.8m deep artificial wetland (Wetland A – Section A2 on Maven Associates drawings) embankment with a maximum cut slope of 1V:3H.

5.4 Results

Selected stability printouts are attached in **Appendix C** with the factor of safety for each scenario outlined in **Table 1**

Table 2: Slope Stability Analyses Results

Location	Slope Stability Factor of Safety						Seismic Displacements (mm)	
	Prevailing	Transient	Seismic (ULS)	Prevailing with broken silt (during construction)	Yield Acceleration		Pond Batter	At Crest
					Pond batter	At crest		
Wetland A Section A2	2.8	1.8	<1.0	2.8	0.1	0.2	15 - 20	<5

The results show that the Section A seismic case do not meet the requisite factor of safety, and displacements of 15 to 20mm are estimated for the structures closest to the wetland. Recommendations are discussed in Section 6 below.

² Ambraseys, N. and Srbulov, M. (1995) Earthquake induced displacement of slopes, *Journal of Soil Dynamics and Earthquake Engineering*, Vol 14

³ Jibson, R.W., (2007) Regression models for estimating coseismic landslide displacement, *Journal of Engineering Geology*, Vol 91

⁴ Bray, J. D., & Travarasrou, T. (2007). Simplified procedure for estimating earthquake-induced deviatoric slope displacements. *Journal of geotechnical and geoenvironmental engineering*, 133(4), 381-392.

⁵ Bray, J.D., and Macedo, J. (2019) "Procedure for Estimating Shear-Induced Seismic Slope Displacement for Shallow Crustal Earthquakes," *J. of Geotechnical and Geoenvironmental Engineering*, ASCE, V. 145(12), doi: 10.1061/(ASCE)GT.1943-5606.0002143.

6.0 RECOMMENDATIONS

The following options have been considered and discussed with the wider project team to mitigate this hazard:

- Lifting the pond base by 1.31m to RL37.61m to leave a minimum of 1.05m overburden material above the confining silt layer. This option is not preferred due to the implications it has on the stormwater design.
- Using deep soil mixing to mix concrete into the soils to seal the aquifer off. Conceptually, this mixed layer would need to be 500mm to 1m thick. This, coupled with the construction challenges, mean this option is not preferred.
- Temporarily depressurisation of the confined aquifer to allow for jet grouting beneath the silt layer to seal it off beneath each wetland. This option would be very expensive.
- Installing sheet piles around the perimeter of the pond to isolate the pond from the surrounding aquifer. This option is discussed further in Section 6.1.1.
- Installing pressure relief valves at regular intervals across the ponds. These are discussed further in Section 6.2.1
- Temporary depressurisation of the confined aquifer through dewatering to allow construction of a continuous drainage blanket along the underside of the wetland, which would then be hydrologically separated by a Geosynthetic Clay Liner. This option is discussed further in Section 6.2.2.

6.1 Preferred Mitigation Option

In discussions with the project team, the following option is considered the most preferred option for mitigating uplift in the proposed artificial wetlands.

6.1.1 Sheet Piles

Sheet piles could be adopted as a permanent groundwater cut-off system around the perimeter of the wetland. The intent of the sheet pile wall would be to hydraulically isolate the wetland excavation from the surrounding confined aquifer, allowing the confining silt layer to be locally penetrated during construction while maintaining control of artesian pressures and reducing the risk of base heave or uplift instability.

The sheet piles would need to extend continuously around the wetland perimeter and be embedded into the underlying Walton Subgroup to provide an effective seepage cut-off. The required embedment depth would need to be confirmed during detailed design, based on the interpreted depth to the Walton Subgroup, design artesian head, seepage gradients, constructability, and the required factor of safety against uplift and piping. Particular attention would be required at wall corners, terminations, service penetrations, outlet structures, and any localised gaps where preferential seepage paths could develop.

Either steel or vinyl sheet piles may be feasible, subject to detailed design and constructability assessment. Steel sheet piles would generally provide higher stiffness and improved driveability where deeper embedment is required, but would need to be designed for durability over the adopted design life, including corrosion allowance and/or protective measures. Vinyl sheet piles may offer durability advantages in a wetland environment, but their ability to achieve the required embedment into the Walton Subgroup would need to be confirmed.

Construction considerations would include potential disturbance or puncturing of the aquitard, the presence of obstructions, installation tolerances, and the need for groundwater monitoring during sheet pile installation and excavation. Monitoring should include piezometric levels inside and outside the sheet pile

perimeter, visual checks for seepage or boiling, and contingency measures if artesian pressures or seepage rates exceed design assumptions.

Additionally, vibration and noise effects will need to be considered during sheet pile installation (which could take several months) as sheet piling may exceed noise limits for neighbouring dwellings. Construction noise management could include; commencing sheet pile installation away from neighbouring buildings, and if noise is excessive, utilising smaller quieter plant to install the sheet piles, or alternatively by adopting another mitigation option that generates less construction noise.

Sheet piles have been adopted in the permanent design in several other projects across Hamilton, including the Whatukooruru Drive Stage 3 bridge, and the Peacocks Waikato River Bridge stormwater outfall. In both these cases, steel sheet piles were designed to withstand corrosion over their 100-year design life. This was achieved by oversizing the sheet pile thickness to allow for corrosion over the design life.

Alternative cutoff wall options could also be considered, such as a secant bored pile wall, a bentonite slurry wall, or a cutter soil mix wall.

6.2 Alternative Mitigation Options

In discussions with the project team, the following options were considered less favourable than the sheet pile option and are presented in this report as documentation of alternatives considered.

6.2.1 Pressure Relief Valve

Pressure relief valves or controlled relief wells through the aquitard could be installed to allow excess porewater pressure in the confined aquifer to dissipate in a controlled manner. The intent of this system would be to reduce the uplift pressure acting on the underside of the aquitard and maintain an acceptable factor of safety against base heave and uplift instability.

The pressure relief system would likely comprise a series of small-diameter wells or valves installed within the base of the wetland, extending through the aquitard and into the confined aquifer. These would discharge into the wetland or into a controlled drainage layer, subject to civil and stormwater design requirements. The spacing, diameter, discharge capacity, filter requirements, and long-term maintenance provisions would need to be confirmed by detailed hydrogeological design.

This option has the advantage of directly reducing the artesian pressure beneath the wetland, rather than relying solely on additional structural resistance. However, it would introduce a permanent hydraulic connection between the confined aquifer and the wetland.

In artificial wetlands A-C, and possibly D and E in winter conditions, the head pressure in the wells (RL38m) is higher than the outlet levels (presented in Table 3 below), so the water level in these ponds will remain at the low flow outlet level and there will be constant discharge flow using this mitigation method. This will reduce the total stormwater capacity of the artificial wetlands.

Table 3: Wetland Low Flow Outlet Levels provided by Maven Associates

Wetland	Low Flow Outlet (RLm)	Wetland	Low Flow Outlet (RLm)
A	37.77	D	38.1
B	37.53	E	38.13
C	37.91	F	39.37
Note: WGA calculate the head pressure of the confined aquifer to be RL38m, which is higher than the outflows in wetlands A to C, and possibly D and E in extremely wet conditions.			

For this option, the following would need to be considered:

- Confirmation of the design artesian head and required pressure reduction;
- Hydraulic assessment of expected discharge rates;
- Filter design to manage piping/internal erosion risk;
- Assessment of groundwater drawdown effects;
- Allowance for inspection, maintenance, and replacement of valves or wells; and
- Coordination with the hydrologist and stormwater designer to ensure the discharge arrangement is compatible with the wetland design.

6.2.2 Basal Drainage with Geosynthetic Clay Liner (GCL) Separation Layer

A basal drainage system could be constructed beneath the wetland to provide a permanent controlled drainage pathway for artesian groundwater pressures below the wetland base. This would likely require temporary depressurisation of the confined aquifer during construction to allow excavation, placement of the drainage blanket, and installation of the separation/lining system in a stable condition. Subsoil drains would be installed at regular intervals within the drainage layer to provide outlets for the underlying water pressure.

The drainage layer would need to be designed to collect and convey groundwater pressures to a controlled discharge point without allowing uncontrolled seepage, piping, or uplift of the wetland base. A geosynthetic clay liner could then be installed above the drainage layer to hydraulically separate the wetland from the underlying drainage system and reduce the potential for interaction between stormwater and groundwater.

For this option, the following would need to be considered:

- drainage capacity of the GCL
- discharge arrangements of the subsoil drains
- liner performance for constructability
- potential effects on surrounding groundwater levels and wetland water balance.

Long term, this system would perform similarly to the pressure relief valve option, where the groundwater would need to be discharged to a suitable location such as the wetland, which would reduce capacity.

7.0 CONCLUSION

Several options are capable of addressing the potential instability risk for the proposed stormwater ponds from artesian water pressures in the underlying confined aquifer below the subject site. Advantages and disadvantages for the three most preferable options are summarised below:

7.1 Sheet Piles

This option has the advantage of providing a passive, permanent cut-off system without relying on ongoing pressure relief infrastructure. However, it may introduce higher capital cost, constructability risk, and detailing complexity at penetrations and interfaces with the stormwater design.

7.2 Pressure Relief Valve

This option is likely the most economical solution of those presented as it avoids the need to reinforce the walls or base of the pond, however flows from the wells will require constant monitoring during construction and if the groundwater needs to be raised or lowered during construction it will need to be carried out slowly to maintain pond stability. The ongoing pressure relief into the wetland would reduce the stormwater capacity of the ponds.

