

 JACKSON GEO SERVICES		EXPLORATORY HOLE PHOTOGRAPHS				Exploratory Hole
						S2-TP300
Project	Global Centre of Rail Excellence (GCRE) Stage 2	Easting	282971.07	Equipment	JCB 220X 1c	Sheet 3 of 4
Client	Walters UK Ltd	Northing	211882.34	Method	TP	
Project No	G23012	Level	229.73 mAOD	Termination Reason	Collapse.	



S2-TP300 Face A



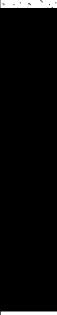
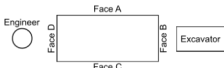
S2-TP300 Spoil

		EXPLORATORY HOLE PHOTOGRAPHS				Exploratory Hole
						S2-TP300
Project	Global Centre of Rail Excellence (GCRE) Stage 2	Easting	282971.07	Equipment	JCB 220X 1c	Sheet 4 of 4
Client	Walters UK Ltd	Northing	211882.34	Method	TP	
Project No	G23012	Level	229.73 mAOD	Termination Reason	Collapse.	



S2-TP300 Post Excavation

JACKSON GEO SERVICES				TRIAL PIT EXPLORATORY HOLE LOG				Exploratory Hole Progress by Time			Exploratory Hole	
Date and Time		Depth		Water Depth		S2-WS01						
23/05/2023 12:00		0.00		Dry								
23/05/2023 13:00		0.85										
Project		Global Centre of Rail Excellence (GCRE) Stage 2		Equipment		Concrete Corer/Hand Tools		Sheet 1 of 1				
Client		Walters UK Ltd		Method		CC/IP		Scale				
Project No		G23012		Level		236.32 mAOD		1:20				
Orientation		0 degrees						Logged				
Easting		284526.88		Northing		210460.78		AE				
Length								Checked				
Termination Reason		Terminated due to potential ACM		Width				AP				
Samples		Sampling and Testing Depths		Insitu Testing and Depth Related Remarks		Depth (Thickness)		Level (mAOD)				
Legend								Description				
								Scale				
								Backfill				
1 B		0.20 - 0.30		PID: 0.0ppmv		0.00		236.12				
2 ES		0.20 - 0.30		Possible ASBESTOS.		(0.20)						
3 D		0.20 - 0.50		Possible ASBESTOS.		0.20						
		0.20										
4 ES		0.50 - 0.60		PID: 0.1ppmv		(0.65)						
5 D		0.50		Possible ASBESTOS.				0.50				
6 ES		0.60 - 0.70		Possible ASBESTOS.								
		0.60 - 0.70		SUSPECTED ASBESTOS								
						235.47						
								End of Exploratory Hole at 0.85m				
								1.00				
								1.50				
								2.00				
								2.50				
								3.00				
								3.50				
								4.00				
Weather				Trial Pit Excavation Onsite Layout				Water Strikes				
Shoring				Engineer				Date and Time				
Stability				Face A				Strike				
				Face B				Rising to				
				Face C				Time				
				Excavator				Remarks				
				Log presents Face A unless otherwise noted.								
Remarks												
Concrete coring from GL to 0.20m. Hand excavated inspection pit from 0.20m to 0.85m												
Printed 28/09/2023 07:50												

		TRIAL PIT EXPLORATORY HOLE LOG					Exploratory Hole Progress by Time			Exploratory Hole					
							Date and Time		Depth	Water Depth	S2-WS01b				
Project		Global Centre of Rail Excellence (GCRE) Stage 2			Equipment		Hand Tools/Concrete corer		23/05/2023 14:00 23/05/2023 15:00		0.00 0.90	Dry	Sheet 1 of 1		
Client		Walters UK Ltd			Method		IP/CC						Scale	1:20	
Project No		G23012		Level		236.30 mAOD		Orientation		0 degrees		Logged		AE	
Easting		284525.48		Northing		210462.41		Length		0.30		Checked		AP	
Termination Reason		Terminated due to potential ACM			Width		0.30								
Samples	Sampling and Testing Depths	Insitu Testing and Depth Related Remarks			Depth (Thickness)	Level (mAOD)	Legend	Description					Scale	Backfill	
1 CONCC	0.00 - 0.23	PID: 0.0ppmv Possible ASBESTOS. Possible ASBESTOS. Possible ASBESTOS.			0.00 (0.23)	236.07		Strong light grey CONCRETE. (MADE GROUND) Geology Code: MGR 2nd Geology Code: Conc 0.00m - 0.02m Reddish brown terracotta floor tiles.					0.50		
2 B 3 ES 4 D	0.23 - 0.30 0.23 - 0.30 0.23 - 0.50 0.23						Soft greyish brown gravelly sandy CLAY with frequent cement bound asbestos up to (160mm) from 0.50m. Gravel is angular to subangular frequently tabular fine to coarse of siltstone and mudstone. Sand is fine to coarse. (MADE GROUND) Geology Code: MGR 2nd Geology Code: CL								
5 ES 6 D 7 ES	0.50 - 0.60 0.50 0.60 - 0.70 0.60 - 0.70				(0.67)							End of Exploratory Hole at 0.90m			
					235.40										
														1.50	
														2.00	
														2.50	
														3.00	
														3.50	
														4.00	
Weather		Sunny		Trial Pit Excavation Onsite Layout 					Water Strikes						
Shoring		None							Date and Time		Strike	Rising to	Time	Remarks	
Stability		Stable													
Remarks Concrete coring from GL to 0.23m. Hand excavated inspection pit from 0.23m to 0.90m.															

 DYNAMIC SAMPLING EXPLORATORY HOLE LOG		Exploratory Hole Progress by Time				Exploratory Hole										
		Date and Time		Depth	Casing Depth	Water Depth	S2-WS02									
Project		Global Centre of Rail Excellence (GCRE) Stage 2		Equipment	Modular Dart/Hand Tools/Concrete Corer		Sheet 1 of 1									
Client		Walters UK Ltd		Method	WLS/IP/CC		Scale	1:20								
Project No		G23012	Level	236.23 mAOD	Inclination		90 degrees									
Easting		284532.43		Northing	210462.00		SPT Hammer Serial Number	DART540								
Termination Reason		Refusal at 3.34m		SPT Hammer Energy Ratio		62 %		Checked	AP							
Samples	Sampling and Testing Depths	Insitu Testing and Depth Related Remarks		Depth (Thickness)	Level (mAOD)	Legend	Description	Scale	Backfill							
1 CONCC	0.00 - 0.14	PID: 0.0ppmv		0.00 (0.14)	236.09		Strong light grey CONCRETE. (MADE GROUND) Geology Code: MGR 2nd Geology Code: Conc <i>0.00m - 0.01m Reddish brown terracotta floor tiles.</i>									
2 B	0.14 - 0.40			0.14												
3 ES	0.20 - 0.30															
4 D	0.20 - 0.30 0.20															
5 B	0.40 - 0.70	PID: 0.0ppmv		(0.56)	235.53		Soft to firm slightly gravelly sandy CLAY. Gravel is angular to subangular fine to coarse of siltstone and mudstone. Sand is fine to coarse. (MADE GROUND) Geology Code: MGR 2nd Geology Code: CL <i>0.40m - 0.70m Frequent bricks (up to 220mm) and concrete fragments (up to 300mm).</i>	0.50								
6 ES	0.50 - 0.60															
7 D	0.50 - 0.60 0.50															
8 B	0.70 - 1.20			0.70												
10 D	0.90 - 1.00	PID: 0.0ppmv		(0.50)	235.03		Very soft grey mottled yellowish brown slightly sandy silty CLAY with occasional pockets of pinkish brown fine sand (up to 70mm). Sand is fine. (GLACIAL TILL) Geology Code: GT 2nd Geology Code: CL	1.00								
9 ES	0.90 - 1.00 0.90															
11 B	1.20 - 1.65			1.20												
12 D	1.20 - 1.70															
13 ES	1.20	SPT SW: 225mm SPT(S) N=5 (1,2/1,1,1,2) Casing: 0.00 Water: Dry SPT PID: 0.0ppmv HV: P: 32kPa R: 16kPa HV: P: 33kPa R: 17kPa HV: P: 37kPa R: 22kPa		(0.50)	234.53		Very soft grey mottled orangish brown silty CLAY with rare relict roots (up to 2mm). (GLACIAL TILL) Geology Code: GT 2nd Geology Code: CL	1.50								
14 D	1.30 - 1.40															
	1.30															
	1.40 - 1.50															
15 B	1.70 - 3.00	SPT(S) N=30 (2,5/5,5,7,13) Casing: 0.00 Water: Dry SPT		1.70	233.23		Stiff to very stiff dark brown gravelly clayey SILT. Gravel is angular frequently tabular fine to medium of mudstone. (Residual SOUTH WALES COAL MEASURES FORMATION) Geology Code: SWCM 2nd Geology Code: SL	2.00								
16 D	2.00 - 2.45															
	2.00															
17 D	2.20 - 2.30			(1.30)												
		SPT SW: 0mm SPT(C) N=50 (9,11/50 for 190mm) Casing: 0.00 Water: Dry			232.89		Extended via CPT. (Residual SOUTH WALES COAL MEASURES FORMATION) Geology Code: SWCM	3.00								
18 D	2.70 - 2.80															
	3.00			3.00												
		End of Exploratory Hole at 3.34m		(0.34)				3.50								
Dynamic Sampling Run Details						Hole Diameter		Casing Diameter		Water Strikes						
Test No.	Depth Top	Depth Base	Diameter	Duration (hh:mm:ss)	Recovery	Depth Base	Diameter	Depth Base	Diameter	Date and Time	Casing	Strike	Sealed	Rising to	Time	Remarks
1	1.20	2.00	87mm	00:00:00	100%	1.20	300mm									
2	2.00	3.00	77mm	00:00:00	100%	2.00	101mm									
						3.00	87mm									
						3.43	51mm									
Remarks																
Concrete coring from GL to 0.14m. Hand excavated inspection pit from 0.14m to 1.20m. Dynamic windowless sampling from 1.20m to 3.00m. Extended via CPT from 3.30m to 3.34m.																

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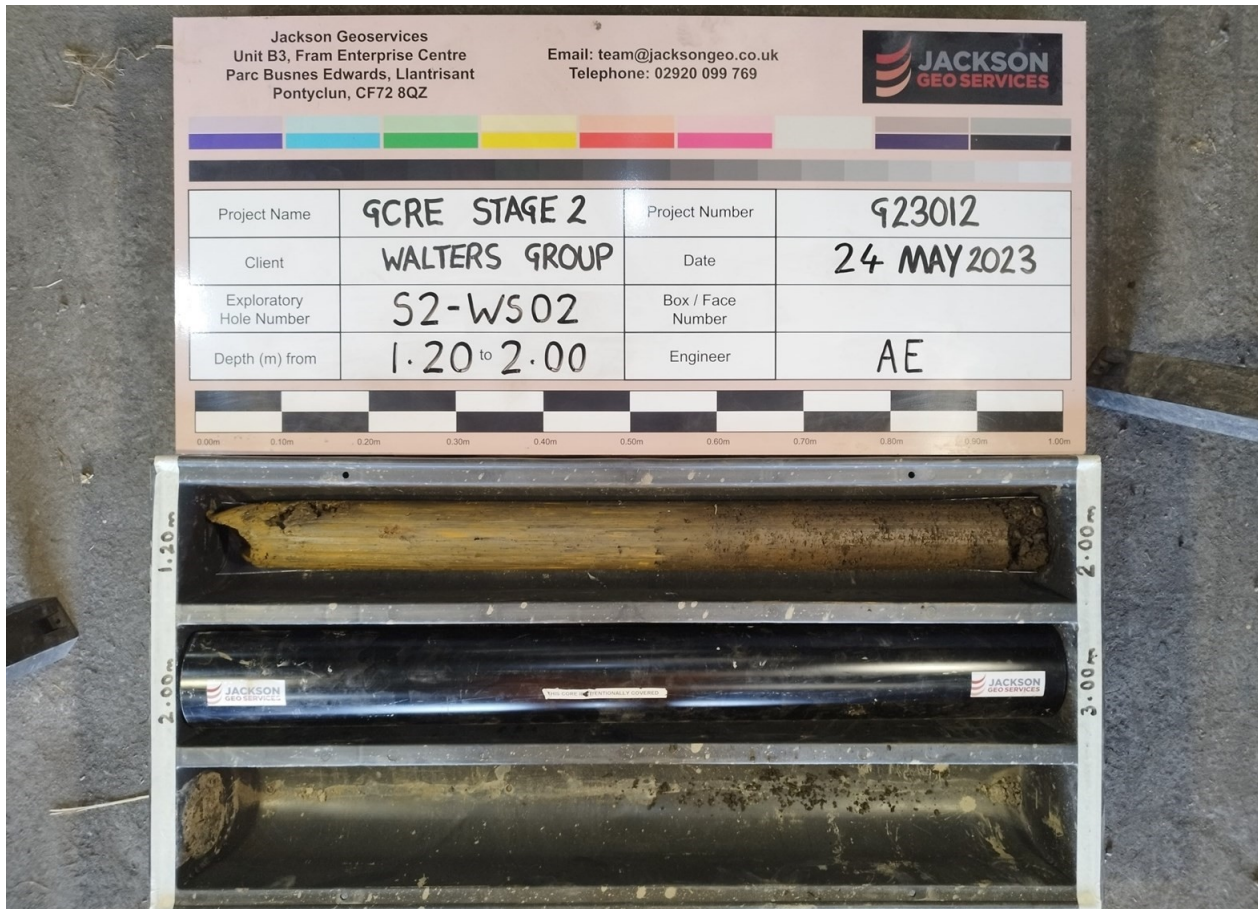
EXPLORATORY HOLE PHOTOGRAPHS

Exploratory Hole

S2-WS02

Project	Global Centre of Rail Excellence (GCRE) Stage 2	Easting	284532.43	Equipment	Modular Dart/Hand Tools/Concrete Corer
Client	Walters UK Ltd	Northing	210462.00	Method	WLS/IP/CC
Project No	G23012	Level	236.23 mAOD	Termination Reason	Refusal at 3.34m

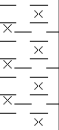
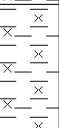
Sheet 1 of 1



S2-WS02 1.20 m to 2.00 m



S2-WS02 2.00 m to 3.00 m

 DYNAMIC SAMPLING EXPLORATORY HOLE LOG		Exploratory Hole Progress by Time				Exploratory Hole															
		Date and Time		Depth	Casing Depth	Water Depth	S2-WS03														
Project		Global Centre of Rail Excellence (GCRE) Stage 2		Equipment		Hand Tools/Modular Dart/Concrete Corer															
Client		Walters UK Ltd		Method		IP/WLS/CC															
Project No		G23012	Level	236.36 mAOD		Inclination		90 degrees													
Easting		284540.27		Northing		210461.35		SPT Hammer Serial Number		DART540											
Termination Reason		Refusal at 3.62m		SPT Hammer Energy Ratio		62 %															
Samples		Sampling and Testing Depths		Insitu Testing and Depth Related Remarks		Depth (Thickness)		Level (mAOD)		Legend											
1 CONCC		0.00 - 0.13		PID: 0.0ppmv		0.00 (0.13)		236.23													
2 B		0.13 - 0.80				0.13															
3 ES		0.20 - 0.30 0.20																			
4 D		0.50 - 0.60		PID: 0.0ppmv		(0.67)		235.56													
5 ES		0.50 - 0.60 0.50																			
6 B		0.80 - 1.20																			
7 D		0.90 - 1.00		PID: 0.0ppmv		(0.40)		235.16													
8 ES		0.90 - 1.00 0.90																			
10 D		1.20 - 1.65																			
9 B		1.20 - 1.90 1.20		SPT SW: 150mm SPT(S) N=9 (2,2/3,2,2,2) Casing: 0.00 Water: Dry		1.20		235.16													
11 ES		1.40 - 1.50 1.40																			
12 D		1.50 - 1.60 1.50 1.50 1.50																			
13 B		1.90 - 3.50		SPT SW: 0mm SPT(S) N=11 (2,2/2,2,3,4) Casing: 0.00 Water: Dry		1.90		234.46													
14 D		2.00 - 2.45 2.00																			
15 D		2.20 - 2.30																			
16 D		2.70 - 2.80		SPT SW: 0mm SPT(C) N=33 (4,8/8,7,10,8) Casing: 0.00 Water: Dry		(1.60)															
17 D		3.00																			
18 D		3.20 - 3.30																			
18 D		3.50 - 3.60 3.60		SPT SW: 0mm SPT(C) N=50 (10,14/50 for 160mm) Casing: 0.00 Water: Dry		3.50 (0.10) 3.60 (0.02)		232.86 232.76 232.74													
Dynamic Sampling Run Details												Hole Diameter		Casing Diameter		Water Strikes					
Test No.	Depth Top	Depth Base	Diameter	Duration (hh:mm:ss)	Recovery	Depth Base	Diameter	Depth Base	Diameter	Date and Time	Casing	Strike	Sealed	Rising to	Time	Remarks					
1	1.20	2.00	87mm	00:00:00	100%	1.20	300mm														
2	2.00	3.00	77mm	00:00:00	100%	2.00	101mm														
3	3.00	3.60	67mm	00:00:00	100%	3.00	87mm														
						3.60	77mm														
						3.62	51mm														
						3.62	200mm														
Remarks																					
Concrete coring from GL to 0.13m. Hand excavated inspection pit from 0.13m to 1.20m. Dynamic windowless sampling from 1.20m to 3.60m. Extended via CPT from 3.60m to 3.62m.																					

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		EXPLORATORY HOLE PHOTOGRAPHS		Exploratory Hole S2-WS03	
Project	Global Centre of Rail Excellence (GCRE) Stage 2	Easting	284540.27	Equipment	Hand Tools/Modular Dart/Concrete Corer
Client	Walters UK Ltd	Northing	210461.35	Method	IP/WLS/CC
Project No	G23012	Level	236.36 mAOD	Termination Reason	Refusal at 3.62m

Sheet 1 of 2



S2-WS03 1.20 m to 2.00 m



S2-WS03 2.00 m to 3.00 m

		EXPLORATORY HOLE PHOTOGRAPHS				Exploratory Hole
						S2-WS03
Project	Global Centre of Rail Excellence (GCRE) Stage 2	Easting	284540.27	Equipment	Hand Tools/Modular Dart/Concrete Corer	Sheet 2 of 2
Client	Walters UK Ltd	Northing	210461.35	Method	IP/WLS/CC	
Project No	G23012	Level	236.36 mAOD	Termination Reason	Refusal at 3.62m	



S2-WS03 3.00 m to 3.60 m

EXPLORATORY HOLE PHOTOGRAPHS

Exploratory Hole

S2-WS04

Project	Global Centre of Rail Excellence (GCRE) Stage 2	Easting	284530.23	Equipment	Concrete Corer/Modular Dart/Hand Tools
Client	Walters UK Ltd	Northing	210476.92	Method	CC/WLS/IP
Project No	G23012	Level	235.04 mAOD	Termination Reason	Refusal at 3.39m

Sheet 1 of 2



S2-WS04 1.20 m to 2.00 m



S2-WS04 2.00 m to 3.00 m



EXPLORATORY HOLE PHOTOGRAPHS

Exploratory Hole
S2-WS04

Project	Global Centre of Rail Excellence (GCRE) Stage 2	Easting	284530.23	Equipment	Concrete Corer/Modular Dart/Hand Tools
Client	Walters UK Ltd	Northing	210476.92	Method	CC/WLS/IP
Project No	G23012	Level	235.04 mAOD	Termination Reason	Refusal at 3.39m

Sheet 2 of 2



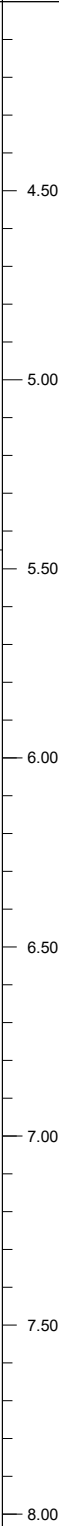
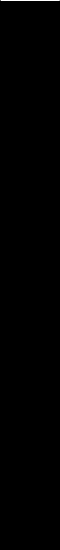
S2-WS04 3.00 m to 3.30 m



Project	Global Centre of Rail Excellence (GCRE) Stage 2		Equipment	Modular Dart/Hand Tools/Concrete Core	
Client	Walters UK Ltd		Method	WLS/IP/CC	
Project No	G23012	Level	237.70 mAOD	Inclination	90 degrees
Easting	284769.44	Northing	210475.70	SPT Hammer Serial Number	DART540
Termination Reason	Scheduled depth			SPT Hammer Energy Ratio	62 %

Dynamic Sampling Run Details						Hole Diameter		Casing Diameter		Water Strikes						
Test No.	Depth Top	Depth Base	Diameter	Duration (hh:mm:ss)	Recovery	Depth Base	Diameter	Depth Base	Diameter	Date and Time	Casing	Strike	Sealed	Rising to	Time	Remarks
1	1.20	2.00	87mm	00:00:00	125%	1.20	300mm			24/05/2023 10:31	0.00	5.00		5.00	20mins	
2	2.00	3.00	77mm	00:00:00	100%	2.00	101mm									
3	3.00	4.00	67mm	00:00:00	50%	3.00	87mm									
4	4.00	5.00	57mm	00:00:00	70%	4.00	77mm									
						5.00	67mm									
						5.45	51mm									

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 DYNAMIC SAMPLING EXPLORATORY HOLE LOG		Exploratory Hole Progress by Time				Exploratory Hole														
		Date and Time		Depth	Casing Depth	Water Depth	S2-WS05													
		24/05/2023 13:00 24/05/2023 15:30		0.00 5.45	0.00	5.00														
Project	Global Centre of Rail Excellence (GCRE) Stage 2			Equipment	Modular Dart/Hand Tools/Concrete Corer			Sheet 2 of 2												
Client	Walters UK Ltd			Method	WLS/IP/CC			Scale	1:20											
Project No	G23012	Level	237.70 mAOD	Inclination	90 degrees			Drilled	MJ											
Easting	284769.44	Northing	210475.70	SPT Hammer Serial Number	DART540			Logged	WH											
Termination Reason	Scheduled depth			SPT Hammer Energy Ratio	62 %			Checked	AP											
Samples	Sampling and Testing Depths	Insitu Testing and Depth Related Remarks		Depth (Thickness)	Level (mAOD)	Legend	Description		Scale	Backfill										
22 D	4.00	SPT(S) N=2 (1 for 225mm/2 for 225mm) Casing: 0.00 Water: Dry SPT		(1.55)			Dark grey very sandy angular to sub angular fine to medium GRAVEL of coal and mudstone. Sand is fine to medium. (MADE GROUND) Geology Code: MGR 2nd Geology Code: GR													
	4.30 - 4.40	PID: 0.1ppmv																		
	23 ES	4.60 - 4.70																		
	24 D	4.70 - 4.80																		
25 D	5.00 - 5.45 5.00	SPT(S) N=3 (1,0/1,0,1,1) Casing: 0.00 Water: Dry SPT		232.25			End of Exploratory Hole at 5.45m													
Dynamic Sampling Run Details											Hole Diameter		Casing Diameter		Water Strikes					
Test No.	Depth Top	Depth Base	Diameter	Duration (hh:mm:ss)	Recovery	Depth Base	Diameter	Depth Base	Diameter	Date and Time	Casing	Strike	Sealed	Rising to	Time	Remarks				
1	1.20	2.00	87mm	00:00:00	125%	1.20	300mm			24/05/2023 10:31	0.00	5.00		5.00	20mins					
2	2.00	3.00	77mm	00:00:00	100%	2.00	101mm													
3	3.00	4.00	67mm	00:00:00	50%	3.00	87mm													
4	4.00	5.00	57mm	00:00:00	70%	4.00	77mm													
						5.00	67mm													
						5.45	51mm													
Remarks																				
Concrete coring from GL to 0.20m. Hand excavated inspection pit from 0.20m to 1.20m. Dynamic windowless sampling from 1.20m to 5.45m.																				
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EXPLORATORY HOLE PHOTOGRAPHS

Exploratory Hole
S2-WS05

Project	Global Centre of Rail Excellence (GCRE) Stage 2	Easting	284769.44	Equipment	Modular Dart/Hand Tools/Concrete Corer
Client	Walters UK Ltd	Northing	210475.70	Method	WLS/IP/CC
Project No	G23012	Level	237.70 mAOD	Termination Reason	Scheduled depth

Sheet 1 of 2



S2-WS05 1.20 m to 2.00 m



S2-WS05 2.00 m to 3.00 m

		EXPLORATORY HOLE PHOTOGRAPHS				Exploratory Hole
						S2-WS05
Project	Global Centre of Rail Excellence (GCRE) Stage 2	Easting	284769.44	Equipment	Modular Dart/Hand Tools/Concrete Corer	
Client	Walters UK Ltd	Northing	210475.70	Method	WLS/IP/CC	
Project No	G23012	Level	237.70 mAOD	Termination Reason	Scheduled depth	

Sheet 2 of 2



S2-WS05 3.00 m to 4.00 m

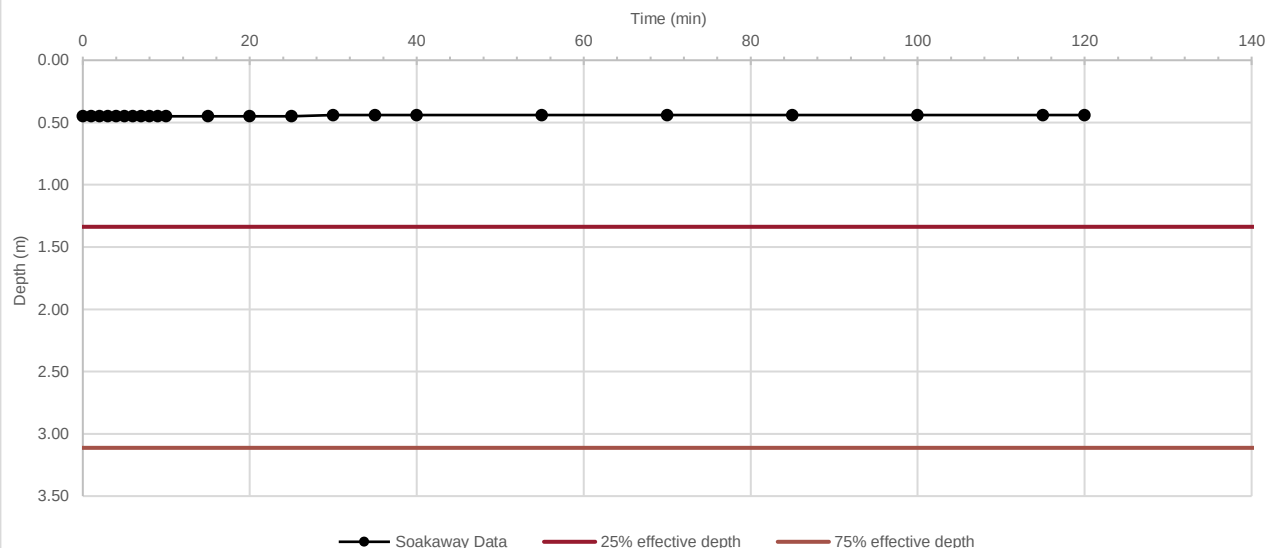


S2-WS05 4.00 m to 5.00 m

		DYNAMIC SAMPLING EXPLORATORY HOLE LOG				Exploratory Hole Progress by Time				Exploratory Hole						
						Date and Time		Depth	Casing Depth	Water Depth	S2-WS06					
Project		Global Centre of Rail Excellence (GCRE) Stage 2		Equipment	Hand Tools/Modular Dart/Concrete Corer		25/05/2023 09:00 25/05/2023 11:00		0.00 1.00	1.00	Dry	Sheet 1 of 1				
Client		Walters UK Ltd		Method	IP/WLS/CC							Scale	1:20			
Project No		G23012	Level	238.15 mAOD	Inclination		90 degrees					Drilled	MJ			
Easting		284769.15	Northing	210469.26	SPT Hammer Serial Number		DART540					Logged	WH			
Termination Reason		Unable to progress due to granular material			SPT Hammer Energy Ratio		62 %					Checked	AP			
Samples	Sampling and Testing Depths	Insitu Testing and Depth Related Remarks		Depth (Thickness)	Level (mAOD)	Legend	Description					Scale	Backfill			
1 CONCC	0.00 - 0.15			0.00 (0.15)	238.00		Strong light grey REINFORCED CONCRETE with occasional 10mm rebar between 0.05m and 0.10m. (MADE GROUND) Geology Code: MGR 2nd Geology Code: Conc Medium dense grey sandy angular to subangular fine to coarse GRAVEL of limestone. Sand is coarse. (MADE GROUND) Geology Code: MGR 2nd Geology Code: GR									
2 ES	0.20 - 0.30 0.20	PID: 0.2ppmv		0.15												
3 D	0.40 - 0.50															
4 ES	0.50 - 0.60 0.50	PID: 0.1ppmv		(0.85)												
5 B	0.60 - 0.80															
6 ES	0.90 - 1.00 0.90 1.00	PID: 0.0ppmv SPT(C) N=19 (3,5/6,5,4,4) Casing: 1.00 Water: Dry			237.15		End of Exploratory Hole at 1.00m					0.50				
														1.00		
														1.50		
														2.00		
														2.50		
														3.00		
														3.50		
														4.00		
Dynamic Sampling Run Details						Hole Diameter		Casing Diameter		Water Strikes						
Test No.	Depth Top	Depth Base	Diameter	Duration (hh:mm:ss)	Recovery	Depth Base	Diameter	Depth Base	Diameter	Date and Time	Casing	Strike	Sealed	Rising to	Time	Remarks
1	0.60	1.00	87mm		100%	0.60 1.00	300mm 113mm	1.00	113mm							
Remarks																
Concrete coring from GL to 0.15m. Hand excavated inspection pit from 0.15m to 0.60m. Dynamic windowless sampling from 0.60m to 1.00m.																
Printed 28/09/2023 07:51																

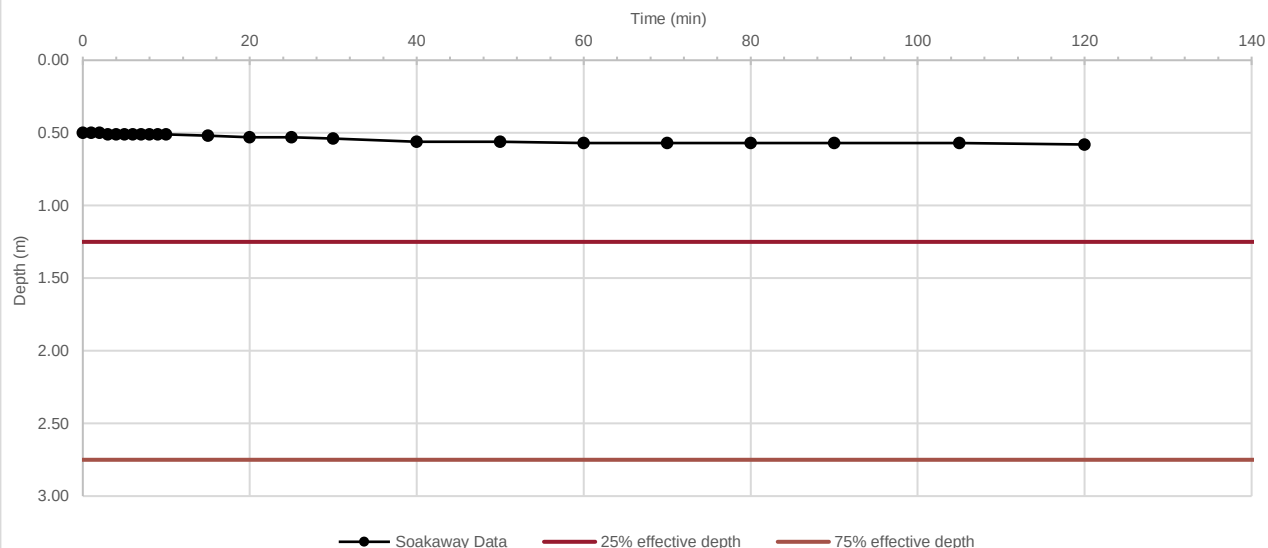
SOIL SOAKAWAY INFILTRATION TEST

Project	Global Centre of Rail Excellence Stage II	Project No	G23012	Client	Walters UK Ltd		
Exploratory Hole ID	Test No	Easting	Northing	Ground Level	Depth (m)	Length (m)	Width (m)
S2-TP204	1				4.00	4.50	0.60
Test Data		Soakaway Construction		Vertical sides trimmed square. No fill material.			
Time Elapsed (mins)	Water Depth (m bgl)	Date of Test		16/05/2023	Weather		Sunny
0.00	0.45	Fill Porosity			Test Duration (mins)		120
1.00	0.45	Operative		AE	Checked by		
2.00	0.45	Water Depth Test Start (m)		0.45	Area of Base (m²)		2.7
3.00	0.45	Water Depth Test End (m)		0.44	Area of Side (m²)		18
4.00	0.45	75% effective depth (m)		1.34	Vp75-25 (m³)		4.7925
5.00	0.45	50% effective depth (m)		2.23	ap50 (m²)		2.649
6.00	0.45	25% effective depth (m)		3.11			
7.00	0.45	Time water level reaches 75% effective depth (Tp75) (mins)					
8.00	0.45	Time water level reaches 25% effective depth (Tp25) (mins)					
9.00	0.45	Soil Infiltration Rate (f) (m/s)		Unable to determine			
10.00	0.45	Remarks					
15.00	0.45	Undertaken in accordance with BRE digest 365 (2016)					
20.00	0.45	25% effective depth not reached after 120 minutes. Test terminated. Unable to calculate infiltration rate.					
25.00	0.45						
30.00	0.44						
35.00	0.44						
40.00	0.44						
55.00	0.44						
70.00	0.44						
85.00	0.44						
100.00	0.44						
115.00	0.44						
120.00	0.44						



SOIL SOAKAWAY INFILTRATION TEST

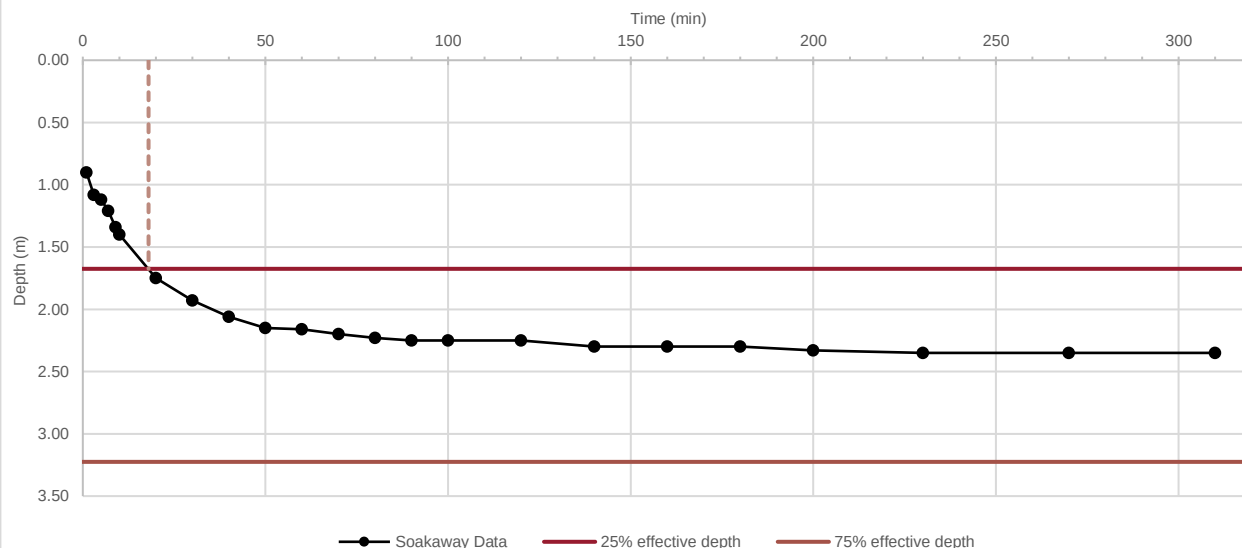
Project	Global Centre of Rail Excellence Stage II	Project No	G23012	Client	Walters UK Ltd		
Exploratory Hole ID	Test No	Easting	Northing	Ground Level	Depth (m)	Length (m)	Width (m)
S2-TP205	1				3.50	4.00	0.65
Test Data		Soakaway Construction		Vertical sides trimmed square. No fill material.			
Time Elapsed (mins)	Water Depth (m bgl)	Date of Test		18/05/2023	Weather		Sunny
0.00	0.5	Fill Porosity			Test Duration (mins)		120
1.00	0.5	Operative		AE	Checked by		
2.00	0.5	Water Depth Test Start (m)		0.5	Area of Base (m²)		2.6
3.00	0.51	Water Depth Test End (m)		0.58	Area of Side (m²)		14
4.00	0.51	75% effective depth (m)		1.25	Vp75-25 (m³)		3.9
5.00	0.51	50% effective depth (m)		2.00	ap50 (m²)		2.972
6.00	0.51	25% effective depth (m)		2.75			
7.00	0.51	Time water level reaches 75% effective depth (Tp75) (mins)					
8.00	0.51	Time water level reaches 25% effective depth (Tp25) (mins)					
9.00	0.51	Soil Infiltration Rate (f) (m/s)		Unable to determine			
10.00	0.51	Remarks					
15.00	0.52	Undertaken in accordance with BRE digest 365 (2016)					
20.00	0.53	25% effective depth not reached after 120 minutes. Test terminated. Unable to calculate infiltration rate.					
25.00	0.53						
30.00	0.54						
40.00	0.56						
50.00	0.56						
60.00	0.57						
70.00	0.57						
80.00	0.57						
90.00	0.57						
105.00	0.57						
120.00	0.58						





SOIL SOAKAWAY INFILTRATION TEST

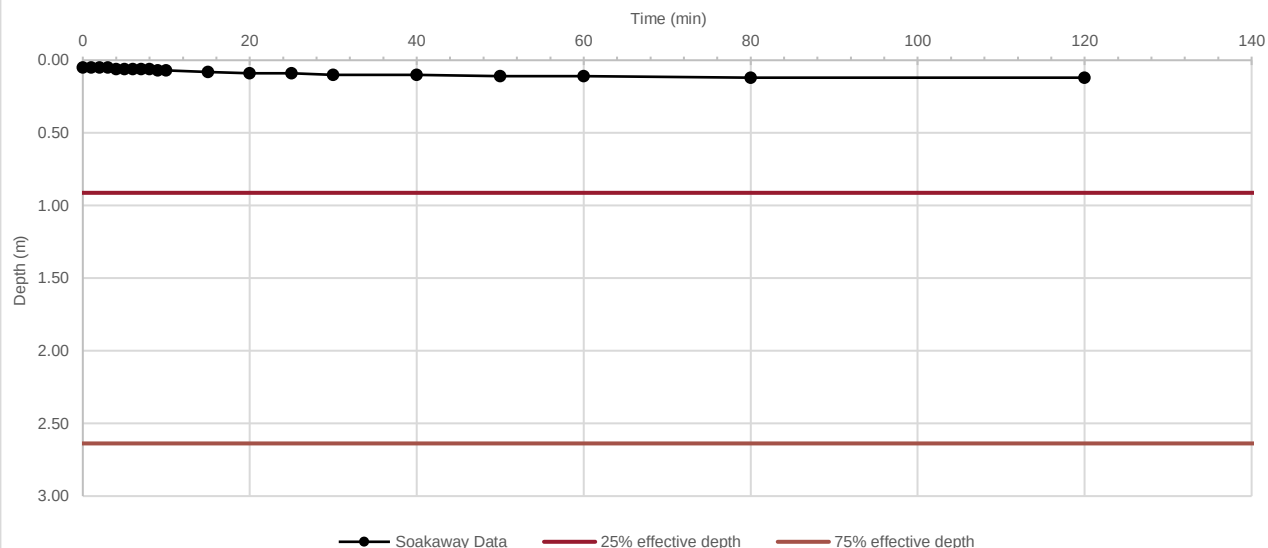
Project	Global Centre of Rail Excellence Stage II	Project No	G23012	Client	Walters UK Ltd		
Exploratory Hole ID	Test No	Easting	Northing	Ground Level	Depth (m)	Length (m)	Width (m)
S2-TP239	1				4.00	4.60	0.60
Test Data		Soakaway Construction		Vertical sides trimmed square. No fill material.			
Time Elapsed (mins)	Water Depth (m bgl)	Date of Test		04/05/2023	Weather		Sunny
1.00	0.90	Fill Porosity			Test Duration (mins)		310
3.00	1.08	Operative		AE	Checked by		
5.00	1.12	Water Depth Test Start (m)		0.9	Base area (m ²)		2.76
7.00	1.21	Water Depth Test End (m)		2.35	Pit sides area (m ²)		18.4
9.00	1.34	75% effective depth (m)		1.68	Vp75-25 (m ³)		4.278
10.00	1.40	50% effective depth (m)		2.45	ap50 (m ²)		10.3
20.00	1.75	25% effective depth (m)		3.23			
30.00	1.93	Time water level reaches 75% effective depth (Tp75) (mins)		18			
40.00	2.06	Time water level reaches 25% effective depth (Tp25) (mins)					
50.00	2.15	Soil Infiltration Rate (f) (m/s)		Unable to determine			
60.00	2.16	Remarks					
70.00	2.20	Undertaken in accordance with BRE digest 365 (2016)					
80.00	2.23	25% effective depth not reached after 310 minutes. Test terminated. Unable to calculate infiltration rate.					
90.00	2.25						
100.00	2.25						
120.00	2.25						
140.00	2.30						
160.00	2.30						
180.00	2.30						
200.00	2.33						
230.00	2.35						
270.00	2.35						
310.00	2.35						





SOIL SOAKAWAY INFILTRATION TEST

Project	Global Centre of Rail Excellence Stage II	Project No	G23012	Client	Walters UK Ltd		
Exploratory Hole ID	Test No	Easting	Northing	Ground Level	Depth (m)	Length (m)	Width (m)
S2-TP259	1				3.50	4.00	0.60
Test Data		Soakaway Construction		Vertical sides trimmed square. No fill material.			
Time Elapsed (mins)	Water Depth (m bgl)	Date of Test		12/05/2023	Weather		Sunny
0.00	0.05	Fill Porosity			Test Duration (mins)		0.002
1.00	0.05	Operative		AE	Checked by		
2.00	0.05	Water Depth Test Start (m)		0.05	Area of Base (m ²)		2.4
3.00	0.05	Water Depth Test End (m)		0.12	Area of Side (m ²)		14
4.00	0.06	75% effective depth (m)		0.91	Vp75-25 (m ³)		4.14
5.00	0.06	50% effective depth (m)		1.78	ap50 (m ²)		2.722
6.00	0.06	25% effective depth (m)		2.64			
7.00	0.06	Time water level reaches 75% effective depth (Tp75) (mins)					
8.00	0.06	Time water level reaches 25% effective depth (Tp25) (mins)					
9.00	0.07	Soil Infiltration Rate (f) (m/s)		Unable to determine			
10.00	0.07	Remarks					
15.00	0.08	Undertaken in accordance with BRE digest 365 (2016)					
20.00	0.09	25% effective depth not reached after 120 minutes. Test terminated. Unable to calculate infiltration rate.					
25.00	0.09						
30.00	0.1						
40.00	0.1						
50.00	0.11						
60.00	0.11						
80.00	0.12						
120.00	0.12						





SOIL SOAKAWAY INFILTRATION TEST

Project	Global Centre of Rail Excellence Stage II	Project No	G23012	Client	Walters UK Ltd		
Exploratory Hole ID	Test No	Easting	Northing	Ground Level	Depth (m)	Length (m)	Width (m)
S2-TP2117	1				3.50	2.00	0.65
Test Data		Soakaway Construction		Vertical sides trimmed square. No fill material.			
Time Elapsed (mins)	Water Depth (m bgl)	Date of Test		19/05/2023	Weather	Cloudy	
0.00	0.6	Fill Porosity			Test Duration (mins)	120	
1.00	0.6	Operative		AE	Checked by		
2.00	0.6	Water Depth Test Start (m)		0.6	Area of Base (m ²)	1.3	
3.00	0.6	Water Depth Test End (m)		0.6	Area of Side (m ²)	7	
4.00	0.6	75% effective depth (m)		1.33	Vp75-25 (m ³)	1.885	
5.00	0.6	50% effective depth (m)		2.05	ap50 (m ²)	1.3	
6.00	0.6	25% effective depth (m)		2.78			
7.00	0.61	Time water level reaches 75% effective depth (Tp75) (mins)					
8.00	0.61	Time water level reaches 25% effective depth (Tp25) (mins)					
9.00	0.61	Soil Infiltration Rate (f) (m/s)		Unable to determine			
10.00	0.61	Remarks					
15.00	0.61	Undertaken in accordance with BRE digest 365 (2016)					
20.00	0.61	25% effective depth not reached after 120 minutes. Test terminated. Unable to calculate infiltration rate.					
25.00	0.61						
30.00	0.61						
40.00	0.61						
50.00	0.62						
60.00	0.62						
80.00	0.62						
100.00	0.62						
120.00	0.62						

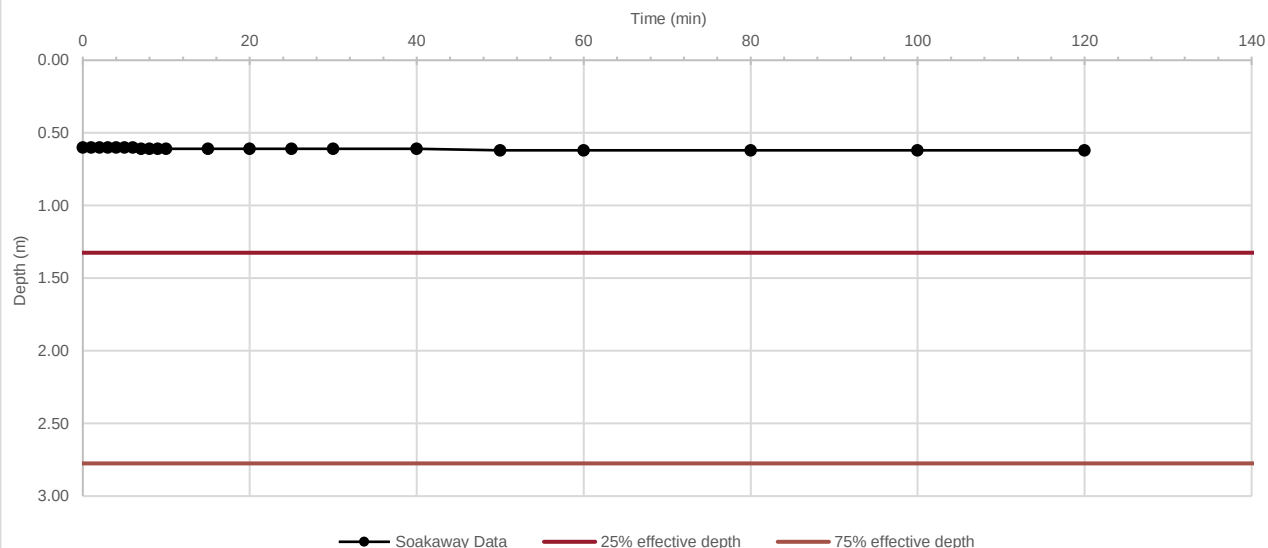




Figure 10 is a line graph showing the relationship between Time (min) on the x-axis and Depth (m) on the y-axis. The x-axis ranges from 0 to 140 minutes, and the y-axis ranges from 0.00 to 3.50 meters. The graph displays 'Soakaway Data' as black dots connected by a line, showing a constant depth of approximately 0.95 meters over time. Two horizontal lines represent '25% effective depth' at approximately 1.60 meters and '75% effective depth' at approximately 2.85 meters. A light blue shaded region is visible between the 25% and 75% effective depth lines.

Time (min)	Soakaway Data Depth (m)	25% effective depth (m)	75% effective depth (m)
0	0.95	1.60	2.85
10	0.95	1.60	2.85
20	0.95	1.60	2.85
30	0.95	1.60	2.85
40	0.95	1.60	2.85
50	0.95	1.60	2.85
60	0.95	1.60	2.85
80	0.95	1.60	2.85
100	0.95	1.60	2.85
120	0.95	1.60	2.85

Appendix III

Monitoring

Groundwater Monitoring

Well Development Records

Fieldwork Groundwater Data

S1-BH118, S1-BH119 (1 and 2), S1-BH120,
S2-BH204, S2-BH207, S2-BH208, S2-BH210,
S2-BH214, S2-BH217 (1 and 2),
S2-BH219 (1 and 2), S2-BH220 (1),
S2-BH225, S2-BH226, S2-BH227 (1 and 2),
S2-BH229 (1 and 2), S2-BH232, S2-BH233,
S2-BH236, S2-BH237, S2-BH239 (1 and 2),
S2-BH240, S2-BH241, S2-BH242,
S2-BH243 (1 and 2), S2-BH244 (1 and 2),
S2-BH245, S2-BH246 (1 and 2),
S2-BH247 (1 and 2), S2-BH248 (1 and 2),
S2-BH250 (1 and 2), S2-BH252 (1 and 2),
S2-BH261 (1 and 2)



GROUNDWATER MONITORING DATA

Project	Global Centre of Rail Excellence (GCRE) Stage 2		Project No	G23012	Client	Walters UK Ltd		
Exploratory Hole	Pipe Ref.	Date and Time	Reading Type	Reading	Units	Detection Limit	Instrument	Remarks
S1-BH119	1	23/05/2023 11:39	Water Level	7.05	m	0.01	Dip Meter	Base dipped at 15.00m
S1-BH119	2	23/05/2023 11:43	Water Level	2	m	0.01	Dip Meter	Base dipped at 4.09m
S1-BH119	1	24/05/2023 13:50	Water Level	7.06	m	0.01	Dip Meter	Base dipped at 15.00m
S1-BH119	2	24/05/2023 14:42	Water Level	2	m	0.01	Dip Meter	Base dipped at 4.09m
S1-BH119	2	25/05/2023 15:55	Water Level	2.02	m	0.01	Dip Meter	Base dipped at 4.09m
S1-BH119	1	25/05/2023 16:55	Water Level	7.07	m	0.01	Dip Meter	Base dipped at 15.00m
S1-BH119	2	26/05/2023 09:40	Water Level	2.06	m	0.01	Dip Meter	Base dipped at 4.00m
S1-BH119	1	26/05/2023 14:50	Water Level	7.36	m	0.01	Dip Meter	Base dipped at 15.00m
S2-BH204	1	14/02/2023 10:53	Water Level	27.1	m	0.01	Dip Meter	Base dipped at 31.2m
S2-BH204	1	12/04/2023 10:22	Water Level	27.3	m	0.01	Dip Meter	Base dipped at 31.3m
S2-BH204	1	13/04/2023 14:27	Water Level	27.1	m	0.01	Dip Meter	Base dipped at 31.2m
S2-BH204	1	17/04/2023 13:02	Water Level	27.42	m	0.01	Dip Meter	Base dipped at 30.5m
S2-BH204	1	18/04/2023 13:30	Water Level	27.3	m	0.01	Dip Meter	Base dipped at 31.00m
S2-BH204	1	19/04/2023 15:56	Water Level	27.4	m	0.01	Dip Meter	Base dipped at 30.5m
S2-BH204	1	20/04/2023 09:45	Water Level	27.45	m	0.01	Dip Meter	Base dipped at 30.5m
S2-BH204	1	21/04/2023 14:53	Water Level	27.5	m	0.01	Dip Meter	Base dipped at 30.5m
S2-BH204	1	24/04/2023 15:56	Water Level	27.6	m	0.01	Dip Meter	Base dipped at 30.5m
S2-BH204	1	25/04/2023 16:52	Water Level	27.6	m	0.01	Dip Meter	Base dipped at 32m
S2-BH204	1	26/04/2023 15:36	Water Level	27.8	m	0.01	Dip Meter	Base dipped at 30.80m
S2-BH204	1	27/04/2023 10:10	Water Level	27.8	m	0.01	Dip Meter	Base dipped at 30.8m
S2-BH204	1	28/04/2023 09:00	Water Level	27.8	m	0.01	Dip Meter	Base dipped at 30.8m
S2-BH204	1	02/05/2023 10:00	Water Level	27.83	m	0.01	Dip Meter	Base dipped at 30.8m
S2-BH204	1	03/05/2023 12:00	Water Level	27.85	m	0.01	Dip Meter	Base dipped at 30.7m
S2-BH204	1	04/05/2023 13:05	Water Level	27.87	m	0.01	Dip Meter	Base dipped at 30.7m
S2-BH204	1	05/05/2023 15:08	Water Level	27.9	m	0.01	Dip Meter	Base dipped at 30.6m
S2-BH204	1	09/05/2023 15:15	Water Level	27.94	m	0.01	Dip Meter	Base dipped at 30.5m
S2-BH204	1	10/05/2023 16:25	Water Level	27.97	m	0.01	Dip Meter	Base dipped at 30.5m
S2-BH204	1	11/05/2023 09:18	Water Level	27.97	m	0.01	Dip Meter	Base dipped at 30.80m
S2-BH204	1	12/05/2023 15:06	Water Level	27.83	m	0.01	Dip Meter	Base dipped at 30.5m
S2-BH204	1	15/05/2023 12:50	Water Level	27.97	m	0.01	Dip Meter	Base dipped at 30.00m
S2-BH204	1	16/05/2023 14:54	Water Level	27.97	m	0.01	Dip Meter	Base dipped at 30.00m
S2-BH204	1	17/05/2023 12:51	Water Level	28	m	0.01	Dip Meter	Base dipped at 30.00m
S2-BH204	1	18/05/2023 10:59	Water Level	28.03	m	0.01	Dip Meter	Base dipped at 30.00m
S2-BH204	1	19/05/2023 09:37	Water Level	28.07	m	0.01	Dip Meter	Base dipped at 30.00m
S2-BH204	1	22/05/2023 12:36	Water Level	28.1	m	0.01	Dip Meter	Base dipped at 30.00m
S2-BH204	1	23/05/2023 15:10	Water Level	28.12	m	0.01	Dip Meter	Base dipped at 30.00m
S2-BH204	1	24/05/2023 13:15	Water Level	28.13	m	0.01	Dip Meter	Base dipped at 30.00m
S2-BH204	1	25/05/2023 11:20	Water Level	28.13	m	0.01	Dip Meter	Base dipped at 30.00m
S2-BH204	1	26/05/2023 15:59	Water Level	28.14	m	0.01	Dip Meter	Base dipped at 30.00m



GROUNDWATER MONITORING DATA

Project	Global Centre of Rail Excellence (GCRE) Stage 2			Project No	G23012	Client	Walters UK Ltd	
Exploratory Hole	Pipe Ref.	Date and Time	Reading Type	Reading	Units	Detection Limit	Instrument	Remarks
S2-BH207	1	25/04/2023 09:13	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 40.5m
S2-BH207	1	26/04/2023 16:59	Water Level		m	0.01	Dip Meter	Base dipped at 40.50m
S2-BH207	1	27/04/2023 12:48	Water Level		m	0.01	Dip Meter	Base dipped at 40.50m
S2-BH207	1	28/04/2023 16:52	Water Level		m	0.01	Dip Meter	Base dipped at 40.50m
S2-BH207	1	02/05/2023 10:00	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 40.50m
S2-BH207	1	03/05/2023 14:02	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 40.50m
S2-BH207	1	04/05/2023 15:12	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 40.50m
S2-BH207	1	05/05/2023 14:20	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 40.50m
S2-BH207	1	10/05/2023 10:00	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 41.10m
S2-BH207	1	11/05/2023 09:03	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 41.10m
S2-BH207	1	12/05/2023 10:06	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 40.60m
S2-BH207	1	15/05/2023 15:27	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 40.65m
S2-BH207	1	16/05/2023 16:25	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 40.65m
S2-BH207	1	17/05/2023 14:28	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 40.64m
S2-BH207	1	18/05/2023 11:33	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 40.64m
S2-BH207	1	19/05/2023 10:59	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 40.62m
S2-BH207	1	22/05/2023 14:51	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 40.60m
S2-BH207	1	23/05/2023 09:44	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 40.60m
S2-BH207	1	24/05/2023 11:15	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 40.60m
S2-BH207	1	25/05/2023 13:20	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 40.60m
S2-BH207	1	26/05/2023 15:54	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 40.60m
S2-BH208	1	15/05/2023 13:49	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 40.50m
S2-BH208	1	18/05/2023 11:53	Water Level	32.6	m	0.01	Dip Meter	Base dipped at 40.50m
S2-BH208	1	19/05/2023 13:50	Water Level	32.59	m	0.01	Dip Meter	Base dipped at 40.50m
S2-BH208	1	22/05/2023 15:46	Water Level	32.58	m	0.01	Dip Meter	Base dipped at 40.50m
S2-BH208	1	23/05/2023 09:50	Water Level	32.58	m	0.01	Dip Meter	Base dipped at 40.50m
S2-BH208	1	24/05/2023 15:26	Water Level	32.58	m	0.01	Dip Meter	Base dipped at 40.50m
S2-BH208	1	25/05/2023 16:10	Water Level	32.57	m	0.01	Dip Meter	Base dipped at 40.50m
S2-BH208	1	26/05/2023 14:14	Water Level	32.57	m	0.01	Dip Meter	Base dipped at 40.50m
S2-BH210	1	24/05/2023 12:02	Water Level	37.98	m	0.01	Dip Meter	Base dipped at 40.00m
S2-BH210	1	25/05/2023 13:00	Water Level	37.97	m	0.01	Dip Meter	Base dipped at 40.00m
S2-BH210	1	26/05/2023 09:10	Water Level	37.98	m	0.01	Dip Meter	Base dipped at 40.00m
S2-BH220	1	14/03/2023 13:47	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 40.6.
S2-BH220	1	04/04/2023 09:00	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 39.89m
S2-BH220	2	04/04/2023 09:08	Water Level		m	0.01	Dip Meter	Damp. Base dipped at 30.21m
S2-BH220	1	06/04/2023 08:21	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 40.60m
S2-BH220	2	06/04/2023 08:21	Water Level	30.43	m	0.01	Dip Meter	Base dipped at 30.50m
S2-BH220	1	12/04/2023 12:26	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 40.6m
S2-BH220	2	12/04/2023 12:27	Water Level	30.2	m	0.01	Dip Meter	Base dipped at 30.4m



GROUNDWATER MONITORING DATA

Project	Global Centre of Rail Excellence (GCRE) Stage 2		Project No	G23012	Client	Walters UK Ltd		
Exploratory Hole	Pipe Ref.	Date and Time	Reading Type	Reading	Units	Detection Limit	Instrument	Remarks
S2-BH220	2	13/04/2023 14:56	Water Level	30.2	m	0.01	Dip Meter	Base dipped at 30.40m
S2-BH220	2	14/04/2023 13:40	Water Level	30.2	m	0.01	Dip Meter	Base dipped at 30.3m
S2-BH220	2	17/04/2023 10:07	Water Level	29.9	m	0.01	Dip Meter	Base dipped at 30.0m
S2-BH220	1	17/04/2023 11:05	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 40.47m
S2-BH220	1	18/04/2023 13:35	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 40.46m
S2-BH220	2	18/04/2023 13:37	Water Level	30.1	m	0.01	Dip Meter	Base dipped at 30m
S2-BH220	1	19/04/2023 15:46	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 40.45m
S2-BH220	2	19/04/2023 15:46	Water Level	30.1	m	0.01	Dip Meter	Base dipped at 30m
S2-BH220	1	20/04/2023 14:49	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 40.45m
S2-BH220	2	20/04/2023 14:50	Water Level	30	m	0.01	Dip Meter	Base dipped at 30.05m
S2-BH220	1	21/04/2023 12:14	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 40.45m
S2-BH220	2	21/04/2023 12:14	LNAPL	30	m	0.01	Interface Probe	Base dipped at 30.05m
S2-BH220	2	24/04/2023 15:53	Water Level	30	m	0.01	Dip Meter	Base dipped at 30m
S2-BH220	1	24/04/2023 15:53	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 40.45m
S2-BH220	2	25/04/2023 14:50	Water Level	28	m	0.01	Dip Meter	Base dipped at 30m
S2-BH220	1	25/04/2023 16:19	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 40.45m
S2-BH220	1	26/04/2023 11:11	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 40.50m
S2-BH220	2	26/04/2023 13:50	Water Level	27.9	m	0.01	Dip Meter	Base dipped at 30.1m
S2-BH220	2	26/04/2023 16:52	Water Level	27.3	m	0.01	Dip Meter	Base dipped at 30.4m
S2-BH220	1	27/04/2023 14:02	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 40.50m
S2-BH220	2	27/04/2023 15:15	Water Level	27.3	m	0.01	Dip Meter	Base dipped at 30.4m
S2-BH220	1	28/04/2023 09:00	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 40.50m
S2-BH220	2	28/04/2023 13:00	Water Level	27.3	m	0.01	Dip Meter	Base dipped at 30.40m
S2-BH220	1	02/05/2023 13:05	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 40.50m
S2-BH220	2	02/05/2023 13:08	Water Level	26.5	m	0.01	Dip Meter	Base dipped at 30.40m
S2-BH220	2	03/05/2023 15:09	Water Level	26.4	m	0.01	Dip Meter	Base dipped at 30.30m
S2-BH220	1	03/05/2023 16:06	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 40.50m
S2-BH220	1	04/05/2023 13:00	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 39.8m
S2-BH220	2	04/05/2023 16:16	Water Level	26.2	m	0.01	Dip Meter	Base dipped at 30.30m
S2-BH220	1	05/05/2023 15:06	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 39.8m
S2-BH220	2	05/05/2023 16:30	Water Level	27	m	0.01	Dip Meter	Base dipped at 30.4m
S2-BH220	1	09/05/2023 11:11	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 39.8m
S2-BH220	2	09/05/2023 13:37	Water Level	29.8	m	0.01	Dip Meter	Base dipped at 30.4m
S2-BH220	1	10/05/2023 14:19	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 39.8m
S2-BH220	2	10/05/2023 15:45	Water Level	29.8	m	0.01	Dip Meter	Base dipped at 30.4m
S2-BH220	1	11/05/2023 11:01	Water Level		m	0.01	Dip Meter	Damp at base. Base dipped at 40.00m
S2-BH220	2	11/05/2023 11:05	Water Level	29.94	m	0.01	Dip Meter	Base dipped at 30.40m
S2-BH220	2	12/05/2023 12:38	Water Level	29.94	m	0.01	Dip Meter	Base dipped at 30.4m
S2-BH220	1	12/05/2023 14:10	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 40.30m



GROUNDWATER MONITORING DATA

Project	Global Centre of Rail Excellence (GCRE) Stage 2			Project No	G23012	Client	Walters UK Ltd	
Exploratory Hole	Pipe Ref.	Date and Time	Reading Type	Reading	Units	Detection Limit	Instrument	Remarks
S2-BH220	1	15/05/2023 10:13	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 40.30m
S2-BH220	2	15/05/2023 15:17	Water Level	28.9	m	0.01	Dip Meter	Base dipped at 30.30m
S2-BH220	2	16/05/2023 14:25	Water Level	28.9	m	0.01	Dip Meter	Base dipped at 30.30m
S2-BH220	1	16/05/2023 15:02	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 40.30m
S2-BH220	1	17/05/2023 10:00	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 40.30m
S2-BH220	2	17/05/2023 14:08	Water Level	29	m	0.01	Dip Meter	Base dipped at 30.30m
S2-BH220	1	18/05/2023 09:07	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 40.30m
S2-BH220	2	18/05/2023 16:15	Water Level	29	m	0.01	Dip Meter	Base dipped at 30.30m
S2-BH220	1	19/05/2023 09:43	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 40.30m
S2-BH220	2	19/05/2023 14:19	Water Level	28.9	m	0.01	Dip Meter	Base dipped at 30.30m
S2-BH220	1	22/05/2023 13:30	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 40.30m
S2-BH220	2	22/05/2023 16:50	Water Level	29.95	m	0.01	Dip Meter	Base dipped at 30.30m
S2-BH220	1	23/05/2023 11:41	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 40.30m
S2-BH220	2	23/05/2023 14:04	Water Level	29.97	m	0.01	Dip Meter	Base dipped at 30.30m
S2-BH220	1	24/05/2023 10:10	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 40.30m
S2-BH220	2	24/05/2023 15:50	Water Level	29.98	m	0.01	Dip Meter	Base dipped at 30.30m
S2-BH220	2	25/05/2023 10:39	Water Level	29.97	m	0.01	Dip Meter	Base dipped at 30.30m
S2-BH220	1	25/05/2023 16:18	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 40.30m
S2-BH220	2	26/05/2023 09:00	Water Level	29.98	m	0.01	Dip Meter	Base dipped at 30.30m
S2-BH220	1	26/05/2023 12:10	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 40.30m
S2-BH225	1	03/05/2023 10:05	Water Level	2.95	m	0.01	Dip Meter	Base dipped at 6.12m
S2-BH225	1	04/05/2023 13:15	Water Level	2.94	m	0.01	Dip Meter	Base dipped at 16.12m
S2-BH225	1	05/05/2023 15:20	Water Level	2.89	m	0.01	Dip Meter	Base dipped at 6.00m
S2-BH225	1	09/05/2023 11:26	Water Level	2.8	m	0.01	Dip Meter	Base dipped at 6.10m
S2-BH225	1	10/05/2023 12:00	Water Level	2.8	m	0.01	Dip Meter	Base dipped at 6.10m
S2-BH225	1	11/05/2023 14:46	Water Level	2.8	m	0.01	Dip Meter	Base dipped at 6.10m
S2-BH225	1	12/05/2023 15:48	Water Level	2.8	m	0.01	Dip Meter	Base dipped at 6.00m
S2-BH225	1	15/05/2023 14:50	Water Level	2.82	m	0.01	Dip Meter	Base dipped at 6.00m
S2-BH225	1	16/05/2023 10:46	Water Level	2.84	m	0.01	Dip Meter	Base dipped at 6.00m
S2-BH225	1	17/05/2023 15:13	Water Level	2.86	m	0.01	Dip Meter	Base dipped at 6.00m
S2-BH225	1	18/05/2023 12:10	Water Level	2.89	m	0.01	Dip Meter	Base dipped at 6.00m
S2-BH225	1	19/05/2023 14:15	Water Level	2.89	m	0.01	Dip Meter	Base dipped at 6.00m
S2-BH225	1	22/05/2023 13:22	Water Level	2.95	m	0.01	Dip Meter	Base dipped at 6.00m
S2-BH225	1	23/05/2023 15:30	Water Level	3.09	m	0.01	Dip Meter	Base dipped at 6.00m
S2-BH225	1	24/05/2023 16:21	Water Level	3.12	m	0.01	Dip Meter	Base dipped at 6.00m
S2-BH225	1	25/05/2023 11:25	Water Level	3.14	m	0.01	Dip Meter	Base dipped at 6.00m
S2-BH225	1	26/05/2023 15:30	Water Level	3.16	m	0.01	Dip Meter	Base dipped at 6.00m
S2-BH227	1	17/04/2023 17:46	Water Level	3.78	m	0.01	Dip Meter	Base dipped at 5.00m
S2-BH227	2	17/04/2023 17:47	Water Level	10.63	m	0.01	Dip Meter	Base dipped at 14.10m



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Project	Global Centre of Rail Excellence (GCRE) Stage 2			Project No	G23012	Client	Walters UK Ltd	
Exploratory Hole	Pipe Ref.	Date and Time	Reading Type	Reading	Units	Detection Limit	Instrument	Remarks
S2-BH227	1	18/04/2023 10:47	Water Level	3.8	m	0.01	Dip Meter	Base dipped at 5.00m
S2-BH227	2	18/04/2023 10:50	Water Level	10.6	m	0.01	Dip Meter	Base dipped at 14.10m
S2-BH227	1	19/04/2023 09:10	Water Level	3.9	m	0.01	Dip Meter	Base dipped at 5.40m
S2-BH227	2	19/04/2023 09:12	Water Level	10.61	m	0.01	Dip Meter	Base dipped at 14.1m
S2-BH227	1	20/04/2023 15:45	Water Level	4.1	m	0.01	Dip Meter	Base dipped at 5.5m
S2-BH227	2	20/04/2023 15:46	Water Level	10.59	m	0.01	Dip Meter	Base dipped at 14.2m
S2-BH227	1	21/04/2023 10:50	Water Level	4.7	m	0.01	Dip Meter	Base dipped at 5.50m
S2-BH227	2	21/04/2023 10:52	Water Level	10.58	m	0.01	Dip Meter	Base dipped at 14.2m
S2-BH227	2	24/04/2023 14:59	Water Level	10.6	m	0.01	Dip Meter	Base dipped at 14.00m
S2-BH227	1	24/04/2023 14:59	Water Level	4.93	m	0.01	Dip Meter	Base dipped at 5.30m
S2-BH227	2	25/04/2023 10:59	Water Level	10.8	m	0.01	Dip Meter	Base dipped at 14.00m
S2-BH227	1	25/04/2023 11:44	Water Level	5	m	0.01	Dip Meter	Base dipped at 5.30m
S2-BH227	1	26/04/2023 14:45	Water Level	5	m	0.01	Dip Meter	Base dipped at 5.30m
S2-BH227	2	26/04/2023 16:07	Water Level	10.94	m	0.01	Dip Meter	Base dipped at 14.00m
S2-BH227	1	27/04/2023 15:14	Water Level	5	m	0.01	Dip Meter	Base dipped at 5.30m
S2-BH227	2	27/04/2023 16:44	Water Level	10.95	m	0.01	Dip Meter	Base dipped at 14.00m
S2-BH227	2	28/04/2023 14:17	Water Level	10.98	m	0.01	Dip Meter	Base dipped at 14.00m
S2-BH227	1	28/04/2023 16:47	Water Level	5	m	0.01	Dip Meter	Base dipped at 5.30m
S2-BH227	1	02/05/2023 13:13	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 5.50m
S2-BH227	2	02/05/2023 13:13	Water Level	11	m	0.01	Dip Meter	Base dipped at 14.10m
S2-BH227	1	03/05/2023 14:19	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 5.50m
S2-BH227	2	03/05/2023 14:19	Water Level	11.1	m	0.01	Dip Meter	Base dipped at 14.10m
S2-BH227	1	04/05/2023 15:59	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 5.50m
S2-BH227	2	04/05/2023 16:52	Water Level	11.1	m	0.01	Dip Meter	Base dipped at 14.15m
S2-BH227	1	05/05/2023 11:59	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 5.5m
S2-BH227	2	05/05/2023 15:15	Water Level	10.56	m	0.01	Dip Meter	Base dipped at 14.3m
S2-BH227	1	09/05/2023 13:01	Water Level	3.63	m	0.01	Dip Meter	Base dipped at 5.50m
S2-BH227	2	09/05/2023 14:20	Water Level	10.56	m	0.01	Dip Meter	Base dipped at 14.30m
S2-BH227	2	10/05/2023 11:11	Water Level	10.56	m	0.01	Dip Meter	Base dipped at 14.30m
S2-BH227	2	10/05/2023 12:02	Water Level	3.63	m	0.01	Dip Meter	Base dipped at 5.5m
S2-BH227	1	11/05/2023 08:39	Water Level	3.65	m	0.01	Dip Meter	Base dipped at 5.57m
S2-BH227	2	11/05/2023 09:37	Water Level	10.56	m	0.01	Dip Meter	Base dipped at 14.18m
S2-BH227	2	12/05/2023 11:42	Water Level	10.65	m	0.01	Dip Meter	Base dipped at 14.10m
S2-BH227	1	12/05/2023 15:08	Water Level	3.69	m	0.01	Dip Meter	Base dipped at 5.57m
S2-BH227	2	15/05/2023 14:02	Water Level	10.7	m	0.01	Dip Meter	Base dipped at 14.10m
S2-BH227	1	15/05/2023 15:12	Water Level	4.59	m	0.01	Dip Meter	Base dipped at 5.57m
S2-BH227	2	16/05/2023 16:01	Water Level	10.7	m	0.01	Dip Meter	Base dipped at 14.10m
S2-BH227	1	16/05/2023 16:10	Water Level	4.59	m	0.01	Dip Meter	Base dipped at 5.57m
S2-BH227	2	17/05/2023 10:49	Water Level	10.75	m	0.01	Dip Meter	Base dipped at 14.10m



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Project	Global Centre of Rail Excellence (GCRE) Stage 2			Project No	G23012	Client	Walters UK Ltd	
Exploratory Hole	Pipe Ref.	Date and Time	Reading Type	Reading	Units	Detection Limit	Instrument	Remarks
S2-BH227	1	17/05/2023 11:53	Water Level	4.6	m	0.01	Dip Meter	Base dipped at 5.57m
S2-BH227	1	18/05/2023 12:59	Water Level	4.6	m	0.01	Dip Meter	Base dipped at 5.57m
S2-BH227	2	18/05/2023 15:53	Water Level	10.72	m	0.01	Dip Meter	Base dipped at 14.10m
S2-BH227	2	19/05/2023 09:54	Water Level	10.73	m	0.01	Dip Meter	Base dipped at 14.10m
S2-BH227	1	19/05/2023 14:50	Water Level	4.6	m	0.01	Dip Meter	Base dipped at 5.57m
S2-BH227	2	22/05/2023 11:47	Water Level	10.8	m	0.01	Dip Meter	Base dipped at 14.10m
S2-BH227	1	22/05/2023 11:50	Water Level	5	m	0.01	Dip Meter	Base dipped at 5.50m
S2-BH227	2	23/05/2023 12:00	Water Level	10.85	m	0.01	Dip Meter	Base dipped at 14.10m
S2-BH227	1	23/05/2023 12:59	Water Level	5.02	m	0.01	Dip Meter	Base dipped at 5.50m
S2-BH227	1	24/05/2023 09:45	Water Level	5.2	m	0.01	Dip Meter	Base dipped at 5.50m
S2-BH227	2	24/05/2023 15:11	Water Level	10.93	m	0.01	Dip Meter	Base dipped at 14.10m
S2-BH227	2	25/05/2023 12:30	Water Level	11.06	m	0.01	Dip Meter	Base dipped at 14.10m
S2-BH227	1	25/05/2023 12:47	Water Level	5.4	m	0.01	Dip Meter	Base dipped at 5.50m
S2-BH227	1	26/05/2023 09:45	Water Level	5.45	m	0.01	Dip Meter	Base dipped at 5.50m
S2-BH227	2	26/05/2023 15:00	Water Level	11.22	m	0.01	Dip Meter	Base dipped at 14.10m
S2-BH229	2	02/04/2023 15:20	Water Level	2.85	m	0.01	Dip Meter	Base dipped at 3.00m
S2-BH229	1	02/04/2023 15:20	Water Level	13.4	m	0.01	Dip Meter	Base dipped at 14m
S2-BH229	2	28/04/2023 14:10	Water Level	2.9	m	0.01	Dip Meter	Base dipped at 3.00m
S2-BH229	1	28/04/2023 14:14	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 14.00m
S2-BH229	1	03/05/2023 12:10	Water Level	13.45	m	0.01	Dip Meter	Base dipped at 14.00m
S2-BH229	2	03/05/2023 12:11	Water Level	2.85	m	0.01	Dip Meter	Base dipped at 3.00m
S2-BH229	2	04/05/2023 14:16	Water Level	2.88	m	0.01	Dip Meter	Base dipped at 3.00m
S2-BH229	1	04/05/2023 14:16	Water Level	13.45	m	0.01	Dip Meter	Base dipped at 14.00m
S2-BH229	1	05/05/2023 09:45	Water Level	13.3	m	0.01	Dip Meter	Base dipped at 14.10m
S2-BH229	2	05/05/2023 15:28	Water Level	2.9	m	0.01	Dip Meter	Base dipped at 3.0m
S2-BH229	2	09/05/2023 10:30	Water Level	2.9	m	0.01	Dip Meter	Base dipped at 3.0m
S2-BH229	1	09/05/2023 11:47	Water Level	12.8	m	0.01	Dip Meter	Base dipped at 14.10m
S2-BH229	1	10/05/2023 09:54	Water Level	12.72	m	0.01	Dip Meter	Base dipped at 14.10m
S2-BH229	2	10/05/2023 14:36	Water Level	2.92	m	0.01	Dip Meter	Base dipped at 3.0m
S2-BH229	1	11/05/2023 14:57	Water Level	12.63	m	0.01	Dip Meter	Base dipped at 14.00m
S2-BH229	2	11/05/2023 14:57	Water Level	2.93	m	0.01	Dip Meter	Base dipped at 3.00m
S2-BH229	1	12/05/2023 11:02	Water Level	12.6	m	0.01	Dip Meter	Base dipped at 14.00m
S2-BH229	2	12/05/2023 15:04	Water Level	2.93	m	0.01	Dip Meter	Base dipped at 3.00m
S2-BH229	1	15/05/2023 10:31	Water Level	12.5	m	0.01	Dip Meter	Base dipped at 14.00m
S2-BH229	2	15/05/2023 12:20	Water Level	2.93	m	0.01	Dip Meter	Base dipped at 3.00m
S2-BH229	2	16/05/2023 16:00	Water Level	2.93	m	0.01	Dip Meter	Base dipped at 3.00m
S2-BH229	1	16/05/2023 16:39	Water Level	12.5	m	0.01	Dip Meter	Base dipped at 14.00m
S2-BH229	2	17/05/2023 15:11	Water Level	2.93	m	0.01	Dip Meter	Base dipped at 3.00m
S2-BH229	1	17/05/2023 15:50	Water Level	12.5	m	0.01	Dip Meter	Base dipped at 14.00m



GROUNDWATER MONITORING DATA

Project	Global Centre of Rail Excellence (GCRE) Stage 2			Project No	G23012	Client	Walters UK Ltd	
Exploratory Hole	Pipe Ref.	Date and Time	Reading Type	Reading	Units	Detection Limit	Instrument	Remarks
S2-BH229	2	18/05/2023 12:24	Water Level	2.93	m	0.01	Dip Meter	Base dipped at 3.00m
S2-BH229	1	18/05/2023 16:46	Water Level	12.51	m	0.01	Dip Meter	Base dipped at 14.00m
S2-BH229	2	19/05/2023 10:13	Water Level	2.93	m	0.01	Dip Meter	Base dipped at 3.00m
S2-BH229	1	19/05/2023 14:02	Water Level	12.51	m	0.01	Dip Meter	Base dipped at 14.00m
S2-BH229	2	22/05/2023 10:07	Water Level	2.93	m	0.01	Dip Meter	Base dipped at 3.00m
S2-BH229	1	22/05/2023 11:00	Water Level	12.58	m	0.01	Dip Meter	Base dipped at 14.00m
S2-BH229	2	23/05/2023 13:10	Water Level	2.93	m	0.01	Dip Meter	Base dipped at 3.00m
S2-BH229	1	23/05/2023 16:42	Water Level	12.57	m	0.01	Dip Meter	Base dipped at 14.00m
S2-BH229	2	24/05/2023 09:10	Water Level	2.94	m	0.01	Dip Meter	Base dipped at 3.00m
S2-BH229	1	24/05/2023 12:25	Water Level	12.65	m	0.01	Dip Meter	Base dipped at 14.00m
S2-BH229	2	25/05/2023 11:15	Water Level	2.94	m	0.01	Dip Meter	Base dipped at 3.00m
S2-BH229	1	25/05/2023 11:39	Water Level	12.83	m	0.01	Dip Meter	Base dipped at 14.00m
S2-BH229	2	26/05/2023 11:29	Water Level	2.95	m	0.01	Dip Meter	Base dipped at 3.00m
S2-BH229	1	26/05/2023 16:01	Water Level	13	m	0.01	Dip Meter	Base dipped at 14.00m
S2-BH233	1	13/04/2023 14:44	Water Level	12.68	m	0.01	Dip Meter	Base dipped at 25.30m
S2-BH233	1	14/04/2023 11:54	Water Level	12.65	m	0.01	Dip Meter	Base dipped at 25.30m
S2-BH233	1	17/04/2023 12:45	Water Level	22.8	m	0.01	Dip Meter	Base dipped at 25.30m
S2-BH233	1	18/04/2023 16:26	Water Level	22.7	m	0.01	Dip Meter	Base dipped at 25.29m
S2-BH233	1	19/04/2023 14:32	Water Level	22.7	m	0.01	Dip Meter	Base dipped at 24.9m
S2-BH233	1	20/04/2023 11:35	Water Level	22.8	m	0.01	Dip Meter	Base dipped at 24.8m
S2-BH233	1	21/04/2023 09:36	Water Level	22.8	m	0.01	Dip Meter	Base dipped at 24.8m
S2-BH233	1	24/04/2023 10:52	Water Level	22	m	0.01	Dip Meter	Base dipped at 25m
S2-BH233	1	25/04/2023 09:00	Water Level	22	m	0.01	Dip Meter	Base dipped at 25.00m
S2-BH233	1	26/04/2023 11:44	Water Level	22	m	0.01	Dip Meter	Base dipped at 25.00m
S2-BH233	1	27/04/2023 11:29	Water Level	21.9	m	0.01	Dip Meter	Base dipped at 25.00m
S2-BH233	1	28/04/2023 14:34	Water Level	21.9	m	0.01	Dip Meter	Base dipped at 25.00m
S2-BH233	1	02/05/2023 13:49	Water Level	22.2	m	0.01	Dip Meter	Base dipped at 25.20m
S2-BH233	1	03/05/2023 15:51	Water Level	22.2	m	0.01	Dip Meter	Base dipped at 25.20m
S2-BH233	1	04/05/2023 16:38	Water Level	22.2	m	0.01	Dip Meter	Base dipped at 25.2m
S2-BH233	1	05/05/2023 11:20	Water Level	22.2	m	0.01	Dip Meter	Base dipped at 24.8m
S2-BH233	1	09/05/2023 14:50	Water Level	21.5	m	0.01	Dip Meter	Base dipped at 24.80m
S2-BH233	1	10/05/2023 12:40	Water Level	21.5	m	0.01	Dip Meter	Base dipped at 24.80m
S2-BH233	1	11/05/2023 11:37	Water Level	21.52	m	0.01	Dip Meter	Base dipped at 25.00m
S2-BH233	1	12/05/2023 14:50	Water Level	21.5	m	0.01	Dip Meter	Base dipped at 25.00m
S2-BH233	1	15/05/2023 13:51	Water Level	22.77	m	0.01	Dip Meter	Base dipped at 24.80m
S2-BH233	1	16/05/2023 11:40	Water Level	22.77	m	0.01	Dip Meter	Base dipped at 24.80m
S2-BH233	1	17/05/2023 14:00	Water Level	22.77	m	0.01	Dip Meter	Base dipped at 25.00m
S2-BH233	1	18/05/2023 15:45	Water Level	22.76	m	0.01	Dip Meter	Base dipped at 25.00m
S2-BH233	1	19/05/2023 10:22	Water Level	22.75	m	0.01	Dip Meter	Base dipped at 25.00m



GROUNDWATER MONITORING DATA

Project	Global Centre of Rail Excellence (GCRE) Stage 2			Project No	G23012	Client	Walters UK Ltd	
Exploratory Hole	Pipe Ref.	Date and Time	Reading Type	Reading	Units	Detection Limit	Instrument	Remarks
S2-BH233	1	22/05/2023 14:30	Water Level	22.85	m	0.01	Dip Meter	Base dipped at 25.00m
S2-BH233	1	23/05/2023 12:45	Water Level	22.84	m	0.01	Dip Meter	Base dipped at 25.000m
S2-BH233	1	24/05/2023 13:50	Water Level	22.8	m	0.01	Dip Meter	Base dipped at 25.00m
S2-BH233	1	25/05/2023 15:01	Water Level	22.76	m	0.01	Dip Meter	Base dipped at 25.00m
S2-BH233	1	26/05/2023 10:10	Water Level	22.7	m	0.01	Dip Meter	Base dipped at 25.00m
S2-BH235	1	20/04/2023 12:00	Water Level	13.4	m	0.01	Dip Meter	Base dipped at 15m
S2-BH235	1	21/04/2023 13:12	Water Level	13.5	m	0.01	Dip Meter	Base dipped at 15m
S2-BH235	1	24/04/2023 15:04	Water Level	13.7	m	0.01	Dip Meter	Base dipped at 15.00m
S2-BH235	1	25/04/2023 15:04	Water Level	13.75	m	0.01	Dip Meter	Base dipped at 15.00m
S2-BH235	1	26/04/2023 14:09	Water Level	13.8	m	0.01	Dip Meter	Base dipped at 15m
S2-BH235	1	27/04/2023 13:16	Water Level	13.8	m	0.01	Dip Meter	Base dipped at 15.00m
S2-BH235	1	28/04/2023 11:20	Water Level	13.9	m	0.01	Dip Meter	Base dipped at 15.00m
S2-BH235	1	02/05/2023 09:22	Water Level	14	m	0.01	Dip Meter	Base dipped at 15.00m
S2-BH235	1	03/05/2023 12:25	Water Level	14.2	m	0.01	Dip Meter	Base dipped at 15.00m
S2-BH235	1	04/05/2023 14:26	Water Level	14.5	m	0.01	Dip Meter	Base dipped at 15.00m
S2-BH235	1	05/05/2023 10:34	Water Level	14.6	m	0.01	Dip Meter	Base dipped at 15m
S2-BH235	1	09/05/2023 14:40	Water Level	13.65	m	0.01	Dip Meter	Base dipped at 15.00m
S2-BH235	1	10/05/2023 16:59	Water Level	13.65	m	0.01	Dip Meter	Base dipped at 15.00m
S2-BH235	1	11/05/2023 12:59	Water Level	13.7	m	0.01	Dip Meter	Base dipped at 14.97m
S2-BH235	1	12/05/2023 13:47	Water Level	13.7	m	0.01	Dip Meter	Base dipped at 14.80m
S2-BH235	1	15/05/2023 14:51	Water Level	14.55	m	0.01	Dip Meter	Base dipped at 14.80m
S2-BH235	1	16/05/2023 13:56	Water Level	14.55	m	0.01	Dip Meter	Base dipped at 14.80m
S2-BH235	1	17/05/2023 11:20	Water Level	14.6	m	0.01	Dip Meter	Base dipped 14.80m
S2-BH235	1	18/05/2023 15:26	Water Level	14.69	m	0.01	Dip Meter	Base dipped at 14.80m
S2-BH235	1	19/05/2023 09:46	Water Level	14.77	m	0.01	Dip Meter	Base dipped at 14.80m
S2-BH235	1	22/05/2023 16:56	Water Level	14.6	m	0.01	Dip Meter	Base dipped at 15.00m
S2-BH235	1	23/05/2023 09:00	Water Level	14.59	m	0.01	Dip Meter	Base dipped at 15.00m
S2-BH235	1	24/05/2023 10:11	Water Level	14.66	m	0.01	Dip Meter	Base dipped at 15.00m
S2-BH235	1	25/05/2023 15:18	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 15.00m
S2-BH235	1	26/05/2023 12:00	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 15.00m
S2-BH236	1	24/04/2023 15:43	Water Level	10.34	m	0.01	Dip Meter	Base dipped at 15.20m
S2-BH236	1	25/04/2023 10:08	Water Level	10.8	m	0.01	Dip Meter	Base dipped at 15.00m
S2-BH236	1	26/04/2023 16:52	Water Level	11.05	m	0.01	Dip Meter	Base dipped at 15.00m
S2-BH236	1	27/04/2023 16:52	Water Level	11.3	m	0.01	Dip Meter	Base dipped at 15m
S2-BH236	1	28/04/2023 09:27	Water Level	11.37	m	0.01	Dip Meter	Base dipped at 15.00m
S2-BH236	1	02/05/2023 11:30	Water Level	13.1	m	0.01	Dip Meter	Base dipped at 15.00m
S2-BH236	1	03/05/2023 12:32	Water Level	13.15	m	0.01	Dip Meter	Base dipped at 15.00m
S2-BH236	1	04/05/2023 12:23	Water Level	13.33	m	0.01	Dip Meter	Base dipped at 15.00m
S2-BH236	1	05/05/2023 11:26	Water Level	14	m	0.01	Dip Meter	Base dipped at 15.10m



GROUNDWATER MONITORING DATA

Project	Global Centre of Rail Excellence (GCRE) Stage 2			Project No	G23012	Client	Walters UK Ltd	
Exploratory Hole	Pipe Ref.	Date and Time	Reading Type	Reading	Units	Detection Limit	Instrument	Remarks
S2-BH236	1	09/05/2023 15:32	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 15.10m
S2-BH236	1	10/05/2023 09:00	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 15.10m
S2-BH236	1	11/05/2023 13:09	Water Level	13.57	m	0.01	Dip Meter	Base dipped at 15.10m
S2-BH236	1	12/05/2023 14:14	Water Level	13.57	m	0.01	Dip Meter	Base dipped at 15.00m
S2-BH236	1	15/05/2023 13:17	Water Level	13.76	m	0.01	Dip Meter	Base dipped at 15.00m
S2-BH236	1	16/05/2023 14:26	Water Level	13.81	m	0.01	Dip Meter	Base dipped at 15.00m
S2-BH236	1	17/05/2023 10:34	Water Level	13.85	m	0.01	Dip Meter	Base dipped at 15.00m
S2-BH236	1	18/05/2023 13:39	Water Level	13.9	m	0.01	Dip Meter	Base dipped at 15.00m
S2-BH236	1	19/05/2023 10:04	Water Level	13.94	m	0.01	Dip Meter	Base dipped at 15.00m
S2-BH236	1	22/05/2023 16:59	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 15.00m
S2-BH236	1	23/05/2023 10:50	Water Level		m	0.01	Dip Meter	Dry. Base dipped at 15.00m
S2-BH236	1	24/05/2023 13:55	Water Level	14.15	m	0.01	Dip Meter	Base dipped at 15.00m
S2-BH236	1	25/05/2023 14:45	Water Level	14.18	m	0.01	Dip Meter	Base dipped at 15.00m
S2-BH236	1	26/05/2023 16:50	Water Level	14.15	m	0.01	Dip Meter	Base dipped at 15.00m
S2-BH237	1	06/04/2023 09:22	Water Level	10.15	m	0.01	Dip Meter	Base dipped at 25.10m
S2-BH237	1	12/04/2023 12:29	Water Level	10.1	m	0.01	Dip Meter	Base dipped at 24.9m
S2-BH237	1	13/04/2023 14:46	Water Level	10	m	0.01	Dip Meter	Base dipped at 24.9m
S2-BH237	1	14/04/2023 13:49	Water Level	10.1	m	0.01	Dip Meter	Base dipped at 24.8m
S2-BH237	1	17/04/2023 15:58	Water Level	10.3	m	0.01	Dip Meter	Base dipped at 24.8m
S2-BH237	1	19/04/2023 15:34	Water Level	10.3	m	0.01	Dip Meter	Base dipped at 24.8m
S2-BH237	1	20/04/2023 12:38	Water Level	10.5	m	0.01	Dip Meter	Base dipped at 24.8m
S2-BH237	1	21/04/2023 14:43	Water Level	10.58	m	0.01	Dip Meter	Base dipped at 24.80m
S2-BH237	1	24/04/2023 15:15	Water Level	10.59	m	0.01	Dip Meter	Base dipped at 24.80m
S2-BH237	1	25/04/2023 16:20	Water Level	10.59	m	0.01	Dip Meter	Base dipped at 24.80m
S2-BH237	1	26/04/2023 10:26	Water Level	10.4	m	0.01	Dip Meter	Base dipped at 24.7m
S2-BH237	1	27/04/2023 13:27	Water Level	10.3	m	0.01	Dip Meter	Base dipped at 24.70m
S2-BH237	1	28/04/2023 15:30	Water Level	10.1	m	0.01	Dip Meter	Base dipped at 24.70m
S2-BH237	1	02/05/2023 11:36	Water Level	11.2	m	0.01	Dip Meter	Base dipped at 24.80m
S2-BH237	1	03/05/2023 12:38	Water Level	11.3	m	0.01	Dip Meter	Base dipped at 24.80m
S2-BH237	1	04/05/2023 15:02	Water Level	11.4	m	0.01	Dip Meter	Base dipped at 24.80m
S2-BH237	1	05/05/2023 10:30	Water Level	11.3	m	0.01	Dip Meter	Base dipped at 25.9m
S2-BH237	1	09/05/2023 11:26	Water Level	11.3	m	0.01	Dip Meter	Base dipped at 24.80m
S2-BH237	1	10/05/2023 09:30	Water Level	11.3	m	0.01	Dip Meter	Base dipped at 24.9m
S2-BH237	1	11/05/2023 13:33	Water Level	11.28	m	0.01	Dip Meter	Base dipped at 25.00m
S2-BH237	1	12/05/2023 13:33	Water Level	11.28	m	0.01	Dip Meter	Base dipped at 25m
S2-BH237	1	15/05/2023 12:49	Water Level	11.25	m	0.01	Dip Meter	Base dipped at 24.80m
S2-BH237	1	16/05/2023 14:52	Water Level	11.25	m	0.01	Dip Meter	Base dipped at 24.80m
S2-BH237	1	17/05/2023 10:20	Water Level	11.26	m	0.01	Dip Meter	Base dipped at 24.80m
S2-BH237	1	18/05/2023 09:33	Water Level	11.26	m	0.01	Dip Meter	Base dipped at 24.80m



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Project	Global Centre of Rail Excellence (GCRE) Stage 2			Project No	G23012	Client	Walters UK Ltd	
Exploratory Hole	Pipe Ref.	Date and Time	Reading Type	Reading	Units	Detection Limit	Instrument	Remarks
S2-BH237	1	19/05/2023 13:08	Water Level	11.24	m	0.01	Dip Meter	Base dipped at 24.80m
S2-BH237	1	22/05/2023 13:44	Water Level	11.49	m	0.01	Dip Meter	Base dipped at 24.80m
S2-BH237	1	23/05/2023 13:44	Water Level	11.51	m	0.01	Dip Meter	Base dipped at 24.80m
S2-BH237	1	24/05/2023 14:50	Water Level	11.55	m	0.01	Dip Meter	Base dipped at 24.80m
S2-BH237	1	25/05/2023 10:40	Water Level	11.59	m	0.01	Dip Meter	Base dipped at 24.80m
S2-BH237	1	26/05/2023 16:51	Water Level	11.65	m	0.01	Dip Meter	Base dipped at 24.80m
S2-BH241	1	27/04/2023 16:18	Water Level	14.4	m	0.01	Dip Meter	Base dipped at 15.10m
S2-BH241	1	28/04/2023 16:18	Water Level	14.4	m	0.01	Dip Meter	Base dipped at 15.10m
S2-BH241	1	02/05/2023 09:54	Water Level	14.48	m	0.01	Dip Meter	Base dipped at 15m
S2-BH241	1	03/05/2023 10:44	Water Level	14.49	m	0.01	Dip Meter	Base dipped at 15m
S2-BH241	1	04/05/2023 16:00	Water Level	14.5	m	0.01	Dip Meter	Base dipped at 15m
S2-BH241	1	05/05/2023 16:00	Water Level	14.5	m	0.01	Dip Meter	Base dipped at 15.1m
S2-BH241	1	09/05/2023 14:06	Water Level	14.5	m	0.01	Dip Meter	Base dipped at 15.1m
S2-BH241	1	10/05/2023 15:15	Water Level	14.5	m	0.01	Dip Meter	Base dipped at 15.1m
S2-BH241	1	11/05/2023 13:14	Water Level	14.5	m	0.01	Dip Meter	Base dipped at 15.00m
S2-BH241	1	12/05/2023 09:18	Water Level	14.5	m	0.01	Dip Meter	Base dipped at 15.00m
S2-BH241	1	15/05/2023 12:07	Water Level	14.45	m	0.01	Dip Meter	Base dipped at 15.00m
S2-BH241	1	16/05/2023 13:10	Water Level	14.45	m	0.01	Dip Meter	Base dipped at 15.00m
S2-BH241	1	17/05/2023 15:16	Water Level	14.47	m	0.01	Dip Meter	Base dipped at 15.00m
S2-BH241	1	18/05/2023 10:17	Water Level	14.49	m	0.01	Dip Meter	Base dipped at 15.00m
S2-BH241	1	19/05/2023 10:38	Water Level	14.51	m	0.01	Dip Meter	Base dipped at 15.00m
S2-BH241	1	22/05/2023 11:50	Water Level	14.51	m	0.01	Dip Meter	Base dipped at 15.00m
S2-BH241	1	23/05/2023 16:47	Water Level	14.51	m	0.01	Dip Meter	Base dipped at 15.00m
S2-BH241	1	24/05/2023 14:50	Water Level	14.51	m	0.01	Dip Meter	Base dipped at 15.00m
S2-BH241	1	25/05/2023 16:59	Water Level	14.52	m	0.01	Dip Meter	Base dipped at 15.00m
S2-BH241	1	26/05/2023 10:45	Water Level	14.52	m	0.01	Dip Meter	Base dipped at 15.00m
S2-BH242	1	11/04/2023 13:30	Water Level		m	0.01	Dip Meter	Base dipped at 3.70m Dry
S2-BH242	1	12/04/2023 14:15	Water Level		m	0.01	Dip Meter	Base dipped at 3.68m Dry
S2-BH242	1	13/04/2023 11:52	Water Level		m	0.01	Dip Meter	Base dipped at 3.88m Dry
S2-BH242	1	18/04/2023 13:35	Water Level	1.88	m	0.01	Dip Meter	Base dipped at 3.70m
S2-BH242	1	19/04/2023 12:58	Water Level	1.96	m	0.01	Dip Meter	Base dipped at 3.75m
S2-BH242	1	20/04/2023 11:20	Water Level	1.95	m	0.01	Dip Meter	Base dipped at 3.75m
S2-BH242	1	26/04/2023 08:49	Water Level	2.11	m	0.01	Dip Meter	Base dipped at 3.70m
S2-BH242	1	03/05/2023 09:57	Water Level	2.18	m	0.01	Dip Meter	Base dipped at 3.69m
S2-BH244	1	04/04/2023 14:52	Water Level	2.58	m	0.01	Dip Meter	Base dipped at 3.50m
S2-BH244	2	04/04/2023 15:00	Water Level	2.51	m	0.01	Dip Meter	Base dipped at 9.25m
S2-BH244	2	05/04/2023 11:06	Water Level	2.4	m	0.01	Dip Meter	Base dipped at 9.19m
S2-BH244	1	05/04/2023 11:07	Water Level	2.5	m	0.01	Dip Meter	Base dipped at 3.46m
S2-BH244	2	06/04/2023 14:32	Water Level	2.83	m	0.01	Dip Meter	Base dipped at 9.32m



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Project	Global Centre of Rail Excellence (GCRE) Stage 2			Project No	G23012	Client	Walters UK Ltd	
Exploratory Hole	Pipe Ref.	Date and Time	Reading Type	Reading	Units	Detection Limit	Instrument	Remarks
S2-BH244	1	06/04/2023 14:35	Water Level		m	0.01	Dip Meter	Base dipped at 3.44m. Dry
S2-BH244	1	11/04/2023 13:13	Water Level	2.58	m	0.01	Dip Meter	Base dipped at 3.50m
S2-BH244	2	11/04/2023 13:18	Water Level	2.75	m	0.01	Dip Meter	Base dipped at 9.80m
S2-BH244	1	12/04/2023 14:28	Water Level	2.58	m	0.01	Dip Meter	Base dipped at 3.49m
S2-BH244	2	12/04/2023 14:34	Water Level	2.6	m	0.01	Dip Meter	Base dipped at 9.83m
S2-BH244	2	13/04/2023 11:39	Water Level	2.69	m	0.01	Dip Meter	Base dipped at 9.06m
S2-BH244	1	13/04/2023 11:40	Water Level	2.46	m	0.01	Dip Meter	Base dipped at 3.34m
S2-BH244	2	18/04/2023 13:10	Water Level	2.73	m	0.01	Dip Meter	Base dipped at 9.35m
S2-BH244	1	18/04/2023 13:13	Water Level	2.72	m	0.01	Dip Meter	Base dipped at 3.46m
S2-BH244	2	19/04/2023 12:52	Water Level	2.77	m	0.01	Dip Meter	Base dipped at 9.45m
S2-BH244	1	19/04/2023 12:55	Water Level	2.78	m	0.01	Dip Meter	Base dipped at 3.50m
S2-BH244	2	20/04/2023 11:08	Water Level	2.76	m	0.01	Dip Meter	Base dipped at 9.40m
S2-BH244	1	20/04/2023 11:10	Water Level	2.77	m	0.01	Dip Meter	Base dipped at 3.50m
S2-BH244	1	26/04/2023 08:46	Water Level	2.75	m	0.01	Dip Meter	Base dipped at 3.47m
S2-BH244	2	26/04/2023 08:47	Water Level	2.68	m	0.01	Dip Meter	Base dipped at 9.33m
S2-BH244	1	03/05/2023 09:52	Water Level	2.69	m	0.01	Dip Meter	Base dipped at 3.51m
S2-BH244	2	03/05/2023 09:54	Water Level	2.68	m	0.01	Dip Meter	Base dipped at 9.30m
S2-BH245	1	18/04/2023 13:45	Water Level	2.8	m	0.01	Dip Meter	Base dipped at 3.91m
S2-BH245	1	19/04/2023 13:02	Water Level	2.94	m	0.01	Dip Meter	Base dipped at 3.80m
S2-BH245	1	20/04/2023 11:24	Water Level	2.93	m	0.01	Dip Meter	Base dipped at 3.80m
S2-BH245	1	26/04/2023 08:49	Water Level	2.95	m	0.01	Dip Meter	Base dipped at 3.87m
S2-BH245	1	03/05/2023 09:58	Water Level	2.91	m	0.01	Dip Meter	Base dipped at 3.87m
S2-BH246	1	04/04/2023 15:10	Water Level		m	0.01	Dip Meter	Base dipped at 2.25m. Dry.
S2-BH246	2	04/04/2023 15:15	Water Level	2.85	m	0.01	Dip Meter	Base dipped at 7.90m
S2-BH246	2	05/04/2023 11:08	Water Level	2.67	m	0.01	Dip Meter	Base dipped at 7.93m
S2-BH246	1	05/04/2023 11:09	Water Level		m	0.01	Dip Meter	Base dipped at 2.50m Dry
S2-BH246	1	06/04/2023 14:37	Water Level		m	0.01	Dip Meter	Base dipped at 2.31m. Dry
S2-BH246	2	06/04/2023 14:41	Water Level	2.97	m	0.01	Dip Meter	Base dipped at 7.87m
S2-BH246	1	11/04/2023 13:39	Water Level		m	0.01	Dip Meter	Base dipped at 2.50m Dry
S2-BH246	2	11/04/2023 13:40	Water Level	2.92	m	0.01	Dip Meter	Base dipped at 7.90m
S2-BH246	1	12/04/2023 14:40	Water Level		m	0.01	Dip Meter	Base dipped at 2.52m Dry
S2-BH246	2	12/04/2023 14:41	Water Level	2.86	m	0.01	Dip Meter	Base dipped at 7.90m
S2-BH246	2	13/04/2023 11:49	Water Level	2.85	m	0.01	Dip Meter	Base dipped at 8.05m
S2-BH246	1	13/04/2023 11:50	Water Level		m	0.01	Dip Meter	Base dipped at 2.48m Dry
S2-BH246	1	18/04/2023 13:00	Water Level		m	0.01	Dip Meter	Base dipped at 2.49m Dry
S2-BH246	2	18/04/2023 13:03	Water Level	2.98	m	0.01	Dip Meter	Base dipped at 7.95m
S2-BH246	2	19/04/2023 12:44	Water Level	3.02	m	0.01	Dip Meter	Base dipped at 7.84m
S2-BH246	1	19/04/2023 12:48	Water Level		m	0.01	Dip Meter	Base dipped at 2.38m Dry
S2-BH246	1	20/04/2023 11:03	Water Level		m	0.01	Dip Meter	Base dipped at 2.38m Dry



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Project	Global Centre of Rail Excellence (GCRE) Stage 2			Project No	G23012	Client	Walters UK Ltd	
Exploratory Hole	Pipe Ref.	Date and Time	Reading Type	Reading	Units	Detection Limit	Instrument	Remarks
S2-BH246	2	20/04/2023 11:05	Water Level	3	m	0.01	Dip Meter	Base dipped at 7.85m
S2-BH246	1	26/04/2023 08:45	Water Level		m	0.01	Dip Meter	Base dipped at 2.41m Dry
S2-BH246	2	26/04/2023 08:46	Water Level	2.89	m	0.01	Dip Meter	Base dipped at 7.89m
S2-BH246	1	03/05/2023 09:50	Water Level		m	0.01	Dip Meter	Base dipped at 2.39m Dry.
S2-BH246	2	03/05/2023 09:51	Water Level	2.95	m	0.01	Dip Meter	Base dipped at 7.92m
S2-BH248	2	26/04/2023 08:52	Water Level		m	0.01	Dip Meter	Base dipped at 3.98m Dry
S2-BH248	1	26/04/2023 08:52	Water Level		m	0.01	Dip Meter	Base dipped at 9.42m Dry
S2-BH248	1	03/05/2023 10:12	Water Level		m	0.01	Dip Meter	Base dipped at 9.45m Water at base.
S2-BH248	2	03/05/2023 10:14	Water Level		m	0.01	Dip Meter	Base dipped at 3.97m Dry.
S2-BH249	1	04/04/2023 15:33	Water Level		m	0.01	Dip Meter	Base dipped at 2.80m. Dry.
S2-BH249	2	04/04/2023 15:45	Water Level	3.57	m	0.01	Dip Meter	Base dipped at 7.50m
S2-BH249	1	05/04/2023 11:10	Water Level		m	0.01	Dip Meter	Base dipped at 3.11m Dry
S2-BH249	2	05/04/2023 11:10	Water Level	3.7	m	0.01	Dip Meter	Base dipped at 7.52m
S2-BH249	2	06/04/2023 14:42	Water Level	3.65	m	0.01	Dip Meter	Base dipped at 7.48m
S2-BH249	1	06/04/2023 14:44	Water Level	2.8	m	0.01	Dip Meter	Base dipped at 2.80m
S2-BH249	1	11/04/2023 13:42	Water Level		m	0.01	Dip Meter	Base dipped at 3.13m Dry
S2-BH249	2	11/04/2023 13:43	Water Level	3.61	m	0.01	Dip Meter	Base dipped at 7.30m
S2-BH249	1	12/04/2023 14:42	Water Level		m	0.01	Dip Meter	Base dipped at 3.15m Dry
S2-BH249	2	12/04/2023 14:44	Water Level	3.56	m	0.01	Dip Meter	Base dipped at 7.30m
S2-BH249	2	13/04/2023 11:51	Water Level	3.55	m	0.01	Dip Meter	Base dipped at 7.30m
S2-BH249	1	13/04/2023 11:51	Water Level		m	0.01	Dip Meter	Base dipped at 3.12m Dry
S2-BH249	1	18/04/2023 13:20	Water Level		m	0.01	Dip Meter	Base dipped at 2.90m Dry
S2-BH249	2	18/04/2023 13:23	Water Level	3.6	m	0.01	Dip Meter	Base dipped at 7.50m
S2-BH249	1	19/04/2023 13:30	Water Level		m	0.01	Dip Meter	Base dipped at 3.40m Dry
S2-BH249	2	19/04/2023 13:32	Water Level	3.6	m	0.01	Dip Meter	Base dipped at 7.24m
S2-BH249	2	20/04/2023 11:14	Water Level	3.6	m	0.01	Dip Meter	Base dipped at 7.25m
S2-BH249	1	20/04/2023 11:17	Water Level		m	0.01	Dip Meter	Base dipped at 3.40m Dry
S2-BH249	1	26/04/2023 08:47	Water Level		m	0.01	Dip Meter	Base dipped at 3.13m Dry
S2-BH249	2	26/04/2023 08:48	Water Level	3.54	m	0.01	Dip Meter	Base dipped at 7.31m
S2-BH249	1	03/05/2023 09:56	Water Level		m	0.01	Dip Meter	Base dipped at 3.15m Dry
S2-BH249	2	03/05/2023 09:56	Water Level	3.49	m	0.01	Dip Meter	Base dipped at 7.33m
S2-BH252	1	26/04/2023 08:50	Water Level		m	0.01	Dip Meter	Base dipped at 2.51m Dry
S2-BH252	2	26/04/2023 08:51	Water Level	3.8	m	0.01	Dip Meter	Base dipped at 8.30m
S2-BH252	1	03/05/2023 10:11	Water Level		m	0.01	Dip Meter	Base dipped at 2.52m Water at base.
S2-BH252	2	03/05/2023 10:12	Water Level	3.76	m	0.01	Dip Meter	Base dipped at 8.82m
S2-BH261	2	18/04/2023 14:30	Water Level	5.31	m	0.01	Dip Meter	Base dipped at 7.80m
S2-BH261	1	18/04/2023 14:33	Water Level	10.46	m	0.01	Dip Meter	Base dipped at 14.80m
S2-BH261	1	19/04/2023 13:14	Water Level	10.13	m	0.01	Dip Meter	Base dipped at 14.57m
S2-BH261	2	19/04/2023 13:17	Water Level	7.12	m	0.01	Dip Meter	Base dipped at 7.89m



GROUNDWATER MONITORING DATA

Project

Global Centre of Rail Excellence (GCRE) Stage 2

Project No

G23012

Client

Walters UK Ltd

Exploratory Hole	Pipe Ref.	Date and Time	Reading Type	Reading	Units	Detection Limit	Instrument	Remarks
S2-BH261	1	20/04/2023 11:35	Water Level	10.12	m	0.01	Dip Meter	Base dipped at 14.60m
S2-BH261	2	20/04/2023 11:37	Water Level	7.11	m	0.01	Dip Meter	Base dipped at 7.90m
S2-BH261	2	26/04/2023 08:50	Water Level	7.18	m	0.01	Dip Meter	Base dipped at 7.88m
S2-BH261	1	26/04/2023 08:50	Water Level	10.09	m	0.01	Dip Meter	Base dipped at 14.60m
S2-BH261	1	03/05/2023 09:58	Water Level	9.95	m	0.01	Dip Meter	Base dipped at 14.63m
S2-BH261	2	03/05/2023 09:59	Water Level	7.21	m	0.01	Dip Meter	Base dipped at 7.91m



INSTALLATION INSPECTION AND WELL DEVELOPMENT RECORD

Project	Global Centre of Rail Excellence Stage II	Project No	G23012	Client	Walters UK Ltd
Exploratory Hole Number	Installation Reference	Installation Diameter (mm)	Anticipated Well Depth (m bgl)	Date and Time	
S1-BH118	1	50	15.00	24/05/2023 14:30	
Cover Type	Pipe Cover	Top of Response Zone (m bgl)	Base of Response Zone (m bgl)	Weather	
Box Cover	Pipe Plug	8.00	15.00	Sunny	
Installation Inspection					
Surface Conditions	Dry	Damage to Headworks?	No		
Check Dip of Base (m bgl)	15.30	Pipe Cover/Bung Present?	Yes		
Remedial actions undertaken to well:					
N/A					
Purging and Well Development					
Guidance Notes				Well Volume Calculation	
Well development undertaken in accordance with BS10175:2011+A2:2017. Purge volumes to include the annulus of the filter pack. Purging must continue until insitu parameters have stabilised unless agreed with clients representative.				Volume of the Filter Pack	
				Saturated length of Filter Pack (L) (m)	7.00
				Porosity of Filter Pack (ø)	0.33
Approx. Guidance Volumes for Field Calculation of Wet Well Volume					
Volume of 50mm diameter plain pipe	2 litres / metre	Volume of 50mm diameter slotted pipe with 200mm diameter gravel filter pack	11 litres / metre	Diameter of Filter Pack (mm) (df)	121
Porosity of 10mm pea gravel	0.33	Volume of 50mm diameter slotted pipe with 150mm diameter gravel filter pack	6 litres / metre	Volume of Filter Pack (litres) $(Lø)((\pi df^2/4)-(\pi dp^2/4))$	22.0
Groundwater Prior to Well Development				Volume of the Standpipe	
Groundwater Level (m bgl)	7.55	LNAPL/ DNAPL (m bgl)	N/A	Diameter of Standpipe (mm) (dp)	50
Purging Details				Saturated depth (m) (sd) (installation base - groundwater level)	7.45
Purge Method/ Device	Wasp Pump	Average Flow Rate (litres/min)	4.9	Volume of the Standpipe (litres) $(\pi dp^2/4)*10^{-3}$	14.6
Time to Purge (mins)	8	Number of Well Volumes Purged	1.1	Total Well Volume	
Total Volume Purged (litres)	39.0	Operative	KW	Total Well Volume (litres) Volume of Filter Pack + Volume of Standpipe)	36.6
Observations During Well Development (see Vu-situ output for insitu parameter readings)				Additional Notes and Observations	
In-situ Parameter Device Model	N/A	Groundwater Odour	No odour	No in situ parameters required during well development. Well purged until dry.	
In-situ Parameter Device SN	N/A	Visual Turbidity	Fairly turbid		
Confirm Field Calibration Completed	N/A	Groundwater Colour	Light brown		



INSTALLATION INSPECTION AND WELL DEVELOPMENT RECORD

Project	Global Centre of Rail Excellence Stage II	Project No	G23012	Client	Walters UK Ltd
Exploratory Hole Number	Installation Reference	Installation Diameter (mm)	Anticipated Well Depth (m bgl)	Date and Time	
S1-BH119	1	50	15.00	24/05/2023 12:00	
Cover Type	Pipe Cover	Top of Response Zone (m bgl)	Base of Response Zone (m bgl)	Weather	
Box Cover	Pipe Plug	8.00	15.00	Sunny	
Installation Inspection					
Surface Conditions	Dry	Damage to Headworks?	No		
Check Dip of Base (m bgl)	15.00	Pipe Cover/Bung Present?	Yes		
Remedial actions undertaken to well:					
N/A					
Purging and Well Development					
Guidance Notes				Well Volume Calculation	
Well development undertaken in accordance with BS10175:2011+A2:2017. Purge volumes to include the annulus of the filter pack. Purging must continue until insitu parameters have stabilised unless agreed with clients representative.				Volume of the Filter Pack	
				Saturated length of Filter Pack (L) (m)	7.00
				Porosity of Filter Pack (ø)	0.33
Approx. Guidance Volumes for Field Calculation of Wet Well Volume					
Volume of 50mm diameter plain pipe	2 litres / metre	Volume of 50mm diameter slotted pipe with 200mm diameter gravel filter pack	11 litres / metre	Diameter of Filter Pack (mm) (df)	121
Porosity of 10mm pea gravel	0.33	Volume of 50mm diameter slotted pipe with 150mm diameter gravel filter pack	6 litres / metre	Volume of Filter Pack (litres) $(Lø)((\pi df^2/4)-(\pi dp^2/4))$	22.0
Groundwater Prior to Well Development				Volume of the Standpipe	
Groundwater Level (m bgl)	2.20	LNAPL/ DNAPL (m bgl)	N/A	Diameter of Standpipe (mm) (dp)	50
Purging Details				Saturated depth (m) (sd) (installation base - groundwater level)	12.80
Purge Method/ Device	Wasp Pump	Average Flow Rate (litres/min)	6.0	Volume of the Standpipe (litres) $(\pi dp^2/4)*10^{-3}$	25.1
Time to Purge (mins)	25	Number of Well Volumes Purged	3.2	Total Well Volume	
Total Volume Purged (litres)	150.0	Operative	KW	Total Well Volume (litres) Volume of Filter Pack + Volume of Standpipe)	47.1
Observations During Well Development (see Vu-situ output for insitu parameter readings)				Additional Notes and Observations	
In-situ Parameter Device Model	N/A	Groundwater Odour	No odour	No in situ parameters required during well development.	
In-situ Parameter Device SN	N/A	Visual Turbidity	Highly Turbid		
Confirm Field Calibration Completed	N/A	Groundwater Colour	Grey		



INSTALLATION INSPECTION AND WELL DEVELOPMENT RECORD

Project	Global Centre of Rail Excellence Stage II	Project No	G23012	Client	Walters UK Ltd
Exploratory Hole Number	Installation Reference	Installation Diameter (mm)	Anticipated Well Depth (m bgl)	Date and Time	
S1-BH119	2	50	4.00	24/05/2023 12:30	
Cover Type	Pipe Cover	Top of Response Zone (m bgl)	Base of Response Zone (m bgl)	Weather	
Box Cover	Pipe Plug	2.00	4.00	Sunny	
Installation Inspection					
Surface Conditions	Dry	Damage to Headworks?	No		
Check Dip of Base (m bgl)	4.10	Pipe Cover/Bung Present?	Yes		
Remedial actions undertaken to well:					
N/A					
Purging and Well Development					
Guidance Notes				Well Volume Calculation	
Well development undertaken in accordance with BS10175:2011+A2:2017. Purge volumes to include the annulus of the filter pack. Purging must continue until insitu parameters have stabilised unless agreed with clients representative.				Volume of the Filter Pack	
				Saturated length of Filter Pack (L) (m)	1.93
				Porosity of Filter Pack (ø)	0.33
Approx. Guidance Volumes for Field Calculation of Wet Well Volume					
Volume of 50mm diameter plain pipe	2 litres / metre	Volume of 50mm diameter slotted pipe with 200mm diameter gravel filter pack	11 litres / metre	Diameter of Filter Pack (mm) (df)	140
Porosity of 10mm pea gravel	0.33	Volume of 50mm diameter slotted pipe with 150mm diameter gravel filter pack	6 litres / metre	Volume of Filter Pack (litres) $(Lø)((\pi df^2/4)-(\pi dp^2/4))$	8.5
Groundwater Prior to Well Development				Volume of the Standpipe	
Groundwater Level (m bgl)	2.07	LNAPL/ DNAPL (m bgl)	N/A	Diameter of Standpipe (mm) (dp)	50
Purging Details				Saturated depth (m) (sd) (installation base - groundwater level)	1.93
Purge Method/ Device	Wasp Pump	Average Flow Rate (litres/min)	6.0	Volume of the Standpipe (litres) $(\pi dp^2/4)*10^{-3}$	3.8
Time to Purge (mins)	2	Number of Well Volumes Purged	1.0	Total Well Volume	
Total Volume Purged (litres)	12.0	Operative	KW	Total Well Volume (litres) Volume of Filter Pack + Volume of Standpipe)	12.3
Observations During Well Development (see Vu-situ output for insitu parameter readings)				Additional Notes and Observations	
In-situ Parameter Device Model	N/A	Groundwater Odour	No odour	No in situ parameters required during well development. Well purged dry.	
In-situ Parameter Device SN	N/A	Visual Turbidity	Highly Turbid		
Confirm Field Calibration Completed	N/A	Groundwater Colour	Grey		



INSTALLATION INSPECTION AND WELL DEVELOPMENT RECORD

Project	Global Centre of Rail Excellence Stage II	Project No	G23012	Client	Walters UK Ltd
Exploratory Hole Number	Installation Reference	Installation Diameter (mm)	Anticipated Well Depth (m bgl)	Date and Time	
S1-BH120	1	50	20.00	30/05/2023 12:30	
Cover Type	Pipe Cover	Top of Response Zone (m bgl)	Base of Response Zone (m bgl)	Weather	
Box Cover	Pipe Plug	12.00	20.00	Sunny and windy	
Installation Inspection					
Surface Conditions	Dry	Damage to Headworks?	No		
Check Dip of Base (m bgl)	20.10	Pipe Cover/Bung Present?	Yes		
Remedial actions undertaken to well:					
N/A					
Purging and Well Development					
Guidance Notes				Well Volume Calculation	
Well development undertaken in accordance with BS10175:2011+A2:2017. Purge volumes to include the annulus of the filter pack. Purging must continue until insitu parameters have stabilised unless agreed with clients representative.				Volume of the Filter Pack	
				Saturated length of Filter Pack (L) (m)	8.00
				Porosity of Filter Pack (ϕ)	0.33
Approx. Guidance Volumes for Field Calculation of Wet Well Volume					
Volume of 50mm diameter plain pipe	2 litres / metre	Volume of 50mm diameter slotted pipe with 200mm diameter gravel filter pack	11 litres / metre	Diameter of Filter Pack (mm) (df)	140
Porosity of 10mm pea gravel	0.33	Volume of 50mm diameter slotted pipe with 150mm diameter gravel filter pack	6 litres / metre	Volume of Filter Pack (litres) $(L\phi)((\pi df^2/4)-(\pi dp^2/4))$	35.4
Groundwater Prior to Well Development				Volume of the Standpipe	
Groundwater Level (m bgl)	9.95	LNAPL/ DNAPL (m bgl)	N/A	Diameter of Standpipe (mm) (dp)	50
Purging Details				Saturated depth (m) (sd) (installation base - groundwater level)	10.05
Purge Method/ Device	Wasp pump	Average Flow Rate (litres/min)	6.5	Volume of the Standpipe (litres) $(\pi dp^2/4)*10^{-3}$	19.7
Time to Purge (mins)	26	Number of Well Volumes Purged	3.0	Total Well Volume	
Total Volume Purged (litres)	168.0	Operative	KW	Total Well Volume (litres) Volume of Filter Pack + Volume of Standpipe)	55.2
Observations During Well Development (see Vu-situ output for insitu parameter readings)				Additional Notes and Observations	
In-situ Parameter Device Model	N/A	Groundwater Odour	No odour	No in situ parameters required for well development.	
In-situ Parameter Device SN	N/A	Visual Turbidity	Fairly turbid		
Confirm Field Calibration Completed	N/A	Groundwater Colour	Light brown running clear.		



INSTALLATION INSPECTION AND WELL DEVELOPMENT RECORD

Project	Global Centre of Rail Excellence Stage II	Project No	G23012	Client	Walters UK Ltd
Exploratory Hole Number	Installation Reference	Installation Diameter (mm)	Anticipated Well Depth (m bgl)	Date and Time	
S2-BH204	1	50	32.00	23/05/2023 14:45	
Cover Type	Pipe Cover	Top of Response Zone (m bgl)	Base of Response Zone (m bgl)	Weather	
Box Cover	Pipe Plug	21.00	32.00	Sunny	
Installation Inspection					
Surface Conditions	Dry	Damage to Headworks?	No		
Check Dip of Base (m bgl)	30.00	Pipe Cover/Bung Present?	Yes		
Remedial actions undertaken to well:					
N/A					
Purging and Well Development					
Guidance Notes				Well Volume Calculation	
Well development undertaken in accordance with BS10175:2011+A2:2017. Purge volumes to include the annulus of the filter pack. Purging must continue until insitu parameters have stabilised unless agreed with clients representative.				Volume of the Filter Pack	
				Saturated length of Filter Pack (L) (m)	3.88
				Porosity of Filter Pack (ø)	0.33
Approx. Guidance Volumes for Field Calculation of Wet Well Volume					
Volume of 50mm diameter plain pipe	2 litres / metre	Volume of 50mm diameter slotted pipe with 200mm diameter gravel filter pack	11 litres / metre	Diameter of Filter Pack (mm) (df)	120
Porosity of 10mm pea gravel	0.33	Volume of 50mm diameter slotted pipe with 150mm diameter gravel filter pack	6 litres / metre	Volume of Filter Pack (litres) $(Lø)((\pi df^2/4)-(\pi dp^2/4))$	12.0
Groundwater Prior to Well Development				Volume of the Standpipe	
Groundwater Level (m bgl)	28.12	LNAPL/ DNAPL (m bgl)	N/A	Diameter of Standpipe (mm) (dp)	50
Purging Details				Saturated depth (m) (sd) (installation base - groundwater level)	
Purge Method/ Device	Wasp Pump	Average Flow Rate (litres/min)	3.2	3.88	
Time to Purge (mins)	13	Number of Well Volumes Purged	2.1	Volume of the Standpipe (litres) $(\pi dp^2/4)*10^{-3}$	7.6
Total Volume Purged (litres)	42.0	Operative	KW	Total Well Volume	
				Total Well Volume (litres) Volume of Filter Pack + Volume of Standpipe)	19.6
Observations During Well Development (see Vu-situ output for insitu parameter readings)				Additional Notes and Observations	
In-situ Parameter Device Model	N/A	Groundwater Odour	Earthy odour	No in situ parameters required for during development. Well purged until dry.	
In-situ Parameter Device SN	N/A	Visual Turbidity	Highly turbid		
Confirm Field Calibration Completed	N/A	Groundwater Colour	Greyish brown		



INSTALLATION INSPECTION AND WELL DEVELOPMENT RECORD

Project	Global Centre of Rail Excellence Stage II	Project No	G23012	Client	Walters UK Ltd
Exploratory Hole Number	Installation Reference	Installation Diameter (mm)	Anticipated Well Depth (m bgl)	Date and Time	
S2-BH207	1	50	40.00	17/05/2023 10:40	
Cover Type	Pipe Cover	Top of Response Zone (m bgl)	Base of Response Zone (m bgl)	Weather	
Box Cover	Pipe Plug	36.00	40.00	Sunny	
Installation Inspection					
Surface Conditions	Dry	Damage to Headworks?	No		
Check Dip of Base (m bgl)	41.10	Pipe Cover/Bung Present?	Yes		
Remedial actions undertaken to well:					
N/A					
Purging and Well Development					
Guidance Notes				Well Volume Calculation	
Well development undertaken in accordance with BS10175:2011+A2:2017. Purge volumes to include the annulus of the filter pack. Purging must continue until insitu parameters have stabilised unless agreed with clients representative.				Volume of the Filter Pack	
				Saturated length of Filter Pack (L) (m)	
				Porosity of Filter Pack (ϕ)	0.33
Approx. Guidance Volumes for Field Calculation of Wet Well Volume					
Volume of 50mm diameter plain pipe	2 litres / metre	Volume of 50mm diameter slotted pipe with 200mm diameter gravel filter pack	11 litres / metre	Diameter of Filter Pack (mm) (df)	120
Porosity of 10mm pea gravel	0.33	Volume of 50mm diameter slotted pipe with 150mm diameter gravel filter pack	6 litres / metre	Volume of Filter Pack (litres) $(L\phi)((\pi df^2/4)-(\pi dp^2/4))$	0.0
Groundwater Prior to Well Development				Volume of the Standpipe	
Groundwater Level (m bgl)	Dry	LNAPL/ DNAPL (m bgl)	N/A	Diameter of Standpipe (mm) (dp)	50
Purging Details				Saturated depth (m) (sd) (installation base - groundwater level)	
Purge Method/ Device	N/A	Average Flow Rate (litres/min)		Volume of the Standpipe (litres) $(\pi dp^2/4)*10^{-3}$	0.0
Time to Purge (mins)	N/A	Number of Well Volumes Purged		Total Well Volume	
Total Volume Purged (litres)	N/A	Operative	KW	Total Well Volume (litres) Volume of Filter Pack + Volume of Standpipe)	0.0
Observations During Well Development (see Vu-situ output for insitu parameter readings)				Additional Notes and Observations	
In-situ Parameter Device Model	N/A	Groundwater Odour	N/A	Borehole dipped dry.	
In-situ Parameter Device SN	N/A	Visual Turbidity	N/A		
Confirm Field Calibration Completed	N/A	Groundwater Colour	N/A		



INSTALLATION INSPECTION AND WELL DEVELOPMENT RECORD

Project	Global Centre of Rail Excellence Stage II	Project No	G23012	Client	Walters UK Ltd
Exploratory Hole Number	Installation Reference	Installation Diameter (mm)	Anticipated Well Depth (m bgl)	Date and Time	
S2-BH208	1	50	40.50	24/05/2023 10:45	
Cover Type	Pipe Cover	Top of Response Zone (m bgl)	Base of Response Zone (m bgl)	Weather	
Box Cover	Pipe Plug	32.50	40.50	Sunny	
Installation Inspection					
Surface Conditions	Dry	Damage to Headworks?	No		
Check Dip of Base (m bgl)	40.00	Pipe Cover/Bung Present?	Yes		
Remedial actions undertaken to well:					
N/A					
Purging and Well Development					
Guidance Notes				Well Volume Calculation	
Well development undertaken in accordance with BS10175:2011+A2:2017. Purge volumes to include the annulus of the filter pack. Purging must continue until insitu parameters have stabilised unless agreed with clients representative.				Volume of the Filter Pack	
				Saturated length of Filter Pack (L) (m)	
				Porosity of Filter Pack (ϕ)	0.33
Approx. Guidance Volumes for Field Calculation of Wet Well Volume					
Volume of 50mm diameter plain pipe	2 litres / metre	Volume of 50mm diameter slotted pipe with 200mm diameter gravel filter pack	11 litres / metre	Diameter of Filter Pack (mm) (df)	120
Porosity of 10mm pea gravel	0.33	Volume of 50mm diameter slotted pipe with 150mm diameter gravel filter pack	6 litres / metre	Volume of Filter Pack (litres) $(L\phi)((\pi df^2/4)-(\pi dp^2/4))$	0.0
Groundwater Prior to Well Development				Volume of the Standpipe	
Groundwater Level (m bgl)	Dry	LNAPL/ DNAPL (m bgl)	N/A	Diameter of Standpipe (mm) (dp)	50
Purging Details				Saturated depth (m) (sd) (installation base - groundwater level)	
Purge Method/ Device	N/A	Average Flow Rate (litres/min)		Volume of the Standpipe (litres) $(\pi dp^2/4)*10^{-3}$	0.0
Time to Purge (mins)	N/A	Number of Well Volumes Purged		Total Well Volume	
Total Volume Purged (litres)	N/A	Operative	KW	Total Well Volume (litres) Volume of Filter Pack + Volume of Standpipe)	0.0
Observations During Well Development (see Vu-situ output for insitu parameter readings)				Additional Notes and Observations	
In-situ Parameter Device Model	N/A	Groundwater Odour	N/A	Well dipped Dry, no purging required.	
In-situ Parameter Device SN	N/A	Visual Turbidity	N/A		
Confirm Field Calibration Completed	N/A	Groundwater Colour	N/A		



INSTALLATION INSPECTION AND WELL DEVELOPMENT RECORD

Project	Global Centre of Rail Excellence Stage II	Project No	G23012	Client	Walters UK Ltd
Exploratory Hole Number	Installation Reference	Installation Diameter (mm)	Anticipated Well Depth (m bgl)	Date and Time	
S2-BH210	1	50	40.00	24/05/2023 10:00	
Cover Type	Pipe Cover	Top of Response Zone (m bgl)	Base of Response Zone (m bgl)	Weather	
Steel Cover	Pipe Plug	30.00	40.00	Sunny	
Installation Inspection					
Surface Conditions	Dry	Damage to Headworks?	No		
Check Dip of Base (m bgl)	40.00	Pipe Cover/Bung Present?	Yes		
Remedial actions undertaken to well:					
N/A					
Purging and Well Development					
Guidance Notes				Well Volume Calculation	
Well development undertaken in accordance with BS10175:2011+A2:2017. Purge volumes to include the annulus of the filter pack. Purging must continue until insitu parameters have stabilised unless agreed with clients representative.				Volume of the Filter Pack	
				Saturated length of Filter Pack (L) (m)	
				Porosity of Filter Pack (ø)	0.33
Approx. Guidance Volumes for Field Calculation of Wet Well Volume					
Volume of 50mm diameter plain pipe	2 litres / metre	Volume of 50mm diameter slotted pipe with 200mm diameter gravel filter pack	11 litres / metre	Diameter of Filter Pack (mm) (df)	120
Porosity of 10mm pea gravel	0.33	Volume of 50mm diameter slotted pipe with 150mm diameter gravel filter pack	6 litres / metre	Volume of Filter Pack (litres) $(Lø)((\pi df^2/4)-(\pi dp^2/4))$	0.0
Groundwater Prior to Well Development				Volume of the Standpipe	
Groundwater Level (m bgl)	Dry	LNAPL/ DNAPL (m bgl)	N/A	Diameter of Standpipe (mm) (dp)	50
Purging Details				Saturated depth (m) (sd) (installation base - groundwater level)	
Purge Method/ Device	N/A	Average Flow Rate (litres/min)		Volume of the Standpipe (litres) $(\pi dp^2/4)*10^{-3}$	0.0
Time to Purge (mins)	N/A	Number of Well Volumes Purged		Total Well Volume	
Total Volume Purged (litres)	N/A	Operative	KW	Total Well Volume (litres) Volume of Filter Pack + Volume of Standpipe)	0.0
Observations During Well Development (see Vu-situ output for insitu parameter readings)				Additional Notes and Observations	
In-situ Parameter Device Model	N/A	Groundwater Odour	N/A	Well dipped dry. No purging required.	
In-situ Parameter Device SN	N/A	Visual Turbidity	N/A		
Confirm Field Calibration Completed	N/A	Groundwater Colour	N/A		



INSTALLATION INSPECTION AND WELL DEVELOPMENT RECORD

Project	Global Centre of Rail Excellence Stage II	Project No	G23012	Client	Walters UK Ltd
Exploratory Hole Number	Installation Reference	Installation Diameter (mm)	Anticipated Well Depth (m bgl)	Date and Time	
S2-BH214	1	50	30.00	05/06/2023 13:30	
Cover Type	Pipe Cover	Top of Response Zone (m bgl)	Base of Response Zone (m bgl)	Weather	
Box Cover	Pipe Plug	20.00	30.00	Sunny breezy	
Installation Inspection					
Surface Conditions	Dry	Damage to Headworks?	No		
Check Dip of Base (m bgl)	30.00	Pipe Cover/Bung Present?	Yes		
Remedial actions undertaken to well:					
N/A					
Purging and Well Development					
Guidance Notes				Well Volume Calculation	
Well development undertaken in accordance with BS10175:2011+A2:2017. Purge volumes to include the annulus of the filter pack. Purging must continue until insitu parameters have stabilised unless agreed with clients representative.				Volume of the Filter Pack	
				Saturated length of Filter Pack (L) (m)	0.70
				Porosity of Filter Pack (ø)	0.33
Approx. Guidance Volumes for Field Calculation of Wet Well Volume					
Volume of 50mm diameter plain pipe	2 litres / metre	Volume of 50mm diameter slotted pipe with 200mm diameter gravel filter pack	11 litres / metre	Diameter of Filter Pack (mm) (df)	121
Porosity of 10mm pea gravel	0.33	Volume of 50mm diameter slotted pipe with 150mm diameter gravel filter pack	6 litres / metre	Volume of Filter Pack (litres) $(Lø)((\pi df^2/4)-(\pi dp^2/4))$	2.2
Groundwater Prior to Well Development				Volume of the Standpipe	
Groundwater Level (m bgl)	29.30	LNAPL/ DNAPL (m bgl)	N/A	Diameter of Standpipe (mm) (dp)	50
Purging Details				Saturated depth (m) (sd) (installation base - groundwater level)	
Purge Method/ Device	Wasp Pump	Average Flow Rate (litres/min)	1.5	0.70	
Time to Purge (mins)	2	Number of Well Volumes Purged	0.8	Volume of the Standpipe (litres) $(\pi dp^2/4)*10^{-3}$	1.4
Total Volume Purged (litres)	3.0	Operative	KW	Total Well Volume	
				Total Well Volume (litres) Volume of Filter Pack + Volume of Standpipe)	3.6
Observations During Well Development (see Vu-situ output for insitu parameter readings)				Additional Notes and Observations	
In-situ Parameter Device Model	N/A	Groundwater Odour	No odour	No in situ parameters required for well development. Well purged until dry.	
In-situ Parameter Device SN	N/A	Visual Turbidity	Fairly turbid		
Confirm Field Calibration Completed	N/A	Groundwater Colour	Brown		



INSTALLATION INSPECTION AND WELL DEVELOPMENT RECORD

Project	Global Centre of Rail Excellence Stage II	Project No	G23012	Client	Walters UK Ltd
Exploratory Hole Number	Installation Reference	Installation Diameter (mm)	Anticipated Well Depth (m bgl)	Date and Time	
S2-BH217	1	19	30.00	05/06/2023 11:00	
Cover Type	Pipe Cover	Top of Response Zone (m bgl)	Base of Response Zone (m bgl)	Weather	
Box Cover	Pipe Plug	25.00	30.00	Sunny Windy	
Installation Inspection					
Surface Conditions	Dry	Damage to Headworks?	No		
Check Dip of Base (m bgl)	29.90	Pipe Cover/Bung Present?	Yes		
Remedial actions undertaken to well:					
N/A					
Purging and Well Development					
Guidance Notes				Well Volume Calculation	
Well development undertaken in accordance with BS10175:2011+A2:2017. Purge volumes to include the annulus of the filter pack. Purging must continue until insitu parameters have stabilised unless agreed with clients representative.				Volume of the Filter Pack	
				Saturated length of Filter Pack (L) (m)	
				Porosity of Filter Pack (ø)	0.33
Approx. Guidance Volumes for Field Calculation of Wet Well Volume					
Volume of 50mm diameter plain pipe	2 litres / metre	Volume of 50mm diameter slotted pipe with 200mm diameter gravel filter pack	11 litres / metre	Diameter of Filter Pack (mm) (df)	120
Porosity of 10mm pea gravel	0.33	Volume of 50mm diameter slotted pipe with 150mm diameter gravel filter pack	6 litres / metre	Volume of Filter Pack (litres) $(Lø)((\pi df^2/4)-(\pi dp^2/4))$	0.0
Groundwater Prior to Well Development				Volume of the Standpipe	
Groundwater Level (m bgl)	Dry	LNAPL/ DNAPL (m bgl)	N/A	Diameter of Standpipe (mm) (dp)	19
Purging Details				Saturated depth (m) (sd) (installation base - groundwater level)	
Purge Method/ Device	N/A	Average Flow Rate (litres/min)		Volume of the Standpipe (litres) $(\pi dp^2/4)*10^{-3}$	0.0
Time to Purge (mins)	N/A	Number of Well Volumes Purged		Total Well Volume	
Total Volume Purged (litres)	N/A	Operative	KW	Total Well Volume (litres) Volume of Filter Pack + Volume of Standpipe)	0.0
Observations During Well Development (see Vu-situ output for insitu parameter readings)				Additional Notes and Observations	
In-situ Parameter Device Model	N/A	Groundwater Odour	N/A	Well dipped dry, unable to purge.	
In-situ Parameter Device SN	N/A	Visual Turbidity	N/A		
Confirm Field Calibration Completed	N/A	Groundwater Colour	N/A		



INSTALLATION INSPECTION AND WELL DEVELOPMENT RECORD

Project	Global Centre of Rail Excellence Stage II	Project No	G23012	Client	Walters UK Ltd
Exploratory Hole Number	Installation Reference	Installation Diameter (mm)	Anticipated Well Depth (m bgl)	Date and Time	
S2-BH217	2	50	6.00	05/06/2023 11:30	
Cover Type	Pipe Cover	Top of Response Zone (m bgl)	Base of Response Zone (m bgl)	Weather	
Box Cover	Pipe Plug	2.00	6.00	Sunny	
Installation Inspection					
Surface Conditions	Dry	Damage to Headworks?	No		
Check Dip of Base (m bgl)	6.20	Pipe Cover/Bung Present?	Yes		
Remedial actions undertaken to well:					
N/A					
Purging and Well Development					
Guidance Notes				Well Volume Calculation	
Well development undertaken in accordance with BS10175:2011+A2:2017. Purge volumes to include the annulus of the filter pack. Purging must continue until insitu parameters have stabilised unless agreed with clients representative.				Volume of the Filter Pack	
				Saturated length of Filter Pack (L) (m)	1.30
				Porosity of Filter Pack (ø)	0.33
Approx. Guidance Volumes for Field Calculation of Wet Well Volume					
Volume of 50mm diameter plain pipe	2 litres / metre	Volume of 50mm diameter slotted pipe with 200mm diameter gravel filter pack	11 litres / metre	Diameter of Filter Pack (mm) (df)	120
Porosity of 10mm pea gravel	0.33	Volume of 50mm diameter slotted pipe with 150mm diameter gravel filter pack	6 litres / metre	Volume of Filter Pack (litres) $(Lø)((\pi df^2/4)-(\pi dp^2/4))$	4.0
Groundwater Prior to Well Development				Volume of the Standpipe	
Groundwater Level (m bgl)	4.70	LNAPL/ DNAPL (m bgl)	N/A	Diameter of Standpipe (mm) (dp)	50
Purging Details				Saturated depth (m) (sd) (installation base - groundwater level)	1.30
Purge Method/ Device	Wasp Pump	Average Flow Rate (litres/min)	4.0	Volume of the Standpipe (litres) $(\pi dp^2/4)*10^{-3}$	2.6
Time to Purge (mins)	5	Number of Well Volumes Purged	3.0	Total Well Volume	
Total Volume Purged (litres)	20.0	Operative	KW	Total Well Volume (litres) Volume of Filter Pack + Volume of Standpipe)	6.6
Observations During Well Development (see Vu-situ output for insitu parameter readings)				Additional Notes and Observations	
In-situ Parameter Device Model	N/A	Groundwater Odour	No odour	No in situ parameters required for well development.	
In-situ Parameter Device SN	N/A	Visual Turbidity	Highly Turbid		
Confirm Field Calibration Completed	N/A	Groundwater Colour	Light brown		



INSTALLATION INSPECTION AND WELL DEVELOPMENT RECORD

Project	Global Centre of Rail Excellence Stage II	Project No	G23012	Client	Walters UK Ltd
Exploratory Hole Number	Installation Reference	Installation Diameter (mm)	Anticipated Well Depth (m bgl)	Date and Time	
S2-BH219	1	50	4.00	05/06/2023 10:00	
Cover Type	Pipe Cover	Top of Response Zone (m bgl)	Base of Response Zone (m bgl)	Weather	
Box Cover	Pipe Plug	2.00	4.00	Sunny Windy	
Installation Inspection					
Surface Conditions	Dry	Damage to Headworks?	No		
Check Dip of Base (m bgl)	4.00	Pipe Cover/Bung Present?	Yes		
Remedial actions undertaken to well:					
N/A					
Purging and Well Development					
Guidance Notes				Well Volume Calculation	
Well development undertaken in accordance with BS10175:2011+A2:2017. Purge volumes to include the annulus of the filter pack. Purging must continue until insitu parameters have stabilised unless agreed with clients representative.				Volume of the Filter Pack	
				Saturated length of Filter Pack (L) (m)	
				Porosity of Filter Pack (ϕ)	0.33
Approx. Guidance Volumes for Field Calculation of Wet Well Volume					
Volume of 50mm diameter plain pipe	2 litres / metre	Volume of 50mm diameter slotted pipe with 200mm diameter gravel filter pack	11 litres / metre	Diameter of Filter Pack (mm) (df)	120
Porosity of 10mm pea gravel	0.33	Volume of 50mm diameter slotted pipe with 150mm diameter gravel filter pack	6 litres / metre	Volume of Filter Pack (litres) $(L\phi)((\pi df^2/4)-(\pi dp^2/4))$	0.0
Groundwater Prior to Well Development				Volume of the Standpipe	
Groundwater Level (m bgl)	Dry	LNAPL/ DNAPL (m bgl)	N/A	Diameter of Standpipe (mm) (dp)	50
Purging Details				Saturated depth (m) (sd) (installation base - groundwater level)	
Purge Method/ Device	N/A	Average Flow Rate (litres/min)		Volume of the Standpipe (litres) $(\pi dp^2/4)*10^{-3}$	0.0
Time to Purge (mins)	N/A	Number of Well Volumes Purged		Total Well Volume	
Total Volume Purged (litres)	N/A	Operative	KW	Total Well Volume (litres) Volume of Filter Pack + Volume of Standpipe)	0.0
Observations During Well Development (see Vu-situ output for insitu parameter readings)				Additional Notes and Observations	
In-situ Parameter Device Model	N/A	Groundwater Odour	N/A	Well dipped dry. Unable to purge.	
In-situ Parameter Device SN	N/A	Visual Turbidity	N/A		
Confirm Field Calibration Completed	N/A	Groundwater Colour	N/A		



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Project	Global Centre of Rail Excellence Stage II	Project No	G23012	Client	Walters UK Ltd
Exploratory Hole Number	Installation Reference	Installation Diameter (mm)	Anticipated Well Depth (m bgl)	Date and Time	
S2-BH219	2	50	9.00	05/06/2023 10:30	
Cover Type	Pipe Cover	Top of Response Zone (m bgl)	Base of Response Zone (m bgl)	Weather	
Box Cover	Pipe Plug	5.00	9.00	Sunny Windy	
Installation Inspection					
Surface Conditions	Dry	Damage to Headworks?	No		
Check Dip of Base (m bgl)	9.00	Pipe Cover/Bung Present?	Yes		
Remedial actions undertaken to well:					
N/A					
Purging and Well Development					
Guidance Notes				Well Volume Calculation	
Well development undertaken in accordance with BS10175:2011+A2:2017. Purge volumes to include the annulus of the filter pack. Purging must continue until insitu parameters have stabilised unless agreed with clients representative.				Volume of the Filter Pack	
				Saturated length of Filter Pack (L) (m)	1.60
				Porosity of Filter Pack (ø)	0.33
Approx. Guidance Volumes for Field Calculation of Wet Well Volume					
Volume of 50mm diameter plain pipe	2 litres / metre	Volume of 50mm diameter slotted pipe with 200mm diameter gravel filter pack	11 litres / metre	Diameter of Filter Pack (mm) (df)	120
Porosity of 10mm pea gravel	0.33	Volume of 50mm diameter slotted pipe with 150mm diameter gravel filter pack	6 litres / metre	Volume of Filter Pack (litres) $(Lø)((\pi df^2/4)-(\pi dp^2/4))$	4.9
Groundwater Prior to Well Development				Volume of the Standpipe	
Groundwater Level (m bgl)	7.40	LNAPL/ DNAPL (m bgl)	N/A	Diameter of Standpipe (mm) (dp)	50
Purging Details				Saturated depth (m) (sd) (installation base - groundwater level)	1.60
Purge Method/ Device	Wasp Pump	Average Flow Rate (litres/min)	4.2	Volume of the Standpipe (litres) $(\pi dp^2/4)*10^{-3}$	3.1
Time to Purge (mins)	6	Number of Well Volumes Purged	3.1	Total Well Volume	
Total Volume Purged (litres)	25.0	Operative	KW	Total Well Volume (litres) Volume of Filter Pack + Volume of Standpipe)	8.1
Observations During Well Development (see Vu-situ output for insitu parameter readings)				Additional Notes and Observations	
In-situ Parameter Device Model	N/A	Groundwater Odour	No odour	No in situ parameters required for well development.	
In-situ Parameter Device SN	N/A	Visual Turbidity	Highly Turbid		
Confirm Field Calibration Completed	N/A	Groundwater Colour	Light Brown		



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Project	Global Centre of Rail Excellence Stage II	Project No	G23012	Client	Walters UK Ltd
Exploratory Hole Number	Installation Reference	Installation Diameter (mm)	Anticipated Well Depth (m bgl)	Date and Time	
S2-BH220	1	50	39.00	17/05/2023 10:30	
Cover Type	Pipe Cover	Top of Response Zone (m bgl)	Base of Response Zone (m bgl)	Weather	
Box Cover	Pipe Plug	31.00	39.00	Sunny	
Installation Inspection					
Surface Conditions	Dry	Damage to Headworks?	No		
Check Dip of Base (m bgl)	40.00	Pipe Cover/Bung Present?	Yes		
Remedial actions undertaken to well:					
N/A					
Purging and Well Development					
Guidance Notes				Well Volume Calculation	
Well development undertaken in accordance with BS10175:2011+A2:2017. Purge volumes to include the annulus of the filter pack. Purging must continue until insitu parameters have stabilised unless agreed with clients representative.				Volume of the Filter Pack	
				Saturated length of Filter Pack (L) (m)	
				Porosity of Filter Pack (ϕ)	0.33
Approx. Guidance Volumes for Field Calculation of Wet Well Volume					
Volume of 50mm diameter plain pipe	2 litres / metre	Volume of 50mm diameter slotted pipe with 200mm diameter gravel filter pack	11 litres / metre	Diameter of Filter Pack (mm) (df)	168
Porosity of 10mm pea gravel	0.33	Volume of 50mm diameter slotted pipe with 150mm diameter gravel filter pack	6 litres / metre	Volume of Filter Pack (litres) $(L\phi)((\pi df^2/4)-(\pi dp^2/4))$	0.0
Groundwater Prior to Well Development				Volume of the Standpipe	
Groundwater Level (m bgl)	Dry	LNAPL/ DNAPL (m bgl)	N/A	Diameter of Standpipe (mm) (dp)	50
Purging Details				Saturated depth (m) (sd) (installation base - groundwater level)	
Purge Method/ Device	N/A	Average Flow Rate (litres/min)		Volume of the Standpipe (litres) $(\pi dp^2/4)*10^{-3}$	0.0
Time to Purge (mins)	N/A	Number of Well Volumes Purged		Total Well Volume	
Total Volume Purged (litres)	N/A	Operative	KW	Total Well Volume (litres) Volume of Filter Pack + Volume of Standpipe)	0.0
Observations During Well Development (see Vu-situ output for insitu parameter readings)				Additional Notes and Observations	
In-situ Parameter Device Model	N/A	Groundwater Odour	N/A	Borehole dipped dry.	
In-situ Parameter Device SN	N/A	Visual Turbidity	N/A		
Confirm Field Calibration Completed	N/A	Groundwater Colour	N/A		



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Project	Global Centre of Rail Excellence Stage II	Project No	G23012	Client	Walters UK Ltd
Exploratory Hole Number	Installation Reference	Installation Diameter (mm)	Anticipated Well Depth (m bgl)	Date and Time	
S2-BH225	1	50	6.90	25/05/2023 12:00	
Cover Type	Pipe Cover	Top of Response Zone (m bgl)	Base of Response Zone (m bgl)	Weather	
Box Cover	Pipe Plug	3.00	6.90	Sunny with wind	
Installation Inspection					
Surface Conditions	Dry	Damage to Headworks?	No		
Check Dip of Base (m bgl)	6.90	Pipe Cover/Bung Present?	Yes		
Remedial actions undertaken to well:					
N/A					
Purging and Well Development					
Guidance Notes				Well Volume Calculation	
Well development undertaken in accordance with BS10175:2011+A2:2017. Purge volumes to include the annulus of the filter pack. Purging must continue until insitu parameters have stabilised unless agreed with clients representative.				Volume of the Filter Pack	
				Saturated length of Filter Pack (L) (m)	0.10
				Porosity of Filter Pack (ø)	0.33
Approx. Guidance Volumes for Field Calculation of Wet Well Volume					
Volume of 50mm diameter plain pipe	2 litres / metre	Volume of 50mm diameter slotted pipe with 200mm diameter gravel filter pack	11 litres / metre	Diameter of Filter Pack (mm) (df)	121
Porosity of 10mm pea gravel	0.33	Volume of 50mm diameter slotted pipe with 150mm diameter gravel filter pack	6 litres / metre	Volume of Filter Pack (litres) $(Lø)((\pi df^2/4)-(\pi dp^2/4))$	0.3
Groundwater Prior to Well Development				Volume of the Standpipe	
Groundwater Level (m bgl)	6.80	LNAPL/ DNAPL (m bgl)	N/A	Diameter of Standpipe (mm) (dp)	50
Purging Details				Saturated depth (m) (sd) (installation base - groundwater level)	
Purge Method/ Device	Wasp Pump	Average Flow Rate (litres/min)	2.0	0.10	
Time to Purge (mins)	1	Number of Well Volumes Purged	3.9	Volume of the Standpipe (litres) $(\pi dp^2/4)*10^{-3}$	
				0.2	
				Total Well Volume	
Total Volume Purged (litres)	2.0	Operative	KW	Total Well Volume (litres) Volume of Filter Pack + Volume of Standpipe)	0.5
Observations During Well Development (see Vu-situ output for insitu parameter readings)				Additional Notes and Observations	
In-situ Parameter Device Model	N/A	Groundwater Odour	No odour	No in situ parameters required for well development. Well purged until dry	
In-situ Parameter Device SN	N/A	Visual Turbidity	Fairly turbid		
Confirm Field Calibration Completed	N/A	Groundwater Colour	Greyish brown		



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Project	Global Centre of Rail Excellence Stage II	Project No	G23012	Client	Walters UK Ltd
Exploratory Hole Number	Installation Reference	Installation Diameter (mm)	Anticipated Well Depth (m bgl)	Date and Time	
S2-BH226	1	50	10.00	02/06/2023 12:00	
Cover Type	Pipe Cover	Top of Response Zone (m bgl)	Base of Response Zone (m bgl)	Weather	
Box Cover	Pipe Cover	4.00	10.00	Sunny	
Installation Inspection					
Surface Conditions	Dry	Damage to Headworks?	No		
Check Dip of Base (m bgl)	9.80	Pipe Cover/Bung Present?	Yes		
Remedial actions undertaken to well:					
N/A					
Purging and Well Development					
Guidance Notes				Well Volume Calculation	
Well development undertaken in accordance with BS10175:2011+A2:2017. Purge volumes to include the annulus of the filter pack. Purging must continue until insitu parameters have stabilised unless agreed with clients representative.				Volume of the Filter Pack	
				Saturated length of Filter Pack (L) (m)	3.10
				Porosity of Filter Pack (ø)	0.33
Approx. Guidance Volumes for Field Calculation of Wet Well Volume					
Volume of 50mm diameter plain pipe	2 litres / metre	Volume of 50mm diameter slotted pipe with 200mm diameter gravel filter pack	11 litres / metre	Diameter of Filter Pack (mm) (df)	101
Porosity of 10mm pea gravel	0.33	Volume of 50mm diameter slotted pipe with 150mm diameter gravel filter pack	6 litres / metre	Volume of Filter Pack (litres) $(Lø)((\pi df^2/4)-(\pi dp^2/4))$	6.2
Groundwater Prior to Well Development				Volume of the Standpipe	
Groundwater Level (m bgl)	6.90	LNAPL/ DNAPL (m bgl)	N/A	Diameter of Standpipe (mm) (dp)	50
Purging Details				Saturated depth (m) (sd) (installation base - groundwater level)	3.10
Purge Method/ Device	Wasp Pump	Average Flow Rate (litres/min)	5.4	Volume of the Standpipe (litres) $(\pi dp^2/4)*10^{-3}$	6.1
Time to Purge (mins)	7	Number of Well Volumes Purged	3.1	Total Well Volume	
Total Volume Purged (litres)	38.0	Operative	KW	Total Well Volume (litres) Volume of Filter Pack + Volume of Standpipe)	12.3
Observations During Well Development (see Vu-situ output for insitu parameter readings)				Additional Notes and Observations	
In-situ Parameter Device Model	N/A	Groundwater Odour	No odour	No in situ parameters required for well development.	
In-situ Parameter Device SN	N/A	Visual Turbidity	Fairly turbid		
Confirm Field Calibration Completed	N/A	Groundwater Colour	Light brown running cloudy then clear		



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Project	Global Centre of Rail Excellence Stage II	Project No	G23012	Client	Walters UK Ltd
Exploratory Hole Number	Installation Reference	Installation Diameter (mm)	Anticipated Well Depth (m bgl)	Date and Time	
S2-BH227	1	19	5.50	25/05/2023 10:30	
Cover Type	Pipe Cover	Top of Response Zone (m bgl)	Base of Response Zone (m bgl)	Weather	
Box Cover	Pipe Plug	1.00	5.50	Sunny with wind	
Installation Inspection					
Surface Conditions	Dry	Damage to Headworks?	No		
Check Dip of Base (m bgl)	5.40	Pipe Cover/Bung Present?	Yes		
Remedial actions undertaken to well:					
N/A					
Purging and Well Development					
Guidance Notes				Well Volume Calculation	
Well development undertaken in accordance with BS10175:2011+A2:2017. Purge volumes to include the annulus of the filter pack. Purging must continue until insitu parameters have stabilised unless agreed with clients representative.				Volume of the Filter Pack	
				Saturated length of Filter Pack (L) (m)	0.10
				Porosity of Filter Pack (ϕ)	0.33
Approx. Guidance Volumes for Field Calculation of Wet Well Volume					
Volume of 50mm diameter plain pipe	2 litres / metre	Volume of 50mm diameter slotted pipe with 200mm diameter gravel filter pack	11 litres / metre	Diameter of Filter Pack (mm) (df)	178
Porosity of 10mm pea gravel	0.33	Volume of 50mm diameter slotted pipe with 150mm diameter gravel filter pack	6 litres / metre	Volume of Filter Pack (litres) $(L\phi)/((\pi df^2/4)-(\pi dp^2/4))$	0.8
Groundwater Prior to Well Development				Volume of the Standpipe	
Groundwater Level (m bgl)	5.40	LNAPL/ DNAPL (m bgl)	N/A	Diameter of Standpipe (mm) (dp)	19
Purging Details				Saturated depth (m) (sd) (installation base - groundwater level)	0.10
Purge Method/ Device	N/A	Average Flow Rate (litres/min)		Volume of the Standpipe (litres) $(\pi dp^2/4)*10^{-3}$	0.0
Time to Purge (mins)	N/A	Number of Well Volumes Purged		Total Well Volume	
Total Volume Purged (litres)	N/A	Operative	KW	Total Well Volume (litres) Volume of Filter Pack + Volume of Standpipe)	0.8
Observations During Well Development (see Vu-situ output for insitu parameter readings)				Additional Notes and Observations	
In-situ Parameter Device Model	N/A	Groundwater Odour	N/A	Well damp at base, no purging carried out.	
In-situ Parameter Device SN	N/A	Visual Turbidity	N/A		
Confirm Field Calibration Completed	N/A	Groundwater Colour	N/A		



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Project	Global Centre of Rail Excellence Stage II	Project No	G23012	Client	Walters UK Ltd
Exploratory Hole Number	Installation Reference	Installation Diameter (mm)	Anticipated Well Depth (m bgl)	Date and Time	
S2-BH227	2	50	14.00	25/05/2023 10:00	
Cover Type	Pipe Cover	Top of Response Zone (m bgl)	Base of Response Zone (m bgl)	Weather	
Box Cover	Pipe Plug	8.00	14.00	Sunny and breezy	
Installation Inspection					
Surface Conditions	Dry	Damage to Headworks?	No		
Check Dip of Base (m bgl)	14.40	Pipe Cover/Bung Present?	Yes		
Remedial actions undertaken to well:					
N/A					
Purging and Well Development					
Guidance Notes				Well Volume Calculation	
Well development undertaken in accordance with BS10175:2011+A2:2017. Purge volumes to include the annulus of the filter pack. Purging must continue until insitu parameters have stabilised unless agreed with clients representative.				Volume of the Filter Pack	
				Saturated length of Filter Pack (L) (m)	2.80
				Porosity of Filter Pack (ø)	0.33
Approx. Guidance Volumes for Field Calculation of Wet Well Volume					
Volume of 50mm diameter plain pipe	2 litres / metre	Volume of 50mm diameter slotted pipe with 200mm diameter gravel filter pack	11 litres / metre	Diameter of Filter Pack (mm) (df)	178
Porosity of 10mm pea gravel	0.33	Volume of 50mm diameter slotted pipe with 150mm diameter gravel filter pack	6 litres / metre	Volume of Filter Pack (litres) $(Lø)((\pi df^2/4)-(\pi dp^2/4))$	21.2
Groundwater Prior to Well Development				Volume of the Standpipe	
Groundwater Level (m bgl)	11.20	LNAPL/ DNAPL (m bgl)	N/A	Diameter of Standpipe (mm) (dp)	50
Purging Details				Saturated depth (m) (sd) (installation base - groundwater level)	
Purge Method/ Device	Wasp Pump	Average Flow Rate (litres/min)	4.3	2.80	
Time to Purge (mins)	3	Number of Well Volumes Purged	0.5	Volume of the Standpipe (litres) $(\pi dp^2/4)*10^{-3}$	5.5
Total Volume Purged (litres)	13.0	Operative	KW	Total Well Volume	
				Total Well Volume (litres) Volume of Filter Pack + Volume of Standpipe)	26.7
Observations During Well Development (see Vu-situ output for insitu parameter readings)				Additional Notes and Observations	
In-situ Parameter Device Model	N/A	Groundwater Odour	No odour	No in situ parameters required for well development. Well purged until dry.	
In-situ Parameter Device SN	N/A	Visual Turbidity	Fairly turbid		
Confirm Field Calibration Completed	N/A	Groundwater Colour	Light yellowish brown		



INSTALLATION INSPECTION AND WELL DEVELOPMENT RECORD

Project	Global Centre of Rail Excellence Stage II	Project No	G23012	Client	Walters UK Ltd
Exploratory Hole Number	Installation Reference	Installation Diameter (mm)	Anticipated Well Depth (m bgl)	Date and Time	
S2-BH229	1	50	14.00	25/05/2023 11:30	
Cover Type	Pipe Cover	Top of Response Zone (m bgl)	Base of Response Zone (m bgl)	Weather	
Box Cover	Pipe Plug	8.00	14.00	Sunny	
Installation Inspection					
Surface Conditions	Dry	Damage to Headworks?	No		
Check Dip of Base (m bgl)	14.00	Pipe Cover/Bung Present?	Yes		
Remedial actions undertaken to well:					
N/A					
Purging and Well Development					
Guidance Notes				Well Volume Calculation	
Well development undertaken in accordance with BS10175:2011+A2:2017. Purge volumes to include the annulus of the filter pack. Purging must continue until insitu parameters have stabilised unless agreed with clients representative.				Volume of the Filter Pack	
				Saturated length of Filter Pack (L) (m)	1.40
				Porosity of Filter Pack (ø)	0.33
Approx. Guidance Volumes for Field Calculation of Wet Well Volume					
Volume of 50mm diameter plain pipe	2 litres / metre	Volume of 50mm diameter slotted pipe with 200mm diameter gravel filter pack	11 litres / metre	Diameter of Filter Pack (mm) (df)	120
Porosity of 10mm pea gravel	0.33	Volume of 50mm diameter slotted pipe with 150mm diameter gravel filter pack	6 litres / metre	Volume of Filter Pack (litres) $(Lø)((\pi df^2/4)-(\pi dp^2/4))$	4.3
Groundwater Prior to Well Development				Volume of the Standpipe	
Groundwater Level (m bgl)	12.60	LNAPL/ DNAPL (m bgl)	N/A	Diameter of Standpipe (mm) (dp)	50
Purging Details				Saturated depth (m) (sd) (installation base - groundwater level)	1.40
Purge Method/ Device	Wasp pump	Average Flow Rate (litres/min)	2.7	Volume of the Standpipe (litres) $(\pi dp^2/4)*10^{-3}$	2.7
Time to Purge (mins)	2	Number of Well Volumes Purged	0.6	Total Well Volume	
Total Volume Purged (litres)	4.0	Operative	KW	Total Well Volume (litres) Volume of Filter Pack + Volume of Standpipe)	7.1
Observations During Well Development (see Vu-situ output for insitu parameter readings)				Additional Notes and Observations	
In-situ Parameter Device Model	N/A	Groundwater Odour	No odour	No in situ parameters required for well development. Well purged until dry.	
In-situ Parameter Device SN	N/A	Visual Turbidity	Fairly Turbid		
Confirm Field Calibration Completed	N/A	Groundwater Colour	Light brown running cloudy grey		



INSTALLATION INSPECTION AND WELL DEVELOPMENT RECORD

Project	Global Centre of Rail Excellence Stage II	Project No	G23012	Client	Walters UK Ltd
Exploratory Hole Number	Installation Reference	Installation Diameter (mm)	Anticipated Well Depth (m bgl)	Date and Time	
S2-BH229	2	50	3.00	25/05/2023 11:15	
Cover Type	Pipe Cover	Top of Response Zone (m bgl)	Base of Response Zone (m bgl)	Weather	
Box Cover	Pipe Plug	2.00	3.00	Sunny	
Installation Inspection					
Surface Conditions	Dry	Damage to Headworks?	No		
Check Dip of Base (m bgl)	2.90	Pipe Cover/Bung Present?	Yes		
Remedial actions undertaken to well:					
N/A					
Purging and Well Development					
Guidance Notes				Well Volume Calculation	
Well development undertaken in accordance with BS10175:2011+A2:2017. Purge volumes to include the annulus of the filter pack. Purging must continue until insitu parameters have stabilised unless agreed with clients representative.				Volume of the Filter Pack	
				Saturated length of Filter Pack (L) (m)	
				Porosity of Filter Pack (ϕ)	0.33
Approx. Guidance Volumes for Field Calculation of Wet Well Volume					
Volume of 50mm diameter plain pipe	2 litres / metre	Volume of 50mm diameter slotted pipe with 200mm diameter gravel filter pack	11 litres / metre	Diameter of Filter Pack (mm) (df)	120
Porosity of 10mm pea gravel	0.33	Volume of 50mm diameter slotted pipe with 150mm diameter gravel filter pack	6 litres / metre	Volume of Filter Pack (litres) $(L\phi)((\pi df^2/4)-(\pi dp^2/4))$	0.0
Groundwater Prior to Well Development				Volume of the Standpipe	
Groundwater Level (m bgl)	Dry	LNAPL/ DNAPL (m bgl)	N/A	Diameter of Standpipe (mm) (dp)	50
Purging Details				Saturated depth (m) (sd) (installation base - groundwater level)	
Purge Method/ Device	N/A	Average Flow Rate (litres/min)		Volume of the Standpipe (litres) $(\pi dp^2/4)*10^{-3}$	0.0
Time to Purge (mins)	N/A	Number of Well Volumes Purged		Total Well Volume	
Total Volume Purged (litres)	N/A	Operative	KW	Total Well Volume (litres) Volume of Filter Pack + Volume of Standpipe)	0.0
Observations During Well Development (see Vu-situ output for insitu parameter readings)				Additional Notes and Observations	
In-situ Parameter Device Model	N/A	Groundwater Odour	N/A	Well dipped dry. No purging required.	
In-situ Parameter Device SN	N/A	Visual Turbidity	N/A		
Confirm Field Calibration Completed	N/A	Groundwater Colour	N/A		



INSTALLATION INSPECTION AND WELL DEVELOPMENT RECORD

Project	Global Centre of Rail Excellence Stage II	Project No	G23012	Client	Walters UK Ltd
Exploratory Hole Number	Installation Reference	Installation Diameter (mm)	Anticipated Well Depth (m bgl)	Date and Time	
S2-BH232	1	50	7.00	30/05/2023 10:30	
Cover Type	Pipe Cover	Top of Response Zone (m bgl)	Base of Response Zone (m bgl)	Weather	
0	Pipe Plug	1.00	7.00	Sunny with Wind	
Installation Inspection					
Surface Conditions	Dry	Damage to Headworks?	No		
Check Dip of Base (m bgl)	7.20	Pipe Cover/Bung Present?	Yes		
Remedial actions undertaken to well:					
N/A					
Purging and Well Development					
Guidance Notes				Well Volume Calculation	
Well development undertaken in accordance with BS10175:2011+A2:2017. Purge volumes to include the annulus of the filter pack. Purging must continue until insitu parameters have stabilised unless agreed with clients representative.				Volume of the Filter Pack	
				Saturated length of Filter Pack (L) (m)	2.45
				Porosity of Filter Pack (ø)	0.33
Approx. Guidance Volumes for Field Calculation of Wet Well Volume					
Volume of 50mm diameter plain pipe	2 litres / metre	Volume of 50mm diameter slotted pipe with 200mm diameter gravel filter pack	11 litres / metre	Diameter of Filter Pack (mm) (df)	122
Porosity of 10mm pea gravel	0.33	Volume of 50mm diameter slotted pipe with 150mm diameter gravel filter pack	6 litres / metre	Volume of Filter Pack (litres) $(Lø)((\pi df^2/4)-(\pi dp^2/4))$	7.9
Groundwater Prior to Well Development				Volume of the Standpipe	
Groundwater Level (m bgl)	4.55	LNAPL/ DNAPL (m bgl)	N/A	Diameter of Standpipe (mm) (dp)	50
Purging Details				Saturated depth (m) (sd) (installation base - groundwater level)	
Purge Method/ Device	Wasp Pump	Average Flow Rate (litres/min)	3.8	2.45	
Time to Purge (mins)	4	Number of Well Volumes Purged	1.2	Volume of the Standpipe (litres) $(\pi dp^2/4)*10^{-3}$	4.8
Total Volume Purged (litres)	15.0	Operative	KW	Total Well Volume	
				Total Well Volume (litres) Volume of Filter Pack + Volume of Standpipe)	12.7
Observations During Well Development (see Vu-situ output for insitu parameter readings)				Additional Notes and Observations	
In-situ Parameter Device Model	N/A	Groundwater Odour	No odour	No in situ parameters required for well development. Well purged until dry.	
In-situ Parameter Device SN	N/A	Visual Turbidity	Highly turbid		
Confirm Field Calibration Completed	N/A	Groundwater Colour	Yellowish brown		



INSTALLATION INSPECTION AND WELL DEVELOPMENT RECORD

Project	Global Centre of Rail Excellence Stage II	Project No	G23012	Client	Walters UK Ltd
Exploratory Hole Number	Installation Reference	Installation Diameter (mm)	Anticipated Well Depth (m bgl)	Date and Time	
S2-BH233	1	50	25.00	01/06/2023 13:30	
Cover Type	Pipe Cover	Top of Response Zone (m bgl)	Base of Response Zone (m bgl)	Weather	
Box Cover	Pipe Plug	1.00	25.00	Sunny	
Installation Inspection					
Surface Conditions	Dry	Damage to Headworks?	No		
Check Dip of Base (m bgl)	25.10	Pipe Cover/Bung Present?	Yes		
Remedial actions undertaken to well:					
N/A					
Purging and Well Development					
Guidance Notes				Well Volume Calculation	
Well development undertaken in accordance with BS10175:2011+A2:2017. Purge volumes to include the annulus of the filter pack. Purging must continue until insitu parameters have stabilised unless agreed with clients representative.				Volume of the Filter Pack	
				Saturated length of Filter Pack (L) (m)	2.67
				Porosity of Filter Pack (ø)	0.33
Approx. Guidance Volumes for Field Calculation of Wet Well Volume					
Volume of 50mm diameter plain pipe	2 litres / metre	Volume of 50mm diameter slotted pipe with 200mm diameter gravel filter pack	11 litres / metre	Diameter of Filter Pack (mm) (df)	168
Porosity of 10mm pea gravel	0.33	Volume of 50mm diameter slotted pipe with 150mm diameter gravel filter pack	6 litres / metre	Volume of Filter Pack (litres) $(Lø)((\pi df^2/4)-(\pi dp^2/4))$	17.8
Groundwater Prior to Well Development				Volume of the Standpipe	
Groundwater Level (m bgl)	22.33	LNAPL/ DNAPL (m bgl)	N/A	Diameter of Standpipe (mm) (dp)	50
Purging Details				Saturated depth (m) (sd) (installation base - groundwater level)	
Purge Method/ Device	Wasp Pump	Average Flow Rate (litres/min)	9.4	2.67	
Time to Purge (mins)	7	Number of Well Volumes Purged	2.9	Volume of the Standpipe (litres) $(\pi dp^2/4)*10^{-3}$	
Total Volume Purged (litres)	66.0	Operative	KW	5.2	
				Total Well Volume	
				Total Well Volume (litres) Volume of Filter Pack + Volume of Standpipe)	
				23.0	
Observations During Well Development (see Vu-situ output for insitu parameter readings)				Additional Notes and Observations	
In-situ Parameter Device Model	N/A	Groundwater Odour	No odour	No in situ parameters required for well development. Well purged until dry.	
In-situ Parameter Device SN	N/A	Visual Turbidity	Fairly turbid		
Confirm Field Calibration Completed	N/A	Groundwater Colour	Light brown		



INSTALLATION INSPECTION AND WELL DEVELOPMENT RECORD

Project	Global Centre of Rail Excellence Stage II	Project No	G23012	Client	Walters UK Ltd
Exploratory Hole Number	Installation Reference	Installation Diameter (mm)	Anticipated Well Depth (m bgl)	Date and Time	
S2-BH236	1	50	15.00	23/05/2023 10:45	
Cover Type	Pipe Cover	Top of Response Zone (m bgl)	Base of Response Zone (m bgl)	Weather	
Box Cover	Pipe Plug	10.00	15.00	Overcast	
Installation Inspection					
Surface Conditions	Dry	Damage to Headworks?	No		
Check Dip of Base (m bgl)	15.00	Pipe Cover/Bung Present?	Yes		
Remedial actions undertaken to well:					
N/A					
Purging and Well Development					
Guidance Notes				Well Volume Calculation	
Well development undertaken in accordance with BS10175:2011+A2:2017. Purge volumes to include the annulus of the filter pack. Purging must continue until insitu parameters have stabilised unless agreed with clients representative.				Volume of the Filter Pack	
				Saturated length of Filter Pack (L) (m)	1.09
				Porosity of Filter Pack (ø)	0.33
Approx. Guidance Volumes for Field Calculation of Wet Well Volume					
Volume of 50mm diameter plain pipe	2 litres / metre	Volume of 50mm diameter slotted pipe with 200mm diameter gravel filter pack	11 litres / metre	Diameter of Filter Pack (mm) (df)	92
Porosity of 10mm pea gravel	0.33	Volume of 50mm diameter slotted pipe with 150mm diameter gravel filter pack	6 litres / metre	Volume of Filter Pack (litres) $(Lø)((\pi df^2/4)-(\pi dp^2/4))$	1.7
Groundwater Prior to Well Development				Volume of the Standpipe	
Groundwater Level (m bgl)	13.91	LNAPL/ DNAPL (m bgl)	N/A	Diameter of Standpipe (mm) (dp)	50
Purging Details				Saturated depth (m) (sd) (installation base - groundwater level)	1.09
Purge Method/ Device	Wasp Pump	Average Flow Rate (litres/min)	2.0	Volume of the Standpipe (litres) $(\pi dp^2/4)*10^{-3}$	2.1
Time to Purge (mins)	6	Number of Well Volumes Purged	3.1	Total Well Volume	
Total Volume Purged (litres)	12.0	Operative	KW	Total Well Volume (litres) Volume of Filter Pack + Volume of Standpipe)	3.8
Observations During Well Development (see Vu-situ output for insitu parameter readings)				Additional Notes and Observations	
In-situ Parameter Device Model	N/A	Groundwater Odour	No odour	No in situ parameters required during well development.	
In-situ Parameter Device SN	N/A	Visual Turbidity	Fairly Turbid		
Confirm Field Calibration Completed	N/A	Groundwater Colour	Light brown running clear		



INSTALLATION INSPECTION AND WELL DEVELOPMENT RECORD

Project	Global Centre of Rail Excellence Stage II	Project No	G23012	Client	Walters UK Ltd
Exploratory Hole Number	Installation Reference	Installation Diameter (mm)	Anticipated Well Depth (m bgl)	Date and Time	
S2-BH237	1	50	24.80	01/06/2023 11:00	
Cover Type	Pipe Cover	Top of Response Zone (m bgl)	Base of Response Zone (m bgl)	Weather	
Box Cover	Pipe Plug	2.00	24.80	Sunny Windy	
Installation Inspection					
Surface Conditions	Dry	Damage to Headworks?	No		
Check Dip of Base (m bgl)	25.00	Pipe Cover/Bung Present?	Yes		
Remedial actions undertaken to well:					
N/A					
Purging and Well Development					
Guidance Notes				Well Volume Calculation	
Well development undertaken in accordance with BS10175:2011+A2:2017. Purge volumes to include the annulus of the filter pack. Purging must continue until insitu parameters have stabilised unless agreed with clients representative.				Volume of the Filter Pack	
				Saturated length of Filter Pack (L) (m)	12.90
				Porosity of Filter Pack (ø)	0.33
Approx. Guidance Volumes for Field Calculation of Wet Well Volume					
Volume of 50mm diameter plain pipe	2 litres / metre	Volume of 50mm diameter slotted pipe with 200mm diameter gravel filter pack	11 litres / metre	Diameter of Filter Pack (mm) (df)	150
Porosity of 10mm pea gravel	0.33	Volume of 50mm diameter slotted pipe with 150mm diameter gravel filter pack	6 litres / metre	Volume of Filter Pack (litres) $(Lø)((\pi df^2/4)-(\pi dp^2/4))$	66.8
Groundwater Prior to Well Development				Volume of the Standpipe	
Groundwater Level (m bgl)	11.90	LNAPL/ DNAPL (m bgl)	N/A	Diameter of Standpipe (mm) (dp)	50
Purging Details				Saturated depth (m) (sd) (installation base - groundwater level)	
Purge Method/ Device	Wasp Pump	Average Flow Rate (litres/min)	9.3	12.90	
Time to Purge (mins)	22	Number of Well Volumes Purged	2.2	Volume of the Standpipe (litres) $(\pi dp^2/4)*10^{-3}$	25.3
Total Volume Purged (litres)	204.0	Operative	KW	Total Well Volume	
				Total Well Volume (litres) Volume of Filter Pack + Volume of Standpipe)	92.2
Observations During Well Development (see Vu-situ output for insitu parameter readings)				Additional Notes and Observations	
In-situ Parameter Device Model	N/A	Groundwater Odour	No odour	No in situ parameters required for well development. Well purged until dry.	
In-situ Parameter Device SN	N/A	Visual Turbidity	Highly turbid		
Confirm Field Calibration Completed	N/A	Groundwater Colour	Greyish brown running clear		



INSTALLATION INSPECTION AND WELL DEVELOPMENT RECORD

Project	Global Centre of Rail Excellence Stage II	Project No	G23012	Client	Walters UK Ltd
Exploratory Hole Number	Installation Reference	Installation Diameter (mm)	Anticipated Well Depth (m bgl)	Date and Time	
S2-BH239	1	50	3.60	15/05/2023 10:56	
Cover Type	Pipe Cover	Top of Response Zone (m bgl)	Base of Response Zone (m bgl)	Weather	
Box Cover	Pipe Plug	1.00	3.60	Sunny and windy	
Installation Inspection					
Surface Conditions	Dry	Damage to Headworks?	No		
Check Dip of Base (m bgl)	4.60	Pipe Cover/Bung Present?	Yes		
Remedial actions undertaken to well:					
N/A					
Purging and Well Development					
Guidance Notes				Well Volume Calculation	
Well development undertaken in accordance with BS10175:2011+A2:2017. Purge volumes to include the annulus of the filter pack. Purging must continue until insitu parameters have stabilised unless agreed with clients representative.				Volume of the Filter Pack	
				Saturated length of Filter Pack (L) (m)	2.20
				Porosity of Filter Pack (ϕ)	0.33
Approx. Guidance Volumes for Field Calculation of Wet Well Volume					
Volume of 50mm diameter plain pipe	2 litres / metre	Volume of 50mm diameter slotted pipe with 200mm diameter gravel filter pack	11 litres / metre	Diameter of Filter Pack (mm) (df)	150
Porosity of 10mm pea gravel	0.33	Volume of 50mm diameter slotted pipe with 150mm diameter gravel filter pack	6 litres / metre	Volume of Filter Pack (litres) $(L\phi)/((\pi df^2/4)-(\pi dp^2/4))$	11.4
Groundwater Prior to Well Development				Volume of the Standpipe	
Groundwater Level (m bgl)	1.40	LNAPL/ DNAPL (m bgl)	N/A	Diameter of Standpipe (mm) (dp)	50
Purging Details				Saturated depth (m) (sd) (installation base - groundwater level)	2.20
Purge Method/ Device	Wasp Pump	Average Flow Rate (litres/min)	6.9	Volume of the Standpipe (litres) $(\pi dp^2/4)*10^{-3}$	4.3
Time to Purge (mins)	7	Number of Well Volumes Purged	3.1	Total Well Volume	
Total Volume Purged (litres)	48.0	Operative	KW	Total Well Volume (litres) Volume of Filter Pack + Volume of Standpipe)	15.7
Observations During Well Development (see Vu-situ output for insitu parameter readings)				Additional Notes and Observations	
In-situ Parameter Device Model	N/A	Groundwater Odour	No odour	No in situ parameters required during well development.	
In-situ Parameter Device SN	N/A	Visual Turbidity	Highly turbid		
Confirm Field Calibration Completed	N/A	Groundwater Colour	Light greyish brown		



INSTALLATION INSPECTION AND WELL DEVELOPMENT RECORD

Project	Global Centre of Rail Excellence Stage II	Project No	G23012	Client	Walters UK Ltd
Exploratory Hole Number	Installation Reference	Installation Diameter (mm)	Anticipated Well Depth (m bgl)	Date and Time	
S2-BH239	2	0	10.00	15/05/2023 11:17	
Cover Type	Pipe Cover	Top of Response Zone (m bgl)	Base of Response Zone (m bgl)	Weather	
Box Cover	Pipe Plug	7.00	10.00	Sunny and windy	
Installation Inspection					
Surface Conditions	Dry	Damage to Headworks?	No		
Check Dip of Base (m bgl)	7.60	Pipe Cover/Bung Present?	Yes		
Remedial actions undertaken to well:					
N/A					
Purging and Well Development					
Guidance Notes				Well Volume Calculation	
Well development undertaken in accordance with BS10175:2011+A2:2017. Purge volumes to include the annulus of the filter pack. Purging must continue until insitu parameters have stabilised unless agreed with clients representative.				Volume of the Filter Pack	
				Saturated length of Filter Pack (L) (m)	3.00
				Porosity of Filter Pack (ø)	0.33
Approx. Guidance Volumes for Field Calculation of Wet Well Volume					
Volume of 50mm diameter plain pipe	2 litres / metre	Volume of 50mm diameter slotted pipe with 200mm diameter gravel filter pack	11 litres / metre	Diameter of Filter Pack (mm) (df)	150
Porosity of 10mm pea gravel	0.33	Volume of 50mm diameter slotted pipe with 150mm diameter gravel filter pack	6 litres / metre	Volume of Filter Pack (litres) $(Lø)((\pi df^2/4)-(\pi dp^2/4))$	15.5
Groundwater Prior to Well Development				Volume of the Standpipe	
Groundwater Level (m bgl)	1.16	LNAPL/ DNAPL (m bgl)	N/A	Diameter of Standpipe (mm) (dp)	50
Purging Details				Saturated depth (m) (sd) (installation base - groundwater level)	8.84
Purge Method/ Device	Wasp Pump	Average Flow Rate (litres/min)	6.8	Volume of the Standpipe (litres) $(\pi dp^2/4)*10^{-3}$	17.3
Time to Purge (mins)	14.5	Number of Well Volumes Purged	3.0	Total Well Volume	
Total Volume Purged (litres)	99.0	Operative	KW	Total Well Volume (litres) Volume of Filter Pack + Volume of Standpipe)	32.9
Observations During Well Development (see Vu-situ output for insitu parameter readings)				Additional Notes and Observations	
In-situ Parameter Device Model	N/A	Groundwater Odour	No odour	No in situ parameters required during well development.	
In-situ Parameter Device SN	N/A	Visual Turbidity	Highly Turbid		
Confirm Field Calibration Completed	N/A	Groundwater Colour	Light grey		

 JACKSON GEO SERVICES INSTALLATION INSPECTION AND WELL DEVELOPMENT RECORD						
Project	Global Centre of Rail Excellence Stage II		Project No	G23012	Client	Walters UK Ltd
Exploratory Hole Number		Installation Reference		Installation Diameter (mm)	Anticipated Well Depth (m bgl)	Date and Time
S2-BH240		1		50	6.00	11/05/2023 14:23
Cover Type		Pipe Cover		Top of Response Zone (m bgl)	Base of Response Zone (m bgl)	Weather
Box Cover		Pipe Plug		1.00	6.00	Raining
Installation Inspection						
Surface Conditions		Wet		Damage to Headworks?	No	
Check Dip of Base (m bgl)		5.10		Pipe Cover/Bung Present?	Yes	
Remedial actions undertaken to well: N/A						
Purging and Well Development						
Guidance Notes				Well Volume Calculation		
Well development undertaken in accordance with BS10175:2011+A2:2017. Purge volumes to include the annulus of the filter pack. Purging must continue until insitu parameters have stabilised unless agreed with clients representative.				Volume of the Filter Pack		
				Saturated length of Filter Pack (L) (m)		4.40
				Porosity of Filter Pack (ø)		0.33
Approx. Guidance Volumes for Field Calculation of Wet Well Volume						
Volume of 50mm diameter plain pipe	2 litres / metre	Volume of 50mm diameter slotted pipe with 200mm diameter gravel filter pack	11 litres / metre	Diameter of Filter Pack (mm) (df)	200	
Porosity of 10mm pea gravel	0.33	Volume of 50mm diameter slotted pipe with 150mm diameter gravel filter pack	6 litres / metre	Volume of Filter Pack (litres) $(Lø)((\pi df^2/4)-((\pi dp^2/4))$	42.7	
Groundwater Prior to Well Development				Volume of the Standpipe		
Groundwater Level (m bgl)	1.60	LNAPL/ DNAPL (m bgl)	N/A	Diameter of Standpipe (mm) (dp)	50	
Purging Details				Saturated depth (m) (sd) (installation base - groundwater level)		
Purge Method/ Device	Wasp Pump	Average Flow Rate (litres/min)	7.4	4.40		
Time to Purge (mins)	21	Number of Well Volumes Purged	3.0	Volume of the Standpipe (litres) $(\pi dp^2/4)*10^{-3}$		
				8.6		
				Total Well Volume		
Total Volume Purged (litres)	156.0	Operative	KW	Total Well Volume (litres) Volume of Filter Pack + Volume of Standpipe)	51.4	
Observations During Well Development (see Vu-situ output for insitu parameter readings)				Additional Notes and Observations		
In-situ Parameter Device Model	N/A	Groundwater Odour	No	No in situ parameters required during well development.		
In-situ Parameter Device SN	N/A	Visual Turbidity	No			
Confirm Field Calibration Completed	N/A	Groundwater Colour	Grey running clear			



INSTALLATION INSPECTION AND WELL DEVELOPMENT RECORD

Project	Global Centre of Rail Excellence Stage II	Project No	G23012	Client	Walters UK Ltd
Exploratory Hole Number	Installation Reference	Installation Diameter (mm)	Anticipated Well Depth (m bgl)	Date and Time	
S2-BH241	1	50	15.00	17/05/2023 11:00	
Cover Type	Pipe Cover	Top of Response Zone (m bgl)	Base of Response Zone (m bgl)	Weather	
Box Cover	Pipe Plug	10.00	15.00	Sunny	
Installation Inspection					
Surface Conditions	Dry	Damage to Headworks?	No		
Check Dip of Base (m bgl)	15.15	Pipe Cover/Bung Present?	Yes		
Remedial actions undertaken to well:					
N/A					
Purging and Well Development					
Guidance Notes				Well Volume Calculation	
Well development undertaken in accordance with BS10175:2011+A2:2017. Purge volumes to include the annulus of the filter pack. Purging must continue until insitu parameters have stabilised unless agreed with clients representative.				Volume of the Filter Pack	
				Saturated length of Filter Pack (L) (m)	0.50
				Porosity of Filter Pack (ø)	0.33
Approx. Guidance Volumes for Field Calculation of Wet Well Volume					
Volume of 50mm diameter plain pipe	2 litres / metre	Volume of 50mm diameter slotted pipe with 200mm diameter gravel filter pack	11 litres / metre	Diameter of Filter Pack (mm) (df)	92
Porosity of 10mm pea gravel	0.33	Volume of 50mm diameter slotted pipe with 150mm diameter gravel filter pack	6 litres / metre	Volume of Filter Pack (litres) $(Lø)((\pi df^2/4)-(\pi dp^2/4))$	0.8
Groundwater Prior to Well Development				Volume of the Standpipe	
Groundwater Level (m bgl)	14.50	LNAPL/ DNAPL (m bgl)	N/A	Diameter of Standpipe (mm) (dp)	50
Purging Details				Saturated depth (m) (sd) (installation base - groundwater level)	0.50
Purge Method/ Device	Wasp Pump	Average Flow Rate (litres/min)	2.8	Volume of the Standpipe (litres) $(\pi dp^2/4)*10^{-3}$	1.0
Time to Purge (mins)	2	Number of Well Volumes Purged	3.1		
Total Volume Purged (litres)	5.5	Operative	KW	Total Well Volume	
				Total Well Volume (litres) Volume of Filter Pack + Volume of Standpipe)	1.8
Observations During Well Development (see Vu-situ output for insitu parameter readings)				Additional Notes and Observations	
In-situ Parameter Device Model	N/A	Groundwater Odour	No odour	No in situ parameters required during well development.	
In-situ Parameter Device SN	N/A	Visual Turbidity	Not turbid		
Confirm Field Calibration Completed	N/A	Groundwater Colour	light brown running clear		



INSTALLATION INSPECTION AND WELL DEVELOPMENT RECORD

Project	Global Centre of Rail Excellence Stage II	Project No	G23012	Client	Walters UK Ltd
Exploratory Hole Number	Installation Reference	Installation Diameter (mm)	Anticipated Well Depth (m bgl)	Date and Time	
S2-BH242	1	50	3.70	10/05/2023 14:45	
Cover Type	Pipe Cover	Top of Response Zone (m bgl)	Base of Response Zone (m bgl)	Weather	
Box Cover	Pipe Plug	1.00	3.70	Rain Showers	
Installation Inspection					
Surface Conditions	Wet	Damage to Headworks?	No		
Check Dip of Base (m bgl)	3.70	Pipe Cover/Bung Present?	Yes		
Remedial actions undertaken to well:					
N/A					
Purging and Well Development					
Guidance Notes				Well Volume Calculation	
Well development undertaken in accordance with BS10175:2011+A2:2017. Purge volumes to include the annulus of the filter pack. Purging must continue until insitu parameters have stabilised unless agreed with clients representative.				Volume of the Filter Pack	
				Saturated length of Filter Pack (L) (m)	1.60
				Porosity of Filter Pack (ø)	0.33
Approx. Guidance Volumes for Field Calculation of Wet Well Volume					
Volume of 50mm diameter plain pipe	2 litres / metre	Volume of 50mm diameter slotted pipe with 200mm diameter gravel filter pack	11 litres / metre	Diameter of Filter Pack (mm) (df)	150
Porosity of 10mm pea gravel	0.33	Volume of 50mm diameter slotted pipe with 150mm diameter gravel filter pack	6 litres / metre	Volume of Filter Pack (litres) $(Lø)((\pi df^2/4)-((\pi dp^2/4))$	8.3
Groundwater Prior to Well Development				Volume of the Standpipe	
Groundwater Level (m bgl)	2.10	LNAPL/ DNAPL (m bgl)	N/A	Diameter of Standpipe (mm) (dp)	50
Purging Details				Saturated depth (m) (sd) (installation base - groundwater level)	
Purge Method/ Device	Wasp Pump	Average Flow Rate (litres/min)	1.3	1.60	
Time to Purge (mins)	2	Number of Well Volumes Purged	0.2	Volume of the Standpipe (litres) $(\pi dp^2/4)*10-3$	
				Total Well Volume	
Total Volume Purged (litres)	2.0	Operative	KW	Total Well Volume (litres) Volume of Filter Pack + Volume of Standpipe)	11.4
Observations During Well Development (see Vu-situ output for insitu parameter readings)				Additional Notes and Observations	
In-situ Parameter Device Model	N/A	Groundwater Odour	No odour	No in situ parameters required during well development. Borehole purged dry.	
In-situ Parameter Device SN	N/A	Visual Turbidity	Fairly turbid		
Confirm Field Calibration Completed	N/A	Groundwater Colour	Brown		



INSTALLATION INSPECTION AND WELL DEVELOPMENT RECORD

Project	Global Centre of Rail Excellence Stage II	Project No	G23012	Client	Walters UK Ltd
Exploratory Hole Number	Installation Reference	Installation Diameter (mm)	Anticipated Well Depth (m bgl)	Date and Time	
S2-BH243	1	50	6.00	12/05/2023 13:45	
Cover Type	Pipe Cover	Top of Response Zone (m bgl)	Base of Response Zone (m bgl)	Weather	
Box Cover	Pipe Plug	1.00	3.00	Sunny and windy	
Installation Inspection					
Surface Conditions	Dry	Damage to Headworks?	No		
Check Dip of Base (m bgl)	5.80	Pipe Cover/Bung Present?	Yes		
Remedial actions undertaken to well:					
N/A					
Purging and Well Development					
Guidance Notes				Well Volume Calculation	
Well development undertaken in accordance with BS10175:2011+A2:2017. Purge volumes to include the annulus of the filter pack. Purging must continue until insitu parameters have stabilised unless agreed with clients representative.				Volume of the Filter Pack	
				Saturated length of Filter Pack (L) (m)	2.80
				Porosity of Filter Pack (ø)	0.33
Approx. Guidance Volumes for Field Calculation of Wet Well Volume					
Volume of 50mm diameter plain pipe	2 litres / metre	Volume of 50mm diameter slotted pipe with 200mm diameter gravel filter pack	11 litres / metre	Diameter of Filter Pack (mm) (df)	112
Porosity of 10mm pea gravel	0.33	Volume of 50mm diameter slotted pipe with 150mm diameter gravel filter pack	6 litres / metre	Volume of Filter Pack (litres) $(Lø)((\pi df^2/4)-(\pi dp^2/4))$	7.3
Groundwater Prior to Well Development				Volume of the Standpipe	
Groundwater Level (m bgl)	3.20	LNAPL/ DNAPL (m bgl)	N/A	Diameter of Standpipe (mm) (dp)	50
Purging Details				Saturated depth (m) (sd) (installation base - groundwater level)	2.80
Purge Method/ Device	Wasp Pump	Average Flow Rate (litres/min)	5.7	Volume of the Standpipe (litres) $(\pi dp^2/4)*10^{-3}$	5.5
Time to Purge (mins)	7	Number of Well Volumes Purged	3.1	Total Well Volume	
Total Volume Purged (litres)	40.0	Operative	KW	Total Well Volume (litres) Volume of Filter Pack + Volume of Standpipe)	12.8
Observations During Well Development (see Vu-situ output for insitu parameter readings)				Additional Notes and Observations	
In-situ Parameter Device Model	N/A	Groundwater Odour	No odour	No in situ parameters required during well development.	
In-situ Parameter Device SN	N/A	Visual Turbidity	Highly Turbid		
Confirm Field Calibration Completed	N/A	Groundwater Colour	Greyush brown		



INSTALLATION INSPECTION AND WELL DEVELOPMENT RECORD

Project	Global Centre of Rail Excellence Stage II	Project No	G23012	Client	Walters UK Ltd
Exploratory Hole Number	Installation Reference	Installation Diameter (mm)	Anticipated Well Depth (m bgl)	Date and Time	
S2-BH243	2	0	3.00	12/05/2023 14:04	
Cover Type	Pipe Cover	Top of Response Zone (m bgl)	Base of Response Zone (m bgl)	Weather	
Box Cover	Pipe Plug	1.00	3.00	Sunny and windy	
Installation Inspection					
Surface Conditions	Dry	Damage to Headworks?	No		
Check Dip of Base (m bgl)	2.9	Pipe Cover/Bung Present?	Yes		
Remedial actions undertaken to well:					
N/A					
Purging and Well Development					
Guidance Notes				Well Volume Calculation	
Well development undertaken in accordance with BS10175:2011+A2:2017. Purge volumes to include the annulus of the filter pack. Purging must continue until insitu parameters have stabilised unless agreed with clients representative.				Volume of the Filter Pack	
				Saturated length of Filter Pack (L) (m)	
				Porosity of Filter Pack (ø)	0.33
Approx. Guidance Volumes for Field Calculation of Wet Well Volume					
Volume of 50mm diameter plain pipe	2 litres / metre	Volume of 50mm diameter slotted pipe with 200mm diameter gravel filter pack	11 litres / metre	Diameter of Filter Pack (mm) (df)	112
Porosity of 10mm pea gravel	0.33	Volume of 50mm diameter slotted pipe with 150mm diameter gravel filter pack	6 litres / metre	Volume of Filter Pack (litres) $(Lø)((\pi df^2/4)-(\pi dp^2/4))$	0.0
Groundwater Prior to Well Development				Volume of the Standpipe	
Groundwater Level (m bgl)	Dry	LNAPL/ DNAPL (m bgl)	N/A	Diameter of Standpipe (mm) (dp)	50
Purging Details				Saturated depth (m) (sd) (installation base - groundwater level)	
Purge Method/ Device	N/A	Average Flow Rate (litres/min)		Volume of the Standpipe (litres) $(\pi dp^2/4)*10^{-3}$	0.0
Time to Purge (mins)	N/A	Number of Well Volumes Purged		Total Well Volume	
Total Volume Purged (litres)	N/A	Operative	KW	Total Well Volume (litres) Volume of Filter Pack + Volume of Standpipe)	0.0
Observations During Well Development (see Vu-situ output for insitu parameter readings)				Additional Notes and Observations	
In-situ Parameter Device Model	N/A	Groundwater Odour	N/A	Borehole dipped dry.	
In-situ Parameter Device SN	N/A	Visual Turbidity	N/A		
Confirm Field Calibration Completed	N/A	Groundwater Colour	N/A		



INSTALLATION INSPECTION AND WELL DEVELOPMENT RECORD

Project	Global Centre of Rail Excellence Stage II	Project No	G23012	Client	Walters UK Ltd
Exploratory Hole Number	Installation Reference	Installation Diameter (mm)	Anticipated Well Depth (m bgl)	Date and Time	
S2-BH244	1	50	4.50	10/05/2023 12:00	
Cover Type	Pipe Cover	Top of Response Zone (m bgl)	Base of Response Zone (m bgl)	Weather	
Box Cover	Pipe Plug	1.00	3.50	Sunny	
Installation Inspection					
Surface Conditions	Dry	Damage to Headworks?	No		
Check Dip of Base (m bgl)	3.50	Pipe Cover/Bung Present?	Yes		
Remedial actions undertaken to well:					
N/A					
Purging and Well Development					
Guidance Notes				Well Volume Calculation	
Well development undertaken in accordance with BS10175:2011+A2:2017. Purge volumes to include the annulus of the filter pack. Purging must continue until insitu parameters have stabilised unless agreed with clients representative.				Volume of the Filter Pack	
				Saturated length of Filter Pack (L) (m)	
				Porosity of Filter Pack (ø)	0.33
Approx. Guidance Volumes for Field Calculation of Wet Well Volume					
Volume of 50mm diameter plain pipe	2 litres / metre	Volume of 50mm diameter slotted pipe with 200mm diameter gravel filter pack	11 litres / metre	Diameter of Filter Pack (mm) (df)	146
Porosity of 10mm pea gravel	0.33	Volume of 50mm diameter slotted pipe with 150mm diameter gravel filter pack	6 litres / metre	Volume of Filter Pack (litres) $(Lø)((\pi df^2/4)-(\pi dp^2/4))$	0.0
Groundwater Prior to Well Development				Volume of the Standpipe	
Groundwater Level (m bgl)	Dry	LNAPL/ DNAPL (m bgl)	N/A	Diameter of Standpipe (mm) (dp)	50
Purging Details				Saturated depth (m) (sd) (installation base - groundwater level)	
Purge Method/ Device	N/A	Average Flow Rate (litres/min)		Volume of the Standpipe (litres) $(\pi dp^2/4)*10^{-3}$	0.0
Time to Purge (mins)	N/A	Number of Well Volumes Purged		Total Well Volume	
Total Volume Purged (litres)	N/A	Operative	KW	Total Well Volume (litres) Volume of Filter Pack + Volume of Standpipe)	0.0
Observations During Well Development (see Vu-situ output for insitu parameter readings)				Additional Notes and Observations	
In-situ Parameter Device Model	N/A	Groundwater Odour	N/A	Well dipped dry.	
In-situ Parameter Device SN	N/A	Visual Turbidity	N/A		
Confirm Field Calibration Completed	N/A	Groundwater Colour	N/A		



INSTALLATION INSPECTION AND WELL DEVELOPMENT RECORD

Project	Global Centre of Rail Excellence Stage II	Project No	G23012	Client	Walters UK Ltd
Exploratory Hole Number	Installation Reference	Installation Diameter (mm)	Anticipated Well Depth (m bgl)	Date and Time	
S2-BH244	2	50	10.00	10/05/2023 11:24	
Cover Type	Pipe Cover	Top of Response Zone (m bgl)	Base of Response Zone (m bgl)	Weather	
Box Cover	Pipe Plug	4.50	10.00	Rain Showers	
Installation Inspection					
Surface Conditions	Wet	Damage to Headworks?	No		
Check Dip of Base (m bgl)	9.34	Pipe Cover/Bung Present?	Yes		
Remedial actions undertaken to well:					
N/A					
Purging and Well Development					
Guidance Notes				Well Volume Calculation	
Well development undertaken in accordance with BS10175:2011+A2:2017. Purge volumes to include the annulus of the filter pack. Purging must continue until insitu parameters have stabilised unless agreed with clients representative.				Volume of the Filter Pack	
				Saturated length of Filter Pack (L) (m)	5.50
				Porosity of Filter Pack (ø)	0.33
Approx. Guidance Volumes for Field Calculation of Wet Well Volume					
Volume of 50mm diameter plain pipe	2 litres / metre	Volume of 50mm diameter slotted pipe with 200mm diameter gravel filter pack	11 litres / metre	Diameter of Filter Pack (mm) (df)	200
Porosity of 10mm pea gravel	0.33	Volume of 50mm diameter slotted pipe with 150mm diameter gravel filter pack	6 litres / metre	Volume of Filter Pack (litres) $(Lø)((\pi df^2/4)-((\pi dp^2/4))$	53.4
Groundwater Prior to Well Development				Volume of the Standpipe	
Groundwater Level (m bgl)	2.90	LNAPL/ DNAPL (m bgl)	N/A	Diameter of Standpipe (mm) (dp)	50
Purging Details				Saturated depth (m) (sd) (installation base - groundwater level)	7.10
Purge Method/ Device	Wasp Pump	Average Flow Rate (litres/min)	6.2	Volume of the Standpipe (litres) $(\pi dp^2/4)*10-3$	13.9
Time to Purge (mins)	16	Number of Well Volumes Purged	1.4	Total Well Volume	
Total Volume Purged (litres)	96.0	Operative	KW	Total Well Volume (litres) Volume of Filter Pack + Volume of Standpipe)	67.4
Observations During Well Development (see Vu-situ output for insitu parameter readings)				Additional Notes and Observations	
In-situ Parameter Device Model	N/A	Groundwater Odour	Stagnant smell	No in situ parameters required during well development. Borehole purged dry.	
In-situ Parameter Device SN	N/A	Visual Turbidity	Highly turbid		
Confirm Field Calibration Completed	N/A	Groundwater Colour	Brown running clear		



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Project	Global Centre of Rail Excellence Stage II	Project No	G23012	Client	Walters UK Ltd
Exploratory Hole Number	Installation Reference	Installation Diameter (mm)	Anticipated Well Depth (m bgl)	Date and Time	
S2-BH245	1	50	4.00	10/05/2023 15:15	
Cover Type	Pipe Cover	Top of Response Zone (m bgl)	Base of Response Zone (m bgl)	Weather	
Box Cover	Pipe Plug	1.50	4.00	Rain Showers	
Installation Inspection					
Surface Conditions	Wet	Damage to Headworks?	No		
Check Dip of Base (m bgl)	3.85	Pipe Cover/Bung Present?	Yes		
Remedial actions undertaken to well:					
N/A					
Purging and Well Development					
Guidance Notes				Well Volume Calculation	
Well development undertaken in accordance with BS10175:2011+A2:2017. Purge volumes to include the annulus of the filter pack. Purging must continue until insitu parameters have stabilised unless agreed with clients representative.				Volume of the Filter Pack	
				Saturated length of Filter Pack (L) (m)	1.07
				Porosity of Filter Pack (ø)	0.33
Approx. Guidance Volumes for Field Calculation of Wet Well Volume					
Volume of 50mm diameter plain pipe	2 litres / metre	Volume of 50mm diameter slotted pipe with 200mm diameter gravel filter pack	11 litres / metre	Diameter of Filter Pack (mm) (df)	150
Porosity of 10mm pea gravel	0.33	Volume of 50mm diameter slotted pipe with 150mm diameter gravel filter pack	6 litres / metre	Volume of Filter Pack (litres) $(Lø)((\pi df^2/4)-((\pi dp^2/4))$	5.5
Groundwater Prior to Well Development				Volume of the Standpipe	
Groundwater Level (m bgl)	2.93	LNAPL/ DNAPL (m bgl)	N/A	Diameter of Standpipe (mm) (dp)	50
Purging Details				Saturated depth (m) (sd) (installation base - groundwater level)	1.07
Purge Method/ Device	Wasp Pump	Average Flow Rate (litres/min)	1.3	Volume of the Standpipe (litres) $(\pi dp^2/4)*10-3$	2.1
Time to Purge (mins)	2	Number of Well Volumes Purged	0.3		
				Total Well Volume	
Total Volume Purged (litres)	2.0	Operative	KW	Total Well Volume (litres) Volume of Filter Pack + Volume of Standpipe)	7.6
Observations During Well Development (see Vu-situ output for insitu parameter readings)				Additional Notes and Observations	
In-situ Parameter Device Model	N/A	Groundwater Odour	No odour	No in situ parameters required during well development. Borehole purged dry.	
In-situ Parameter Device SN	N/A	Visual Turbidity	Fairly turbid		
Confirm Field Calibration Completed	N/A	Groundwater Colour	Brown		



INSTALLATION INSPECTION AND WELL DEVELOPMENT RECORD

Project	Global Centre of Rail Excellence Stage II	Project No	G23012	Client	Walters UK Ltd
Exploratory Hole Number	Installation Reference	Installation Diameter (mm)	Anticipated Well Depth (m bgl)	Date and Time	
S2-BH246	1	19	2.80	15/05/2023 13:57	
Cover Type	Pipe Cover	Top of Response Zone (m bgl)	Base of Response Zone (m bgl)	Weather	
Box Cover	Pipe Plug	1.00	2.80	Cloudy and windy	
Installation Inspection					
Surface Conditions	Dry	Damage to Headworks?	No		
Check Dip of Base (m bgl)	2.40	Pipe Cover/Bung Present?	Yes		
Remedial actions undertaken to well:					
N/A					
Purging and Well Development					
Guidance Notes				Well Volume Calculation	
Well development undertaken in accordance with BS10175:2011+A2:2017. Purge volumes to include the annulus of the filter pack. Purging must continue until insitu parameters have stabilised unless agreed with clients representative.				Volume of the Filter Pack	
				Saturated length of Filter Pack (L) (m)	
				Porosity of Filter Pack (ø)	0.33
Approx. Guidance Volumes for Field Calculation of Wet Well Volume					
Volume of 50mm diameter plain pipe	2 litres / metre	Volume of 50mm diameter slotted pipe with 200mm diameter gravel filter pack	11 litres / metre	Diameter of Filter Pack (mm) (df)	150
Porosity of 10mm pea gravel	0.33	Volume of 50mm diameter slotted pipe with 150mm diameter gravel filter pack	6 litres / metre	Volume of Filter Pack (litres) $(Lø)((\pi df^2/4)-(\pi dp^2/4))$	0.0
Groundwater Prior to Well Development				Volume of the Standpipe	
Groundwater Level (m bgl)	Dry	LNAPL/ DNAPL (m bgl)	N/A	Diameter of Standpipe (mm) (dp)	19
Purging Details				Saturated depth (m) (sd) (installation base - groundwater level)	
Purge Method/ Device	N/A	Average Flow Rate (litres/min)		Volume of the Standpipe (litres) $(\pi dp^2/4)*10^{-3}$	0.0
Time to Purge (mins)	N/A	Number of Well Volumes Purged		Total Well Volume	
Total Volume Purged (litres)	N/A	Operative	KW	Total Well Volume (litres) Volume of Filter Pack + Volume of Standpipe)	0.0
Observations During Well Development (see Vu-situ output for insitu parameter readings)				Additional Notes and Observations	
In-situ Parameter Device Model	N/A	Groundwater Odour	N/A	Well dipped dry, no purging required.	
In-situ Parameter Device SN	N/A	Visual Turbidity	N/A		
Confirm Field Calibration Completed	N/A	Groundwater Colour	N/A		