7.3 Basal Drainage with GCL Layer

This option has the advantage of providing pressure relief beneath the wetland without requiring direct discharge through relief valves into the wetland. However, it would require careful detailing of the drainage outlet, filter compatibility, liner continuity, construction sequencing, and long-term inspection and maintenance. This option would also require extensive dewatering during construction, and additional testing such as pumping tests may be required to assess aquifer recharge and overall viability. Like the pressure relief valve option, the water discharged through this option would reduce pond capacity.

7.4 Construction Monitoring

All of these options will require settlement and groundwater level monitoring in the vicinity of the wetlands during construction to ensure stability is maintained. Requirements including alert levels to be specified during detailed design.

For and on behalf of CMW Geosciences

Prepared by:



Mark McVinnie
Project Engineering Geologist

Reviewed by:



David MacPherson
Associate Geotechnical Engineer
CMEngNZ, CPEng

Authorised by:



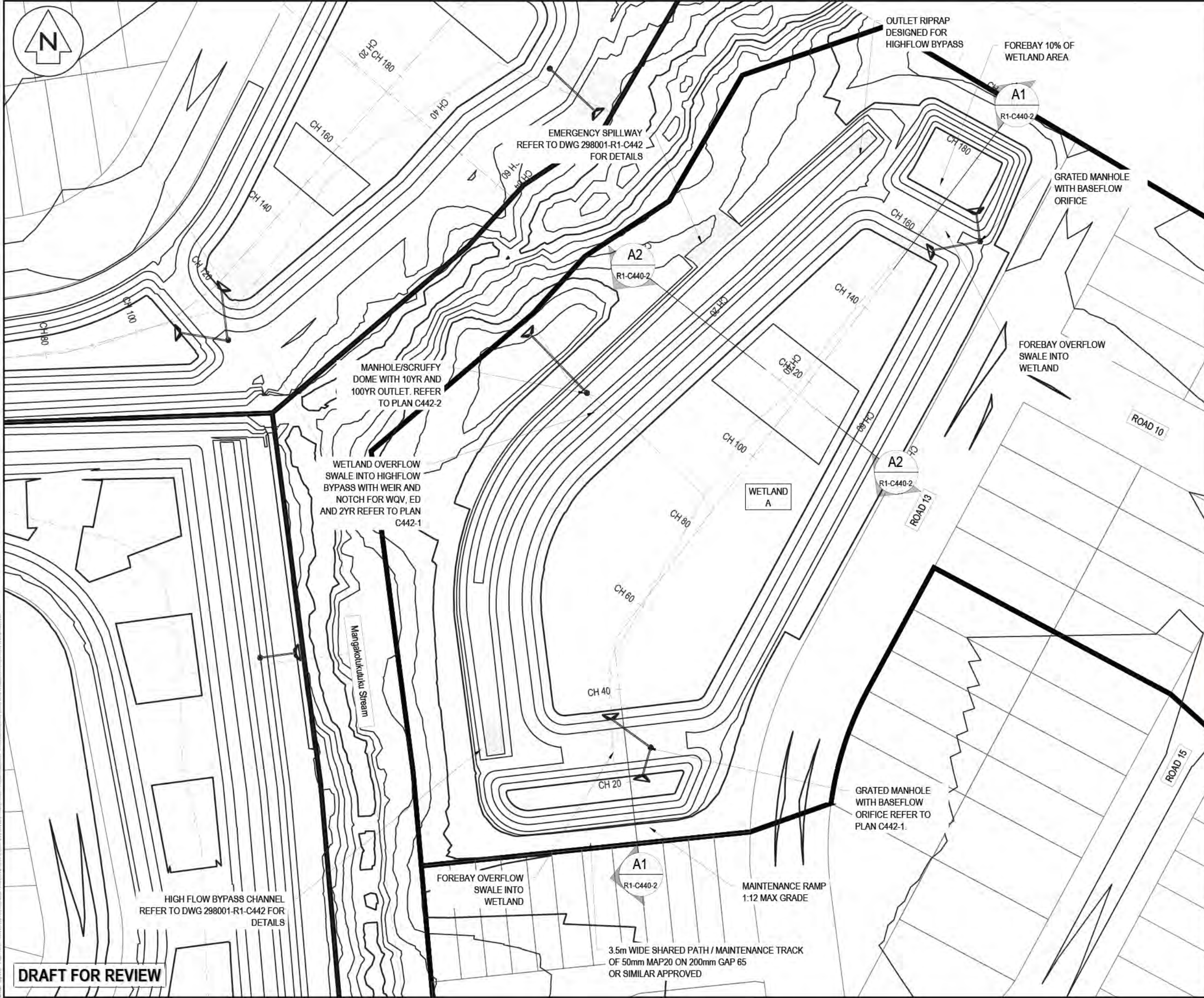
David Sullivan
Principal Geotechnical Engineer
CMEng, CPEng

Attachments: Appendix A: Development Plans
Appendix B: WGA Piezometer Location Plan
Appendix C: Slope Stability Results



APPENDIX A

Maven Associates Design Drawings



NOTES

1. ALL WORKS TO BE IN ACCORDANCE WITH WAIKATO REGIONAL INFRASTRUCTURE TECHNICAL SPECIFICATIONS.
2. CO-ORDINATES IN TERMS OF NZ GEODETIC DATUM MT EDEN 2000. LEVELS IN TERMS OF THE NEW ZEALAND VERTICAL DATUM 2016. CONVERSION TO MOTURIKI 1953 CAN BE ACHIEVED BY ADDING 777m.
3. IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE ALL SERVICES THAT MAY BE AFFECTED BY HIS OPERATIONS.
4. ALL CONCRETE SW PIPE TO BE INSTALLED IN ACCORDANCE WITH AS/NZS 3725:2007 FOR BURIED CONCRETE PIPES AND AS/NZS 4058:2007 FOR PRECAST CONCRETE PIPES (PRESSURE AND NON-PRESSURE) AS STIPULATED IN THE RITS 2018.
5. APPROVED HARDFILL IS TO BE USED IN BACKFILLING OF ALL STORMWATER LINES WITHIN THE ROAD RESERVE.
6. HEAVY DUTY MANHOLE LIDS AND FRAMES TO BE USED IN TRAFFICKED AREAS.
7. ALL CESSPIT LEADS SHALL HAVE MIN COVER 0.9m.
8. ALL LINES ARE TO BE CLASS4 RCRRJ UNLESS SHOWN OTHERWISE.
9. ALL LINES TO BE ABANDONED SHALL BE SEALED AT EACH END. TIMING OF ALL SEALING TO BE COORDINATED WITH COUNCIL STAFF.

LEGEND

EX BOUNDARY

PROP BOUNDARY

C	DRAFT	MJRA	02/2026
B	DRAFT	MJRA	02/2026
A	DRAFT	MJRA	11/2025
Rev	Description	By	Date
		By	Date
Survey	MAVEN		06/2025
Design	MKS		07/2025
Drawn	MJRA		11/2025
Checked	DJM		11/2025

Maven Waikato
07 242 0601
info@maven.co.nz
www.maven.co.nz
Level 1 286 Victoria Street, Hamilton
New Zealand

Project

**SOUTHERN LINKS 1
RESIDENTIAL STAGE 1
HAMILTON, WAIKATO
FOR
SL1 CONSORTIUM GROUP**

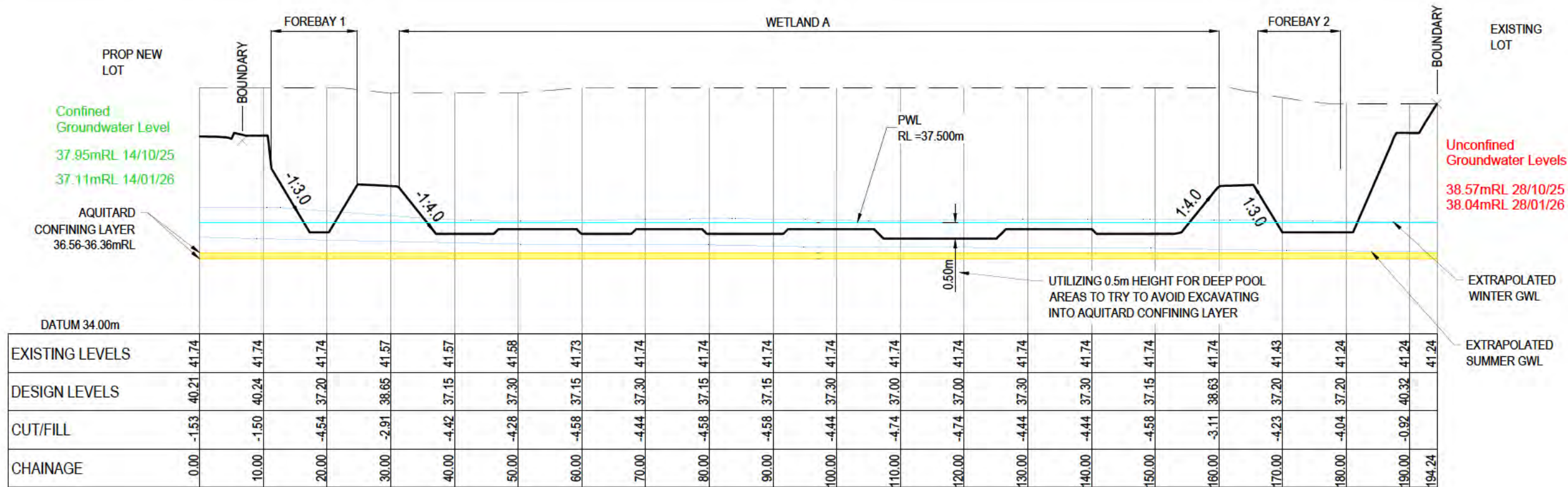
Title

**PROPOSED STORMWATER
WETLAND A
PLAN**

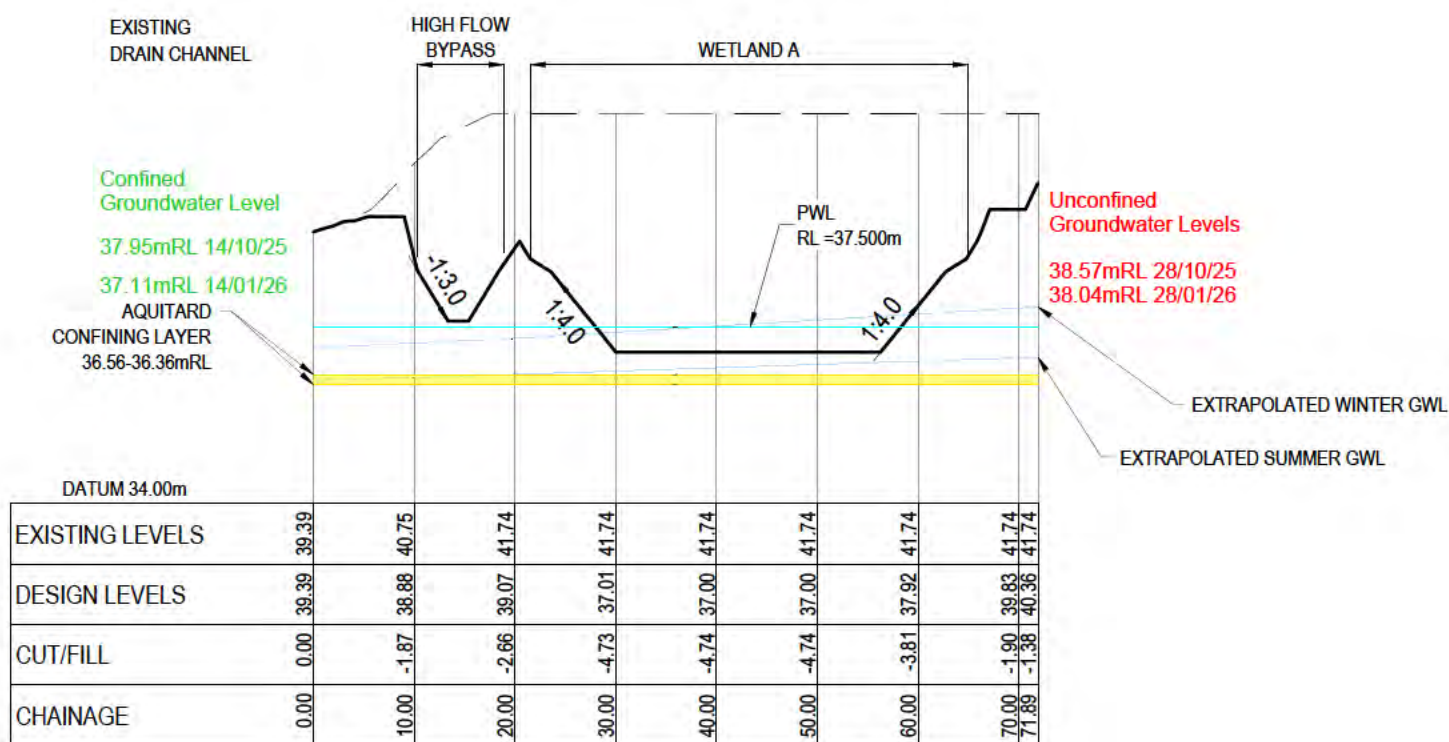
Project no.	298001-R1 SL1
Scale	1:750 @ A3
Cad file	298001-R1-C440 SW WETLAND.DWG
Drawing no.	R1-C440-1
Rev	C

DRAFT FOR REVIEW

DATE: 09/08/25 FILE: R1-C440-1 SW WETLAND PLAN PROJECT: SOUTHERN LINKS 1 RESIDENTIAL STAGE 1 HAMILTON, WAIKATO FOR SL1 CONSORTIUM GROUP



PROPOSED - Section - A1 CH 0+00.00 TO CH 1+94.24
SCALE: 1:750 H / 1:150 V



PROPOSED - Section - A2 CH 0+00.00 TO CH 0+71.89
SCALE: 1:750 H / 1:150 V

- NOTES
- ALL WORKS TO BE IN ACCORDANCE WITH WAIKATO REGIONAL INFRASTRUCTURE TECHNICAL SPECIFICATIONS.
 - CO-ORDINATES IN TERMS OF NZ GEODETIC DATUM MT EDEN 2000. LEVELS IN TERMS OF THE NEW ZEALAND VERTICAL DATUM 2016. CONVERSION TO MOTURIKI 1953 CAN BE ACHIEVED BY ADDING 777m.
 - IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE ALL SERVICES THAT MAY BE AFFECTED BY HIS OPERATIONS.
 - ALL CONCRETE SW PIPE TO BE INSTALLED IN ACCORDANCE WITH AS/NZS 3725:2007 FOR BURIED CONCRETE PIPES AND AS/NZS 4058:2007 FOR PRECAST CONCRETE PIPES (PRESSURE AND NON-PRESSURE) AS STIPULATED IN THE RITS 2018.
 - APPROVED HARDFILL IS TO BE USED IN BACKFILLING OF ALL STORMWATER LINES WITHIN THE ROAD RESERVE.
 - HEAVY DUTY MANHOLE LIDS AND FRAMES TO BE USED IN TRAFFICKED AREAS.
 - ALL CESSPIT LEADS SHALL HAVE MIN COVER 0.9m.
 - ALL LINES ARE TO BE CLASS4 RCRRJ UNLESS SHOWN OTHERWISE.
 - ALL LINES TO BE ABANDONED SHALL BE SEALED AT EACH END. TIMING OF ALL SEALING TO BE COORDINATED WITH COUNCIL STAFF.

Legend

- EX GROUND LEVEL
- PROP GROUND LEVEL
- 100YR - 10 YR LEVEL
- GROUNDWATER LEVEL

C	DRAFT	MJRA	02/2026
B	DRAFT	MJRA	02/2026
A	DRAFT	MJRA	11/2025
Rev	Description	By	Date
		By	Date
Survey	MAVEN		06/2025
Design	MKS		07/2025
Drawn	MJRA		11/2025
Checked	DJM		11/2025