INSTALLATION INSPECTION AND WELL DEVELOPMENT RECORD

Project	Global Centre of Rail Excellence Stage II	Project No	G23012	Client	Walters UK Ltd
Exploratory Hole Number	Installation Reference	Installation Diameter (mm)	Anticipated Well Depth (m bgl)	Date and Time	
S2-BH246	2	50	8.00	10/05/2023 10:36	
Cover Type	Pipe Cover	Top of Response Zone (m bgl)	Base of Response Zone (m bgl)	Weather	
Box Cover	Pipe Plug	3.50	8.00	Rain Showers	
Installation Inspection					
Surface Conditions	Wet	Damage to Headworks?	No		
Check Dip of Base (m bgl)	7.80	Pipe Cover/Bung Present?	Yes		
Remedial actions undertaken to well:					
N/A					
Purging and Well Development					
Guidance Notes				Well Volume Calculation	
Well development undertaken in accordance with BS10175:2011+A2:2017. Purge volumes to include the annulus of the filter pack. Purging must continue until insitu parameters have stabilised unless agreed with clients representative.				Volume of the Filter Pack	
				Saturated length of Filter Pack (L) (m)	4.50
				Porosity of Filter Pack (ø)	0.33
Approx. Guidance Volumes for Field Calculation of Wet Well Volume					
Volume of 50mm diameter plain pipe	2 litres / metre	Volume of 50mm diameter slotted pipe with 200mm diameter gravel filter pack	11 litres / metre	Diameter of Filter Pack (mm) (df)	150
Porosity of 10mm pea gravel	0.33	Volume of 50mm diameter slotted pipe with 150mm diameter gravel filter pack	6 litres / metre	Volume of Filter Pack (litres) $(Lø)((\pi df^2/4)-((\pi dp^2/4))$	23.3
Groundwater Prior to Well Development				Volume of the Standpipe	
Groundwater Level (m bgl)	3.10	LNAPL/ DNAPL (m bgl)	N/A	Diameter of Standpipe (mm) (dp)	50
Purging Details				Saturated depth (m) (sd) (installation base - groundwater level)	4.90
Purge Method/ Device	Wasp Pump	Average Flow Rate (litres/min)	7.0	Volume of the Standpipe (litres) $(\pi dp^2/4)*10-3$	9.6
Time to Purge (mins)	16	Number of Well Volumes Purged	3.3	Total Well Volume	
Total Volume Purged (litres)	108.0	Operative	KW	Total Well Volume (litres) Volume of Filter Pack + Volume of Standpipe)	32.9
Observations During Well Development (see Vu-situ output for insitu parameter readings)				Additional Notes and Observations	
In-situ Parameter Device Model	N/A	Groundwater Odour	No odour	No in situ parameters required during well development.	
In-situ Parameter Device SN	N/A	Visual Turbidity	Fairly turbid		
Confirm Field Calibration Completed	N/A	Groundwater Colour	Greyish brown running clear		



INSTALLATION INSPECTION AND WELL DEVELOPMENT RECORD

Project	Global Centre of Rail Excellence Stage II	Project No	G23012	Client	Walters UK Ltd
Exploratory Hole Number	Installation Reference	Installation Diameter (mm)	Anticipated Well Depth (m bgl)	Date and Time	
S2-BH247	1	50	9.00	16/05/2023 11:00	
Cover Type	Pipe Cover	Top of Response Zone (m bgl)	Base of Response Zone (m bgl)	Weather	
Box Cover	Pipe Plug	6.00	9.00	Sunny	
Installation Inspection					
Surface Conditions	Dry	Damage to Headworks?	No		
Check Dip of Base (m bgl)	8.90	Pipe Cover/Bung Present?	Yes		
Remedial actions undertaken to well:					
N/A					
Purging and Well Development					
Guidance Notes				Well Volume Calculation	
Well development undertaken in accordance with BS10175:2011+A2:2017. Purge volumes to include the annulus of the filter pack. Purging must continue until insitu parameters have stabilised unless agreed with clients representative.				Volume of the Filter Pack	
				Saturated length of Filter Pack (L) (m)	
				Porosity of Filter Pack (ϕ)	0.33
Approx. Guidance Volumes for Field Calculation of Wet Well Volume					
Volume of 50mm diameter plain pipe	2 litres / metre	Volume of 50mm diameter slotted pipe with 200mm diameter gravel filter pack	11 litres / metre	Diameter of Filter Pack (mm) (df)	150
Porosity of 10mm pea gravel	0.33	Volume of 50mm diameter slotted pipe with 150mm diameter gravel filter pack	6 litres / metre	Volume of Filter Pack (litres) $(L\phi)((\pi df^2/4)-(\pi dp^2/4))$	0.0
Groundwater Prior to Well Development				Volume of the Standpipe	
Groundwater Level (m bgl)	Dry	LNAPL/ DNAPL (m bgl)	N/A	Diameter of Standpipe (mm) (dp)	50
Purging Details				Saturated depth (m) (sd) (installation base - groundwater level)	
Purge Method/ Device	N/A	Average Flow Rate (litres/min)		Volume of the Standpipe (litres) $(\pi dp^2/4)*10^{-3}$	0.0
Time to Purge (mins)	N/A	Number of Well Volumes Purged		Total Well Volume	
Total Volume Purged (litres)	N/A	Operative	KW	Total Well Volume (litres) Volume of Filter Pack + Volume of Standpipe)	0.0
Observations During Well Development (see Vu-situ output for insitu parameter readings)				Additional Notes and Observations	
In-situ Parameter Device Model	N/A	Groundwater Odour	N/A	Borehole dipped dry.	
In-situ Parameter Device SN	N/A	Visual Turbidity	N/A		
Confirm Field Calibration Completed	N/A	Groundwater Colour	N/A		



INSTALLATION INSPECTION AND WELL DEVELOPMENT RECORD

Project	Global Centre of Rail Excellence Stage II	Project No	G23012	Client	Walters UK Ltd
Exploratory Hole Number	Installation Reference	Installation Diameter (mm)	Anticipated Well Depth (m bgl)	Date and Time	
S2-BH247	2	0	2.00	16/05/2023 11:30	
Cover Type	Pipe Cover	Top of Response Zone (m bgl)	Base of Response Zone (m bgl)	Weather	
Box Cover	Pipe Plug	1.00	2.00	Sunny	
Installation Inspection					
Surface Conditions	Dry	Damage to Headworks?	No		
Check Dip of Base (m bgl)	1.70	Pipe Cover/Bung Present?	Yes		
Remedial actions undertaken to well:					
N/A					
Purging and Well Development					
Guidance Notes				Well Volume Calculation	
Well development undertaken in accordance with BS10175:2011+A2:2017. Purge volumes to include the annulus of the filter pack. Purging must continue until insitu parameters have stabilised unless agreed with clients representative.				Volume of the Filter Pack	
				Saturated length of Filter Pack (L) (m)	
				Porosity of Filter Pack (ø)	0.33
Approx. Guidance Volumes for Field Calculation of Wet Well Volume					
Volume of 50mm diameter plain pipe	2 litres / metre	Volume of 50mm diameter slotted pipe with 200mm diameter gravel filter pack	11 litres / metre	Diameter of Filter Pack (mm) (df)	150
Porosity of 10mm pea gravel	0.33	Volume of 50mm diameter slotted pipe with 150mm diameter gravel filter pack	6 litres / metre	Volume of Filter Pack (litres) $(Lø)((\pi df^2/4)-(\pi dp^2/4))$	0.0
Groundwater Prior to Well Development				Volume of the Standpipe	
Groundwater Level (m bgl)	Dry	LNAPL/ DNAPL (m bgl)	N/A	Diameter of Standpipe (mm) (dp)	0
Purging Details				Saturated depth (m) (sd) (installation base - groundwater level)	
Purge Method/ Device	N/A	Average Flow Rate (litres/min)		Volume of the Standpipe (litres) $(\pi dp^2/4)*10^{-3}$	0.0
Time to Purge (mins)	N/A	Number of Well Volumes Purged		Total Well Volume	
Total Volume Purged (litres)	N/A	Operative	KW	Total Well Volume (litres) Volume of Filter Pack + Volume of Standpipe)	0.0
Observations During Well Development (see Vu-situ output for insitu parameter readings)				Additional Notes and Observations	
In-situ Parameter Device Model	N/A	Groundwater Odour	N/A	Borehole dipped dry.	
In-situ Parameter Device SN	N/A	Visual Turbidity	N/A		
Confirm Field Calibration Completed	N/A	Groundwater Colour	N/A		

 INSTALLATION INSPECTION AND WELL DEVELOPMENT RECORD											
Project		Global Centre of Rail Excellence Stage II		Project No		G23012		Client		Walters UK Ltd	
Exploratory Hole Number			Installation Reference		Installation Diameter (mm)		Anticipated Well Depth (m bgl)		Date and Time		
S2-BH248			1		50		9.50		11/05/2023 13:14		
Cover Type			Pipe Cover		Top of Response Zone (m bgl)		Base of Response Zone (m bgl)		Weather		
Box Cover			Pipe Plug		6.50		9.50		Rain Showers		
Installation Inspection											
Surface Conditions		Wet			Damage to Headworks?		No				
Check Dip of Base (m bgl)		9.10			Pipe Cover/Bung Present?		Yes				
Remedial actions undertaken to well:											
N/A											
Purging and Well Development											
Guidance Notes						Well Volume Calculation					
Well development undertaken in accordance with BS10175:2011+A2:2017. Purge volumes to include the annulus of the filter pack. Purging must continue until insitu parameters have stabilised unless agreed with clients representative.						Volume of the Filter Pack					
						Saturated length of Filter Pack (L) (m)			3.00		
						Porosity of Filter Pack (ø)			0.33		
Approx. Guidance Volumes for Field Calculation of Wet Well Volume											
Volume of 50mm diameter plain pipe		2 litres / metre		Volume of 50mm diameter slotted pipe with 200mm diameter gravel filter pack		11 litres / metre		Diameter of Filter Pack (mm) (df)		150	
Porosity of 10mm pea gravel		0.33		Volume of 50mm diameter slotted pipe with 150mm diameter gravel filter pack		6 litres / metre		Volume of Filter Pack (litres) $(Lø)((\pi df^2/4)-((\pi dp^2/4))$		15.5	
Groundwater Prior to Well Development						Volume of the Standpipe					
Groundwater Level (m bgl)		6.10		LNAPL/ DNAPL (m bgl)		N/A		Diameter of Standpipe (mm) (dp)		50	
Purging Details						Saturated depth (m) (sd) (installation base - groundwater level)		3.40			
Purge Method/ Device		Wasp Pump		Average Flow Rate (litres/min)		0.8		Volume of the Standpipe (litres) $(\pi dp^2/4)*10-3$		6.7	
Time to Purge (mins)		6		Number of Well Volumes Purged		0.2		Total Well Volume			
Total Volume Purged (litres)		5.0		Operative		KW		Total Well Volume (litres) Volume of Filter Pack + Volume of Standpipe)		22.2	
Observations During Well Development (see Vu-situ output for insitu parameter readings)						Additional Notes and Observations					
In-situ Parameter Device Model		N/A		Groundwater Odour		No odour		No in situ parameters required for well development. Borehole purged until dry.			
In-situ Parameter Device SN		N/A		Visual Turbidity		Fairly Turbid					
Confirm Field Calibration Completed		N/A		Groundwater Colour		Grey					

 JACKSON GEO SERVICES INSTALLATION INSPECTION AND WELL DEVELOPMENT RECORD						
Project	Global Centre of Rail Excellence Stage II		Project No	G23012	Client	Walters UK Ltd
Exploratory Hole Number		Installation Reference		Installation Diameter (mm)	Anticipated Well Depth (m bgl)	Date and Time
S2-BH248		2		50	4.00	11/05/2023 13:55
Cover Type		Pipe Cover		Top of Response Zone (m bgl)	Base of Response Zone (m bgl)	Weather
Box Cover		Pipe Plug		1.00	4.00	Rain Showers
Installation Inspection						
Surface Conditions		Wet		Damage to Headworks?	No	
Check Dip of Base (m bgl)		3.95		Pipe Cover/Bung Present?	Yes	
Remedial actions undertaken to well: N/A						
Purging and Well Development						
Guidance Notes				Well Volume Calculation		
Well development undertaken in accordance with BS10175:2011+A2:2017. Purge volumes to include the annulus of the filter pack. Purging must continue until insitu parameters have stabilised unless agreed with clients representative.				Volume of the Filter Pack		
				Saturated length of Filter Pack (L) (m)		
				Porosity of Filter Pack (ø)		0.33
Approx. Guidance Volumes for Field Calculation of Wet Well Volume						
Volume of 50mm diameter plain pipe	2 litres / metre	Volume of 50mm diameter slotted pipe with 200mm diameter gravel filter pack	11 litres / metre	Diameter of Filter Pack (mm) (df)	150	
Porosity of 10mm pea gravel	0.33	Volume of 50mm diameter slotted pipe with 150mm diameter gravel filter pack	6 litres / metre	Volume of Filter Pack (litres) $(Lø)((\pi df^2/4)-((\pi dp^2/4))$	0.0	
Groundwater Prior to Well Development				Volume of the Standpipe		
Groundwater Level (m bgl)	Dry	LNAPL/ DNAPL (m bgl)	N/A	Diameter of Standpipe (mm) (dp)	50	
Purging Details				Saturated depth (m) (sd) (installation base - groundwater level)		
Purge Method/ Device	N/A	Average Flow Rate (litres/min)	N/A	Volume of the Standpipe (litres) $(\pi dp^2/4)*10-3$		
Time to Purge (mins)	N/A	Number of Well Volumes Purged	N/A	Total Well Volume		
Total Volume Purged (litres)	N/A	Operative	KW	Total Well Volume (litres) Volume of Filter Pack + Volume of Standpipe)	0.0	
Observations During Well Development (see Vu-situ output for insitu parameter readings)				Additional Notes and Observations		
In-situ Parameter Device Model	N/A	Groundwater Odour	N/A	Borehole dipped dry.		
In-situ Parameter Device SN	N/A	Visual Turbidity	N/A			
Confirm Field Calibration Completed	N/A	Groundwater Colour	N/A			

 JACKSON GEO SERVICES INSTALLATION INSPECTION AND WELL DEVELOPMENT RECORD							
Project	Global Centre of Rail Excellence Stage II		Project No	G23012	Client	Walters UK Ltd	
Exploratory Hole Number		Installation Reference		Installation Diameter (mm)	Anticipated Well Depth (m bgl)	Date and Time	
S2-BH249		2		50	8.00	10/05/2023 13:29	
Cover Type		Pipe Cover		Top of Response Zone (m bgl)	Base of Response Zone (m bgl)	Weather	
Box Cover		Pipe Plug		3.50	8.00	Rain Showers	
Installation Inspection							
Surface Conditions		Wet		Damage to Headworks?	No		
Check Dip of Base (m bgl)		7.20		Pipe Cover/Bung Present?	Yes		
Remedial actions undertaken to well: N/A							
Purging and Well Development							
Guidance Notes				Well Volume Calculation			
Well development undertaken in accordance with BS10175:2011+A2:2017. Purge volumes to include the annulus of the filter pack. Purging must continue until insitu parameters have stabilised unless agreed with clients representative.				Volume of the Filter Pack			
				Saturated length of Filter Pack (L) (m)		4.25	
				Porosity of Filter Pack (ø)		0.33	
Approx. Guidance Volumes for Field Calculation of Wet Well Volume							
Volume of 50mm diameter plain pipe		2 litres / metre	Volume of 50mm diameter slotted pipe with 200mm diameter gravel filter pack		11 litres / metre	Diameter of Filter Pack (mm) (df)	200
Porosity of 10mm pea gravel		0.33	Volume of 50mm diameter slotted pipe with 150mm diameter gravel filter pack		6 litres / metre	Volume of Filter Pack (litres) $(Lø)((\pi df^2/4)-((\pi dp^2/4))$	41.3
Groundwater Prior to Well Development				Volume of the Standpipe			
Groundwater Level (m bgl)	3.75		LNAPL/ DNAPL (m bgl)	N/A		Diameter of Standpipe (mm) (dp)	50
Purging Details				Saturated depth (m) (sd) (installation base - groundwater level)			4.25
Purge Method/ Device	Wasp Pump		Average Flow Rate (litres/min)	6.8		Volume of the Standpipe (litres) $(\pi dp^2/4)*10-3$	8.3
Time to Purge (mins)	23		Number of Well Volumes Purged	3.1			
				Total Well Volume			
Total Volume Purged (litres)	156.0		Operative	KW		Total Well Volume (litres) Volume of Filter Pack + Volume of Standpipe	49.6
Observations During Well Development (see Vu-situ output for insitu parameter readings)				Additional Notes and Observations			
In-situ Parameter Device Model	N/A		Groundwater Odour	No odour		No in situ parameters required during well development.	
In-situ Parameter Device SN	N/A		Visual Turbidity	Highly turbid			
Confirm Field Calibration Completed	N/A		Groundwater Colour	Brown			

 JACKSON GEO SERVICES INSTALLATION INSPECTION AND WELL DEVELOPMENT RECORD							
Project	Global Centre of Rail Excellence Stage II		Project No	G23012	Client	Walters UK Ltd	
Exploratory Hole Number		Installation Reference		Installation Diameter (mm)	Anticipated Well Depth (m bgl)	Date and Time	
S2-BH250		1		50	9.50	11/05/2023 11:09	
Cover Type		Pipe Cover		Top of Response Zone (m bgl)	Base of Response Zone (m bgl)	Weather	
Box Cover		Pipe Plug		7.50	9.50	Sunny	
Installation Inspection							
Surface Conditions		Damp		Damage to Headworks?	No		
Check Dip of Base (m bgl)		8.80		Pipe Cover/Bung Present?	Yes		
Remedial actions undertaken to well: N/A							
Purging and Well Development							
Guidance Notes				Well Volume Calculation			
Well development undertaken in accordance with BS10175:2011+A2:2017. Purge volumes to include the annulus of the filter pack. Purging must continue until insitu parameters have stabilised unless agreed with clients representative.				Volume of the Filter Pack			
				Saturated length of Filter Pack (L) (m)		2.00	
				Porosity of Filter Pack (ø)		0.33	
Approx. Guidance Volumes for Field Calculation of Wet Well Volume							
Volume of 50mm diameter plain pipe		2 litres / metre	Volume of 50mm diameter slotted pipe with 200mm diameter gravel filter pack		11 litres / metre	Diameter of Filter Pack (mm) (df)	150
Porosity of 10mm pea gravel		0.33	Volume of 50mm diameter slotted pipe with 150mm diameter gravel filter pack		6 litres / metre	Volume of Filter Pack (litres) $(Lø)((\pi df^2/4)-((\pi dp^2/4))$	10.4
Groundwater Prior to Well Development				Volume of the Standpipe			
Groundwater Level (m bgl)	3.40		LNAPL/ DNAPL (m bgl)	N/A		Diameter of Standpipe (mm) (dp)	50
Purging Details				Saturated depth (m) (sd) (installation base - groundwater level)			6.10
Purge Method/ Device	Wasp Pump		Average Flow Rate (litres/min)	1.6		Volume of the Standpipe (litres) $(\pi dp^2/4)*10-3$	12.0
Time to Purge (mins)	12		Number of Well Volumes Purged	0.8			
				Total Well Volume			
Total Volume Purged (litres)	18.0		Operative	KW		Total Well Volume (litres) Volume of Filter Pack + Volume of Standpipe)	22.3
Observations During Well Development (see Vu-situ output for insitu parameter readings)				Additional Notes and Observations			
In-situ Parameter Device Model	N/A		Groundwater Odour	No odour		No in situ parameters required during well development. Borehole purged until dry.	
In-situ Parameter Device SN	N/A		Visual Turbidity	Fairly Turbid			
Confirm Field Calibration Completed	N/A		Groundwater Colour	Dark Brown			

 INSTALLATION INSPECTION AND WELL DEVELOPMENT RECORD						
Project	Global Centre of Rail Excellence Stage II		Project No	G23012	Client	Walters UK Ltd
Exploratory Hole Number		Installation Reference		Installation Diameter (mm)	Anticipated Well Depth (m bgl)	Date and Time
S2-BH250		2		50	2.00	11/05/2023 11:35
Cover Type		Pipe Cover		Top of Response Zone (m bgl)	Base of Response Zone (m bgl)	Weather
Box Cover		Pipe Plug		1.00	2.00	Sunny
Installation Inspection						
Surface Conditions		Damp		Damage to Headworks?	No	
Check Dip of Base (m bgl)		2.10		Pipe Cover/Bung Present?	Yes	
Remedial actions undertaken to well:						
N/A						
Purging and Well Development						
Guidance Notes				Well Volume Calculation		
Well development undertaken in accordance with BS10175:2011+A2:2017. Purge volumes to include the annulus of the filter pack. Purging must continue until insitu parameters have stabilised unless agreed with clients representative.				Volume of the Filter Pack		
				Saturated length of Filter Pack (L) (m)		
				Porosity of Filter Pack (ø)		0.33
Approx. Guidance Volumes for Field Calculation of Wet Well Volume						
Volume of 50mm diameter plain pipe	2 litres / metre	Volume of 50mm diameter slotted pipe with 200mm diameter gravel filter pack	11 litres / metre	Diameter of Filter Pack (mm) (df)	150	
Porosity of 10mm pea gravel	0.33	Volume of 50mm diameter slotted pipe with 150mm diameter gravel filter pack	6 litres / metre	Volume of Filter Pack (litres) $(Lø)((\pi df^2/4)-((\pi dp^2/4))$	0.0	
Groundwater Prior to Well Development				Volume of the Standpipe		
Groundwater Level (m bgl)	Dry	LNAPL/ DNAPL (m bgl)	N/A	Diameter of Standpipe (mm) (dp)	50	
Purging Details				Saturated depth (m) (sd) (installation base - groundwater level)		
Purge Method/ Device	N/A	Average Flow Rate (litres/min)	N/A	Volume of the Standpipe (litres) $(\pi dp^2/4)*10-3$		
Time to Purge (mins)	N/A	Number of Well Volumes Purged	N/A	Total Well Volume		
Total Volume Purged (litres)	N/A	Operative	KW	Total Well Volume (litres) Volume of Filter Pack + Volume of Standpipe)	0.0	
Observations During Well Development (see Vu-situ output for insitu parameter readings)				Additional Notes and Observations		
In-situ Parameter Device Model	N/A	Groundwater Odour	N/A	Borehole dipped dry.		
In-situ Parameter Device SN	N/A	Visual Turbidity	N/A			
Confirm Field Calibration Completed	N/A	Groundwater Colour	N/A			



INSTALLATION INSPECTION AND WELL DEVELOPMENT RECORD

Project	Global Centre of Rail Excellence Stage II	Project No	G23012	Client	Walters UK Ltd
Exploratory Hole Number	Installation Reference	Installation Diameter (mm)	Anticipated Well Depth (m bgl)	Date and Time	
S2-BH252	1	50	2.60	01/06/2023 14:30	
Cover Type	Pipe Cover	Top of Response Zone (m bgl)	Base of Response Zone (m bgl)	Weather	
Box Cover	Pipe Plug	1.00	2.60	Sunny	
Installation Inspection					
Surface Conditions	Dry	Damage to Headworks?	No		
Check Dip of Base (m bgl)	2.60	Pipe Cover/Bung Present?	Yes		
Remedial actions undertaken to well:					
N/A					
Purging and Well Development					
Guidance Notes				Well Volume Calculation	
Well development undertaken in accordance with BS10175:2011+A2:2017. Purge volumes to include the annulus of the filter pack. Purging must continue until insitu parameters have stabilised unless agreed with clients representative.				Volume of the Filter Pack	
				Saturated length of Filter Pack (L) (m)	
				Porosity of Filter Pack (ϕ)	0.33
Approx. Guidance Volumes for Field Calculation of Wet Well Volume					
Volume of 50mm diameter plain pipe	2 litres / metre	Volume of 50mm diameter slotted pipe with 200mm diameter gravel filter pack	11 litres / metre	Diameter of Filter Pack (mm) (df)	146
Porosity of 10mm pea gravel	0.33	Volume of 50mm diameter slotted pipe with 150mm diameter gravel filter pack	6 litres / metre	Volume of Filter Pack (litres) $(L\phi)((\pi df^2/4)-(\pi dp^2/4))$	0.0
Groundwater Prior to Well Development				Volume of the Standpipe	
Groundwater Level (m bgl)	Dry	LNAPL/ DNAPL (m bgl)	N/A	Diameter of Standpipe (mm) (dp)	50
Purging Details				Saturated depth (m) (sd) (installation base - groundwater level)	
Purge Method/ Device	N/A	Average Flow Rate (litres/min)		Volume of the Standpipe (litres) $(\pi dp^2/4)*10^{-3}$	0.0
Time to Purge (mins)	N/A	Number of Well Volumes Purged		Total Well Volume	
Total Volume Purged (litres)	N/A	Operative	KW	Total Well Volume (litres) Volume of Filter Pack + Volume of Standpipe)	0.0
Observations During Well Development (see Vu-situ output for insitu parameter readings)				Additional Notes and Observations	
In-situ Parameter Device Model	N/A	Groundwater Odour	N/A	Well dipped dry. Unable to purge.	
In-situ Parameter Device SN	N/A	Visual Turbidity	N/A		
Confirm Field Calibration Completed	N/A	Groundwater Colour	N/A		

 JACKSON GEO SERVICES INSTALLATION INSPECTION AND WELL DEVELOPMENT RECORD								
Project	Global Centre of Rail Excellence Stage II		Project No	G23012	Client	Walters UK Ltd		
Exploratory Hole Number		Installation Reference		Installation Diameter (mm)	Anticipated Well Depth (m bgl)	Date and Time		
S2-BH252		2		50	9.00	10/05/2023 15:31		
Cover Type		Pipe Cover		Top of Response Zone (m bgl)	Base of Response Zone (m bgl)	Weather		
Box Cover		Pipe Plug		6.00	9.00	Rain Showers		
Installation Inspection								
Surface Conditions		Wet		Damage to Headworks?	No			
Check Dip of Base (m bgl)		9.00		Pipe Cover/Bung Present?	Yes			
Remedial actions undertaken to well: N/A								
Purging and Well Development								
Guidance Notes				Well Volume Calculation				
Well development undertaken in accordance with BS10175:2011+A2:2017. Purge volumes to include the annulus of the filter pack. Purging must continue until insitu parameters have stabilised unless agreed with clients representative.				Volume of the Filter Pack				
				Saturated length of Filter Pack (L) (m)		3.00		
				Porosity of Filter Pack (ø)		0.33		
Approx. Guidance Volumes for Field Calculation of Wet Well Volume								
Volume of 50mm diameter plain pipe		2 litres / metre	Volume of 50mm diameter slotted pipe with 200mm diameter gravel filter pack		11 litres / metre	Diameter of Filter Pack (mm) (df)	112	
Porosity of 10mm pea gravel		0.33	Volume of 50mm diameter slotted pipe with 150mm diameter gravel filter pack		6 litres / metre	Volume of Filter Pack (litres) $(Lø)((\pi df^2/4)-((\pi dp^2/4))$	7.8	
Groundwater Prior to Well Development				Volume of the Standpipe				
Groundwater Level (m bgl)		5.10	LNAPL/ DNAPL (m bgl)		N/A	Diameter of Standpipe (mm) (dp)	50	
Purging Details				Saturated depth (m) (sd) (installation base - groundwater level)		3.90		
Purge Method/ Device		Wasp Pump	Average Flow Rate (litres/min)		4.8	Volume of the Standpipe (litres) $(\pi dp^2/4)*10-3$		7.7
Time to Purge (mins)		10	Number of Well Volumes Purged		3.1	Total Well Volume		
Total Volume Purged (litres)		48.0	Operative		KW	Total Well Volume (litres) Volume of Filter Pack + Volume of Standpipe		15.5
Observations During Well Development (see Vu-situ output for insitu parameter readings)				Additional Notes and Observations				
In-situ Parameter Device Model		N/A	Groundwater Odour		No odour	No in situ parameters required during well development.		
In-situ Parameter Device SN		N/A	Visual Turbidity		Highly Turbid			
Confirm Field Calibration Completed		N/A	Groundwater Colour		Dark Grey			



INSTALLATION INSPECTION AND WELL DEVELOPMENT RECORD

Project	Global Centre of Rail Excellence Stage II	Project No	G23012	Client	Walters UK Ltd
Exploratory Hole Number	Installation Reference	Installation Diameter (mm)	Anticipated Well Depth (m bgl)	Date and Time	
S2-BH261	1	50	15.00	16/05/2023 15:16	
Cover Type	Pipe Cover	Top of Response Zone (m bgl)	Base of Response Zone (m bgl)	Weather	
Box Cover	Pipe Plug	10.00	15.00	Sunny	
Installation Inspection					
Surface Conditions	Dry	Damage to Headworks?	No		
Check Dip of Base (m bgl)	15.00	Pipe Cover/Bung Present?	Yes		
Remedial actions undertaken to well:					
N/A					
Purging and Well Development					
Guidance Notes				Well Volume Calculation	
Well development undertaken in accordance with BS10175:2011+A2:2017. Purge volumes to include the annulus of the filter pack. Purging must continue until insitu parameters have stabilised unless agreed with clients representative.				Volume of the Filter Pack	
				Saturated length of Filter Pack (L) (m)	3.00
				Porosity of Filter Pack (ϕ)	0.33
Approx. Guidance Volumes for Field Calculation of Wet Well Volume					
Volume of 50mm diameter plain pipe	2 litres / metre	Volume of 50mm diameter slotted pipe with 200mm diameter gravel filter pack	11 litres / metre	Diameter of Filter Pack (mm) (df)	121
Porosity of 10mm pea gravel	0.33	Volume of 50mm diameter slotted pipe with 150mm diameter gravel filter pack	6 litres / metre	Volume of Filter Pack (litres) $(L\phi)/((\pi df^2/4)-(\pi dp^2/4))$	9.4
Groundwater Prior to Well Development				Volume of the Standpipe	
Groundwater Level (m bgl)	12.00	LNAPL/ DNAPL (m bgl)	N/A	Diameter of Standpipe (mm) (dp)	50
Purging Details				Saturated depth (m) (sd) (installation base - groundwater level)	3.00
Purge Method/ Device	Wasp Pump	Average Flow Rate (litres/min)	6.0	Volume of the Standpipe (litres) $(\pi dp^2/4)*10^{-3}$	5.9
Time to Purge (mins)	8	Number of Well Volumes Purged	3.1	Total Well Volume	
Total Volume Purged (litres)	48.0	Operative	KW	Total Well Volume (litres) Volume of Filter Pack + Volume of Standpipe)	15.3
Observations During Well Development (see Vu-situ output for insitu parameter readings)				Additional Notes and Observations	
In-situ Parameter Device Model	N/A	Groundwater Odour	No odour	No in situ parameters required during well development.	
In-situ Parameter Device SN	N/A	Visual Turbidity	Highly turbid		
Confirm Field Calibration Completed	N/A	Groundwater Colour	Greyish brown		



INSTALLATION INSPECTION AND WELL DEVELOPMENT RECORD

Project	Global Centre of Rail Excellence Stage II	Project No	G23012	Client	Walters UK Ltd
Exploratory Hole Number	Installation Reference	Installation Diameter (mm)	Anticipated Well Depth (m bgl)	Date and Time	
S2-BH261	2	0	8.00	16/05/2023 16:00	
Cover Type	Pipe Cover	Top of Response Zone (m bgl)	Base of Response Zone (m bgl)	Weather	
Box Cover	Pipe Plug	3.00	8.00	Sunny	
Installation Inspection					
Surface Conditions	Dry	Damage to Headworks?	No		
Check Dip of Base (m bgl)	7.80	Pipe Cover/Bung Present?	Yes		
Remedial actions undertaken to well:					
N/A					
Purging and Well Development					
Guidance Notes				Well Volume Calculation	
Well development undertaken in accordance with BS10175:2011+A2:2017. Purge volumes to include the annulus of the filter pack. Purging must continue until insitu parameters have stabilised unless agreed with clients representative.				Volume of the Filter Pack	
				Saturated length of Filter Pack (L) (m)	
				Porosity of Filter Pack (ϕ)	0.33
Approx. Guidance Volumes for Field Calculation of Wet Well Volume					
Volume of 50mm diameter plain pipe	2 litres / metre	Volume of 50mm diameter slotted pipe with 200mm diameter gravel filter pack	11 litres / metre	Diameter of Filter Pack (mm) (df)	121
Porosity of 10mm pea gravel	0.33	Volume of 50mm diameter slotted pipe with 150mm diameter gravel filter pack	6 litres / metre	Volume of Filter Pack (litres) $(L\phi)((\pi df^2/4)-(\pi dp^2/4))$	0.0
Groundwater Prior to Well Development				Volume of the Standpipe	
Groundwater Level (m bgl)	Dry	LNAPL/ DNAPL (m bgl)	N/A	Diameter of Standpipe (mm) (dp)	0
Purging Details				Saturated depth (m) (sd) (installation base - groundwater level)	
Purge Method/ Device	N/A	Average Flow Rate (litres/min)		Volume of the Standpipe (litres) $(\pi dp^2/4)*10^{-3}$	0.0
Time to Purge (mins)	0	Number of Well Volumes Purged		Total Well Volume	
Total Volume Purged (litres)	0.0	Operative	KW	Total Well Volume (litres) Volume of Filter Pack + Volume of Standpipe)	0.0
Observations During Well Development (see Vu-situ output for insitu parameter readings)				Additional Notes and Observations	
In-situ Parameter Device Model	N/A	Groundwater Odour	N/A	Borehole dipped dry.	
In-situ Parameter Device SN	N/A	Visual Turbidity	N/A		
Confirm Field Calibration Completed	N/A	Groundwater Colour	N/A		

Appendix IV

Geotechnical Testing

GSTL Lab Report

**66008, 66080, 66139, 66245,
66432, 66433, 66655, 66658,
66659, 66660, 66661, 66734,
66735, 66835, 66836, 66837,
66838, 66839, 67002, 67003,
67064, 67065, 67177, 67178,
67179, 67181**



Laboratory Report



Contract Number: 66008

Client Ref: **G23012**

Client PO:

Date Received: **27-04-2023**

Date Completed: **12-05-2023**

Report Date: **12-05-2023**

Client: **Jackson Drilling Holdings Ltd**
Northwood Farm
Coxbridge Road
Baltonsborough
Somerset
BA6 8RA

This report has been checked and approved by:

Shaun Thomas
Site Manager

Contract Title: **Global Centre of Rail Excellence Stage 2**

For the attention of: **Adam Putt**

Test Description	Qty
Moisture Content of Soil BS1377 : Part 2 : Clause 3.2 : 1990 - * UKAS	6
4 Point Liquid & Plastic Limit BS 1377:1990 - Part 2 : 4.3 & 5.3 - * UKAS	3
PSD Wet & Dry Sieve method BS 1377:1990 - Part 2 : 9.2 - * UKAS	4
PSD: Sedimentation by pipette carried out with Wet Sieve (Wet Sieve must also be selected) BS 1377:1990 - Part 2 : 9.4 - * UKAS	1
Determination of Point Load Value Axial or Diametrical including WC *Please note GSTL is not accredited for the water content of rock* ISRM Suggested Method for Point Load Strength - * UKAS	2
Disposal of samples for job	1

Notes: **Observations and Interpretations are outside the UKAS Accreditation**

* - denotes test included in laboratory scope of accreditation

- denotes test carried out by approved contractor

@ - denotes non accredited tests

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Approved Signatories:

Brendan Evans (Office Administrator) - Darren Bourne (Quality Senior Technician) - Paul Evans (Director)

Richard John (Quality/Technical Manager) - Shaun Jones (Laboratory manager) - Shaun Thomas (Site Manager)

Wayne Honey (Human Resources/ Health and Safety Manager)

GEO Site & Testing Services Ltd

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Summary of Soil Descriptions

Contract Number	66008	
Project Name	Global Centre of Rail Excellence Stage 2	
Client Reference	G23012	

[illegible]



Natural Moisture Content
(BS 1377:1990 - Part 2 : 3.2)

Contract Number	66008	
Project Name	Global Centre of Rail Excellence Stage 2	
Date Tested	05/05/2023	

[illegible]

Operator

Clayton Jenkins



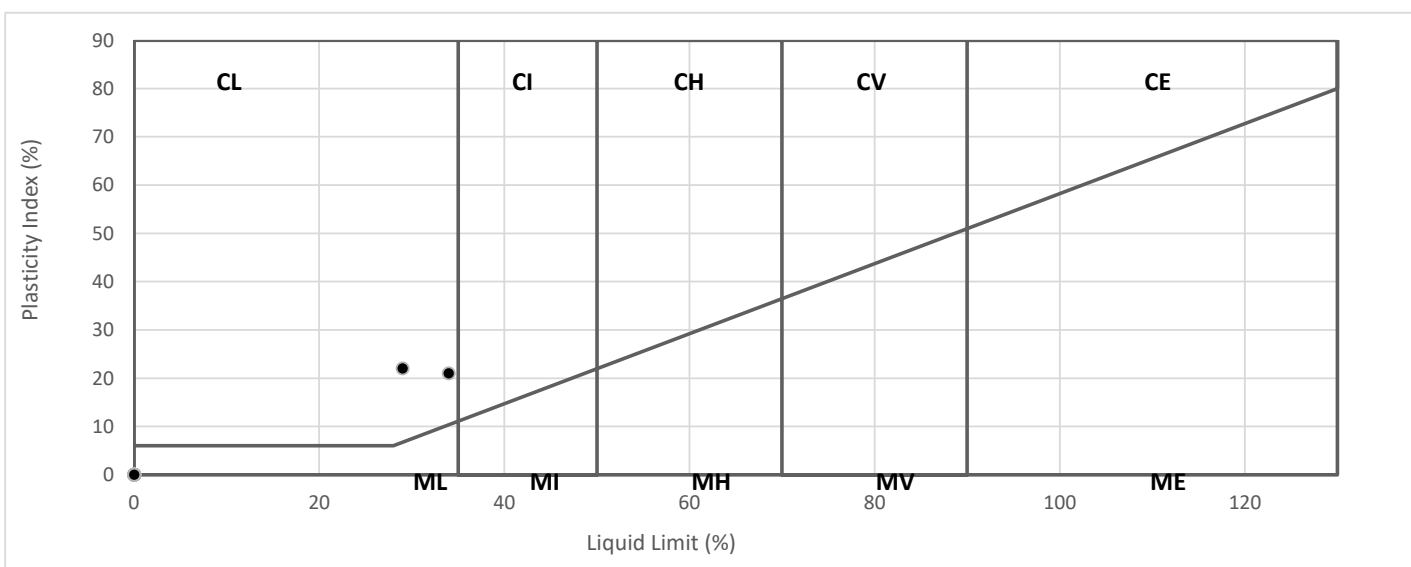
2788

Contract Number	66008	
Project Name	Global Centre of Rail Excellence Stage 2	
Date Tested	05/05/2023	

[illegible]

Symbols: NP : Non Plastic # : Liquid Limit and Plastic Limit Wet Sieved

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION



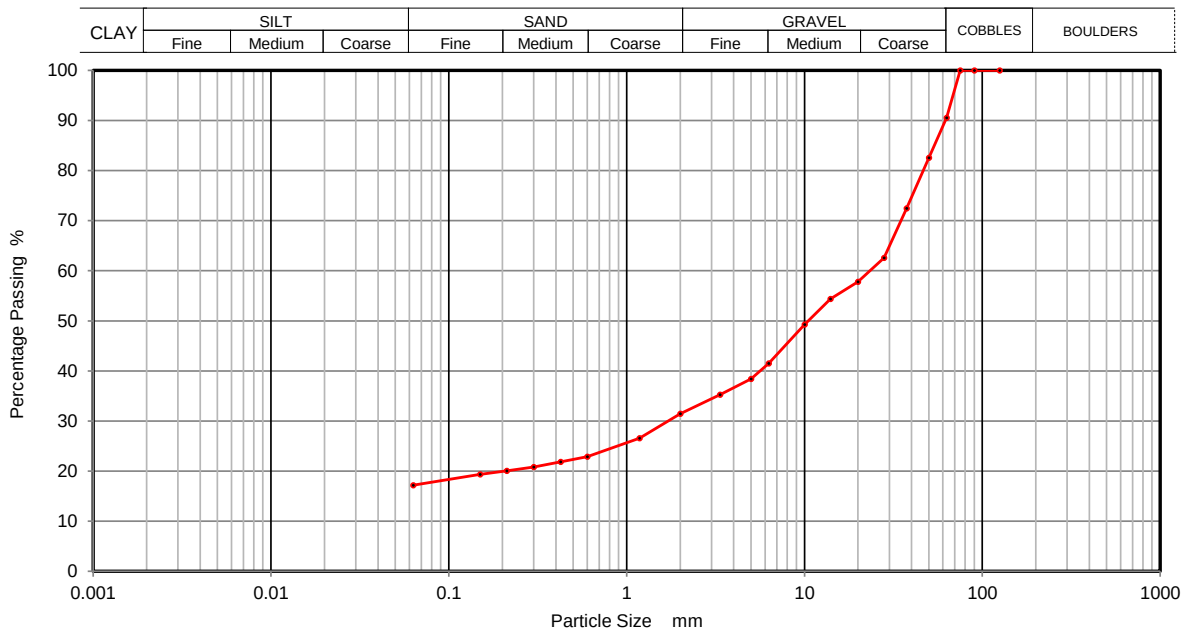
Operator

Clayton Jenkins

**PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2**

Contract Number	66008
Borehole/Pit No.	S2-BH220
Sample No.	5
Depth Top	0.90
Depth Base	1.10
Sample Type	B

Project Name	Global Centre of Rail Excellence Stage 2
Soil Description	*See sample description sheet
Date Tested	11/05/2023



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	91		
50	83		
37.5	72		
28	63		
20	58		
14	54		
10	49		
6.3	42		
5	38		
3.35	35		
2	31		
1.18	27		
0.6	23		
0.425	22		
0.3	21		
0.212	20		
0.15	19		
0.063	17		

Sample Proportions	% dry mass
Cobbles	9
Gravel	60
Sand	14
Silt and Clay	17

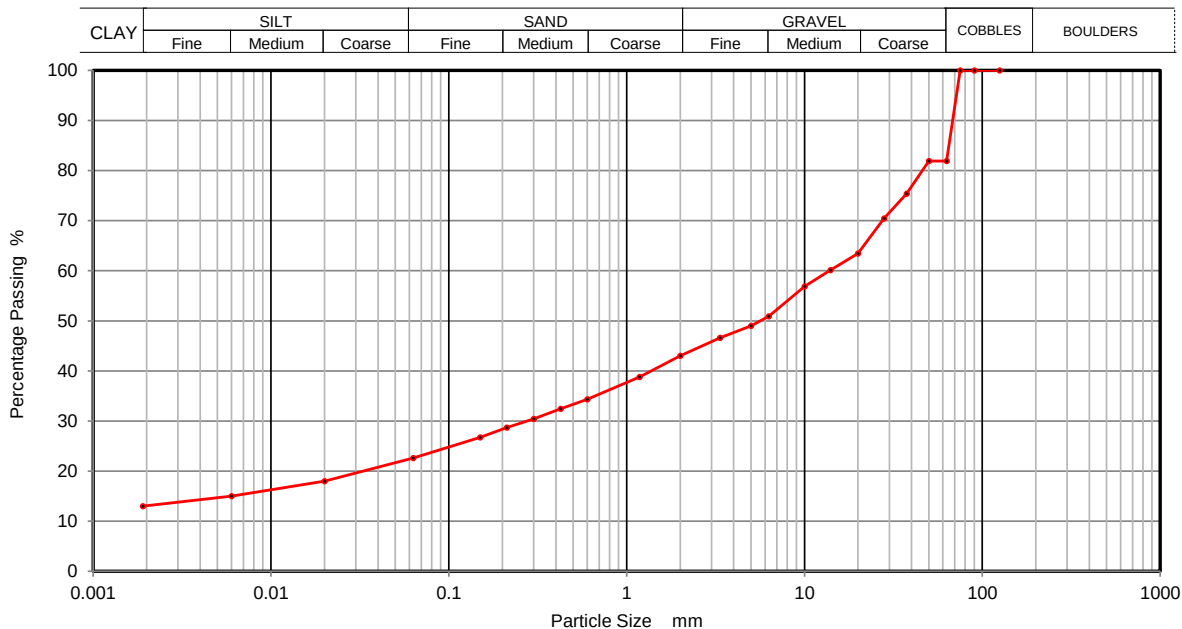
Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Contract Number	66008
Borehole/Pit No.	S2-BH233
Sample No.	101
Depth Top	1.20
Depth Base	3.20
Sample Type	B

Project Name	Global Centre of Rail Excellence Stage 2
Soil Description	*See sample description sheet
Date Tested	11/05/2023



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	18
90	100	0.0060	15
75	100	0.0020	13
63	82		
50	82		
37.5	75		
28	70		
20	63		
14	60		
10	57		
6.3	51		
5	49		
3.35	47		
2	43		
1.18	39		
0.6	34		
0.425	32		
0.3	30		
0.212	29		
0.15	27		
0.063	23		

Sample Proportions	% dry mass
Cobbles	18
Gravel	39
Sand	20
Silt	10
Clay	13

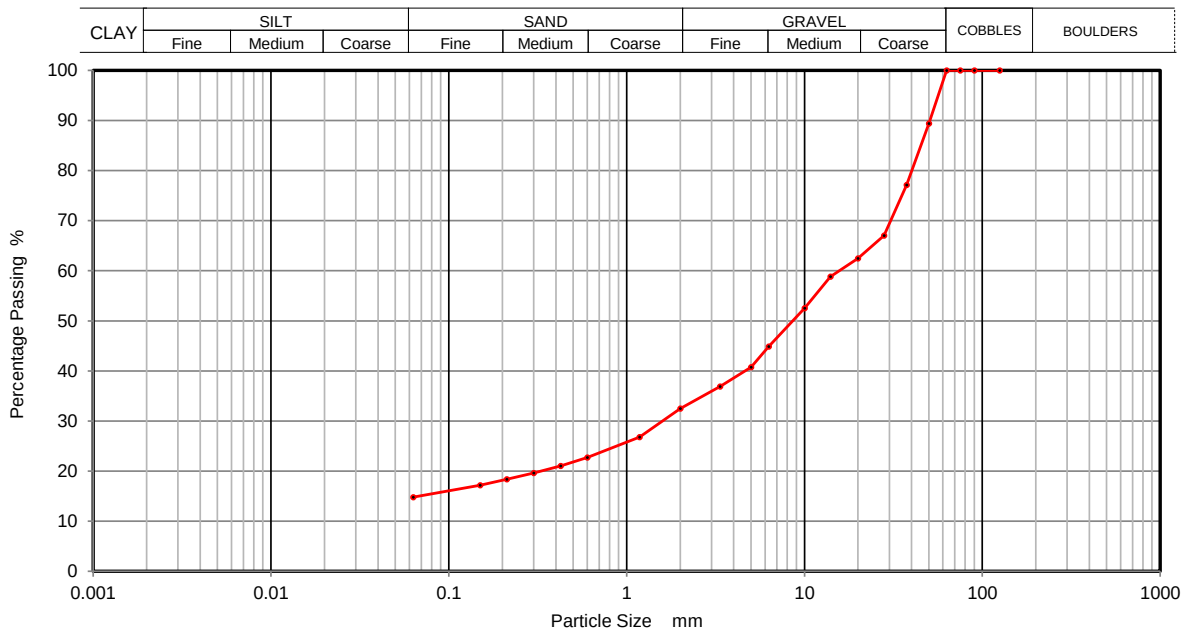
Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

**PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2**

Contract Number	66008
Borehole/Pit No.	S2-TP2115
Sample No.	5
Depth Top	1.30
Depth Base	1.50
Sample Type	B

Project Name	Global Centre of Rail Excellence Stage 2
Soil Description	*See sample description sheet
Date Tested	11/05/2023



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	89		
37.5	77		
28	67		
20	62		
14	59		
10	53		
6.3	45		
5	41		
3.35	37		
2	32		
1.18	27		
0.6	23		
0.425	21		
0.3	20		
0.212	18		
0.15	17		
0.063	15		

Sample Proportions	% dry mass
Cobbles	0
Gravel	68
Sand	17
Silt and Clay	15

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

**PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2**

Contract Number 66008

Borehole/Pit No. S2-TP2115

Project Name Global Centre of Rail Excellence Stage 2

Sample No. 10

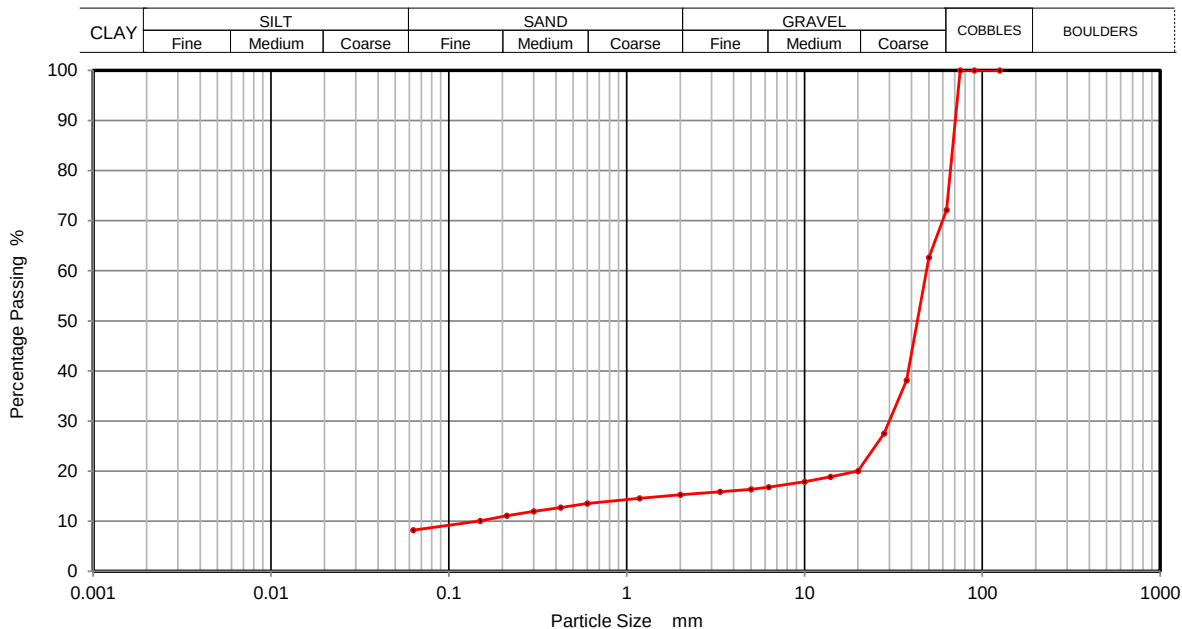
Soil Description *See sample description sheet

Depth Top 3.70

Depth Base 3.90

Date Tested 11/05/2023

Sample Type B



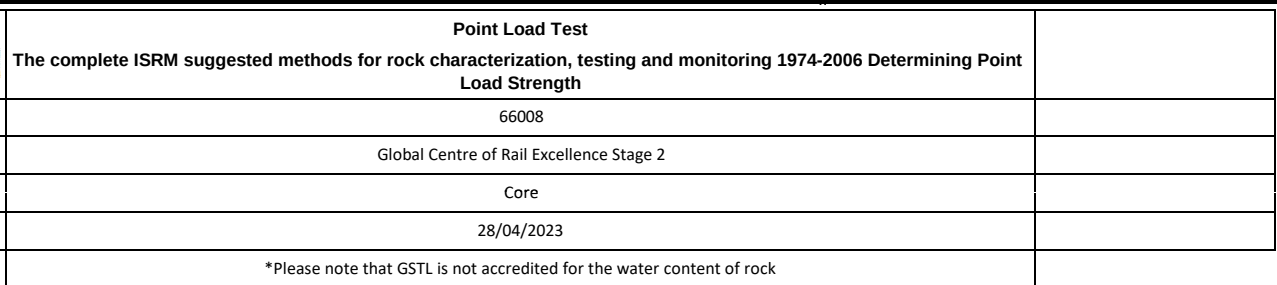
Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	72		
50	63		
37.5	38		
28	27		
20	20		
14	19		
10	18		
6.3	17		
5	16		
3.35	16		
2	15		
1.18	15		
0.6	14		
0.425	13		
0.3	12		
0.212	11		
0.15	10		
0.063	8		

Sample Proportions	% dry mass
Cobbles	28
Gravel	57
Sand	7
Silt and Clay	8

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

[illegible]

<u>Key</u>	<u>Reported As</u>
Width	(W) mm
Platen Separation	(D) mm
Failure Load	(P) kN
Equivalent Diameter	(De) mm
Point Load	(Is) MPa
Size Factor	(F)
Point Load Index	((Is/50)) MPa
Moisture Content	%
Description	SC

Operator
Julian Jones





Laboratory Report



Contract Number: 66080

Client Ref: **G23012**

Client PO:

Date Received: **27-04-2023**

Date Completed: **13-05-2023**

Report Date: **13-05-2023**

Client: **Jackson Drilling Holdings Ltd**
Northwood Farm
Coxbridge Road
Baltonsborough
Somerset
BA6 8RA

This report has been checked and approved by:

Brendan Evans
Office Administrator

Contract Title: **Global Centre of Rail Excellence Stage 2**

For the attention of: **Adam Putt**

Test Description	Qty
Moisture Content of Soil BS1377 : Part 2 : Clause 3.2 : 1990 - * UKAS	13
4 Point Liquid & Plastic Limit BS 1377:1990 - Part 2 : 4.3 & 5.3 - * UKAS	7
PSD Wet & Dry Sieve method BS 1377:1990 - Part 2 : 9.2 - * UKAS	8
PSD: Sedimentation by pipette carried out with Wet Sieve (Wet Sieve must also be selected) BS 1377:1990 - Part 2 : 9.4 - * UKAS	2
Dry Den/MC (4.5kg Rammer Method 1 Litre Mould/CBR Mould) BS 1377:1990 - Part 4 : 3.5 - * UKAS	1
Determination of Point Load Value Axial or Diametrical including WC *Please note GSTL is not accredited for the water content of rock* ISRM Suggested Method for Point Load Strength - * UKAS	5
Uniaxial Compressive Strength of Rock inc sample prep 54-165mm diameter cores ISRM Suggested Method for determining uniaxial compressive strength - @ Non Accredited Test	1
Disposal of samples for job	1

Notes: Observations and Interpretations are outside the UKAS Accreditation

* - denotes test included in laboratory scope of accreditation

- denotes test carried out by approved contractor

@ - denotes non accredited tests

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Approved Signatories:

Brendan Evans (Office Administrator) - Darren Bourne (Quality Senior Technician) - Paul Evans (Director)

Richard John (Quality/Technical Manager) - Shaun Jones (Laboratory manager) - Shaun Thomas (Site Manager)

Wayne Honey (Human Resources/ Health and Safety Manager)

GEO Site & Testing Services Ltd

Units 3-4, Heol Aur, Dafen, Llanelli, Carmarthenshire, Wales SA14 8QN

Tel: 01554 784040 Fax: 01554 784041 info@gstl.co.uk gstl.co.uk

Contract Number	66080	
Project Name	Global Centre of Rail Excellence Stage 2	
Date Tested	11/05/2023	

[illegible]

Operator

Darcy Etheridge

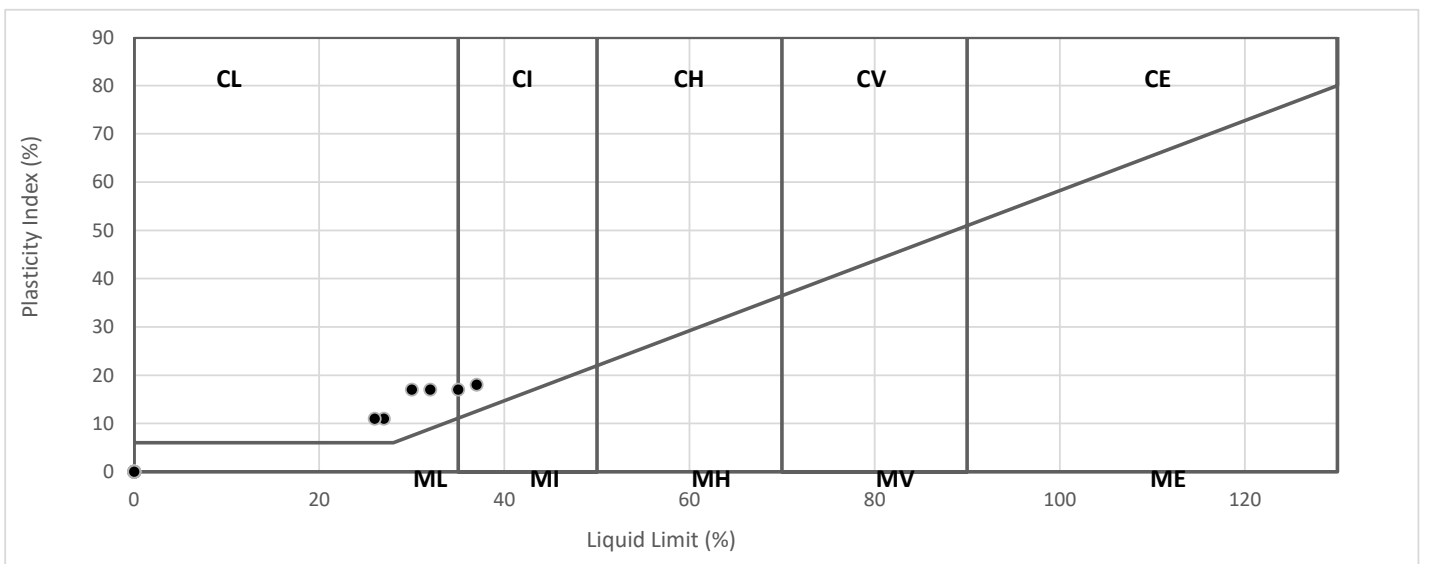
Aaron Hodge

Contract Number	66080	
Project Name	Global Centre of Rail Excellence Stage 2	
Date Tested	05/05/2023	

[illegible]

Symbols: NP : Non Plastic # : Liquid Limit and Plastic Limit Wet Sieved

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION BS 5930:2015+A1:2020



Operator
Aaron Hodge

**PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2**

Contract Number 66080

Borehole/Pit No. S2-BH227

Project Name Global Centre of Rail Excellence Stage 2

Sample No. 5

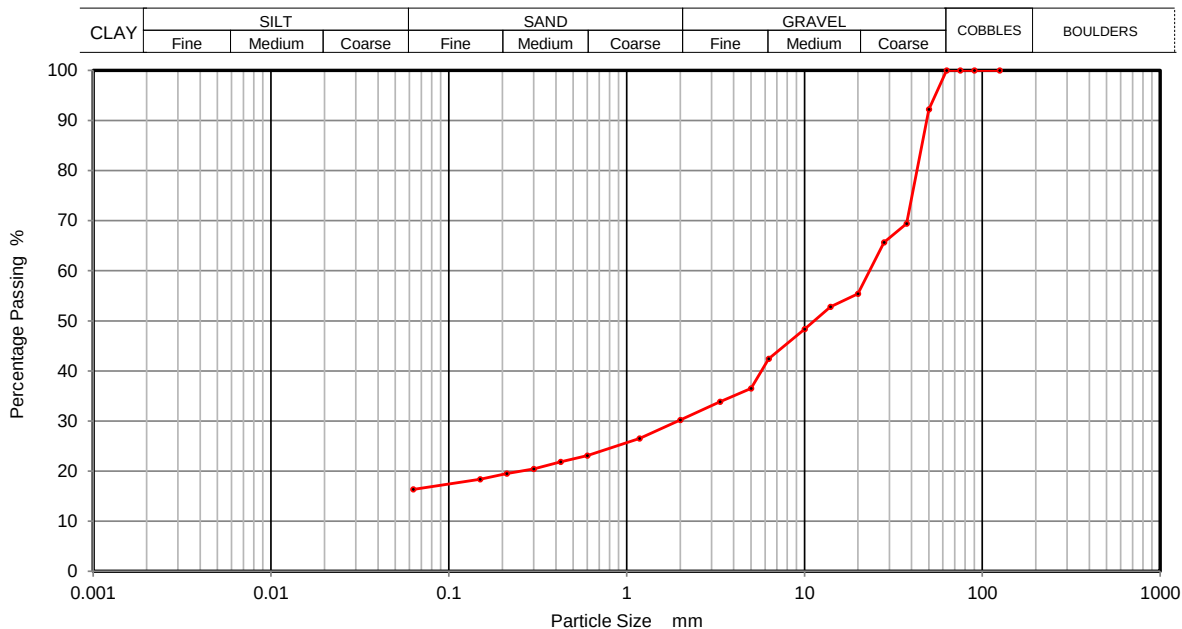
Soil Description Brown grey fine to coarse sandy silty/clayey fine to coarse GRAVEL

Depth Top 0.70

Depth Base 0.90

Date Tested 11/05/2023

Sample Type B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	92		
37.5	69		
28	66		
20	55		
14	53		
10	48		
6.3	42		
5	37		
3.35	34		
2	30		
1.18	27		
0.6	23		
0.425	22		
0.3	20		
0.212	20		
0.15	18		
0.063	16		

Sample Proportions	% dry mass
Cobbles	0
Gravel	70
Sand	14
Silt and Clay	16

Remarks

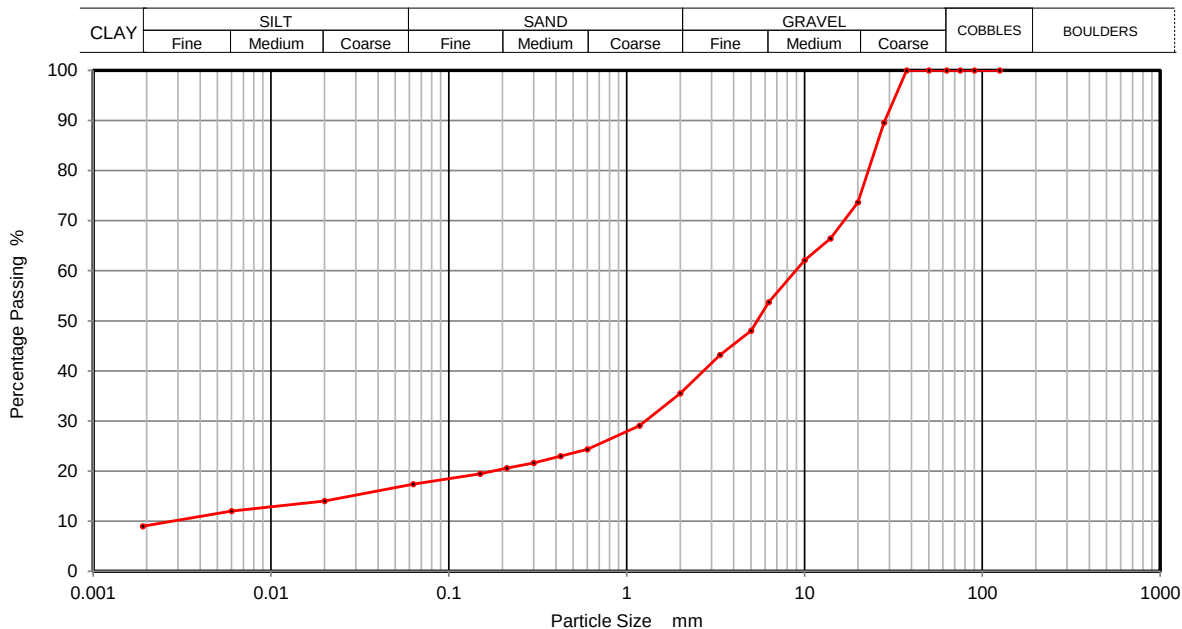
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Contract Number	66080
Borehole/Pit No.	S2-BH227
Sample No.	7
Depth Top	2.20
Depth Base	2.65
Sample Type	D

Project Name	Global Centre of Rail Excellence Stage 2
Soil Description	Grey brown silty clayey fine to coarse sandy fine to coarse GRAVEL
Date Tested	11/05/2023



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	14
90	100	0.0060	12
75	100	0.0020	9
63	100		
50	100		
37.5	100		
28	90		
20	74		
14	66		
10	62		
6.3	54		
5	48		
3.35	43		
2	36		
1.18	29		
0.6	24		
0.425	23		
0.3	22		
0.212	21		
0.15	19		
0.063	17		

Sample Proportions	% dry mass
Cobbles	0
Gravel	64
Sand	19
Silt	8
Clay	9

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

**PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2**

Contract Number 66080

Borehole/Pit No. S2-BH235

Project Name Global Centre of Rail Excellence Stage 2

Sample No. 5

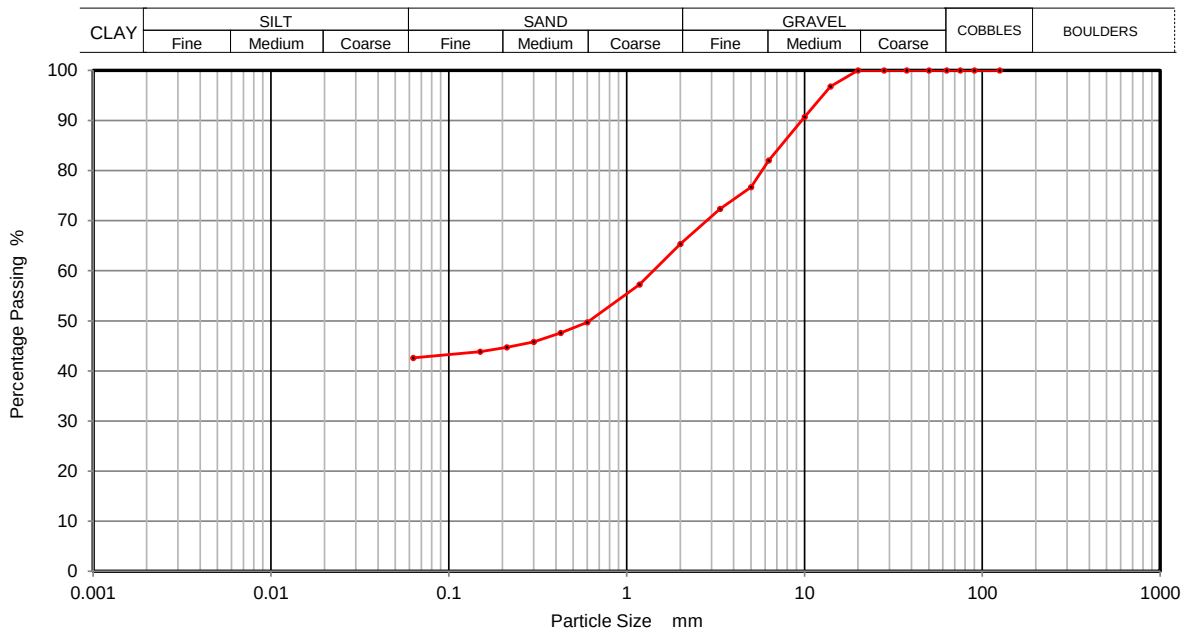
Soil Description Brown fine to coarse sandy fine to medium gravelly SILT/CLAY

Depth Top 0.40

Depth Base 0.50

Date Tested 11/05/2023

Sample Type D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	97		
10	91		
6.3	82		
5	77		
3.35	72		
2	65		
1.18	57		
0.6	50		
0.425	48		
0.3	46		
0.212	45		
0.15	44		
0.063	43		

Sample Proportions	% dry mass
Cobbles	0
Gravel	35
Sand	22
Silt and Clay	43

Remarks

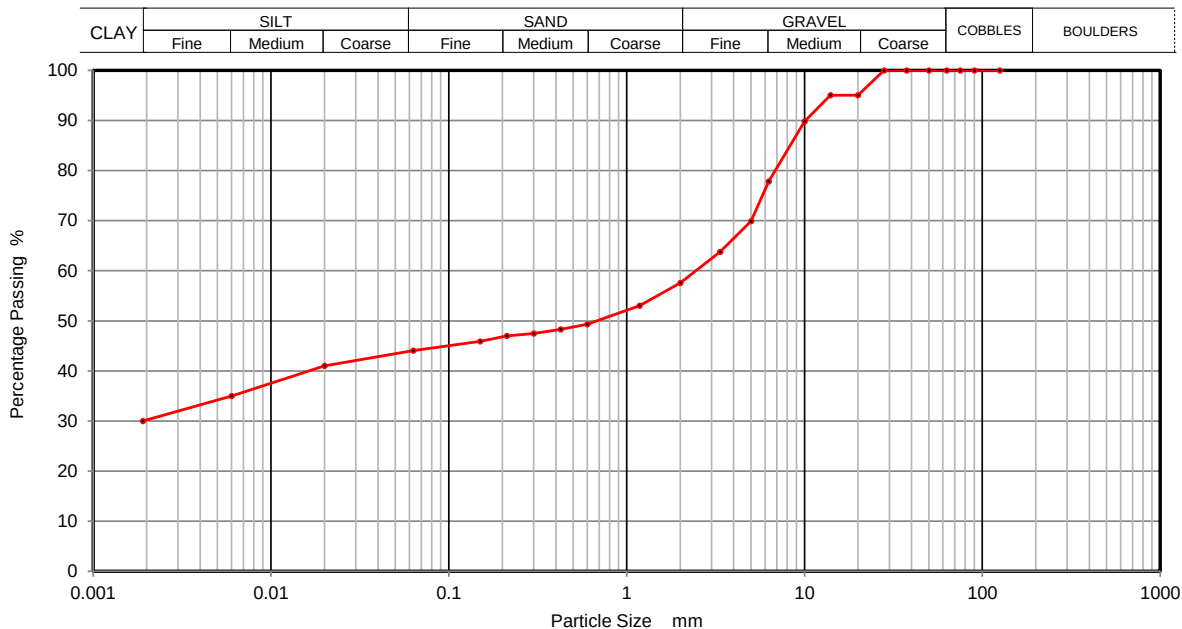
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Contract Number	66080
Borehole/Pit No.	S2-BH235
Sample No.	102
Depth Top	2.70
Depth Base	2.80
Sample Type	D

Project Name	Global Centre of Rail Excellence Stage 2
Soil Description	Brown fine to coarse sandy fine to coarse gravelly silty CLAY
Date Tested	11/05/2023



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	41
90	100	0.0060	35
75	100	0.0020	30
63	100		
50	100		
37.5	100		
28	100		
20	95		
14	95		
10	90		
6.3	78		
5	70		
3.35	64		
2	58		
1.18	53		
0.6	49		
0.425	48		
0.3	47		
0.212	47		
0.15	46		
0.063	44		

Sample Proportions	% dry mass
Cobbles	0
Gravel	42
Sand	14
Silt	14
Clay	30

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

**PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2**

Contract Number 66080

Borehole/Pit No. S2-BH261

Project Name Global Centre of Rail Excellence Stage 2

Sample No. 2

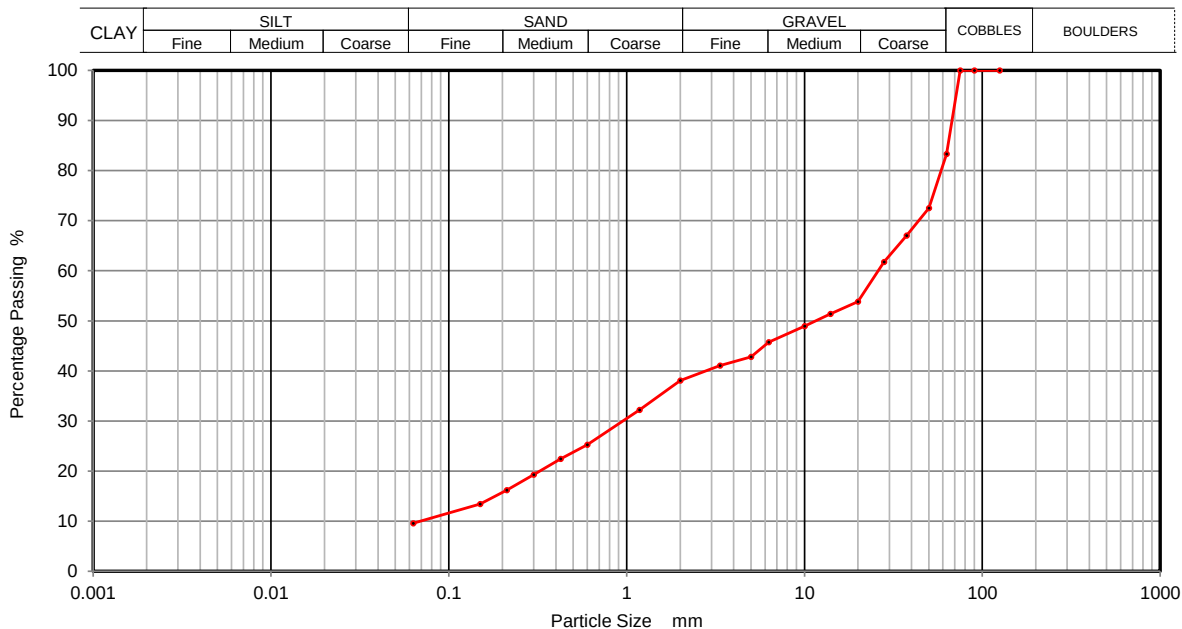
Soil Description Dark grey silty/clayey fine to coarse sandy fine to coarse GRAVEL
(with cobbles)

Depth Top 0.60

Depth Base 1.20

Date Tested 11/05/2023

Sample Type B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	83		
50	72		
37.5	67		
28	62		
20	54		
14	51		
10	49		
6.3	46		
5	43		
3.35	41		
2	38		
1.18	32		
0.6	25		
0.425	22		
0.3	19		
0.212	16		
0.15	13		
0.063	10		

Sample Proportions	% dry mass
Cobbles	17
Gravel	45
Sand	28
Silt and Clay	10

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator

David Edwards

**PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2**

Contract Number 66080

Borehole/Pit No. S2-TP216

Project Name Global Centre of Rail Excellence Stage 2

Sample No. 7

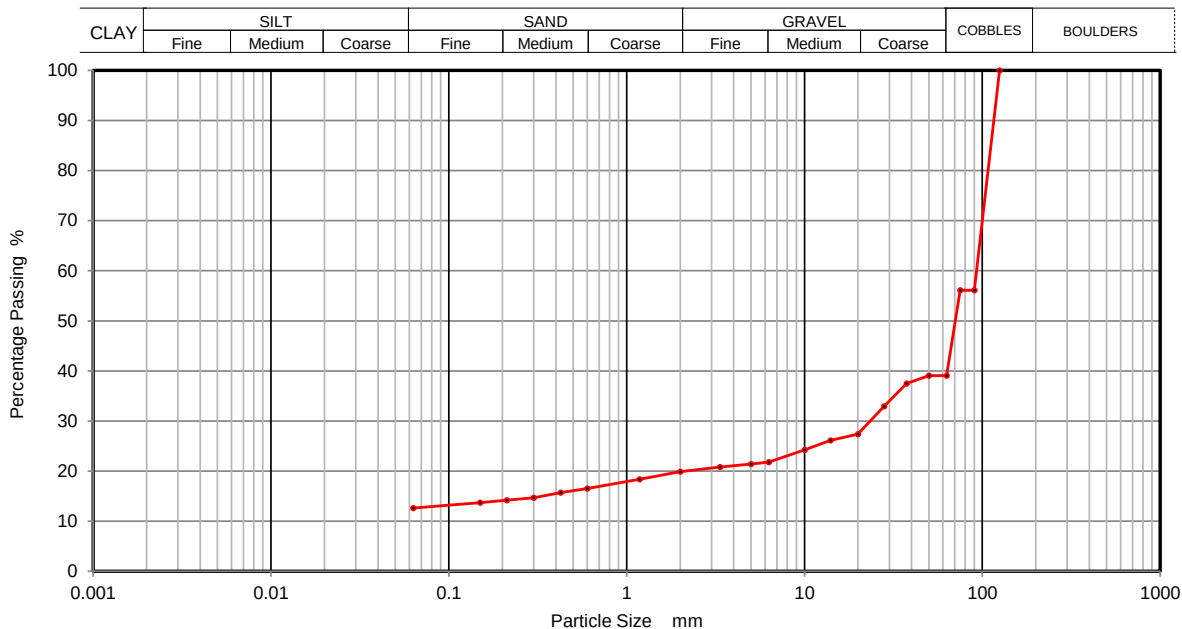
Soil Description Brown grey fine to coarse sandy silty/clayey fine to coarse GRAVEL
(with cobbles)

Depth Top 2.50

Depth Base 2.70

Date Tested 11/05/2023

Sample Type B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	56		
75	56		
63	39		
50	39		
37.5	37		
28	33		
20	27		
14	26		
10	24		
6.3	22		
5	21		
3.35	21		
2	20		
1.18	18		
0.6	17		
0.425	16		
0.3	15		
0.212	14		
0.15	14		
0.063	13		

Sample Proportions	% dry mass
Cobbles	61
Gravel	19
Sand	7
Silt and Clay	13

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator

David Edwards

**PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2**

Contract Number 66080

Borehole/Pit No. S2-TP217

Project Name Global Centre of Rail Excellence Stage 2

Sample No. 4

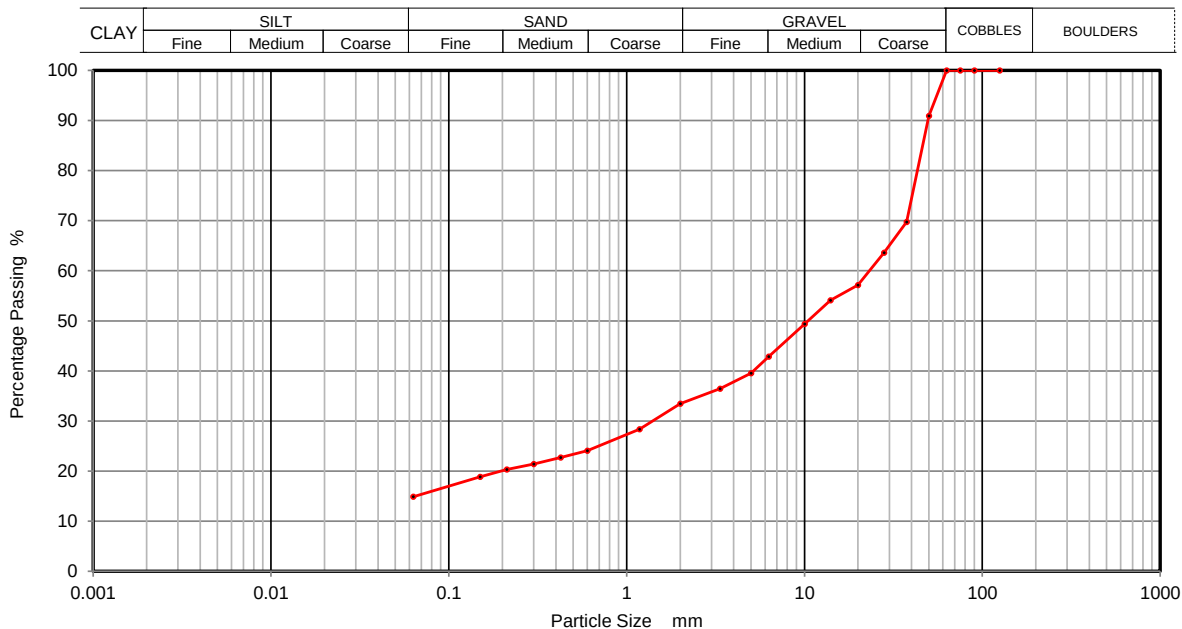
Soil Description Brown silty/clayey fine to coarse sandy fine to coarse GRAVEL

Depth Top 0.60

Depth Base 0.80

Date Tested 11/05/2023

Sample Type B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	91		
37.5	70		
28	64		
20	57		
14	54		
10	49		
6.3	43		
5	40		
3.35	36		
2	33		
1.18	28		
0.6	24		
0.425	23		
0.3	21		
0.212	20		
0.15	19		
0.063	15		

Sample Proportions	% dry mass
Cobbles	0
Gravel	67
Sand	18
Silt and Clay	15

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

**PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2**

Contract Number 66080

Borehole/Pit No. S2-TP224

Project Name Global Centre of Rail Excellence Stage 2

Sample No. 7

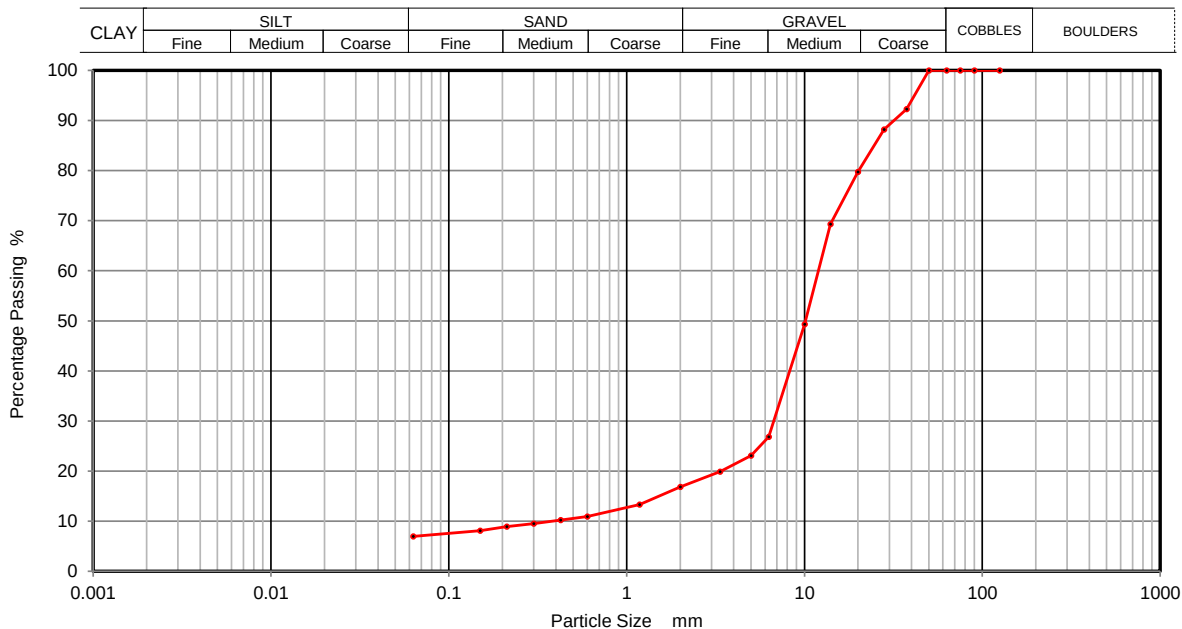
Soil Description Brown silty/clayey fine to coarse sandy fine to coarse GRAVEL

Depth Top 2.40

Depth Base 2.60

Date Tested 11/05/2023

Sample Type B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	92		
28	88		
20	80		
14	69		
10	49		
6.3	27		
5	23		
3.35	20		
2	17		
1.18	13		
0.6	11		
0.425	10		
0.3	10		
0.212	9		
0.15	8		
0.063	7		

Sample Proportions	% dry mass
Cobbles	0
Gravel	83
Sand	10
Silt and Clay	7

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

**Dry Density / Moisture Content Relationship
BS 1377:Part 4:1990**

Contract Number 66080

Borehole / Pit No S2-BH227

Project Name Global Centre of Rail Excellence Stage 2

Sample No 101

Date Tested 11/05/2023

Depth Top 1.20

Compaction Method 4.5 Kg Rammer

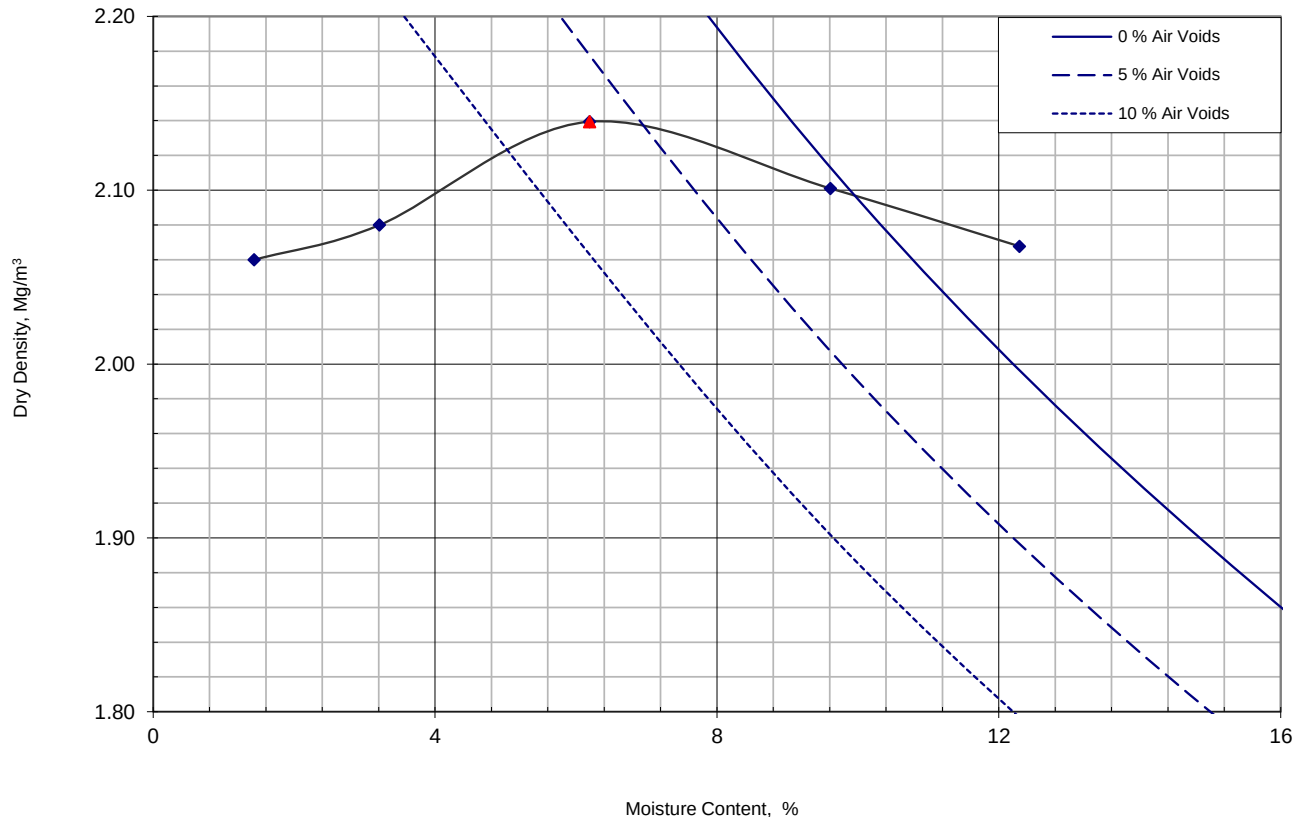
Depth Base 3.80

Compaction Clause BS1377:Part 4:1990, Clause 3.5

Sample Type B

Sample Description Brown silty CLAY (with siltstone)

Single or Separate Sample Used Single

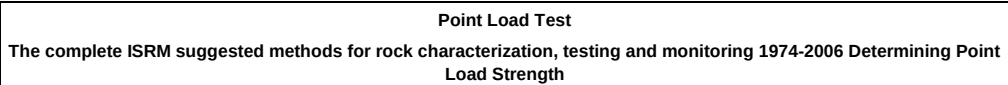


Compaction Point	1	2	3	4	5							
Moisture Content	1.4	3.2	6.2	9.6	12							
Bulk Density	2.09	2.15	2.27	2.30	2.32							
Dry Density	2.06	2.08	2.14	2.10	2.07							

Initial Moisture Content	12	%
Maximum Dry Density	2.14	Mg/m3
Optimum Moisture Content	6.2	%
Particle Density	2.65 Assumed	Mg/m3
Material Retained 37.5mm	0	%
Material Retained 20mm	0	%

Operator

Conal



66080

Global Centre of Rail Excellence Stage 2

Core

28/04/2023

*Please note that GSTL is not accredited for the water content of rock

[illegible]

<u>Key</u>	<u>Reported As</u>
Width	(W) mm
Platen Separation	(D) mm
Failure Load	(P) kN
Equivalent Diameter	(De) mm
Point Load	(Is) MPa
Size Factor	(F)
Point Load Index	(Is(50)) MPa
Moisture Content	%
Description	SC

Operator

Julian Jones



2788



Laboratory Report



Contract Number: 66139

Client Ref: **g23012**

Client PO:

Date Received: **11-05-2023**

Date Completed: **24-05-2023**

Report Date: **24-05-2023**

Client: **Jackson Drilling Holdings Ltd**
Northwood Farm
Coxbridge Road
Baltonsborough
Somerset
BA6 8RA

This report has been checked and approved by:

Brendan Evans
Office Administrator

Contract Title: **Global Centre of Rail Excellence Stage 2**

For the attention of: **Adam Putt**

Test Description	Qty
Moisture Content of Soil BS1377 : Part 2 : Clause 3.2 : 1990 - * UKAS	1
4 Point Liquid & Plastic Limit BS 1377:1990 - Part 2 : 4.3 & 5.3 - * UKAS	1
Particle Density (Gas Jar) BS 1377:1990 - Part 2 : 8.2 - * UKAS	1
PSD Wet & Dry Sieve method BS 1377:1990 - Part 2 : 9.2 - * UKAS	1
Determination of Point Load Value Axial or Diametrical including WC *Please note GSTL is not accredited for the water content of rock* ISRM Suggested Method for Point Load Strength - * UKAS	2
Disposal of samples for job	1

Notes: **Observations and Interpretations are outside the UKAS Accreditation**

* - denotes test included in laboratory scope of accreditation

- denotes test carried out by approved contractor

@ - denotes non accredited tests

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Approved Signatories:

Brendan Evans (Office Administrator) - Darren Bourne (Quality Senior Technician) - Paul Evans (Director)
Richard John (Quality/Technical Manager) - Shaun Jones (Laboratory manager) - Shaun Thomas (Site Manager)
Wayne Honey (Human Resources/ Health and Safety Manager)



Summary of Soil Descriptions

Contract Number	66139	
Project Name	Global Centre of Rail Excellence Stage 2	
Client Reference	g23012	

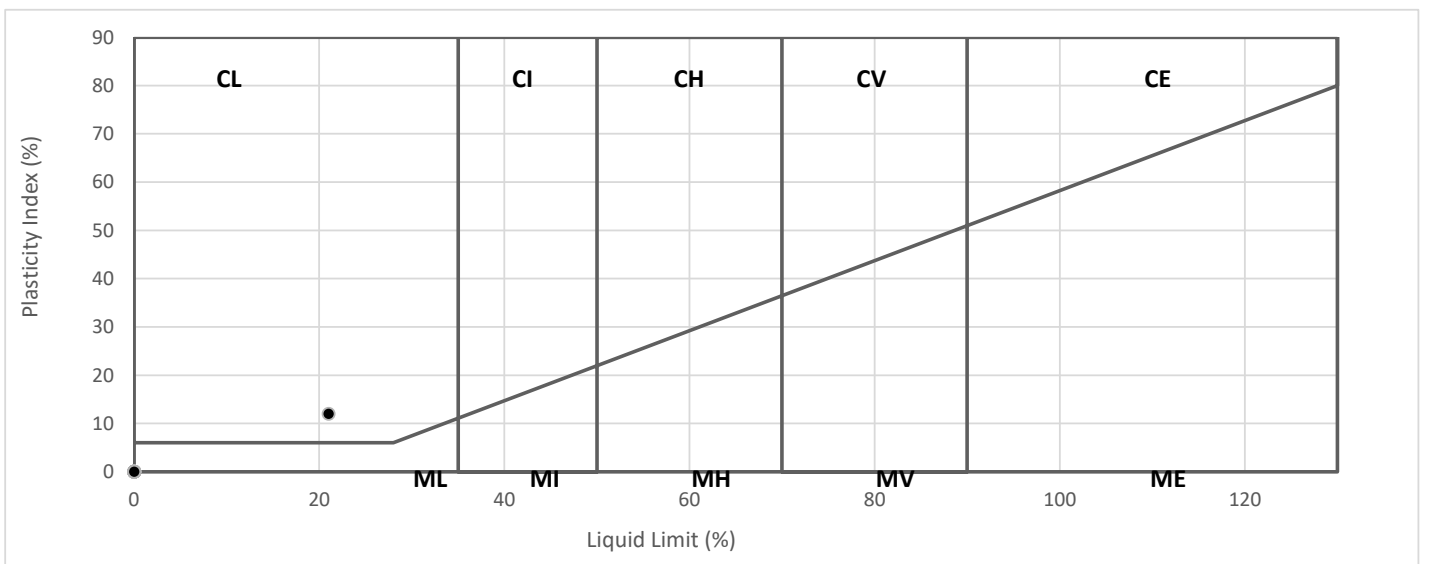
[illegible]

Contract Number	66139	
Project Name	Global Centre of Rail Excellence Stage 2	
Date Tested	22/05/2023	

[illegible]

Symbols: NP : Non Plastic # : Liquid Limit and Plastic Limit Wet Sieved

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION BS 5930:2015+A1:2020



Operator
Aaron Hodge

**PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2**

Contract Number 66139

Borehole/Pit No. S2-BH204

Project Name Global Centre of Rail Excellence Stage 2

Sample No. 1

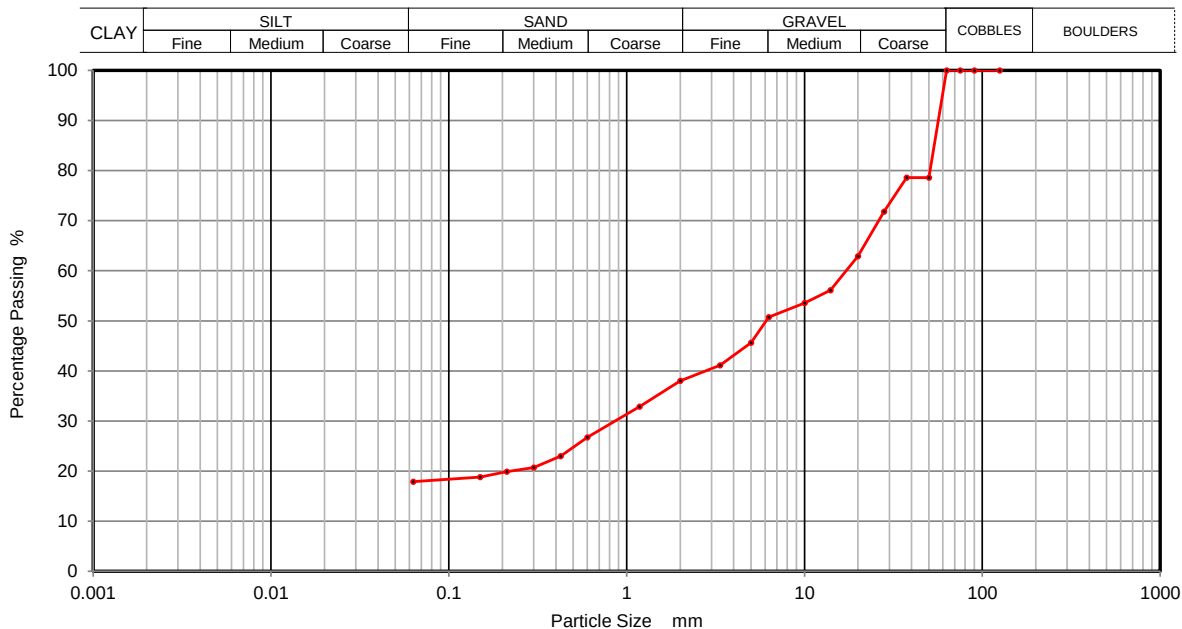
Soil Description Grey silty/clayey fine to coarse sandy fine to coarse GRAVEL

Depth Top 0.00

Depth Base 0.20

Date Tested 22/05/2023

Sample Type B



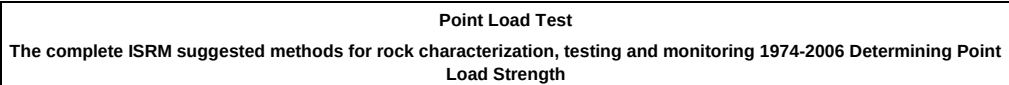
Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	79		
37.5	79		
28	72		
20	63		
14	56		
10	54		
6.3	51		
5	46		
3.35	41		
2	38		
1.18	33		
0.6	27		
0.425	23		
0.3	21		
0.212	20		
0.15	19		
0.063	18		

Sample Proportions	% dry mass
Cobbles	0
Gravel	62
Sand	20
Silt and Clay	18

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards



66139

Global Centre of Rail Excellence Stage 2

Core

11/05/2023

*Please note that GSTL is not accredited for the water content of rock

[illegible]

<u>Key</u>	<u>Reported As</u>
Width	(W) mm
Platen Separation	(D) mm
Failure Load	(P) kN
Equivalent Diameter	(De) mm
Point Load	(Is) MPa
Size Factor	(F)
Point Load Index	(Is(50)) MPa
Moisture Content	%
Description	SC

Operator
Julian Jones



2788



Laboratory Report



Contract Number: 66245

Client Ref: **G23012**

Client PO:

Date Received: **11-05-2023**

Date Completed: **23-05-2023**

Report Date: **23-05-2023**

Client: **Jackson Drilling Holdings Ltd**
Northwood Farm
Coxbridge Road
Baltonsborough
Somerset
BA6 8RA

This report has been checked and approved by:

Brendan Evans
Office Administrator

Contract Title: **Global Centre of Rail Excellence Stage 2**

For the attention of: **Adam Putt**

Test Description	Qty
Moisture Content of Soil BS1377 : Part 2 : Clause 3.2 : 1990 - * UKAS	3
4 Point Liquid & Plastic Limit BS 1377:1990 - Part 2 : 4.3 & 5.3 - * UKAS	2
PSD Wet & Dry Sieve method BS 1377:1990 - Part 2 : 9.2 - * UKAS	2
Determination of Point Load Value Axial or Diametrical including WC *Please note GSTL is not accredited for the water content of rock* ISRM Suggested Method for Point Load Strength - * UKAS	4
Disposal of samples for job	1

Notes: Observations and Interpretations are outside the UKAS Accreditation

* - denotes test included in laboratory scope of accreditation

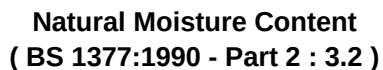
- denotes test carried out by approved contractor

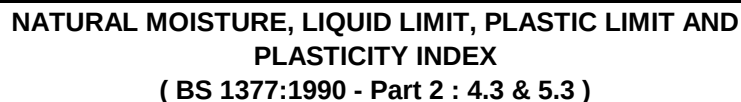
@ - denotes non accredited tests

This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This test report/certificate shall not be reproduced except in full, without the approval of GEO Site & Testing Services Ltd. Any opinions or interpretations stated - within this report/certificate are excluded from the laboratories UKAS accreditation.

Approved Signatories:

Brendan Evans (Office Administrator) - Darren Bourne (Quality Senior Technician) - Paul Evans (Director)
Richard John (Quality/Technical Manager) - Shaun Jones (Laboratory manager) - Shaun Thomas (Site Manager)
Wayne Honey (Human Resources/ Health and Safety Manager)





Contract Number	66245	
Project Name	Global Centre of Rail Excellence Stage 2	
Date Tested	12/05/2023	
	DESCRIPTIONS	

[illegible]

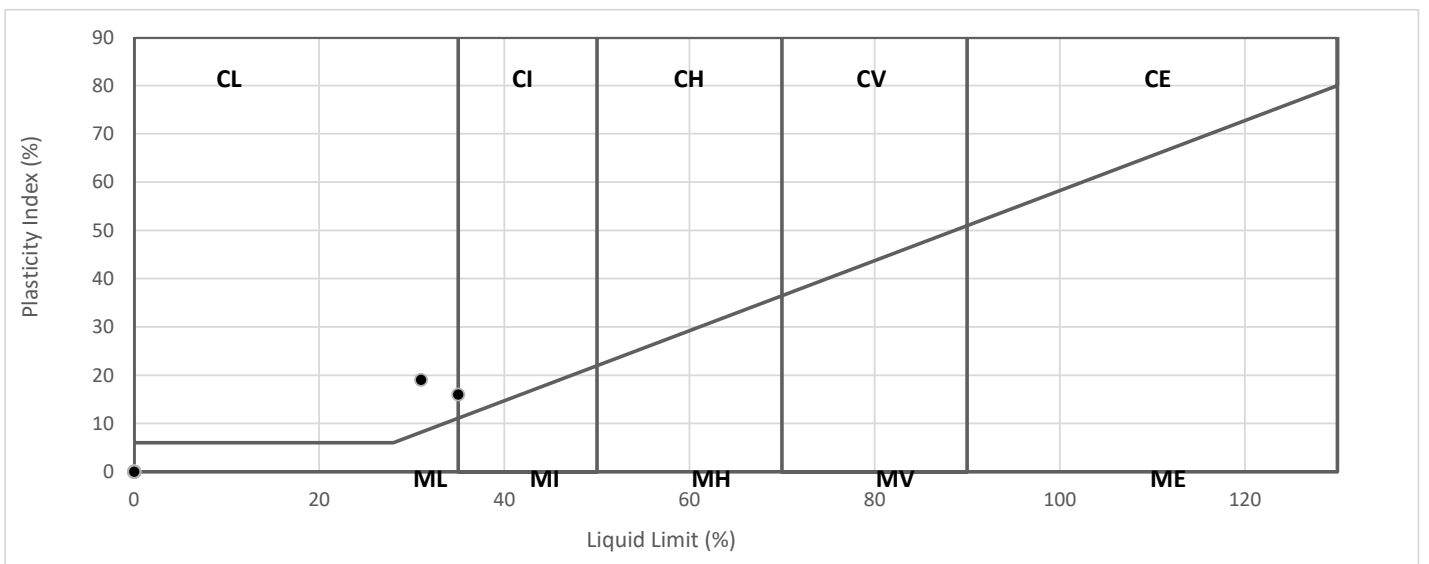
Operator
Aaron Hodge

Contract Number	66245	
Project Name	Global Centre of Rail Excellence Stage 2	
Date Tested	12/05/2023	

[illegible]

Symbols: NP : Non Plastic # : Liquid Limit and Plastic Limit Wet Sieved

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION BS 5930:2015+A1:2020



Operator
Aaron Hodge

PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2

Contract Number	66245
Borehole/Pit No.	S2-TP229

Project Name	Global Centre of Rail Excellence Stage 2
--------------	--

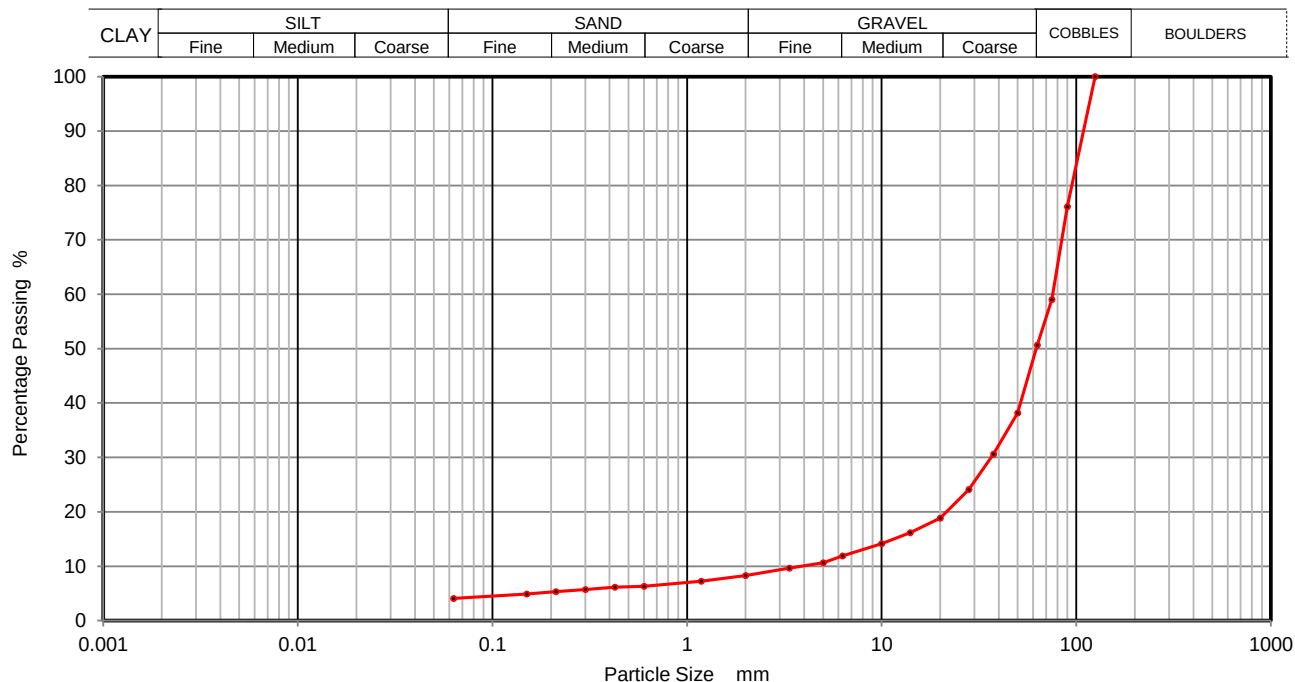
Sample No.	7
------------	---

Soil Description	Brown slightly silty/ clayey slightly sandy fine to coarse GRAVEL with cobbles
------------------	--

Depth Top	2.50
Depth Base	2.70

Date Tested	20/05/2023
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Sample Type	B
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Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	76		
75	59		
63	51		
50	38		
37.5	31		
28	24		
20	19		
14	16		
10	14		
6.3	12		
5	11		
3.35	10		
2	8		
1.18	7		
0.6	6		
0.425	6		
0.3	6		
0.212	5		
0.15	5		
0.063	4		

Sample Proportions	% dry mass
Cobbles	49
Gravel	43
Sand	4
Silt and Clay	4

Remarks
Preparation and testing in accordance with BS1377 unless noted below

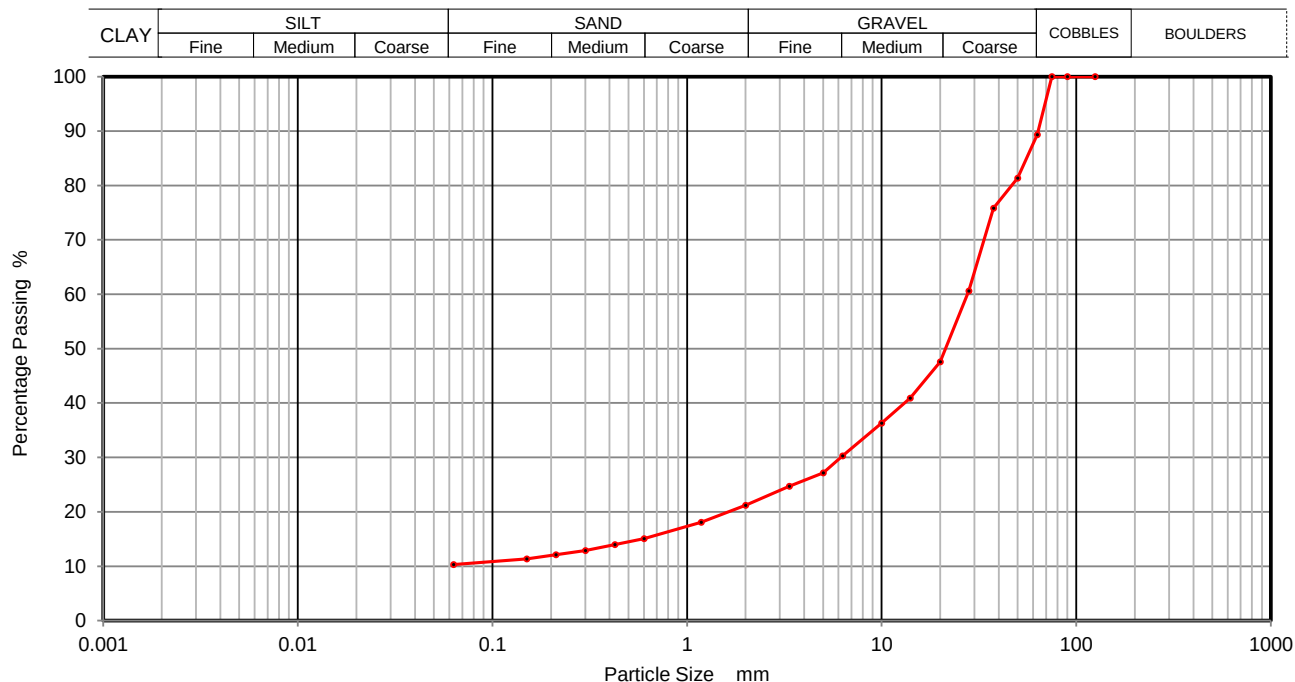
Operator

David Edwards

PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2

Contract Number	66245
Borehole/Pit No.	S2-TP235
Sample No.	5
Depth Top	1.30
Depth Base	1.50
Sample Type	B

Project Name	Global Centre of Rail Excellence Stage 2
Soil Description	Grey silty/ clayey fine to coarse sandy fine to coarse GRAVEL with cobbles
Date Tested	20/05/2023



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	89		
50	81		
37.5	76		
28	61		
20	48		
14	41		
10	36		
6.3	30		
5	27		
3.35	25		
2	21		
1.18	18		
0.6	15		
0.425	14		
0.3	13		
0.212	12		
0.15	11		
0.063	10		

Sample Proportions	% dry mass
Cobbles	11
Gravel	68
Sand	11
Silt and Clay	10

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards



Laboratory Report



Contract Number: 66432

Client Ref: **G23012**

Client PO:

Date Received: **15-05-2023**

Date Completed: **31-05-2023**

Report Date: **31-05-2023**

Client: **Jackson Drilling Holdings Ltd**

Northwood Farm

Coxbridge Road

Baltonsborough

Somerset

BA6 8RA

Contract Title: **Global Centre of Rail Excellence Stage 2**

For the attention of: **Adam Putt**

Test Description	Qty
Moisture Content of Soil BS1377 : Part 2 : Clause 3.2 : 1990 - * UKAS	3
PSD Wet & Dry Sieve method BS 1377:1990 - Part 2 : 9.2 - * UKAS	3
PSD: Sedimentation by pipette carried out with Wet Sieve (Wet Sieve must also be selected) BS 1377:1990 - Part 2 : 9.4 - * UKAS	2
Disposal of samples for job	1

Notes: Observations and Interpretations are outside the UKAS Accreditation

* - denotes test included in laboratory scope of accreditation

- denotes test carried out by approved contractor

@ - denotes non accredited tests

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Approved Signatories:

Brendan Evans (Office Administrator) - Darren Bourne (Quality Senior Technician) - Paul Evans (Director)

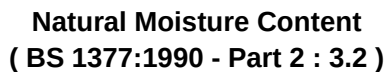
Richard John (Quality/Technical Manager) - Shaun Jones (Laboratory manager) - Shaun Thomas (Site Manager)

Wayne Honey (Human Resources/ Health and Safety Manager)

GEO Site & Testing Services Ltd

Units 3-4, Heol Aur, Dafen, Llanelli, Carmarthenshire, Wales SA14 8QN

Tel: 01554 784040 Fax: 01554 784041 info@gstl.co.uk gstl.co.uk



66432

Global Centre of Rail Excellence Stage 2

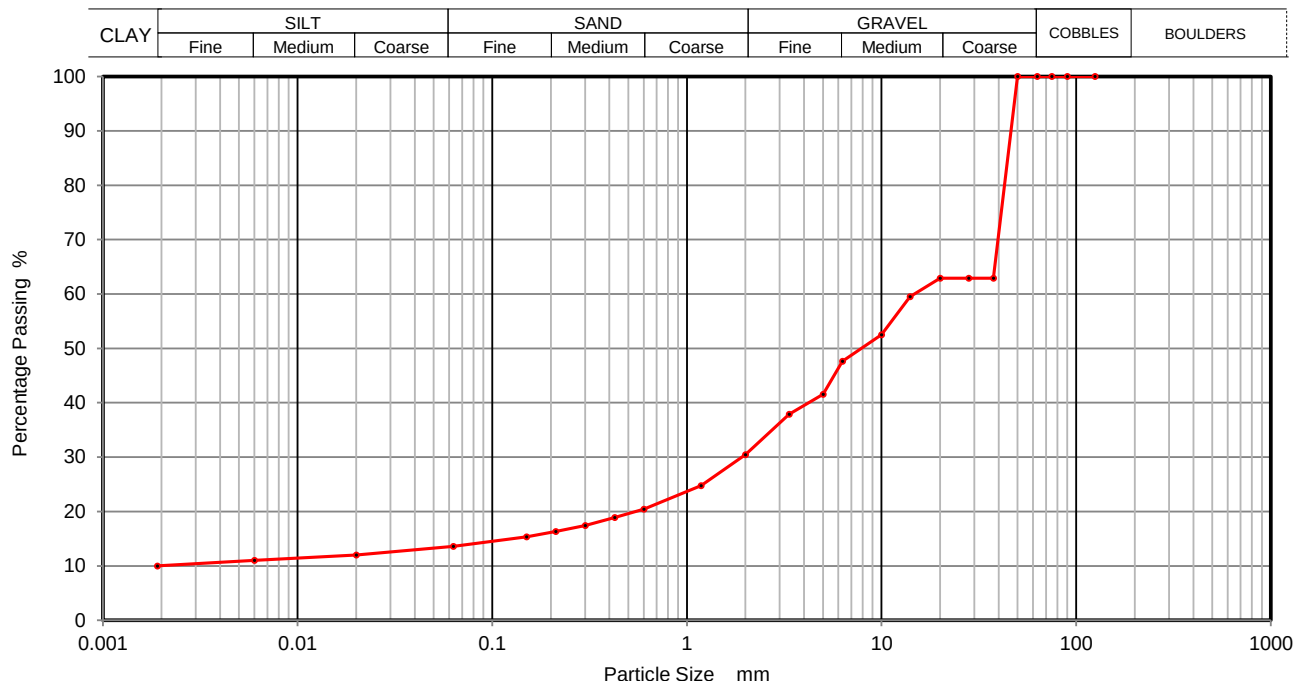
30/05/2023



**PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4**

Contract Number	66432
Borehole/Pit No.	S2-TP206
Sample No.	2
Depth Top	0.20
Depth Base	0.30
Sample Type	D

Project Name	Global Centre of Rail Excellence Stage 2
Soil Description	Grey slightly silty clayey fine to coarse sandy fine to coarse GRAVEL
Date Tested	30/05/2023



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	12
90	100	0.0060	11
75	100	0.0020	10
63	100		
50	100		
37.5	63		
28	63		
20	63		
14	60		
10	52		
6.3	48		
5	42		
3.35	38		
2	30		
1.18	25		
0.6	20		
0.425	19		
0.3	17		
0.212	16		
0.15	15		
0.063	14		

Sample Proportions	% dry mass
Cobbles	0
Gravel	70
Sand	16
Silt	4
Clay	10

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

**PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2**

Contract Number 66432

Borehole/Pit No. S2-TP206

Project Name Global Centre of Rail Excellence Stage 2

Sample No. 8

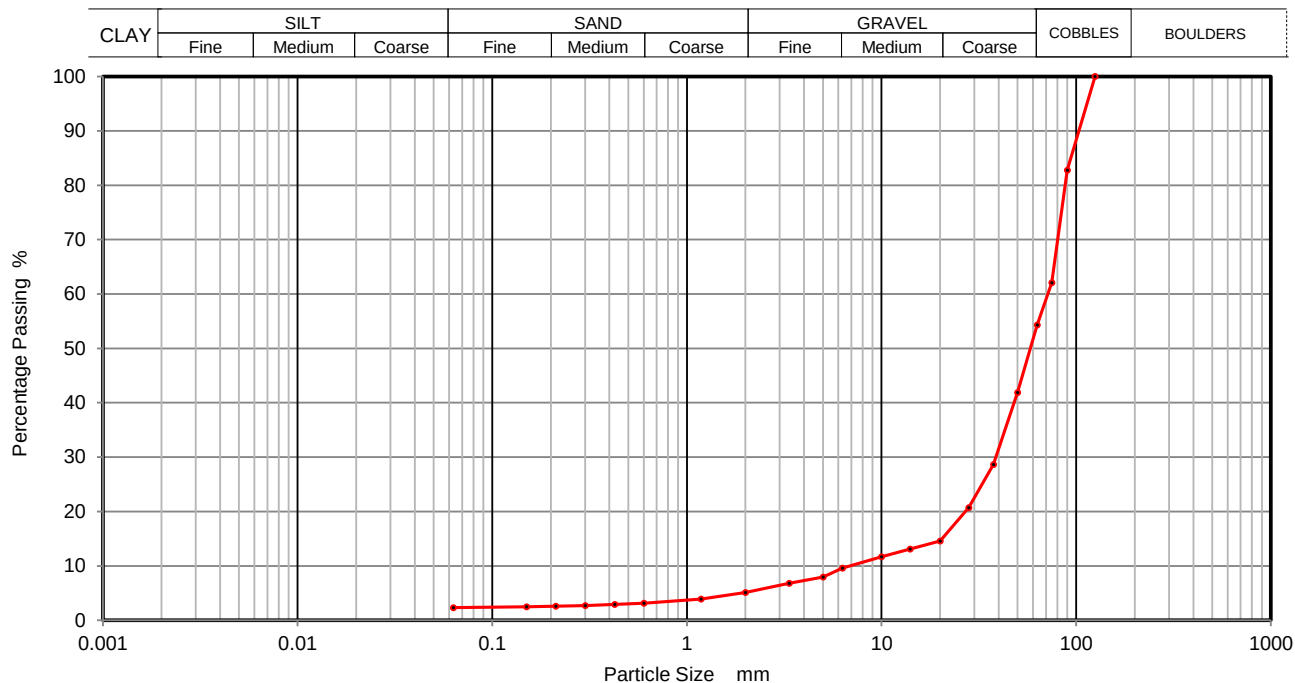
Soil Description Grey slightly silty/ clayey slightly fine to coarse gravelly fine to coarse GRAVEL with cobbles

Depth Top 2.60

Depth Base 2.80

Date Tested 30/05/2023

Sample Type B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	83		
75	62		
63	54		
50	42		
37.5	29		
28	21		
20	15		
14	13		
10	12		
6.3	10		
5	8		
3.35	7		
2	5		
1.18	4		
0.6	3		
0.425	3		
0.3	3		
0.212	3		
0.15	2		
0.063	2		

Sample Proportions	% dry mass
Cobbles	46
Gravel	49
Sand	3
Silt and Clay	2

Remarks
Preparation and testing in accordance with BS1377 unless noted below

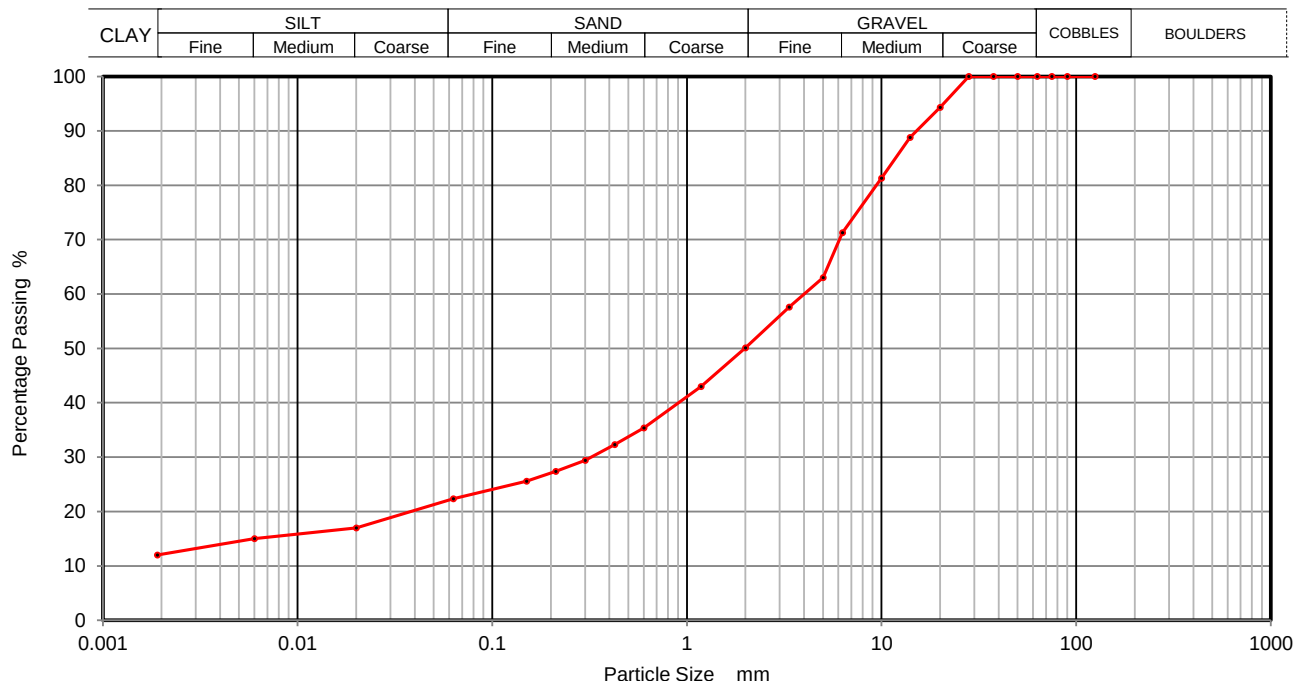
Operator

David Edwards

PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Contract Number	66432
Borehole/Pit No.	S2-TP206
Sample No.	10
Depth Top	3.10
Depth Base	3.20
Sample Type	D

Project Name	Global Centre of Rail Excellence Stage 2
Soil Description	Grey silty clayey fine to coarse sandy fine to coarse GRAVEL
Date Tested	30/05/2023



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	17
90	100	0.0060	15
75	100	0.0020	12
63	100		
50	100		
37.5	100		
28	100		
20	94		
14	89		
10	81		
6.3	71		
5	63		
3.35	58		
2	50		
1.18	43		
0.6	35		
0.425	32		
0.3	29		
0.212	27		
0.15	26		
0.063	22		

Sample Proportions	% dry mass
Cobbles	0
Gravel	50
Sand	28
Silt	10
Clay	12

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards



Laboratory Report



Contract Number: 66433

Client Ref: **G23012**

Client PO:

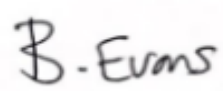
Date Received: **15-05-2023**

Date Completed: **23-05-2023**

Report Date: **23-05-2023**

Client: **Jackson Drilling Holdings Ltd**
Northwood Farm
Coxbridge Road
Baltonsborough
Somerset
BA6 8RA

This report has been checked and approved by:


Brendan Evans
Office Administrator

Contract Title: **Global Centre of Rail Excellence Stage 2**

For the attention of: **Adam Putt**

Test Description	Qty
Moisture Content of Soil BS1377 : Part 2 : Clause 3.2 : 1990 - * UKAS	2
4 Point Liquid & Plastic Limit BS 1377:1990 - Part 2 : 4.3 & 5.3 - * UKAS	1
Determination of Point Load Value Axial or Diametrical including WC *Please note GSTL is not accredited for the water content of rock* ISRM Suggested Method for Point Load Strength - * UKAS	2
Disposal of samples for job	1

Notes: **Observations and Interpretations are outside the UKAS Accreditation**

* - denotes test included in laboratory scope of accreditation

- denotes test carried out by approved contractor

@ - denotes non accredited tests

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Richard John (Quality/Technical Manager) - Shaun Jones (Laboratory manager) - Shaun Thomas (Site Manager)
Wayne Honey (Human Resources/ Health and Safety Manager)



DESCRIPTIONS

66433

Contract Number	66433	
Site Name	Global Centre of Rail Excellence Stage 2	
Date Tested	19/05/2023	

[illegible]

Operators			
Clayton Jenkins			



Natural Moisture Content
(BS 1377:1990 - Part 2 : 3.2)

Contract Number	66433	
Project Name	Global Centre of Rail Excellence Stage 2	
Date Tested	19/05/2023	

[illegible]

Operator

Clayton Jenkins



2788



**NATURAL MOISTURE, LIQUID LIMIT, PLASTIC LIMIT AND
PLASTICITY INDEX
(BS 1377:1990 - Part 2 : 4.3 & 5.3)**

Contract Number	66433	
Project Name	Global Centre of Rail Excellence Stage 2	
Date Tested	19/05/2023	
	DESCRIPTIONS	

[illegible]

Operator

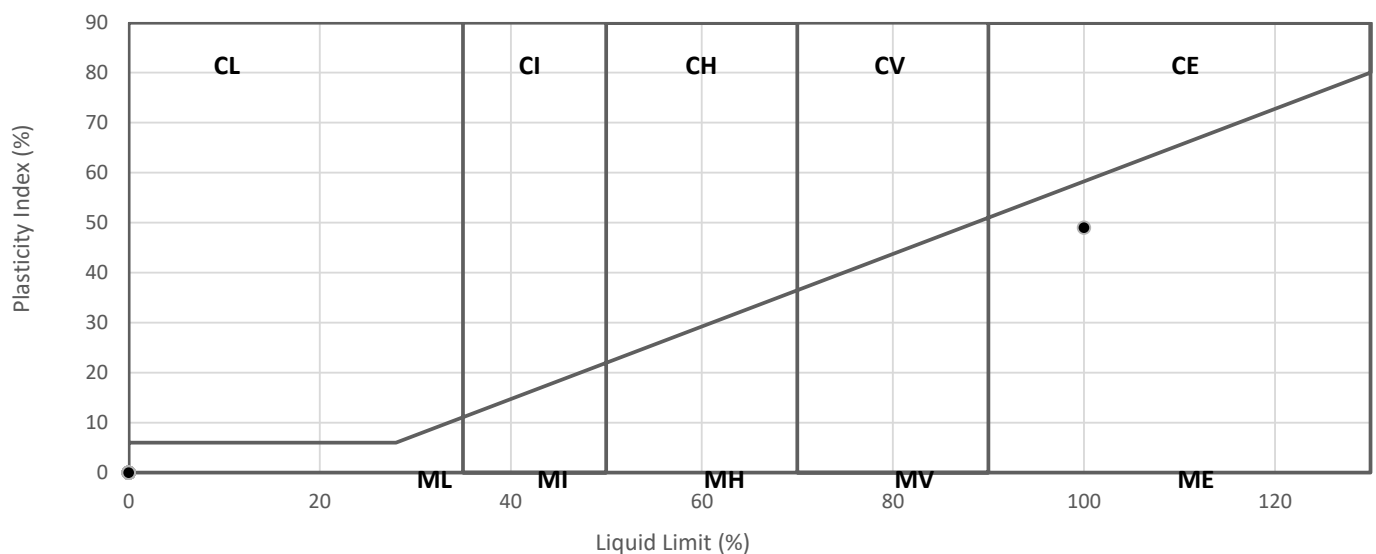
Ethan Harper

Contract Number	66433	
Project Name	Global Centre of Rail Excellence Stage 2	
Date Tested	19/05/2023	

[illegible]

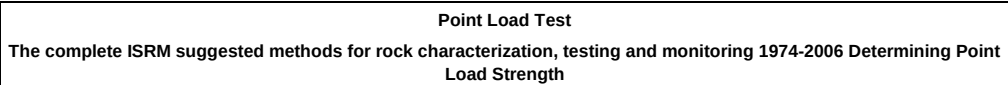
Symbols: NP : Non Plastic # : Liquid Limit and Plastic Limit Wet Sieved

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION BS 5930:2015+A1:2020



Operator

Ethan Harper



66433

Global Centre of Rail Excellence Stage 2

Core

15/05/2023

*Please note that GSTL is not accredited for the water content of rock

[illegible]

<u>Key</u>	<u>Reported As</u>
Width	(W) mm
Platen Separation	(D) mm
Failure Load	(P) kN
Equivalent Diameter	(De) mm
Point Load	(Is) MPa
Size Factor	(F)
Point Load Index	(Is(50)) MPa
Moisture Content	%
Description	SC

Operator

Julian Jones



2788



2788

Laboratory Report

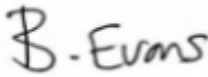
Contract Number: 66655

Client Ref: **G23012**

Client PO:

Date Received: **24-05-2023**Date Completed: **20-06-2023**Report Date: **20-06-2023**Client: **Jackson Drilling Holdings Ltd****Northwood Farm****Coxbridge Road****Baltonsborough****Somerset****BA6 8RA**

This report has been checked and approved by:

**Brendan Evans**

Office Administrator

Contract Title: **Global Centre of Rail Excellence stage 2 (15)**For the attention of: **Adam Putt**

Test Description	Qty
Moisture Content of Soil BS1377 : Part 2 : Clause 3.2 : 1990 - * UKAS	43
4 Point Liquid & Plastic Limit BS 1377:1990 - Part 2 : 4.3 & 5.3 - * UKAS	21
PSD Wet & Dry Sieve method BS 1377:1990 - Part 2 : 9.2 - * UKAS	31
PSD: Sedimentation by pipette carried out with Wet Sieve (Wet Sieve must also be selected) BS 1377:1990 - Part 2 : 9.4 - * UKAS	12
Dry Den/MC (4.5kg Rammer Method 1 Litre Mould/CBR Mould) BS 1377:1990 - Part 4 : 3.5 - * UKAS	11
Determination of Point Load Value Axial or Diametrical including WC *Please note GSTL is not accredited for the water content of rock* ISRM Suggested Method for Point Load Strength - * UKAS	3
Consolidated Drained Peak Shear Strength - set of 3 - 60 x 60mm Shear Box Specimens by Direct Shearing (3 days) BS 1377:1990 - Part 7 : 4 - * UKAS	8
Disposal of samples for job Notes: Observations and Interpretations are outside the UKAS Accreditation * - denotes test included in laboratory scope of accreditation # - denotes test carried out by approved contractor @ - denotes non accredited tests	1

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 Richard John (Quality/Technical Manager) - Shaun Jones (Laboratory manager) - Shaun Thomas (Site Manager)
 Wayne Honey (Human Resources/ Health and Safety Manager)

Contract Number	66655	
Project Name	Global Centre of Rail Excellence stage 2 (15)	
Date Tested	07/06/2023	

[illegible]

Operator
Ethan

**NATURAL MOISTURE, LIQUID LIMIT, PLASTIC LIMIT AND
PLASTICITY INDEX
(BS 1377:1990 - Part 2 : 4.3 & 5.3)**

Contract Number	66655	
Project Name	Global Centre of Rail Excellence stage 2 (15)	
Date Tested	06/06/2023	
	DESCRIPTIONS	

Sample/Hole Reference	Sample Number	Sample Type	Depth (m)			Descriptions
S2-BH229	4	B	0.50	-	1.00	Brown clayey silty fine to coarse gravelly fine to coarse SAND
S2-BH260	5	D	0.40	-	0.50	Black slightly fine to medium gravelly fine to coarse sandy silty CLAY
S2-TP207	6	D	1.70	-	1.80	Grey sandy fine to medium gravelly silty CLAY
S2-TP210	2	D	0.30	-	0.50	Brown sandy fine to medium gravelly silty CLAY
S2-TP2124	4	D	0.70	-	0.80	Brown sandy fine to medium gravelly silty CLAY
S2-TP2125	4	D	0.70	-	0.80	Brown sandy fine to medium gravelly clayey SILT
S2-TP2125	6	D	1.20	-	1.30	Black sandy fine to medium gravelly silty CLAY
S2-TP238	2	D	0.40	-	0.50	Grey sandy fine to medium gravelly silty CLAY
S2-TP238	8	D	2.00	-	2.10	Grey sandy fine to coarse gravelly silty CLAY
S2-TP240	11	D	2.50	-	2.60	Brown fine to coarse gravelly clayey SILT
S2-TP240	12	D	3.00	-	3.10	Brown sandy fine to medium gravelly silty CLAY
S2-TP245	7	D	2.40	-	2.50	Grey sandy fine to medium gravelly silty CLAY
S2-TP245	10	D	3.40	-	3.50	Grey fine to medium gravelly silty CLAY
S2-TP252	4	D	0.90	-	1.00	Brown fine to medium gravelly silty CLAY
S2-TP258	7	D	2.30	-	2.40	Grey fine to medium gravelly silty CLAY
S2-TP258	10	D	3.40	-	3.50	Brown fine to medium gravelly silty CLAY
S2-TP265	4	D	0.80	-	0.90	Brown silty CLAY
S2-TP265	6	B	1.40	-	1.60	Grey sandy fine to medium gravelly silty CLAY
S2-TP280	4	D	0.50	-	0.60	Brown silty CLAY
S2-TP280	9	D	1.90	-	2.00	Grey sandy fine to medium gravelly silty CLAY
S2-TP280	12	D	3.40	-	3.50	Grey fine to coarse gravelly silty CLAY
				-		
				-		
				-		

Operator

Ethan Harper

NATURAL MOISTURE, LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

(BS 1377:1990 - Part 2 : 4.3 & 5.3)

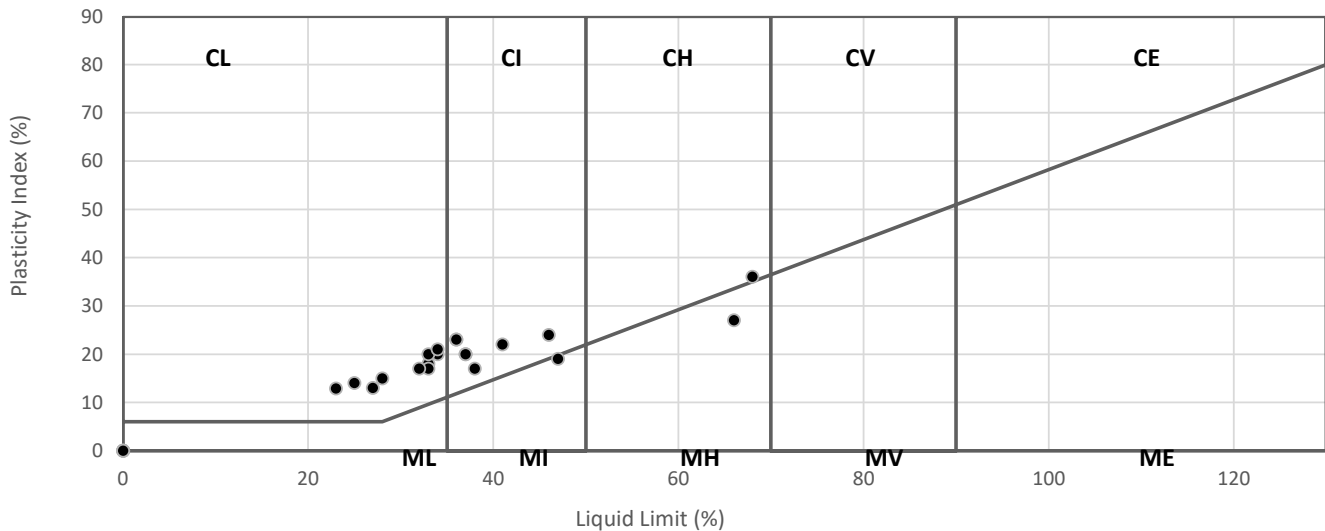
Contract Number	66655	
Project Name	Global Centre of Rail Excellence stage 2 (15)	
Date Tested	06/06/2023	

Sample/Hole Reference	Sample Number	Sample Type	Depth (m)			Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity index %	Passing 0.425mm %	Remarks
S2-BH229	4	B	0.50	-	1.00	9.5		NP		45	
S2-BH260	5	D	0.40	-	0.50	20	38	21	17	70	CI Intermediate Plasticity
S2-TP207	6	D	1.70	-	1.80	8.8	25	11	14	80	CL Low Plasticity
S2-TP210	2	D	0.30	-	0.50	16	33	15	18	80	CL Low Plasticity
S2-TP2124	4	D	0.70	-	0.80	16	34	14	20	95	CL Low Plasticity
S2-TP2125	4	D	0.70	-	0.80	42	66	39	27	90	MH High Plasticity
S2-TP2125	6	D	1.20	-	1.30	15	33	16	17	95	CL Low Plasticity
S2-TP238	2	D	0.40	-	0.50	11	28	13	15	90	CL Low Plasticity
S2-TP238	8	D	2.00	-	2.10	10	27	14	13	85	CL Low Plasticity
S2-TP240	11	D	2.50	-	2.60	27	47	28	19	98	MI Intermediate Plasticity
S2-TP240	12	D	3.00	-	3.10	15	33	13	20	90	CL Low Plasticity
S2-TP245	7	D	2.40	-	2.50	13	32	15	17	90	CL Low Plasticity
S2-TP245	10	D	3.40	-	3.50	13	37	17	20	87	CI Intermediate Plasticity
S2-TP252	4	D	0.90	-	1.00	11	36	13	23	90	CI Intermediate Plasticity
S2-TP258	7	D	2.30	-	2.40	16	41	19	22	94	CI Intermediate Plasticity
S2-TP258	10	D	3.40	-	3.50	18	37	17	20	85	CI Intermediate Plasticity
S2-TP265	4	D	0.80	-	0.90	24	46	22	24	100	CI Intermediate Plasticity
S2-TP265	6	B	1.40	-	1.60	8.5	23	10	13	85	CL Low Plasticity
S2-TP280	4	D	0.50	-	0.60	36	68	32	36	100	CH High Plasticity
S2-TP280	9	D	1.90	-	2.00	12	34	13	21	94	CL Low Plasticity
S2-TP280	12	D	3.40	-	3.50	11	36	13	23	87	CI Intermediate Plasticity
				-							
				-							
				-							

Symbols: NP : Non Plastic # : Liquid Limit and Plastic Limit Wet Sieved

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION

BS 5930:2015+A1:2020

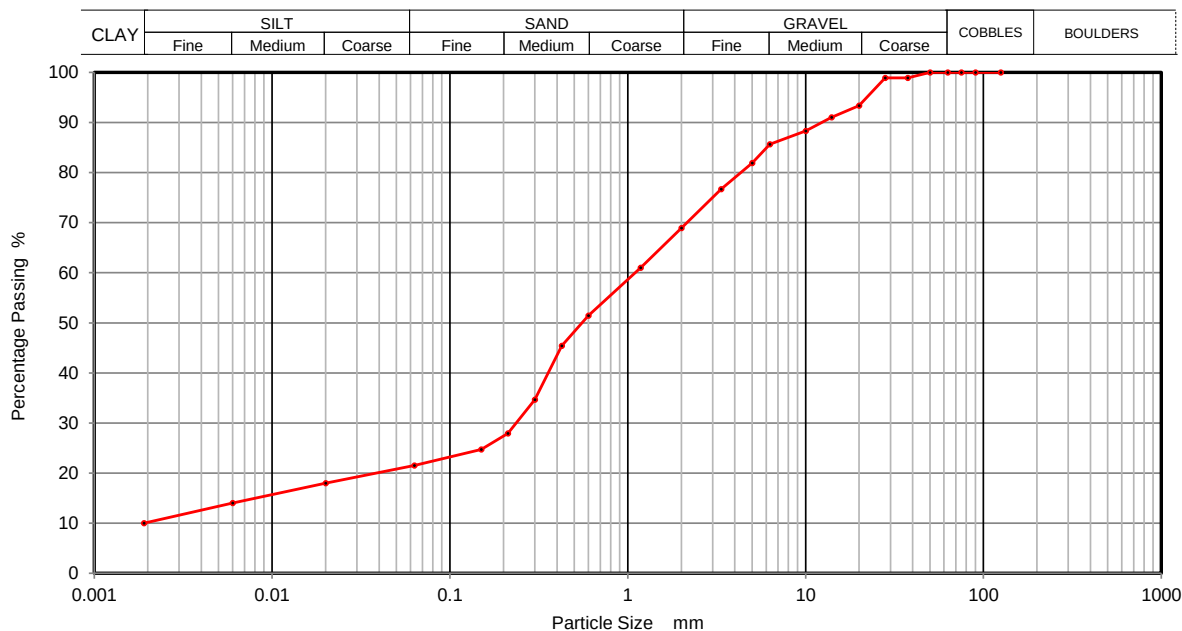


Operator

Ethan Harper

PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Contract Number	66655
Borehole/Pit No.	S2-BH229
Sample No.	4
Depth Top	0.50
Depth Base	1.00
Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	18
90	100	0.0060	14
75	100	0.0020	10
63	100		
50	100		
37.5	99		
28	99		
20	93		
14	91		
10	88		
6.3	86		
5	82		
3.35	77		
2	69		
1.18	61		
0.6	51		
0.425	45		
0.3	35		
0.212	28		
0.15	25		
0.063	22		

Sample Proportions	% dry mass
Cobbles	0
Gravel	31
Sand	47
Silt	12
Clay	10

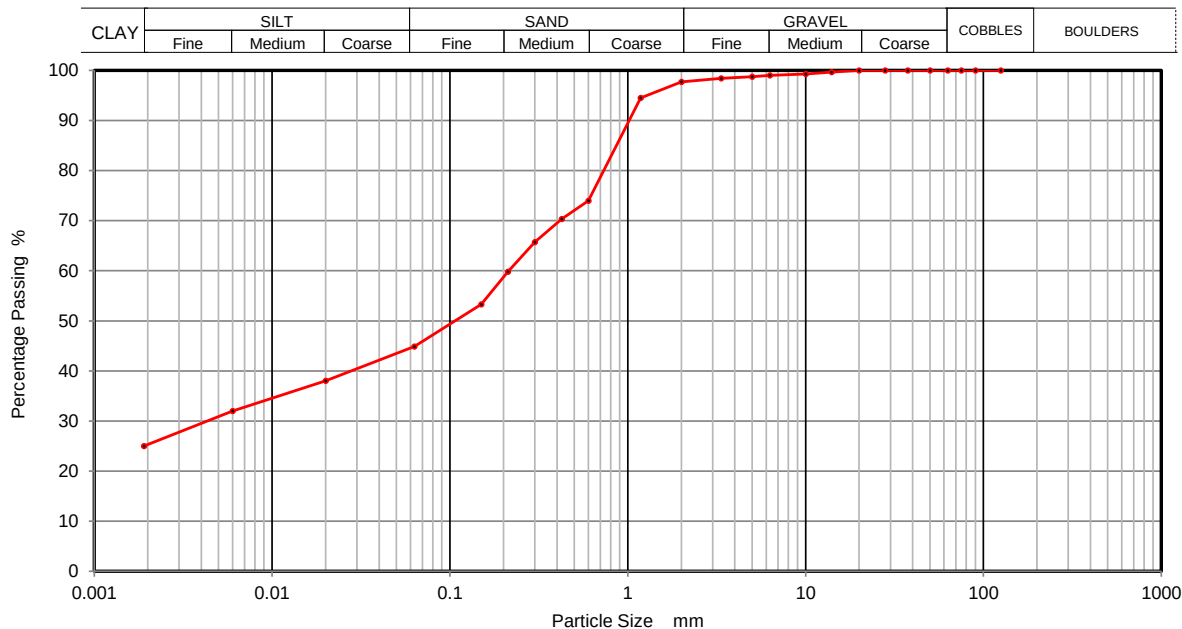
Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Contract Number	66655
Borehole/Pit No.	S2-BH260
Sample No.	5
Depth Top	0.40
Depth Base	0.50
Sample Type	D

Project Name	Global Centre of Rail Excellence stage 2 (15)
Soil Description	Black slightly fine to medium gravelly fine to coarse sandy silty CLAY
Date Tested	07/06/2023



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	38
90	100	0.0060	32
75	100	0.0020	25
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	99		
6.3	99		
5	99		
3.35	98		
2	98		
1.18	94		
0.6	74		
0.425	70		
0.3	66		
0.212	60		
0.15	53		
0.063	45		

Sample Proportions	% dry mass
Cobbles	0
Gravel	2
Sand	53
Silt	20
Clay	25

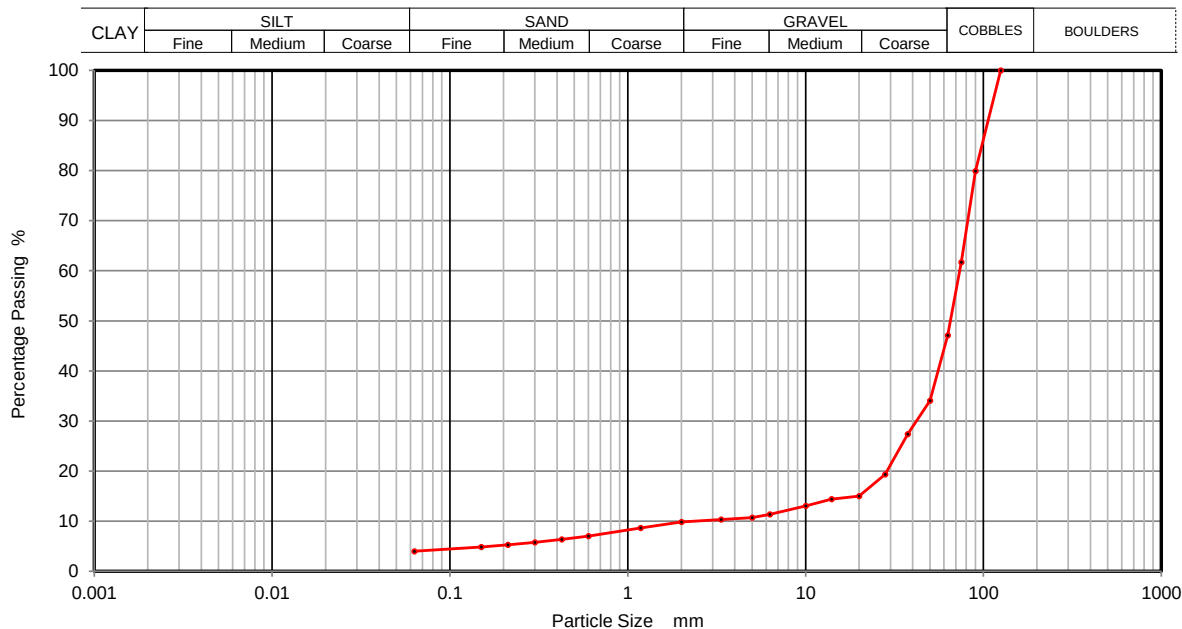
Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

**PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2**

Contract Number	66655
Borehole/Pit No.	S2-TP207

Project Name	Global Centre of Rail Excellence stage 2 (15)	Sample No.	5
Soil Description	Grey slightly clayey/silty fine to coarse sandy fine to coarse GRAVEL (with cobbles)	Depth Top	1.30
		Depth Base	1.50
Date Tested	07/06/2023	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	80		
75	62		
63	47		
50	34		
37.5	27		
28	19		
20	15		
14	14		
10	13		
6.3	11		
5	11		
3.35	10		
2	10		
1.18	9		
0.6	7		
0.425	6		
0.3	6		
0.212	5		
0.15	5		
0.063	4		

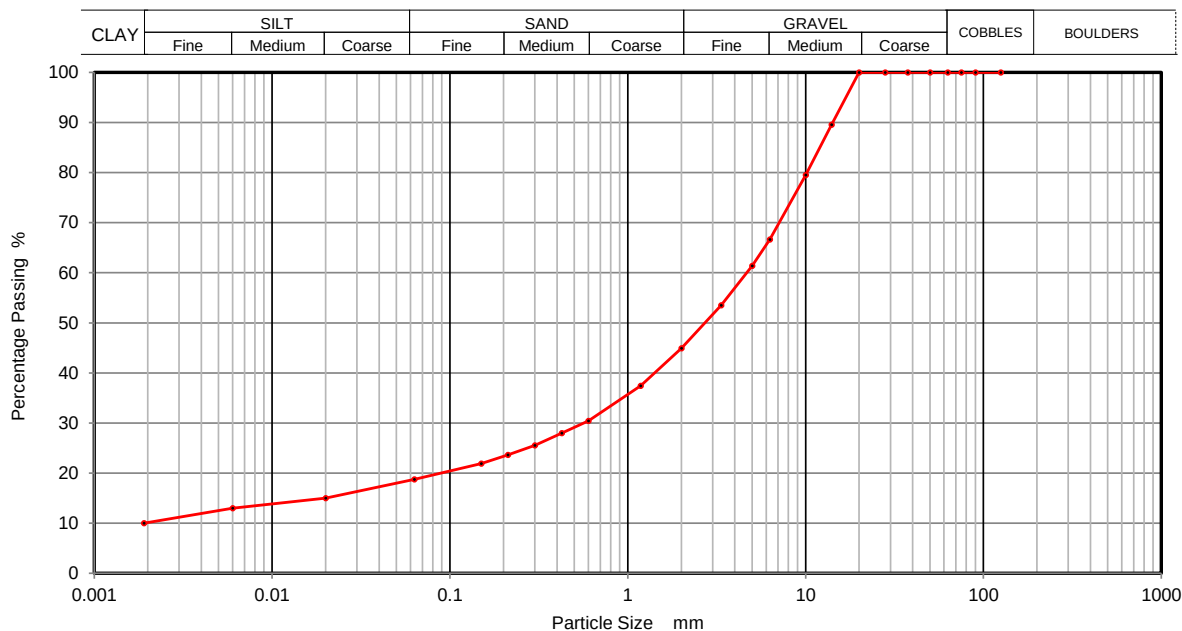
Sample Proportions	% dry mass
Cobbles	53
Gravel	37
Sand	6
Silt and Clay	4

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Contract Number	66655
Borehole/Pit No.	S2-TP207
Sample No.	8
Depth Top	2.20
Depth Base	2.30
Sample Type	D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	15
90	100	0.0060	13
75	100	0.0020	10
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	90		
10	80		
6.3	67		
5	61		
3.35	54		
2	45		
1.18	37		
0.6	30		
0.425	28		
0.3	26		
0.212	24		
0.15	22		
0.063	19		

Sample Proportions	% dry mass
Cobbles	0
Gravel	55
Sand	26
Silt	9
Clay	10

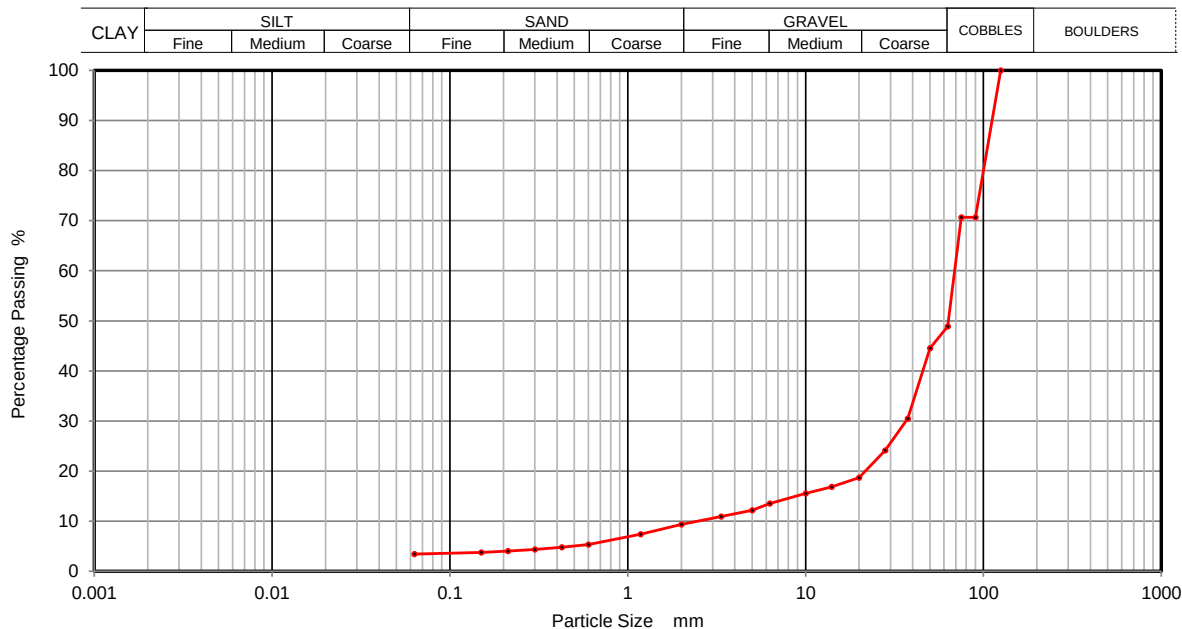
Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

**PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2**

Contract Number	66655
Borehole/Pit No.	S2-TP210

Project Name	Global Centre of Rail Excellence stage 2 (15)	Sample No.	7
Soil Description	Grey slightly silty/clayey fine to coarse sandy fine to coarse GRAVEL (with cobbles)	Depth Top	1.90
		Depth Base	2.10
Date Tested	07/06/2023	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	71		
75	71		
63	49		
50	45		
37.5	30		
28	24		
20	19		
14	17		
10	16		
6.3	14		
5	12		
3.35	11		
2	9		
1.18	7		
0.6	5		
0.425	5		
0.3	4		
0.212	4		
0.15	4		
0.063	3		

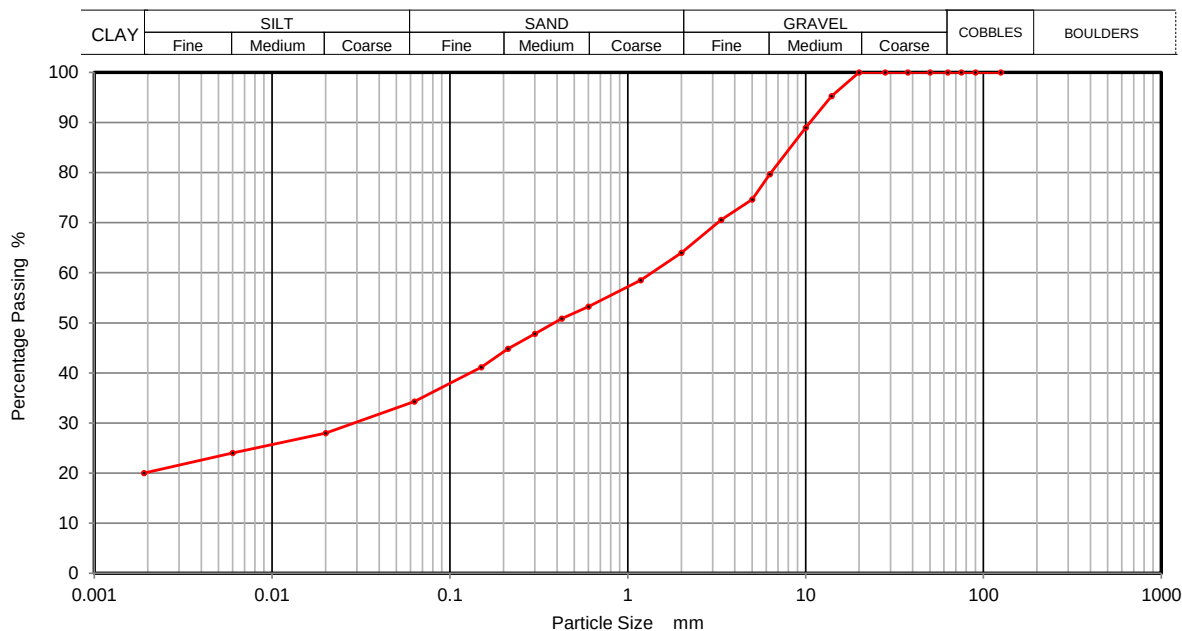
Sample Proportions	% dry mass
Cobbles	51
Gravel	40
Sand	6
Silt and Clay	3

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Contract Number	66655
Borehole/Pit No.	S2-TP238
Sample No.	6
Depth Top	1.50
Depth Base	1.60
Sample Type	D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	28
90	100	0.0060	24
75	100	0.0020	20
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	95		
10	89		
6.3	80		
5	75		
3.35	71		
2	64		
1.18	59		
0.6	53		
0.425	51		
0.3	48		
0.212	45		
0.15	41		
0.063	34		

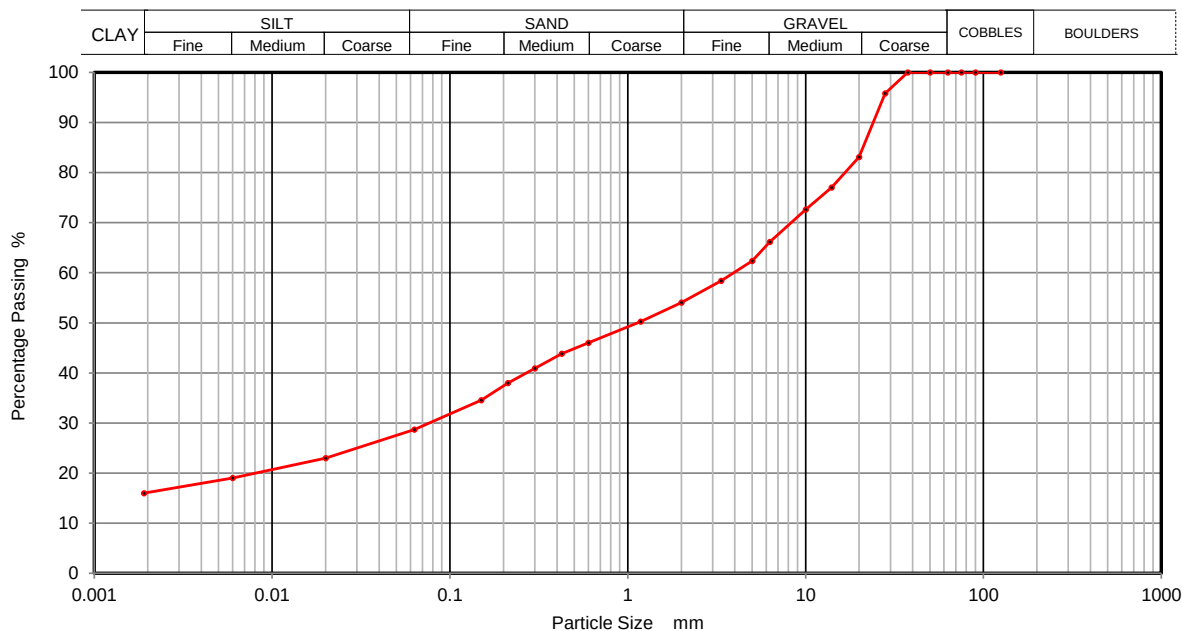
Sample Proportions	% dry mass
Cobbles	0
Gravel	36
Sand	30
Silt	14
Clay	20

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Contract Number	66655
Borehole/Pit No.	S2-TP238
Sample No.	9
Depth Top	2.50
Depth Base	2.60
Sample Type	D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	23
90	100	0.0060	19
75	100	0.0020	16
63	100		
50	100		
37.5	100		
28	96		
20	83		
14	77		
10	73		
6.3	66		
5	62		
3.35	58		
2	54		
1.18	50		
0.6	46		
0.425	44		
0.3	41		
0.212	38		
0.15	35		
0.063	29		

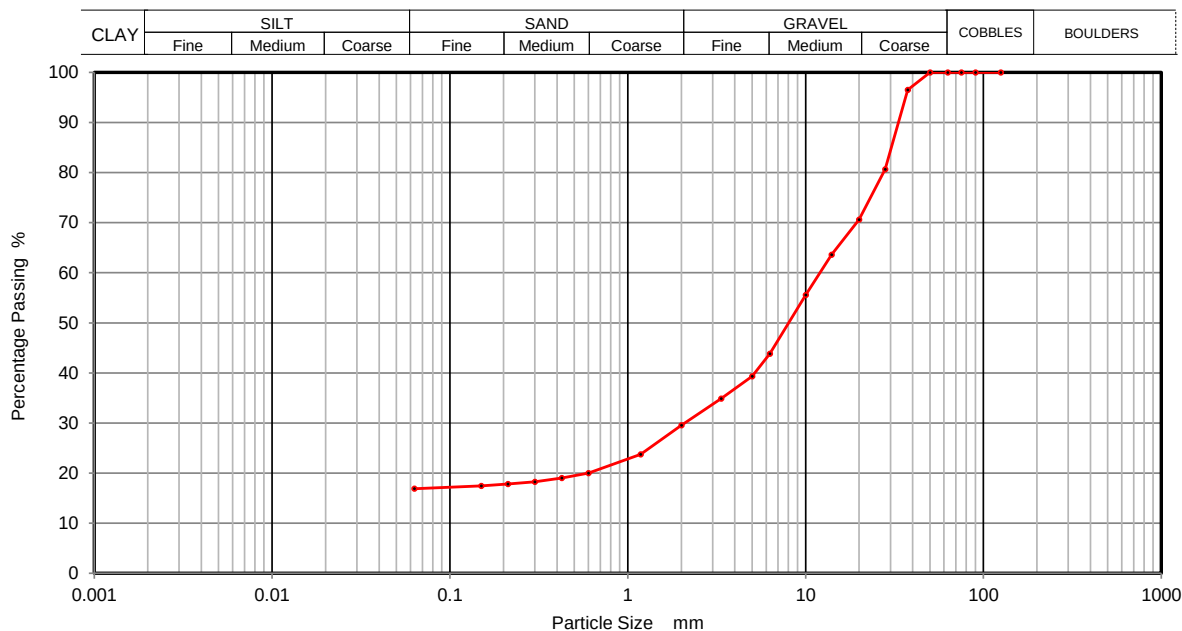
Sample Proportions	% dry mass
Cobbles	0
Gravel	46
Sand	25
Silt	13
Clay	16

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

**PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2**

Contract Number	66655
Borehole/Pit No.	S2-TP240
Sample No.	2
Depth Top	0.20
Depth Base	0.40
Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	97		
28	81		
20	71		
14	64		
10	56		
6.3	44		
5	39		
3.35	35		
2	30		
1.18	24		
0.6	20		
0.425	19		
0.3	18		
0.212	18		
0.15	17		
0.063	17		

Sample Proportions	% dry mass
Cobbles	0
Gravel	70
Sand	13
Silt and Clay	17

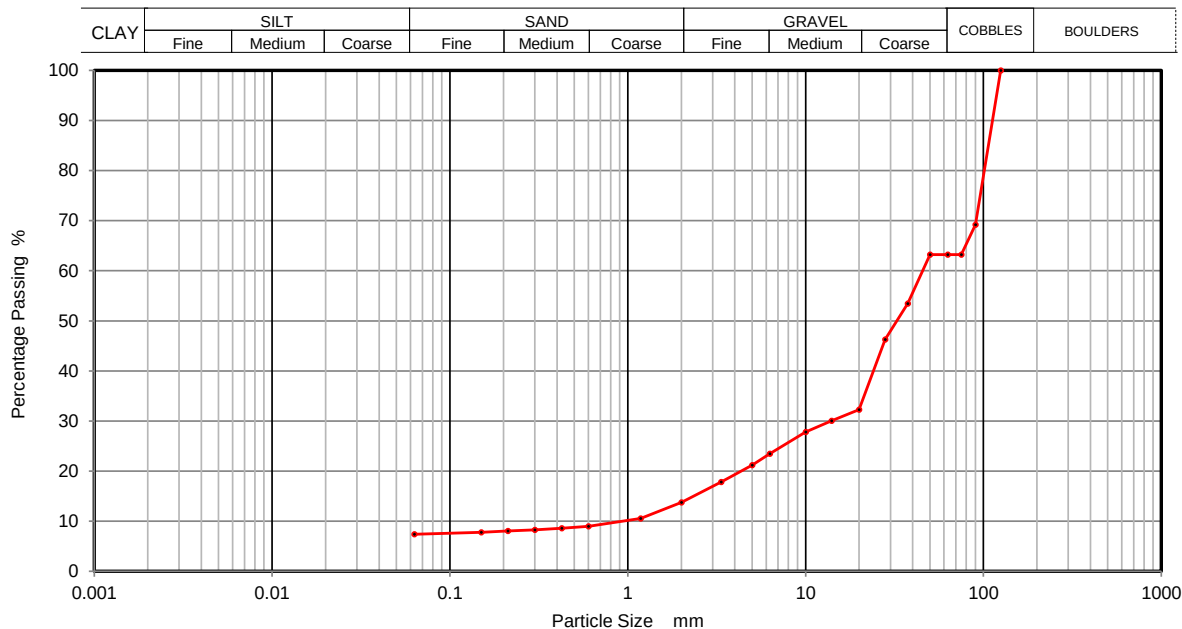
Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

**PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2**

Contract Number	66655
Borehole/Pit No.	S2-TP241

Project Name	Global Centre of Rail Excellence stage 2 (15)	Sample No.	8
Soil Description	Grey silty/clayey fine to coarse sandy fine to coarse GRAVEL (with cobbles)	Depth Top	2.60
		Depth Base	2.80
Date Tested	07/06/2023	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	69		
75	63		
63	63		
50	63		
37.5	53		
28	46		
20	32		
14	30		
10	28		
6.3	23		
5	21		
3.35	18		
2	14		
1.18	11		
0.6	9		
0.425	9		
0.3	8		
0.212	8		
0.15	8		
0.063	7		

Sample Proportions	% dry mass
Cobbles	37
Gravel	49
Sand	7
Silt and Clay	7

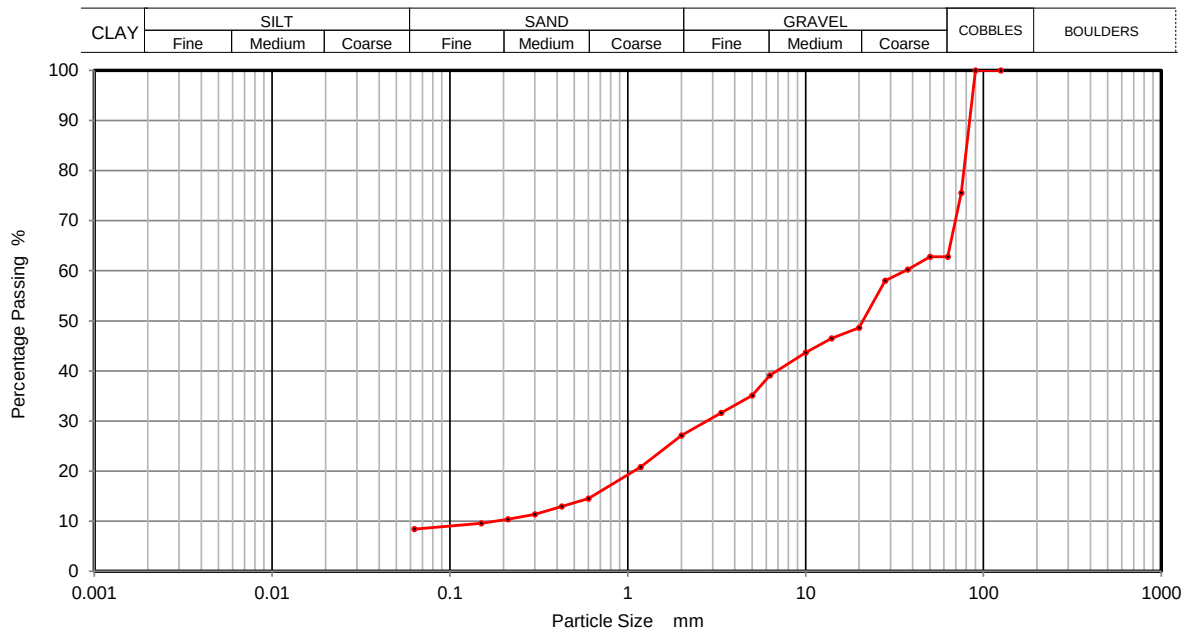
Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

**PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2**

Contract Number	66655
Borehole/Pit No.	S2-TP242

Project Name	Global Centre of Rail Excellence stage 2 (15)	Sample No.	6
Soil Description	Grey clayey/silty fine to coarse sandy fine to coarse GRAVEL (with cobbles)	Depth Top	1.70
		Depth Base	1.90
Date Tested	07/06/2023	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	76		
63	63		
50	63		
37.5	60		
28	58		
20	49		
14	47		
10	44		
6.3	39		
5	35		
3.35	32		
2	27		
1.18	21		
0.6	14		
0.425	13		
0.3	11		
0.212	10		
0.15	10		
0.063	8		

Sample Proportions	% dry mass
Cobbles	37
Gravel	36
Sand	19
Silt and Clay	8

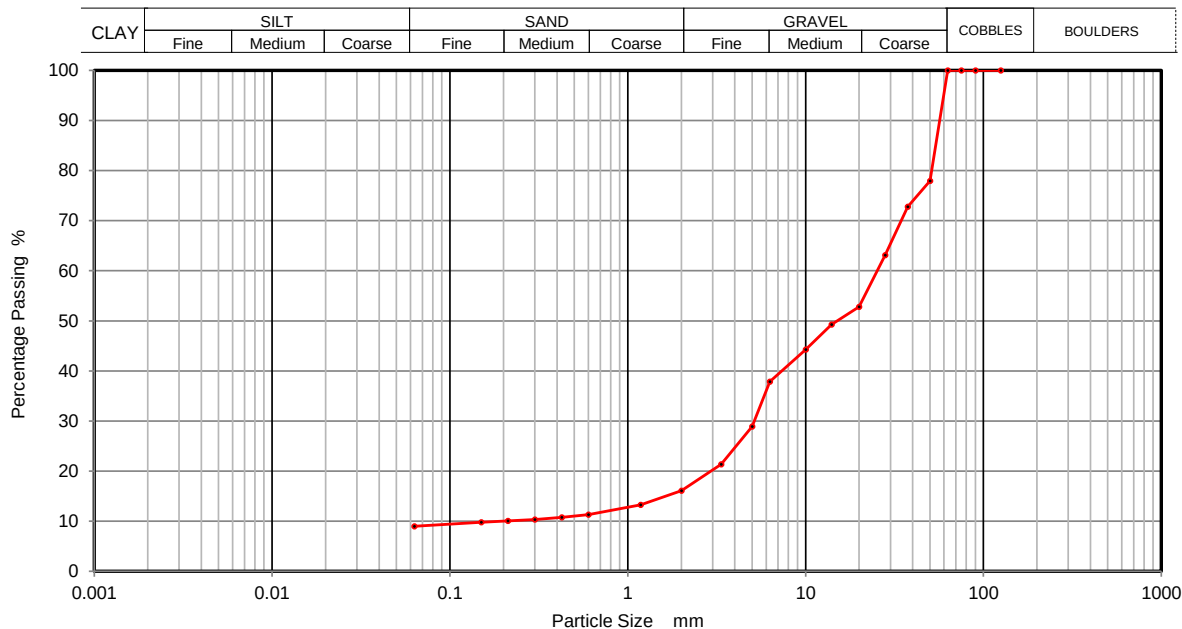
Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

**PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2**

Contract Number	66655
Borehole/Pit No.	S2-TP243

Project Name	Global Centre of Rail Excellence stage 2 (15)	Sample No.	5
Soil Description	Grey fine to coarse sandy silty/clayey fine to coarse GRAVEL	Depth Top	1.40
		Depth Base	1.60
Date Tested	07/06/2023	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	78		
37.5	73		
28	63		
20	53		
14	49		
10	44		
6.3	38		
5	29		
3.35	21		
2	16		
1.18	13		
0.6	11		
0.425	11		
0.3	10		
0.212	10		
0.15	10		
0.063	9		

Sample Proportions	% dry mass
Cobbles	0
Gravel	84
Sand	7
Silt and Clay	9

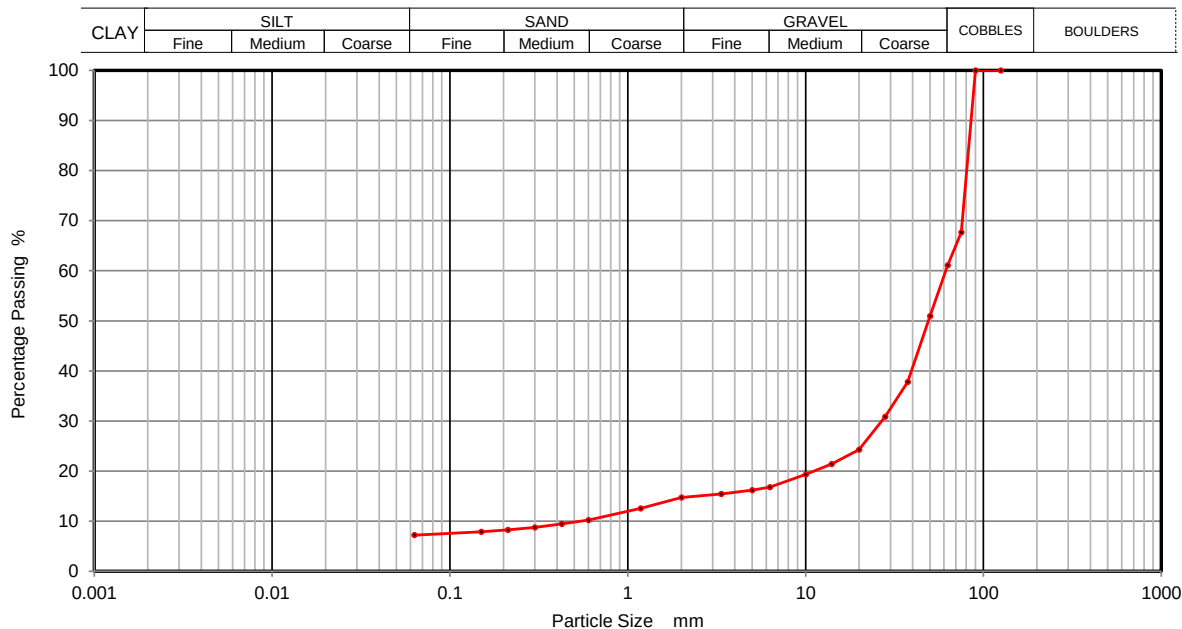
Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

**PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2**

Contract Number	66655
Borehole/Pit No.	S2-TP245

Project Name	Global Centre of Rail Excellence stage 2 (15)	Sample No.	2
Soil Description	Grey silty/clayey fine to coarse sandy fine to coarse GRAVEL (with cobbles)	Depth Top	0.40
		Depth Base	0.60
Date Tested	07/06/2023	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	68		
63	61		
50	51		
37.5	38		
28	31		
20	24		
14	21		
10	19		
6.3	17		
5	16		
3.35	15		
2	15		
1.18	13		
0.6	10		
0.425	9		
0.3	9		
0.212	8		
0.15	8		
0.063	7		

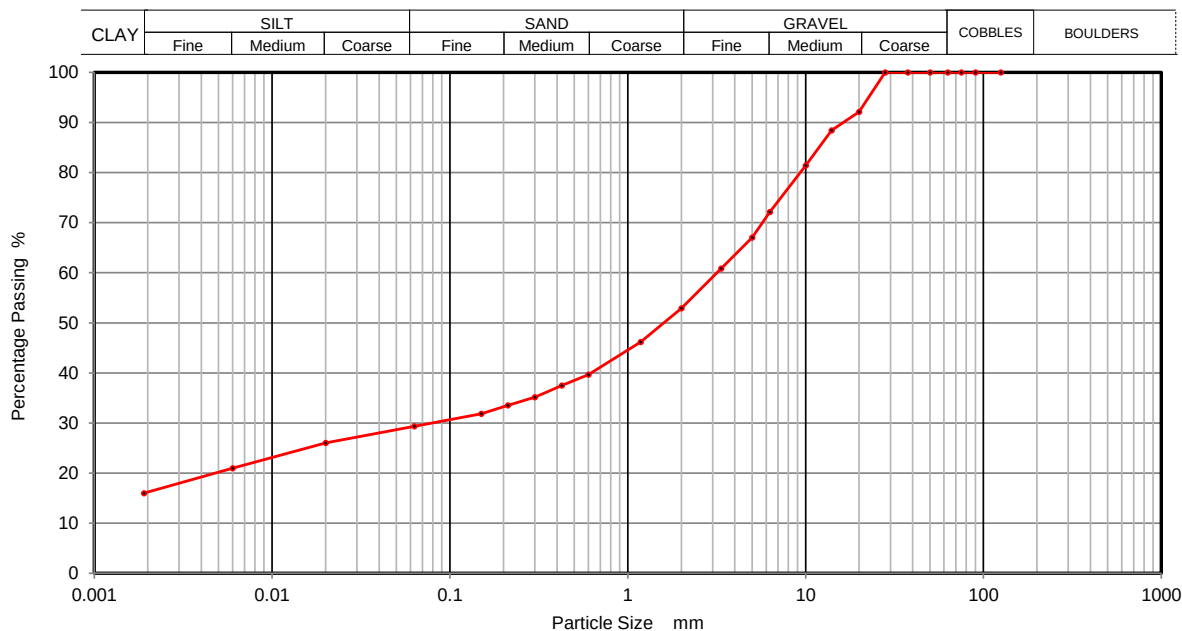
Sample Proportions	% dry mass
Cobbles	39
Gravel	46
Sand	8
Silt and Clay	7

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Contract Number	66655
Borehole/Pit No.	S2-TP245
Sample No.	9
Depth Top	2.90
Depth Base	3.00
Sample Type	D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	26
90	100	0.0060	21
75	100	0.0020	16
63	100		
50	100		
37.5	100		
28	100		
20	92		
14	88		
10	81		
6.3	72		
5	67		
3.35	61		
2	53		
1.18	46		
0.6	40		
0.425	37		
0.3	35		
0.212	34		
0.15	32		
0.063	29		

Sample Proportions	% dry mass
Cobbles	0
Gravel	47
Sand	24
Silt	13
Clay	16

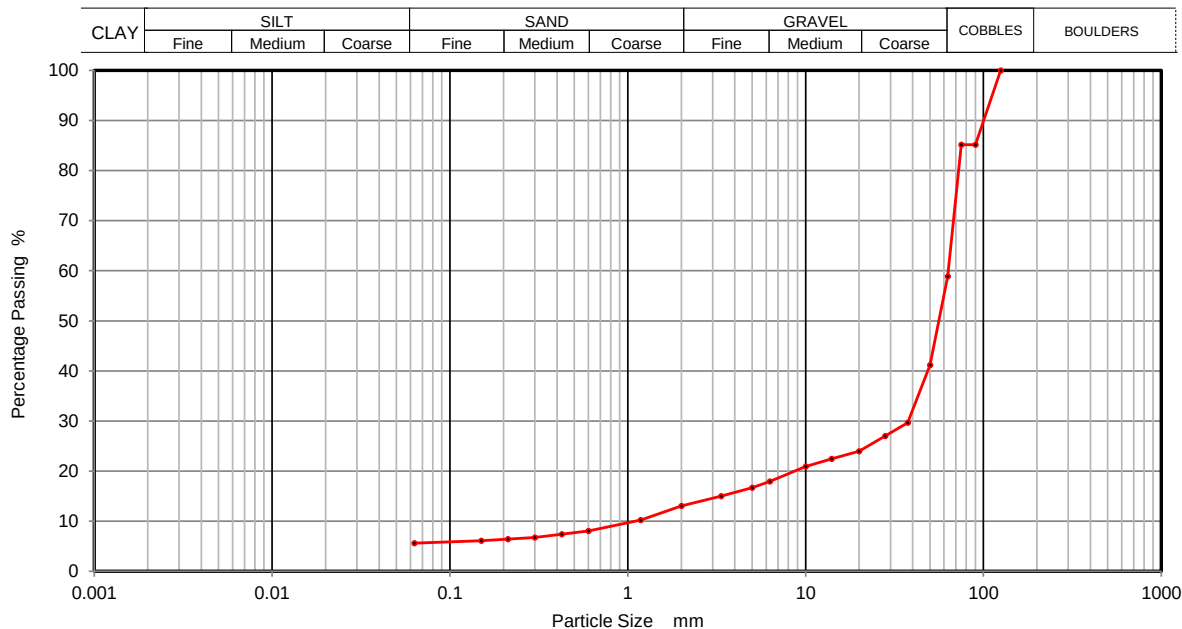
Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

**PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2**

Contract Number	66655
Borehole/Pit No.	S2-TP250

Project Name	Global Centre of Rail Excellence stage 2 (15)	Sample No.	7
Soil Description	Grey silty/clayey fine to coarse sandy fine to coarse GRAVEL (with cobbles)	Depth Top	2.40
		Depth Base	2.60
Date Tested	07/06/2023	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	85		
75	85		
63	59		
50	41		
37.5	30		
28	27		
20	24		
14	22		
10	21		
6.3	18		
5	17		
3.35	15		
2	13		
1.18	10		
0.6	8		
0.425	7		
0.3	7		
0.212	6		
0.15	6		
0.063	6		

Sample Proportions	% dry mass
Cobbles	41
Gravel	46
Sand	7
Silt and Clay	6

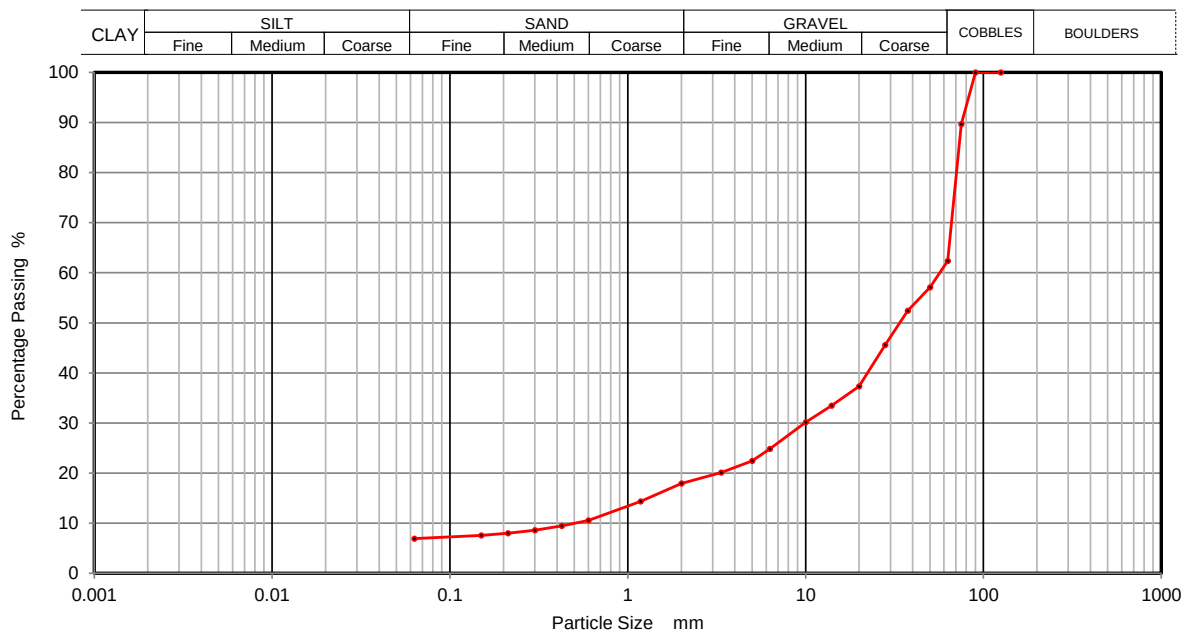
Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

**PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2**

Contract Number	66655
Borehole/Pit No.	S2-TP251

Project Name	Global Centre of Rail Excellence stage 2 (15)	Sample No.	6
Soil Description	Grey silty/clayey fine to coarse sandy fine to coarse GRAVEL	Depth Top	1.70
		Depth Base	1.90
Date Tested	07/06/2023	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	90		
63	62		
50	57		
37.5	52		
28	46		
20	37		
14	33		
10	30		
6.3	25		
5	22		
3.35	20		
2	18		
1.18	14		
0.6	11		
0.425	9		
0.3	9		
0.212	8		
0.15	8		
0.063	7		

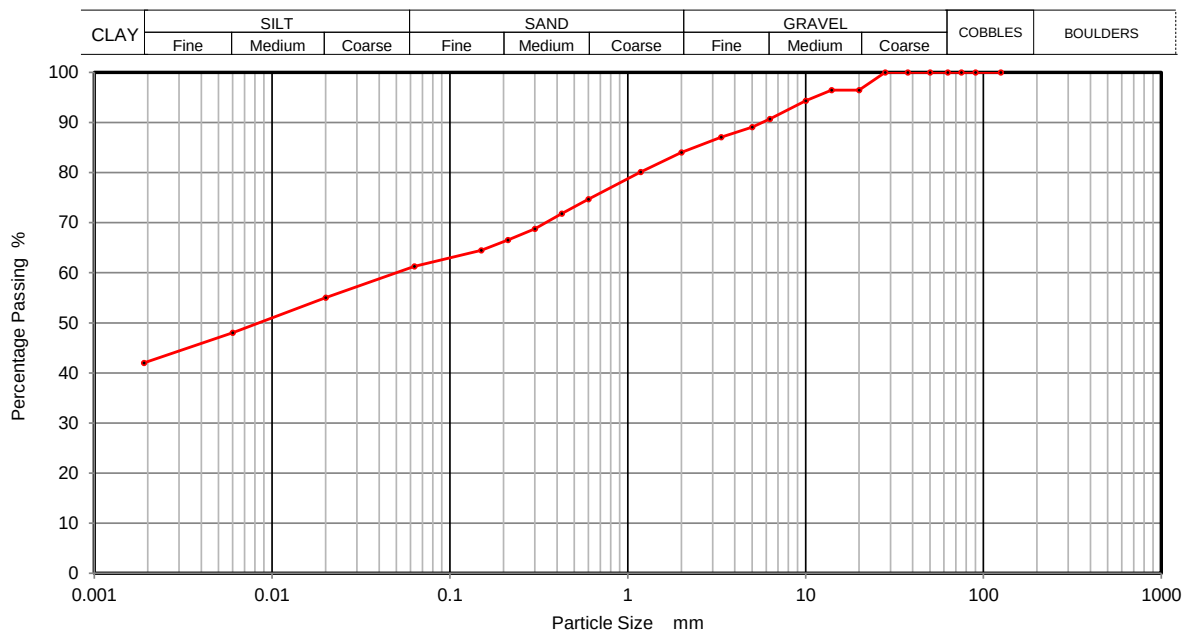
Sample Proportions	% dry mass
Cobbles	38
Gravel	44
Sand	11
Silt and Clay	7

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Contract Number	66655
Borehole/Pit No.	S2-TP252
Sample No.	2
Depth Top	0.40
Depth Base	0.50
Sample Type	D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	55
90	100	0.0060	48
75	100	0.0020	42
63	100		
50	100		
37.5	100		
28	100		
20	96		
14	96		
10	94		
6.3	91		
5	89		
3.35	87		
2	84		
1.18	80		
0.6	75		
0.425	72		
0.3	69		
0.212	67		
0.15	64		
0.063	61		

Sample Proportions	% dry mass
Cobbles	0
Gravel	16
Sand	23
Silt	19
Clay	42

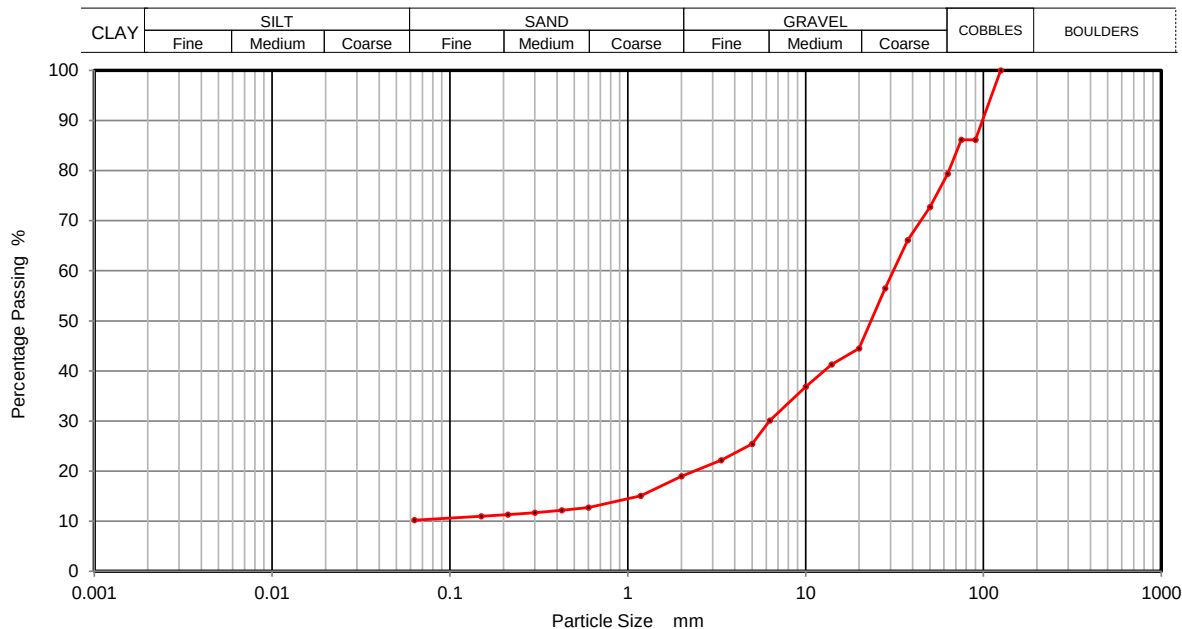
Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

**PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2**

Contract Number	66655
Borehole/Pit No.	S2-TP252

Project Name	Global Centre of Rail Excellence stage 2 (15)	Sample No.	8
Soil Description	Brown fine to coarse sandy silty/clayey fine to coarse GRAVEL (with cobbles)	Depth Top	1.80
		Depth Base	2.00
Date Tested	07/06/2023	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	86		
75	86		
63	79		
50	73		
37.5	66		
28	57		
20	44		
14	41		
10	37		
6.3	30		
5	25		
3.35	22		
2	19		
1.18	15		
0.6	13		
0.425	12		
0.3	12		
0.212	11		
0.15	11		
0.063	10		

Sample Proportions	% dry mass
Cobbles	21
Gravel	60
Sand	9
Silt and Clay	10

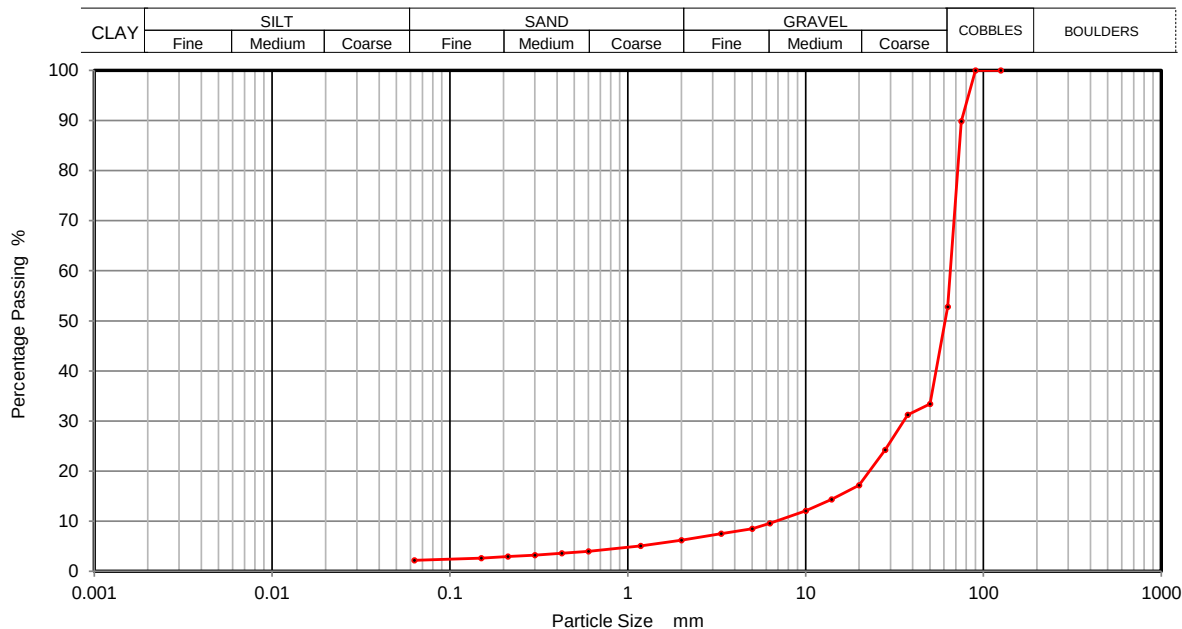
Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

**PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2**

Contract Number	66655
Borehole/Pit No.	S2-TP255

Project Name	Global Centre of Rail Excellence stage 2 (15)	Sample No.	5
Soil Description	Grey slightly clayey/silty slightly sandy fine to coarse GRAVEL (with cobbles)	Depth Top	1.60
		Depth Base	1.80
Date Tested	07/06/2023	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	90		
63	53		
50	33		
37.5	31		
28	24		
20	17		
14	14		
10	12		
6.3	10		
5	8		
3.35	7		
2	6		
1.18	5		
0.6	4		
0.425	4		
0.3	3		
0.212	3		
0.15	3		
0.063	2		

Sample Proportions	% dry mass
Cobbles	47
Gravel	47
Sand	4
Silt and Clay	2

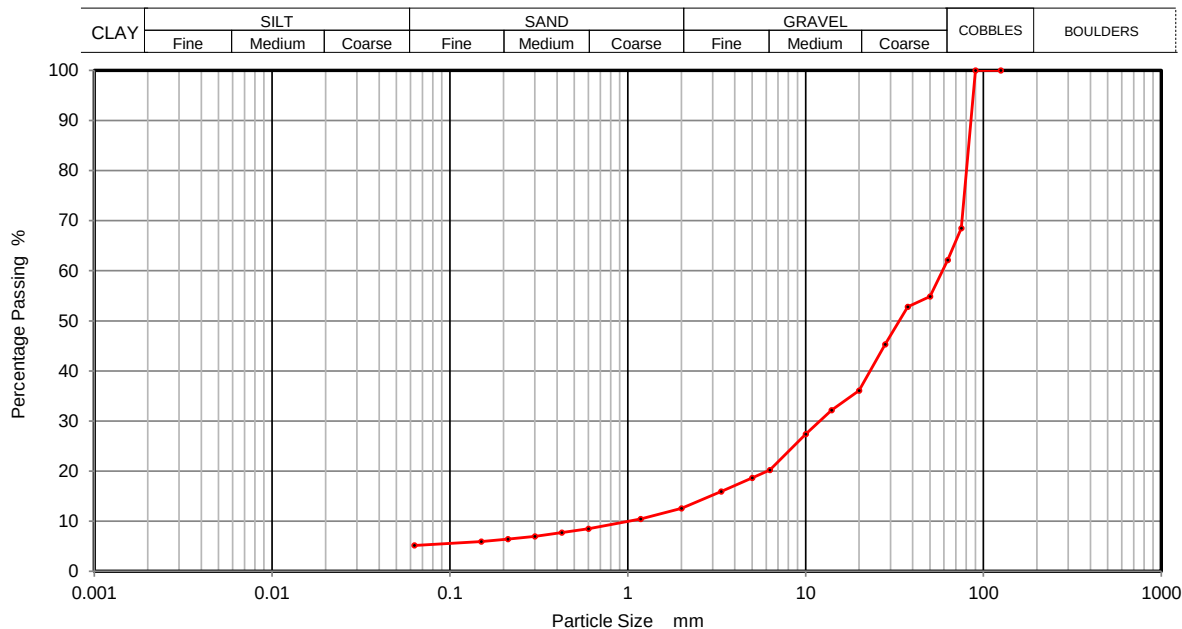
Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

**PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2**

Contract Number	66655
Borehole/Pit No.	S2-TP255

Project Name	Global Centre of Rail Excellence stage 2 (15)	Sample No.	7
Soil Description	Grey silty/clayey fine to coarse sandy fine to coarse GRAVEL (with cobbles)	Depth Top	2.40
		Depth Base	2.60
Date Tested	07/06/2023	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	68		
63	62		
50	55		
37.5	53		
28	45		
20	36		
14	32		
10	27		
6.3	20		
5	19		
3.35	16		
2	13		
1.18	10		
0.6	8		
0.425	8		
0.3	7		
0.212	6		
0.15	6		
0.063	5		

Sample Proportions	% dry mass
Cobbles	38
Gravel	49
Sand	8
Silt and Clay	5

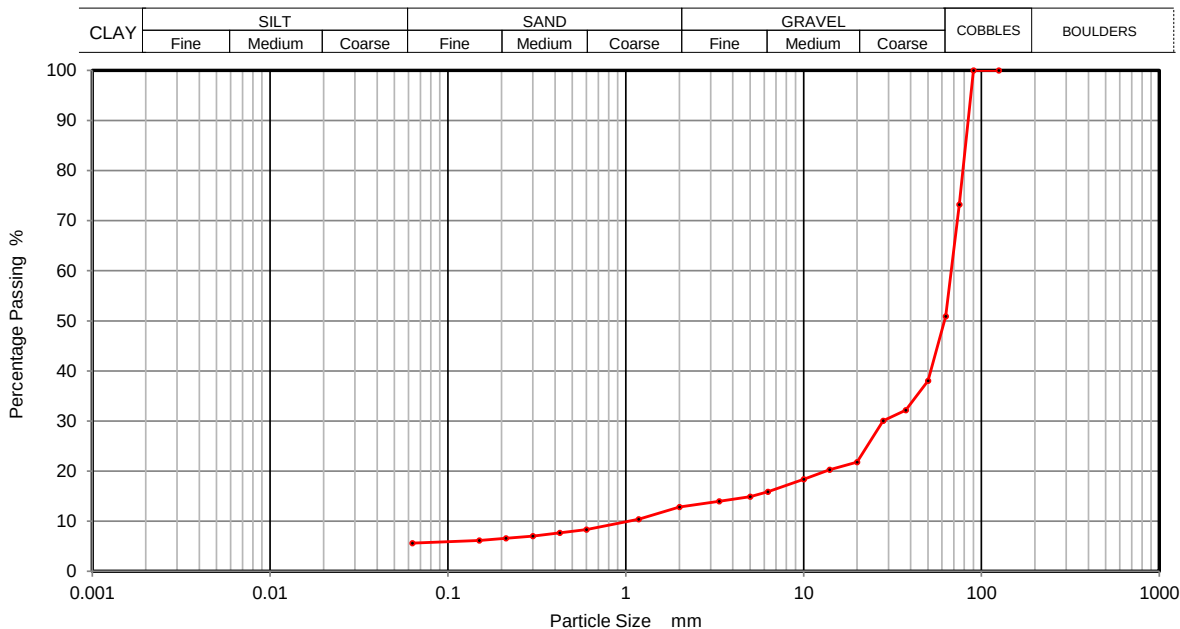
Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

**PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2**

Contract Number	66655
Borehole/Pit No.	S2-TP258

Project Name	Global Centre of Rail Excellence stage 2 (15)	Sample No.	5
Soil Description	Grey brown silty/clayey fine to coarse sandy fine to coarse GRAVEL (with cobbles)	Depth Top	1.20
		Depth Base	1.40
Date Tested	07/06/2023	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	73		
63	51		
50	38		
37.5	32		
28	30		
20	22		
14	20		
10	18		
6.3	16		
5	15		
3.35	14		
2	13		
1.18	10		
0.6	8		
0.425	8		
0.3	7		
0.212	7		
0.15	6		
0.063	6		

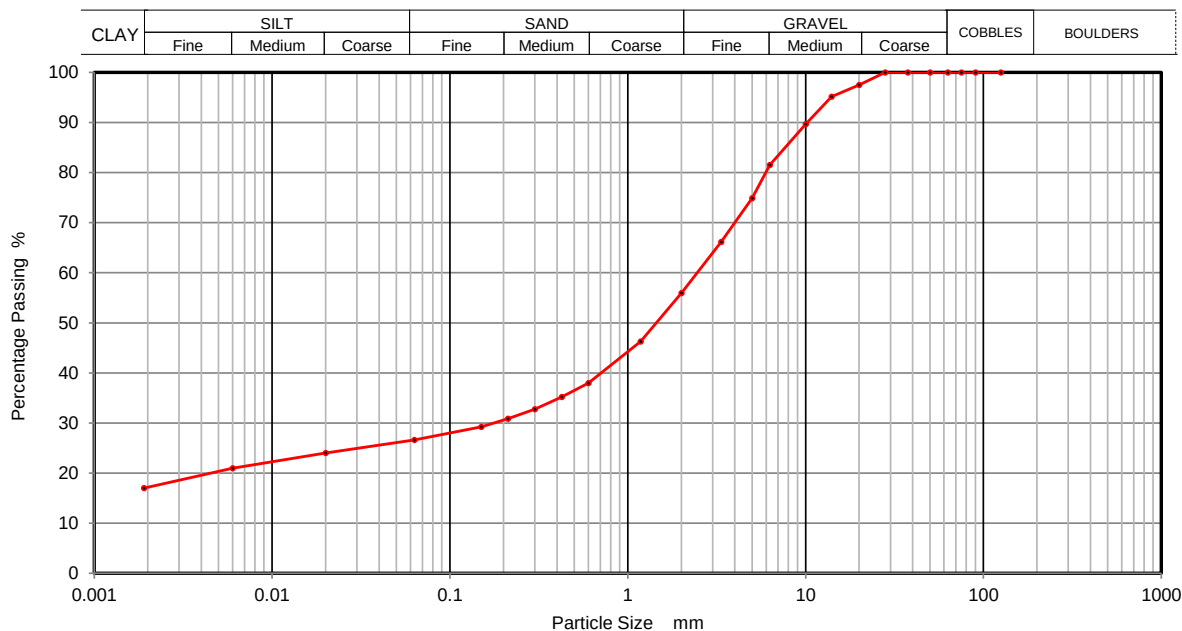
Sample Proportions	% dry mass
Cobbles	49
Gravel	38
Sand	7
Silt and Clay	6

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Contract Number	66655
Borehole/Pit No.	S2-TP258
Sample No.	9
Depth Top	2.90
Depth Base	3.00
Sample Type	D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	24
90	100	0.0060	21
75	100	0.0020	17
63	100		
50	100		
37.5	100		
28	100		
20	97		
14	95		
10	90		
6.3	82		
5	75		
3.35	66		
2	56		
1.18	46		
0.6	38		
0.425	35		
0.3	33		
0.212	31		
0.15	29		
0.063	27		

Sample Proportions	% dry mass
Cobbles	0
Gravel	44
Sand	29
Silt	10
Clay	17

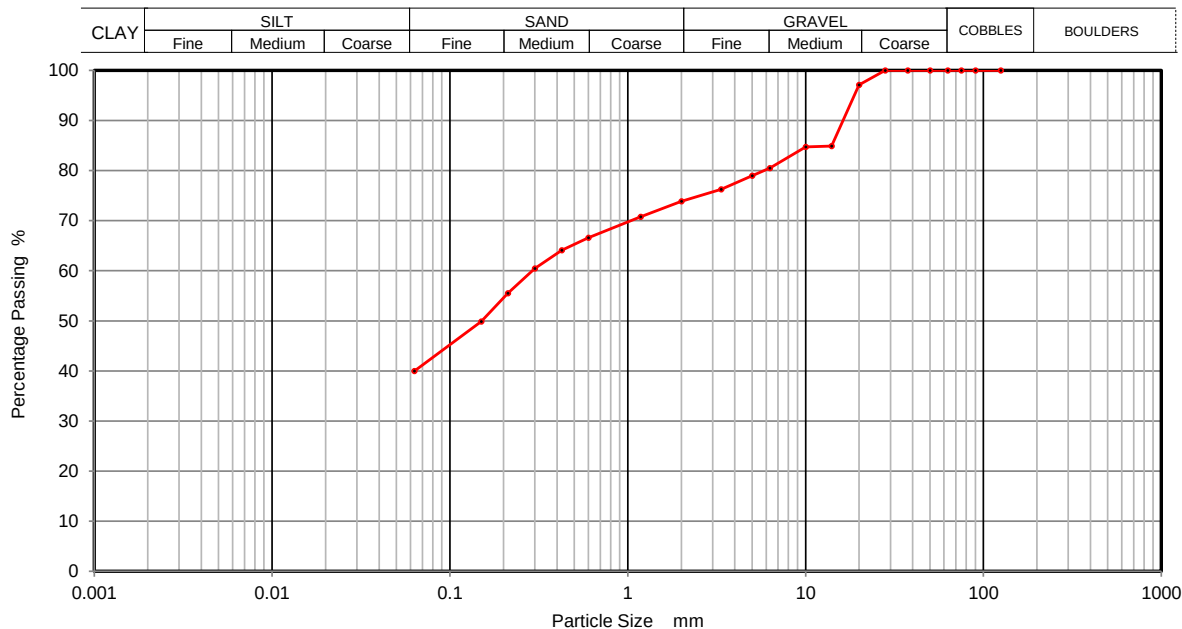
Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

**PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2**

Contract Number	66655
Borehole/Pit No.	S2-TP258

Project Name	Global Centre of Rail Excellence stage 2 (15)	Sample No.	11
Soil Description	Brown fine to coarse gravelly fine to coarse sandy SILT/CLAY	Depth Top	3.80
		Depth Base	3.90
Date Tested	07/06/2023	Sample Type	D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	97		
14	85		
10	85		
6.3	80		
5	79		
3.35	76		
2	74		
1.18	71		
0.6	67		
0.425	64		
0.3	60		
0.212	55		
0.15	50		
0.063	40		

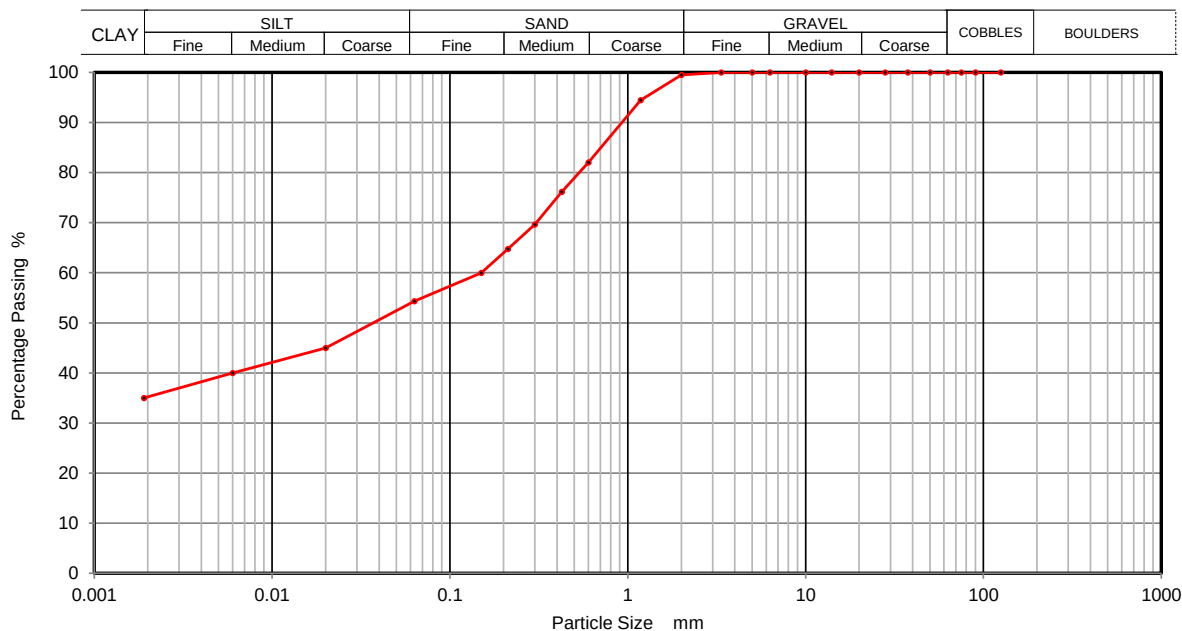
Sample Proportions	% dry mass
Cobbles	0
Gravel	26
Sand	34
Silt and Clay	40

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Contract Number	66655
Borehole/Pit No.	S2-TP265
Sample No.	2
Depth Top	0.30
Depth Base	0.40
Sample Type	D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	45
90	100	0.0060	40
75	100	0.0020	35
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	99		
1.18	94		
0.6	82		
0.425	76		
0.3	70		
0.212	65		
0.15	60		
0.063	54		