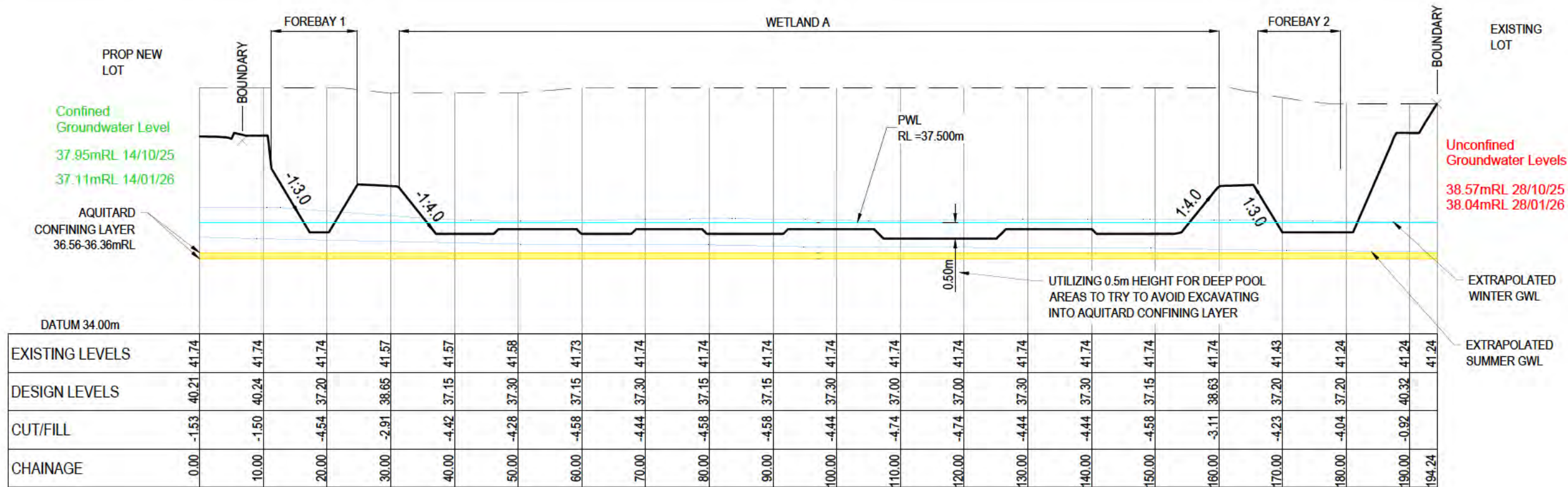


Project
**SOUTHERN LINKS 1
RESIDENTIAL STAGE 1
HAMILTON, WAIKATO
FOR
SL1 CONSORTIUM GROUP**

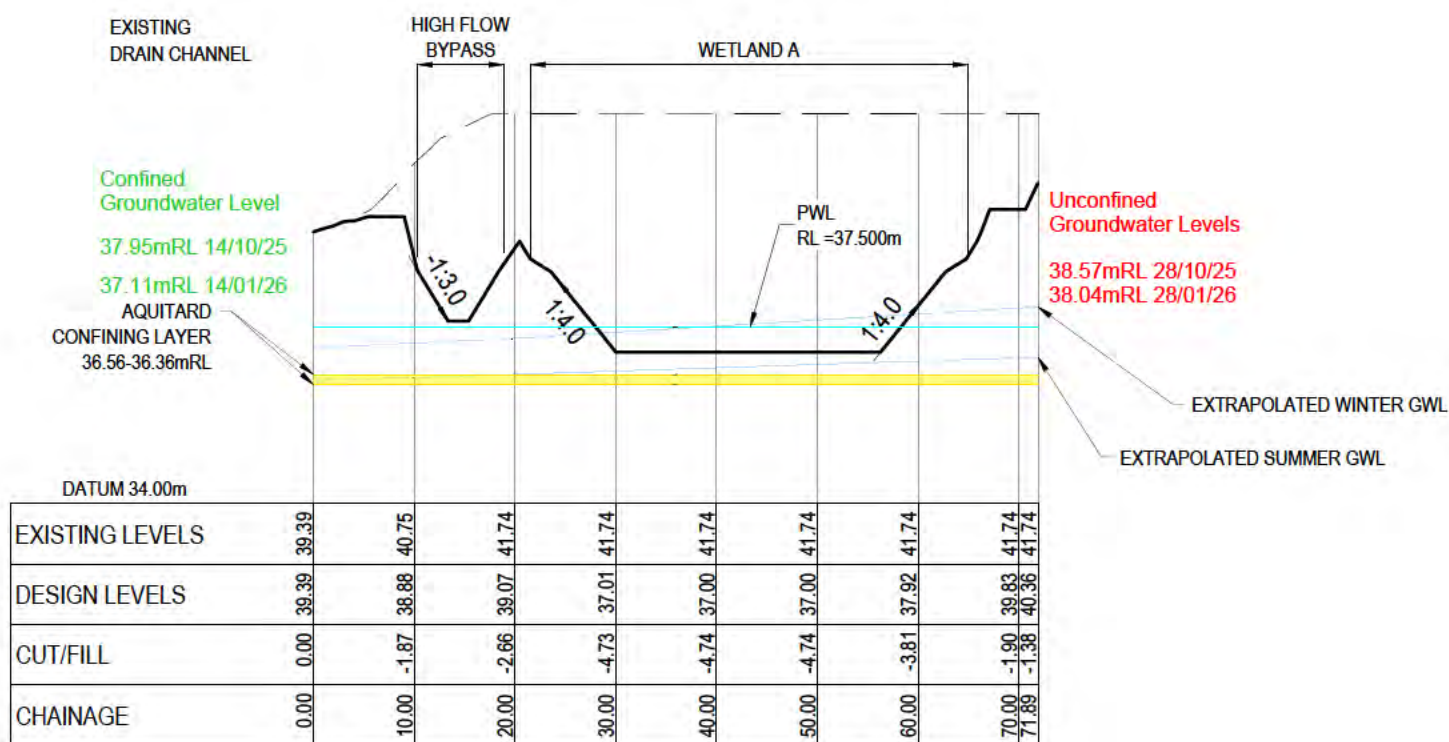
Title
**PROPOSED STORMWATER
WETLAND A
SECTIONS**

Project no.	298001-R1 SL1
Scale	AS SHOWN
Cad file	298001-R1-C440 SW WETLAND.DWG
Drawing no.	R1-C440-2
Rev	C

DRAFT FOR REVIEW



PROPOSED - Section - A1 CH 0+00.00 TO CH 1+94.24
SCALE: 1:750 H / 1:150 V



PROPOSED - Section - A2 CH 0+00.00 TO CH 0+71.89
SCALE: 1:750 H / 1:150 V

- NOTES
- ALL WORKS TO BE IN ACCORDANCE WITH WAIKATO REGIONAL INFRASTRUCTURE TECHNICAL SPECIFICATIONS.
 - CO-ORDINATES IN TERMS OF NZ GEODETIC DATUM MT EDEN 2000. LEVELS IN TERMS OF THE NEW ZEALAND VERTICAL DATUM 2016. CONVERSION TO MOTURIKI 1953 CAN BE ACHIEVED BY ADDING 777m.
 - IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE ALL SERVICES THAT MAY BE AFFECTED BY HIS OPERATIONS.
 - ALL CONCRETE SW PIPE TO BE INSTALLED IN ACCORDANCE WITH AS/NZS 3725:2007 FOR BURIED CONCRETE PIPES AND AS/NZS 4058:2007 FOR PRECAST CONCRETE PIPES (PRESSURE AND NON-PRESSURE) AS STIPULATED IN THE RITS 2018.
 - APPROVED HARDFILL IS TO BE USED IN BACKFILLING OF ALL STORMWATER LINES WITHIN THE ROAD RESERVE.
 - HEAVY DUTY MANHOLE LIDS AND FRAMES TO BE USED IN TRAFFICKED AREAS.
 - ALL CESSPIT LEADS SHALL HAVE MIN COVER 0.9m.
 - ALL LINES ARE TO BE CLASS4 RCRRJ UNLESS SHOWN OTHERWISE.
 - ALL LINES TO BE ABANDONED SHALL BE SEALED AT EACH END. TIMING OF ALL SEALING TO BE COORDINATED WITH COUNCIL STAFF.

Legend

- EX GROUND LEVEL
- PROP GROUND LEVEL
- 100YR - 10 YR LEVEL
- GROUNDWATER LEVEL

C	DRAFT	MJRA	02/2026
B	DRAFT	MJRA	02/2026
A	DRAFT	MJRA	11/2025
Rev	Description	By	Date
		By	Date
Survey	MAVEN		06/2025
Design	MKS		07/2025
Drawn	MJRA		11/2025
Checked	DJM		11/2025