Sample Proportions	% dry mass
Cobbles	0
Gravel	1
Sand	45
Silt	19
Clay	35

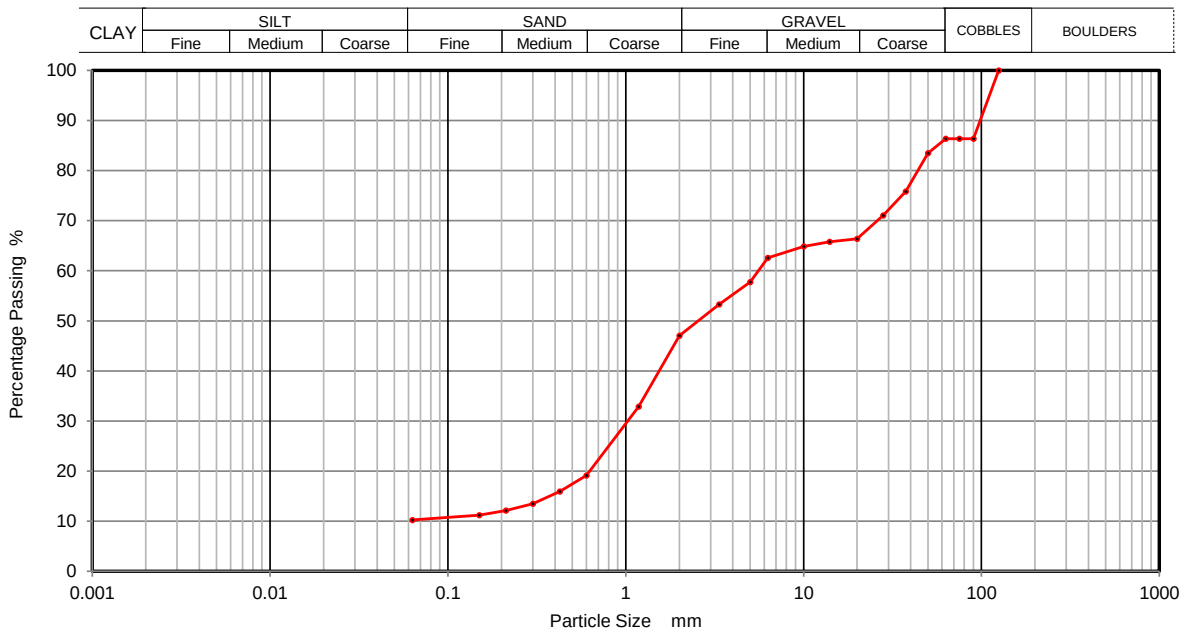
Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

**PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2**

Contract Number	66655
Borehole/Pit No.	S2-TP265

Project Name	Global Centre of Rail Excellence stage 2 (15)	Sample No.	8
Soil Description	Dark grey silty/clayey fine to coarse sandy fine to coarse GRAVEL (with cobbles)	Depth Top	2.40
		Depth Base	2.60
Date Tested	07/06/2023	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	86		
75	86		
63	86		
50	83		
37.5	76		
28	71		
20	66		
14	66		
10	65		
6.3	63		
5	58		
3.35	53		
2	47		
1.18	33		
0.6	19		
0.425	16		
0.3	13		
0.212	12		
0.15	11		
0.063	10		

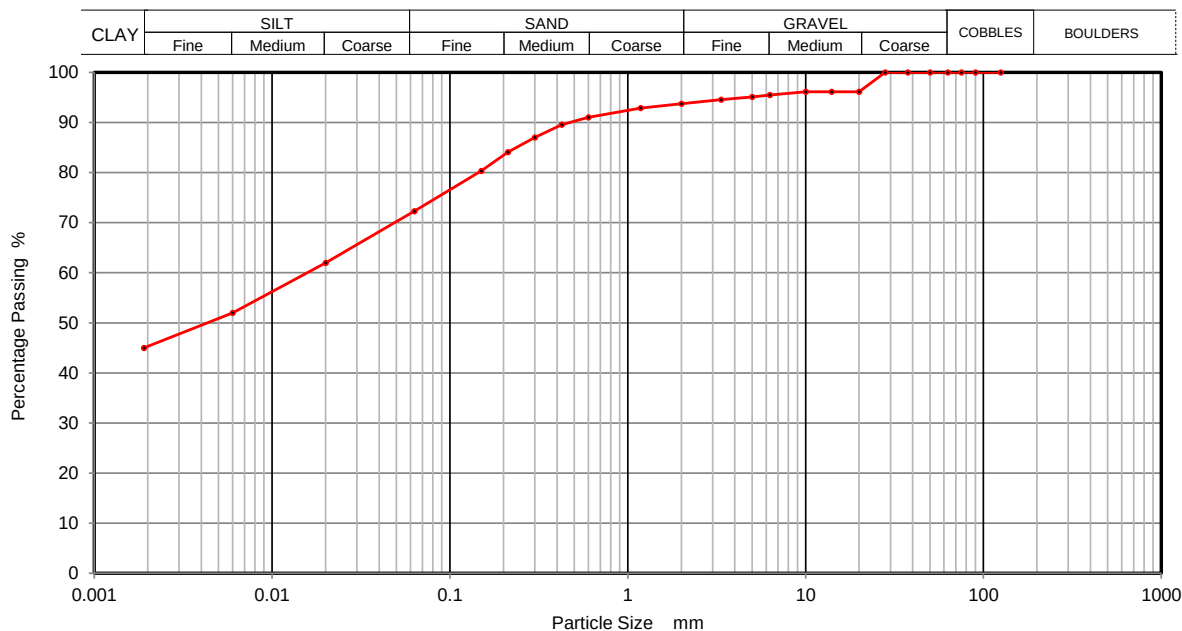
Sample Proportions	% dry mass
Cobbles	14
Gravel	39
Sand	37
Silt and Clay	10

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Contract Number	66655
Borehole/Pit No.	S2-TP280
Sample No.	7
Depth Top	1.00
Depth Base	1.10
Sample Type	D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	62
90	100	0.0060	52
75	100	0.0020	45
63	100		
50	100		
37.5	100		
28	100		
20	96		
14	96		
10	96		
6.3	95		
5	95		
3.35	95		
2	94		
1.18	93		
0.6	91		
0.425	90		
0.3	87		
0.212	84		
0.15	80		
0.063	72		

Sample Proportions	% dry mass
Cobbles	0
Gravel	6
Sand	22
Silt	27
Clay	45

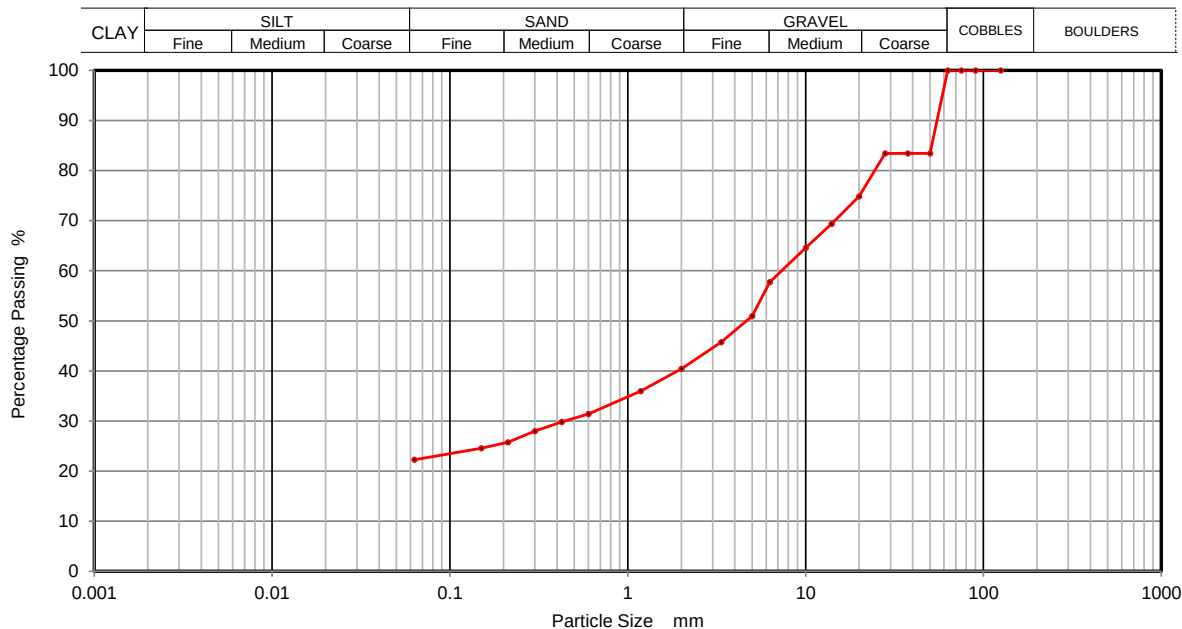
Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

**PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2**

Contract Number	66655
Borehole/Pit No.	S2-TP280

Project Name	Global Centre of Rail Excellence stage 2 (15)	Sample No.	8
Soil Description	Brown fine to coarse sandy silty/clayey fine to coarse GRAVEL	Depth Top	1.40
		Depth Base	1.60
Date Tested	07/06/2023	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	83		
37.5	83		
28	83		
20	75		
14	69		
10	65		
6.3	58		
5	51		
3.35	46		
2	40		
1.18	36		
0.6	31		
0.425	30		
0.3	28		
0.212	26		
0.15	25		
0.063	22		

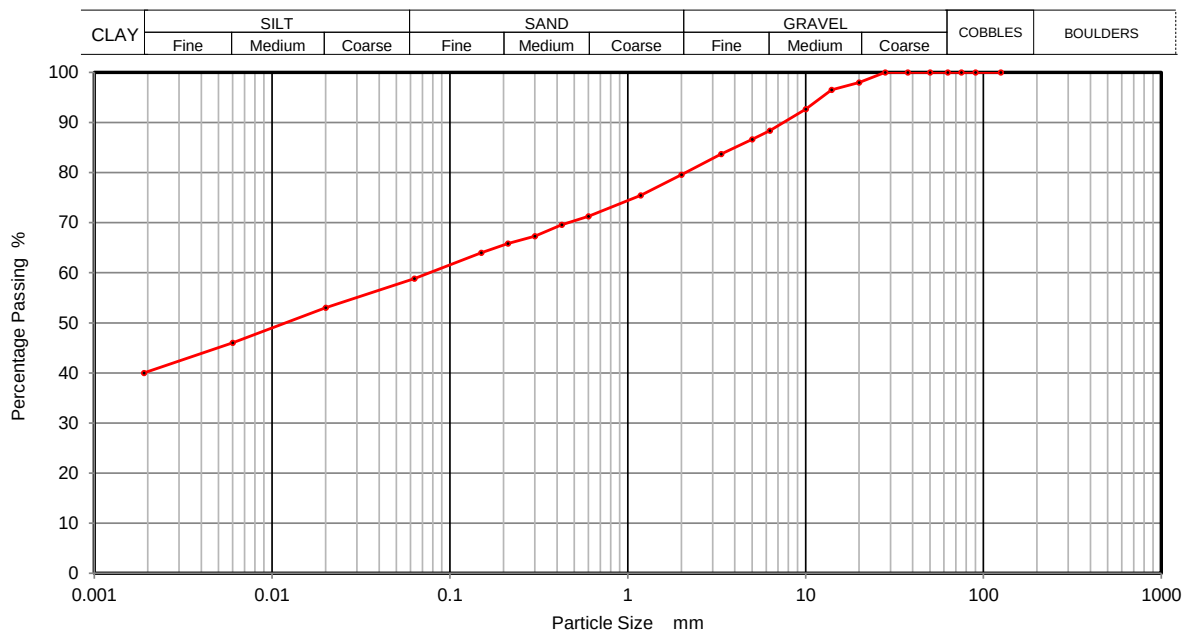
Sample Proportions	% dry mass
Cobbles	0
Gravel	60
Sand	18
Silt and Clay	22

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Contract Number	66655
Borehole/Pit No.	S2-TP280
Sample No.	10
Depth Top	2.40
Depth Base	2.50
Sample Type	D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	53
90	100	0.0060	46
75	100	0.0020	40
63	100		
50	100		
37.5	100		
28	100		
20	98		
14	97		
10	93		
6.3	88		
5	87		
3.35	84		
2	80		
1.18	75		
0.6	71		
0.425	70		
0.3	67		
0.212	66		
0.15	64		
0.063	59		

Sample Proportions	% dry mass
Cobbles	0
Gravel	20
Sand	21
Silt	19
Clay	40

Remarks
Preparation and testing in accordance with BS1377 unless noted below

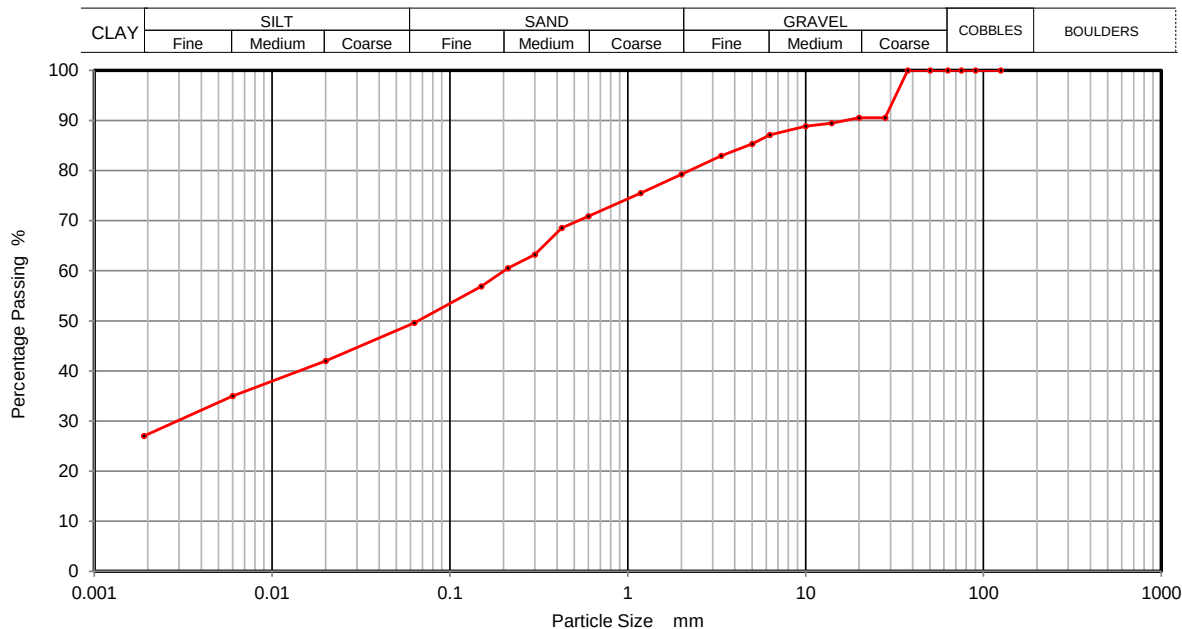
Operator
David Edwards



PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Contract Number	66655
Borehole/Pit No.	S2-TP2124
Sample No.	2
Depth Top	0.30
Depth Base	0.40
Sample Type	D

Project Name	Global Centre of Rail Excellence stage 2 (15)
Soil Description	Brown fine to coarse gravelly fine to coarse sandy silty CLAY
Date Tested	07/06/2023



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	42
90	100	0.0060	35
75	100	0.0020	27
63	100		
50	100		
37.5	100		
28	91		
20	91		
14	89		
10	89		
6.3	87		
5	85		
3.35	83		
2	79		
1.18	75		
0.6	71		
0.425	69		
0.3	63		
0.212	61		
0.15	57		
0.063	50		

Sample Proportions	% dry mass
Cobbles	0
Gravel	21
Sand	29
Silt	23
Clay	27

Remarks
 Preparation and testing in accordance with BS1377 unless noted below

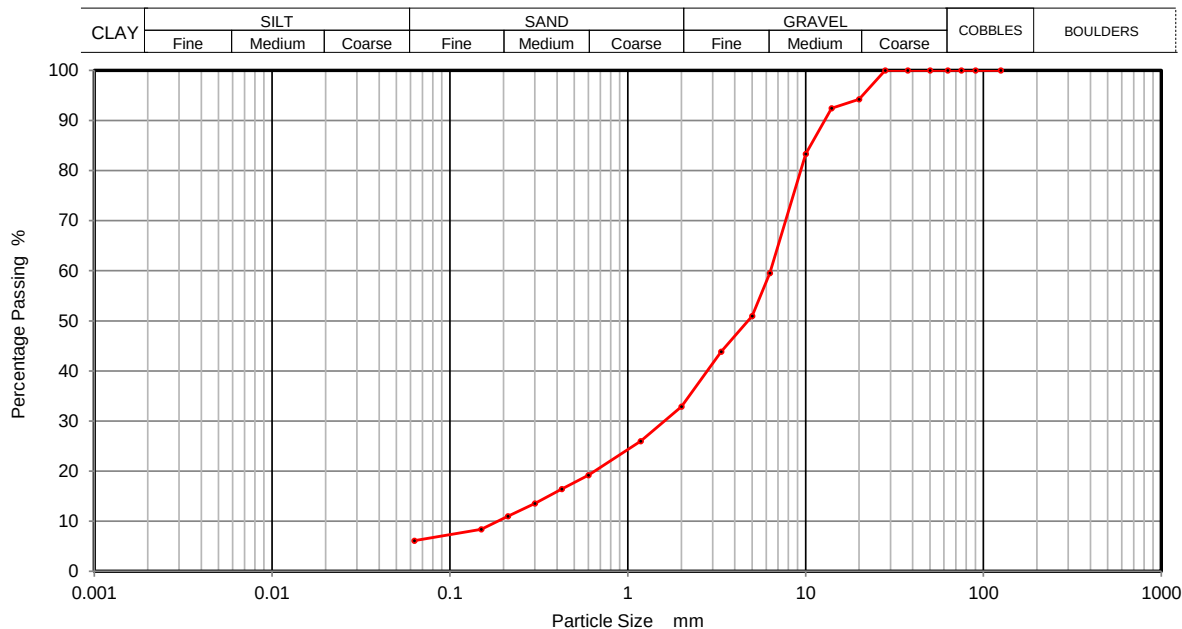
Operator
David Edwards



**PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2**

Contract Number	66655
Borehole/Pit No.	S2-TP2124

Project Name	Global Centre of Rail Excellence stage 2 (15)	Sample No.	6
Soil Description	Grey silty/clayey fine to coarse sandy fine to coarse GRAVEL	Depth Top	1.20
		Depth Base	1.40
Date Tested	07/06/2023	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	94		
14	92		
10	83		
6.3	60		
5	51		
3.35	44		
2	33		
1.18	26		
0.6	19		
0.425	16		
0.3	14		
0.212	11		
0.15	8		
0.063	6		

Sample Proportions	% dry mass
Cobbles	0
Gravel	67
Sand	27
Silt and Clay	6

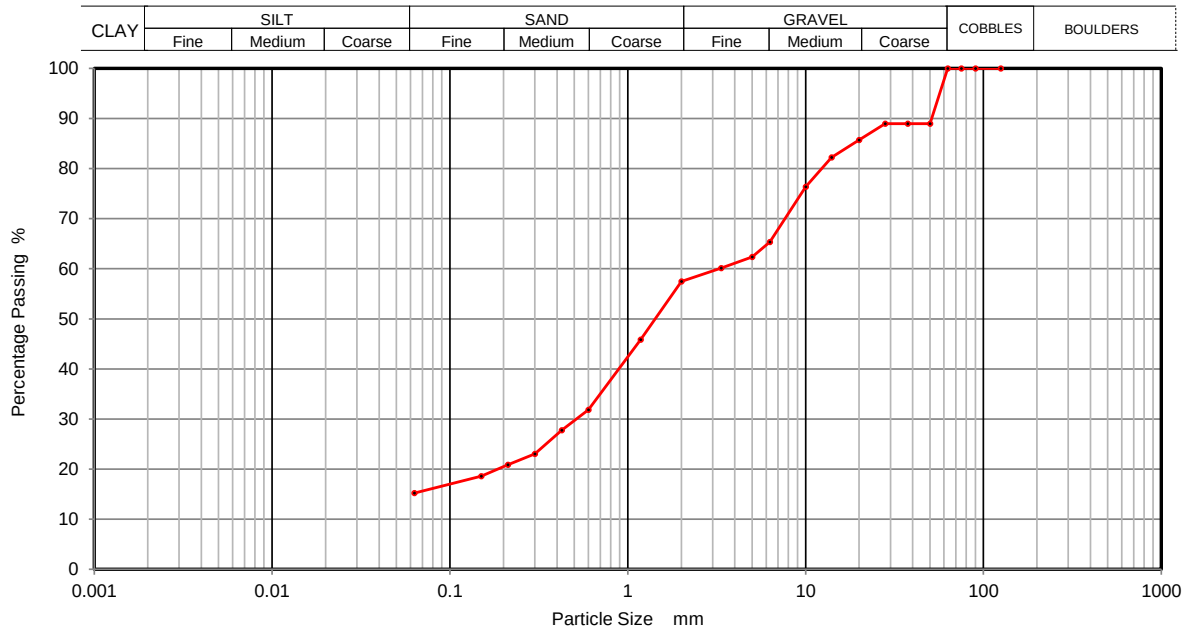
Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

**PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2**

Contract Number	66655
Borehole/Pit No.	S2-TP2125

Project Name	Global Centre of Rail Excellence stage 2 (15)	Sample No.	7
Soil Description	Brown silty/clayey fine to coarse sandy fine to coarse GRAVEL	Depth Top	1.80
		Depth Base	2.00
Date Tested	07/06/2023	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	89		
37.5	89		
28	89		
20	86		
14	82		
10	76		
6.3	65		
5	62		
3.35	60		
2	57		
1.18	46		
0.6	32		
0.425	28		
0.3	23		
0.212	21		
0.15	19		
0.063	15		

Sample Proportions	% dry mass
Cobbles	0
Gravel	43
Sand	42
Silt and Clay	15

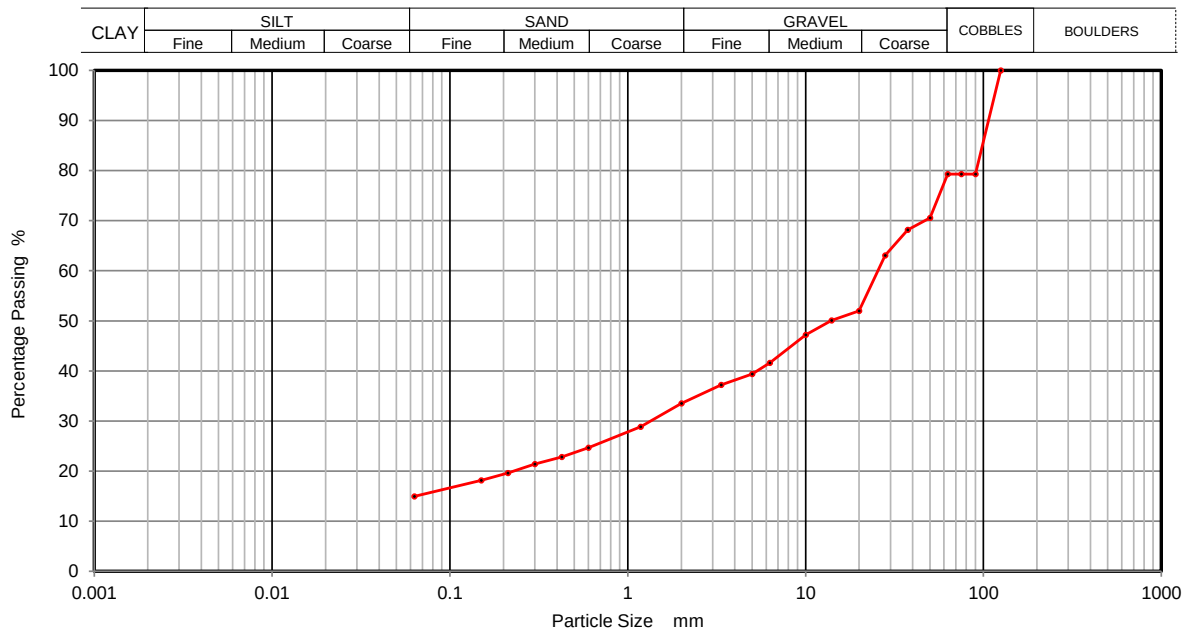
Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

**PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2**

Contract Number	66655
Borehole/Pit No.	S2-TP2126

Project Name	Global Centre of Rail Excellence stage 2 (15)	Sample No.	2
Soil Description	Grey clayey/silty fine to coarse sandy fine to coarse GRAVEL (with cobbles)	Depth Top	0.40
		Depth Base	0.60
Date Tested	07/06/2023	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	79		
75	79		
63	79		
50	71		
37.5	68		
28	63		
20	52		
14	50		
10	47		
6.3	42		
5	39		
3.35	37		
2	34		
1.18	29		
0.6	25		
0.425	23		
0.3	21		
0.212	20		
0.15	18		
0.063	15		

Sample Proportions	% dry mass
Cobbles	21
Gravel	45
Sand	19
Silt and Clay	15

Remarks
Preparation and testing in accordance with BS1377 unless noted below

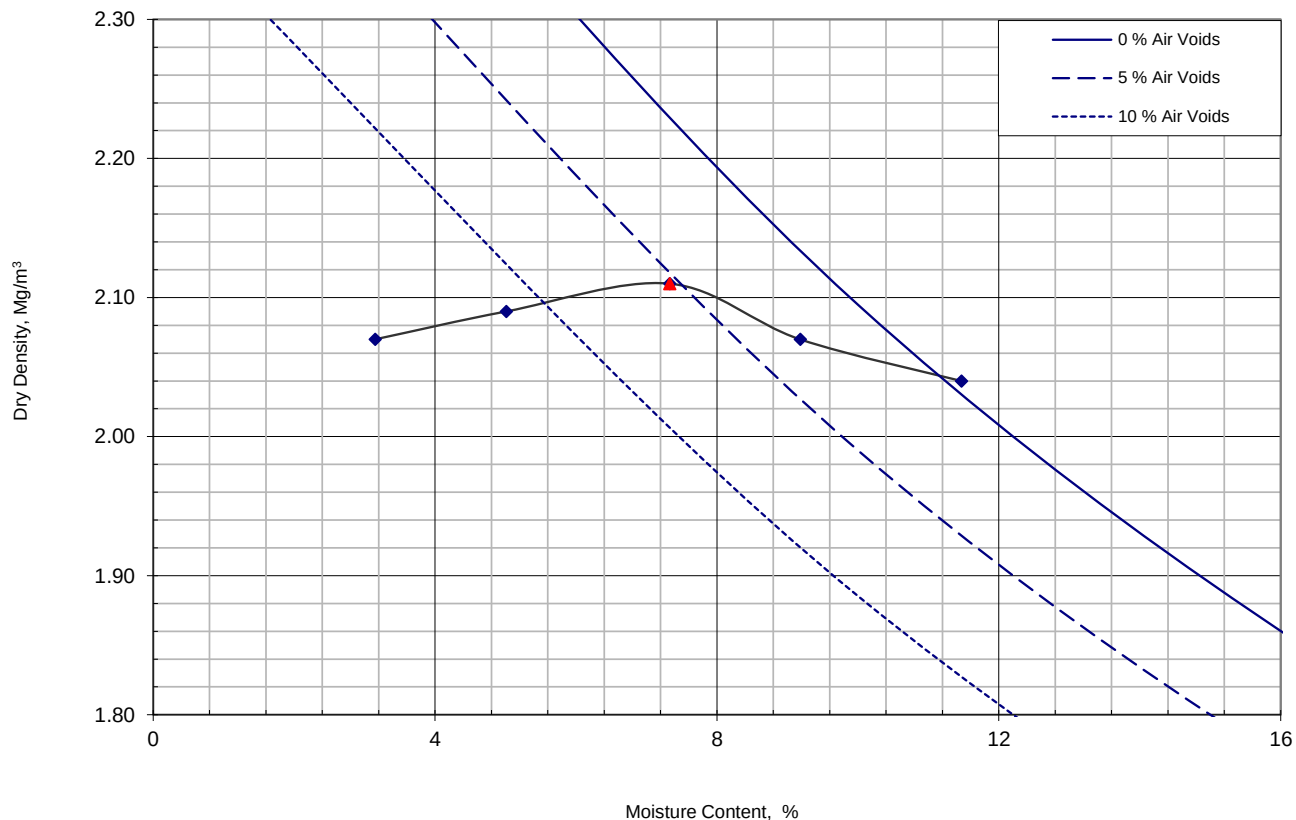
Operator
David Edwards

**Dry Density / Moisture Content Relationship
BS 1377:Part 4:1990**

Contract Number 66655

Borehole / Pit No S2-TP207

Project Name	Global Centre of Rail Excellence stage 2 (15)	Sample No	10
Date Tested	08/06/2023	Depth Top	2.90
Compaction Method	4.5 Kg Rammer	Depth Base	3.10
Compaction Clause	BS1377:Part 4:1990, Clause 3.5	Sample Type	B
Sample Description	Grey clayey/silty sandy fine to coarse GRAVEL	Single or Separate Sample Used	Single



Compaction Point	1	2	3	4	5							
Moisture Content	3.2	5.0	7.3	9.2	11							
Bulk Density	2.14	2.19	2.26	2.26	2.27							
Dry Density	2.07	2.09	2.11	2.07	2.04							

Initial Moisture Content	5.0	%
Maximum Dry Density	2.11	Mg/m3
Optimum Moisture Content	7.3	%
Particle Density	2.65 Assumed	Mg/m3
Material Retained 37.5mm	5	%
Material Retained 20mm	15	%

Operator
Conal

**Dry Density / Moisture Content Relationship
BS 1377:Part 4:1990**

Contract Number 66655

Borehole / Pit No S2-TP210

Project Name Global Centre of Rail Excellence stage 2 (15)

Sample No 9

Date Tested 08/06/2023

Depth Top 2.90

Compaction Method 4.5 Kg Rammer

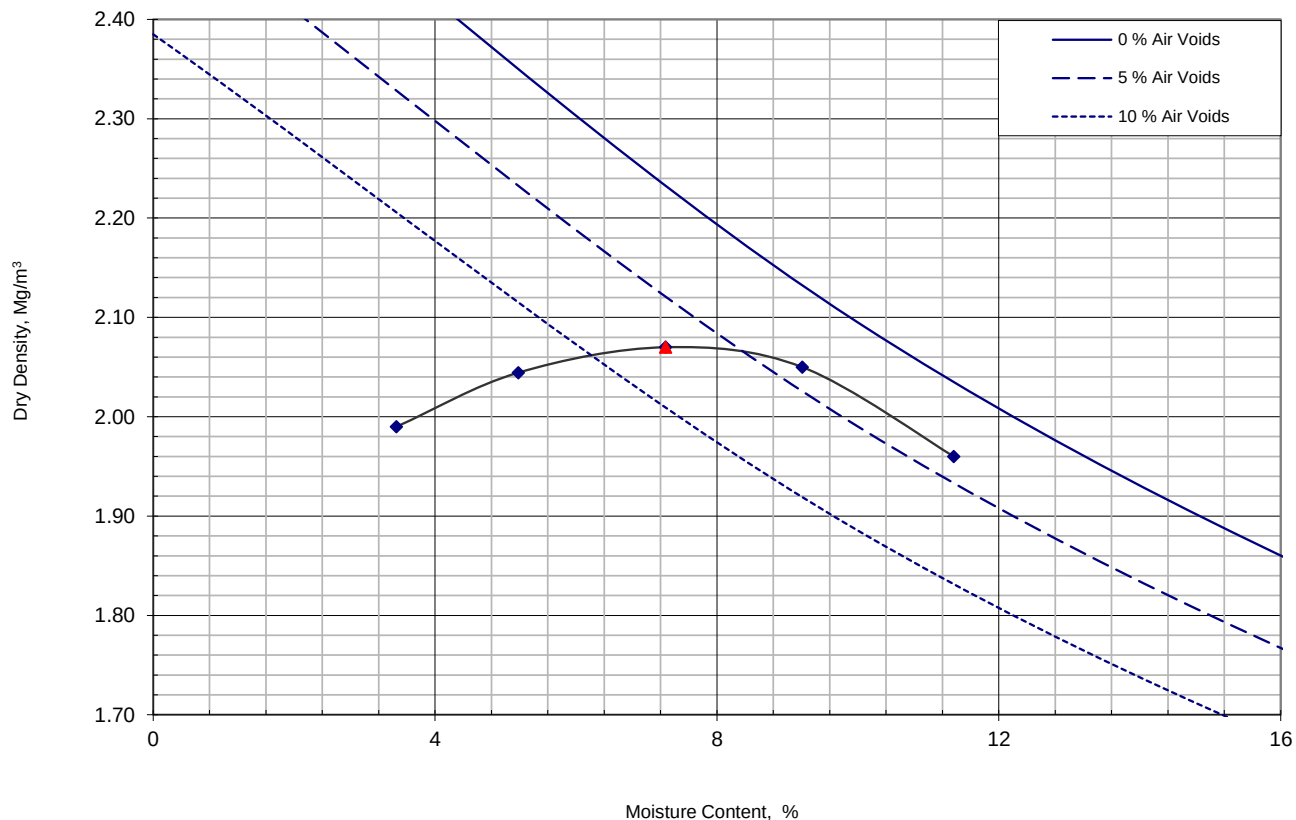
Depth Base 3.10

Compaction Clause BS1377:Part 4:1990, Clause 3.5

Sample Type B

Sample Description Grey clayey silty sandy fine to coarse GRAVEL

Single or Separate Sample Used Single



Compaction Point	1	2	3	4	5							
Moisture Content	3.5	5.2	7.3	9.2	11							
Bulk Density	2.06	2.15	2.22	2.24	2.18							
Dry Density	1.99	2.04	2.07	2.05	1.96							

Initial Moisture Content	5.2	%
Maximum Dry Density	2.07	Mg/m3
Optimum Moisture Content	7.3	%
Particle Density	2.65 Assumed	Mg/m3
Material Retained 37.5mm	20	%
Material Retained 20mm	11	%

Operator

Conal

**Dry Density / Moisture Content Relationship
BS 1377:Part 4:1990**

Contract Number 66655

Borehole / Pit No S2-TP238

Project Name Global Centre of Rail Excellence stage 2 (15)

Sample No 11

Date Tested 08/06/2023

Depth Top 2.90

Compaction Method 4.5 Kg Rammer

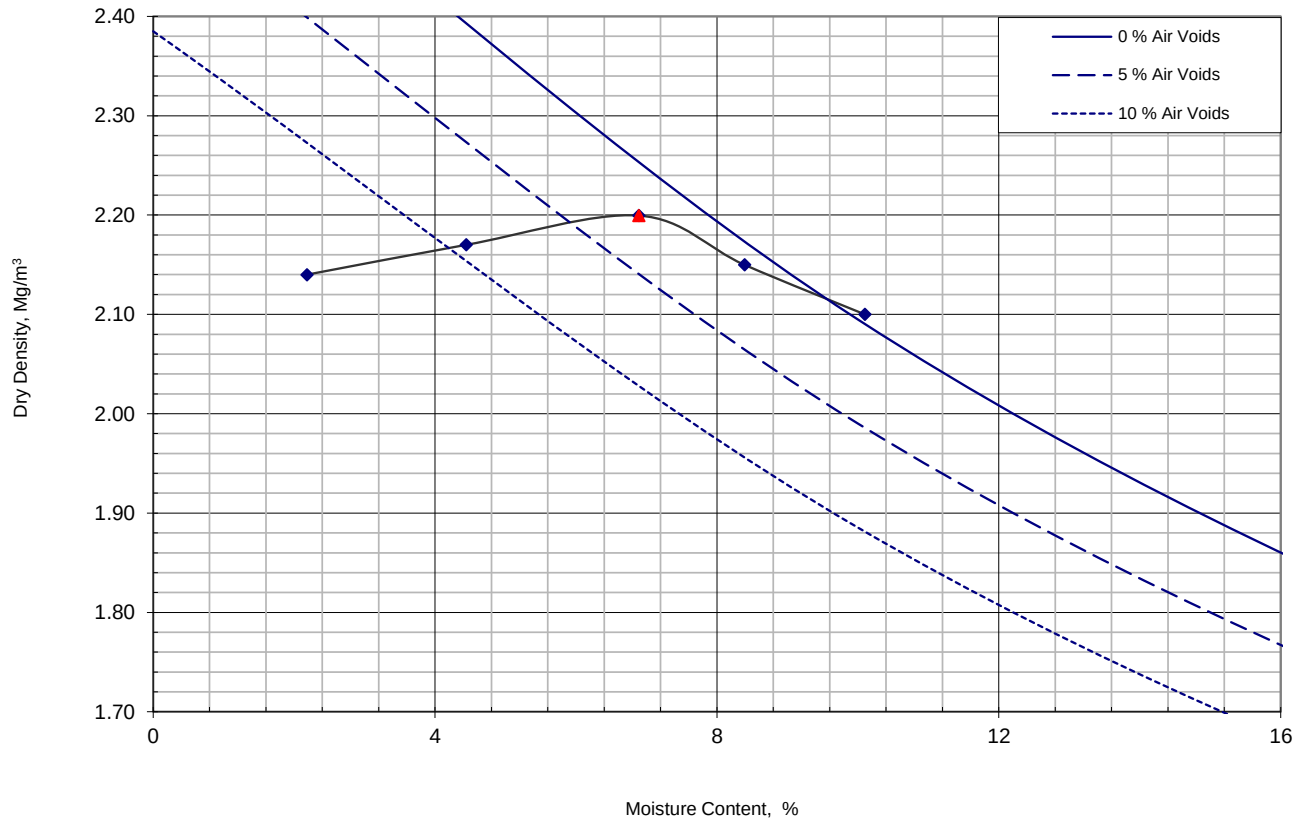
Depth Base 3.10

Compaction Clause BS1377:Part 4:1990, Clause 3.5

Sample Type B

Sample Description Grey clayey silty sandy fine to coarse GRAVEL

Single or Separate Sample Used Single



Compaction Point	1	2	3	4	5							
Moisture Content	2.2	4.4	6.9	8.4	10							
Bulk Density	2.19	2.27	2.35	2.33	2.31							
Dry Density	2.14	2.17	2.20	2.15	2.10							

Initial Moisture Content	6.9	%
Maximum Dry Density	2.20	Mg/m3
Optimum Moisture Content	6.9	%
Particle Density	2.65 Assumed	Mg/m3
Material Retained 37.5mm	36	%
Material Retained 20mm	15	%

Operator

Conal

**Dry Density / Moisture Content Relationship
BS 1377:Part 4:1990**

Contract Number 66655

Borehole / Pit No S2-TP241

Project Name Global Centre of Rail Excellence stage 2 (15)

Sample No 2

Date Tested 08/06/2023

Depth Top 0.20

Compaction Method 4.5 Kg Rammer

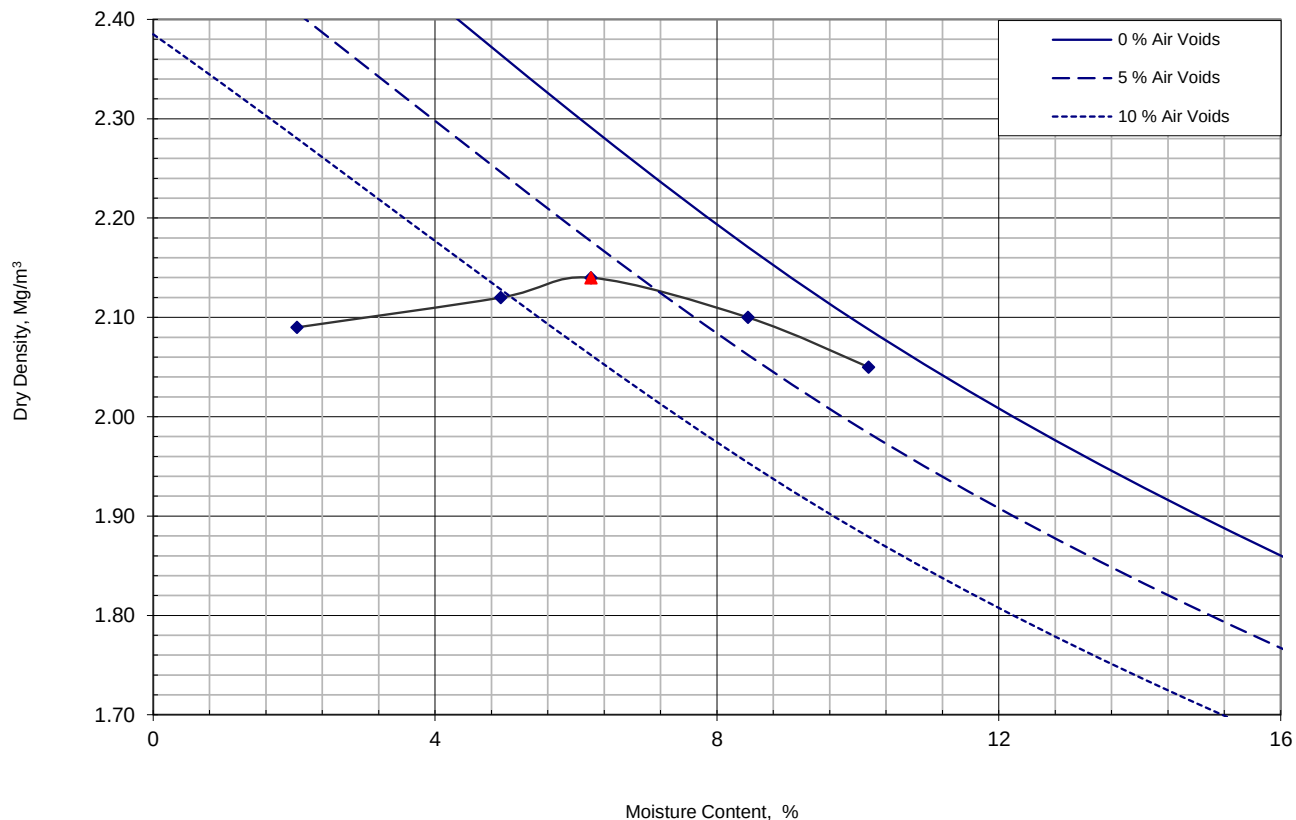
Depth Base 0.40

Compaction Clause BS1377:Part 4:1990, Clause 3.5

Sample Type B

Sample Description Grey clayey silty sandy fine to coarse GRAVEL

Single or Separate Sample Used Single



Compaction Point	1	2	3	4	5							
Moisture Content	2.0	4.9	6.2	8.4	10							
Bulk Density	2.13	2.22	2.27	2.28	2.26							
Dry Density	2.09	2.12	2.14	2.10	2.05							

Initial Moisture Content	4.9	%
Maximum Dry Density	2.14	Mg/m3
Optimum Moisture Content	6.2	%
Particle Density	2.65 Assumed	Mg/m3
Material Retained 37.5mm	0	%
Material Retained 20mm	10	%

Operator

Conal

**Dry Density / Moisture Content Relationship
BS 1377:Part 4:1990**

Contract Number 66655

Borehole / Pit No S2-TP241

Project Name Global Centre of Rail Excellence stage 2 (15)

Sample No 6

Date Tested 08/06/2023

Depth Top 1.60

Compaction Method 4.5 Kg Rammer

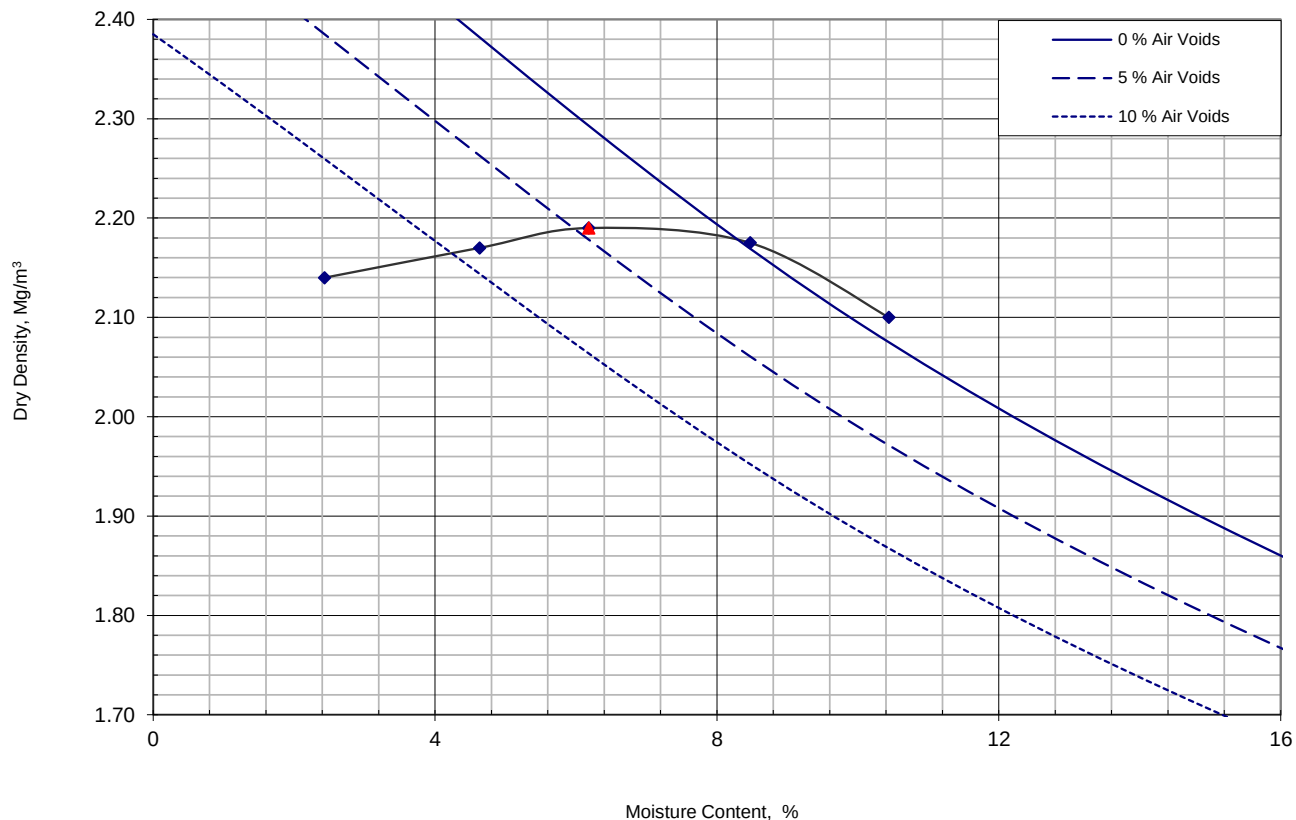
Depth Base 1.80

Compaction Clause BS1377:Part 4:1990, Clause 3.5

Sample Type B

Sample Description Grey clayey silty sandy fine to coarse GRAVEL

Single or Separate Sample Used Single



Compaction Point	1	2	3	4	5							
Moisture Content	2.4	4.6	6.2	8.5	10							
Bulk Density	2.19	2.27	2.33	2.36	2.32							
Dry Density	2.14	2.17	2.19	2.18	2.10							

Initial Moisture Content	8.5	%
Maximum Dry Density	2.19	Mg/m3
Optimum Moisture Content	6.2	%
Particle Density	2.65 Assumed	Mg/m3
Material Retained 37.5mm	38	%
Material Retained 20mm	21	%

Operator

Conal

**Dry Density / Moisture Content Relationship
BS 1377:Part 4:1990**

Contract Number 66655

Borehole / Pit No S2-TP242

Project Name Global Centre of Rail Excellence stage 2 (15)

Sample No 2

Date Tested 08/06/2023

Depth Top 0.20

Compaction Method 4.5 Kg Rammer

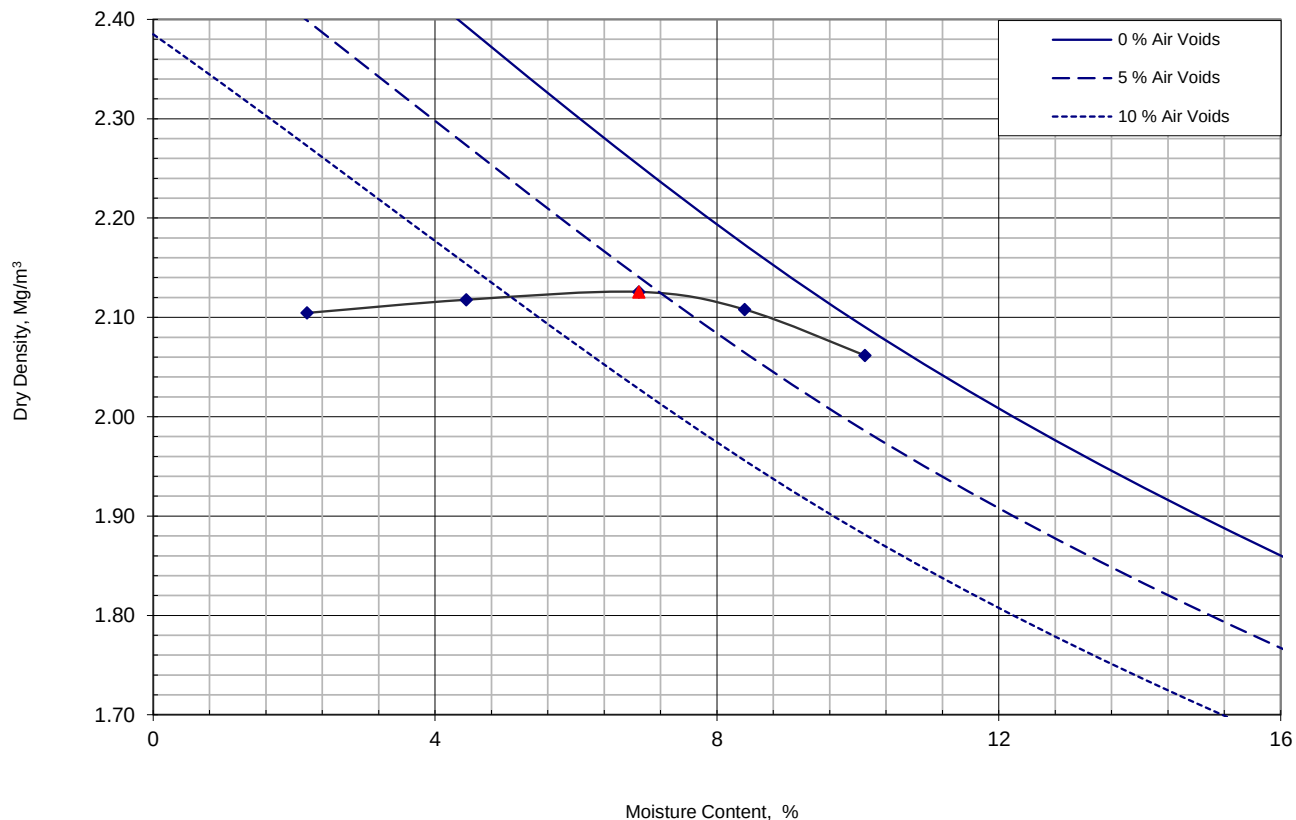
Depth Base 0.40

Compaction Clause BS1377:Part 4:1990, Clause 3.5

Sample Type B

Sample Description Grey clayey silty sandy fine to coarse GRAVEL

Single or Separate Sample Used Single



Compaction Point	1	2	3	4	5							
Moisture Content	2.2	4.4	6.9	8.4	10							
Bulk Density	2.15	2.21	2.27	2.28	2.27							
Dry Density	2.10	2.12	2.13	2.11	2.06							

Initial Moisture Content	6.9	%
Maximum Dry Density	2.13	Mg/m3
Optimum Moisture Content	6.9	%
Particle Density	2.65 Assumed	Mg/m3
Material Retained 37.5mm	24	%
Material Retained 20mm	12	%

Operator

Conal

**Dry Density / Moisture Content Relationship
BS 1377:Part 4:1990**

Contract Number 66655

Borehole / Pit No S2-TP242

Project Name Global Centre of Rail Excellence stage 2 (15)

Sample No 8

Date Tested 08/06/2023

Depth Top 2.70

Compaction Method 4.5 Kg Rammer

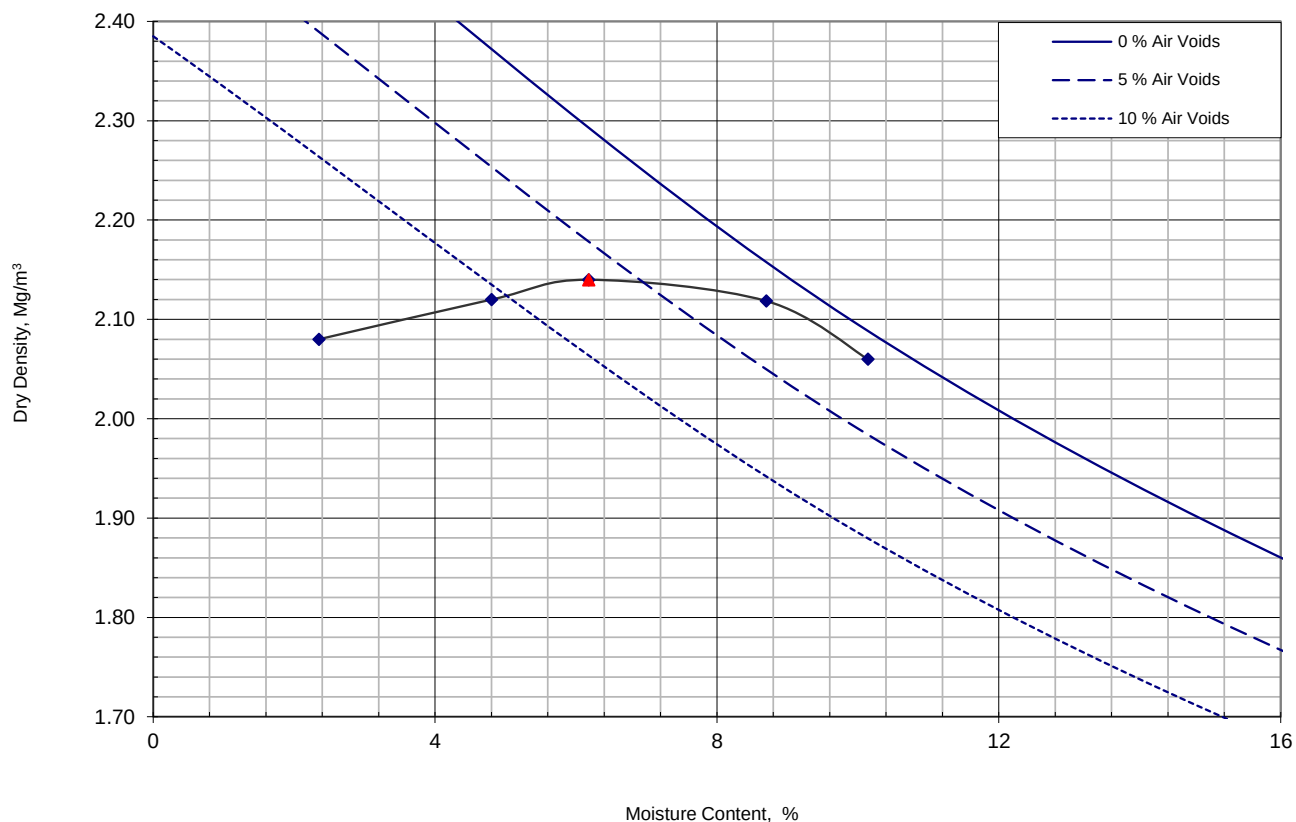
Depth Base 2.90

Compaction Clause BS1377:Part 4:1990, Clause 3.5

Sample Type B

Sample Description Grey clayey silty sandy fine to coarse GRAVEL

Single or Separate Sample Used Single



Compaction Point	1	2	3	4	5							
Moisture Content	2.4	4.8	6.2	8.7	10							
Bulk Density	2.13	2.22	2.27	2.30	2.27							
Dry Density	2.08	2.12	2.14	2.12	2.06							

Initial Moisture Content	8.7	%
Maximum Dry Density	2.14	Mg/m3
Optimum Moisture Content	6.2	%
Particle Density	2.65 Assumed	Mg/m3
Material Retained 37.5mm	30	%
Material Retained 20mm	13	%

Operator

Conal

**Dry Density / Moisture Content Relationship
BS 1377:Part 4:1990**

Contract Number 66655

Borehole / Pit No S2-TP243

Project Name Global Centre of Rail Excellence stage 2 (15)

Sample No 7

Date Tested 08/06/2023

Depth Top 2.40

Compaction Method 4.5 Kg Rammer

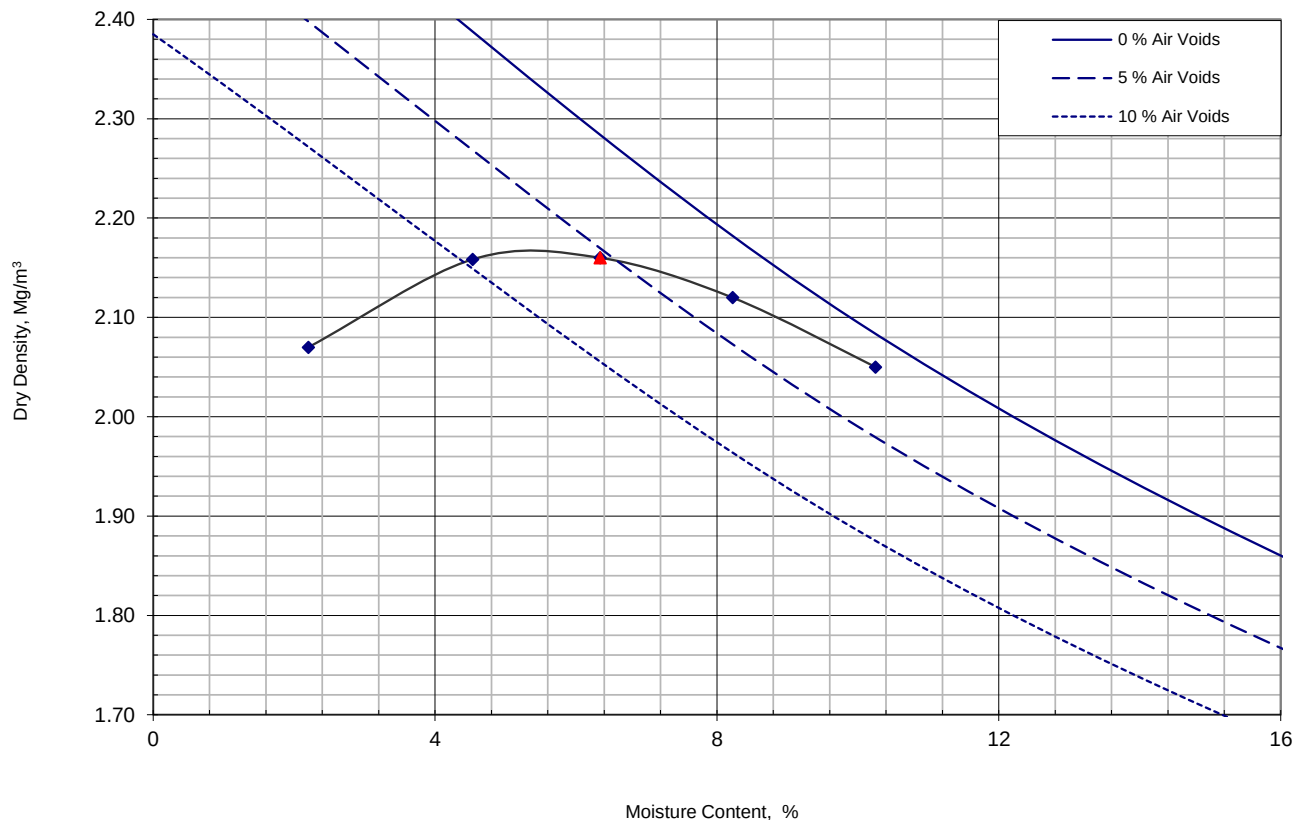
Depth Base 2.60

Compaction Clause BS1377:Part 4:1990, Clause 3.5

Sample Type B

Sample Description Grey clayey silty sandy fine to coarse GRAVEL

Single or Separate Sample Used Single



Compaction Point	1	2	3	4	5							
Moisture Content	2.2	4.5	6.3	8.2	10							
Bulk Density	2.12	2.26	2.30	2.29	2.26							
Dry Density	2.07	2.16	2.16	2.12	2.05							

Initial Moisture Content	4.5	%
Maximum Dry Density	2.16	Mg/m ³
Optimum Moisture Content	6.3	%
Particle Density	2.65 Assumed	Mg/m ³
Material Retained 37.5mm	32	%
Material Retained 20mm	13	%

Operator

Conal

**Dry Density / Moisture Content Relationship
BS 1377:Part 4:1990**

Contract Number 66655

Borehole / Pit No S2-TP245

Project Name Global Centre of Rail Excellence stage 2 (15)

Sample No 5

Date Tested 08/06/2023

Depth Top 1.40

Compaction Method 4.5 Kg Rammer

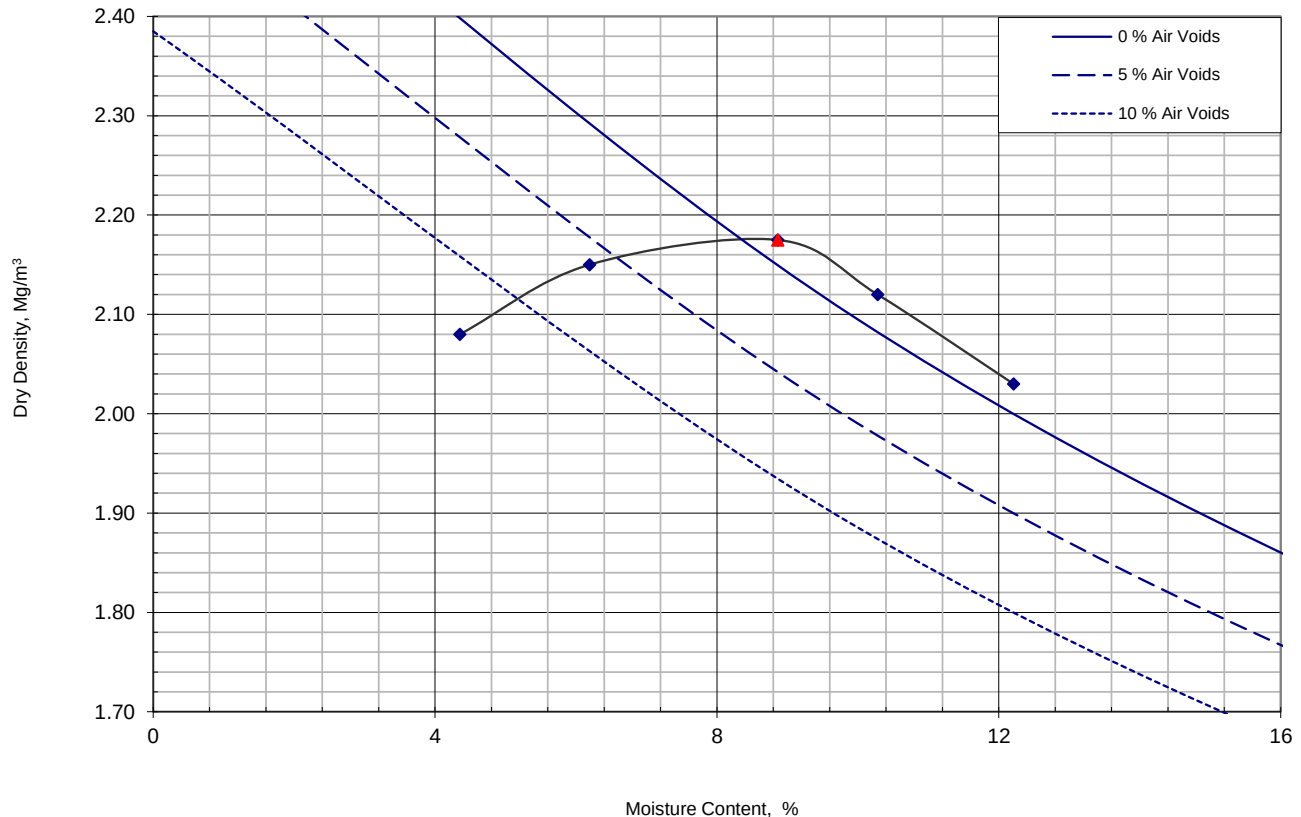
Depth Base 1.60

Compaction Clause BS1377:Part 4:1990, Clause 3.5

Sample Type B

Sample Description Grey clayey silty sandy fine to coarse GRAVEL

Single or Separate Sample Used Single



Compaction Point	1	2	3	4	5							
Moisture Content	4.4	6.2	8.9	10	12							
Bulk Density	2.17	2.28	2.37	2.34	2.28							
Dry Density	2.08	2.15	2.18	2.12	2.03							

Initial Moisture Content	8.9	%
Maximum Dry Density	2.18	Mg/m ³
Optimum Moisture Content	8.9	%
Particle Density	2.65 Assumed	Mg/m ³
Material Retained 37.5mm	41	%
Material Retained 20mm	21	%

Operator

Conal

**Dry Density / Moisture Content Relationship
BS 1377:Part 4:1990**

Contract Number 66655

Borehole / Pit No S2-TP250

Project Name Global Centre of Rail Excellence stage 2 (15)

Sample No 5

Date Tested 08/06/2023

Depth Top 1.40

Compaction Method 4.5 Kg Rammer

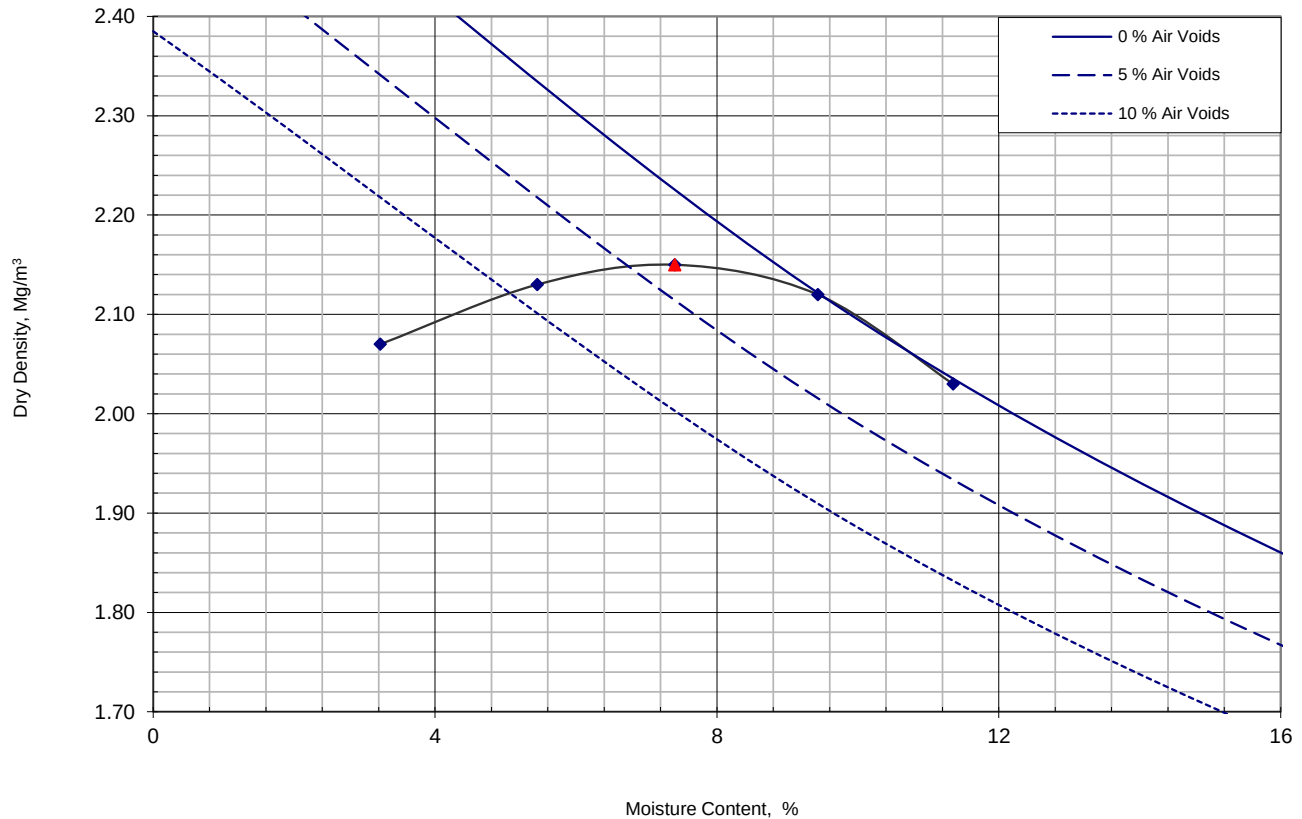
Depth Base 1.60

Compaction Clause BS1377:Part 4:1990, Clause 3.5

Sample Type B

Sample Description Grey clayey silty sandy fine to coarse GRAVEL

Single or Separate Sample Used Single



Compaction Point	1	2	3	4	5							
Moisture Content	3.2	5.5	7.4	9.4	11							
Bulk Density	2.14	2.25	2.31	2.32	2.26							
Dry Density	2.07	2.13	2.15	2.12	2.03							

Initial Moisture Content	5.5	%
Maximum Dry Density	2.15	Mg/m ³
Optimum Moisture Content	7.4	%
Particle Density	2.65 Assumed	Mg/m ³
Material Retained 37.5mm	38	%
Material Retained 20mm	17	%

Operator

Conal

**Dry Density / Moisture Content Relationship
BS 1377:Part 4:1990**

Contract Number 66655

Borehole / Pit No S2-TP2126

Project Name Global Centre of Rail Excellence stage 2 (15)

Sample No 7

Date Tested 08/06/2023

Depth Top 2.40

Compaction Method 4.5 Kg Rammer

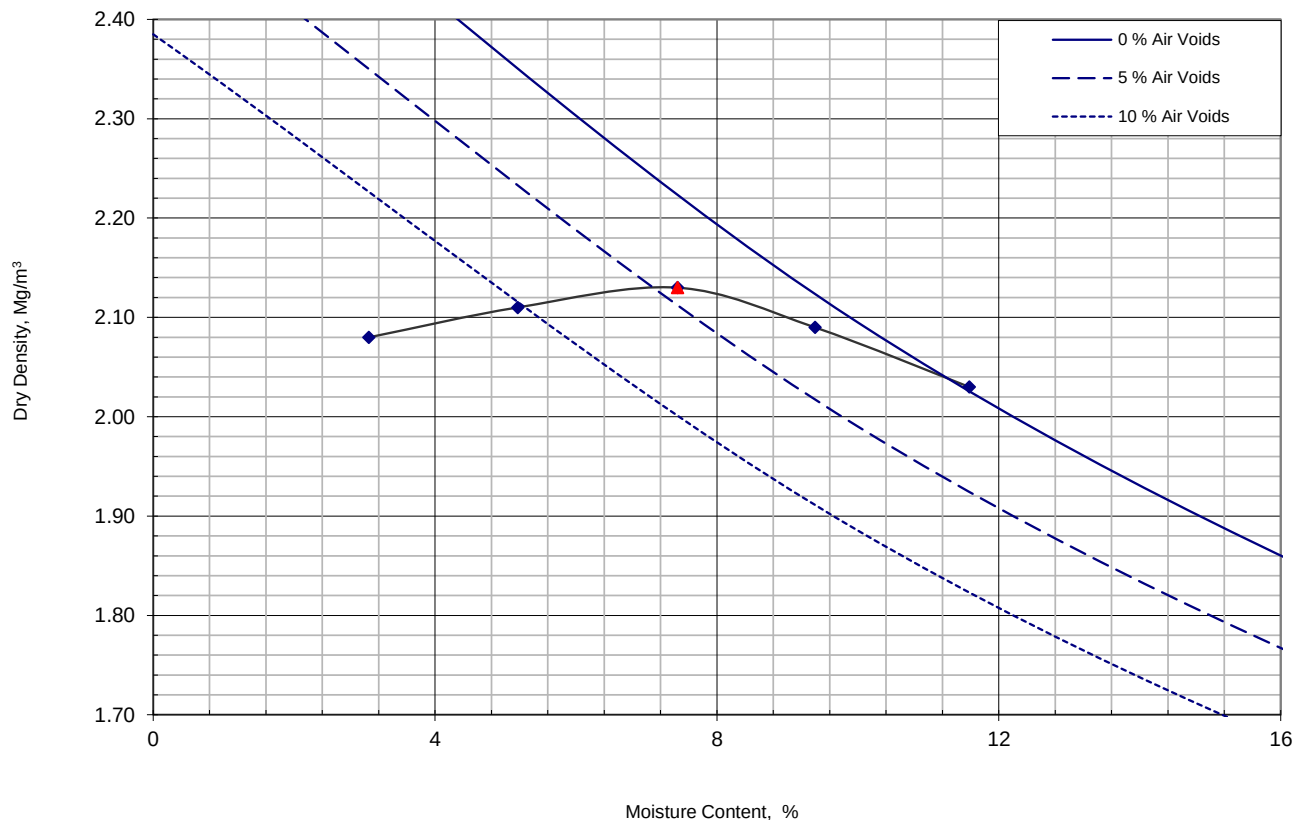
Depth Base 2.60

Compaction Clause BS1377:Part 4:1990, Clause 3.5

Sample Type B

Sample Description Grey clayey silty sandy fine to coarse GRAVEL

Single or Separate
Sample Used Single



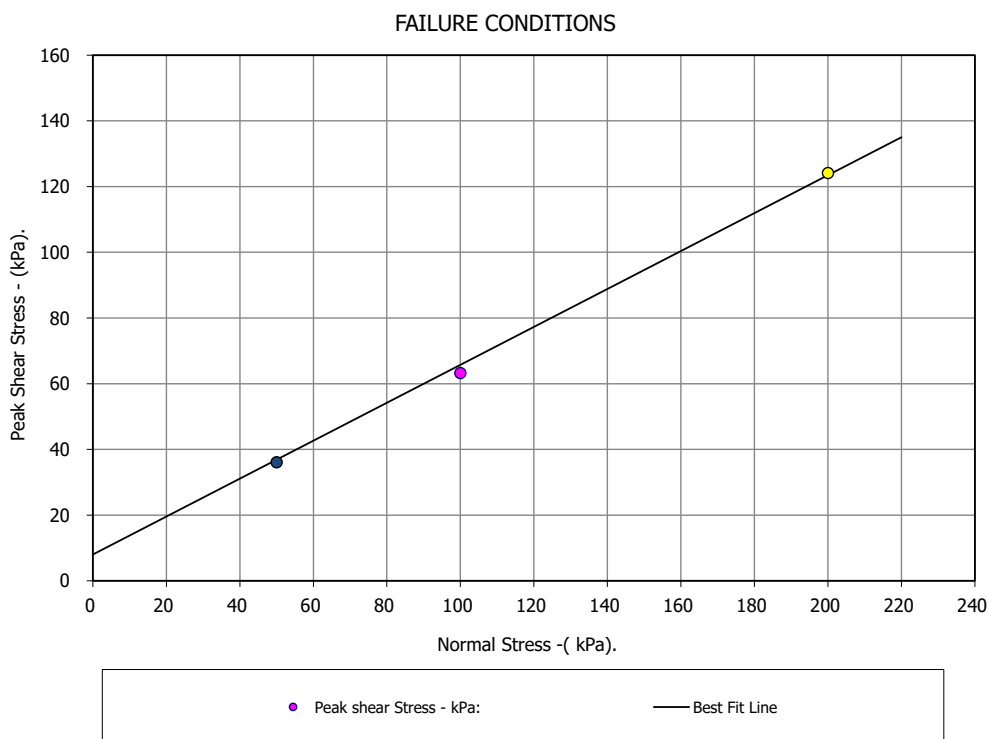
Compaction Point	1	2	3	4	5							
Moisture Content	3.1	5.2	7.4	9.4	12							
Bulk Density	2.14	2.22	2.29	2.29	2.27							
Dry Density	2.08	2.11	2.13	2.09	2.03							

Initial Moisture Content	7.4	%
Maximum Dry Density	2.13	Mg/m3
Optimum Moisture Content	7.4	%
Particle Density	2.65 Assumed	Mg/m3
Material Retained 37.5mm	17	%
Material Retained 20mm	12	%

Operator

Conal

Borehole Number:	S2-TP207	Depth from (m):	2.90
Sample Number :	10.0	Depth to (m):	3.10
Sample Type:	B		
Particle Density - Mg/m3:	2.65 (Assumed)		
Specimen Tested:	Submerged, Remoulded (Light Tamping) Material above 2mm removed.		
Sample Description:			
Brown slightly gravelly CLAY			
STAGE	1	2	3
Initial Conditions			
Height - mm:	23.30	23.30	23.30
Length - mm:	60.00	60.00	60.00
Moisture Content - %:	11	11	11
Bulk Density - Mg/m3:	2.04	2.04	2.04
Dry Density - Mg/m3:	1.84	1.84	1.84
Voids Ratio:	0.4415	0.4404	0.4399
Degree of Saturation - %:	64.77	64.93	65.01
Normal Pressure- kPa	50	100	200
Consolidation			
Consolidated Height - mm:	22.30	21.68	20.66
Shear			
Rate of Horizontal Displacement (mm/min)	0.200	0.200	0.200
Horizontal Displacement at Peak Shear Stress (mm)	3.51	5.04	3.96
Peak shear Stress - kPa:	36	63	124
PEAK			
Angle of Shearing Resistance:(θ)	30		
Effective Cohesion - kPa:	8.0		



Contract No.:
66655

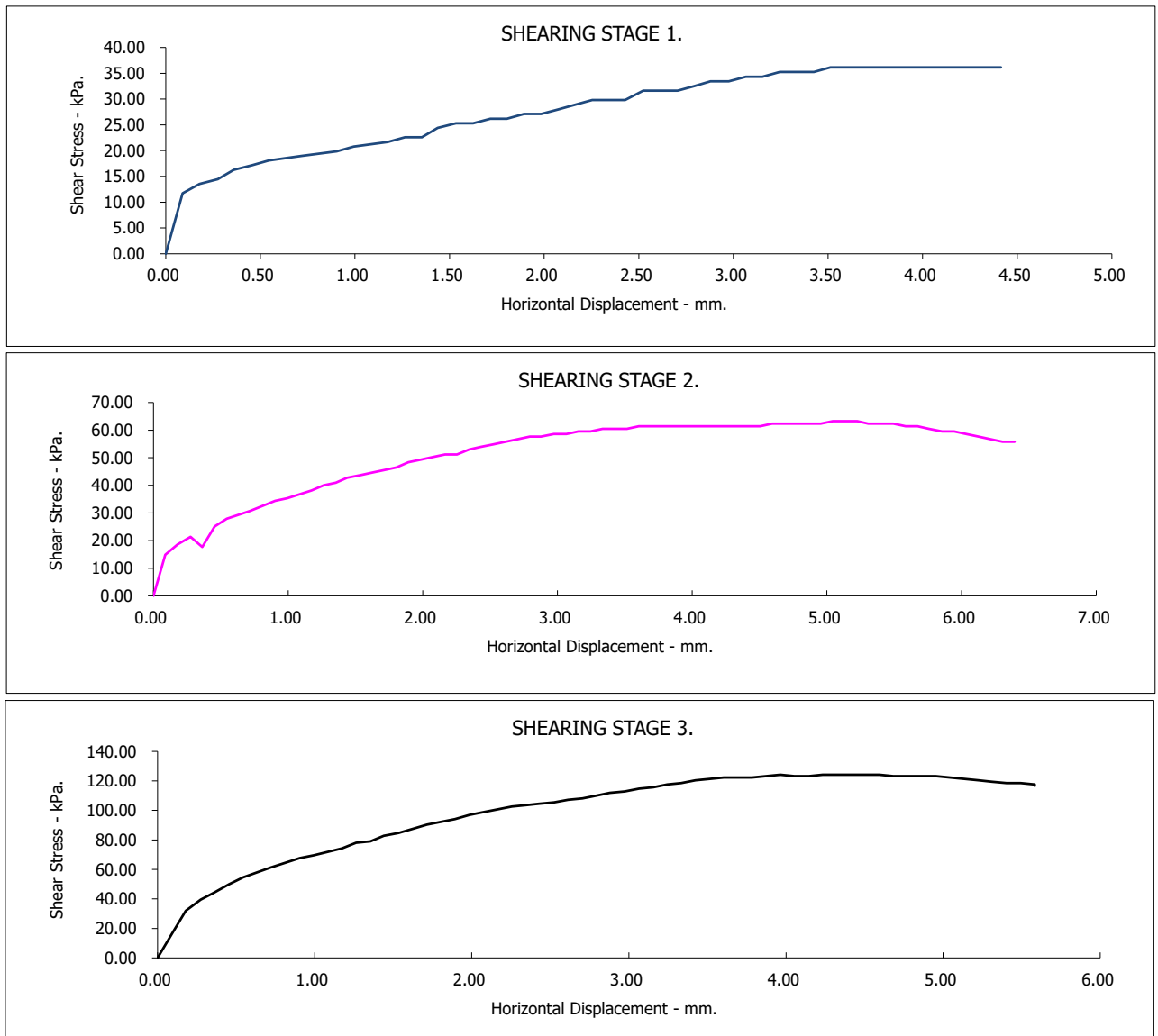
Global Centre of Rail Excellence stage 2 (15)

Client Ref Number:

G23012

Borehole Number: S2-TP207
Sample Number : 10

Depth from (m): 2.90
Depth to (m): 3.10



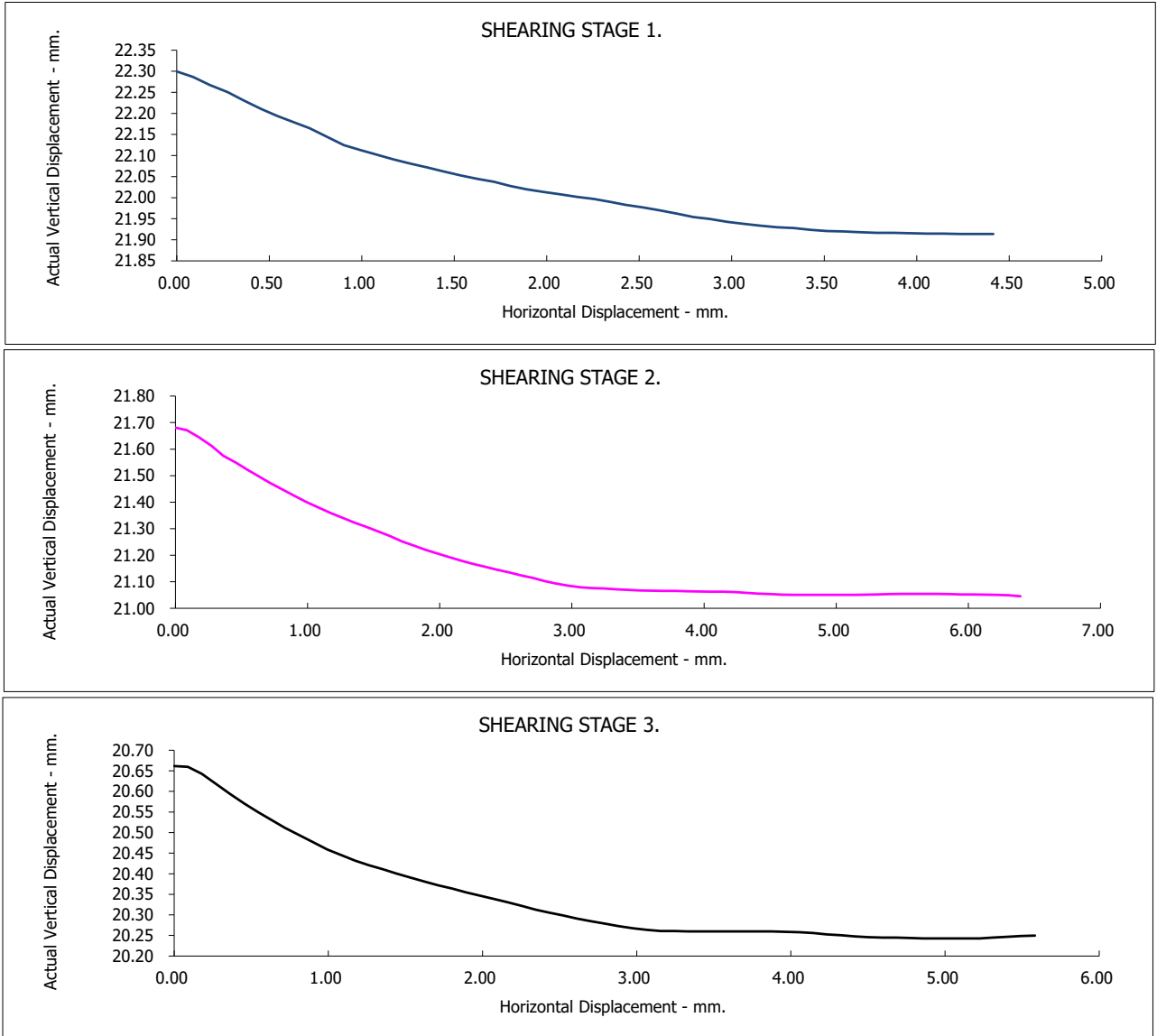
Global Centre of Rail Excellence stage 2 (15)

Contract No.:
66655

Client Ref Number:
G23012
Figure.

Borehole Number: S2-TP207
Sample Number : 10

Depth from (m): 2.90
Depth to (m): 3.10



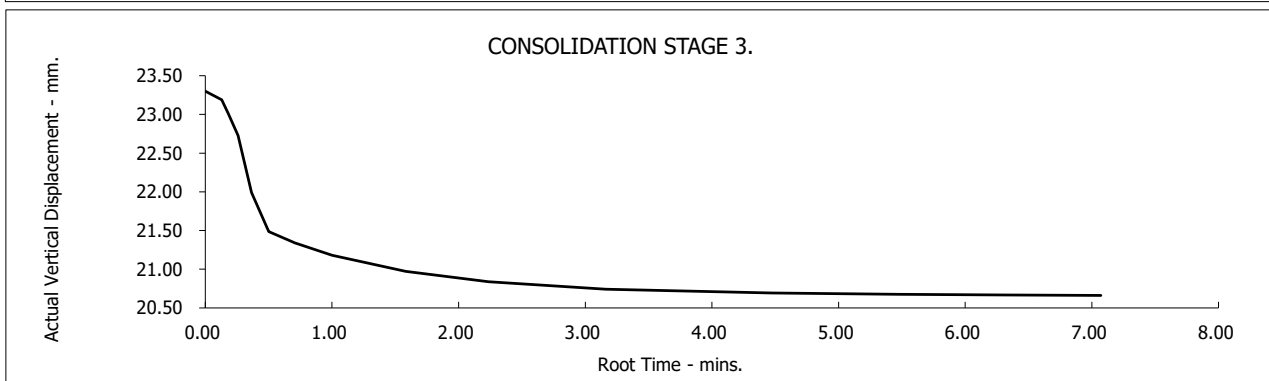
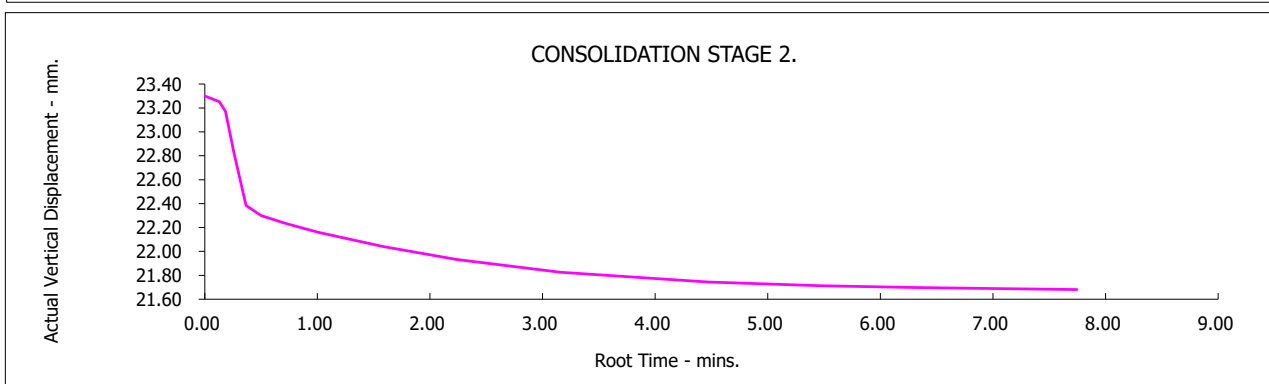
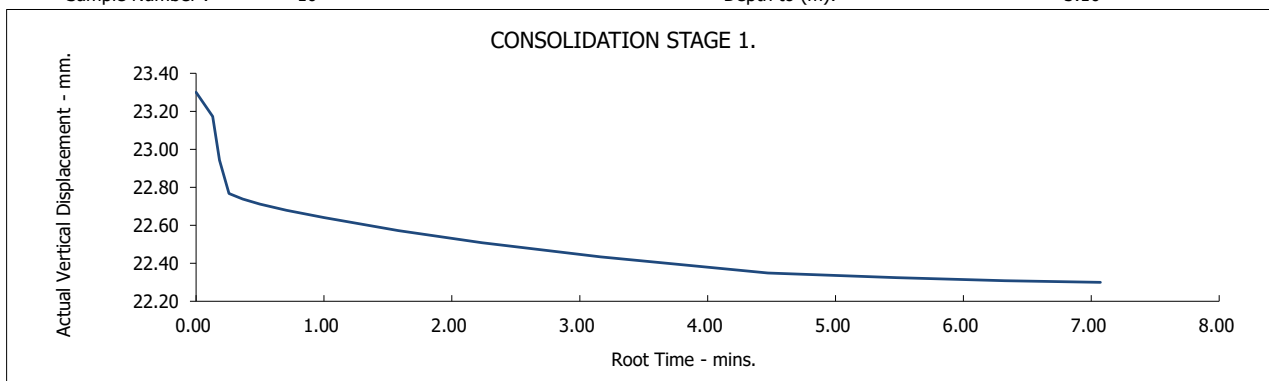
Contract No.:
66655

Global Centre of Rail Excellence stage 2 (15)

Client Ref Number:
G23012

Borehole Number: S2-TP207
Sample Number : 10

Depth from (m): 2.90
Depth to (m): 3.10

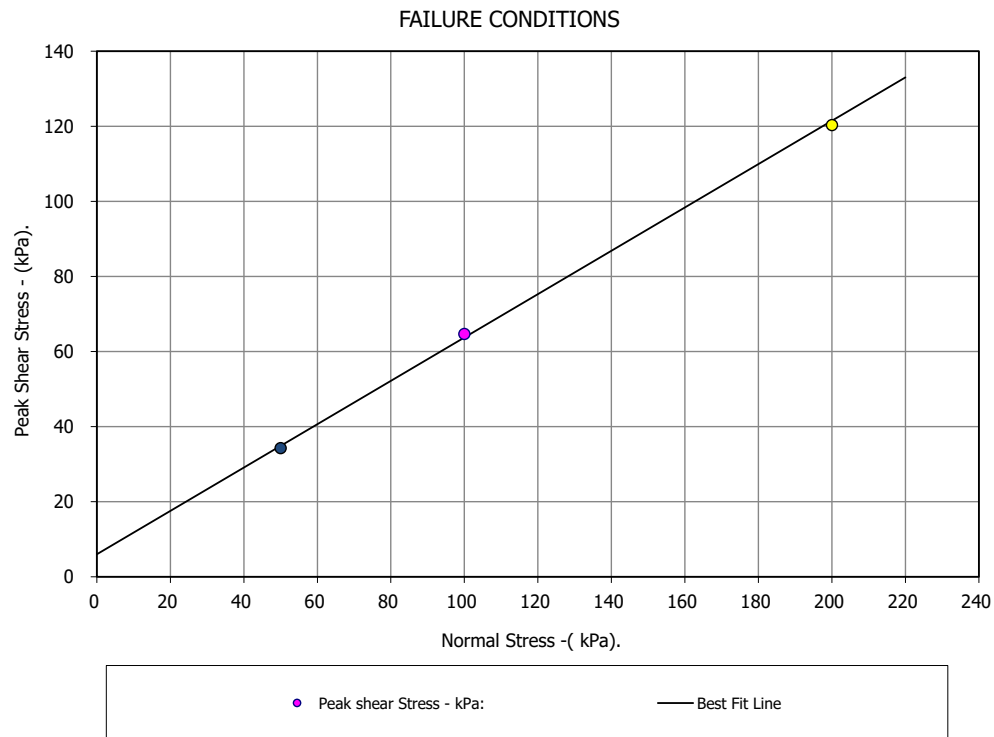


Global Centre of Rail Excellence stage 2 (15)

Contract No.:
66655

Client Ref Number:
G23012

Borehole Number:	S2-TP210	Depth from (m):	2.90
Sample Number :	9.0	Depth to (m):	3.10
Sample Type:	B		
Particle Density - Mg/m3:	2.65 (Assumed)		
Specimen Tested:	Submerged, Remoulded (Light Tamping) Material above 2mm removed.		
Sample Description:			
Brown slightly gravelly CLAY			
STAGE	1	2	3
Initial Conditions			
Height - mm:	25.03	25.03	25.03
Length - mm:	60.00	60.00	60.00
Moisture Content - %:	6.8	6.8	6.8
Bulk Density - Mg/m3:	1.81	1.80	1.80
Dry Density - Mg/m3:	1.69	1.69	1.69
Voids Ratio:	0.5665	0.5703	0.5691
Degree of Saturation - %:	31.71	31.50	31.57
Normal Pressure- kPa	50	100	200
Consolidation			
Consolidated Height - mm:	22.66	20.66	20.50
Shear			
Rate of Horizontal Displacement (mm/min)	0.200	0.200	0.200
Horizontal Displacement at Peak Shear Stress (mm)	6.04	7.48	5.68
Peak shear Stress - kPa:	34	65	120
PEAK			
Angle of Shearing Resistance:(θ)			30
Effective Cohesion - kPa:			6.0



Contract No.:
66655

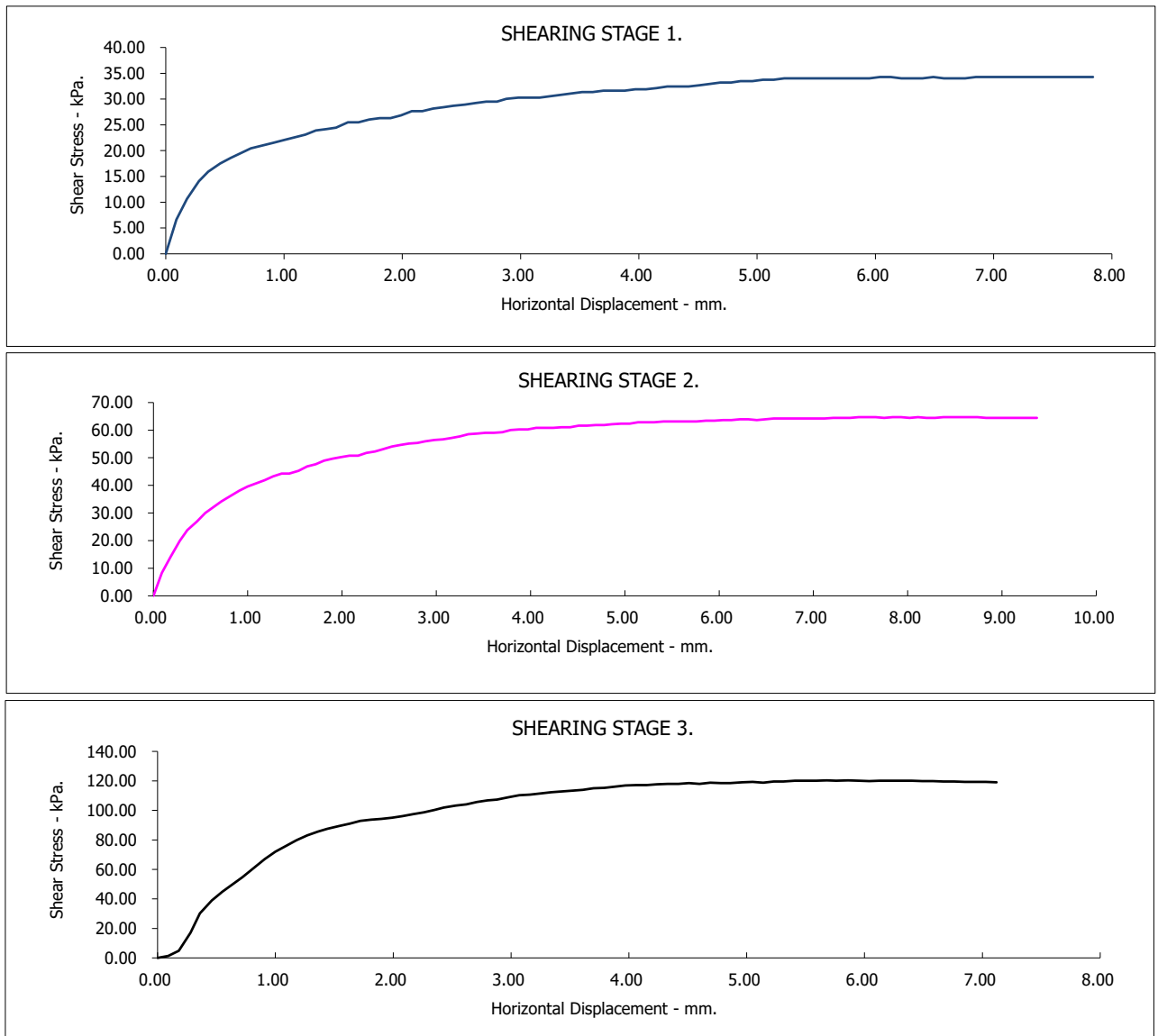
Global Centre of Rail Excellence stage 2 (15)

Client Ref Number:

G23012

Borehole Number: S2-TP210
Sample Number : 9

Depth from (m): 2.90
Depth to (m): 3.10



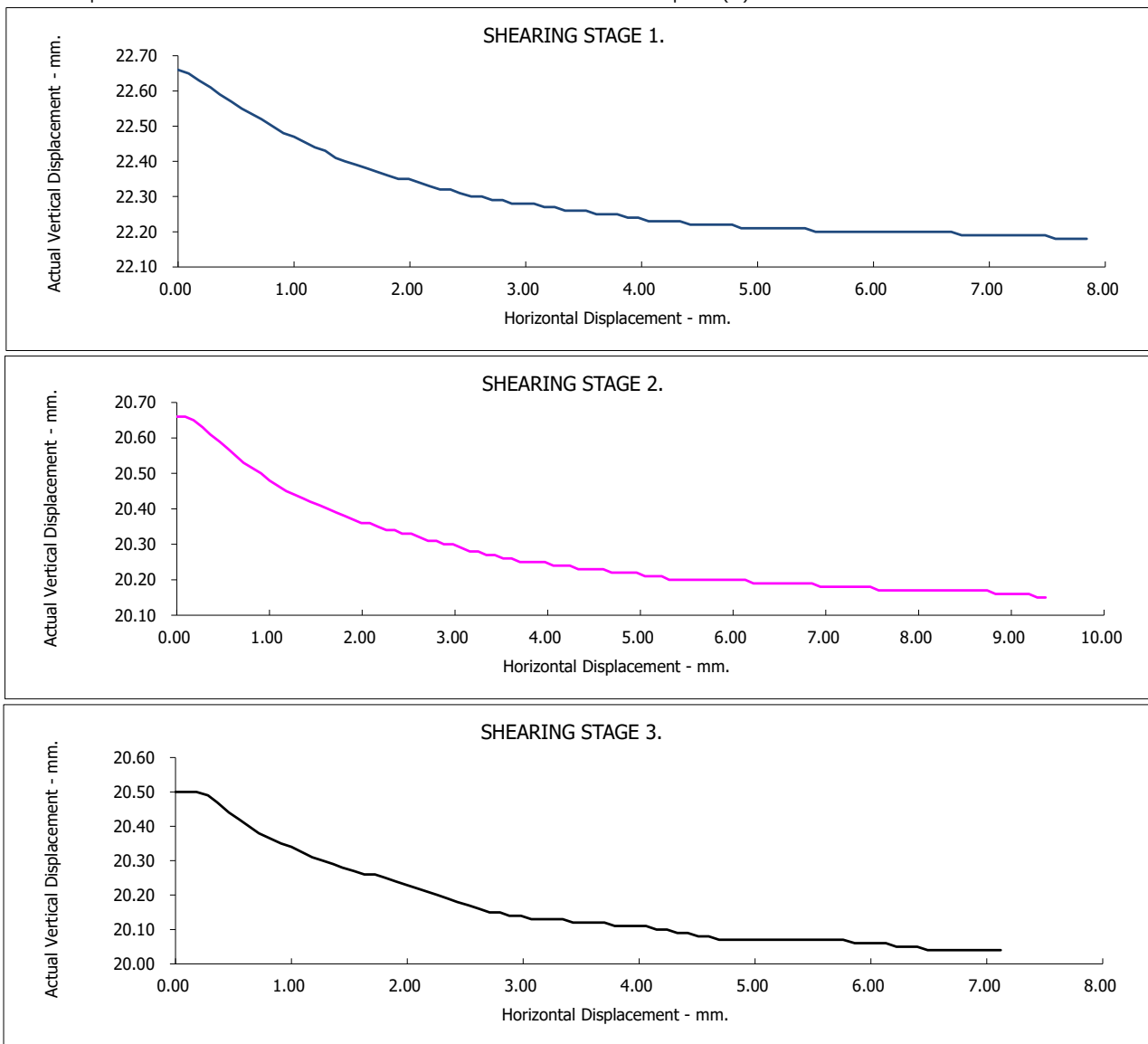
Global Centre of Rail Excellence stage 2 (15)

Contract No.:
66655

Client Ref Number:
G23012
Figure.

Borehole Number: S2-TP210
Sample Number : 9

Depth from (m): 2.90
Depth to (m): 3.10



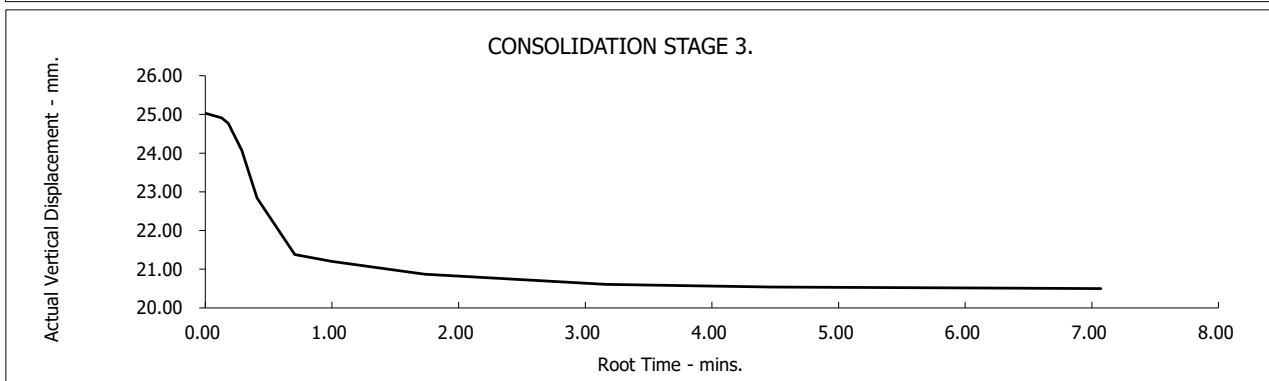
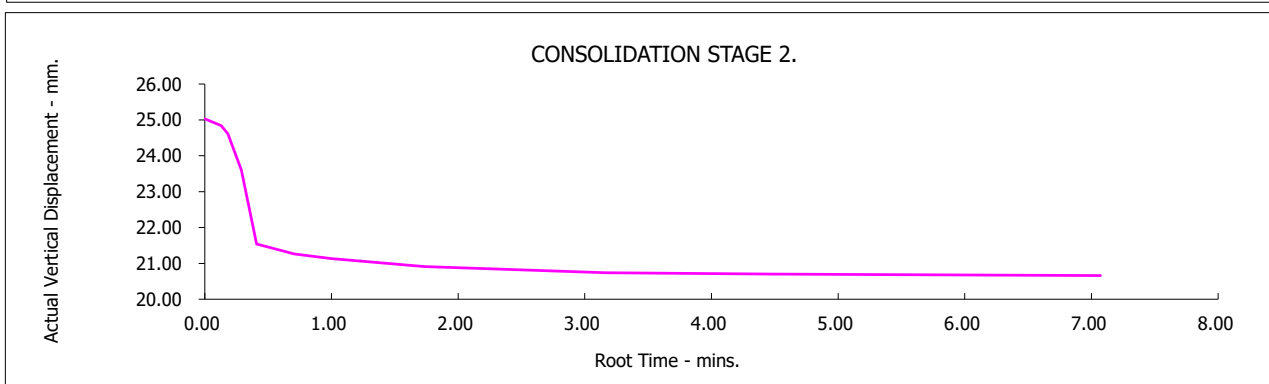
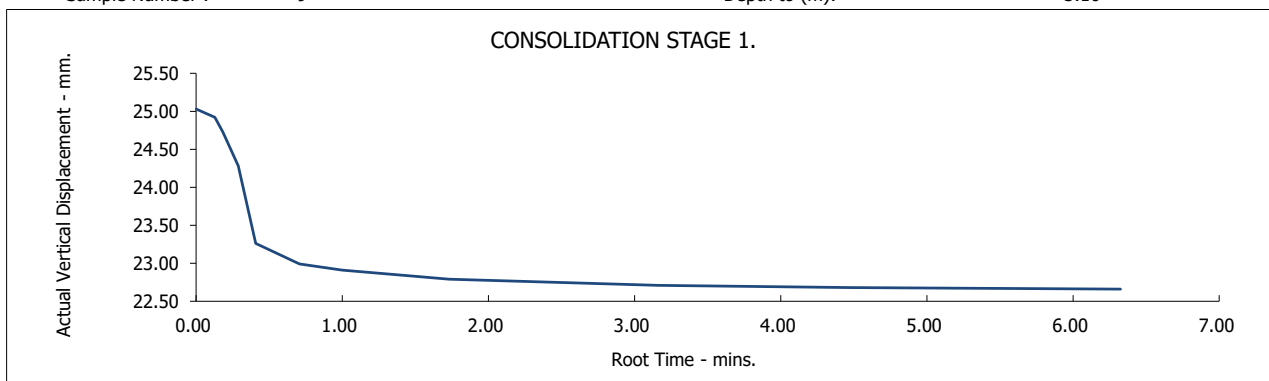
Contract No.:
66655

Global Centre of Rail Excellence stage 2 (15)

Client Ref Number:
G23012

Borehole Number: S2-TP210
Sample Number : 9

Depth from (m): 2.90
Depth to (m): 3.10

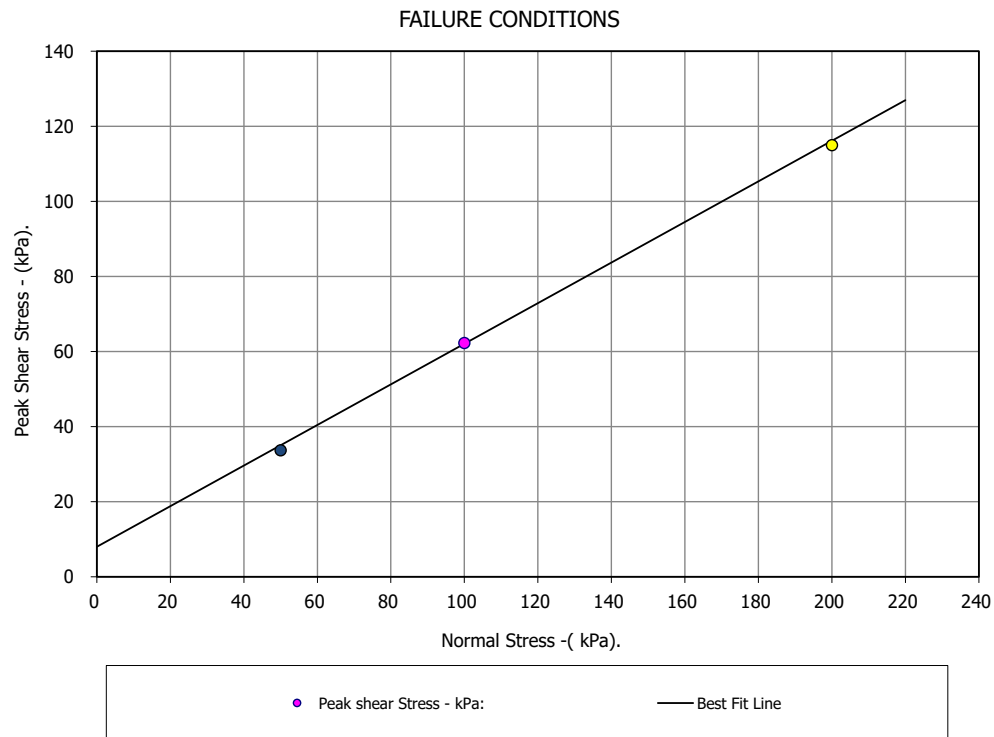


Global Centre of Rail Excellence stage 2 (15)

Contract No.:
66655

Client Ref Number:
G23012

Borehole Number:	S2-TP238	Depth from (m):	2.90
Sample Number :	11.0	Depth to (m):	3.10
Sample Type:	B		
Particle Density - Mg/m3:	2.65 (Assumed)		
Specimen Tested:	Submerged, Remoulded (Light Tamping) Material above 2mm removed.		
Sample Description:			
Brown slightly gravelly CLAY			
STAGE	1	2	3
Initial Conditions			
Height - mm:	23.30	23.30	23.30
Length - mm:	60.00	60.00	60.00
Moisture Content - %:	13	13	13
Bulk Density - Mg/m3:	1.93	1.93	1.93
Dry Density - Mg/m3:	1.71	1.71	1.71
Voids Ratio:	0.5503	0.5471	0.5493
Degree of Saturation - %:	61.00	61.36	61.11
Normal Pressure- kPa	50	100	200
Consolidation			
Consolidated Height - mm:	21.48	20.72	19.72
Shear			
Rate of Horizontal Displacement (mm/min)	0.200	0.200	0.200
Horizontal Displacement at Peak Shear Stress (mm)	11.17	6.04	6.04
Peak shear Stress - kPa:	34	62	115
PEAK			
Angle of Shearing Resistance:(θ)			29
Effective Cohesion - kPa:			8.0



Contract No.:
66655

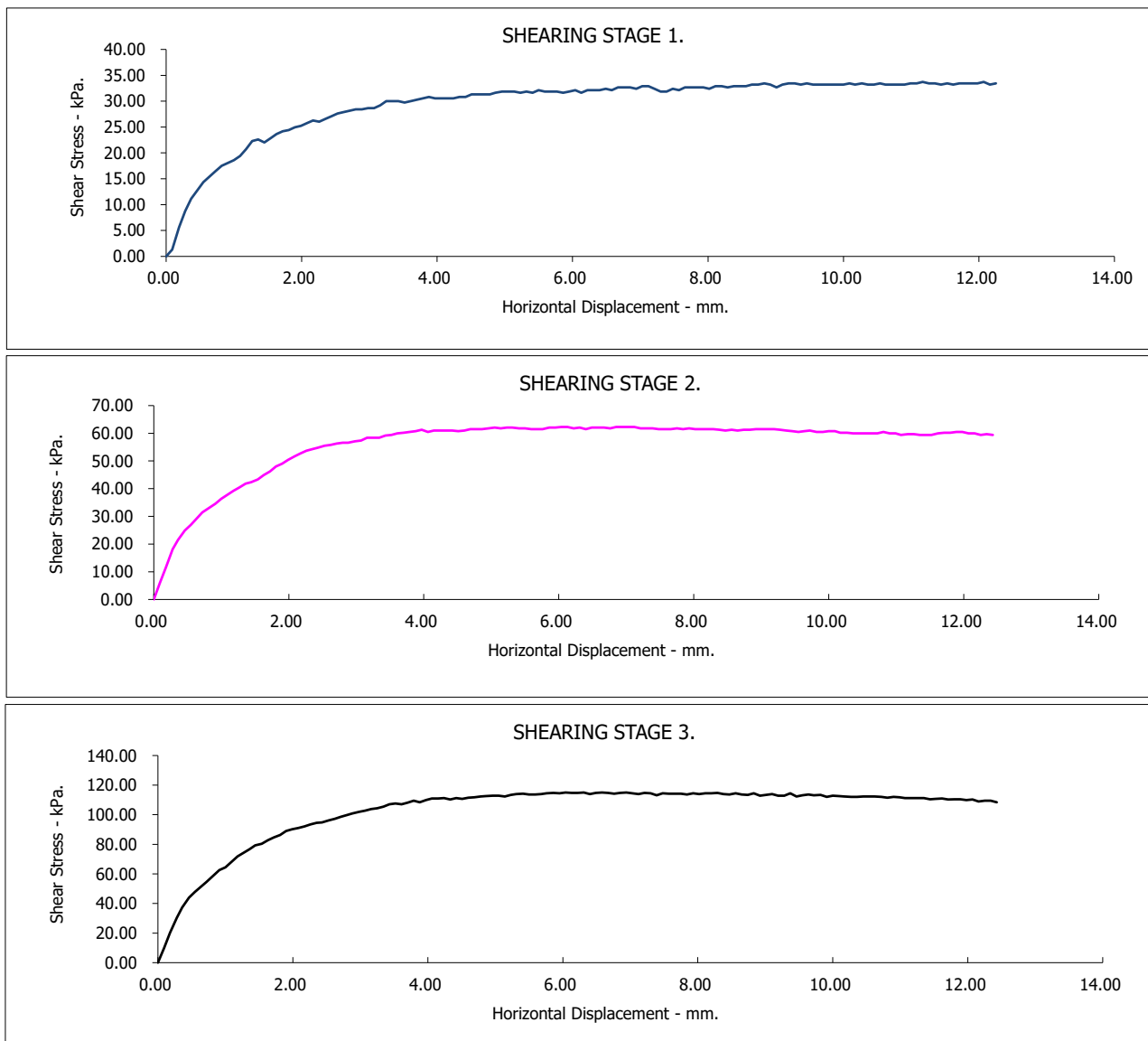
Global Centre of Rail Excellence stage 2 (15)

Client Ref Number:

G23012

Borehole Number: S2-TP238
Sample Number : 11

Depth from (m): 2.90
Depth to (m): 3.10

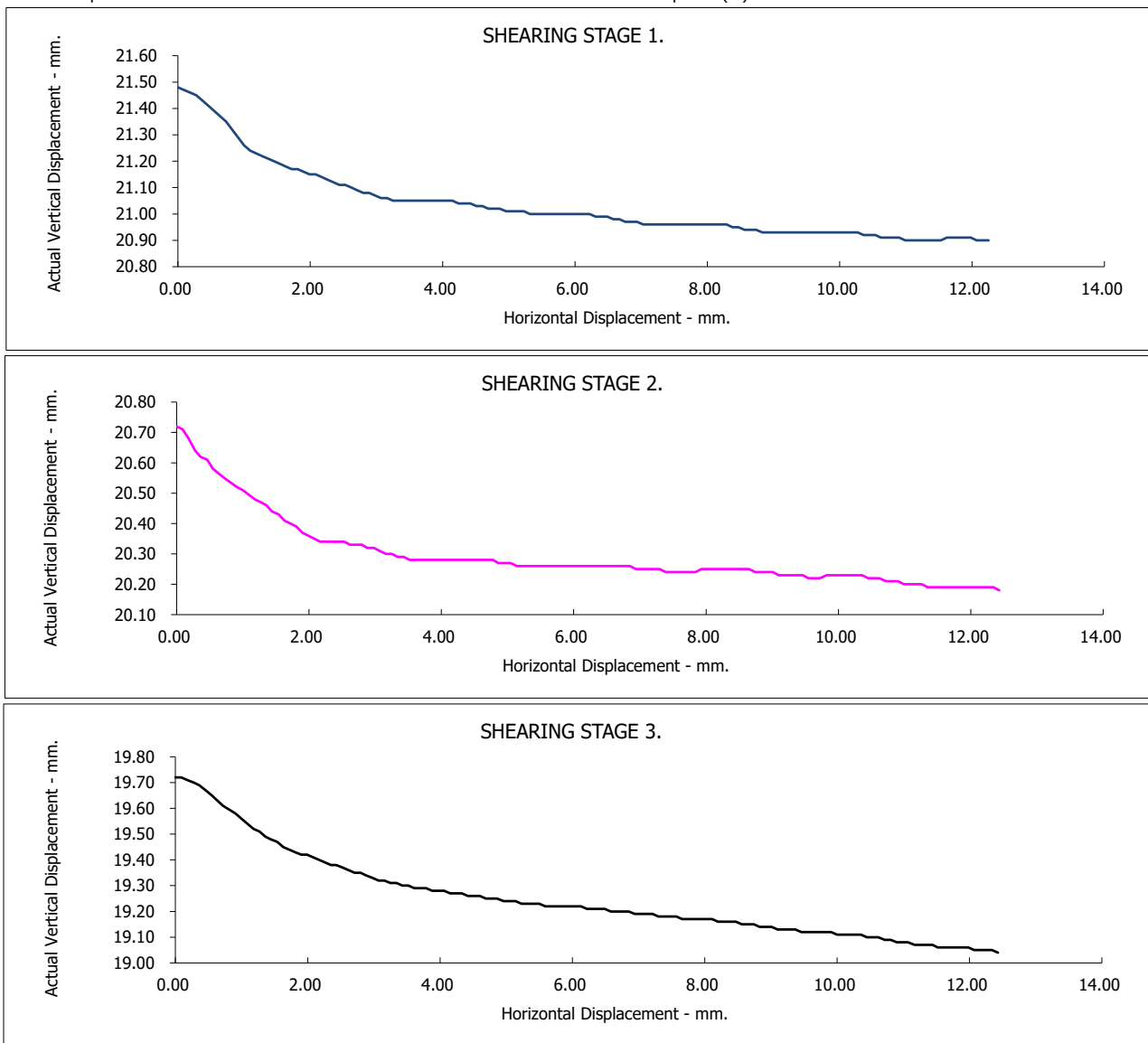


Global Centre of Rail Excellence stage 2 (15)

Contract No.: **66655**
Client Ref Number: **G23012**
Figure.

Borehole Number: S2-TP238
Sample Number : 11

Depth from (m): 2.90
Depth to (m): 3.10



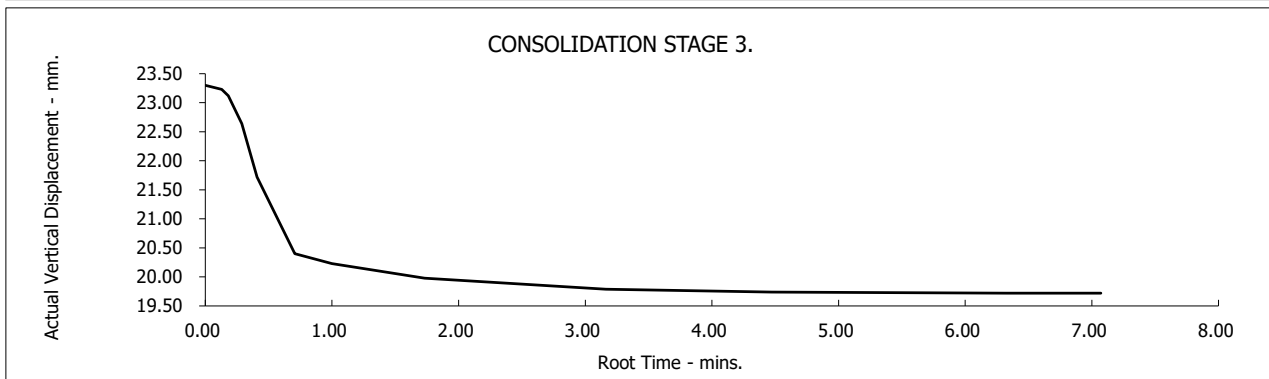
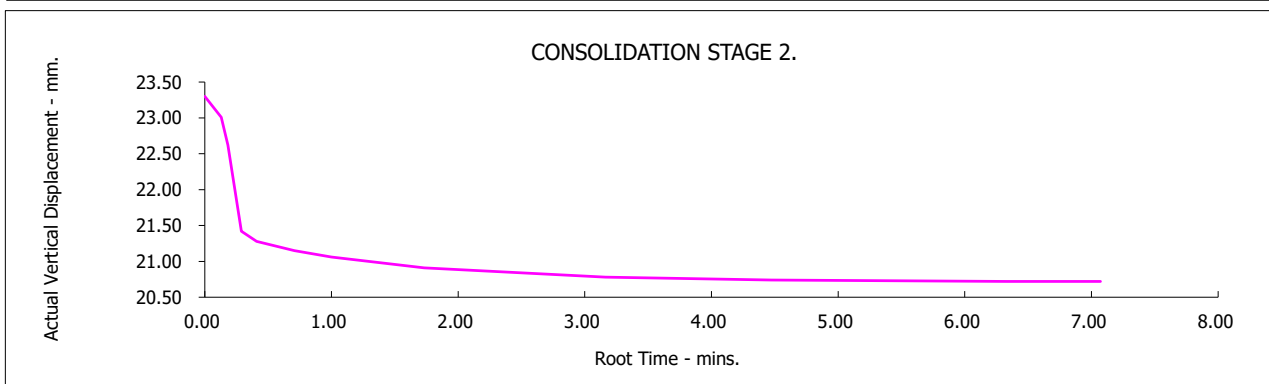
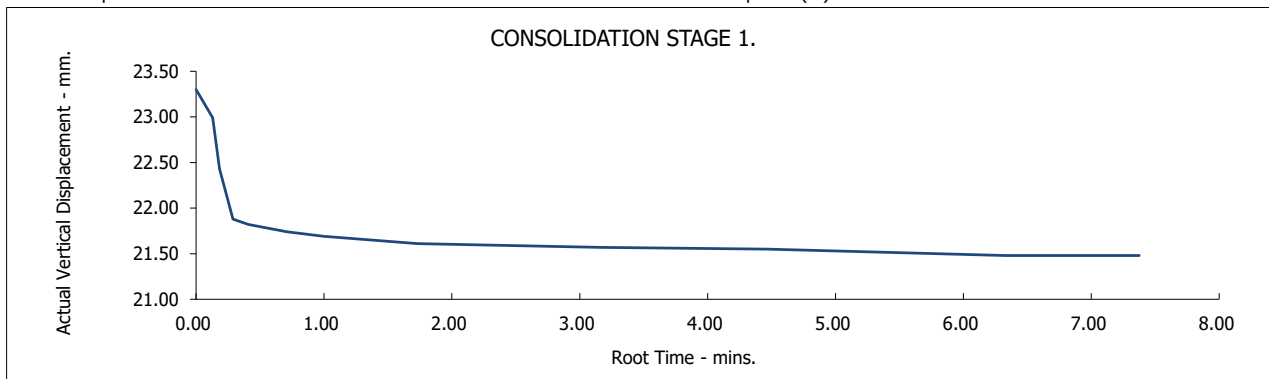
Contract No.:
66655

Global Centre of Rail Excellence stage 2 (15)

Client Ref Number:
G23012

Borehole Number: S2-TP238
Sample Number : 11

Depth from (m): 2.90
Depth to (m): 3.10

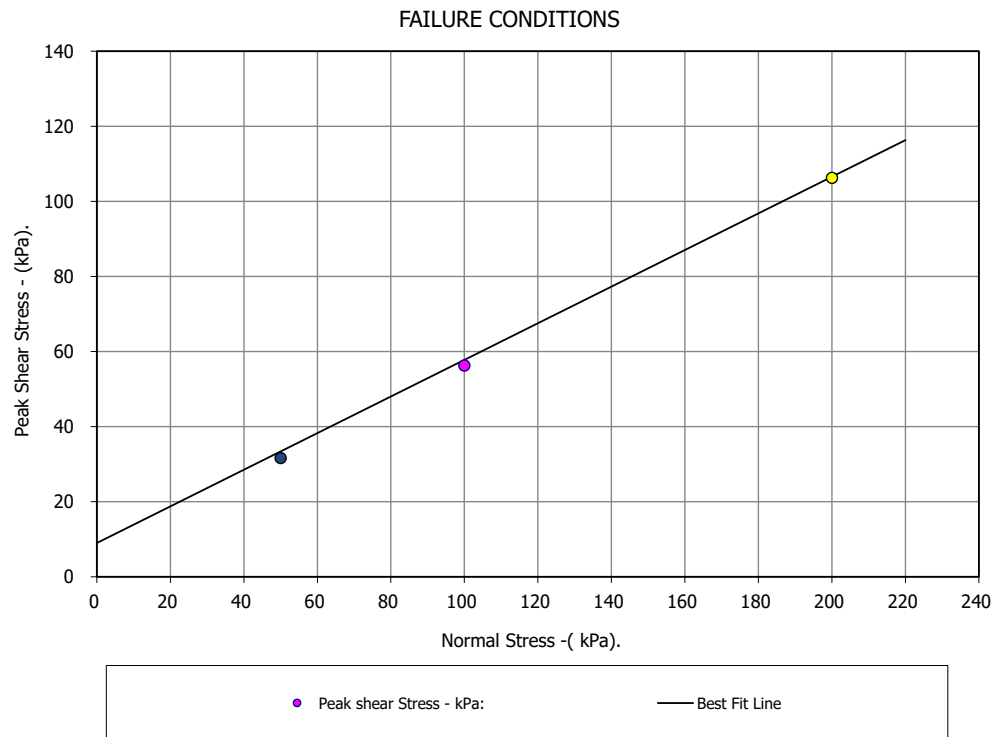


Global Centre of Rail Excellence stage 2 (15)

Contract No.:
66655

Client Ref Number:
G23012

Borehole Number:	S2-TP241	Depth from (m):	1.60
Sample Number :	6.0	Depth to (m):	1.80
Sample Type:	B		
Particle Density - Mg/m3:	2.65 (Assumed)		
Specimen Tested:	Submerged, Remoulded (Light Tamping) Material above 2mm removed.		
Sample Description:			
Brown slightly gravelly CLAY			
STAGE	1	2	3
Initial Conditions			
Height - mm:	23.30	23.30	23.30
Length - mm:	60.00	60.00	60.00
Moisture Content - %:	14	14	14
Bulk Density - Mg/m3:	1.94	1.94	1.94
Dry Density - Mg/m3:	1.70	1.70	1.70
Voids Ratio:	0.5553	0.5561	0.5544
Degree of Saturation - %:	65.02	64.94	65.14
Normal Pressure- kPa	50	100	200
Consolidation			
Consolidated Height - mm:	22.33	21.89	21.15
Shear			
Rate of Horizontal Displacement (mm/min)	0.200	0.200	0.200
Horizontal Displacement at Peak Shear Stress (mm)	4.23	4.41	4.95
Peak shear Stress - kPa:	32	56	106
PEAK			
Angle of Shearing Resistance:(θ)	26		
Effective Cohesion - kPa:	9.0		



Contract No.:
66655

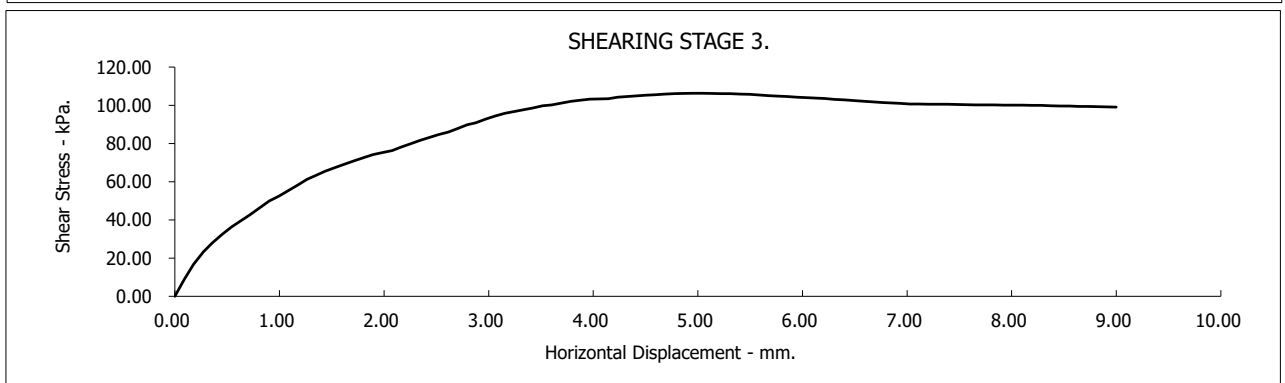
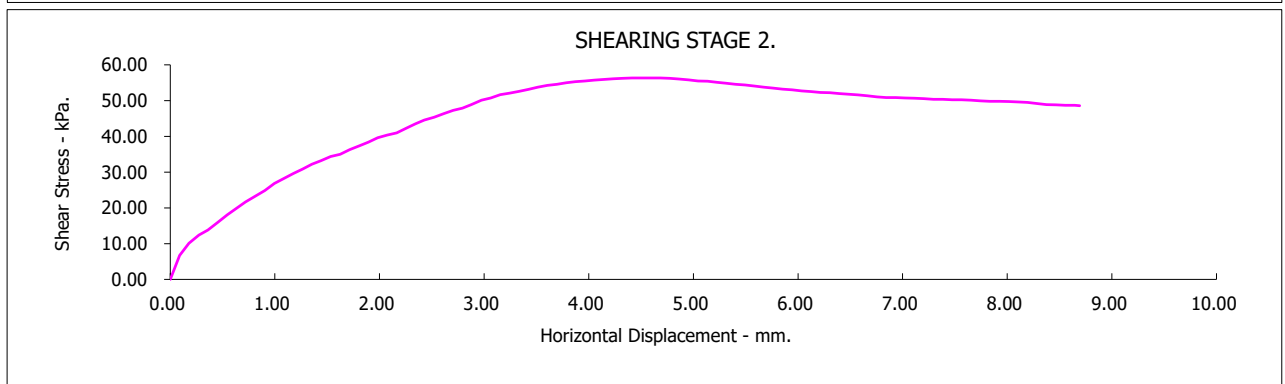
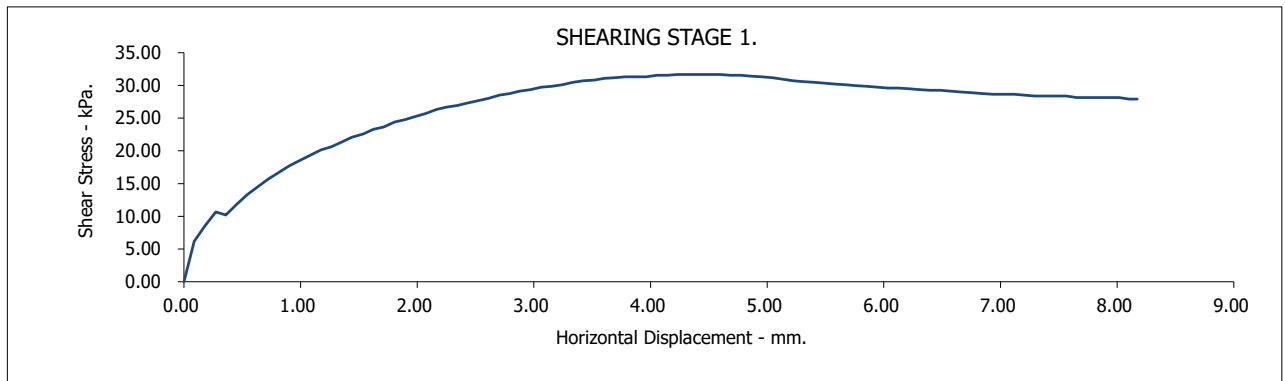
Global Centre of Rail Excellence stage 2 (15)

Client Ref Number:

G23012

Borehole Number: S2-TP241
Sample Number : 6

Depth from (m): 1.60
Depth to (m): 1.80



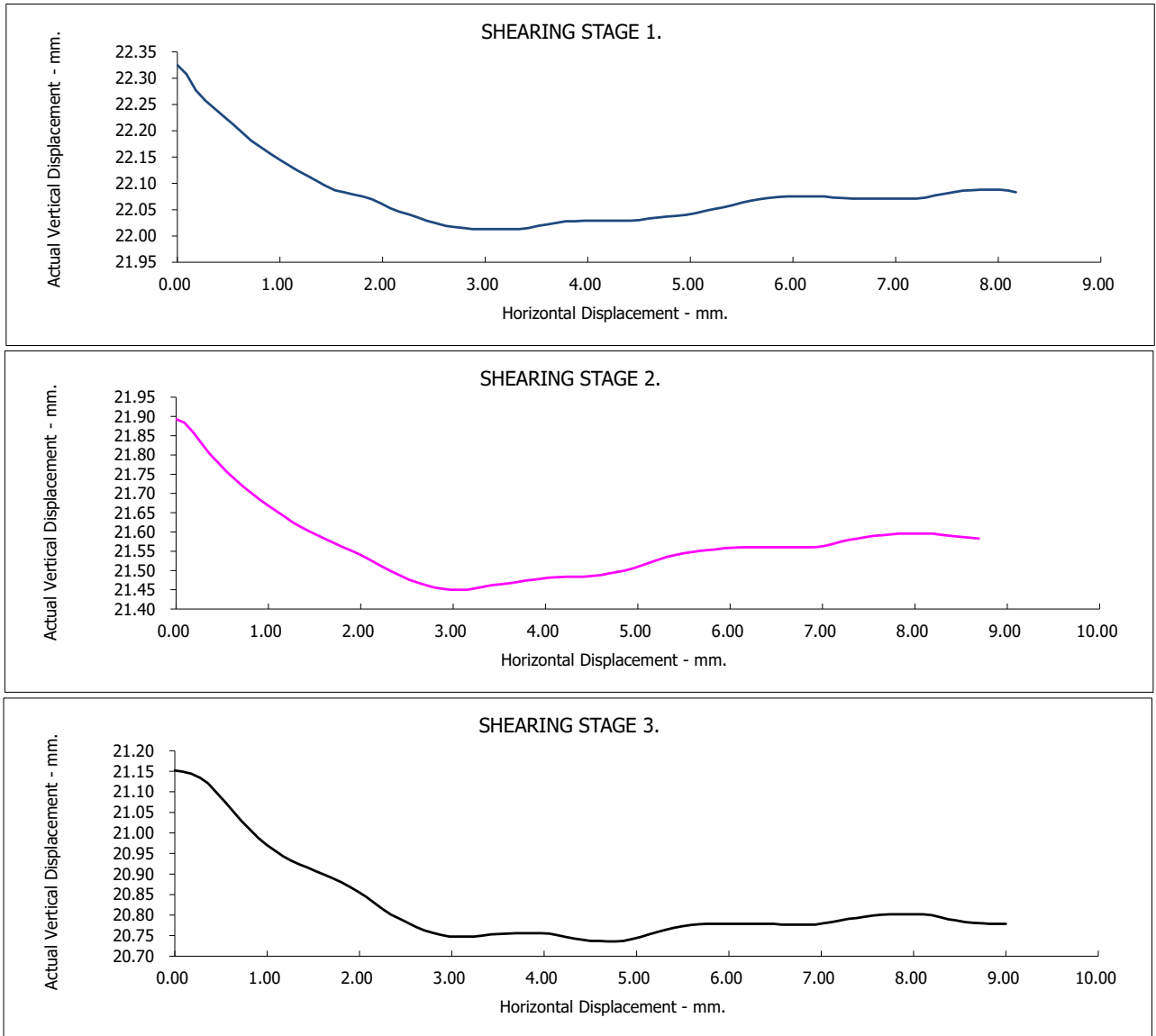
Global Centre of Rail Excellence stage 2 (15)

Contract No.:
66655

Client Ref Number:
G23012
Figure.

Borehole Number: S2-TP241
Sample Number : 6

Depth from (m): 1.60
Depth to (m): 1.80



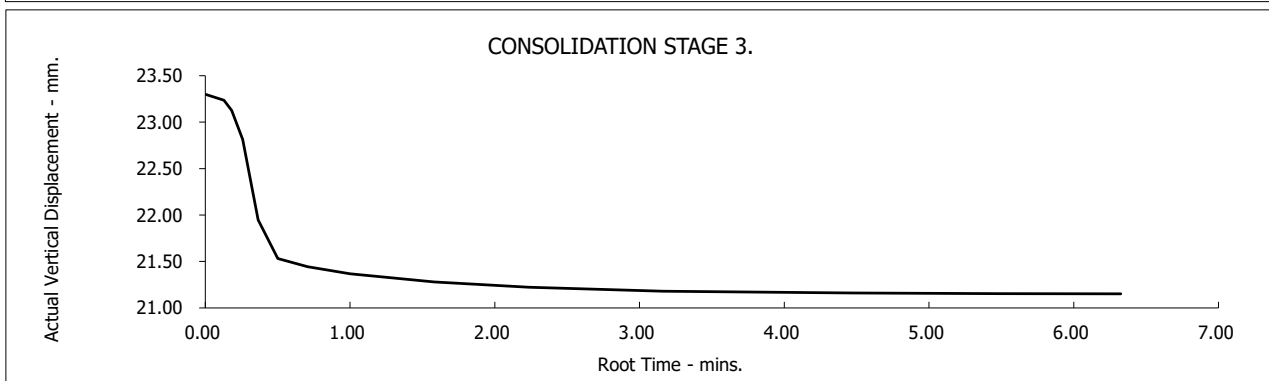
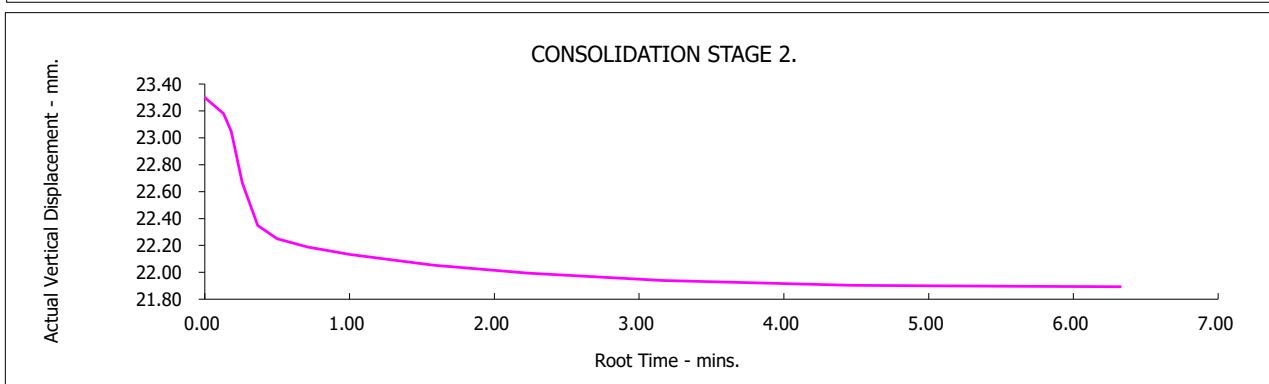
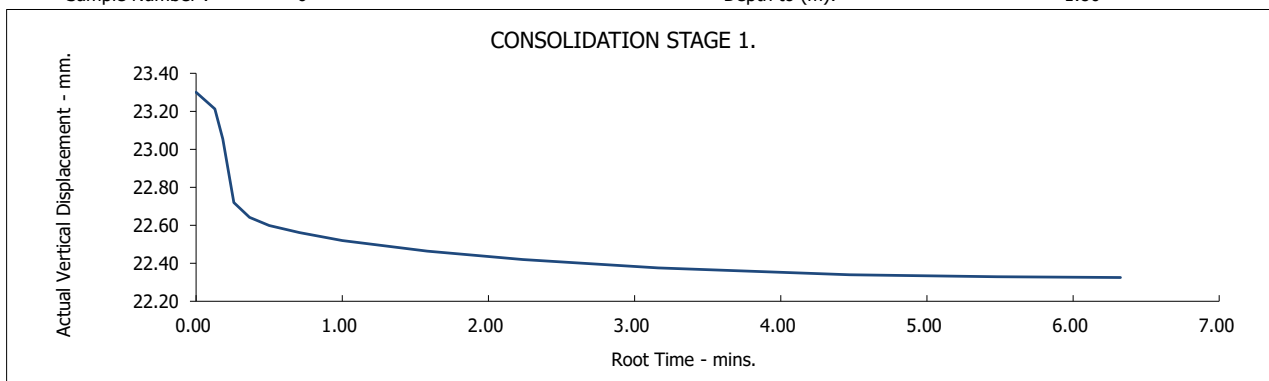
Contract No.:
66655

Global Centre of Rail Excellence stage 2 (15)

Client Ref Number:
G23012

Borehole Number: S2-TP241
Sample Number : 6

Depth from (m): 1.60
Depth to (m): 1.80

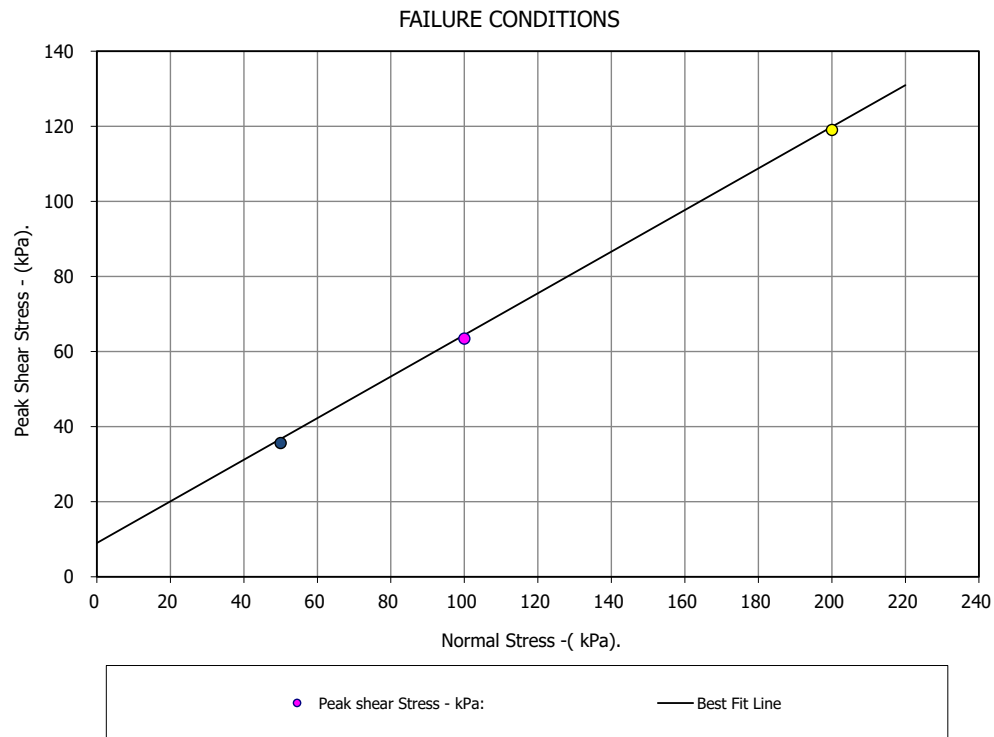


Global Centre of Rail Excellence stage 2 (15)

Contract No.:
66655

Client Ref Number:
G23012

Borehole Number:	S2-TP242	Depth from (m):	2.70
Sample Number :	8.0	Depth to (m):	2.90
Sample Type:	B		
Particle Density - Mg/m3:	2.65 (Assumed)		
Specimen Tested:	Submerged, Remoulded (Light Tamping) Material above 2mm removed.		
Sample Description:			
Brown slightly gravelly CLAY			
STAGE	1	2	3
Initial Conditions			
Height - mm:	23.30	23.30	23.30
Length - mm:	60.00	60.00	60.00
Moisture Content - %:	15	15	15
Bulk Density - Mg/m3:	2.01	2.01	2.01
Dry Density - Mg/m3:	1.76	1.76	1.76
Voids Ratio:	0.5081	0.5073	0.5095
Degree of Saturation - %:	75.97	76.09	75.77
Normal Pressure- kPa	50	100	200
Consolidation			
Consolidated Height - mm:	22.95	21.74	20.91
Shear			
Rate of Horizontal Displacement (mm/min)	0.200	0.200	0.200
Horizontal Displacement at Peak Shear Stress (mm)	7.47	8.46	7.74
Peak shear Stress - kPa:	36	63	119
PEAK			
Angle of Shearing Resistance:(θ)	29		
Effective Cohesion - kPa:	9.0		



Contract No.:
66655

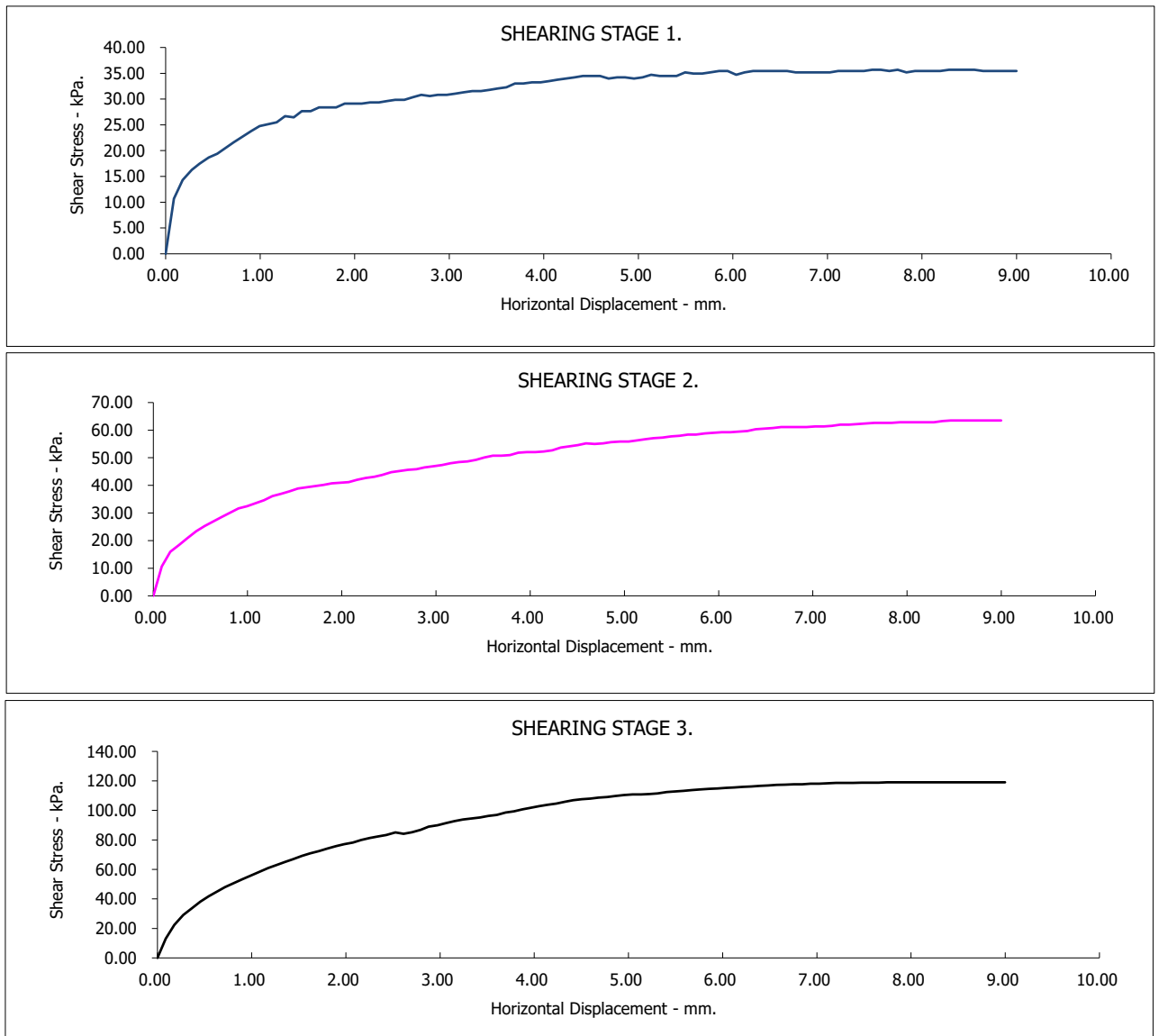
Global Centre of Rail Excellence stage 2 (15)

Client Ref Number:

G23012

Borehole Number: S2-TP242
Sample Number : 8

Depth from (m): 2.70
Depth to (m): 2.90



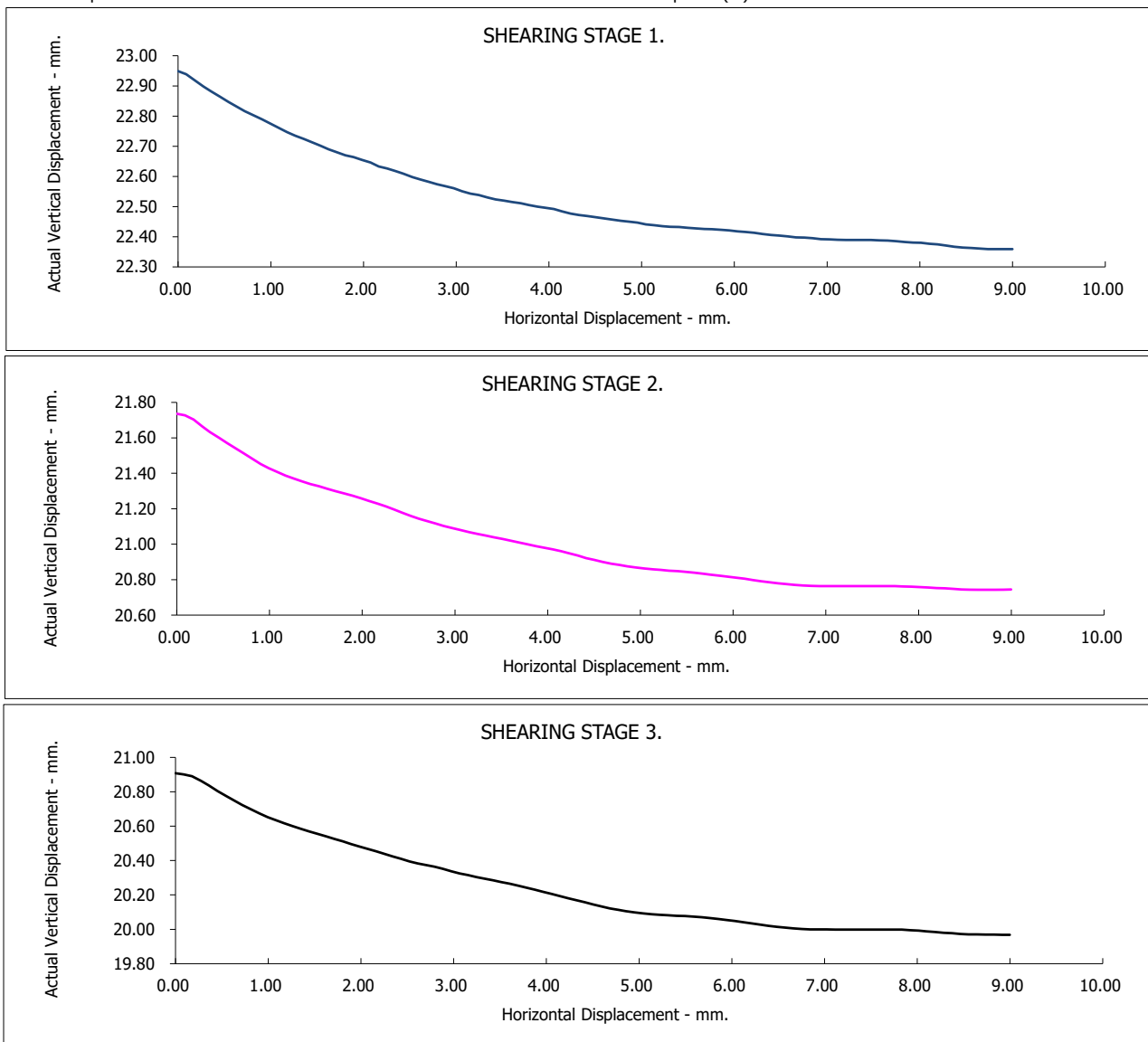
Global Centre of Rail Excellence stage 2 (15)

Contract No.:
66655

Client Ref Number:
G23012
Figure.

Borehole Number: S2-TP242
Sample Number : 8

Depth from (m): 2.70
Depth to (m): 2.90



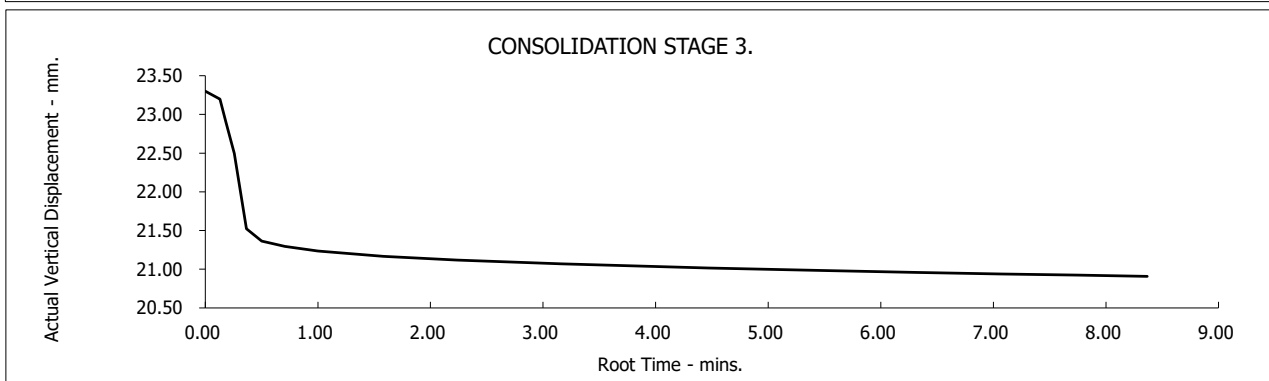
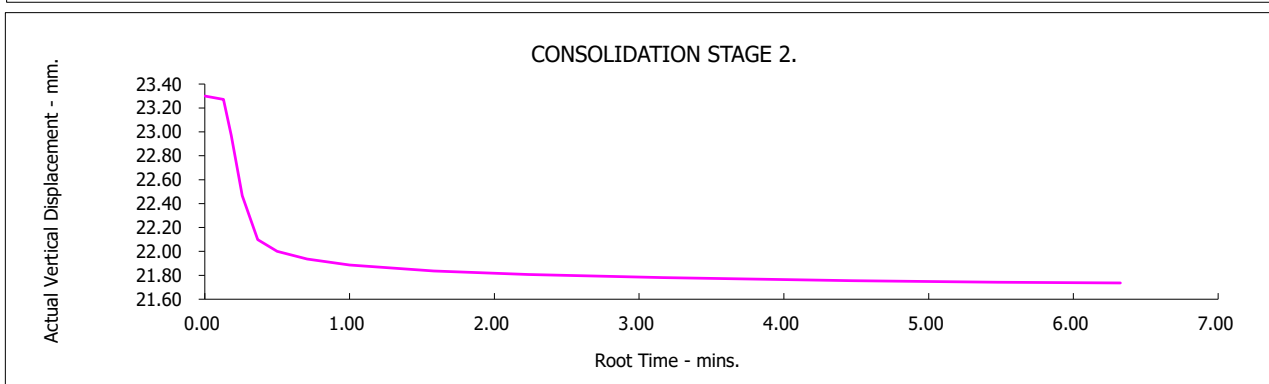
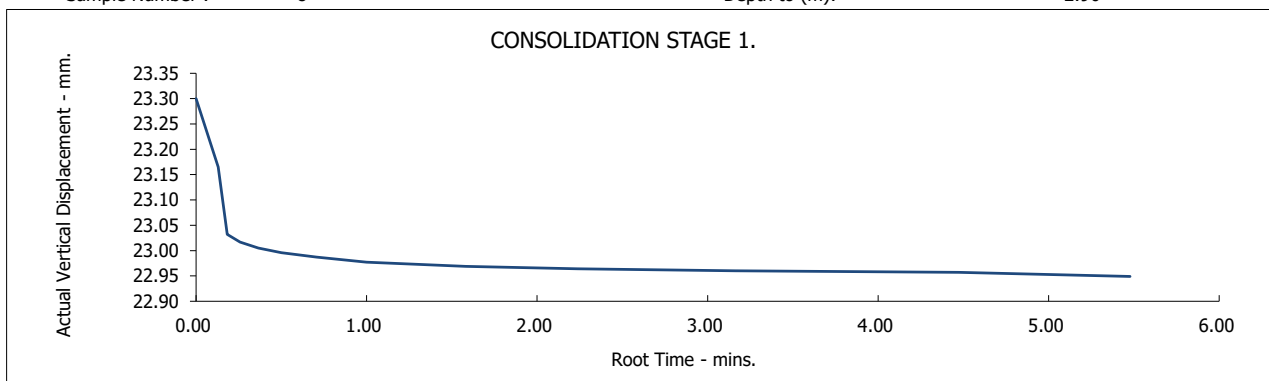
Contract No.:
66655

Global Centre of Rail Excellence stage 2 (15)

Client Ref Number:
G23012

Borehole Number: S2-TP242
Sample Number : 8

Depth from (m): 2.70
Depth to (m): 2.90

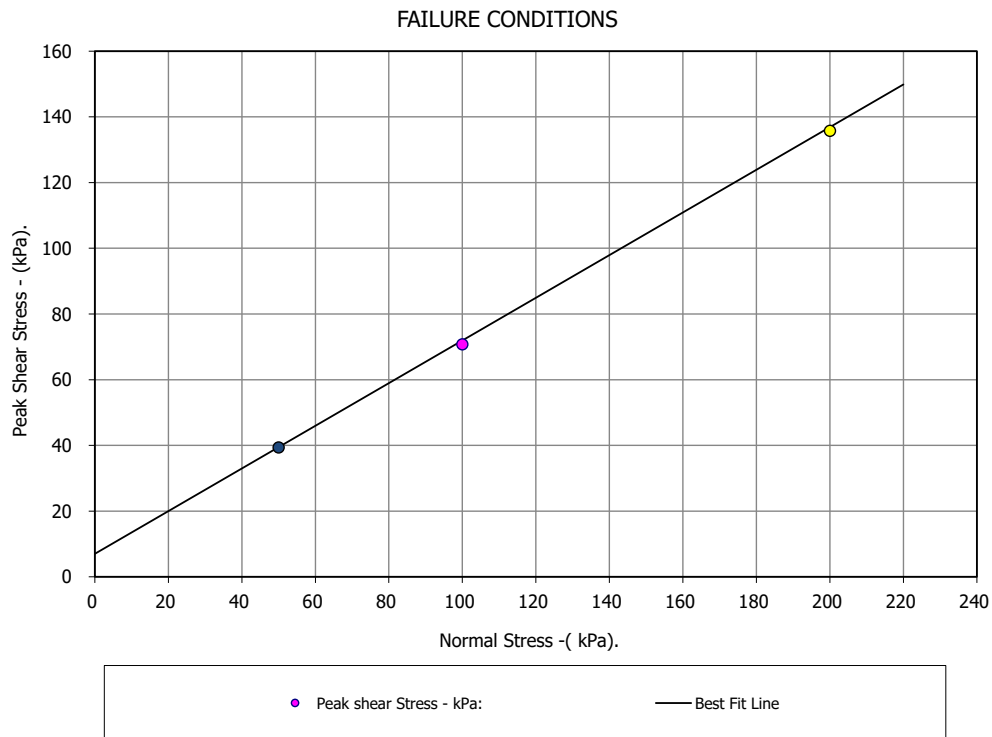


Global Centre of Rail Excellence stage 2 (15)

Contract No.:
66655

Client Ref Number:
G23012

Borehole Number:	S2-TP243	Depth from (m):	2.40
Sample Number :	7.0	Depth to (m):	2.60
Sample Type:	B		
Particle Density - Mg/m3:	2.65 (Assumed)		
Specimen Tested:	Submerged, Remoulded (Light Tamping) Material above 2mm removed.		
Sample Description:			
Brown slightly gravelly CLAY			
STAGE	1	2	3
Initial Conditions			
Height - mm:	23.30	23.30	23.30
Length - mm:	60.00	60.00	60.00
Moisture Content - %:	9.9	9.9	9.9
Bulk Density - Mg/m3:	1.81	1.81	1.81
Dry Density - Mg/m3:	1.65	1.65	1.64
Voids Ratio:	0.6102	0.6090	0.6110
Degree of Saturation - %:	42.89	42.98	42.84
Normal Pressure- kPa	50	100	200
Consolidation			
Consolidated Height - mm:	21.21	19.79	19.88
Shear			
Rate of Horizontal Displacement (mm/min)	0.200	0.200	0.200
Horizontal Displacement at Peak Shear Stress (mm)	6.48	8.91	8.92
Peak shear Stress - kPa:	39	71	136
PEAK			
Angle of Shearing Resistance:(θ)			33
Effective Cohesion - kPa:			7.0



Contract No.:
66655

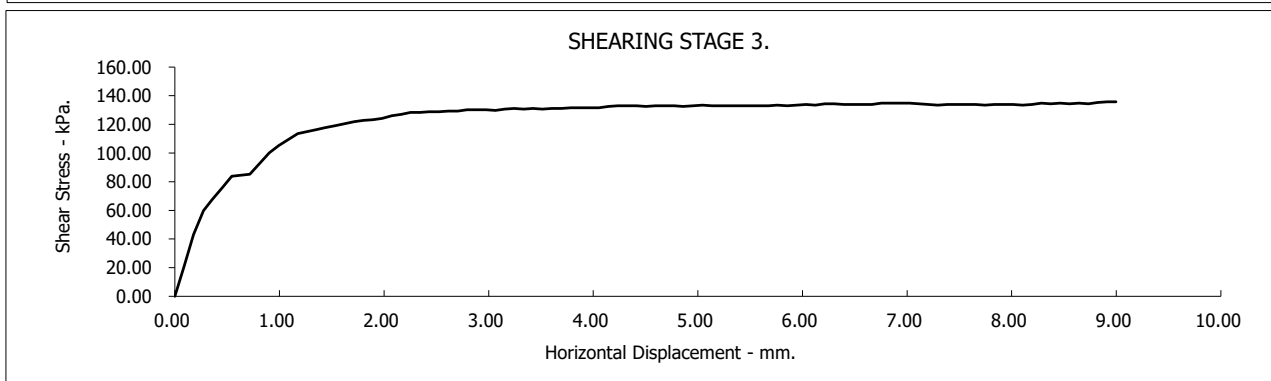
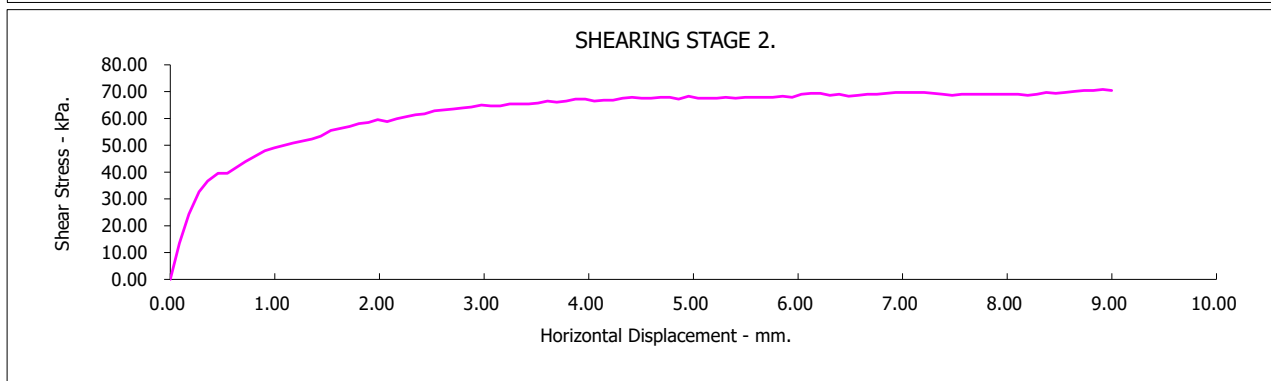
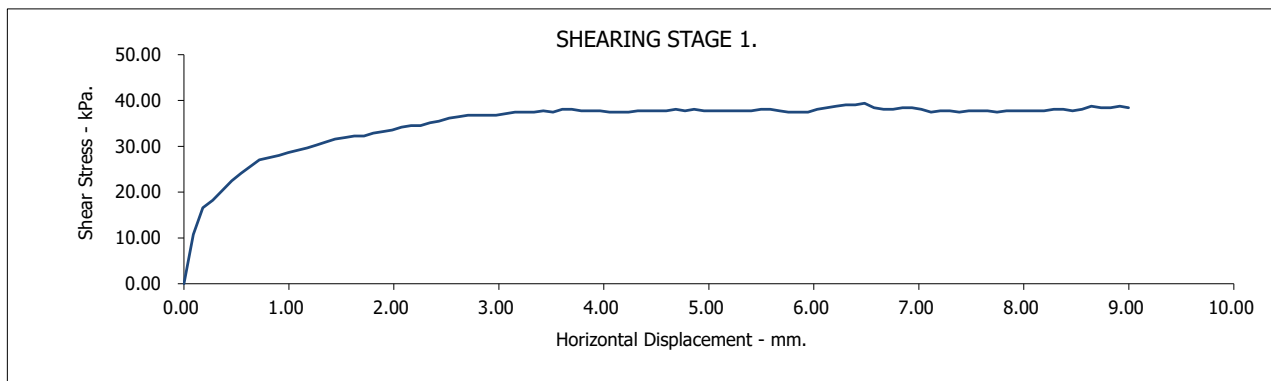
Global Centre of Rail Excellence stage 2 (15)

Client Ref Number:

G23012

Borehole Number: S2-TP243
Sample Number : 7

Depth from (m): 2.40
Depth to (m): 2.60



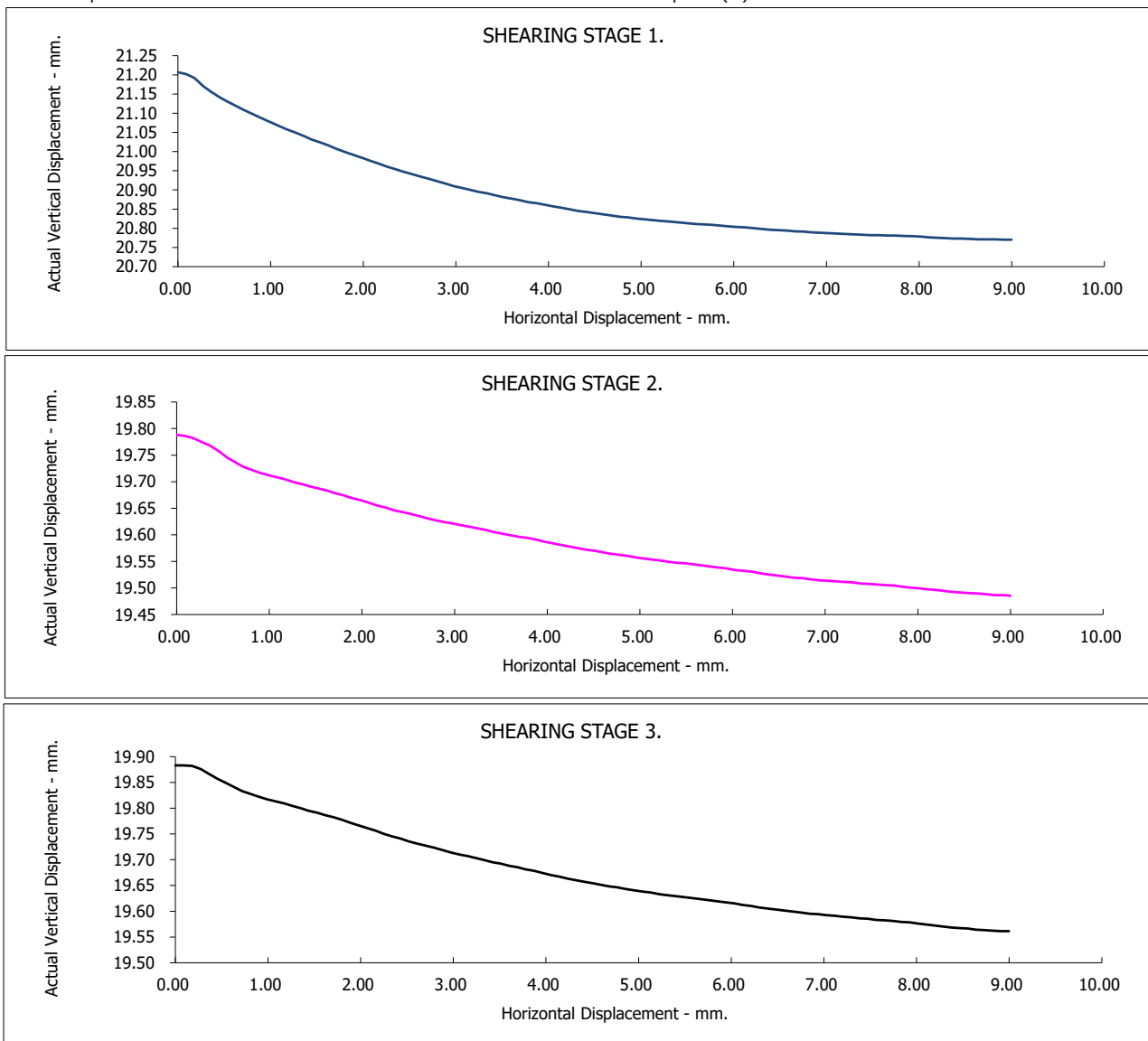
Global Centre of Rail Excellence stage 2 (15)

Contract No.:
66655

Client Ref Number:
G23012
Figure.

Borehole Number: S2-TP243
Sample Number : 7

Depth from (m): 2.40
Depth to (m): 2.60



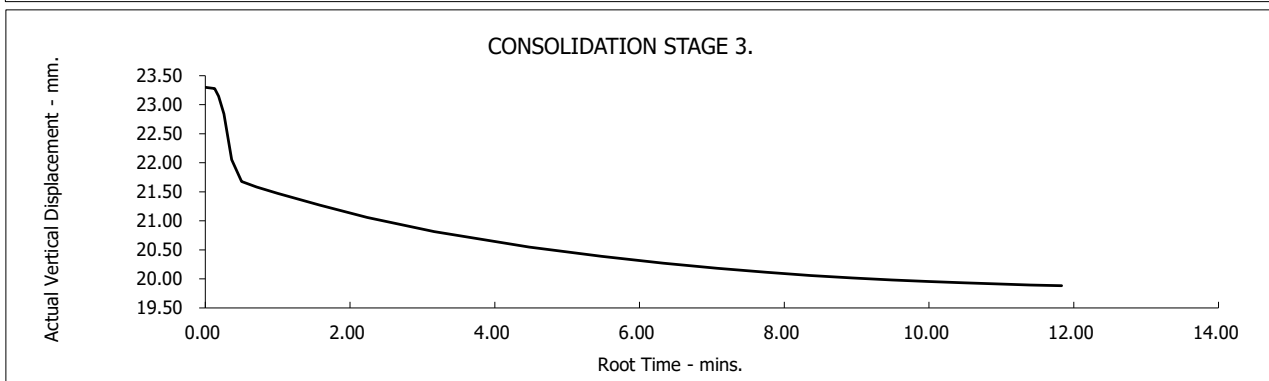
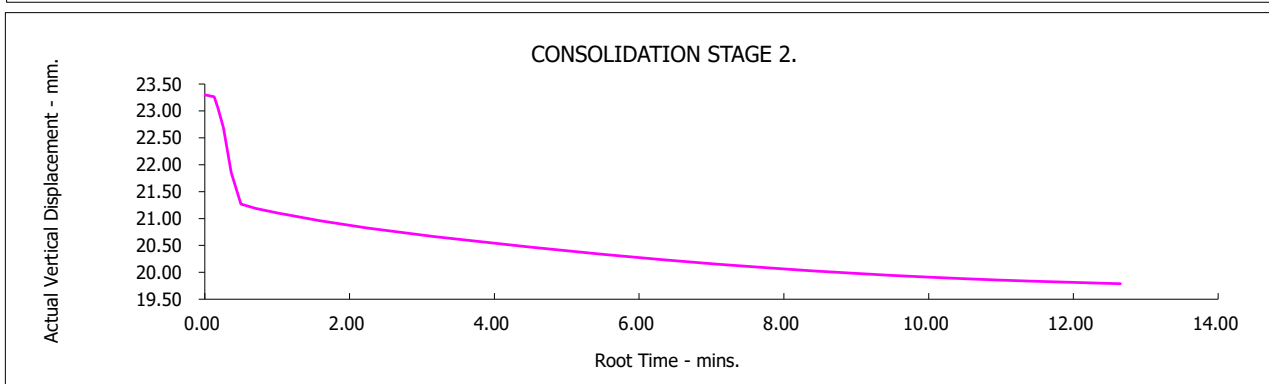
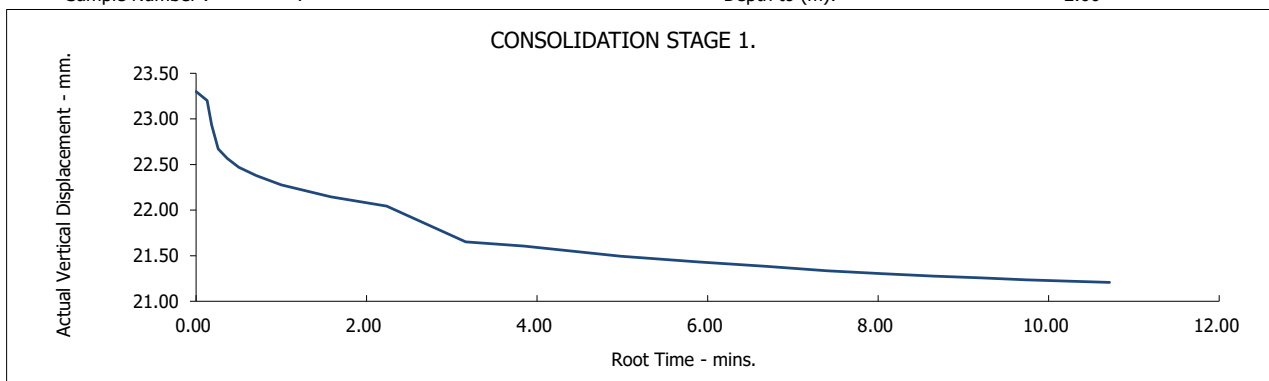
Contract No.:
66655

Global Centre of Rail Excellence stage 2 (15)

Client Ref Number:
G23012

Borehole Number: S2-TP243
Sample Number : 7

Depth from (m): 2.40
Depth to (m): 2.60

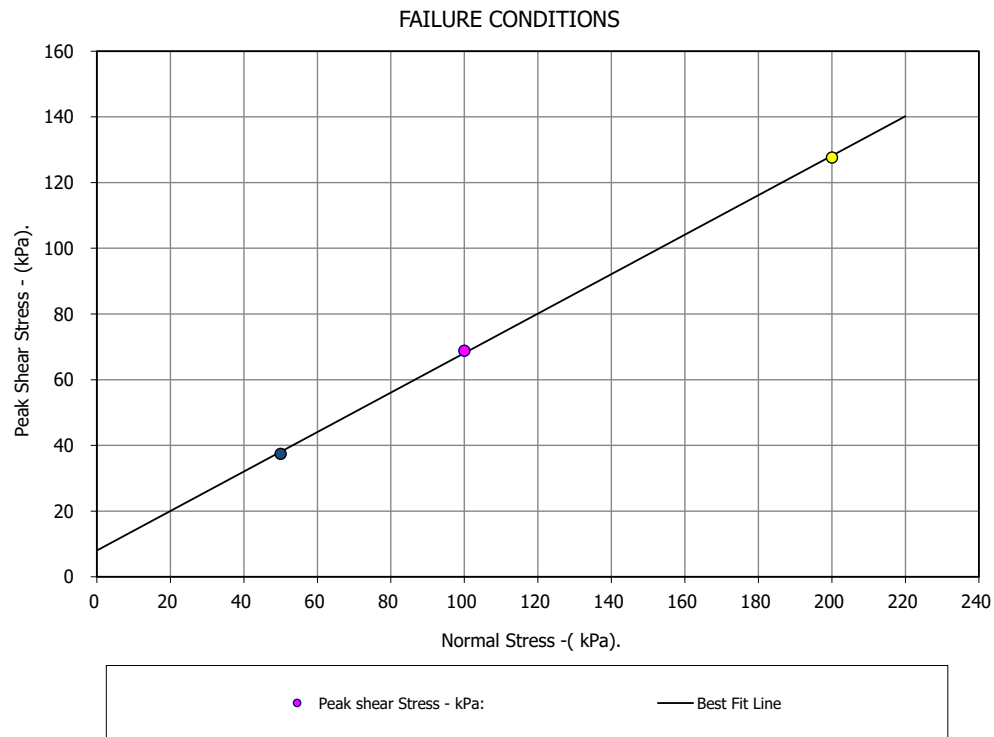


Global Centre of Rail Excellence stage 2 (15)

Contract No.:
66655

Client Ref Number:
G23012

Borehole Number:	S2-TP245	Depth from (m):	1.40
Sample Number :	5.0	Depth to (m):	1.60
Sample Type:	B		
Particle Density - Mg/m3:	2.65 (Assumed)		
Specimen Tested:	Submerged, Remoulded (Light Tamping) Material above 2mm removed.		
Sample Description:			
Brown slightly gravelly CLAY			
STAGE	1	2	3
Initial Conditions			
Height - mm:	23.30	23.30	23.30
Length - mm:	60.00	60.00	60.00
Moisture Content - %:	14	14	14
Bulk Density - Mg/m3:	1.91	1.91	1.91
Dry Density - Mg/m3:	1.67	1.67	1.67
Voids Ratio:	0.5851	0.5840	0.5845
Degree of Saturation - %:	63.39	63.51	63.45
Normal Pressure- kPa	50	100	200
Consolidation			
Consolidated Height - mm:	22.14	21.12	20.44
Shear			
Rate of Horizontal Displacement (mm/min)	0.200	0.200	0.200
Horizontal Displacement at Peak Shear Stress (mm)	4.96	5.13	8.02
Peak shear Stress - kPa:	37	69	128
PEAK			
Angle of Shearing Resistance:(θ)	31		
Effective Cohesion - kPa:	8.0		



Contract No.:
66655

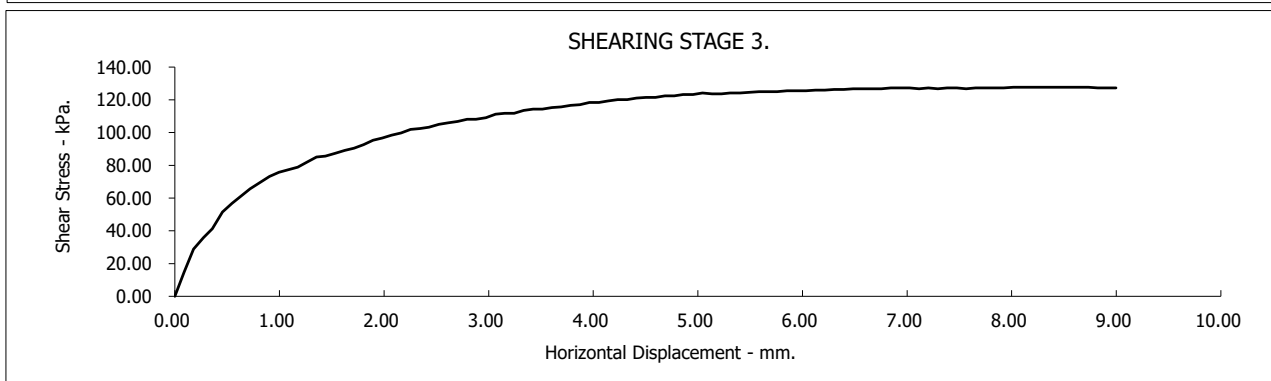
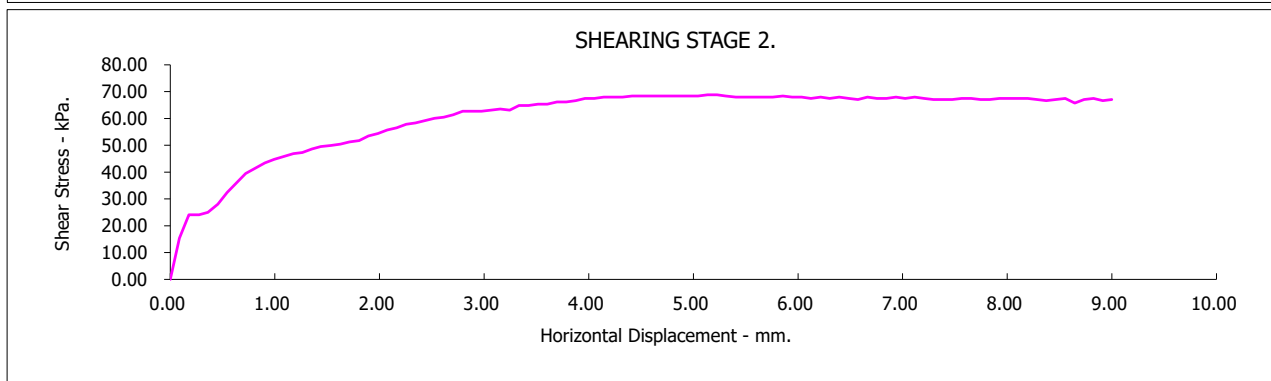
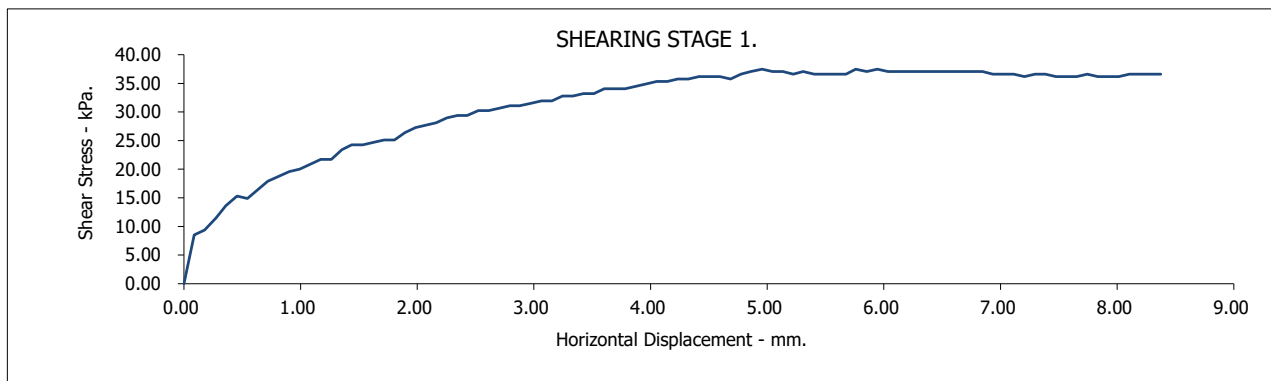
Global Centre of Rail Excellence stage 2 (15)

Client Ref Number:

G23012

Borehole Number: S2-TP245
Sample Number : 5

Depth from (m): 1.40
Depth to (m): 1.60



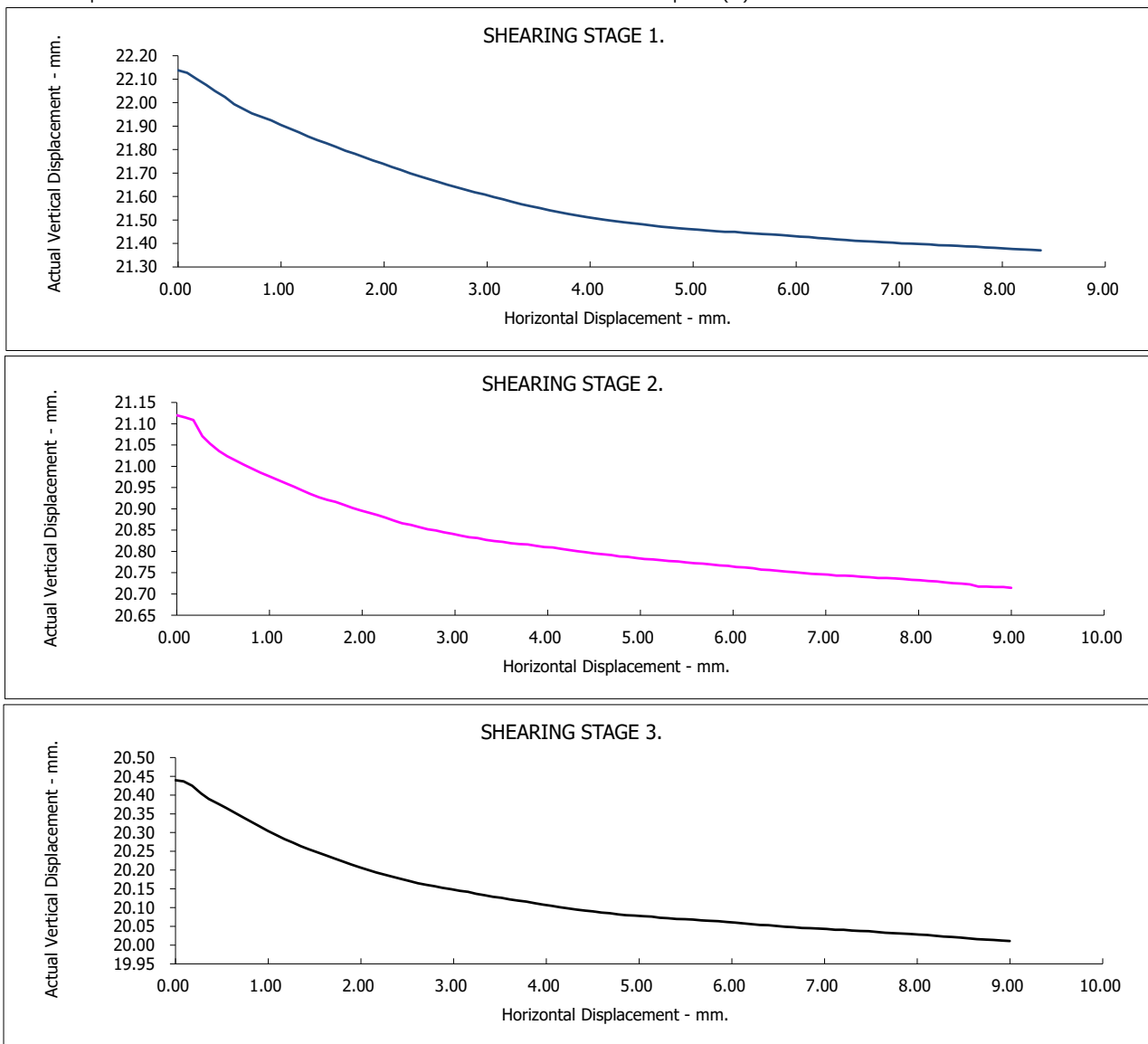
Global Centre of Rail Excellence stage 2 (15)

Contract No.:
66655

Client Ref Number:
G23012
Figure.

Borehole Number: S2-TP245
Sample Number : 5

Depth from (m): 1.40
Depth to (m): 1.60



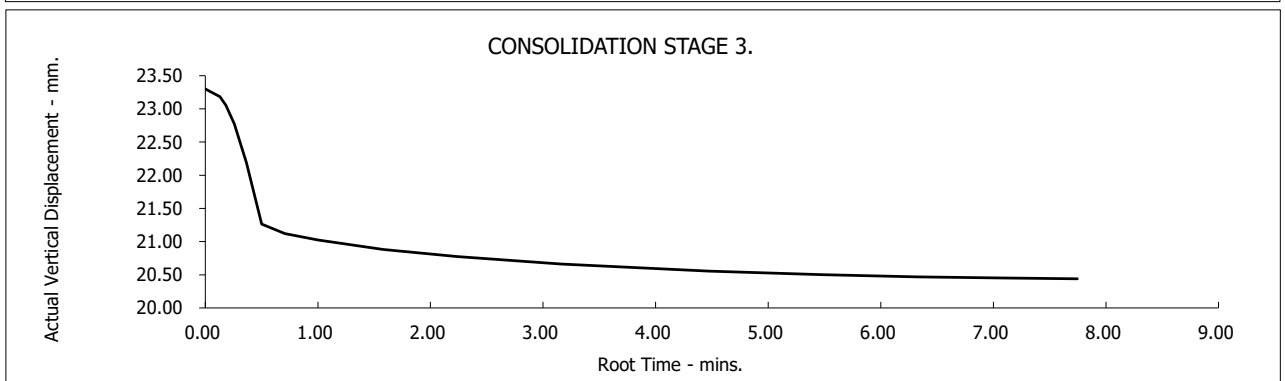
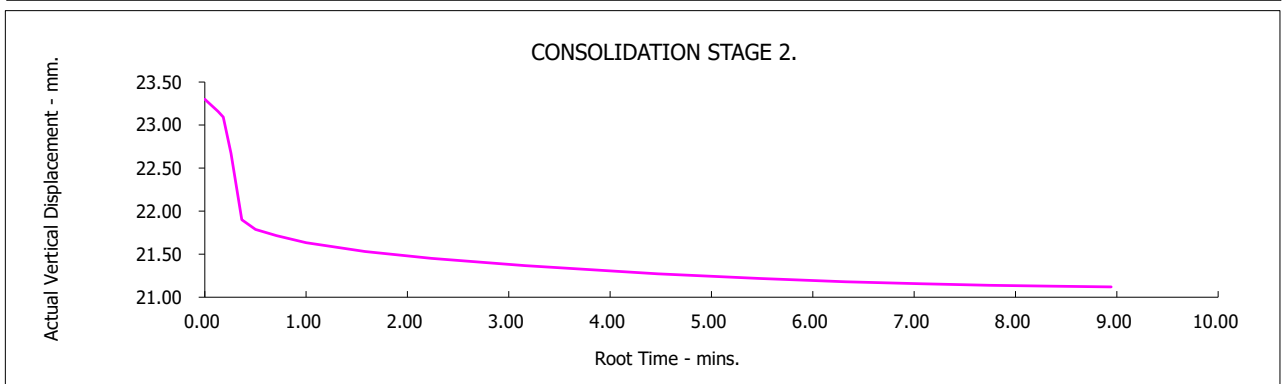
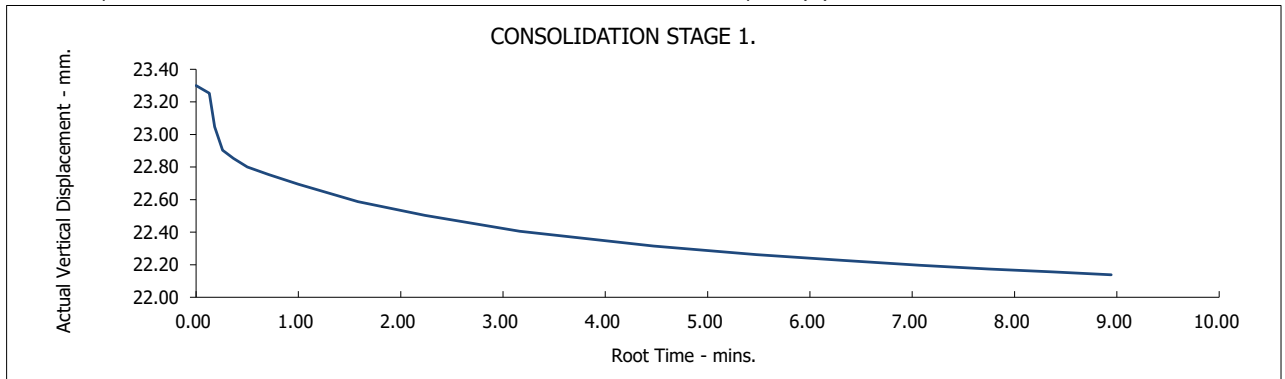
Contract No.:
66655

Global Centre of Rail Excellence stage 2 (15)

Client Ref Number:
G23012

Borehole Number: S2-TP245
Sample Number : 5

Depth from (m): 1.40
Depth to (m): 1.60

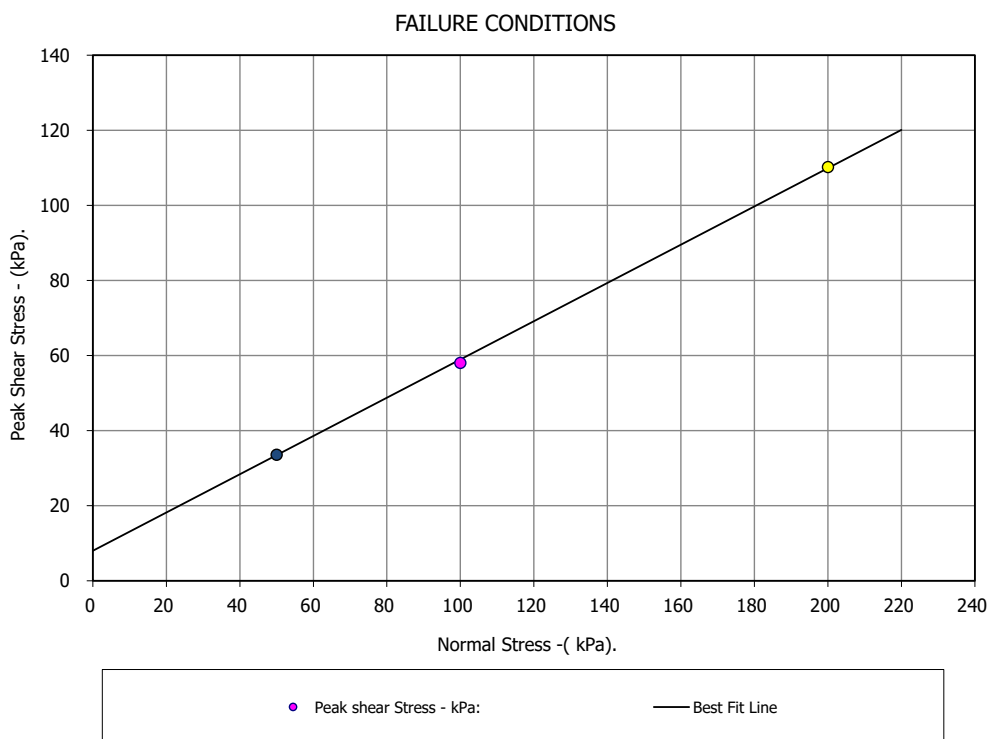


Global Centre of Rail Excellence stage 2 (15)

Contract No.:
66655

Client Ref Number:
G23012

Borehole Number:	S2-TP250	Depth from (m):	1.40
Sample Number :	5.0	Depth to (m):	1.60
Sample Type:	B		
Particle Density - Mg/m3:	2.65	(Assumed)	
Specimen Tested:	Submerged, Remoulded (Light Tamping) Material above 2mm removed.		
Sample Description:			
Brown slightly gravelly CLAY			
STAGE	1	2	3
Initial Conditions			
Height - mm:	23.30	23.30	23.30
Length - mm:	60.00	60.00	60.00
Moisture Content - %:	11	11	11
Bulk Density - Mg/m3:	2.02	2.02	2.02
Dry Density - Mg/m3:	1.81	1.81	1.81
Voids Ratio:	0.4611	0.4621	0.4602
Degree of Saturation - %:	64.24	64.09	64.36
Normal Pressure- kPa	50	100	200
Consolidation			
Consolidated Height - mm:	22.62	21.71	21.17
Shear			
Rate of Horizontal Displacement (mm/min)	0.200	0.200	0.200
Horizontal Displacement at Peak Shear Stress (mm)	7.92	8.64	4.68
Peak shear Stress - kPa:	34	58	110
PEAK			
Angle of Shearing Resistance:(θ)	27		
Effective Cohesion - kPa:	8.0		



Contract No.:
66655

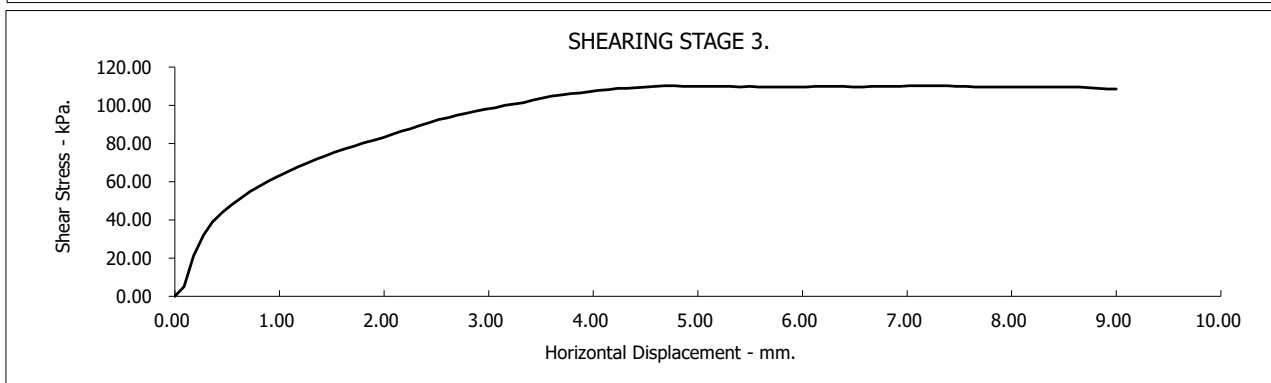
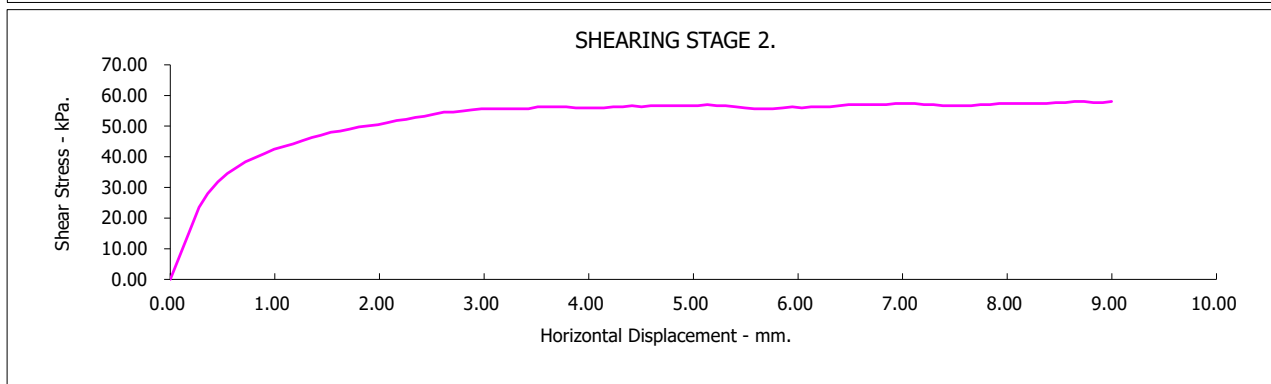
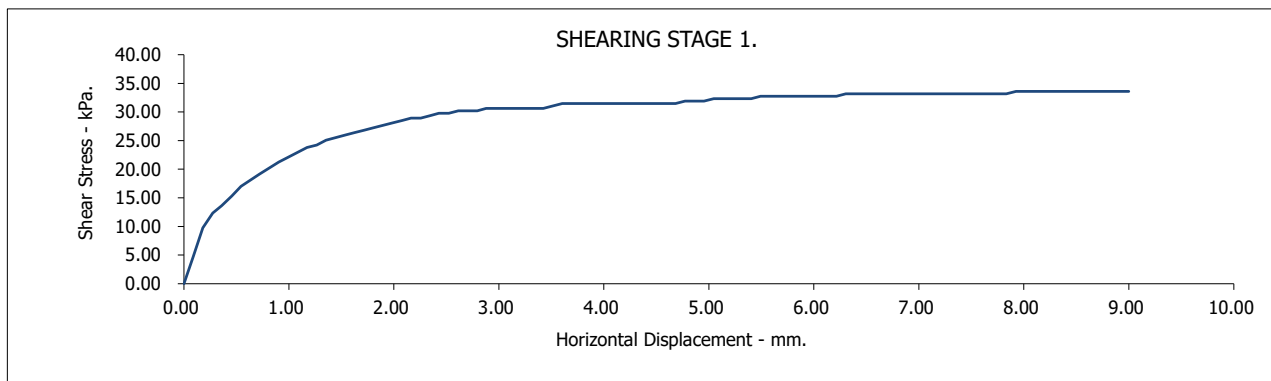
Global Centre of Rail Excellence stage 2 (15)

Client Ref Number:

G23012

Borehole Number: S2-TP250
Sample Number : 5

Depth from (m): 1.40
Depth to (m): 1.60



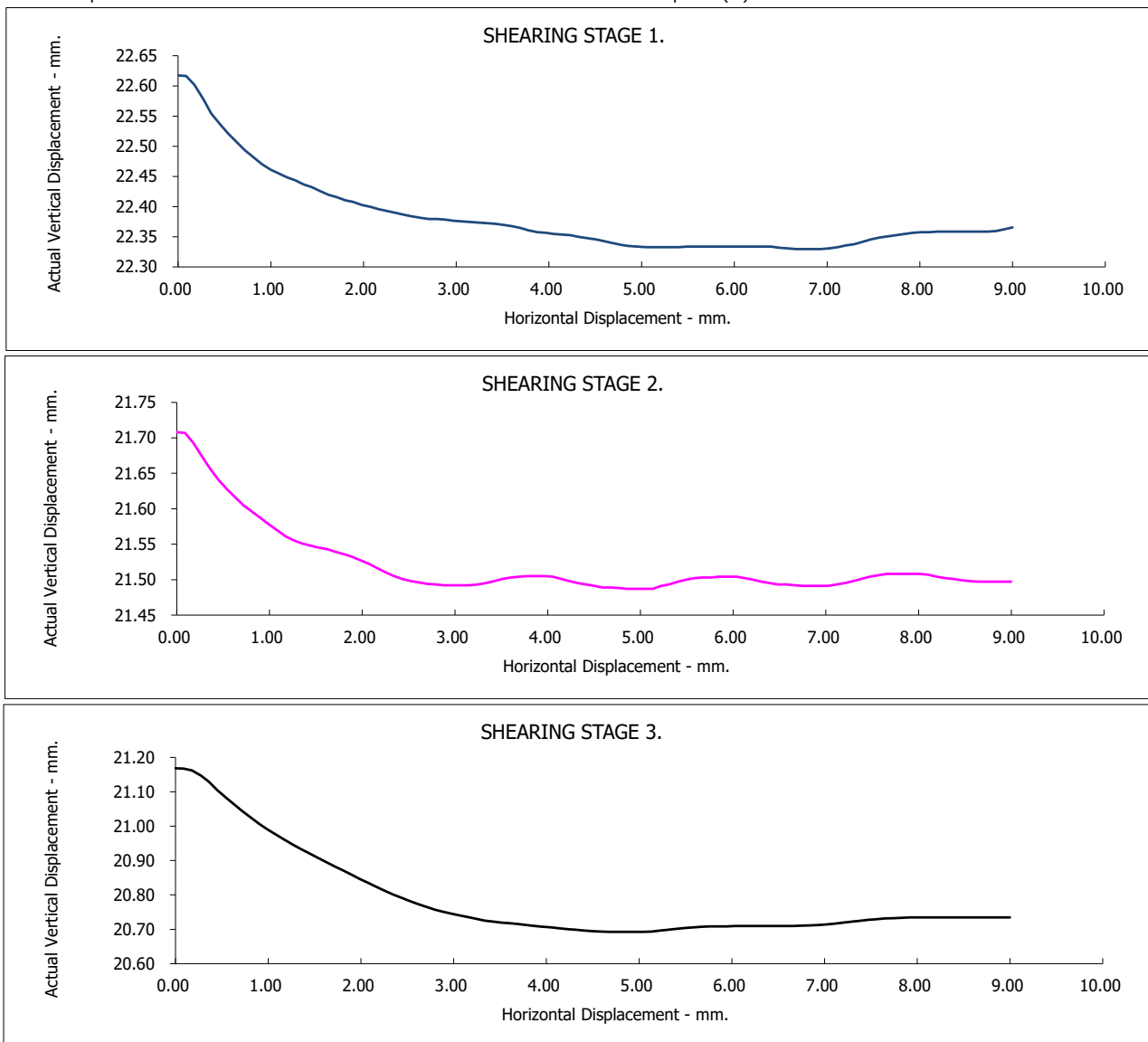
Global Centre of Rail Excellence stage 2 (15)

Contract No.:
66655

Client Ref Number:
G23012
Figure.