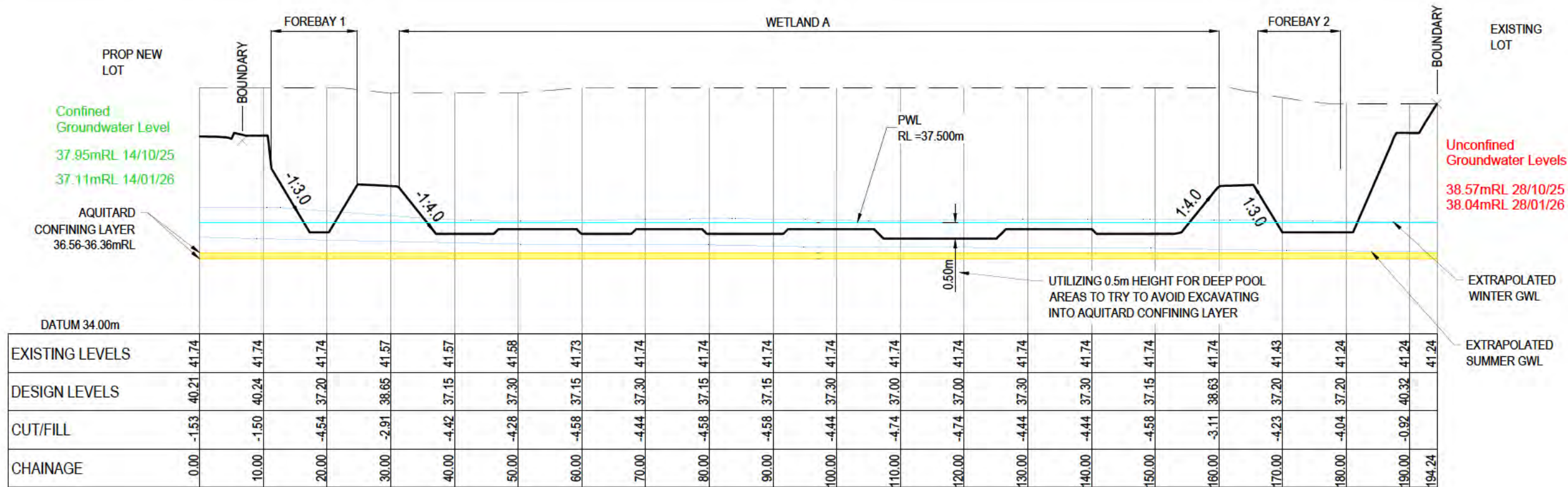


Project
**SOUTHERN LINKS 1
RESIDENTIAL STAGE 1
HAMILTON, WAIKATO
FOR
SL1 CONSORTIUM GROUP**

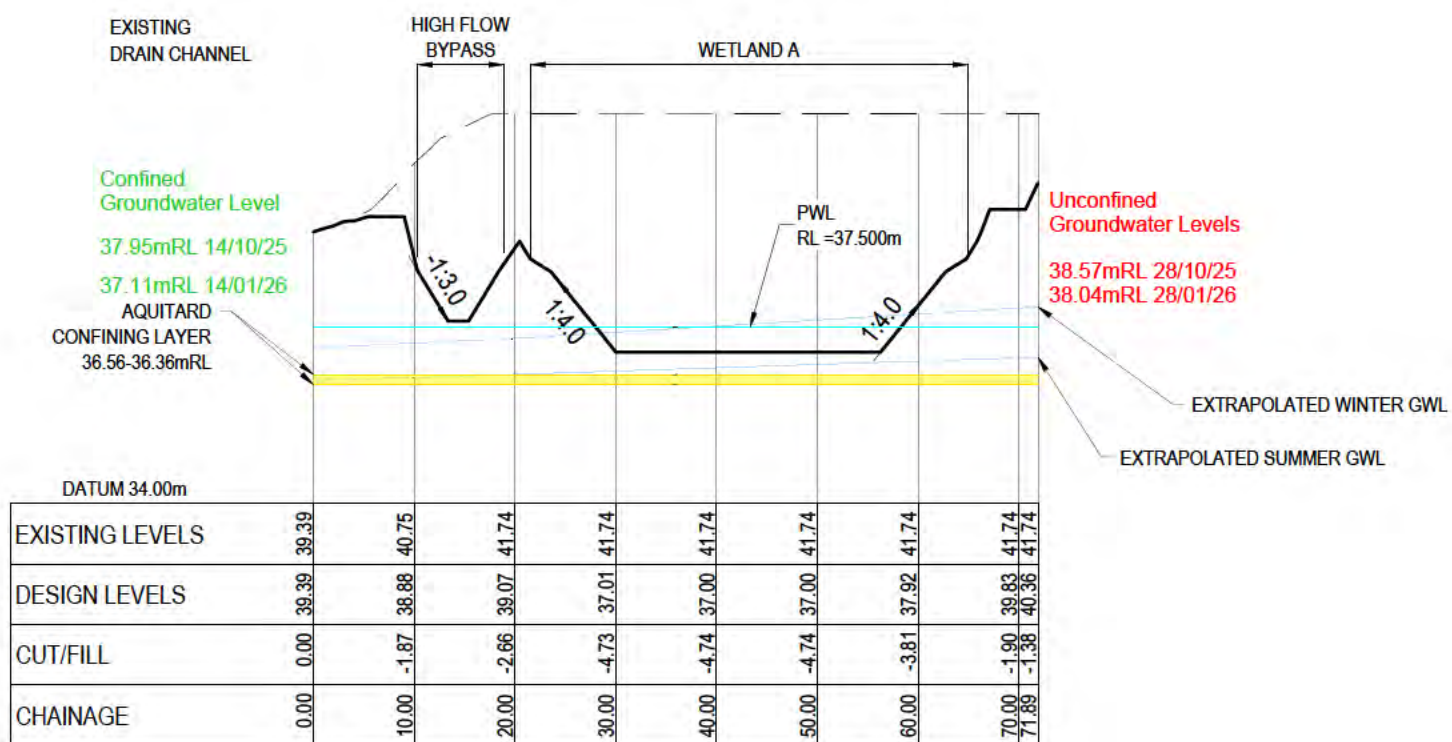
Title
**PROPOSED STORMWATER
WETLAND A
SECTIONS**

Project no.	298001-R1 SL1
Scale	AS SHOWN
Cad file	298001-R1-C440 SW WETLAND.DWG
Drawing no.	R1-C440-2
Rev	C

DRAFT FOR REVIEW



PROPOSED - Section - A1 CH 0+00.00 TO CH 1+94.24
SCALE: 1:750 H / 1:150 V



PROPOSED - Section - A2 CH 0+00.00 TO CH 0+71.89
SCALE: 1:750 H / 1:150 V

DRAFT FOR REVIEW

- NOTES
- ALL WORKS TO BE IN ACCORDANCE WITH WAIKATO REGIONAL INFRASTRUCTURE TECHNICAL SPECIFICATIONS.
 - CO-ORDINATES IN TERMS OF NZ GEODETIC DATUM MT EDEN 2000. LEVELS IN TERMS OF THE NEW ZEALAND VERTICAL DATUM 2016. CONVERSION TO MOTURIKI 1953 CAN BE ACHIEVED BY ADDING 777m.
 - IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE ALL SERVICES THAT MAY BE AFFECTED BY HIS OPERATIONS.
 - ALL CONCRETE SW PIPE TO BE INSTALLED IN ACCORDANCE WITH AS/NZS 3725:2007 FOR BURIED CONCRETE PIPES AND AS/NZS 4058:2007 FOR PRECAST CONCRETE PIPES (PRESSURE AND NON-PRESSURE) AS STIPULATED IN THE RITS 2018.
 - APPROVED HARDFILL IS TO BE USED IN BACKFILLING OF ALL STORMWATER LINES WITHIN THE ROAD RESERVE.
 - HEAVY DUTY MANHOLE LIDS AND FRAMES TO BE USED IN TRAFFICKED AREAS.
 - ALL CESSPIT LEADS SHALL HAVE MIN COVER 0.9m.
 - ALL LINES ARE TO BE CLASS4 RCRRJ UNLESS SHOWN OTHERWISE.
 - ALL LINES TO BE ABANDONED SHALL BE SEALED AT EACH END. TIMING OF ALL SEALING TO BE COORDINATED WITH COUNCIL STAFF.

Legend

- EX GROUND LEVEL
- PROP GROUND LEVEL
- 100YR - 10 YR LEVEL
- GROUNDWATER LEVEL

Rev	Description	By	Date
C	DRAFT	MJRA	02/2026
B	DRAFT	MJRA	02/2026
A	DRAFT	MJRA	11/2025
Rev	Description	By	Date
Survey	MAVEN		06/2025
Design	MKS		07/2025
Drawn	MJRA		11/2025
Checked	DJM		11/2025



Project
**SOUTHERN LINKS 1
RESIDENTIAL STAGE 1
HAMILTON, WAIKATO
FOR
SL1 CONSORTIUM GROUP**

Title
**PROPOSED STORMWATER
WETLAND A
SECTIONS**

Project no.	298001-R1 SL1
Scale	AS SHOWN
Cad file	298001-R1-C440 SW WETLAND.DWG
Drawing no.	R1-C440-2
Rev	C