Borehole Number: S2-TP250
Sample Number : 5

Depth from (m): 1.40
Depth to (m): 1.60



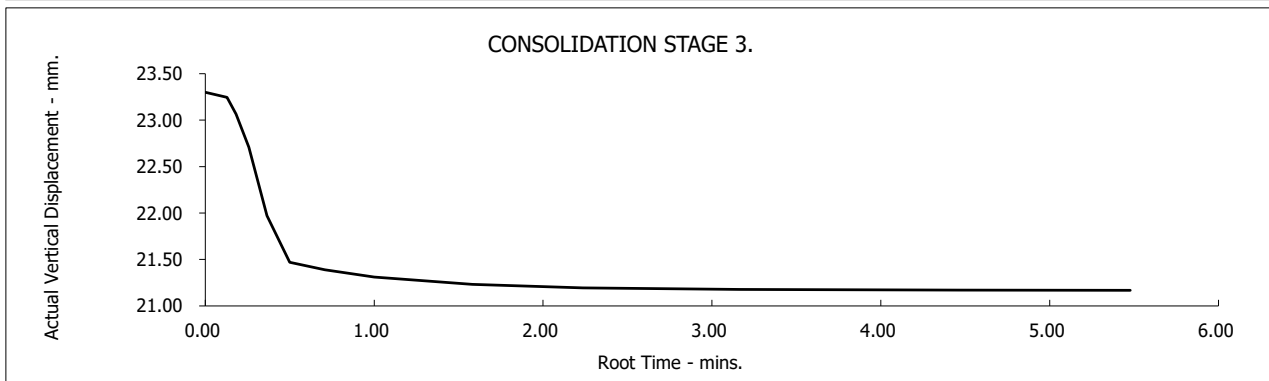
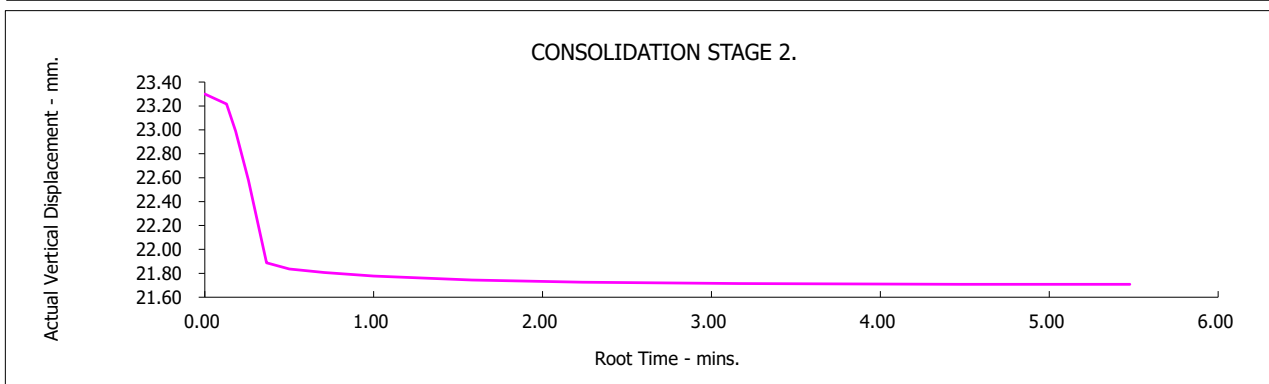
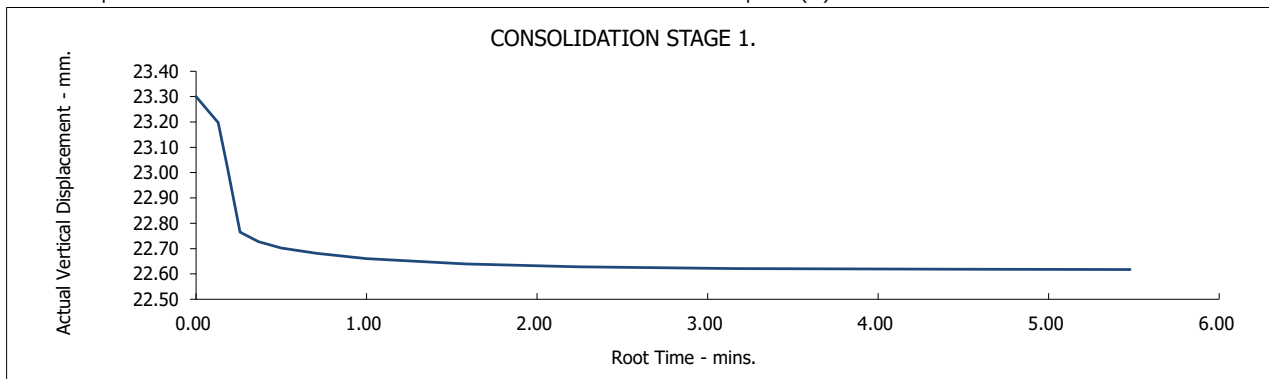
Contract No.:
66655

Global Centre of Rail Excellence stage 2 (15)

Client Ref Number:
G23012

Borehole Number: S2-TP250
Sample Number : 5

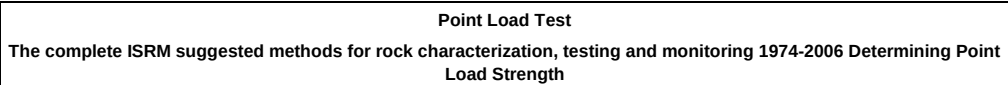
Depth from (m): 1.40
Depth to (m): 1.60



Global Centre of Rail Excellence stage 2 (15)

Contract No.:
66655

Client Ref Number:
G23012



66655

Global Centre of Rail Excellence stage 2 (15)

Core

25/05/2023

*Please note that GSTL is not accredited for the water content of rock



Laboratory Report



Contract Number: 66658

Client Ref: **G23012**

Client PO:

Date Received: **24-05-2023**

Date Completed: **12-06-2023**

Report Date: **12-06-2023**

Client: **Jackson Drilling Holdings Ltd**
Northwood Farm
Coxbridge Road
Baltonsborough
Somerset
BA6 8RA

This report has been checked and approved by:

Brendan Evans
Office Administrator

Contract Title: **Global Centre of Rail Excellence Stage 2 (16)**

For the attention of: **Adam Putt**

Test Description	Qty
Moisture Content of Soil BS1377 : Part 2 : Clause 3.2 : 1990 - * UKAS	7
4 Point Liquid & Plastic Limit BS 1377:1990 - Part 2 : 4.3 & 5.3 - * UKAS	4
PSD Wet & Dry Sieve method BS 1377:1990 - Part 2 : 9.2 - * UKAS	5
PSD: Sedimentation by pipette carried out with Wet Sieve (Wet Sieve must also be selected) BS 1377:1990 - Part 2 : 9.4 - * UKAS	2
Dry Den/MC (4.5kg Rammer Method 1 Litre Mould/CBR Mould) BS 1377:1990 - Part 4 : 3.5 - * UKAS	2
Uniaxial Compressive Strength of Rock inc sample prep 54-165mm diameter cores ISRM Suggested Method for determining uniaxial compressive strength - @ Non Accredited Test	1
Determination of Point Load Value Axial or Diametrical including WC *Please note GSTL is not accredited for the water content of rock* ISRM Suggested Method for Point Load Strength - * UKAS	1

Notes: **Observations and Interpretations are outside the UKAS Accreditation**

* - denotes test included in laboratory scope of accreditation

- denotes test carried out by approved contractor

@ - denotes non accredited tests

This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This test report/certificate shall not be reproduced except in full, without the approval of GEO Site & Testing Services Ltd. Any opinions or interpretations stated - within this report/certificate are excluded from the laboratories UKAS accreditation.

Approved Signatories:

Brendan Evans (Office Administrator) - Darren Bourne (Quality Senior Technician) - Paul Evans (Director)
Richard John (Quality/Technical Manager) - Shaun Jones (Laboratory manager) - Shaun Thomas (Site Manager)
Wayne Honey (Human Resources/ Health and Safety Manager)



Laboratory Report



Contract Number: 66658

Test Description	Qty
Consolidated Drained Peak Shear Strength - set of 3 - 60 x 60mm Shear Box Specimens by Direct Shearing (3 days) BS 1377:1990 - Part 7 : 4 - * UKAS	1
Disposal of samples for job	1

Notes: Observations and Interpretations are outside the UKAS Accreditation

* - denotes test included in laboratory scope of accreditation

- denotes test carried out by approved contractor

@ - denotes non accredited tests

This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This test report/certificate shall not be reproduced except in full, without the approval of GEO Site & Testing Services Ltd. Any opinions or interpretations stated - within this report/certificate are excluded from the laboratories UKAS accreditation.

Approved Signatories:

Brendan Evans (Office Administrator) - Darren Bourne (Quality Senior Technician) - Paul Evans (Director)

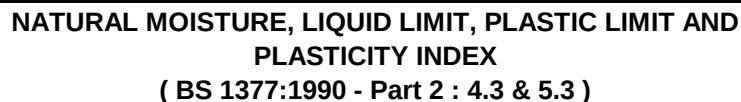
Richard John (Quality/Technical Manager) - Shaun Jones (Laboratory manager) - Shaun Thomas (Site Manager)

Wayne Honey (Human Resources/ Health and Safety Manager)

GEO Site & Testing Services Ltd

Units 3-4, Heol Aur, Dafen, Llanelli, Carmarthenshire, Wales SA14 8QN

Tel: 01554 784040 Fax: 01554 784041 info@gstl.co.uk gstl.co.uk



Contract Number	66658	
Project Name	Global Centre of Rail Excellence Stage 2 (16)	
Date Tested	06/06/2023	
	DESCRIPTIONS	

[illegible]

Operator
Aaron Hodge

**PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2**

Contract Number 66658

Borehole/Pit No. S2-BH236

Project Name Global Centre of Rail Excellence Stage 2 (16)

Sample No. 4

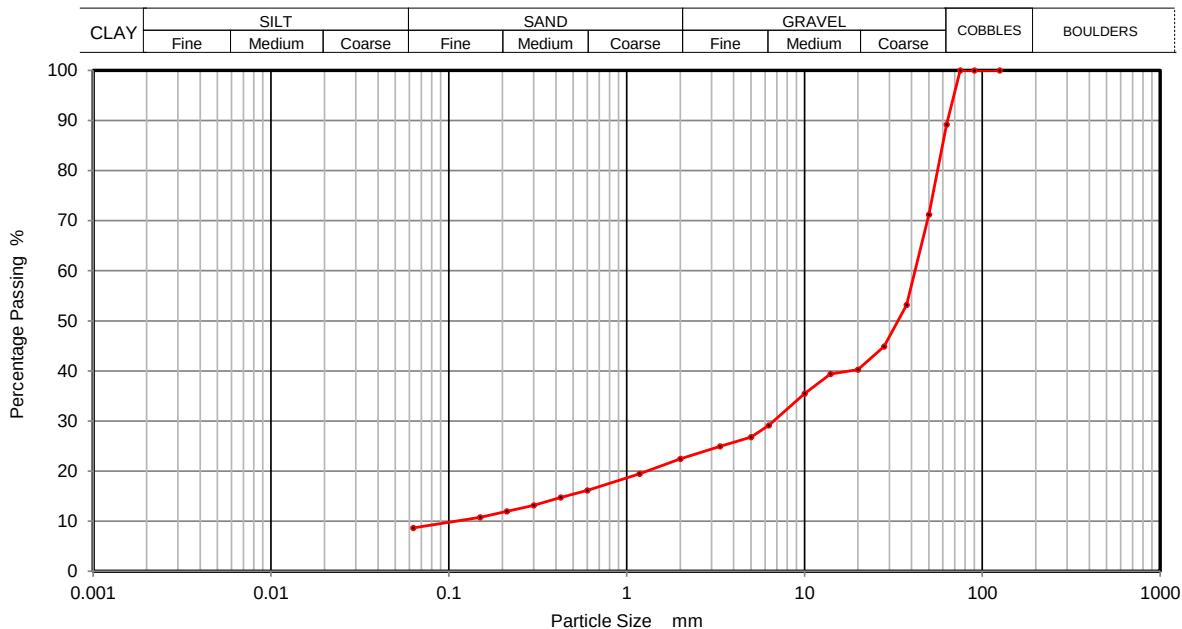
Soil Description Grey clayey/silty fine to coarse sandy fine to coarse GRAVEL (with cobbles)

Depth Top 0.30

Depth Base 0.50

Date Tested 06/06/2023

Sample Type B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	89		
50	71		
37.5	53		
28	45		
20	40		
14	39		
10	35		
6.3	29		
5	27		
3.35	25		
2	22		
1.18	19		
0.6	16		
0.425	15		
0.3	13		
0.212	12		
0.15	11		
0.063	9		

Sample Proportions	% dry mass
Cobbles	11
Gravel	67
Sand	13
Silt and Clay	9

Remarks

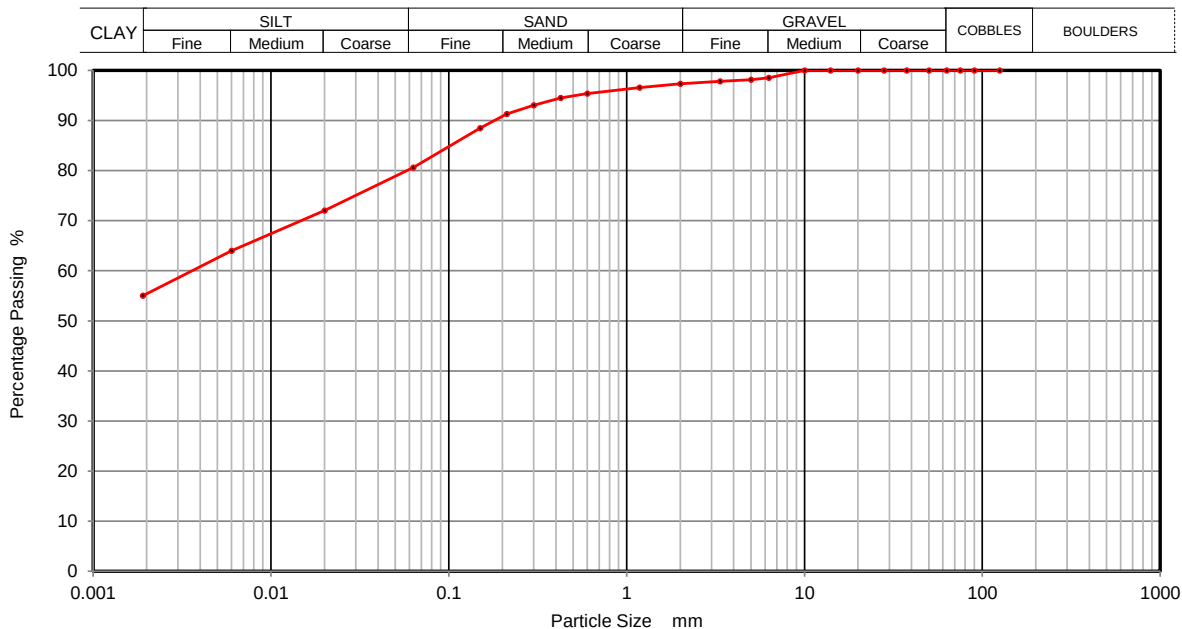
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Contract Number	66658
Borehole/Pit No.	S2-BH241
Sample No.	104
Depth Top	2.60
Depth Base	2.70
Sample Type	D

Project Name	Global Centre of Rail Excellence Stage 2 (16)
Soil Description	Brown slightly gravelly fine to coarse sandy silty CLAY
Date Tested	06/06/2023



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	72
90	100	0.0060	64
75	100	0.0020	55
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	99		
5	98		
3.35	98		
2	97		
1.18	97		
0.6	95		
0.425	94		
0.3	93		
0.212	91		
0.15	88		
0.063	81		

Sample Proportions	% dry mass
Cobbles	0
Gravel	3
Sand	16
Silt	26
Clay	55

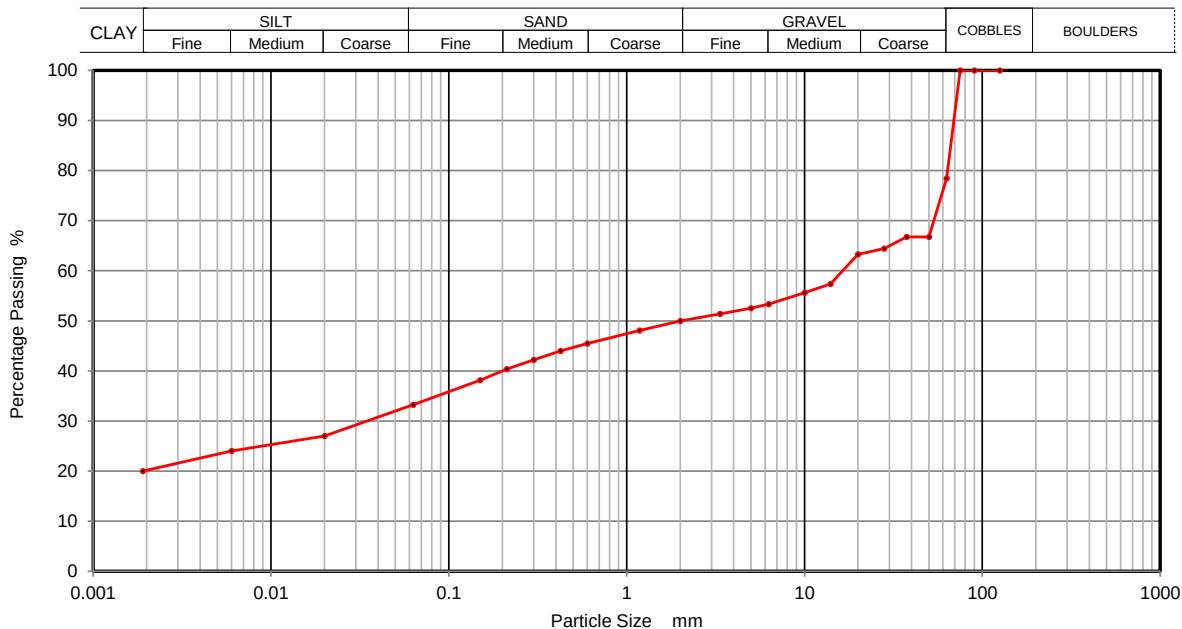
Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Contract Number	66658
Borehole/Pit No.	S2-BH241
Sample No.	108
Depth Top	4.20
Depth Base	5.20
Sample Type	B

Project Name	Global Centre of Rail Excellence Stage 2 (16)
Soil Description	Grey brown silty fine to coarse sandy clayey fine to coarse GRAVEL (with cobbles)
Date Tested	06/06/2023



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	27
90	100	0.0060	24
75	100	0.0020	20
63	78		
50	67		
37.5	67		
28	64		
20	63		
14	57		
10	56		
6.3	53		
5	53		
3.35	51		
2	50		
1.18	48		
0.6	45		
0.425	44		
0.3	42		
0.212	40		
0.15	38		
0.063	33		

Sample Proportions	% dry mass
Cobbles	22
Gravel	28
Sand	17
Silt	13
Clay	20

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

**PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2**

Contract Number 66658

Borehole/Pit No. S2-TP202

Project Name Global Centre of Rail Excellence Stage 2 (16)

Sample No. 2

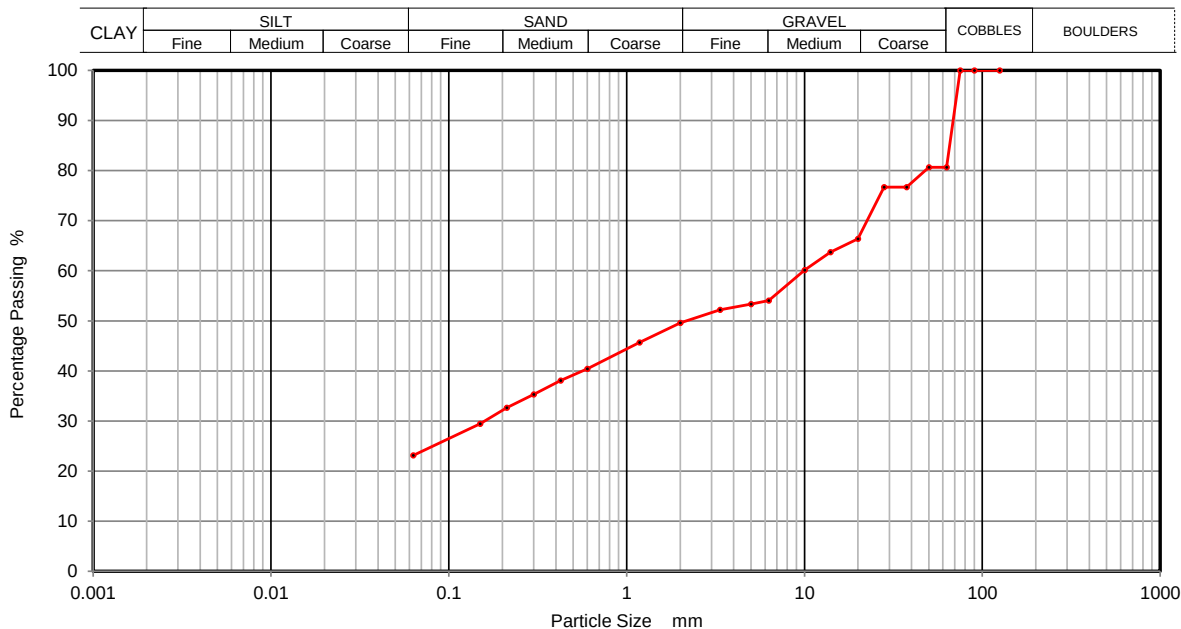
Soil Description Brown silty/clayey fine to coarse sandy fine to coarse GRAVEL (with cobbles)

Depth Top 0.40

Depth Base 0.60

Date Tested 06/06/2023

Sample Type B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	81		
50	81		
37.5	77		
28	77		
20	66		
14	64		
10	60		
6.3	54		
5	53		
3.35	52		
2	50		
1.18	46		
0.6	40		
0.425	38		
0.3	35		
0.212	33		
0.15	29		
0.063	23		

Sample Proportions	% dry mass
Cobbles	19
Gravel	31
Sand	27
Silt and Clay	23

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

**PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2**

Contract Number 66658

Borehole/Pit No. S2-TP202

Project Name Global Centre of Rail Excellence Stage 2 (16)

Sample No. 9

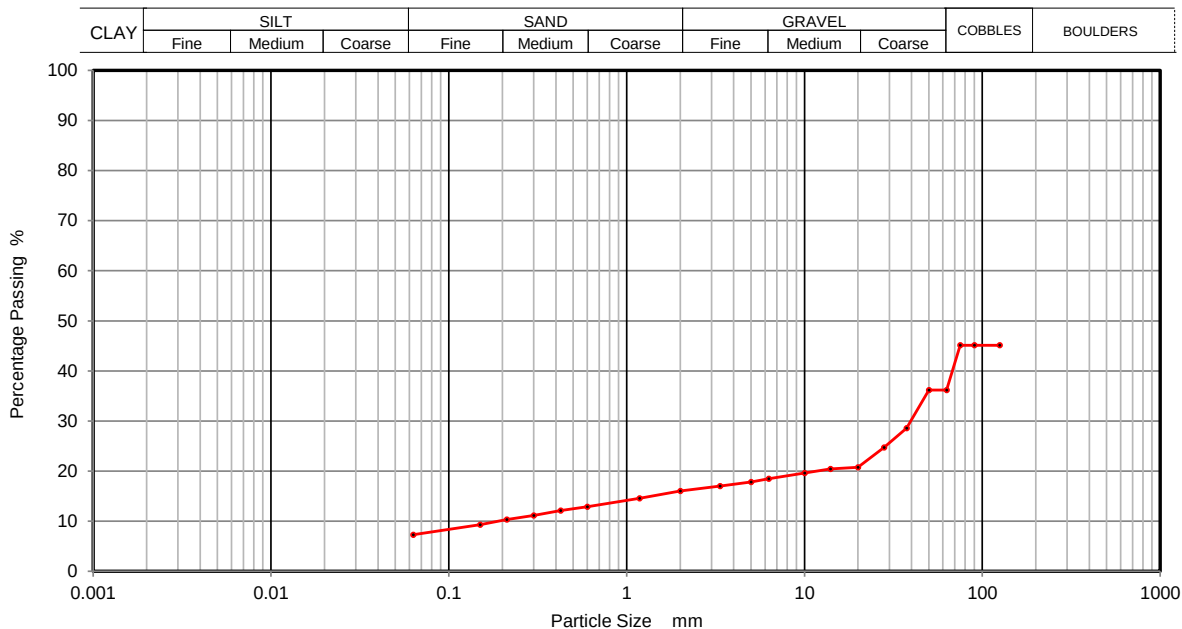
Soil Description Brown grey clayey/silty fine to coarse sandy fine to coarse GRAVEL
(with cobbles)

Depth Top 3.30

Depth Base 3.50

Date Tested 06/06/2023

Sample Type B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	45		
90	45		
75	45		
63	36		
50	36		
37.5	29		
28	25		
20	21		
14	20		
10	20		
6.3	18		
5	18		
3.35	17		
2	16		
1.18	15		
0.6	13		
0.425	12		
0.3	11		
0.212	10		
0.15	9		
0.063	7		

Sample Proportions	% dry mass
Cobbles	64
Gravel	20
Sand	9
Silt and Clay	7

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

**Dry Density / Moisture Content Relationship
BS 1377:Part 4:1990**

Contract Number 66658

Borehole / Pit No S2-BH236

Project Name Global Centre of Rail Excellence Stage 2 (16)

Sample No 5

Date Tested 08/06/2023

Depth Top 0.60

Compaction Method 4.5 Kg Rammer

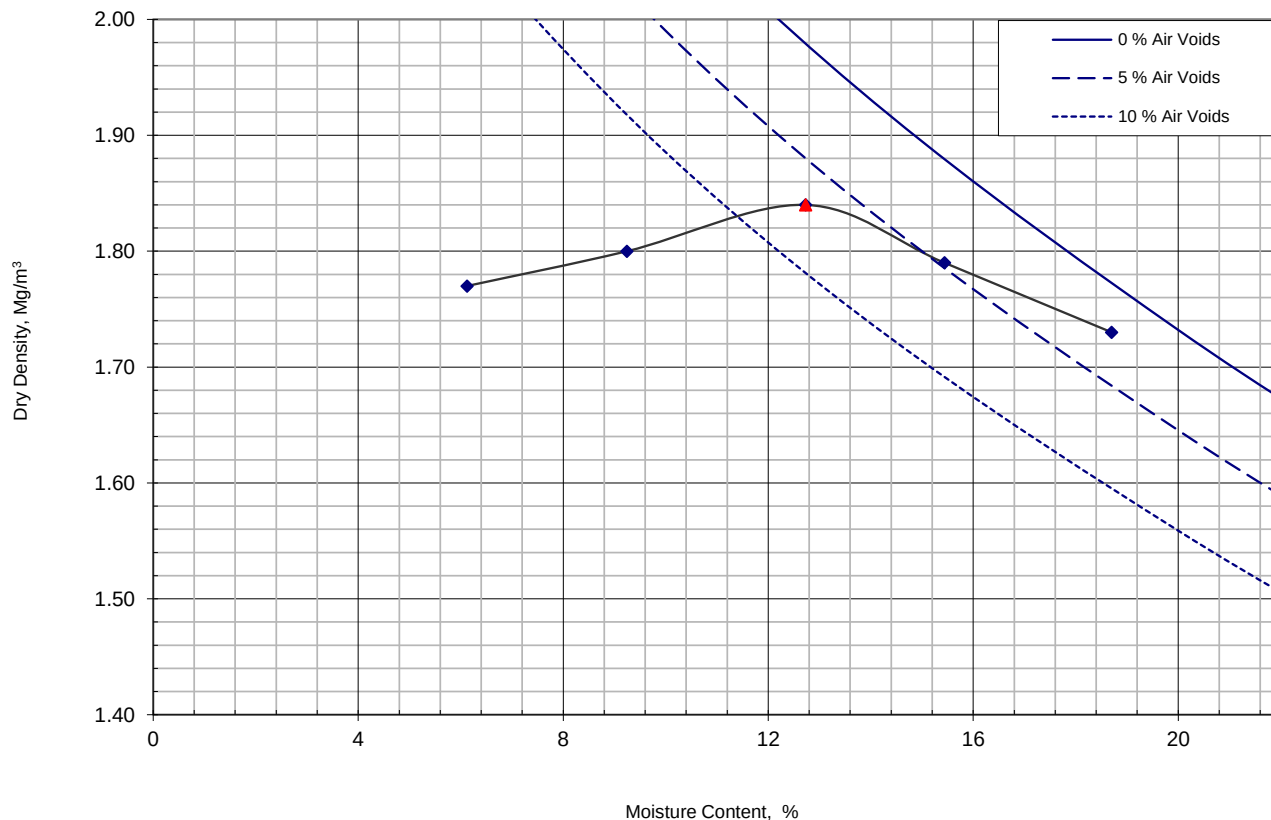
Depth Base 0.80

Compaction Clause BS1377:Part 4:1990, Clause 3.5

Sample Type B

Sample Description Grey fine to medium gravelly silty CLAY

Single or Separate
Sample Used Single



Compaction Point	1	2	3	4	5							
Moisture Content	6.1	9.2	13	15	19							
Bulk Density	1.88	1.97	2.07	2.07	2.05							
Dry Density	1.77	1.80	1.84	1.79	1.73							

Initial Moisture Content	13	%
Maximum Dry Density	1.84	Mg/m ³
Optimum Moisture Content	13	%
Particle Density	2.65 Assumed	Mg/m ³
Material Retained 37.5mm	0	%
Material Retained 20mm	0	%

Operator

Conal

**Dry Density / Moisture Content Relationship
BS 1377:Part 4:1990**

Contract Number 66658

Borehole / Pit No S2-TP202

Project Name Global Centre of Rail Excellence Stage 2 (16)

Sample No 5

Date Tested 08/06/2023

Depth Top 1.40

Compaction Method 4.5 Kg Rammer

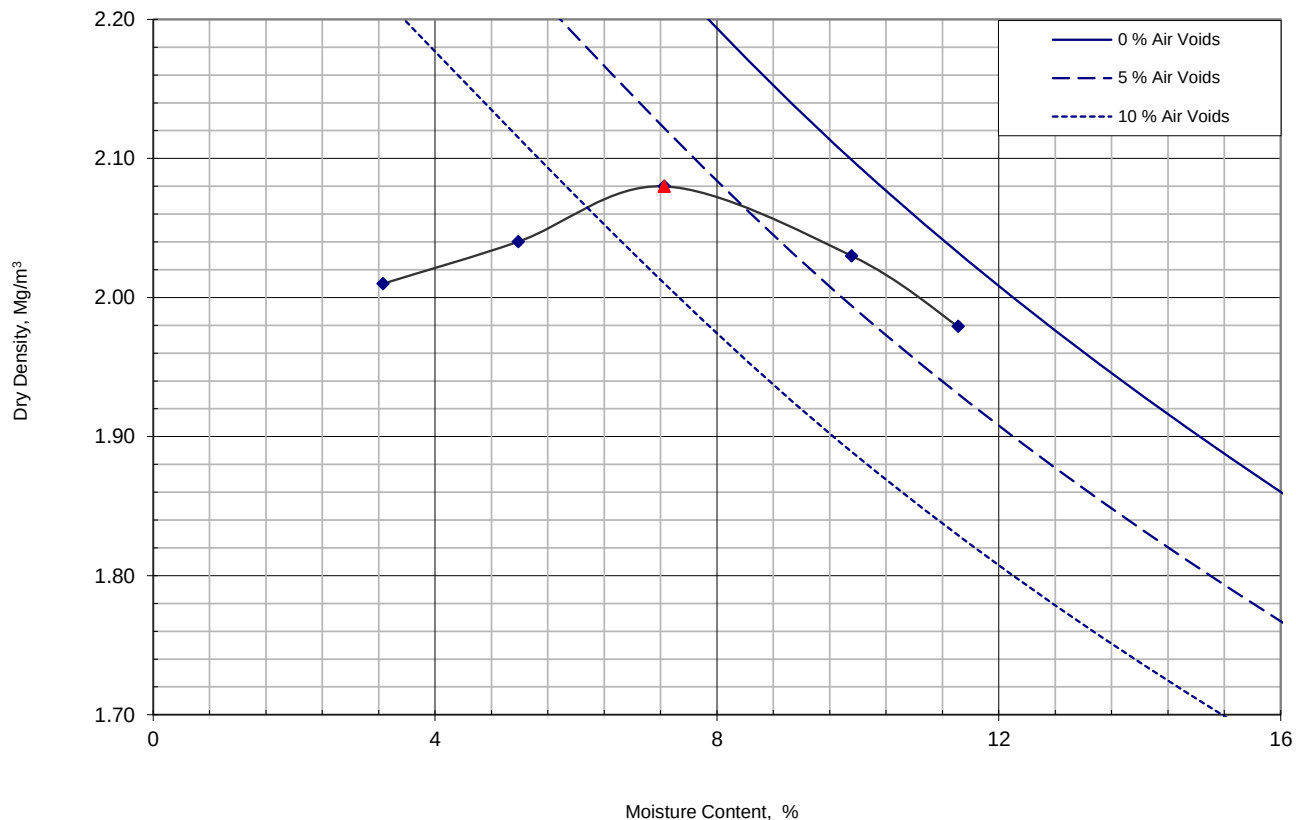
Depth Base 1.60

Compaction Clause BS1377:Part 4:1990, Clause 3.5

Sample Type B

Sample Description Dark grey silty/clayey sandy fine to coarse GRAVEL

Single or Separate Sample Used Single



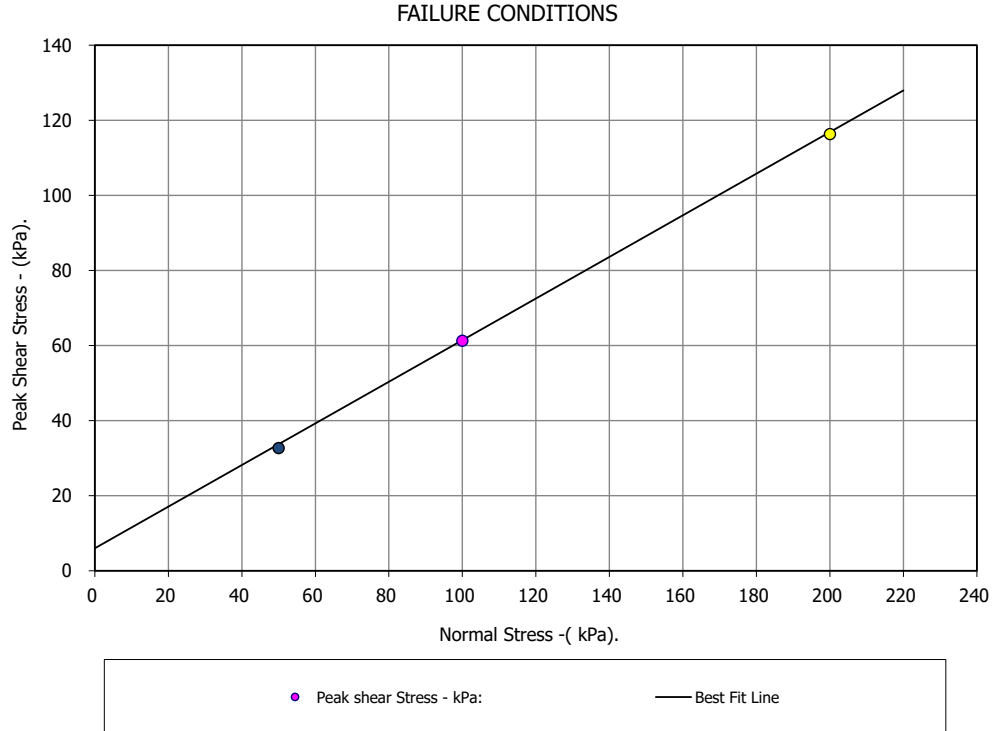
Compaction Point	1	2	3	4	5							
Moisture Content	3.3	5.2	7.3	9.9	11							
Bulk Density	2.08	2.15	2.23	2.23	2.21							
Dry Density	2.01	2.04	2.08	2.03	1.98							

Initial Moisture Content	11	%
Maximum Dry Density	2.08	Mg/m3
Optimum Moisture Content	7.3	%
Particle Density	2.65 Assumed	Mg/m3
Material Retained 37.5mm	0	%
Material Retained 20mm	20	%

Operator

Conal

Borehole Number:	S2-TP202	Depth from (m):	1.40
Sample Number :	5.0	Depth to (m):	1.80
Sample Type:	B		
Particle Density - Mg/m3:	2.65 (Assumed)		
Specimen Tested:	Submerged, Remoulded (Light Tamping) Material above 2mm removed.		
Sample Description:			
Brown slight gravelly CLAY			
STAGE	1	2	3
Initial Conditions			
Height - mm:	25.03	25.03	25.03
Length - mm:	60.00	60.00	60.00
Moisture Content - %:	14	14	14
Bulk Density - Mg/m3:	1.85	1.85	1.85
Dry Density - Mg/m3:	1.62	1.62	1.62
Voids Ratio:	0.6400	0.6395	0.6370
Degree of Saturation - %:	59.52	59.57	59.81
Normal Pressure- kPa	50	100	200
Consolidation			
Consolidated Height - mm:	23.59	21.62	21.95
Shear			
Rate of Horizontal Displacement (mm/min)	0.200	0.200	0.200
Horizontal Displacement at Peak Shear Stress (mm)	7.66	9.28	8.56
Peak shear Stress - kPa:	33	61	116
PEAK			
Angle of Shearing Resistance:(θ)	29.0		
Effective Cohesion - kPa:	6.0		



Contract No.:
66658

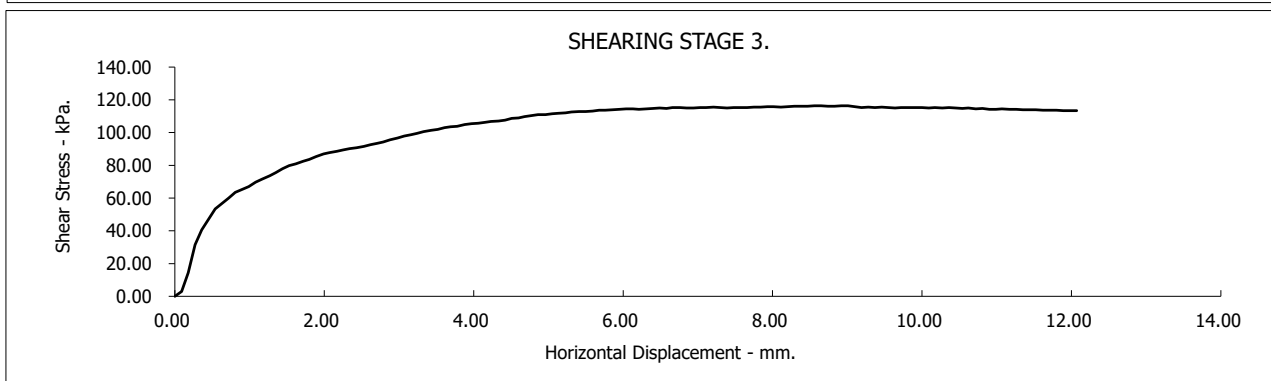
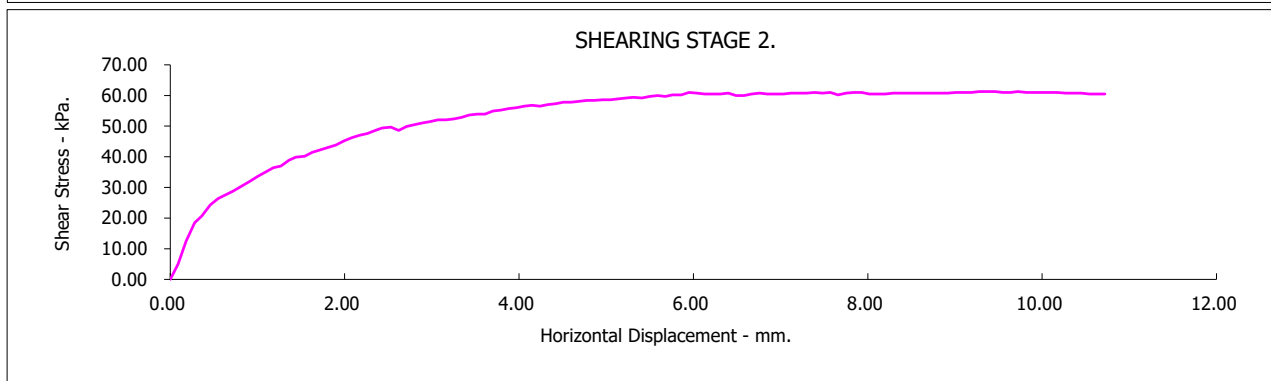
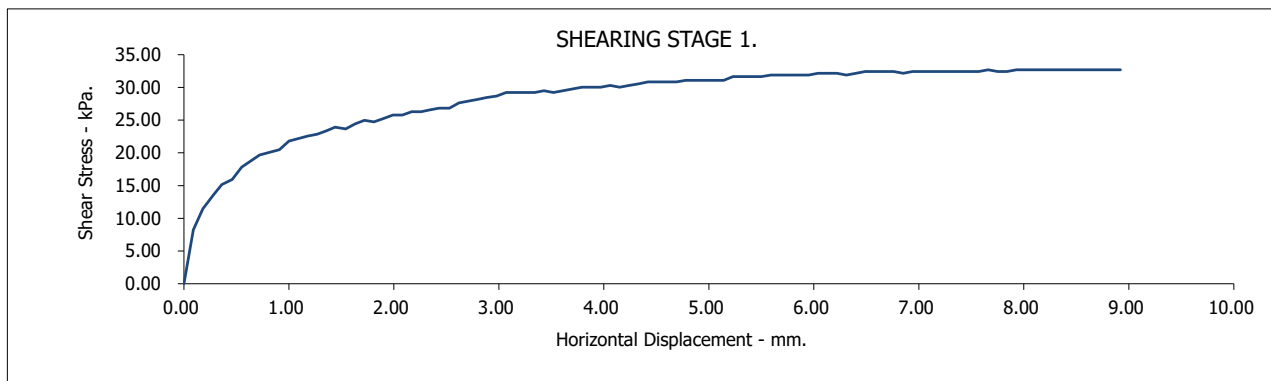
Global Centre of Rail Excellence Stage 2 (16)

Client Ref Number:

G23012

Borehole Number: S2-TP202
Sample Number : 5

Depth from (m): 1.40
Depth to (m): 1.80

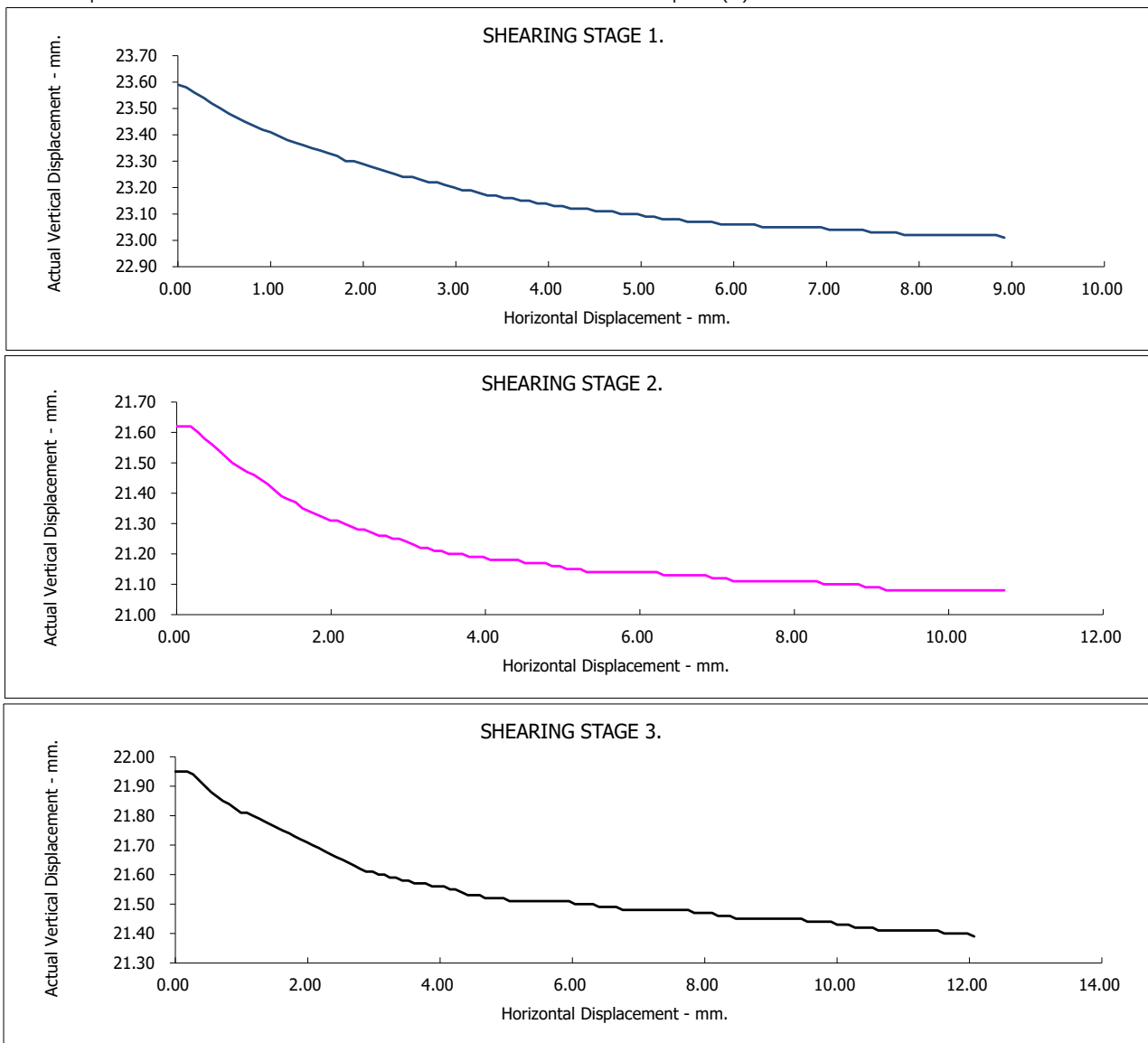


Global Centre of Rail Excellence Stage 2 (16)

Contract No.: **66658**
Client Ref Number: **G23012**
Figure.

Borehole Number: S2-TP202
Sample Number : 5

Depth from (m): 1.40
Depth to (m): 1.80



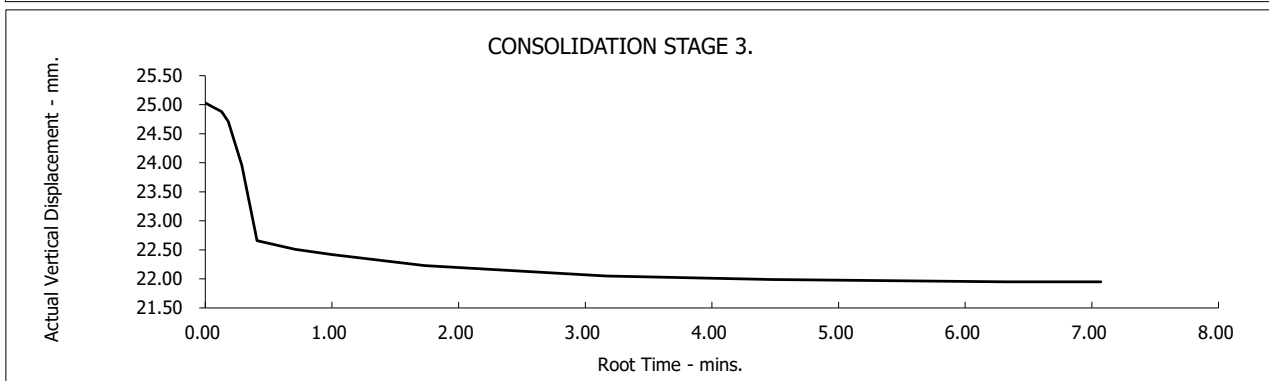
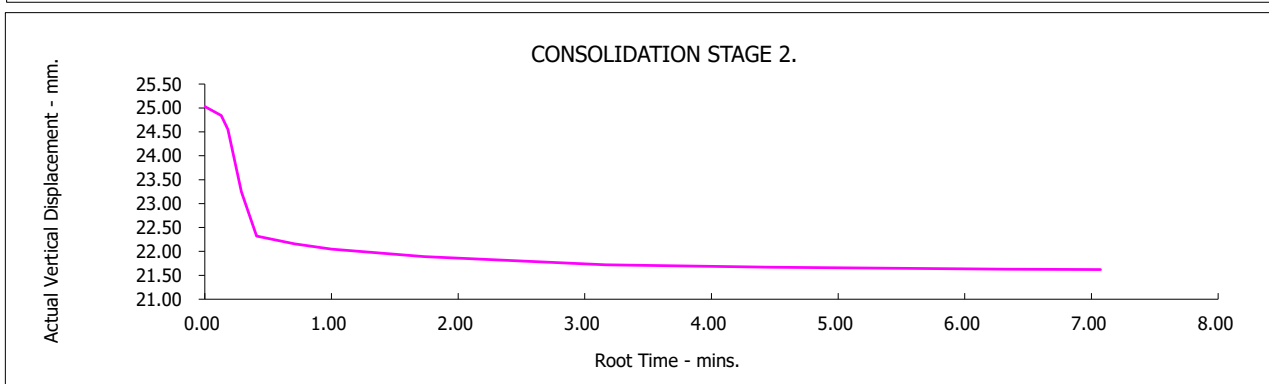
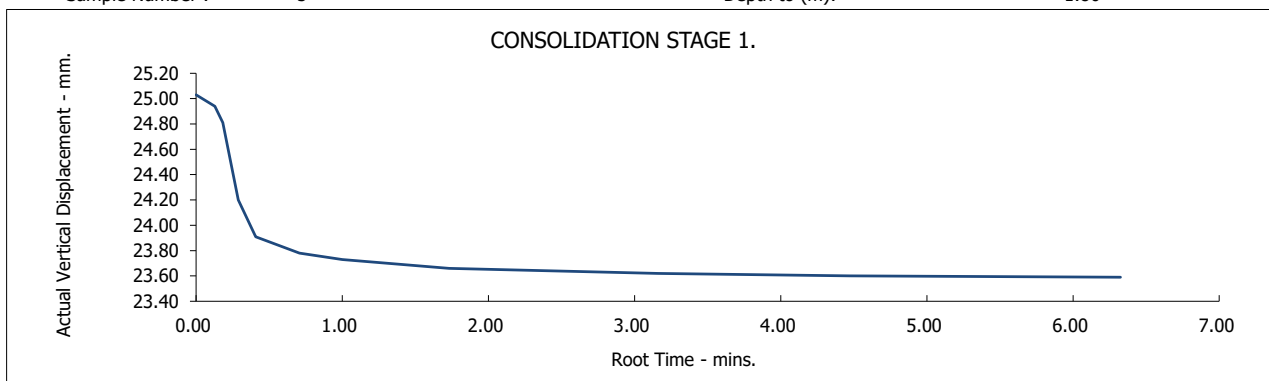
Global Centre of Rail Excellence Stage 2 (16)

Contract No.:
66658

Client Ref Number:
G23012

Borehole Number: S2-TP202
Sample Number : 5

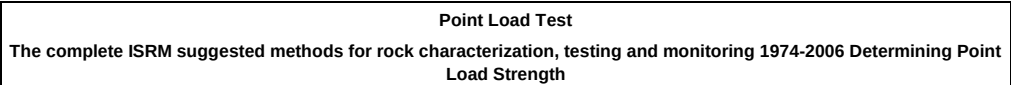
Depth from (m): 1.40
Depth to (m): 1.80



Global Centre of Rail Excellence Stage 2 (16)

Contract No.:
66658

Client Ref Number:
G23012



66658

Global Centre of Rail Excellence Stage 2 (16)

Core

25/05/2023

*Please note that GSTL is not accredited for the water content of rock



Laboratory Report



Contract Number: 66659

Client Ref: **G23012**

Client PO:

Date Received: **24-05-2023**

Date Completed: **15-06-2023**

Report Date: **15-06-2023**

Client: **Jackson Drilling Holdings Ltd**
Northwood Farm
Coxbridge Road
Baltonsborough
Somerset
BA6 8RA

This report has been checked and approved by:

Brendan Evans
Office Administrator

Contract Title: **Global Centre of Rail Excellence Stage 2 (17)**

For the attention of: **Adam Putt**

Test Description	Qty
Moisture Content of Soil BS1377 : Part 2 : Clause 3.2 : 1990 - * UKAS	13
4 Point Liquid & Plastic Limit BS 1377:1990 - Part 2 : 4.3 & 5.3 - * UKAS	5
PSD Wet & Dry Sieve method BS 1377:1990 - Part 2 : 9.2 - * UKAS	6
PSD: Sedimentation by pipette carried out with Wet Sieve (Wet Sieve must also be selected) BS 1377:1990 - Part 2 : 9.4 - * UKAS	4
Dry Den/MC (4.5kg Rammer Method 1 Litre Mould/CBR Mould) BS 1377:1990 - Part 4 : 3.5 - * UKAS	3
Consolidated Drained Peak Shear Strength - set of 3 - 60 x 60mm Shear Box Specimens by Direct Shearing (3 days) BS 1377:1990 - Part 7 : 4 - * UKAS	2
Disposal of samples for job	1

Notes: **Observations and Interpretations are outside the UKAS Accreditation**

* - denotes test included in laboratory scope of accreditation

- denotes test carried out by approved contractor

@ - denotes non accredited tests

This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This test report/certificate shall not be reproduced except in full, without the approval of GEO Site & Testing Services Ltd. Any opinions or interpretations stated - within this report/certificate are excluded from the laboratories UKAS accreditation.

Approved Signatories:

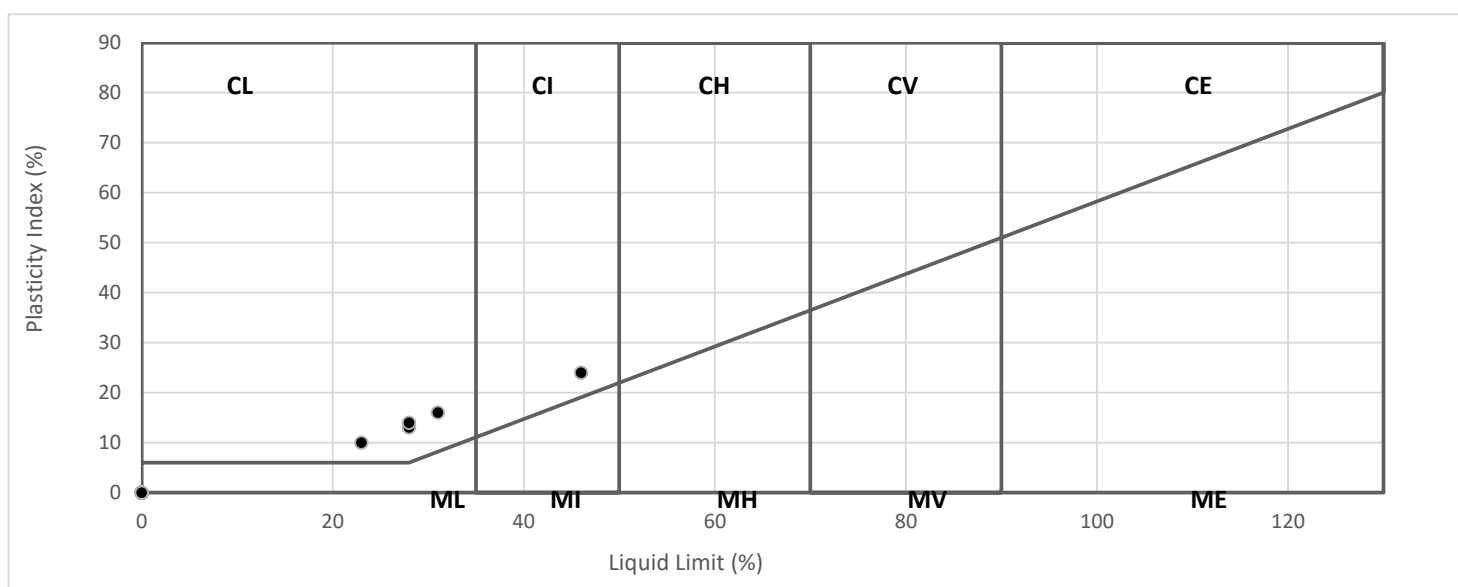
Brendan Evans (Office Administrator) - Darren Bourne (Quality Senior Technician) - Paul Evans (Director)
Richard John (Quality/Technical Manager) - Shaun Jones (Laboratory manager) - Shaun Thomas (Site Manager)
Wayne Honey (Human Resources/ Health and Safety Manager)

Contract Number	66659	
Project Name	Global Centre of Rail Excellence Stage 2 (17)	
Date Tested	05/06/2023	

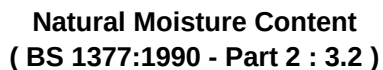
[illegible]

Symbols: NP : Non Plastic # : Liquid Limit and Plastic Limit Wet Sieved

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION



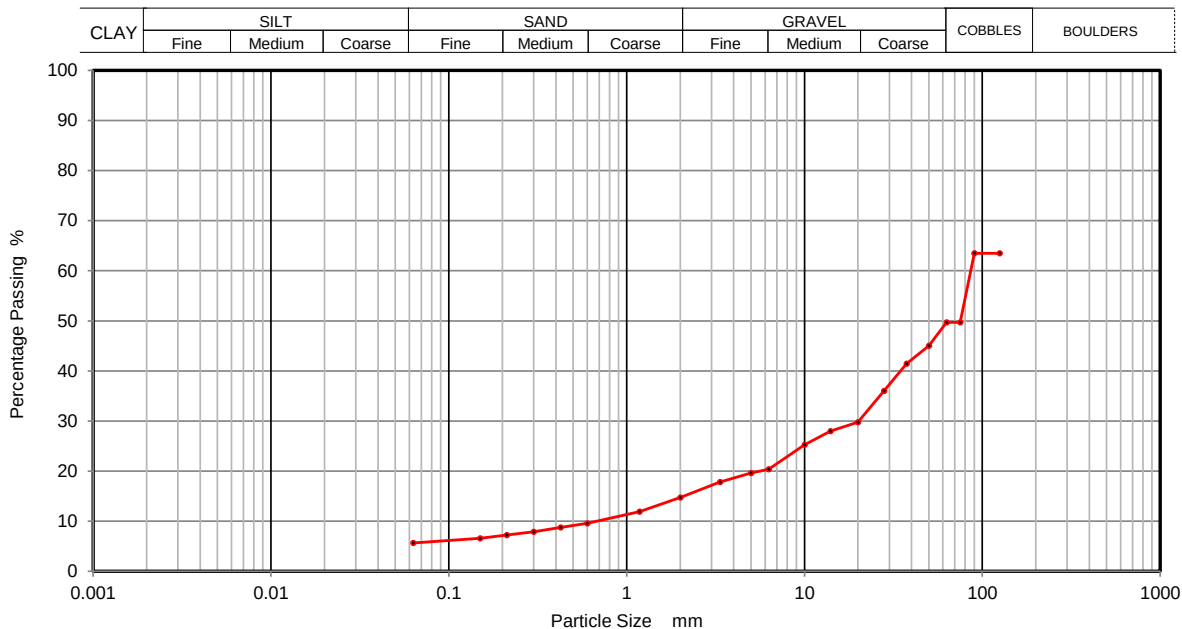
Operator
Ethan Harper



**PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2**

Contract Number	66659
Borehole/Pit No.	S2-TP209
Sample No.	5
Depth Top	1.60
Depth Base	1.80
Sample Type	B

Project Name	Global Centre of Rail Excellence Stage 2 (17)
Soil Description	*See sample description sheet
Date Tested	06/06/2023



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	63		
90	63		
75	50		
63	50		
50	45		
37.5	41		
28	36		
20	30		
14	28		
10	25		
6.3	20		
5	20		
3.35	18		
2	15		
1.18	12		
0.6	10		
0.425	9		
0.3	8		
0.212	7		
0.15	7		
0.063	6		

Sample Proportions	% dry mass
Cobbles	50
Gravel	35
Sand	9
Silt and Clay	6

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

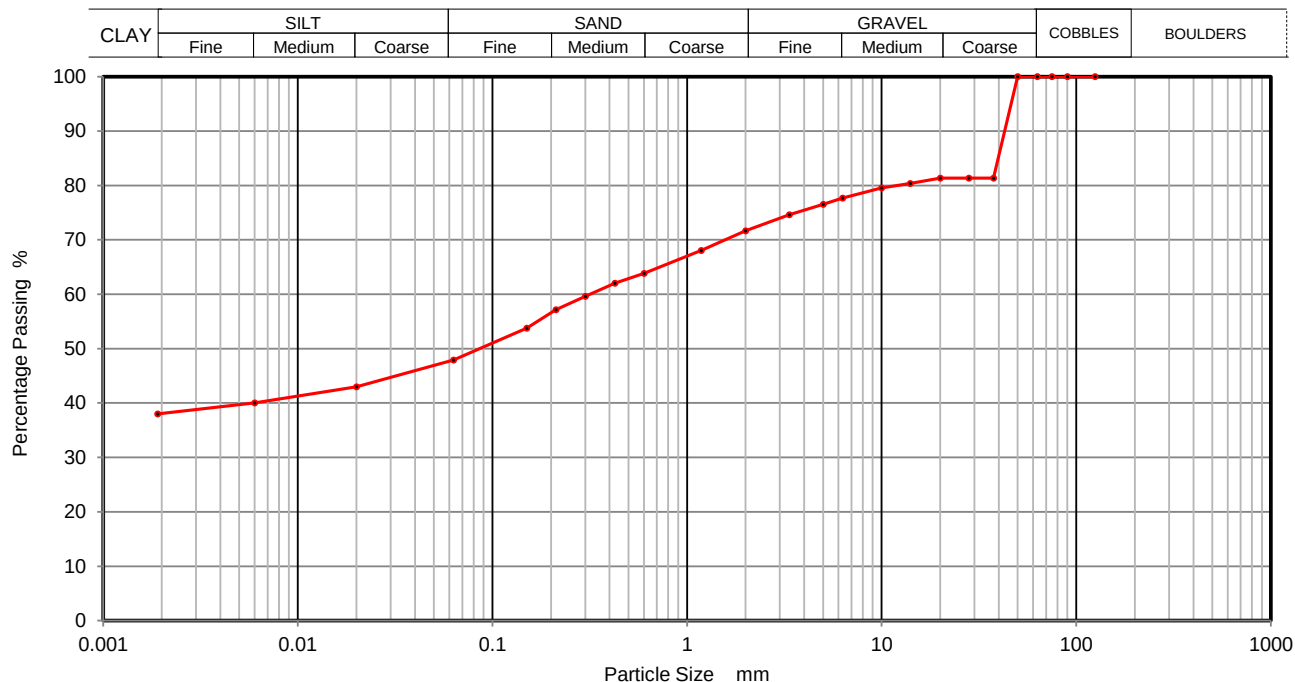
PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Contract Number	66659
Borehole/Pit No.	S2-TP213
Sample No.	10
Depth Top	3.10
Depth Base	3.20
Sample Type	D

Project Name Global Centre of Rail Excellence Stage 2 (17)

Soil Description *See sample description sheet

Date Tested 06/06/2023



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	43
90	100	0.0060	40
75	100	0.0020	38
63	100		
50	100		
37.5	81		
28	81		
20	81		
14	80		
10	80		
6.3	78		
5	77		
3.35	75		
2	72		
1.18	68		
0.6	64		
0.425	62		
0.3	60		
0.212	57		
0.15	54		
0.063	48		

Sample Proportions	% dry mass
Cobbles	0
Gravel	28
Sand	24
Silt	10
Clay	38

Remarks
Preparation and testing in accordance with BS1377 unless noted below

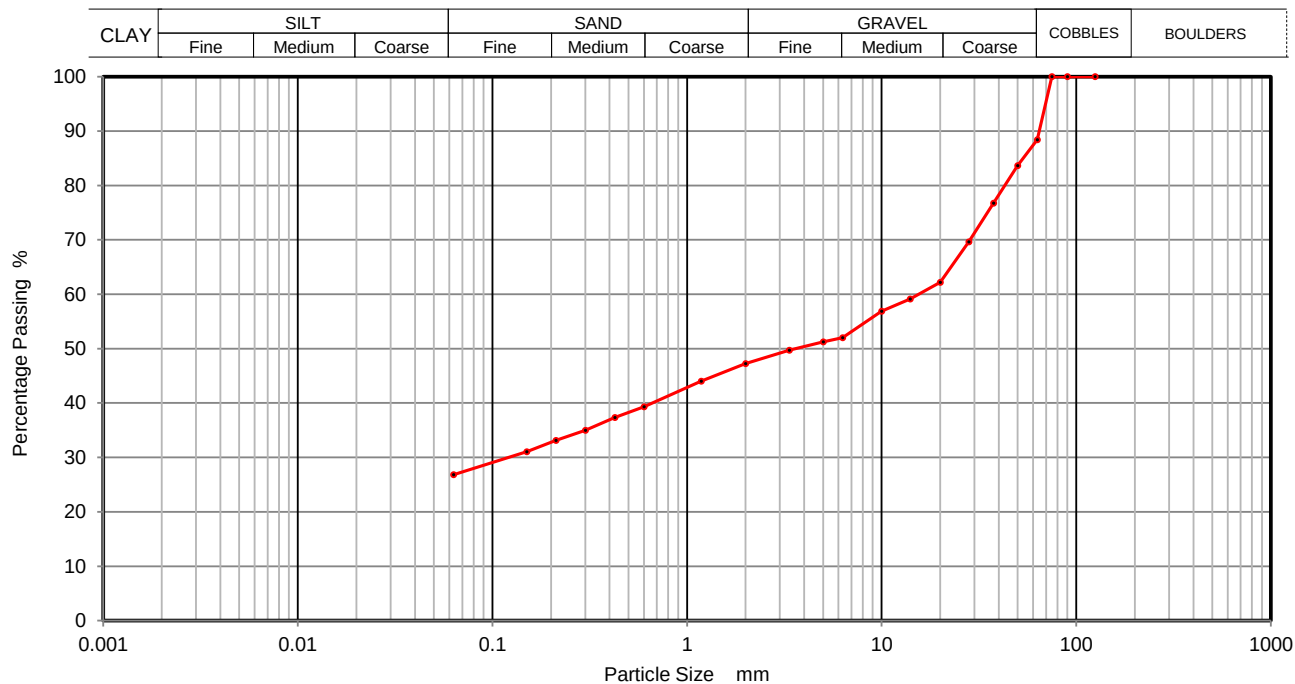
Operator

David Edwards

**PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2**

Contract Number	66659
Borehole/Pit No.	S2-TP228
Sample No.	2
Depth Top	0.30
Depth Base	0.60
Sample Type	B

Project Name	Global Centre of Rail Excellence Stage 2 (17)
Soil Description	*See sample description sheet
Date Tested	06/06/2023



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	88		
50	84		
37.5	77		
28	70		
20	62		
14	59		
10	57		
6.3	52		
5	51		
3.35	50		
2	47		
1.18	44		
0.6	39		
0.425	37		
0.3	35		
0.212	33		
0.15	31		
0.063	27		

Sample Proportions	% dry mass
Cobbles	12
Gravel	41
Sand	20
Silt and Clay	27

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

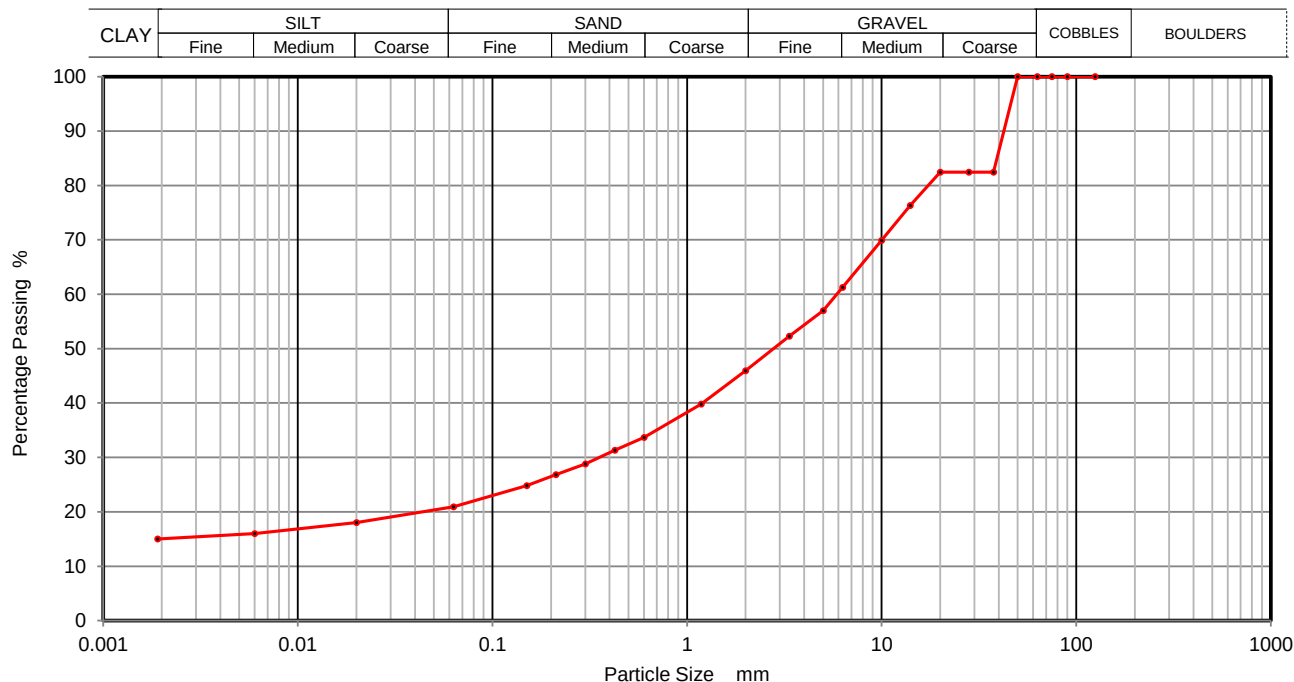
PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Contract Number	66659
Borehole/Pit No.	S2-TP239
Sample No.	4
Depth Top	0.50
Depth Base	0.60
Sample Type	D

Project Name Global Centre of Rail Excellence Stage 2 (17)

Soil Description *See sample description sheet

Date Tested 06/06/2023



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	18
90	100	0.0060	16
75	100	0.0020	15
63	100		
50	100		
37.5	82		
28	82		
20	82		
14	76		
10	70		
6.3	61		
5	57		
3.35	52		
2	46		
1.18	40		
0.6	34		
0.425	31		
0.3	29		
0.212	27		
0.15	25		
0.063	21		

Sample Proportions	% dry mass
Cobbles	0
Gravel	54
Sand	25
Silt	6
Clay	15

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator

David Edwards

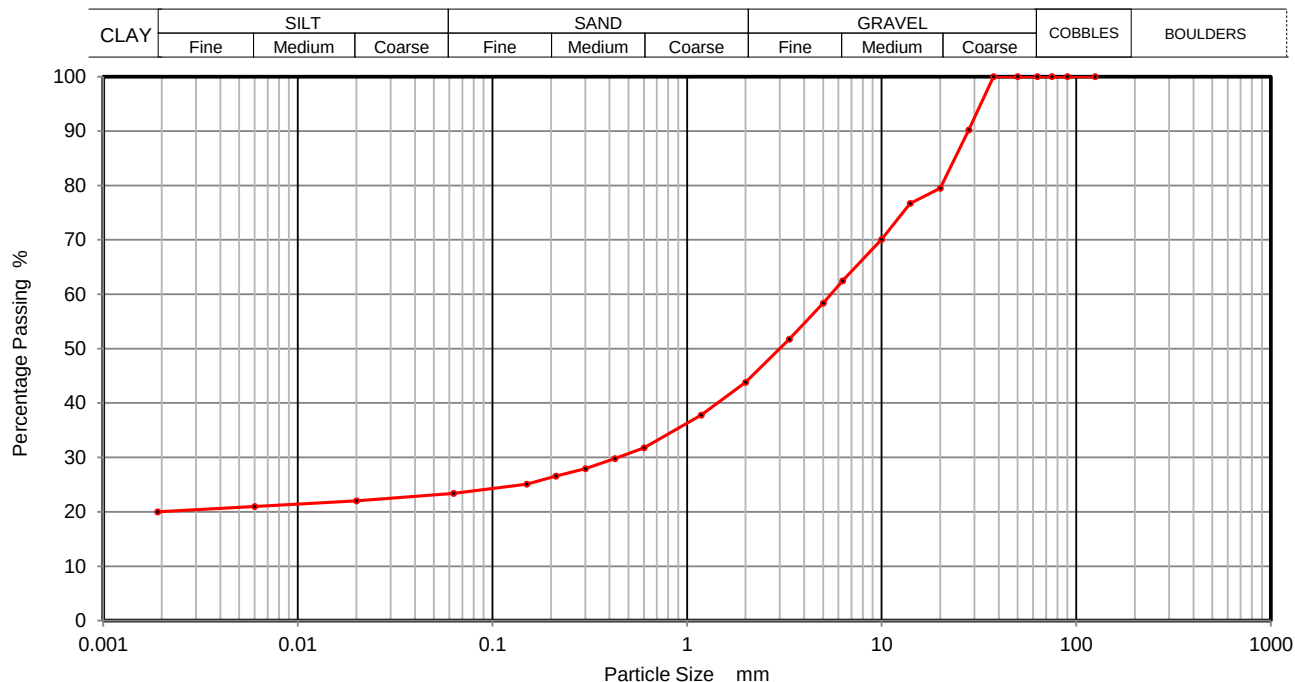
PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Contract Number	66659
Borehole/Pit No.	S2-TP239
Sample No.	9
Depth Top	2.00
Depth Base	2.10
Sample Type	D

Project Name: Global Centre of Rail Excellence Stage 2 (17)

Soil Description: *See sample description sheet

Date Tested: 06/06/2023



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	22
90	100	0.0060	21
75	100	0.0020	20
63	100		
50	100		
37.5	100		
28	90		
20	80		
14	77		
10	70		
6.3	62		
5	58		
3.35	52		
2	44		
1.18	38		
0.6	32		
0.425	30		
0.3	28		
0.212	27		
0.15	25		
0.063	23		

Sample Proportions	% dry mass
Cobbles	0
Gravel	56
Sand	21
Silt	3
Clay	20

Remarks:
Preparation and testing in accordance with BS1377 unless noted below

Operator

David Edwards

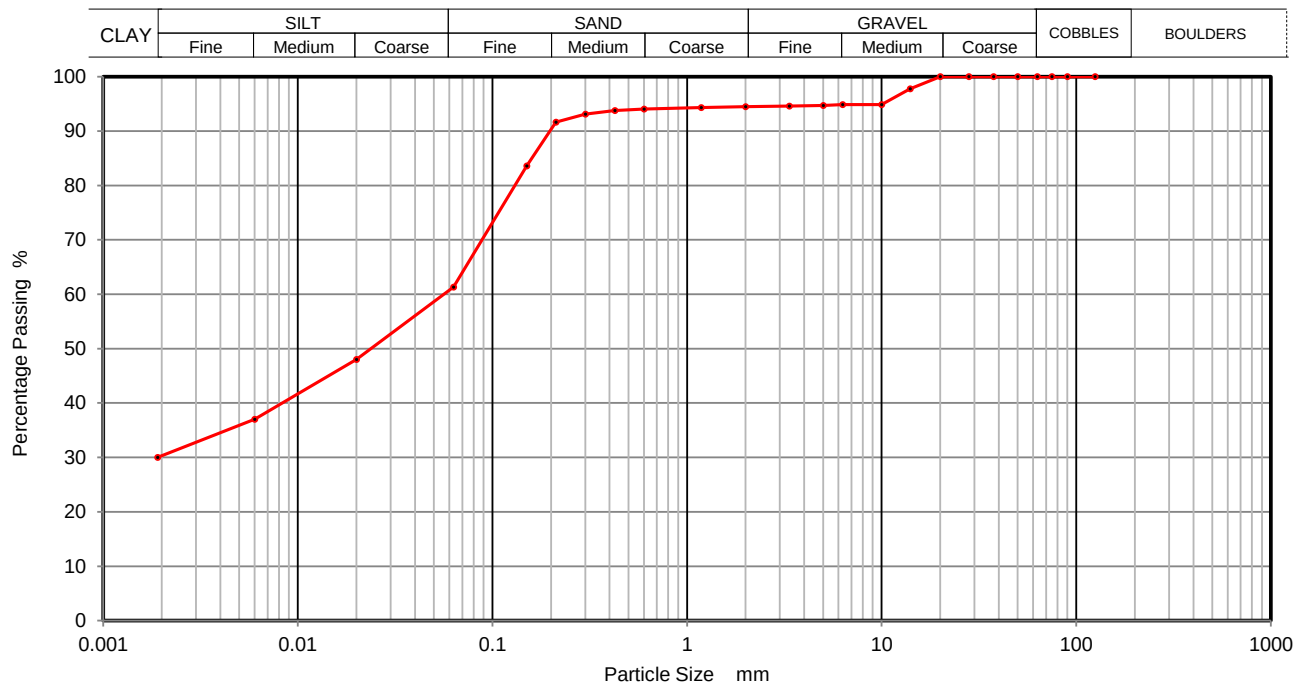
PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Contract Number	66659
Borehole/Pit No.	S2-TP239
Sample No.	12
Depth Top	3.00
Depth Base	3.10
Sample Type	D

Project Name Global Centre of Rail Excellence Stage 2 (17)

Soil Description *See sample description sheet

Date Tested 06/06/2023



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	48
90	100	0.0060	37
75	100	0.0020	30
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	98		
10	95		
6.3	95		
5	95		
3.35	95		
2	94		
1.18	94		
0.6	94		
0.425	94		
0.3	93		
0.212	92		
0.15	84		
0.063	61		

Sample Proportions	% dry mass
Cobbles	0
Gravel	6
Sand	33
Silt	31
Clay	30

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

**Dry Density / Moisture Content Relationship
BS 1377:Part 4:1990**

Contract Number 66659

Borehole / Pit No S2-TP208

Project Name Global Centre of Rail Excellence Stage 2 (17)

Sample No 5

Date Tested 07/06/2023

Depth Top 1.20

Compaction Method 4.5 Kg Rammer

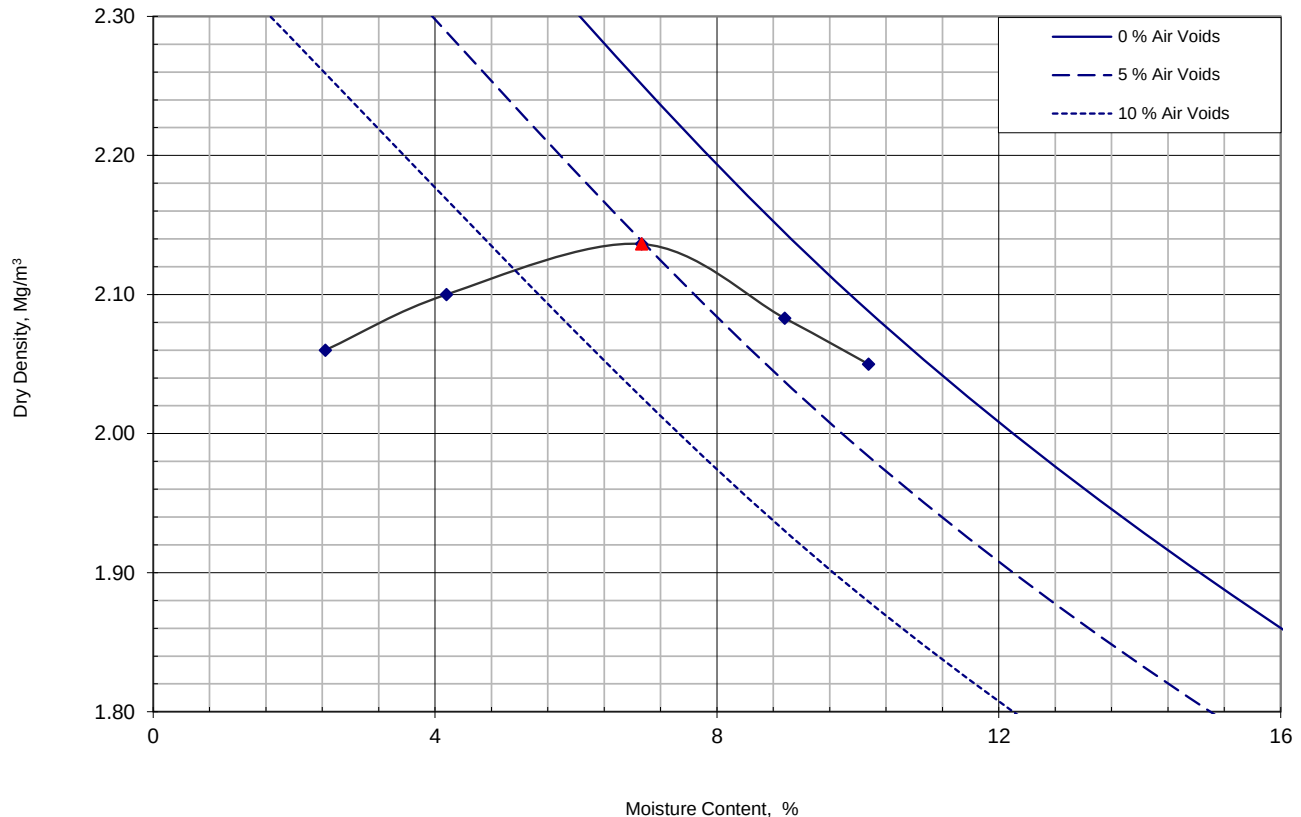
Depth Base 1.50

Compaction Clause BS1377:Part 4:1990, Clause 3.5

Sample Type B

Sample Description *See Sample Description Sheet

Single or Separate Sample Used Single



Compaction Point	1	2	3	4	5							
Moisture Content	2.4	4.2	6.9	9.0	10							
Bulk Density	2.11	2.19	2.28	2.27	2.26							
Dry Density	2.06	2.10	2.14	2.08	2.05							

Initial Moisture Content	6.9	%
Maximum Dry Density	2.14	Mg/m ³
Optimum Moisture Content	6.9	%
Particle Density	2.65 Assumed	Mg/m ³
Material Retained 37.5mm	19	%
Material Retained 20mm	13	%

Operator

Conal

**Dry Density / Moisture Content Relationship
BS 1377:Part 4:1990**

Contract Number 66659

Borehole / Pit No S2-TP208

Project Name Global Centre of Rail Excellence Stage 2 (17)

Sample No 7

Date Tested 07/06/2023

Depth Top 2.20

Compaction Method 4.5 Kg Rammer

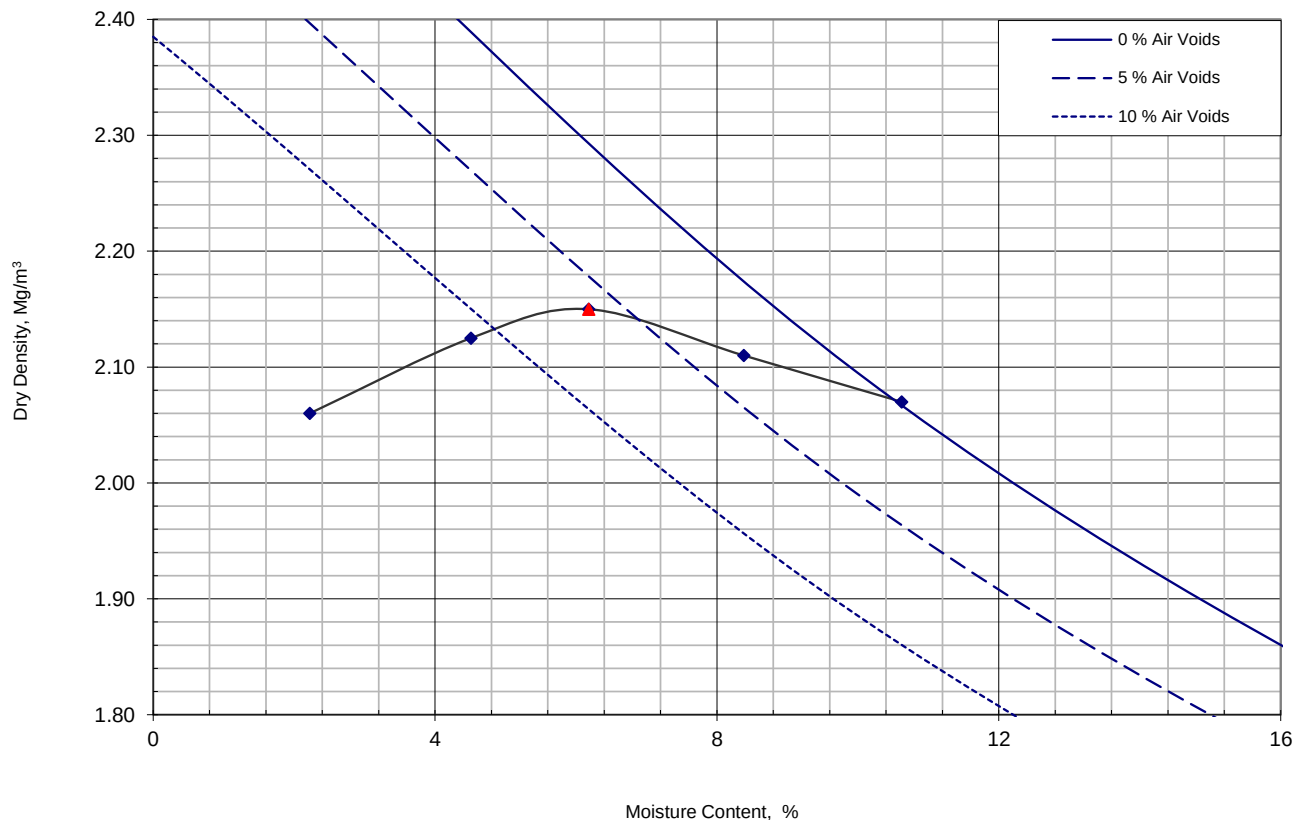
Depth Base 2.50

Compaction Clause BS1377:Part 4:1990, Clause 3.5

Sample Type B

Sample Description *See Sample Description Sheet

Single or Separate Sample Used Single



Compaction Point	1	2	3	4	5							
Moisture Content	2.2	4.5	6.2	8.4	11							
Bulk Density	2.11	2.22	2.28	2.29	2.29							
Dry Density	2.06	2.12	2.15	2.11	2.07							

Initial Moisture Content	4.5	%
Maximum Dry Density	2.15	Mg/m3
Optimum Moisture Content	6.2	%
Particle Density	2.65 Assumed	Mg/m3
Material Retained 37.5mm	0	%
Material Retained 20mm	0	%

Operator

Conal

**Dry Density / Moisture Content Relationship
BS 1377:Part 4:1990**

Contract Number 66659

Borehole / Pit No S2-TP209

Project Name Global Centre of Rail Excellence Stage 2 (17)

Sample No 7

Date Tested 07/06/2023

Depth Top 2.60

Compaction Method 4.5 Kg Rammer

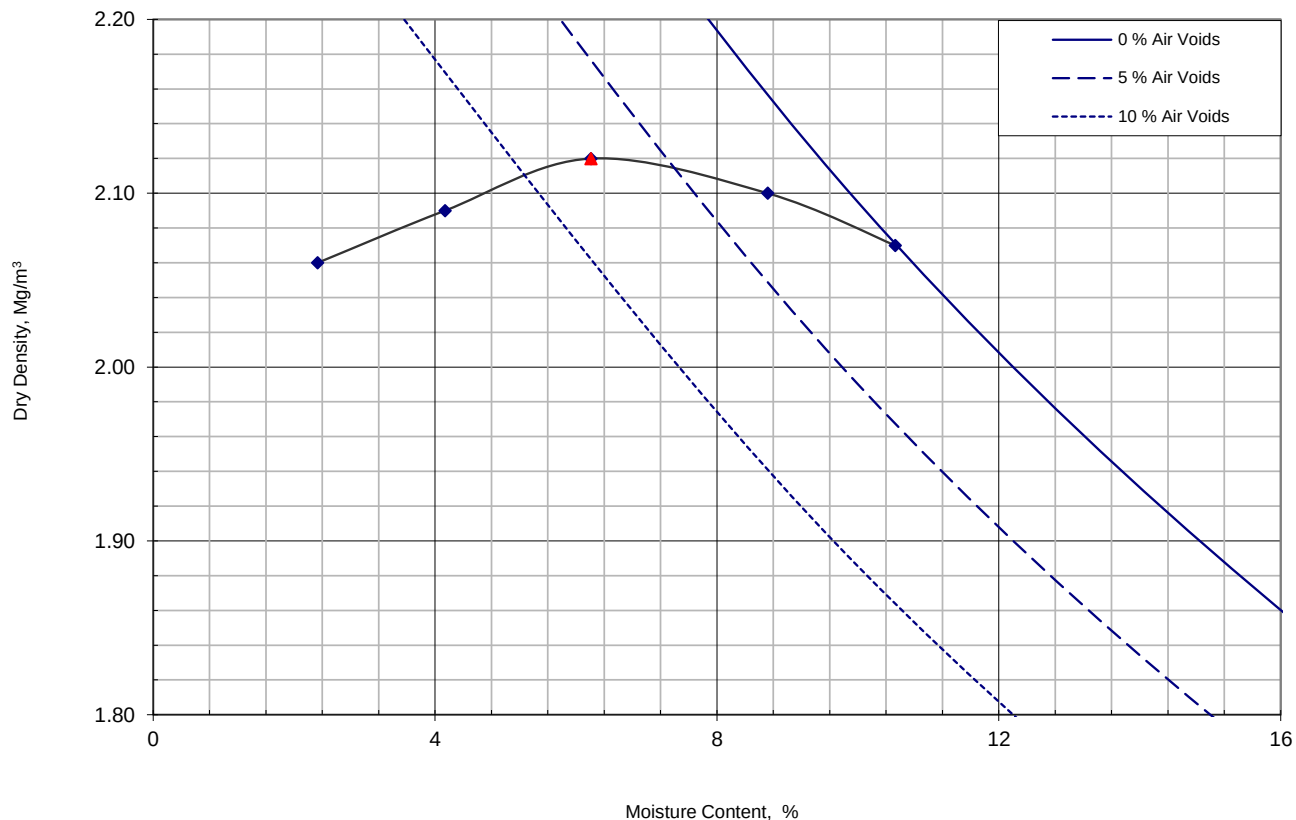
Depth Base 2.80

Compaction Clause BS1377:Part 4:1990, Clause 3.5

Sample Type B

Sample Description *See Sample Description Sheet

Single or Separate Sample Used Single



Compaction Point	1	2	3	4	5							
Moisture Content	2.3	4.1	6.2	8.7	11							
Bulk Density	2.11	2.18	2.25	2.28	2.29							
Dry Density	2.06	2.09	2.12	2.10	2.07							

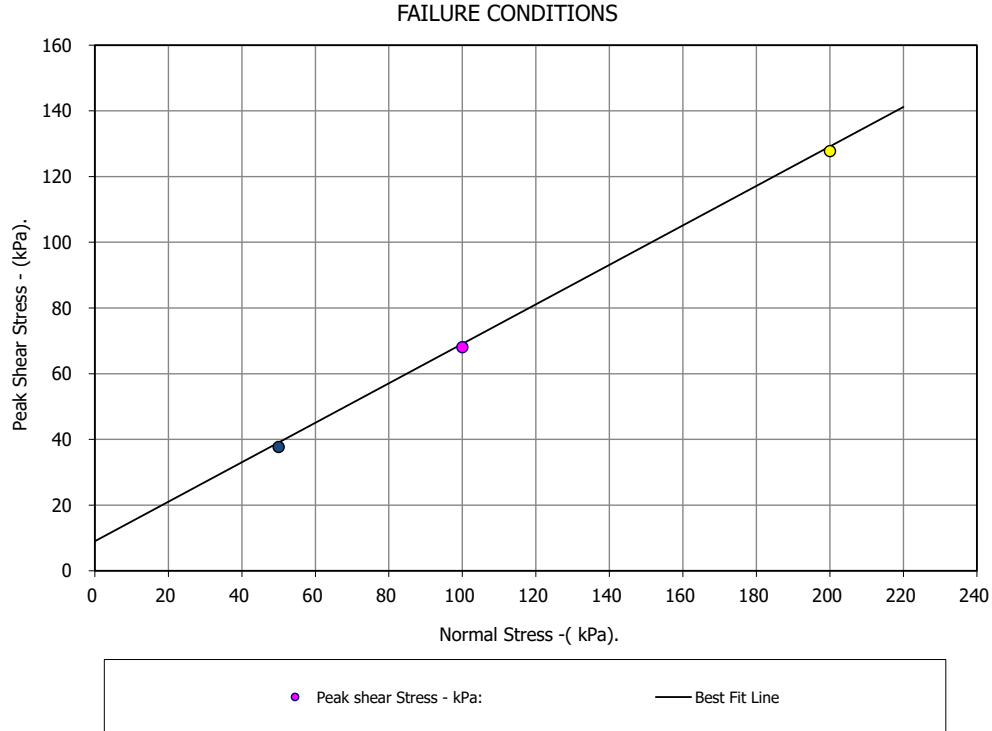
Initial Moisture Content	6.2	%
Maximum Dry Density	2.12	Mg/m3
Optimum Moisture Content	6.2	%
Particle Density	2.65 Assumed	Mg/m3
Material Retained 37.5mm	0	%
Material Retained 20mm	0	%

Operator

Conal

Test Report: MS DIRECT SHEARBOX TEST.BS1377:Part 7:4.5 :1990.

Borehole Number:	S2-TP208	Depth from (m):	2.20
Sample Number :	7.0	Depth to (m):	2.50
Sample Type:	B		
Particle Density - Mg/m3:	2.65 (Assumed)		
Specimen Tested:	Submerged, Remoulded (Light Tamping) Material above 2mm removed.		
Sample Description:			
Brown silty CLAY			
STAGE	1	2	3
Initial Conditions			
Height - mm:	23.30	23.30	23.30
Length - mm:	60.00	60.00	60.00
Moisture Content - %:	8.8	8.8	8.8
Bulk Density - Mg/m3:	1.77	1.77	1.77
Dry Density - Mg/m3:	1.63	1.63	1.63
Voids Ratio:	0.6298	0.6281	0.6265
Degree of Saturation - %:	36.94	37.03	37.13
Normal Pressure- kPa	50	100	200
Consolidation			
Consolidated Height - mm:	21.03	19.71	18.76
Shear			
Rate of Horizontal Displacement (mm/min)	0.200	0.200	0.200
Horizontal Displacement at Peak Shear Stress (mm)	7.75	6.94	6.40
Peak shear Stress - kPa:	38	68	128
PEAK			
Angle of Shearing Resistance:(θ)			31.0
Effective Cohesion - kPa:			9.0



Contract No.:
66659

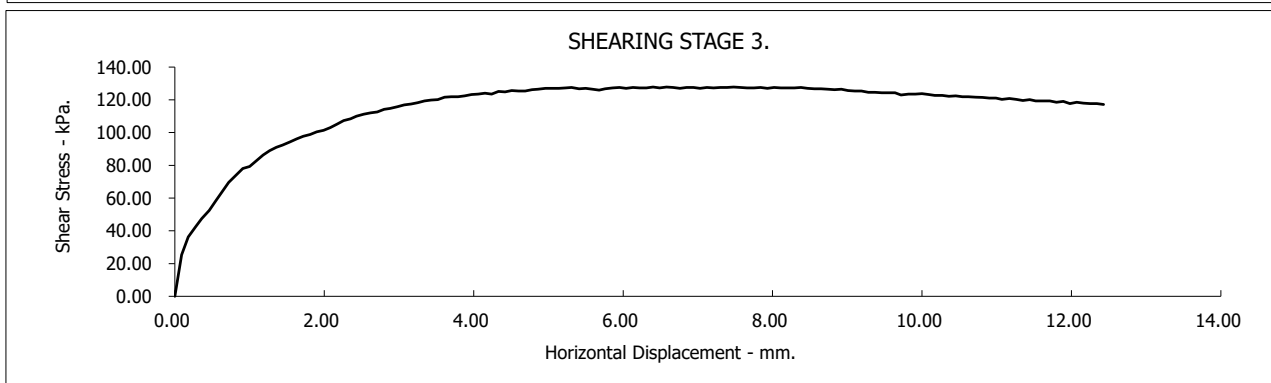
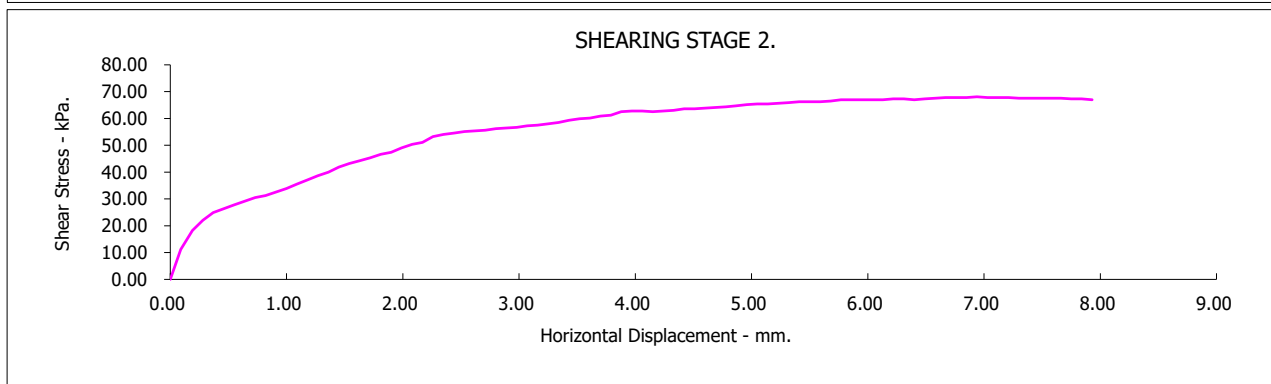
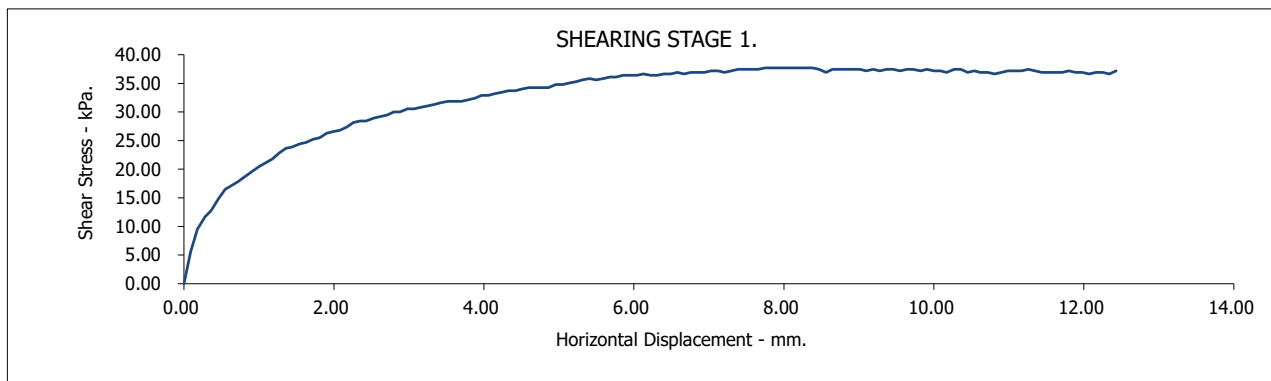
Global Centre of Rail Excellence Stage 2 (17)

Client Ref Number:

G23012

Borehole Number: S2-TP208
Sample Number : 7

Depth from (m): 2.20
Depth to (m): 2.50



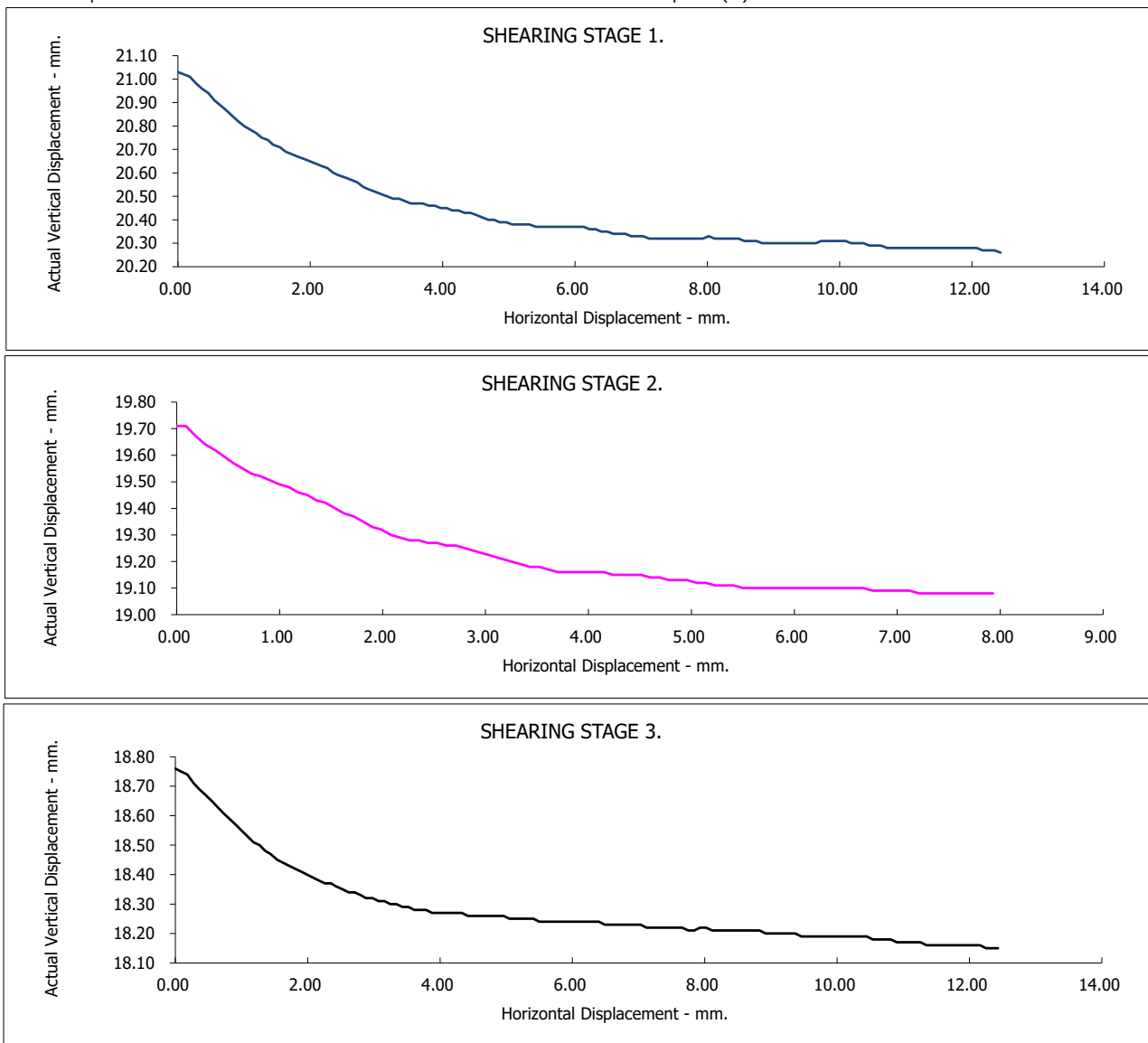
Global Centre of Rail Excellence Stage 2 (17)

Contract No.:
66659

Client Ref Number:
G23012
Figure.