APPENDIX B

WGA Piezomometer Location Plan

WGA Piezometer – Southern Block Locations

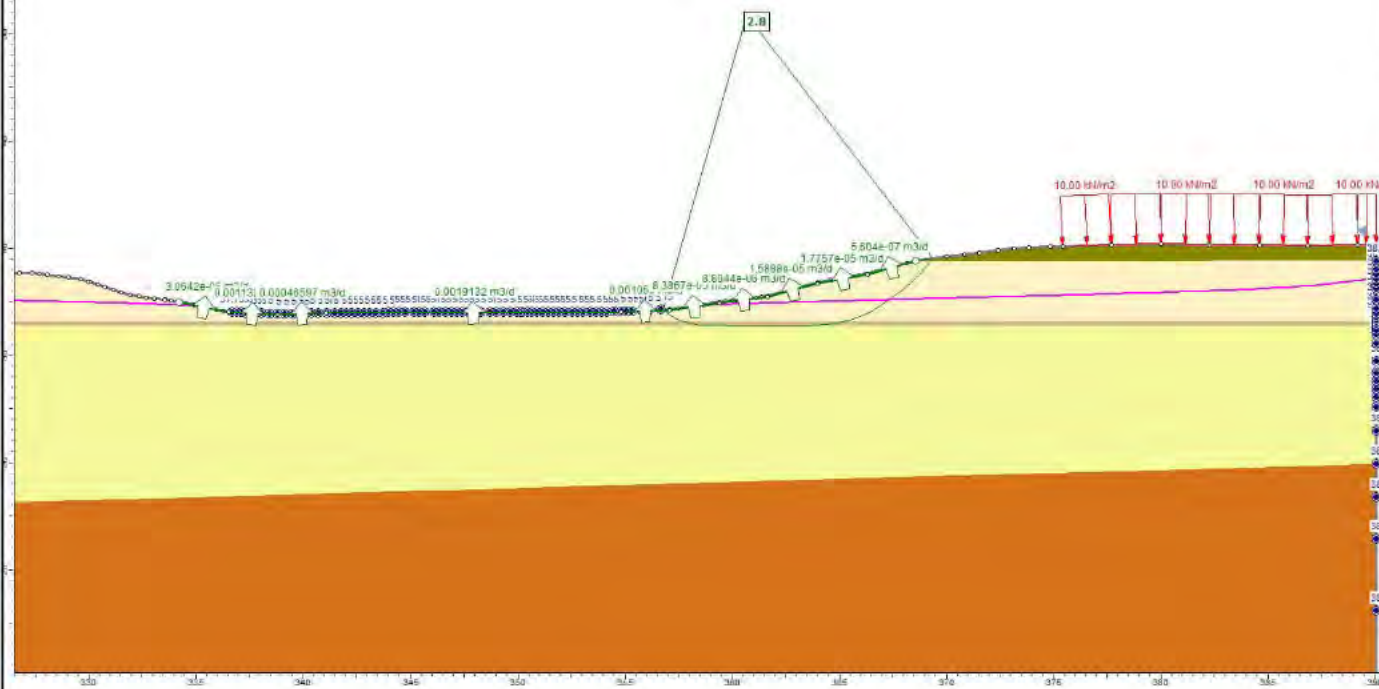
Maven Design Rev A



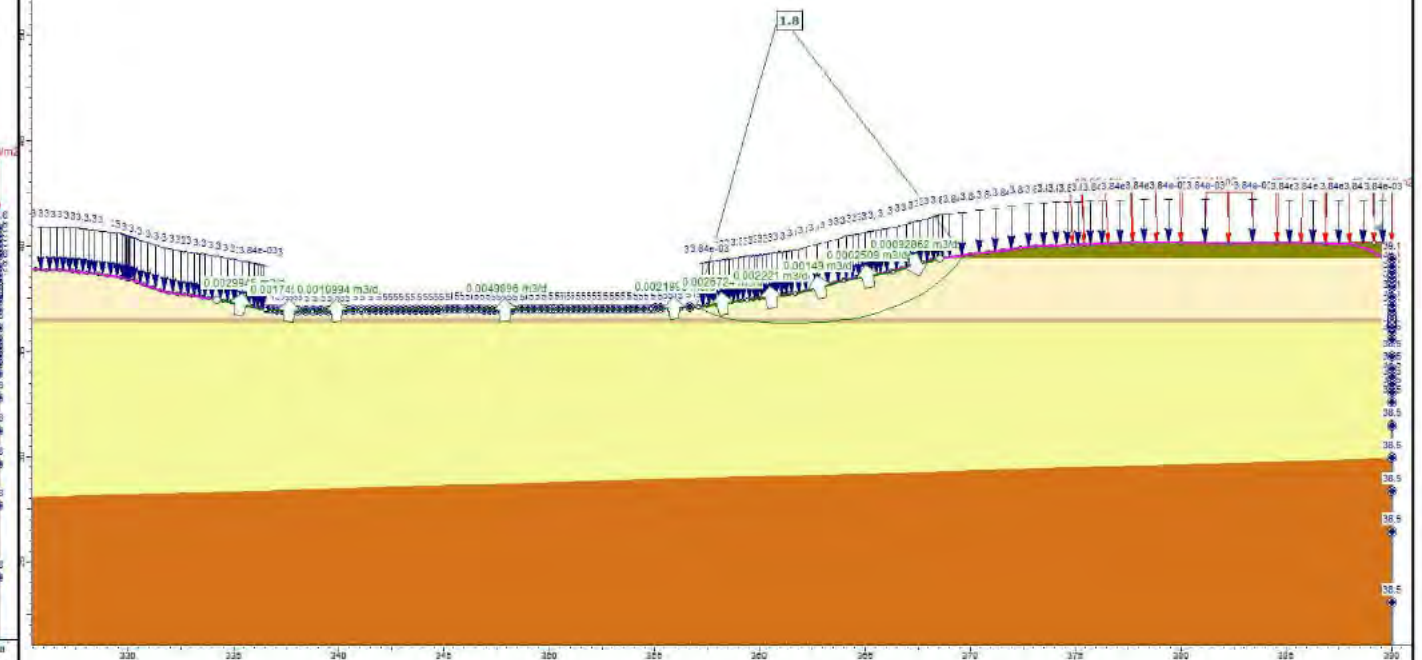
APPENDIX C

Slope Stability Assessment

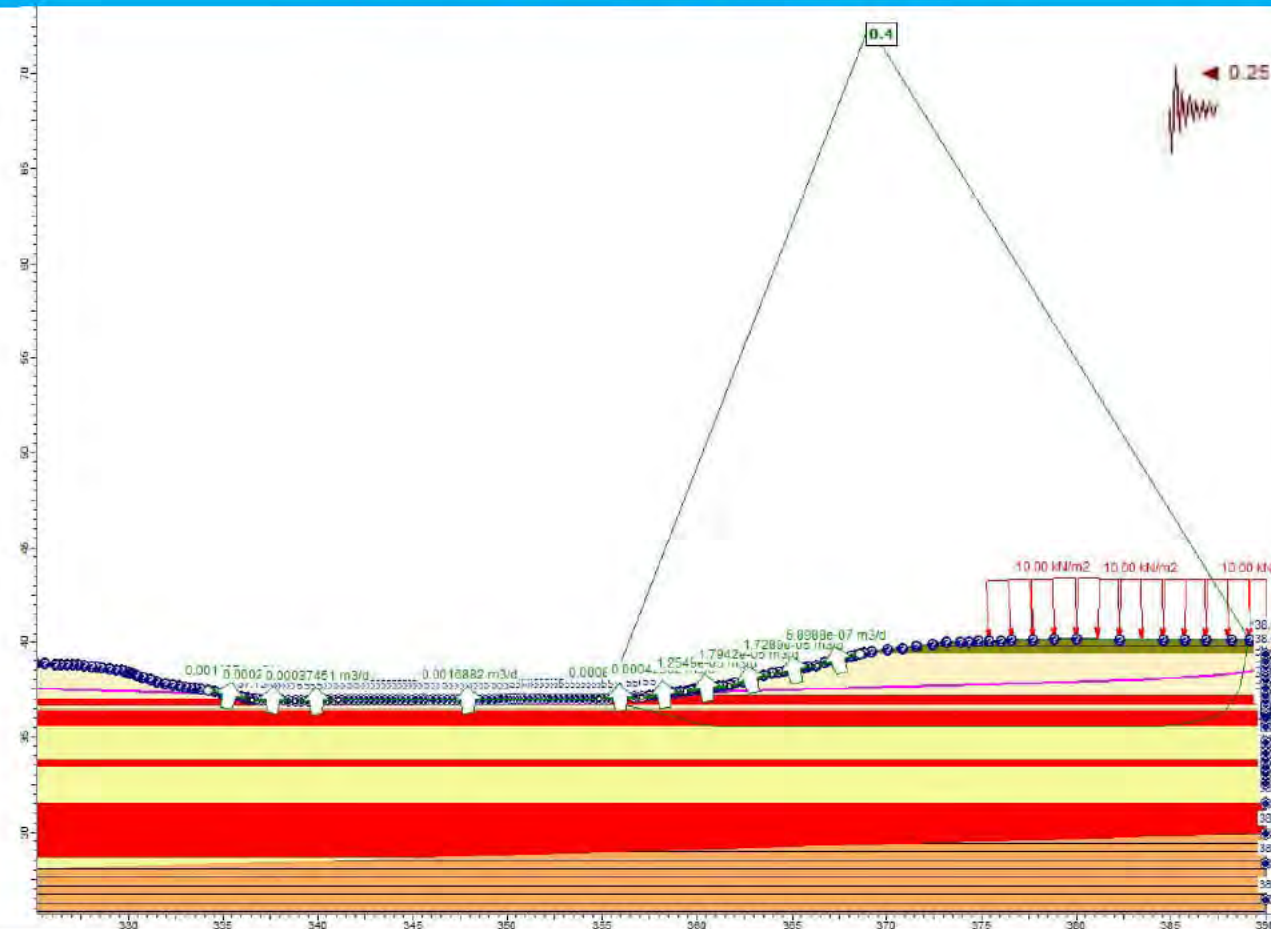
Proposed Profile - Normal Groundwater Conditions. Failures Filtered to FoS≤1.5



Proposed Profile - Worst Case Groundwater Conditions (+0.5m GWT increase and ground infiltration). Failures Filtered to FoS≤1.3



Proposed Profile - ULS Seismic Event. Failures Filtered to FoS≤1.0

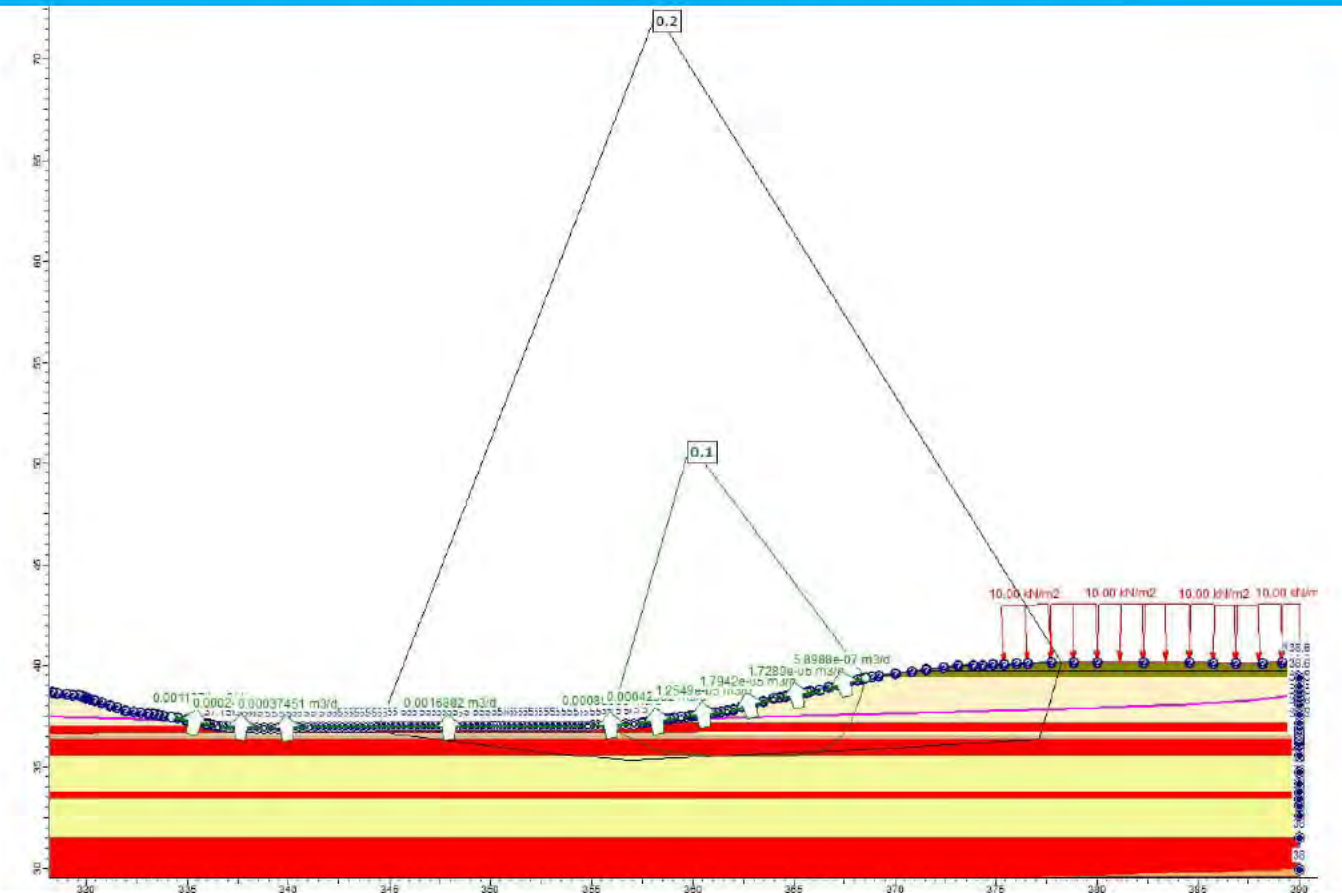
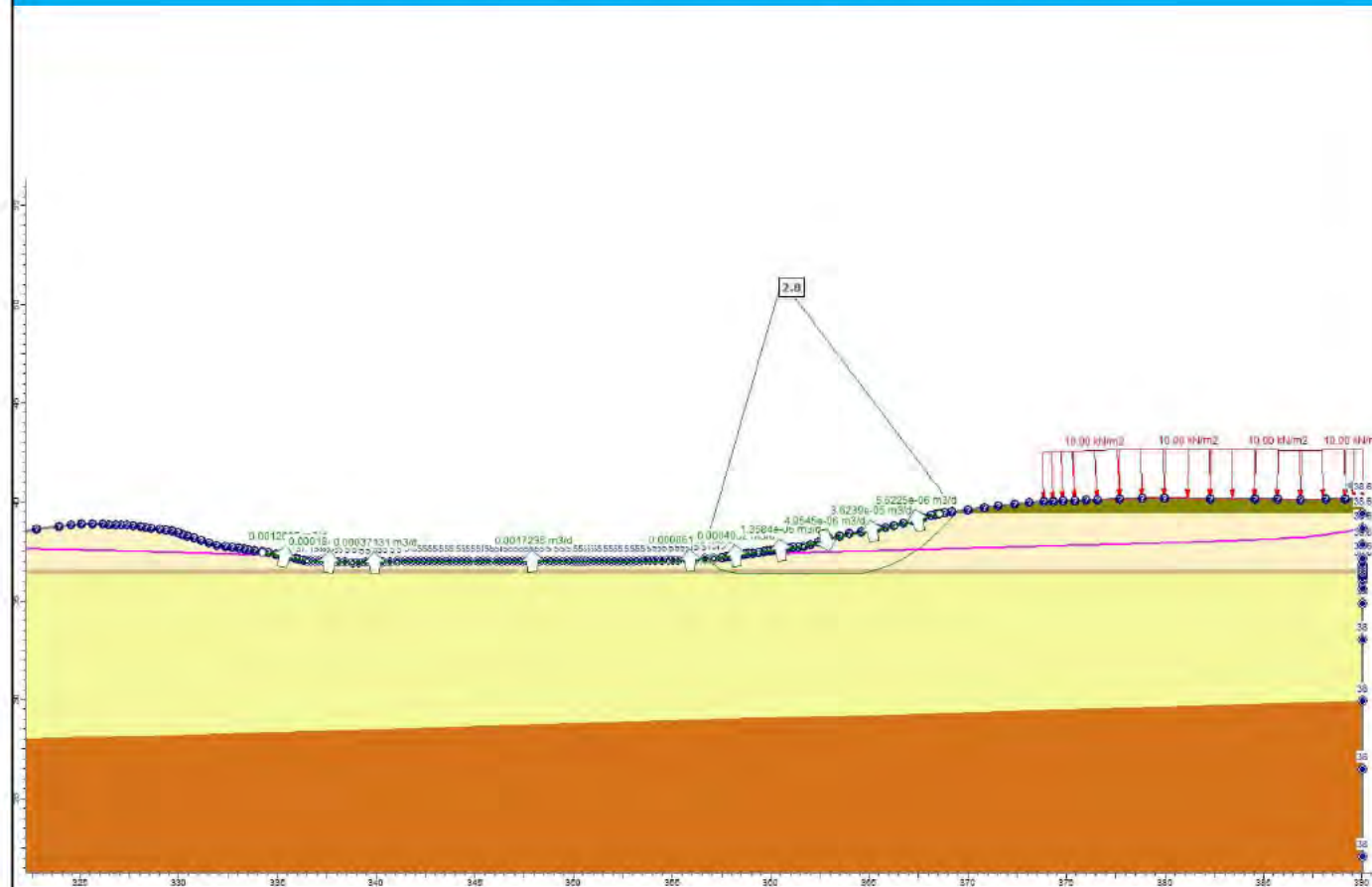


Parameters

Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	Phi (°)	Phi b (°)	Air Entry Value (kPa)	Tensile Strength (kPa)
Top Silt		17	Mohr-Coulomb	2	28	0	0	80
Shallow Aquifer		17	Mohr-Coulomb	1	35	0	0	
Aquitard		17	Mohr-Coulomb	2	28	0	0	80
Deep Aquifer		20	Mohr-Coulomb	1	35	0	0	
Walton Clay/Silt		17	Mohr-Coulomb	5	30	0	0	140

Material Name	Color	Unit Weight (kN/m ³)	Strength Type	Cohesion (kPa)	Phi (°)	Cohesion Type	Vertical Stress Ratio	Minimum Shear Strength (kPa)	Phi b (°)	Air Entry Value (kPa)	Tensile Strength (kPa)
Shallow Aquifer		17	Mohr-Coulomb	1	35				0	0	
Aquitard		17	Mohr-Coulomb	2	28				0	0	80
Deep Aquifer		20	Mohr-Coulomb	1	35				0	0	
Top Silt - Undrained		17	Undrained	80	0	Constant			0	0	80
Walton Clay/Silt - undrained		17	Undrained	140	0	Constant			0	0	140
Shallow Aquifer - Liquefied		17	Vertical Stress Ratio				0.1	5	0	0	
Deep Aquifer - Liquefied		17	Vertical Stress Ratio				0.1	5	0	0	

Proposed Profile - Yield Acceleration along the pond batter and at the crest, FoS filteres to 1.



Parameters

Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (°)	Phi b (°)	Air Entry Value (kPa)	Tensile Strength (kPa)
Top Silt		17	Mohr-Coulomb	2	28	0	0	80
Shallow Aquifer		17	Mohr-Coulomb	1	35	0	0	
Aquitard		17	Mohr-Coulomb	2	28	0	0	80
Deep Aquifer		20	Mohr-Coulomb	1	35	0	0	
Walton Clay/Silt		17	Mohr-Coulomb	5	30	0	0	140

Material Name	Color	Model	KS (m/s)	K2/K1	K1 Angle (deg)	Soil Type
Top Silt		Simple	1e-07	1	0	General
Shallow Aquifer		Simple	1e-07	1	0	General
Aquitard		Simple	2e-08	1	0	General
Deep Aquifer		Simple	1e-07	1	0	General
Walton Clay/Silt		Simple	1e-08	1	0	General

	CLIENT:	Saxby Road JV	DESIGNER:	PM
	PROJECT:	Mexted Block - Southern Link Development	CHECKED:	DMM
	TITLE:	COSEISMIC DISPLACEMENTS - FLEXIBLE SLIDING MASS	REVISION:	8
			DATE:	7/05/2026
			PROJECT:	HAM2025-0056AK

WHEN TO USE THIS SHEET:

Use this sheet when calculating the coseismic displacements of a block assuming a flexible sliding mass mechanism.

1. CALCULATE THE PERIOD OF THE SLIDING MASS (T_s)

1D or 2D?	1D	Generally 1D, but see guidance tab for details
H	3.7 m	Maximum height of the sliding mass, measured from within the sliding mass
V_s	150 m/s	Average shear wave velocity of the sliding mass
T_s	0.0987 s	

2. SEISMIC PARAMETERS

Case	Ordinary Ground Motions	Only applicable to Bray and Macedo (2019). Almost always ordinary ground motions, see guidance tab re pulses
Yield Coefficient (a_d)	0.1 g	
Magnitude (M_w)	5.9	
PGA	0.25 g	
PGA	0.25 g	
$S_a(1.3T_s)$	0.43 g	Required for Bray (2019) and Macedo (2023)
$S_a(1.5T_s)$	0.43 g	Required for Bray (2007)
PGV	23.33 cm/s	Required for Rathje & Antonakos (2011) and Bray (2019) pulses.
T_m	0.53	Only required for Rathje & Antonakos (2011)
CALS?	☐	Multiplies $S_a(1.3T_s)$, $S_a(1.5T_s)$ and PGA by 1.5, in accordance with BM v3.4

Seismic Demand Parameters:

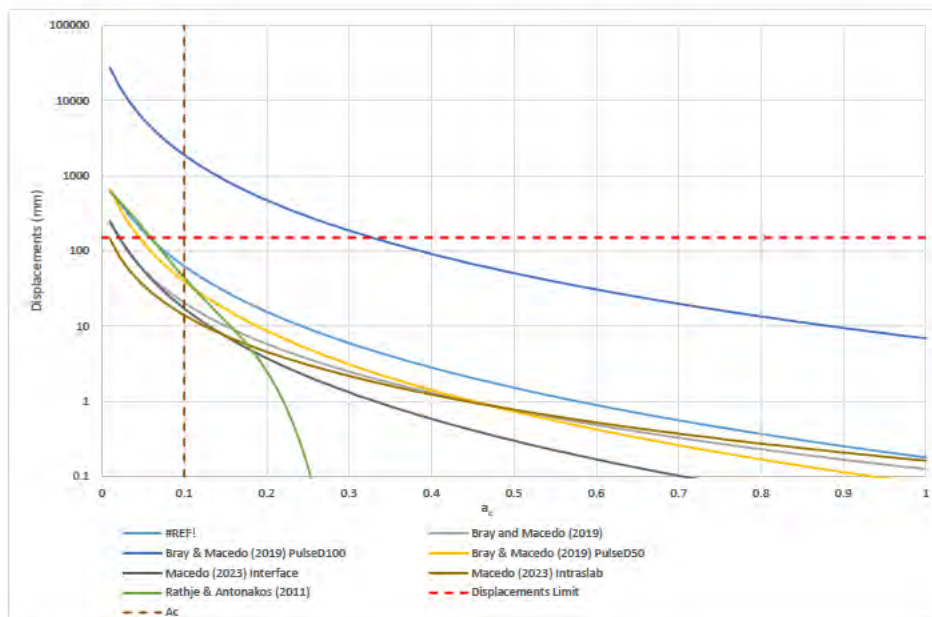
Hamilton
Class D
1/500

3. RESULTS

Probability of Exceedence:	Bray and Macedo (2019)	Macedo et al. (2023)	Macedo et al. (2023)
Probability of Negligible Displacement	5%	3%	4%
50%	20 mm	17 mm	14 mm
16%	41 mm	37 mm	26 mm
5%	66 mm	60 mm	40 mm
2.5%	83 mm	76 mm	48 mm
0.5%	129 mm	121 mm	71 mm
Applicable Seismic Source	Shallow Crustal	Subduction Interface	Subduction Intraslab

4. CHART OPTIONS

Displacements Limit 150



	CLIENT:	Saxby Road JV	DESIGNER:	PM
	PROJECT:	Mexted Block - Southern Link Development	CHECKED:	DMM
	TITLE:	COSEISMIC DISPLACEMENTS - FLEXIBLE SLIDING MASS	REVISION:	8
			DATE:	7/05/2026
			PROJECT:	HAM2025-0056AK

WHEN TO USE THIS SHEET:

Use this sheet when calculating the coseismic displacements of a block assuming a flexible sliding mass mechanism.

1. CALCULATE THE PERIOD OF THE SLIDING MASS (T_s)

1D or 2D?	1D	Generally 1D, but see guidance tab for details
H	3.7 m	Maximum height of the sliding mass, measured from within the sliding mass
V_s	150 m/s	Average shear wave velocity of the sliding mass
T_s	0.0987 s	

2. SEISMIC PARAMETERS

Case	Ordinary Ground Motions	Only applicable to Bray and Macedo (2019). Almost always ordinary ground motions, see guidance tab re pulses
Yield Coefficient (a_d)	0.2 g	
Magnitude (M_w)	5.9	
PGA	0.25 g	
PGA	0.25 g	
$S_a(1.3T_s)$	0.43 g	Required for Bray (2019) and Macedo (2023)
$S_a(1.5T_s)$	0.43 g	Required for Bray (2007)
PGV	23.33 cm/s	Required for Rathje & Antonakos (2011) and Bray (2019) pulses.
T_m	0.53	Only required for Rathje & Antonakos (2011)
CALS?	☐	Multiplies $S_a(1.3T_s)$, $S_a(1.5T_s)$ and PGA by 1.5, in accordance with BM v3.4

Seismic Demand Parameters:

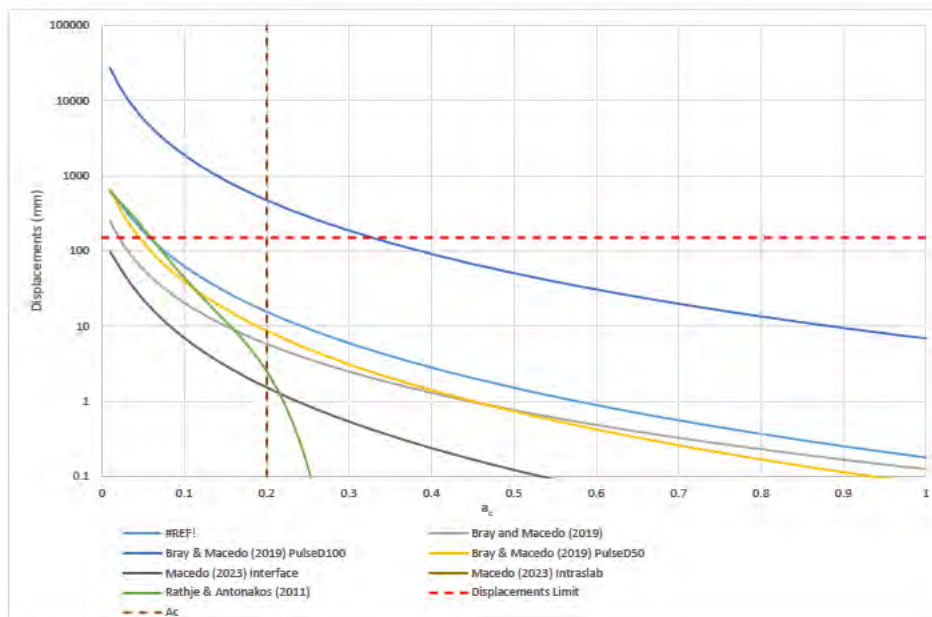
Hamilton
Class D
1/500

3. RESULTS

Probability of Exceedence:	Bray and Macedo (2019)	Macedo et al. (2023)	Macedo et al. (2023)
Probability of Negligible Displacement	54%	44%	62%
50%	<5 mm	2 mm	<5 mm
16%	8 mm	6 mm	5 mm
5%	14 mm	11 mm	9 mm
2.5%	18 mm	14 mm	12 mm
0.5%	30 mm	23 mm	19 mm
Applicable Seismic Source	Shallow Crustal	Subduction Interface	Subduction Intraslab

4. CHART OPTIONS

Displacements Limit 150



USING YOUR CMW GEOTECHNICAL REPORT

Geotechnical reporting relies on interpretation of facts and collected information using experience, professional judgement, and opinion. As such it generally has a level of uncertainty attached to it, which is often far less exact than other engineering design disciplines. The notes below provide general advice on what can be reasonably expected from your report and the inherent limitations of a geotechnical report.

Preparation of your report

Your geotechnical report has been written for your use on your project. The contents of your report may not meet the needs of others who may have different objectives or requirements. The report has been prepared using generally accepted Geotechnical Engineering and Engineering Geology practices and procedures. The opinions and conclusions reached in your report are made in accordance with these accepted principles. Specific items of geotechnical or geological importance are highlighted in the report.

In producing your report, we have relied on the information which is referenced or summarised in the report. If further information becomes available or the nature of your project changes, then the findings in this report may no longer be appropriate. In such cases the report must be reviewed, and any necessary changes must be made by us.

Your geotechnical report is based on your project's requirements

Your geotechnical report has been developed based on your specific project requirements and only applies to the site in this report. Project requirements could include the type of works being undertaken; project locality, size and configuration; the location of any structures on or around the site; the presence of underground utilities; proposed design methodology; the duration or design life of the works; and construction method and/or sequencing.

The information or advice in your geotechnical report should not be applied to any other project given the intrinsic differences between different projects and site locations. Similarly geotechnical information, data and conclusions from other sites and projects may not be relevant or appropriate for your project.

Interpretation of geotechnical data

Site investigations identify subsurface conditions at discrete locations. Additional geotechnical information (e.g. literature and external data source review, laboratory testing etc) are interpreted by Geologists or Engineers to provide an opinion about a site specific ground models, their likely impact on the proposed development and recommended actions. Actual conditions may differ from those inferred to exist due to the variability of geological environments. The actual interface between materials may be far more gradual or abrupt than assumed based on the facts obtained. Nothing can be done to change the actual site conditions which exist, but steps can be taken to reduce the impact of unexpected conditions. Interpretation of factual data can be influenced by design and/or construction methods. Where these methods change review of the interpretation in the report may be required.

Subsurface conditions can change

Subsurface conditions are created by natural processes and then can be altered anthropically or over time. For example, groundwater levels can vary with time or activities adjacent to your site, fill may be placed on a site, or the consistency of near surface conditions might be susceptible to seasonal changes. The report is based on conditions which existed at the time of investigation. It is important to confirm whether conditions may have changed, particularly when large periods of time have elapsed since the investigations were performed.

Interpretation and use by other design professionals

Costly problems can occur when other design professionals develop their plans based on misinterpretations of a geotechnical report. To help avoid misinterpretations, it is important to retain the assistance of CMW to work with other project design professionals who are affected by the contents of your report. CMW staff can explain the report implications to design professionals and then review design plans and specifications to see that they have correctly incorporated the findings of this report.

Your report's recommendations require confirmation during construction

Your report is based on site conditions as revealed through selective point sampling. Engineering judgement is then applied to assess how indicative of actual conditions throughout an area the point sampling might be. Any assumptions made cannot be substantiated until construction is complete. For this reason, you should retain geotechnical services throughout the construction stage, to identify variances from previous assumption, conduct additional tests if required and recommend solutions to problems encountered on site.

A Geotechnical Engineer, who is fully familiar with the site and the background information, can assess whether the report's recommendations remain valid and whether changes should be considered as the project develops. An unfamiliar party using this report increases the risk that the report will be misinterpreted.

Environmental Matters Are Not Covered

Unless specifically discussed in your report environmental matters are not covered by a CMW Geotechnical Report. Environmental matters might include the level of contaminants present of the site covered by this report, potential uses or treatment of contaminated materials or the disposal of contaminated materials. These matters can be complex and are often governed by specific legislation.

The personnel, equipment, and techniques used to perform an environmental study can differ significantly from those used in this report. For that reason, our report does not provide environmental recommendations. Unanticipated subsurface environmental problems can have large consequences for your site. If you have not obtained your own environmental information about the project site, ask your CMW contact about how to find environmental risk-management guidance.



Hamilton

Level 1 | Block C
401 Grey Street
Hamilton 3216
New Zealand

Ph: +64 7 2820 039

www.cmwgeosciences.com