Borehole Number: S2-TP208
Sample Number : 7

Depth from (m): 2.20
Depth to (m): 2.50



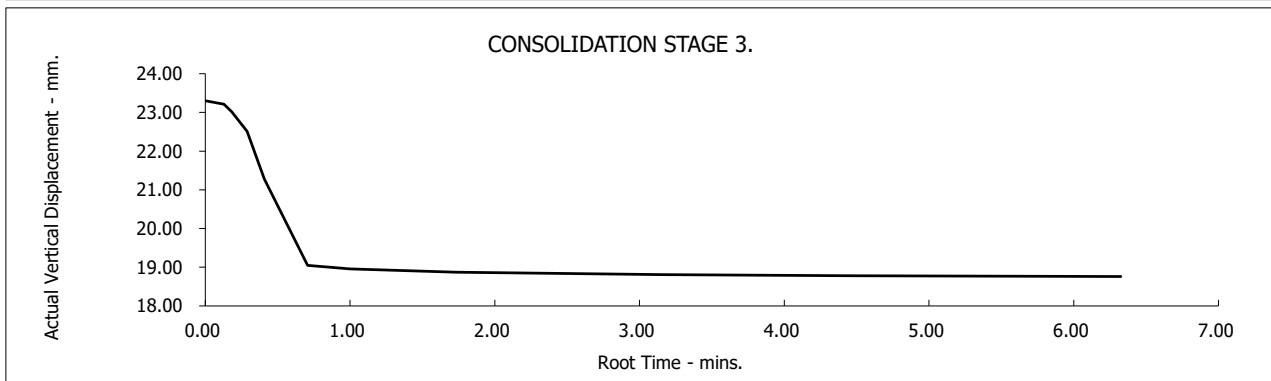
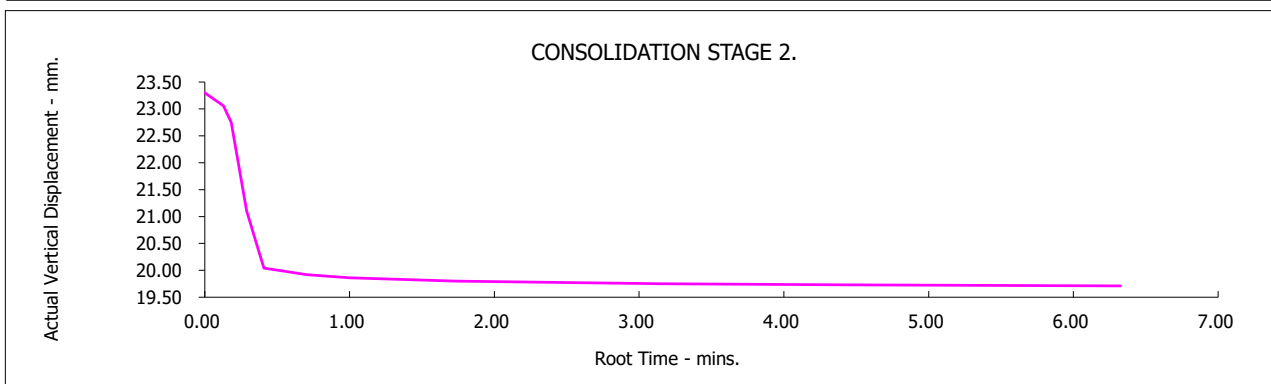
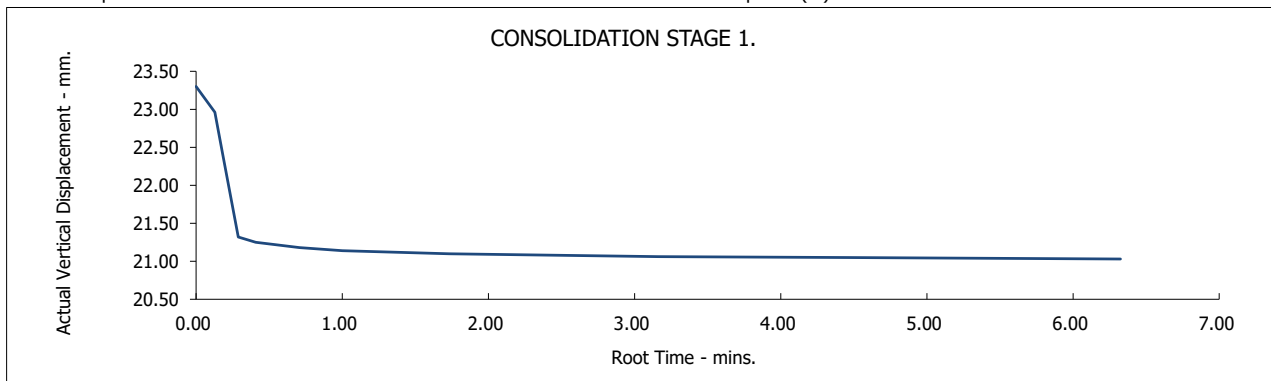
Global Centre of Rail Excellence Stage 2 (17)

Contract No.:
66659

Client Ref Number:
G23012

Borehole Number: S2-TP208
Sample Number : 7

Depth from (m): 2.20
Depth to (m): 2.50



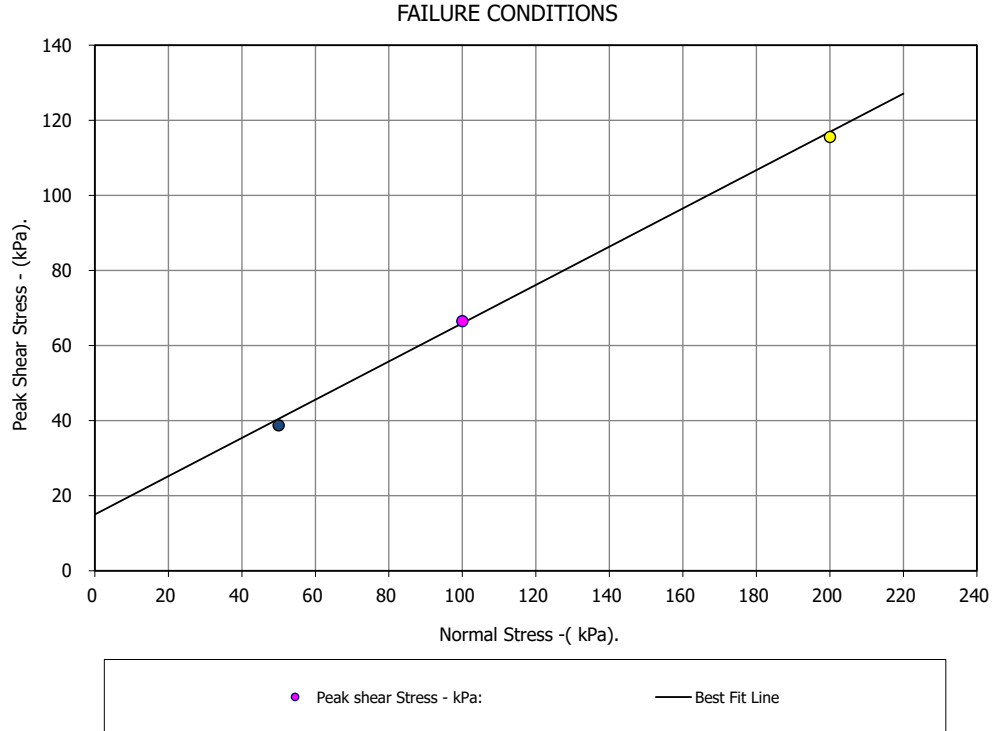
Global Centre of Rail Excellence Stage 2 (17)

Contract No.:
66659

Client Ref Number:
G23012

Test Report: MS DIRECT SHEARBOX TEST.BS1377:Part 7:4.5 :1990.

Borehole Number:	S2-TP209	Depth from (m):	2.60
Sample Number :	7.0	Depth to (m):	2.80
Sample Type:	B		
Particle Density - Mg/m3:	2.65 (Assumed)		
Specimen Tested:	Submerged, Remoulded (Light Tamping) Material above 2mm removed.		
Sample Description:			
Brown slightly gravelly CLAY			
STAGE	1	2	3
Initial Conditions			
Height - mm:	25.03	25.03	25.03
Length - mm:	60.00	60.00	60.00
Moisture Content - %:	12	12	12
Bulk Density - Mg/m3:	2.09	2.09	2.08
Dry Density - Mg/m3:	1.86	1.86	1.85
Voids Ratio:	0.4279	0.4271	0.4289
Degree of Saturation - %:	76.91	77.05	76.72
Normal Pressure- kPa	50	100	200
Consolidation			
Consolidated Height - mm:	24.33	23.09	22.56
Shear			
Rate of Horizontal Displacement (mm/min)	0.200	0.200	0.200
Horizontal Displacement at Peak Shear Stress (mm)	3.43	4.69	7.30
Peak shear Stress - kPa:	39	67	116
PEAK			
Angle of Shearing Resistance:(θ)	27.0		
Effective Cohesion - kPa:	15		



Contract No.:
66659

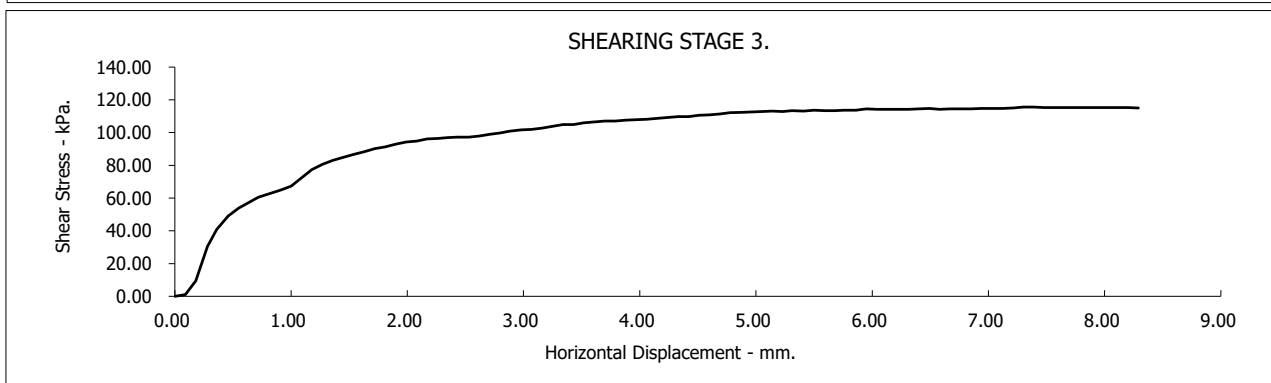
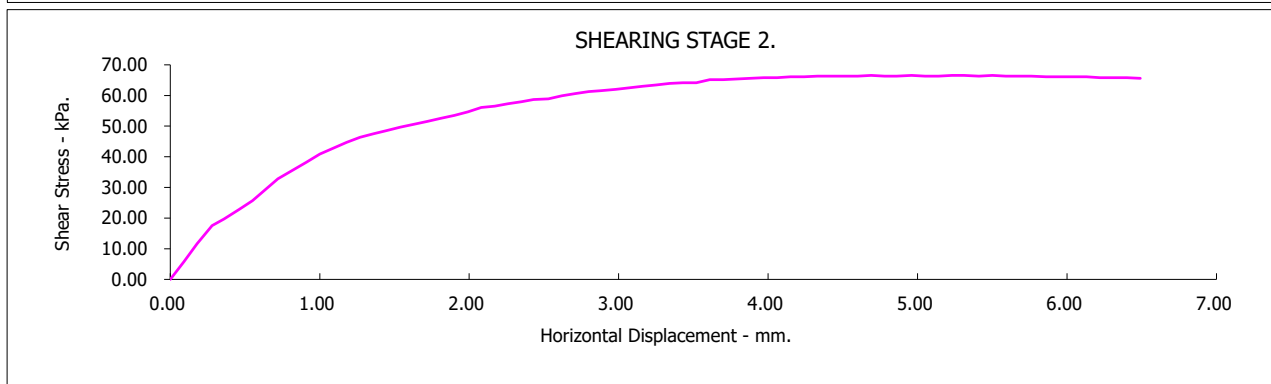
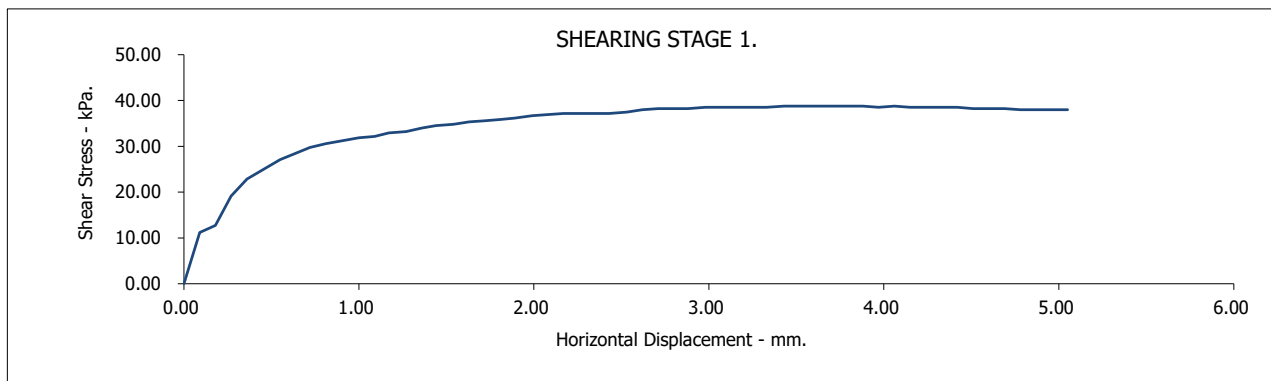
Global Centre of Rail Excellence Stage 2 (17)

Client Ref Number:

G23012

Borehole Number: S2-TP209
Sample Number : 7

Depth from (m): 2.60
Depth to (m): 2.80



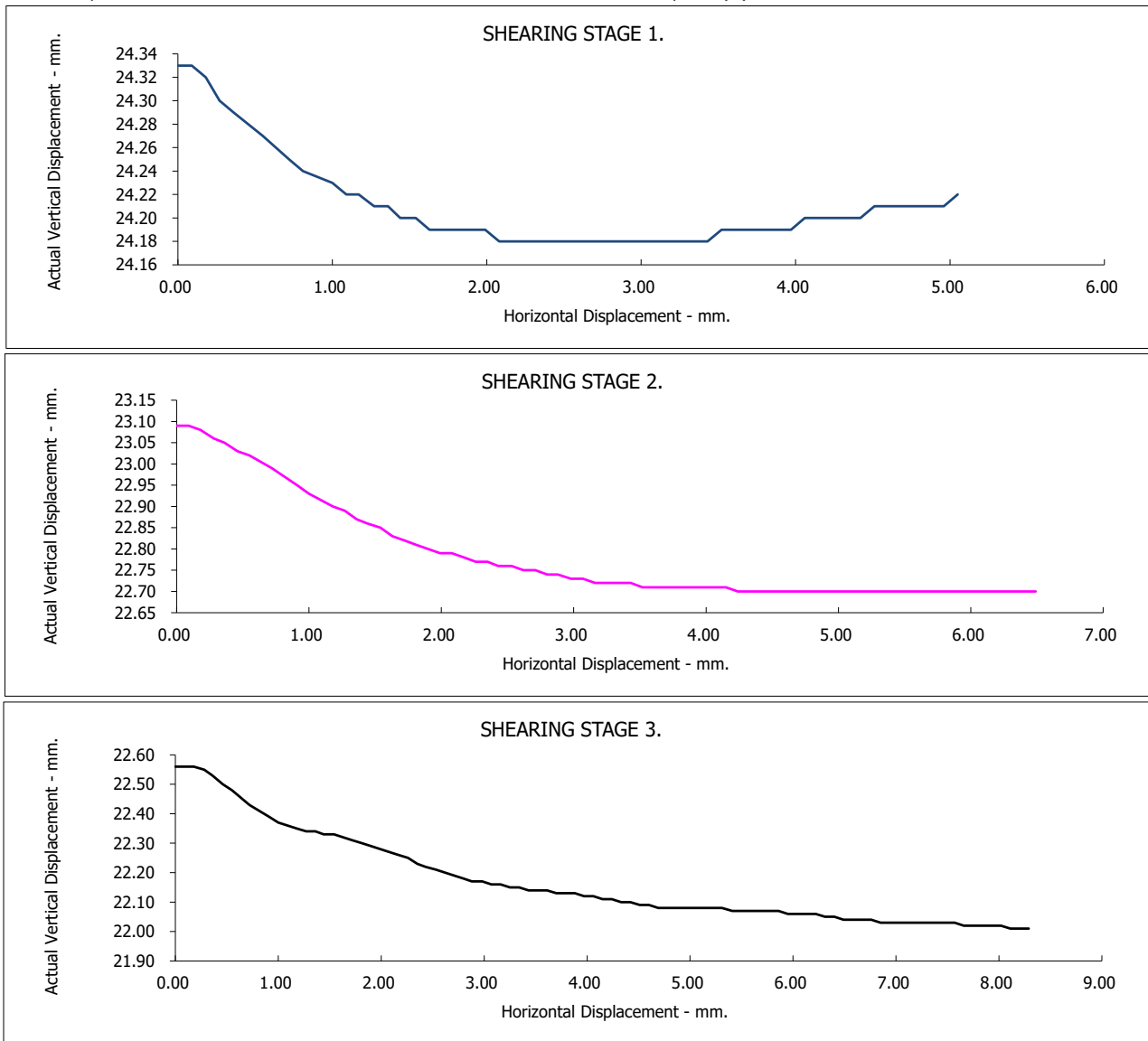
Global Centre of Rail Excellence Stage 2 (17)

Contract No.:
66659

Client Ref Number:
G23012
Figure.

Borehole Number: S2-TP209
Sample Number : 7

Depth from (m): 2.60
Depth to (m): 2.80



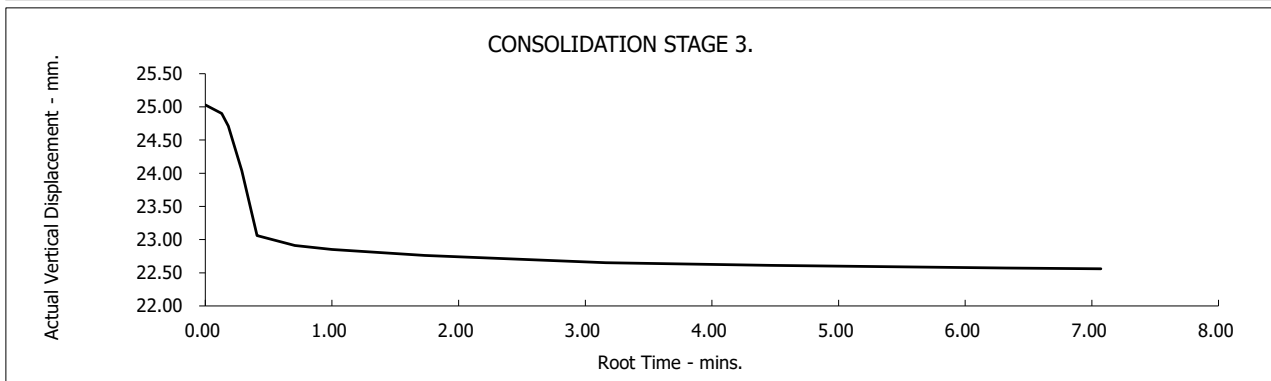
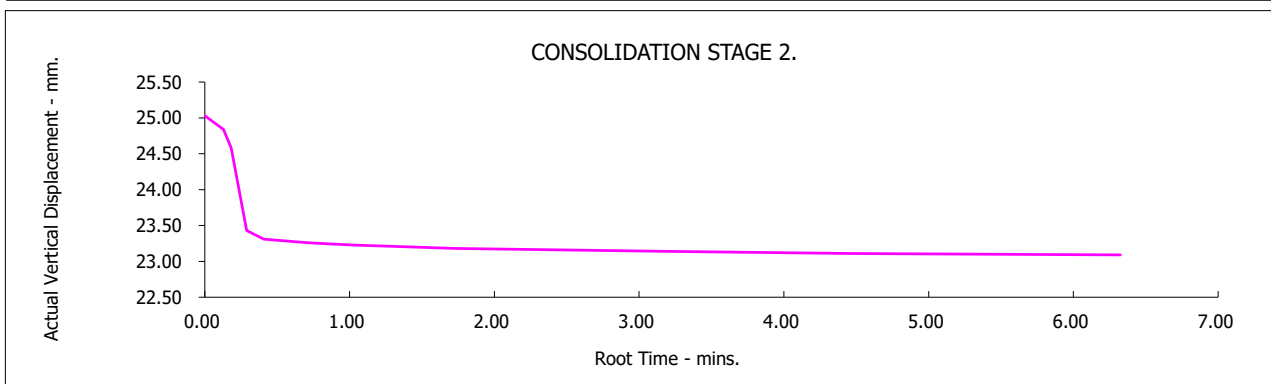
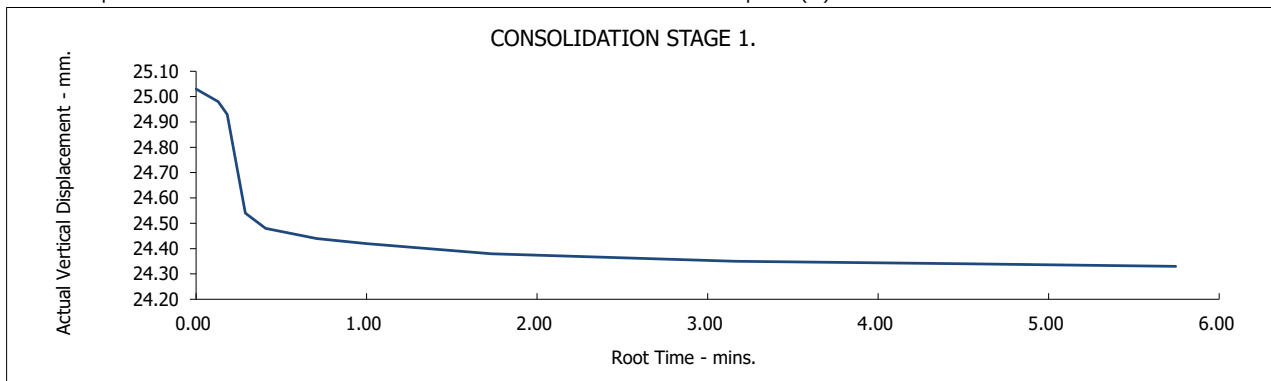
Contract No.:
66659

Global Centre of Rail Excellence Stage 2 (17)

Client Ref Number:
G23012

Borehole Number: S2-TP209
Sample Number : 7

Depth from (m): 2.60
Depth to (m): 2.80



Global Centre of Rail Excellence Stage 2 (17)

Contract No.:
66659

Client Ref Number:
G23012



Laboratory Report



Contract Number: 66660

Client Ref: **G23012**

Client PO:

Date Received: **24-05-2023**

Date Completed: **07-06-2023**

Report Date: **07-06-2023**

Client: **Jackson Drilling Holdings Ltd**
Northwood Farm
Coxbridge Road
Baltonsborough
Somerset
BA6 8RA

This report has been checked and approved by:

Brendan Evans
Office Administrator

Contract Title: **Global Centre of Rail Excellence Stage 2 (18)**

For the attention of: **Adam Putt**

Test Description	Qty
Moisture Content of Soil BS1377 : Part 2 : Clause 3.2 : 1990 - * UKAS	4
4 Point Liquid & Plastic Limit BS 1377:1990 - Part 2 : 4.3 & 5.3 - * UKAS	2
PSD Wet & Dry Sieve method BS 1377:1990 - Part 2 : 9.2 - * UKAS	2
PSD: Sedimentation by pipette carried out with Wet Sieve (Wet Sieve must also be selected) BS 1377:1990 - Part 2 : 9.4 - * UKAS	1
Determination of Point Load Value Axial or Diametrical including WC *Please note GSTL is not accredited for the water content of rock* ISRM Suggested Method for Point Load Strength - * UKAS	1
Uniaxial Compressive Strength of Rock inc sample prep 54-165mm diameter cores ISRM Suggested Method for determining uniaxial compressive strength - @ Non Accredited Test	5
Disposal of samples for job	1

Notes: **Observations and Interpretations are outside the UKAS Accreditation**

* - denotes test included in laboratory scope of accreditation

- denotes test carried out by approved contractor

@ - denotes non accredited tests

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Approved Signatories:

Brendan Evans (Office Administrator) - Darren Bourne (Quality Senior Technician) - Paul Evans (Director)
 Richard John (Quality/Technical Manager) - Shaun Jones (Laboratory manager) - Shaun Thomas (Site Manager)
 Wayne Honey (Human Resources/ Health and Safety Manager)



Natural Moisture Content
(BS 1377:1990 - Part 2 : 3.2)

Contract Number	66660	
Project Name	Global Centre of Rail Excellence Stage 2 (18)	
Date Tested	03/06/2023	

[illegible]

Operator

Darcy Etheridge



2788



**NATURAL MOISTURE, LIQUID LIMIT, PLASTIC LIMIT AND
PLASTICITY INDEX
(BS 1377:1990 - Part 2 : 4.3 & 5.3)**

Contract Number	66660	
Project Name	Global Centre of Rail Excellence Stage 2 (18)	
Date Tested	02/06/2023	
	DESCRIPTIONS	

[illegible]

Operator

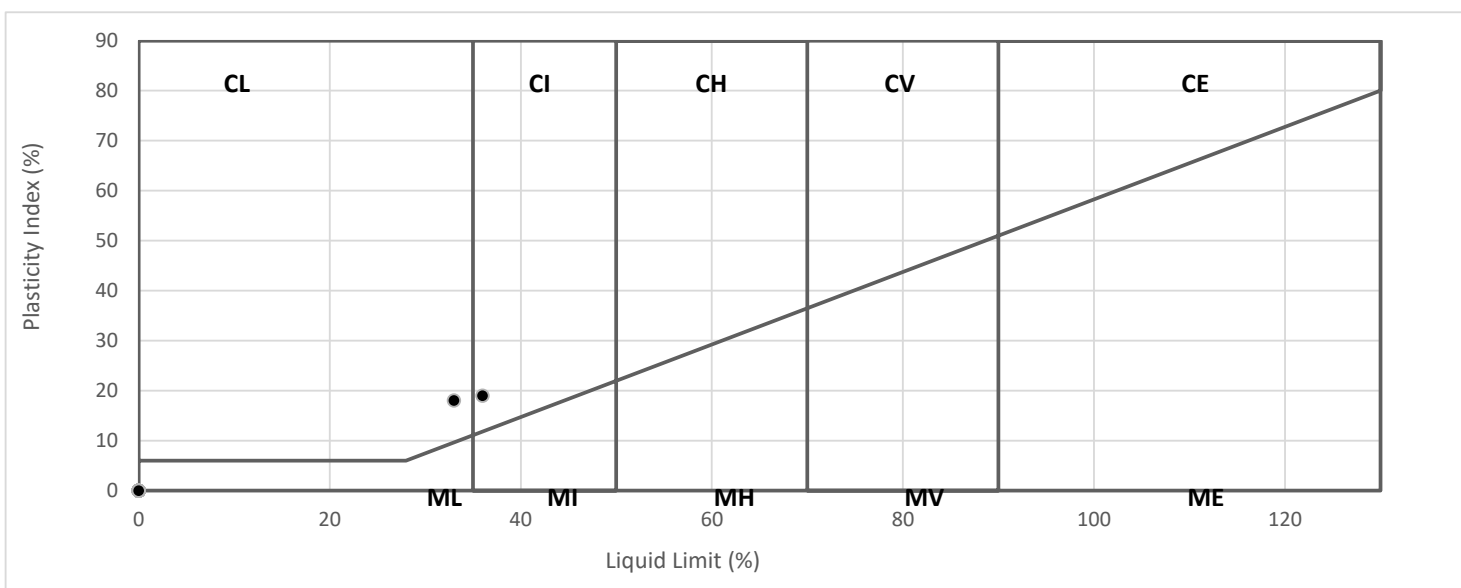
Aaron Hodge

Contract Number	66660	
Project Name	Global Centre of Rail Excellence Stage 2 (18)	
Date Tested	02/06/2023	

[illegible]

Symbols: NP : Non Plastic # : Liquid Limit and Plastic Limit Wet Sieved

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION BS 5930:2015+A1:2020

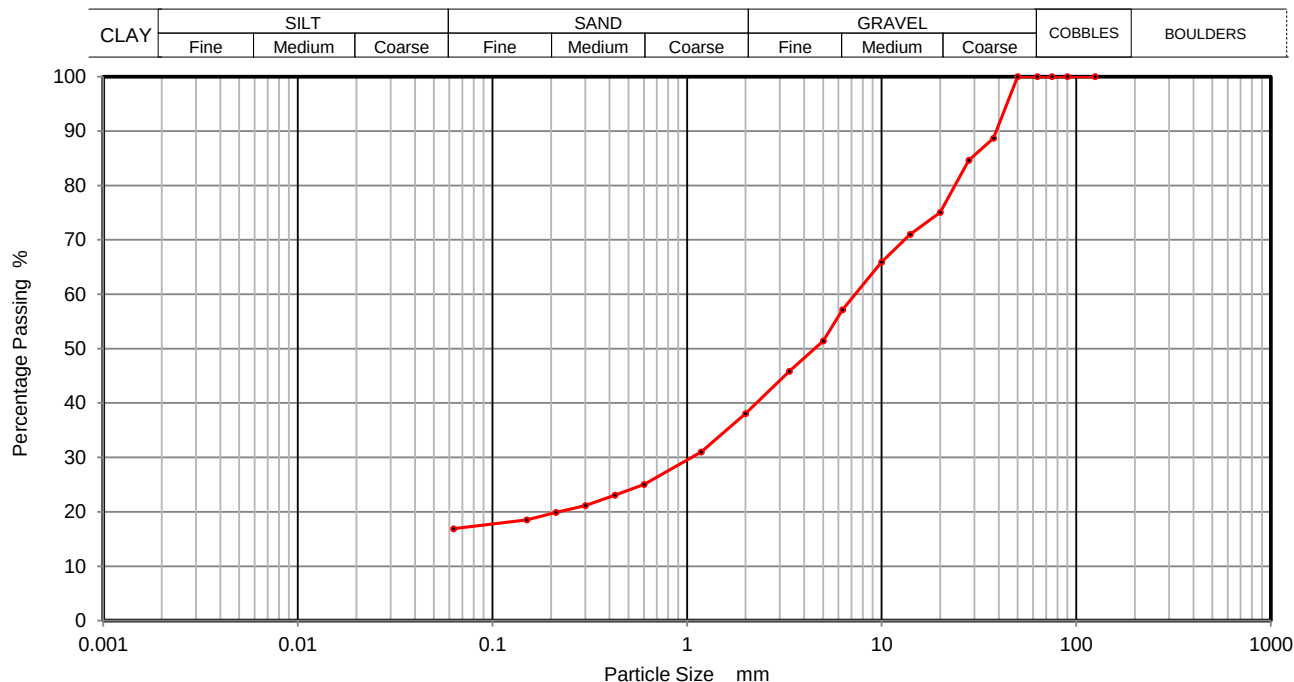


Operator
Aaron Hodge

PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2

Contract Number	66660
Borehole/Pit No.	S2-BH205
Sample No.	4
Depth Top	0.60
Depth Base	0.80
Sample Type	B

Project Name	Global Centre of Rail Excellence Stage 2 (18)
Soil Description	Grey silty/ clayey fine to coarse sandy fine to coarse GRAVEL
Date Tested	03/06/2023



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	89		
28	85		
20	75		
14	71		
10	66		
6.3	57		
5	51		
3.35	46		
2	38		
1.18	31		
0.6	25		
0.425	23		
0.3	21		
0.212	20		
0.15	19		
0.063	17		

Sample Proportions	% dry mass
Cobbles	0
Gravel	62
Sand	21
Silt and Clay	17

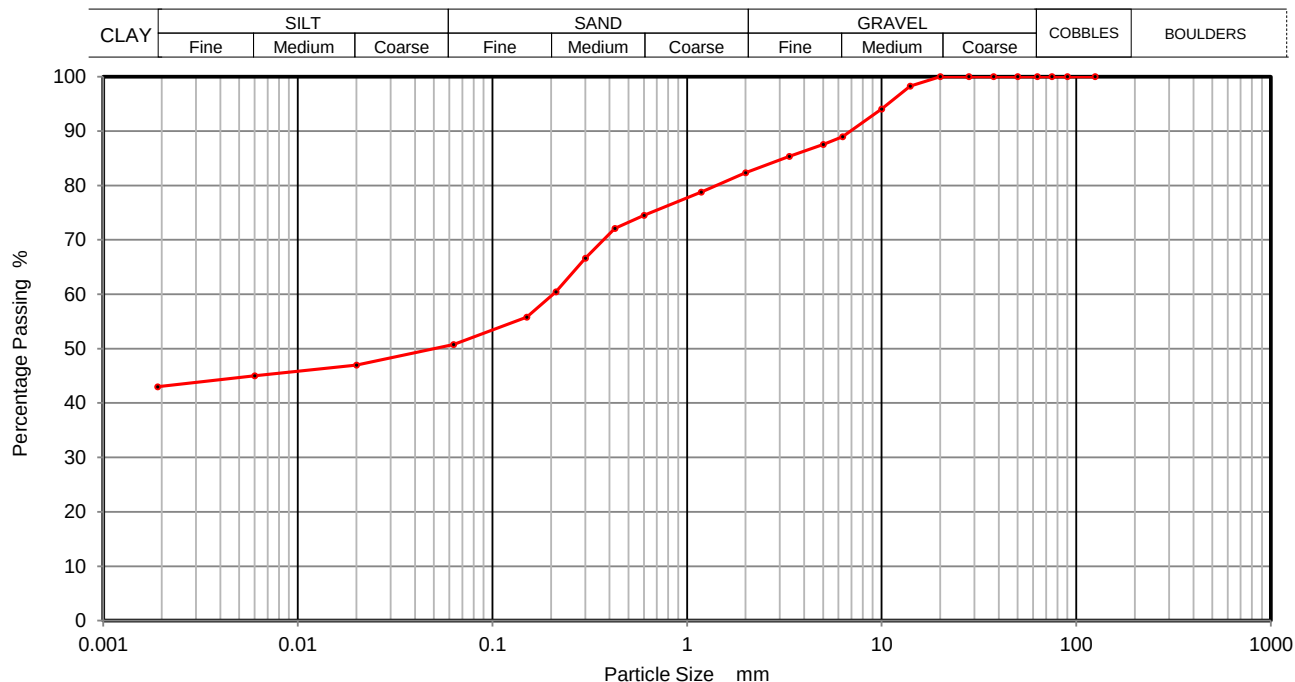
Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Contract Number	66660
Borehole/Pit No.	S2-BH225
Sample No.	6
Depth Top	1.20
Depth Base	1.65
Sample Type	D

Project Name	Global Centre of Rail Excellence Stage 2 (18)
Soil Description	Brown fine to coarse gravelly fine to coarse sandy silty CLAY
Date Tested	03/06/2023

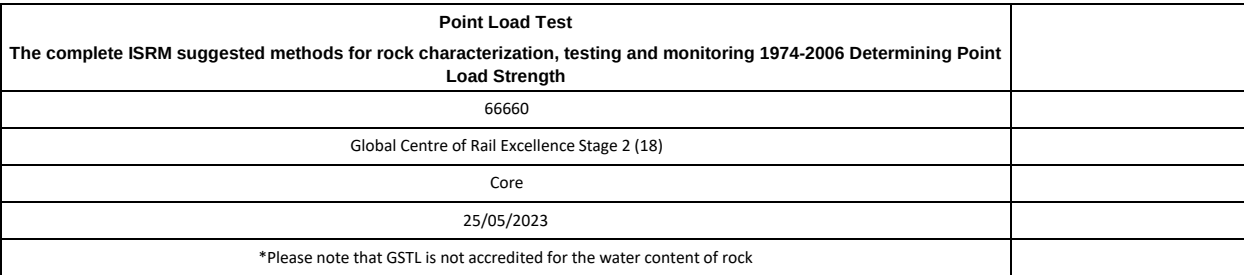


Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	47
90	100	0.0060	45
75	100	0.0020	43
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	98		
10	94		
6.3	89		
5	88		
3.35	85		
2	82		
1.18	79		
0.6	75		
0.425	72		
0.3	67		
0.212	60		
0.15	56		
0.063	51		

Sample Proportions	% dry mass
Cobbles	0
Gravel	18
Sand	31
Silt	8
Clay	43

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

[illegible]

<u>Key</u>	<u>Reported As</u>
Width	(W) mm
Platen Separation	(D) mm
Failure Load	(P) kN
Equivalent Diameter	(De) mm
Point Load	(Is) MPa
Size Factor	(F)
Point Load Index	(Is(50)) MPa
Moisture Content	%
Description	SC

Operator
Julian Jones





Laboratory Report



Contract Number: 66661

Client Ref: **G23012**

Client PO:

Date Received: **24-05-2023**

Date Completed: **06-06-2023**

Report Date: **06-06-2023**

Client: **Jackson Drilling Holdings Ltd**
Northwood Farm
Coxbridge Road
Baltonsborough
Somerset
BA6 8RA

This report has been checked and approved by:

Darren Bourne
Quality Senior Technician

Contract Title: **Global Centre of Rail Excellence Stage 2 (19)**

For the attention of: **Adam Putt**

Test Description	Qty
Moisture Content of Soil BS1377 : Part 2 : Clause 3.2 : 1990 - * UKAS	1
PSD Wet & Dry Sieve method BS 1377:1990 - Part 2 : 9.2 - * UKAS	1
PSD: Sedimentation by pipette carried out with Wet Sieve (Wet Sieve must also be selected) BS 1377:1990 - Part 2 : 9.4 - * UKAS	1
Determination of Point Load Value Axial or Diametrical including WC *Please note GSTL is not accredited for the water content of rock* ISRM Suggested Method for Point Load Strength - * UKAS	1
Uniaxial Compressive Strength of Rock inc sample prep 54-165mm diameter cores ISRM Suggested Method for determining uniaxial compressive strength - @ Non Accredited Test	2
Disposal of samples for job	1

Notes: **Observations and Interpretations are outside the UKAS Accreditation**

* - denotes test included in laboratory scope of accreditation

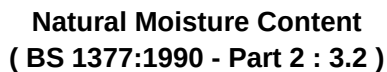
- denotes test carried out by approved contractor

@ - denotes non accredited tests

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Approved Signatories:

Brendan Evans (Office Administrator) - Darren Bourne (Quality Senior Technician) - Paul Evans (Director)
Richard John (Quality/Technical Manager) - Shaun Jones (Laboratory manager) - Shaun Thomas (Site Manager)
Wayne Honey (Human Resources/ Health and Safety Manager)



66661

Global Centre of Rail Excellence Stage 2 (19)

03/06/2023



PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2

Contract Number 66661

Borehole/Pit No. BH203

Project Name Global Centre of Rail Excellence Stage 2 (19)

Sample No. 2

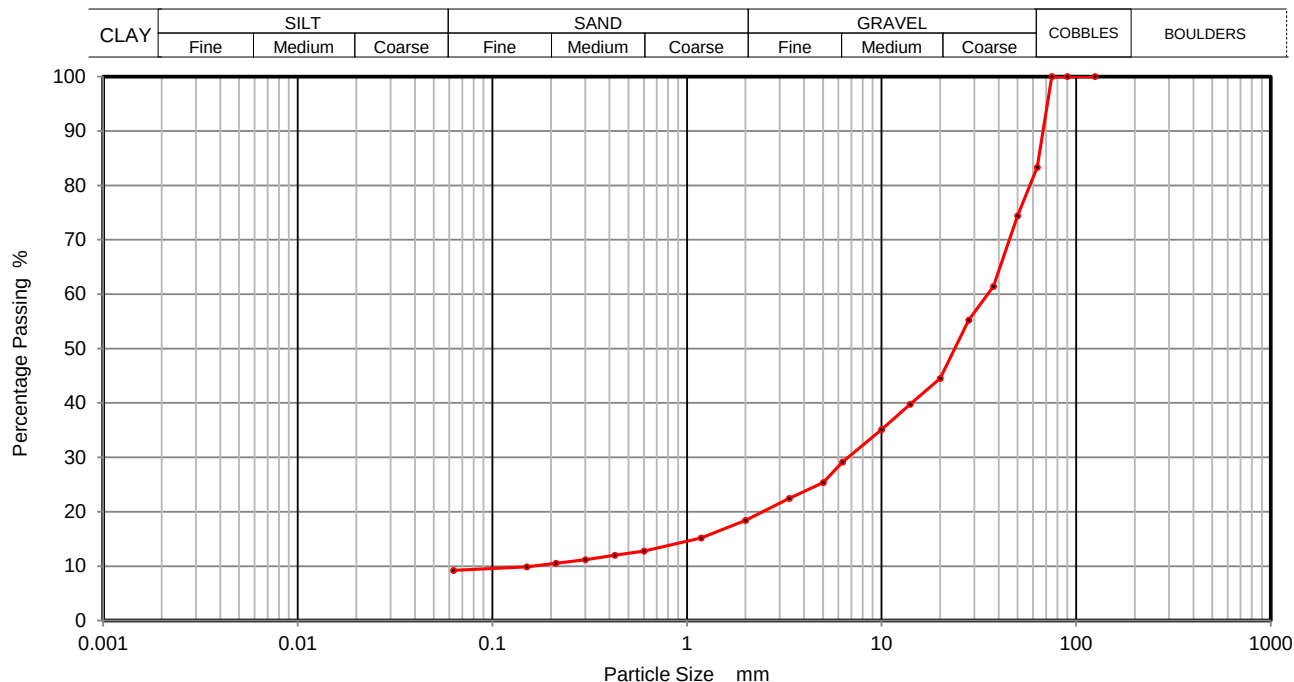
Soil Description Grey slightly silty/ clayey slightly sandy fine to coarse GRAVEL with cobbles

Depth Top 0.10

Depth Base 0.30

Date Tested 03/06/2023

Sample Type B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	83		
50	74		
37.5	61		
28	55		
20	45		
14	40		
10	35		
6.3	29		
5	25		
3.35	22		
2	18		
1.18	15		
0.6	13		
0.425	12		
0.3	11		
0.212	11		
0.15	10		
0.063	9		

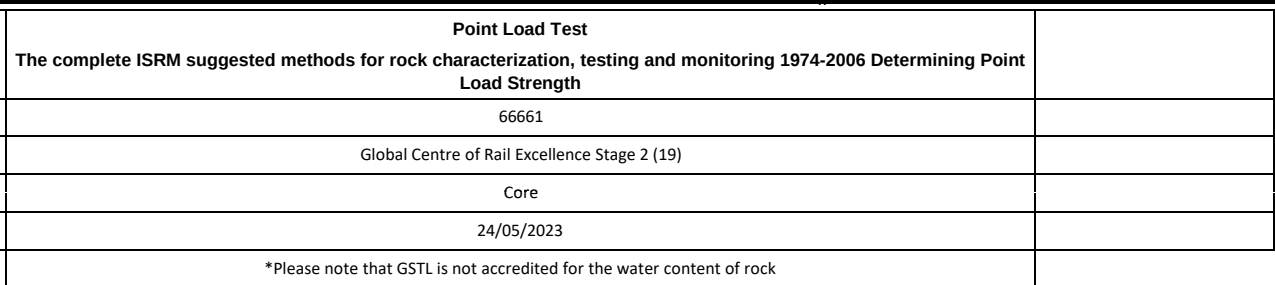
Sample Proportions	% dry mass
Cobbles	17
Gravel	65
Sand	9
Silt and Clay	9

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator

David Edwards

[illegible]

<u>Key</u>	<u>Reported As</u>
Width	(W) mm
Platen Separation	(D) mm
Failure Load	(P) kN
Equivalent Diameter	(De) mm
Point Load	(Is) MPa
Size Factor	(F)
Point Load Index	(Is(50)) MPa
Moisture Content	%
Description	SC

Operator
Julian Jones





Julian Jones



Laboratory Report



Contract Number: 66734

Client Ref: **G23012**

Client PO:

Date Received: **31-05-2023**

Date Completed: **12-06-2023**

Report Date: **12-06-2023**

Client: **Jackson Drilling Holdings Ltd**

Northwood Farm

Coxbridge Road

Baltonsborough

Somerset

BA6 8RA

This report has been checked and approved by:

Brendan Evans

Office Administrator

Contract Title: **Global Centre of Rail Excellence Stage 2 (21)**

For the attention of: **Adam Putt**

Test Description	Qty
Moisture Content of Soil BS1377 : Part 2 : Clause 3.2 : 1990 - * UKAS	1
4 Point Liquid & Plastic Limit BS 1377:1990 - Part 2 : 4.3 & 5.3 - * UKAS	1
Uniaxial Compressive Strength of Rock inc sample prep 54-165mm diameter cores ISRM Suggested Method for determining uniaxial compressive strength - @ Non Accredited Test	1
Determination of Point Load Value Axial or Diametrical including WC *Please note GSTL is not accredited for the water content of rock* ISRM Suggested Method for Point Load Strength - * UKAS	2
Disposal of samples for job	1

Notes: **Observations and Interpretations are outside the UKAS Accreditation**

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- denotes test carried out by approved contractor

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Approved Signatories:

Brendan Evans (Office Administrator) - Darren Bourne (Quality Senior Technician) - Paul Evans (Director)

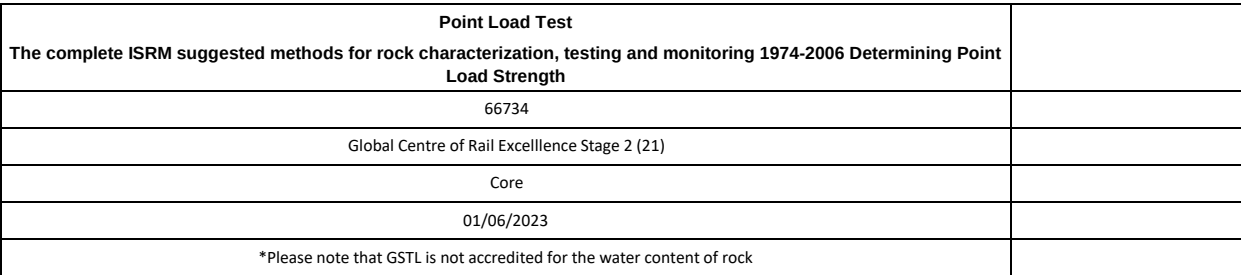
Richard John (Quality/Technical Manager) - Shaun Jones (Laboratory manager) - Shaun Thomas (Site Manager)

Wayne Honey (Human Resources/ Health and Safety Manager)

GEO Site & Testing Services Ltd

Units 3-4, Heol Aur, Dafen, Llanelli, Carmarthenshire, Wales SA14 8QN

Tel: 01554 784040 Fax: 01554 784041 info@gstl.co.uk gstl.co.uk

[illegible]

<u>Key</u>	<u>Reported As</u>
Width	(W) mm
Platen Separation	(D) mm
Failure Load	(P) kN
Equivalent Diameter	(De) mm
Point Load	(Is) MPa
Size Factor	(F)
Point Load Index	(Is(50)) MPa
Moisture Content	%
Description	SC

Operator
Julian Jones





Laboratory Report



Contract Number: 66735

Client Ref: **G23012**

Client PO:

Date Received: **31-05-2023**

Date Completed: **09-06-2023**

Report Date: **09-06-2023**

Client: **Jackson Drilling Holdings Ltd**
Northwood Farm
Coxbridge Road
Baltonsborough
Somerset
BA6 8RA

This report has been checked and approved by:

Brendan Evans
Office Administrator

Contract Title: **Global Centre of Rail Excellence Stage 2 (22)**

For the attention of: **Adam Putt**

Test Description	Qty
Moisture Content of Soil BS1377 : Part 2 : Clause 3.2 : 1990 - * UKAS	8
4 Point Liquid & Plastic Limit BS 1377:1990 - Part 2 : 4.3 & 5.3 - * UKAS	5
PSD Wet & Dry Sieve method BS 1377:1990 - Part 2 : 9.2 - * UKAS	4
PSD: Sedimentation by pipette carried out with Wet Sieve (Wet Sieve must also be selected) BS 1377:1990 - Part 2 : 9.4 - * UKAS	2
Disposal of samples for job	1

Notes: Observations and Interpretations are outside the UKAS Accreditation

* - denotes test included in laboratory scope of accreditation

- denotes test carried out by approved contractor

@ - denotes non accredited tests

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Approved Signatories:

Brendan Evans (Office Administrator) - Darren Bourne (Quality Senior Technician) - Paul Evans (Director)

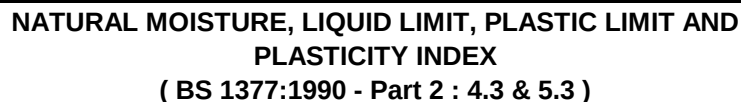
Richard John (Quality/Technical Manager) - Shaun Jones (Laboratory manager) - Shaun Thomas (Site Manager)

Wayne Honey (Human Resources/ Health and Safety Manager)

GEO Site & Testing Services Ltd

Units 3-4, Heol Aur, Dafen, Llanelli, Carmarthenshire, Wales SA14 8QN

Tel: 01554 784040 Fax: 01554 784041 info@gstl.co.uk gstl.co.uk



Contract Number	66735	
Project Name	Global Centre of Rail Excellence Stage 2 (22)	
Date Tested	05/06/2023	
	DESCRIPTIONS	

[illegible]

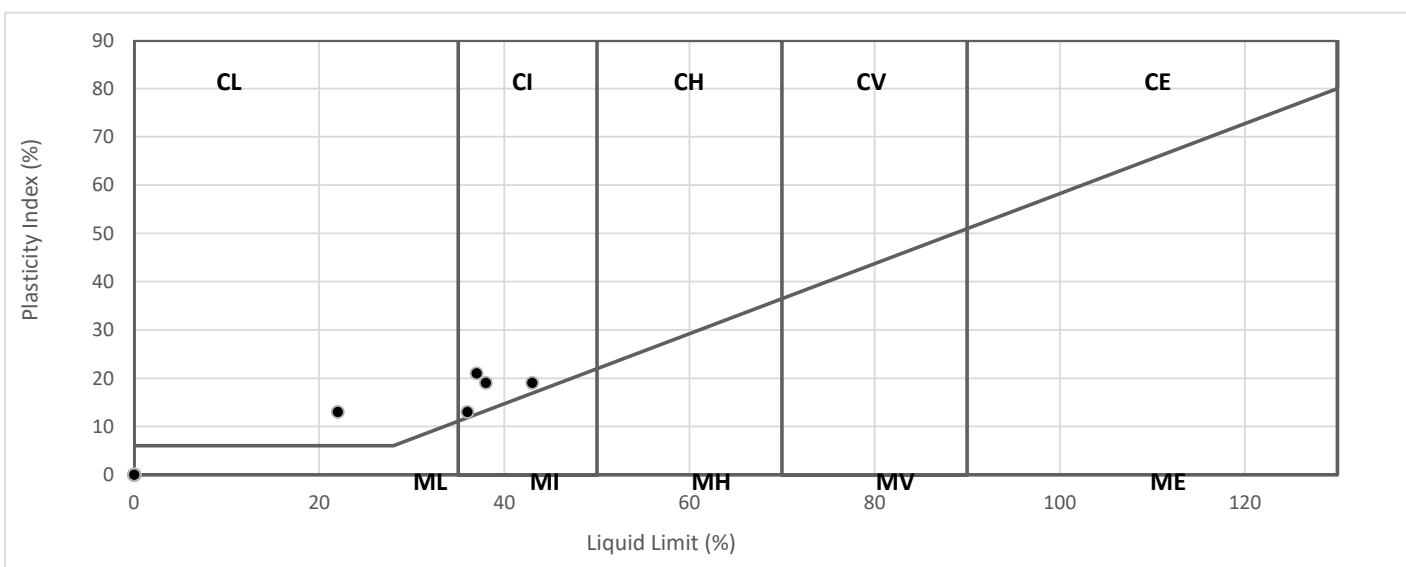
Operator
Aaron Hodge

Contract Number	66735	
Project Name	Global Centre of Rail Excellence Stage 2 (22)	
Date Tested	05/06/2023	

[illegible]

Symbols: NP : Non Plastic # : Liquid Limit and Plastic Limit Wet Sieved

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION

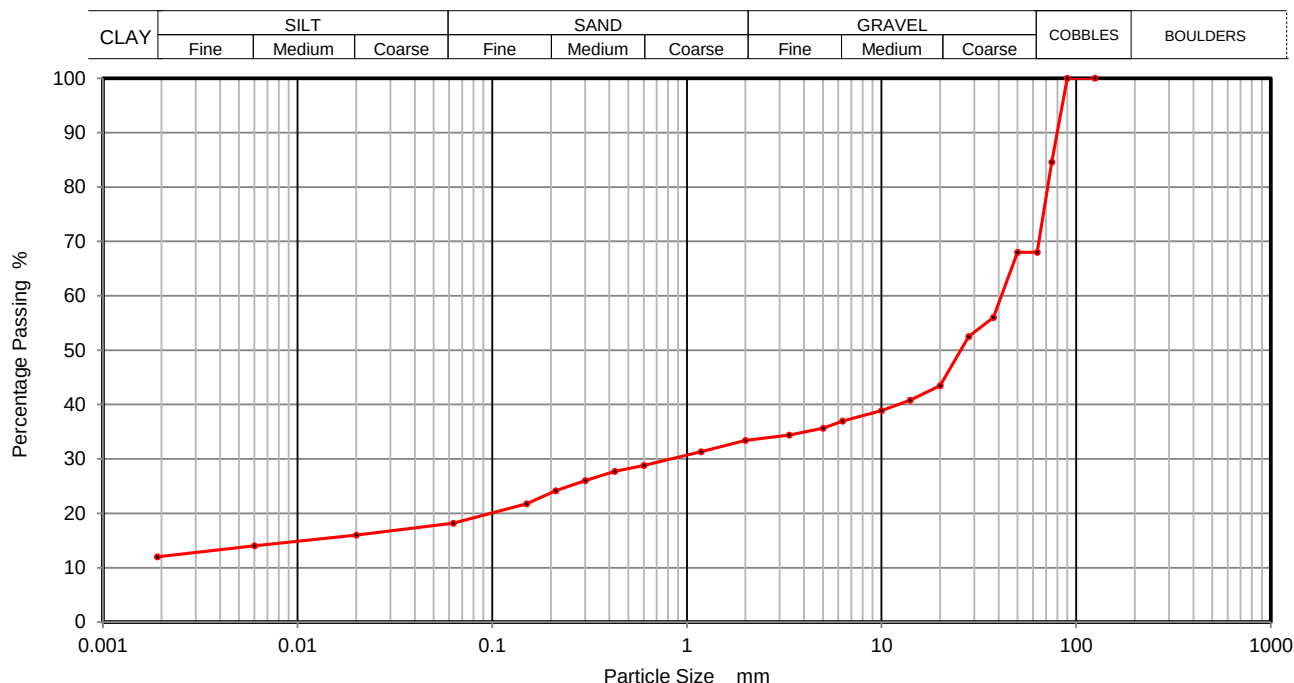


Operator
Aaron Hodge

PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Contract Number	66735
Borehole/Pit No.	S2-TP204
Sample No.	2
Depth Top	0.30
Depth Base	0.50
Sample Type	B

Project Name	Global Centre of Rail Excellence Stage 2 (22)
Soil Description	Grey fine to coarse sandy silty/clayey fine to coarse GRAVEL (with cobbles)
Date Tested	07/06/2023



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	16
90	100	0.0060	14
75	85	0.0020	12
63	68		
50	68		
37.5	56		
28	52		
20	43		
14	41		
10	39		
6.3	37		
5	36		
3.35	34		
2	33		
1.18	31		
0.6	29		
0.425	28		
0.3	26		
0.212	24		
0.15	22		
0.063	18		

Sample Proportions	% dry mass
Cobbles	32
Gravel	35
Sand	15
Silt	6
Clay	12

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

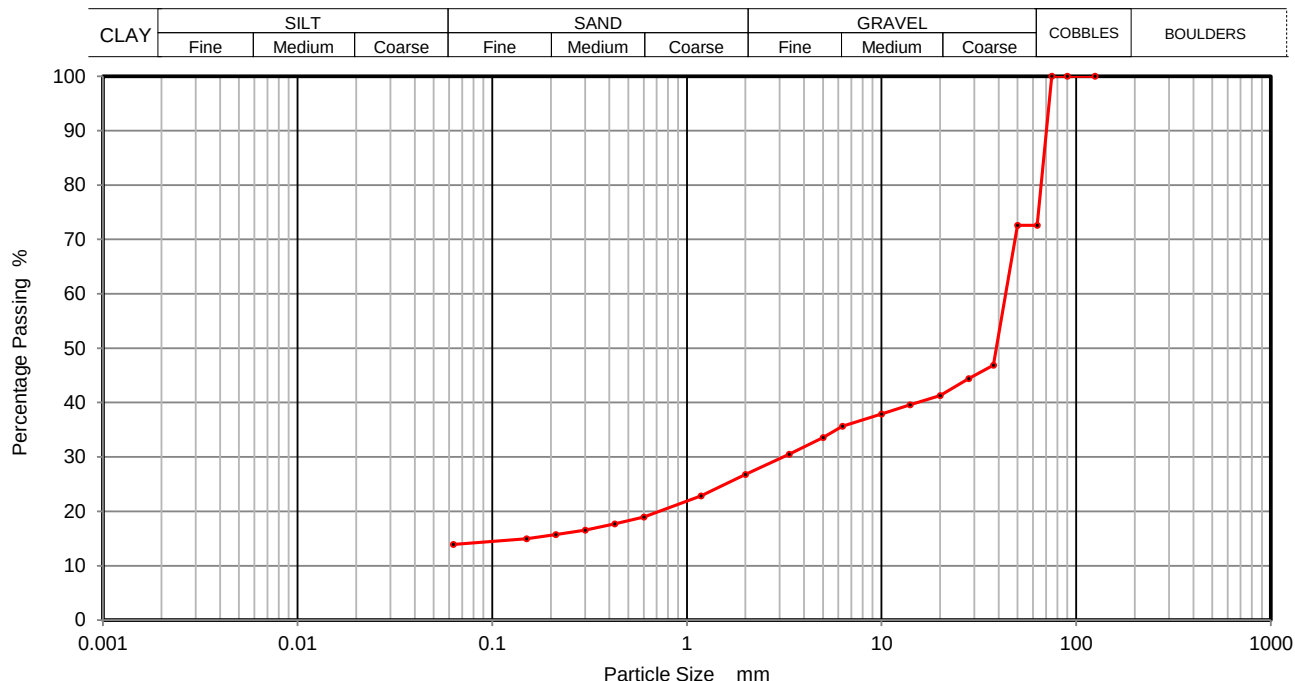
PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2

Contract Number 66735
Borehole/Pit No. S2-TP204

Project Name Global Centre of Rail Excellence Stage 2 (22) Sample No. 11

Soil Description Grey fine to coarse sandy silty/clayey fine to coarse GRAVEL (with cobbles)
Depth Top 2.70
Depth Base 2.90

Date Tested 07/06/2023 Sample Type B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	73		
50	73		
37.5	47		
28	44		
20	41		
14	40		
10	38		
6.3	36		
5	34		
3.35	31		
2	27		
1.18	23		
0.6	19		
0.425	18		
0.3	17		
0.212	16		
0.15	15		
0.063	14		

Sample Proportions	% dry mass
Cobbles	27
Gravel	46
Sand	13
Silt and Clay	14

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator

David Edwards

**PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2**

Contract Number 66735

Borehole/Pit No. S2-TP272

Project Name Global Centre of Rail Excellence Stage 2 (22)

Sample No. 5

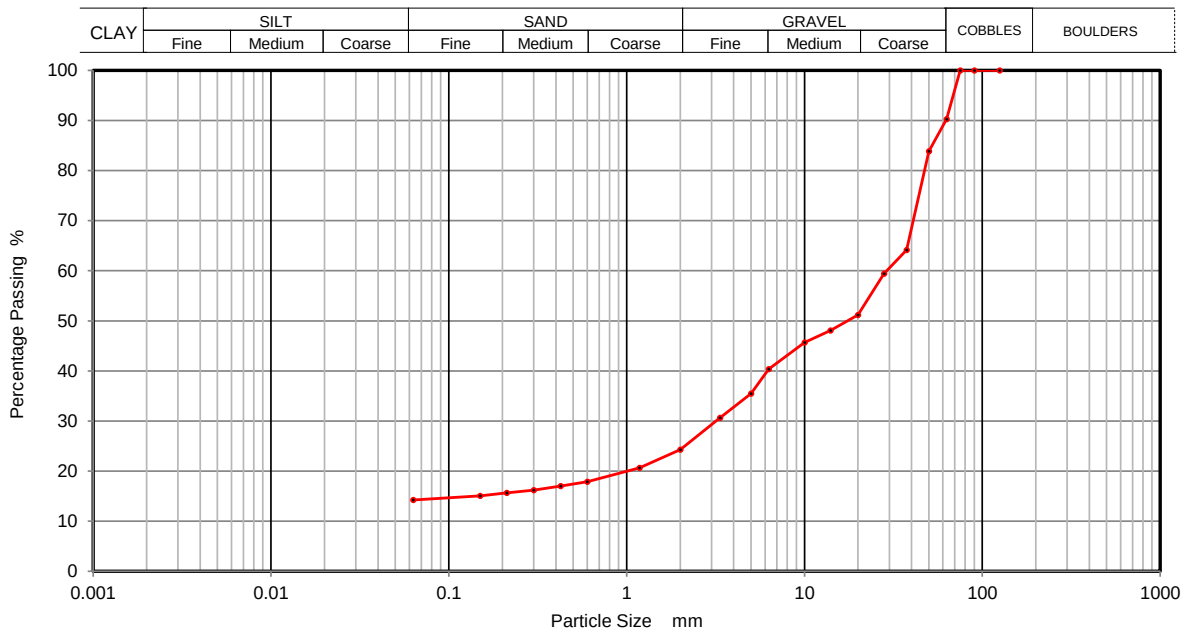
Soil Description Dark grey fine to coarse sandy silty/clayey fine to coarse GRAVEL
(with cobbles)

Depth Top 1.10

Depth Base 1.30

Date Tested 07/06/2023

Sample Type B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	90		
50	84		
37.5	64		
28	59		
20	51		
14	48		
10	46		
6.3	40		
5	35		
3.35	31		
2	24		
1.18	21		
0.6	18		
0.425	17		
0.3	16		
0.212	16		
0.15	15		
0.063	14		

Sample Proportions	% dry mass
Cobbles	10
Gravel	66
Sand	10
Silt and Clay	14

Remarks

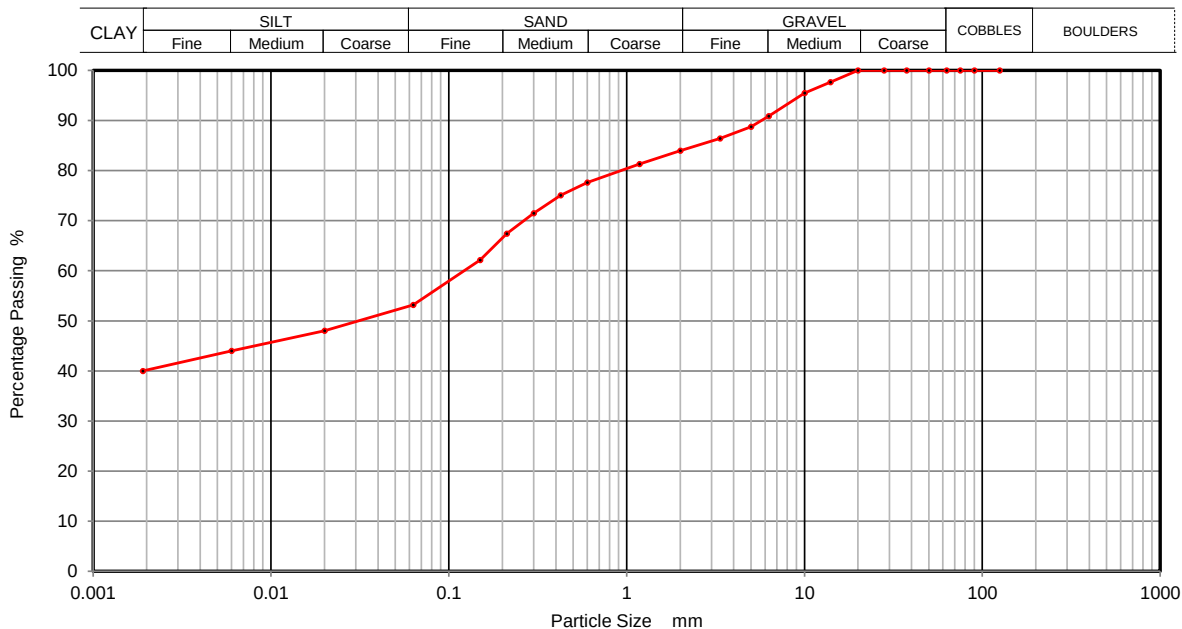
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Contract Number	66735
Borehole/Pit No.	S2-TP272
Sample No.	11
Depth Top	3.70
Depth Base	3.80
Sample Type	D

Project Name	Global Centre of Rail Excellence Stage 2 (22)
Soil Description	Brown fine to medium gravelly fine to coarse sandy silty CLAY
Date Tested	07/06/2023



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	48
90	100	0.0060	44
75	100	0.0020	40
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	98		
10	95		
6.3	91		
5	89		
3.35	86		
2	84		
1.18	81		
0.6	78		
0.425	75		
0.3	71		
0.212	67		
0.15	62		
0.063	53		

Sample Proportions	% dry mass
Cobbles	0
Gravel	16
Sand	31
Silt	13
Clay	40

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards



Laboratory Report



Contract Number: 66835

Client Ref: **G23012**

Date Received: **09-06-2023**

Client PO:

Date Completed: **30-06-2023**

Report Date: **30-06-2023**

Client: **Jackson Drilling Holdings Ltd**
Northwood Farm
Coxbridge Road
Baltonsborough
Somerset
BA6 8RA

This report has been checked and approved by:

B. Evans

Brendan Evans
Office Administrator

Contract Title: **Global Centre of Rail Excellence Stage 2 (20)**

For the attention of: **Adam Putt**

Test Description	Qty
Moisture Content of Soil BS1377 : Part 2 : Clause 3.2 : 1990 - * UKAS	18
4 Point Liquid & Plastic Limit BS 1377:1990 - Part 2 : 4.3 & 5.3 - * UKAS	9
PSD Wet & Dry Sieve method BS 1377:1990 - Part 2 : 9.2 - * UKAS	10
PSD: Sedimentation by pipette carried out with Wet Sieve (Wet Sieve must also be selected) BS 1377:1990 - Part 2 : 9.4 - * UKAS	8
Dry Den/MC (4.5kg Rammer Method 1 Litre Mould/CBR Mould) BS 1377:1990 - Part 4 : 3.5 - * UKAS	4
Consolidated Drained Peak Shear Strength - set of 3 - 60 x 60mm Shear Box Specimens by Direct Shearing (3 days) BS 1377:1990 - Part 7 : 4 - * UKAS	2
Determination of Point Load Value Axial or Diametrical including WC *Please note GSTL is not accredited for the water content of rock* ISRM Suggested Method for Point Load Strength - * UKAS	4
Disposal of samples for job Notes: Observations and Interpretations are outside the UKAS Accreditation * - denotes test included in laboratory scope of accreditation # - denotes test carried out by approved contractor @ - denotes non accredited tests	1

This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This test report/certificate shall not be reproduced except in full, without the approval of GEO Site & Testing Services Ltd. Any opinions or interpretations stated - within this report/certificate are excluded from the laboratories UKAS accreditation.

Approved Signatories:

Brendan Evans (Office Administrator) - Darren Bourne (Quality Senior Technician) - Paul Evans (Director)
 Richard John (Quality/Technical Manager) - Shaun Jones (Laboratory manager) - Shaun Thomas (Site Manager)
 Wayne Honey (Human Resources/ Health and Safety Manager)

Contract Number	66835	
Project Name	Global Centre of Rail Excellence Stage 2 (20)	
Date Tested	15/06/2023	

[illegible]

Operator

Clayton Jenkins

**NATURAL MOISTURE, LIQUID LIMIT, PLASTIC LIMIT AND
PLASTICITY INDEX
(BS 1377:1990 - Part 2 : 4.3 & 5.3)**

Contract Number	66835	
Project Name	Global Centre of Rail Excellence Stage 2 (20)	
Date Tested	15/06/2023	
	DESCRIPTIONS	

[illegible]

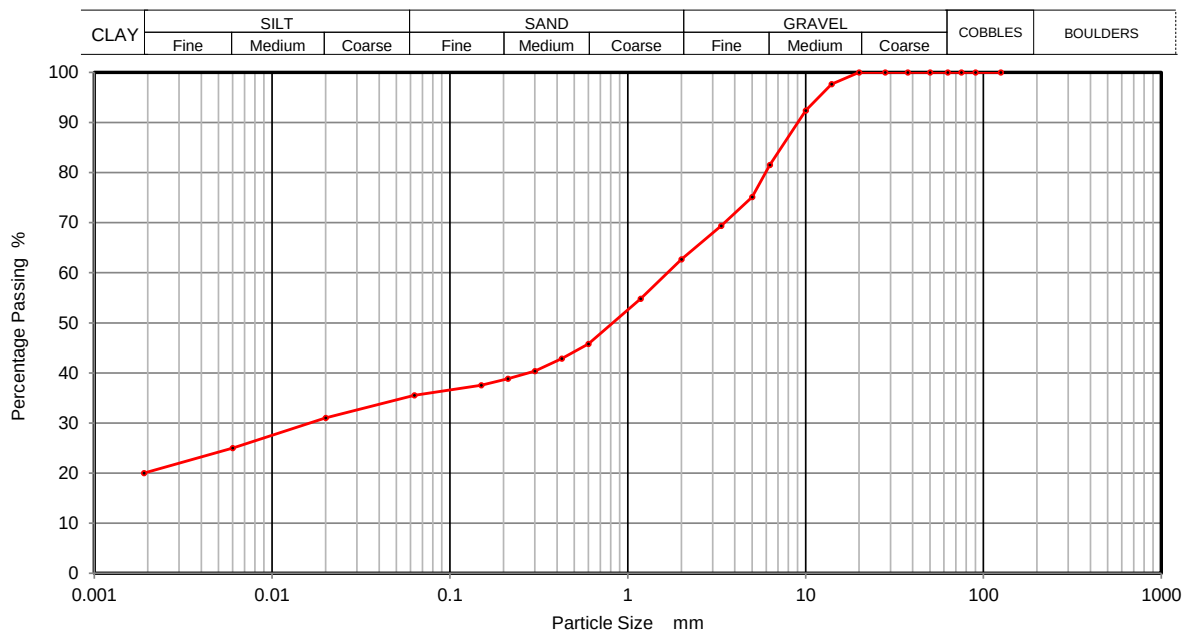
Operator
Clayton Jenkins

Symbols: NP : Non Plastic # : Liquid Limit and Plastic Limit Wet Sieved

Page 5 of 28

PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Contract Number	66835
Borehole/Pit No.	S1-BH117
Sample No.	3
Depth Top	1.90
Depth Base	2.00
Sample Type	D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	31
90	100	0.0060	25
75	100	0.0020	20
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	98		
10	92		
6.3	82		
5	75		
3.35	69		
2	63		
1.18	55		
0.6	46		
0.425	43		
0.3	40		
0.212	39		
0.15	38		
0.063	36		

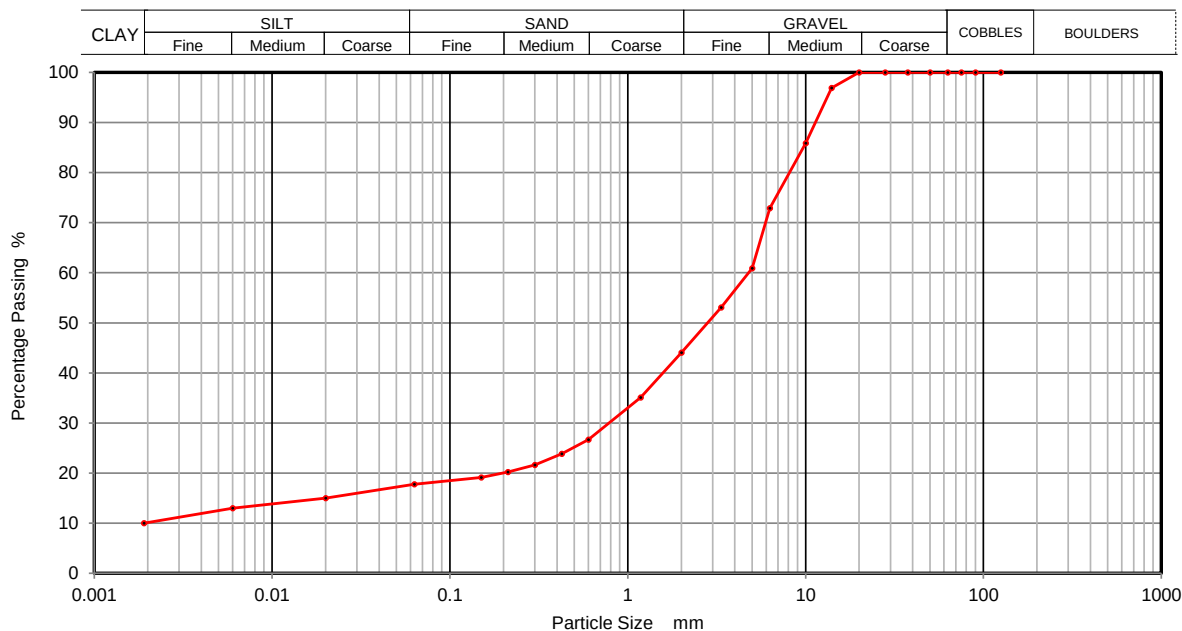
Sample Proportions	% dry mass
Cobbles	0
Gravel	37
Sand	27
Silt	16
Clay	20

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Contract Number	66835
Borehole/Pit No.	S1-BH117
Sample No.	103
Depth Top	2.80
Depth Base	3.00
Sample Type	D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	15
90	100	0.0060	13
75	100	0.0020	10
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	97		
10	86		
6.3	73		
5	61		
3.35	53		
2	44		
1.18	35		
0.6	27		
0.425	24		
0.3	22		
0.212	20		
0.15	19		
0.063	18		

Sample Proportions	% dry mass
Cobbles	0
Gravel	56
Sand	26
Silt	8
Clay	10

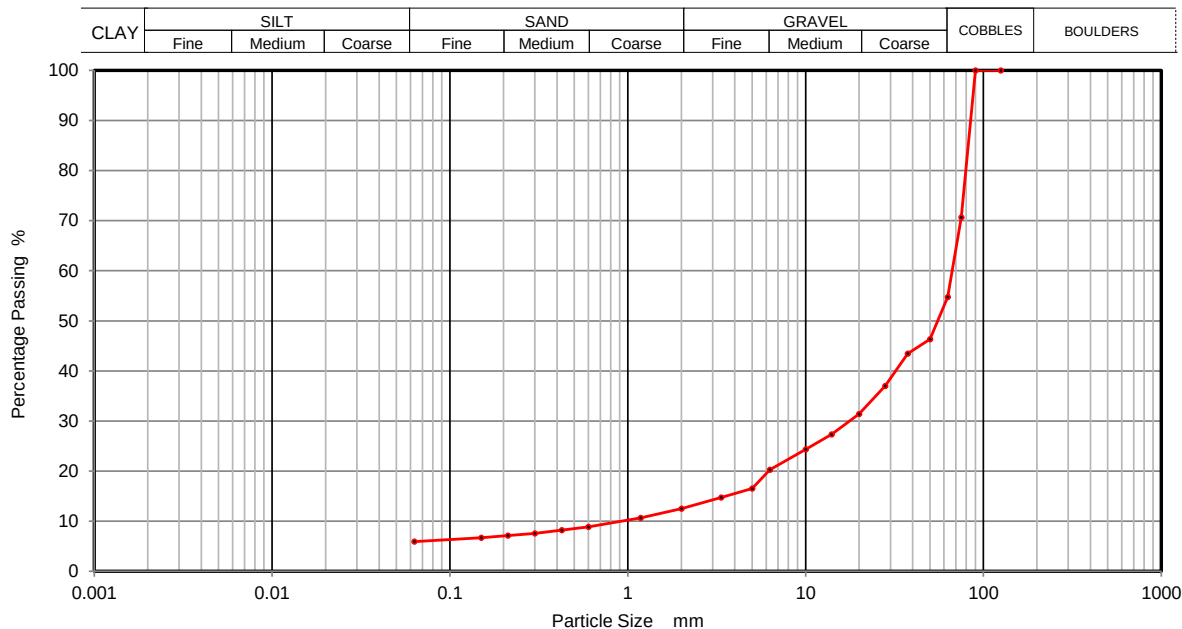
Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

**PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2**

Contract Number	66835
Borehole/Pit No.	S2-TP203

Project Name	Global Centre of Rail Excellence Stage 2 (20)	Sample No.	3
Soil Description	Brown grey clayey/silty fine to coarse sandy fine to coarse GRAVEL (with cobbles)	Depth Top	0.50
		Depth Base	0.80
Date Tested	15/06/2023	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	71		
63	55		
50	46		
37.5	43		
28	37		
20	31		
14	27		
10	24		
6.3	20		
5	17		
3.35	15		
2	13		
1.18	11		
0.6	9		
0.425	8		
0.3	8		
0.212	7		
0.15	7		
0.063	6		

Sample Proportions	% dry mass
Cobbles	45
Gravel	42
Sand	7
Silt and Clay	6

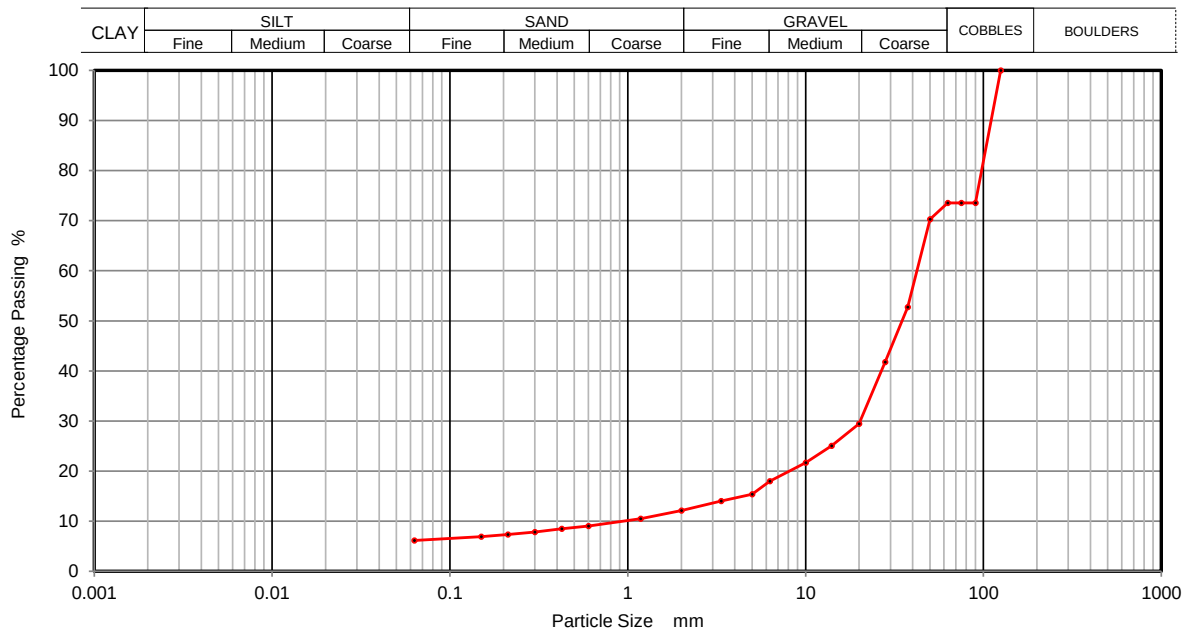
Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

**PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2**

Contract Number	66835
Borehole/Pit No.	S2-TP237

Project Name	Global Centre of Rail Excellence Stage 2 (20)	Sample No.	4
Soil Description	Grey clayey/silty fine to coarse sandy fine to coarse GRAVEL (with cobbles)	Depth Top	0.80
		Depth Base	1.00
Date Tested	15/06/2023	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	74		
75	74		
63	74		
50	70		
37.5	53		
28	42		
20	29		
14	25		
10	22		
6.3	18		
5	15		
3.35	14		
2	12		
1.18	11		
0.6	9		
0.425	8		
0.3	8		
0.212	7		
0.15	7		
0.063	6		

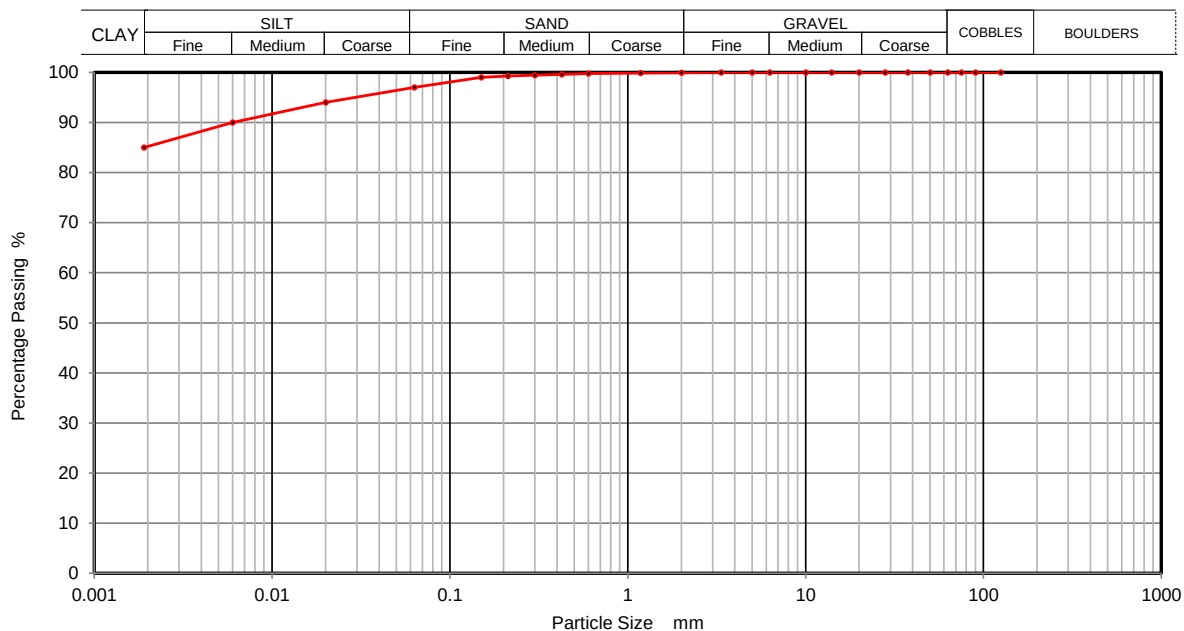
Sample Proportions	% dry mass
Cobbles	26
Gravel	62
Sand	6
Silt and Clay	6

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Contract Number	66835
Borehole/Pit No.	S2-TP256
Sample No.	8
Depth Top	2.40
Depth Base	2.50
Sample Type	D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	94
90	100	0.0060	90
75	100	0.0020	85
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	100		
0.425	100		
0.3	99		
0.212	99		
0.15	99		
0.063	97		

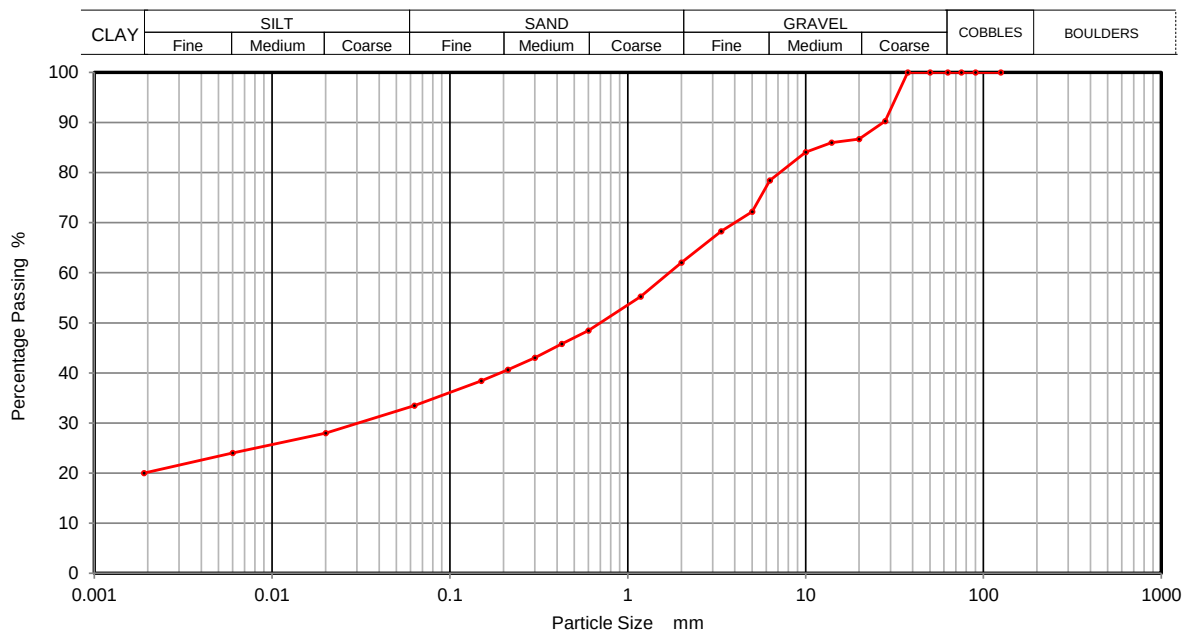
Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	3
Silt	12
Clay	85

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Contract Number	66835
Borehole/Pit No.	S2-TP259
Sample No.	2
Depth Top	0.20
Depth Base	0.40
Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	28
90	100	0.0060	24
75	100	0.0020	20
63	100		
50	100		
37.5	100		
28	90		
20	87		
14	86		
10	84		
6.3	78		
5	72		
3.35	68		
2	62		
1.18	55		
0.6	48		
0.425	46		
0.3	43		
0.212	41		
0.15	38		
0.063	33		

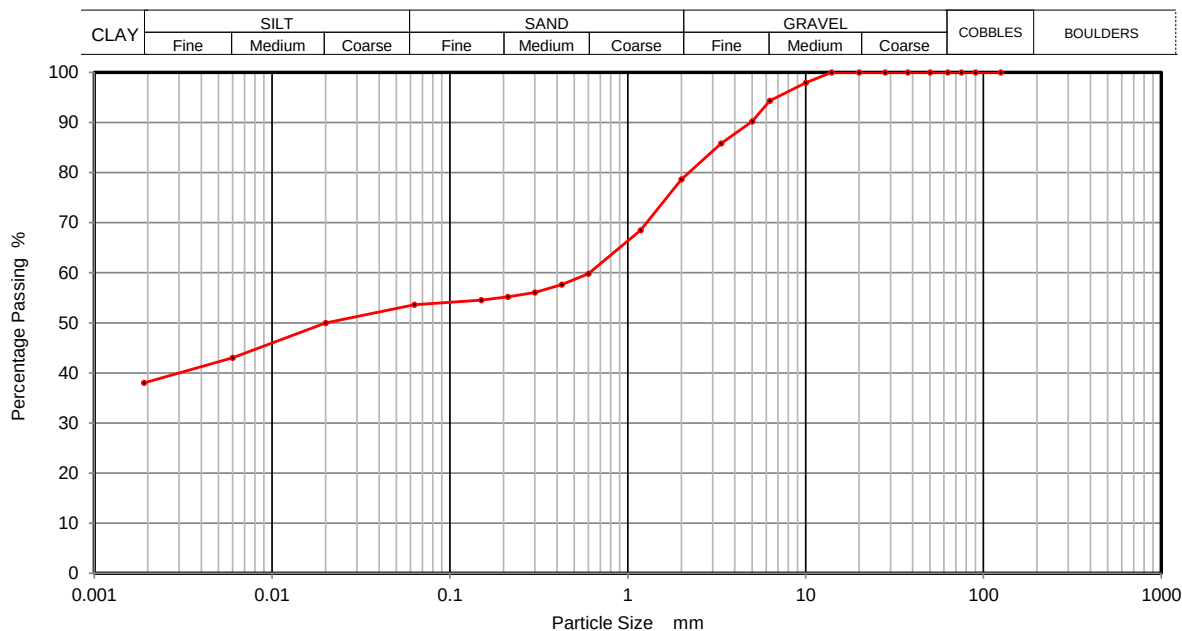
Sample Proportions	% dry mass
Cobbles	0
Gravel	38
Sand	29
Silt	13
Clay	20

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Contract Number	66835
Borehole/Pit No.	S2-TP259
Sample No.	6
Depth Top	1.50
Depth Base	1.60
Sample Type	D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	50
90	100	0.0060	43
75	100	0.0020	38
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	98		
6.3	94		
5	90		
3.35	86		
2	79		
1.18	69		
0.6	60		
0.425	58		
0.3	56		
0.212	55		
0.15	55		
0.063	54		

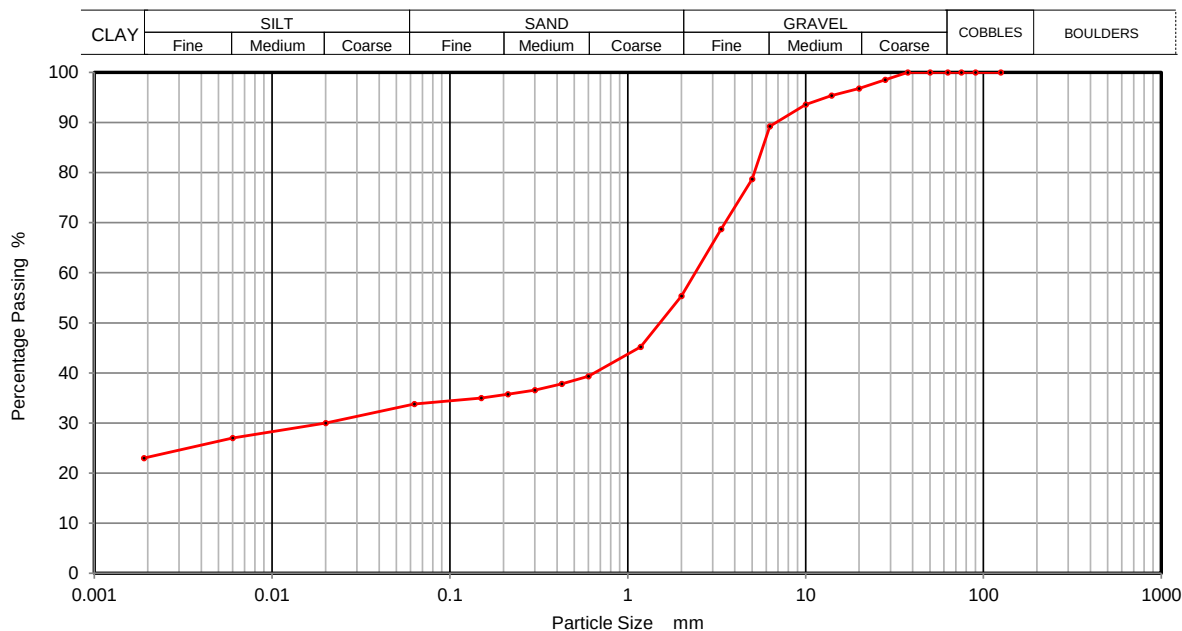
Sample Proportions	% dry mass
Cobbles	0
Gravel	21
Sand	25
Silt	16
Clay	38

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Contract Number	66835
Borehole/Pit No.	S2-TP259
Sample No.	8
Depth Top	2.60
Depth Base	2.80
Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	30
90	100	0.0060	27
75	100	0.0020	23
63	100		
50	100		
37.5	100		
28	99		
20	97		
14	95		
10	94		
6.3	89		
5	79		
3.35	69		
2	55		
1.18	45		
0.6	39		
0.425	38		
0.3	37		
0.212	36		
0.15	35		
0.063	34		

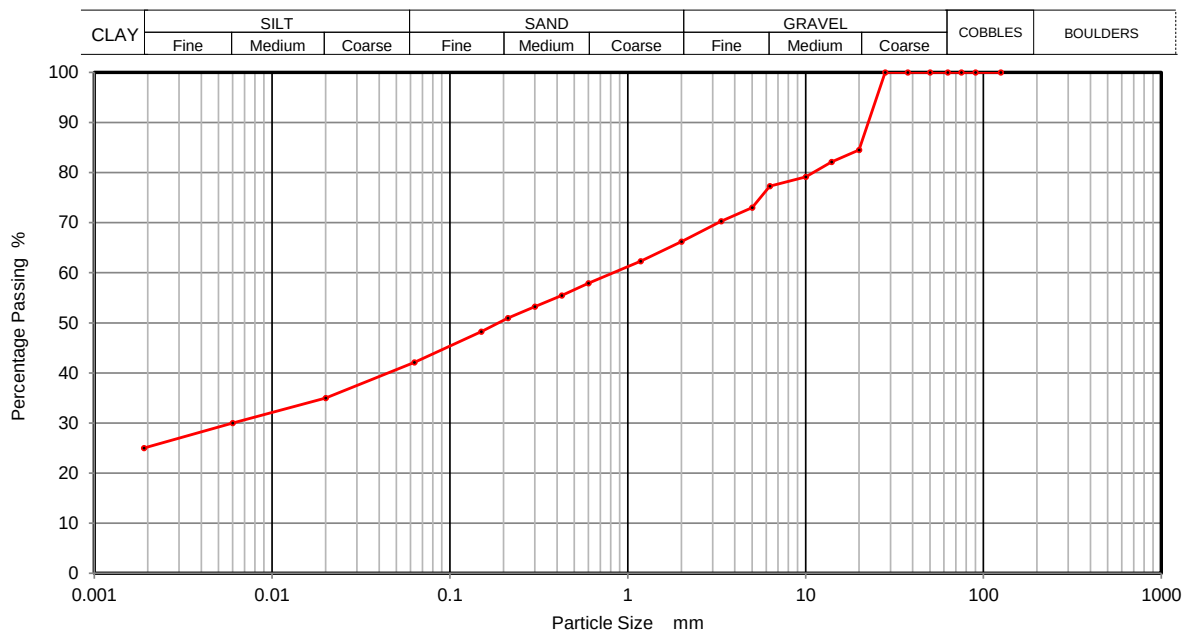
Sample Proportions	% dry mass
Cobbles	0
Gravel	45
Sand	21
Silt	11
Clay	23

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Contract Number	66835
Borehole/Pit No.	S2-TP288
Sample No.	8
Depth Top	2.00
Depth Base	2.10
Sample Type	D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	35
90	100	0.0060	30
75	100	0.0020	25
63	100		
50	100		
37.5	100		
28	100		
20	84		
14	82		
10	79		
6.3	77		
5	73		
3.35	70		
2	66		
1.18	62		
0.6	58		
0.425	55		
0.3	53		
0.212	51		
0.15	48		
0.063	42		

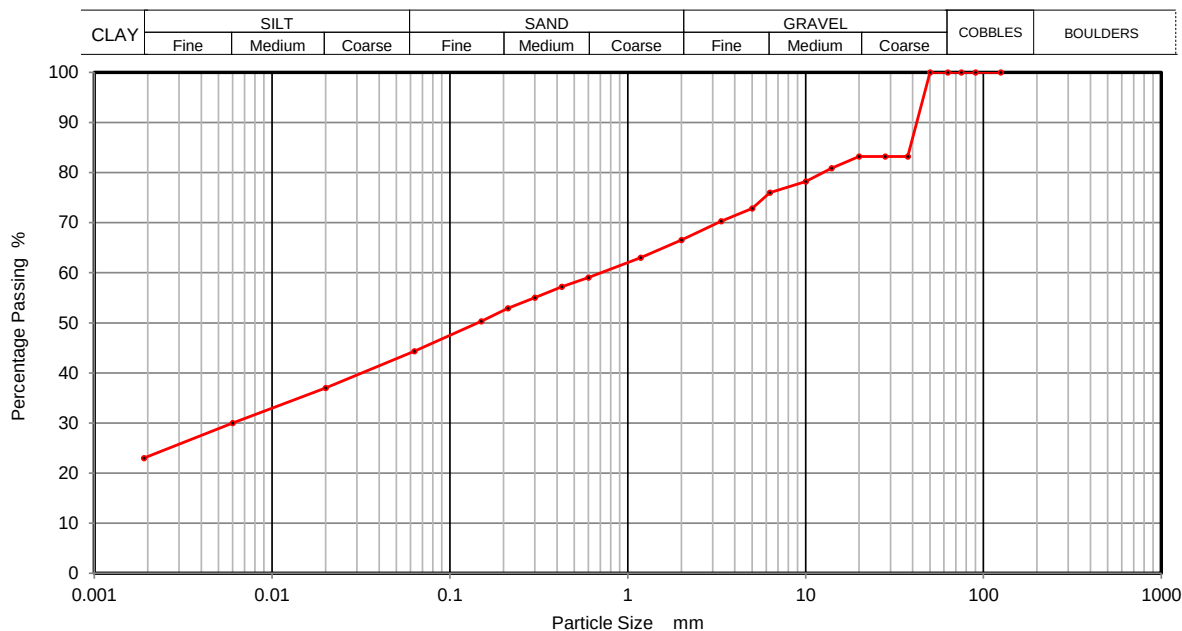
Sample Proportions	% dry mass
Cobbles	0
Gravel	34
Sand	24
Silt	17
Clay	25

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Contract Number	66835
Borehole/Pit No.	S2-TP288
Sample No.	11
Depth Top	3.50
Depth Base	3.60
Sample Type	D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	37
90	100	0.0060	30
75	100	0.0020	23
63	100		
50	100		
37.5	83		
28	83		
20	83		
14	81		
10	78		
6.3	76		
5	73		
3.35	70		
2	67		
1.18	63		
0.6	59		
0.425	57		
0.3	55		
0.212	53		
0.15	50		
0.063	44		

Sample Proportions	% dry mass
Cobbles	0
Gravel	33
Sand	23
Silt	21
Clay	23

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

**Dry Density / Moisture Content Relationship
BS 1377:Part 4:1990**

Contract Number 66835

Borehole / Pit No S2-TP203

Project Name Global Centre of Rail Excellence Stage 2 (20)

Sample No 5

Date Tested 19/06/2023

Depth Top 1.50

Compaction Method 4.5 Kg Rammer

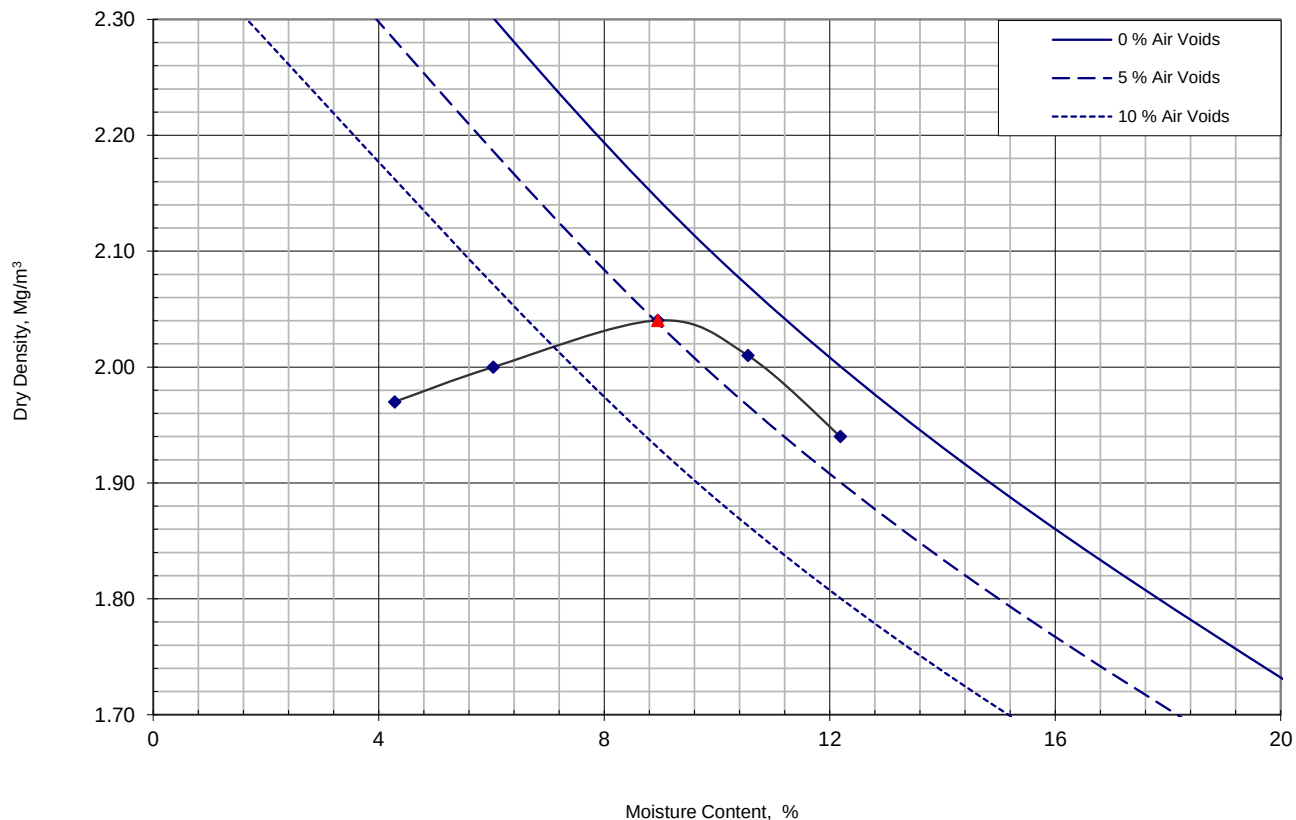
Depth Base 1.80

Compaction Clause BS1377:Part 4:1990, Clause 3.5

Sample Type B

Sample Description Brown clayey silty GRAVEL

Single or Separate Sample Used Single



Compaction Point	1	2	3	4	5							
Moisture Content	4.3	6.0	9.0	11	12							
Bulk Density	2.05	2.12	2.22	2.22	2.18							
Dry Density	1.97	2.00	2.04	2.01	1.94							

Initial Moisture Content	9.0	%
Maximum Dry Density	2.04	Mg/m3
Optimum Moisture Content	9.0	%
Particle Density	2.65 Assumed	Mg/m3
Material Retained 37.5mm	0	%
Material Retained 20mm	12	%

Operator

Conal

**Dry Density / Moisture Content Relationship
BS 1377:Part 4:1990**

Contract Number 66835

Borehole / Pit No S2-TP203

Project Name Global Centre of Rail Excellence Stage 2 (20)

Sample No 7

Date Tested 19/06/2023

Depth Top 2.50

Compaction Method 4.5 Kg Rammer

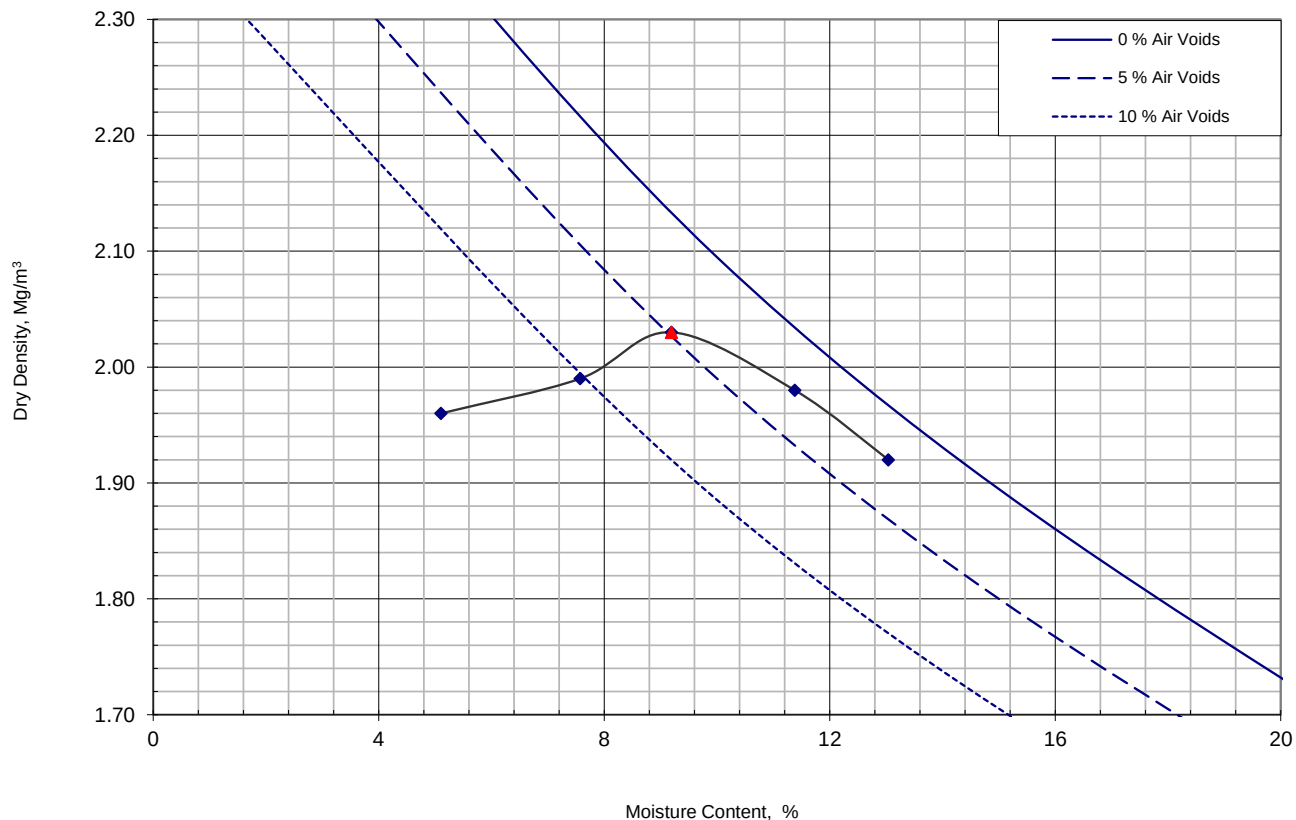
Depth Base 2.80

Compaction Clause BS1377:Part 4:1990, Clause 3.5

Sample Type B

Sample Description Brown clayey silty GRAVEL

Single or Separate Sample Used Single



Compaction Point	1	2	3	4	5							
Moisture Content	5.1	7.6	9.2	11	13							
Bulk Density	2.06	2.14	2.22	2.21	2.17							
Dry Density	1.96	1.99	2.03	1.98	1.92							

Initial Moisture Content	7.6	%
Maximum Dry Density	2.03	Mg/m3
Optimum Moisture Content	9.2	%
Particle Density	2.65 Assumed	Mg/m3
Material Retained 37.5mm	0	%
Material Retained 20mm	13	%

Operator

Conal

**Dry Density / Moisture Content Relationship
BS 1377:Part 4:1990**

Contract Number 66835

Borehole / Pit No S2-TP237

Project Name Global Centre of Rail Excellence Stage 2 (20)

Sample No 6

Date Tested 19/06/2023

Depth Top 1.80

Compaction Method 4.5 Kg Rammer

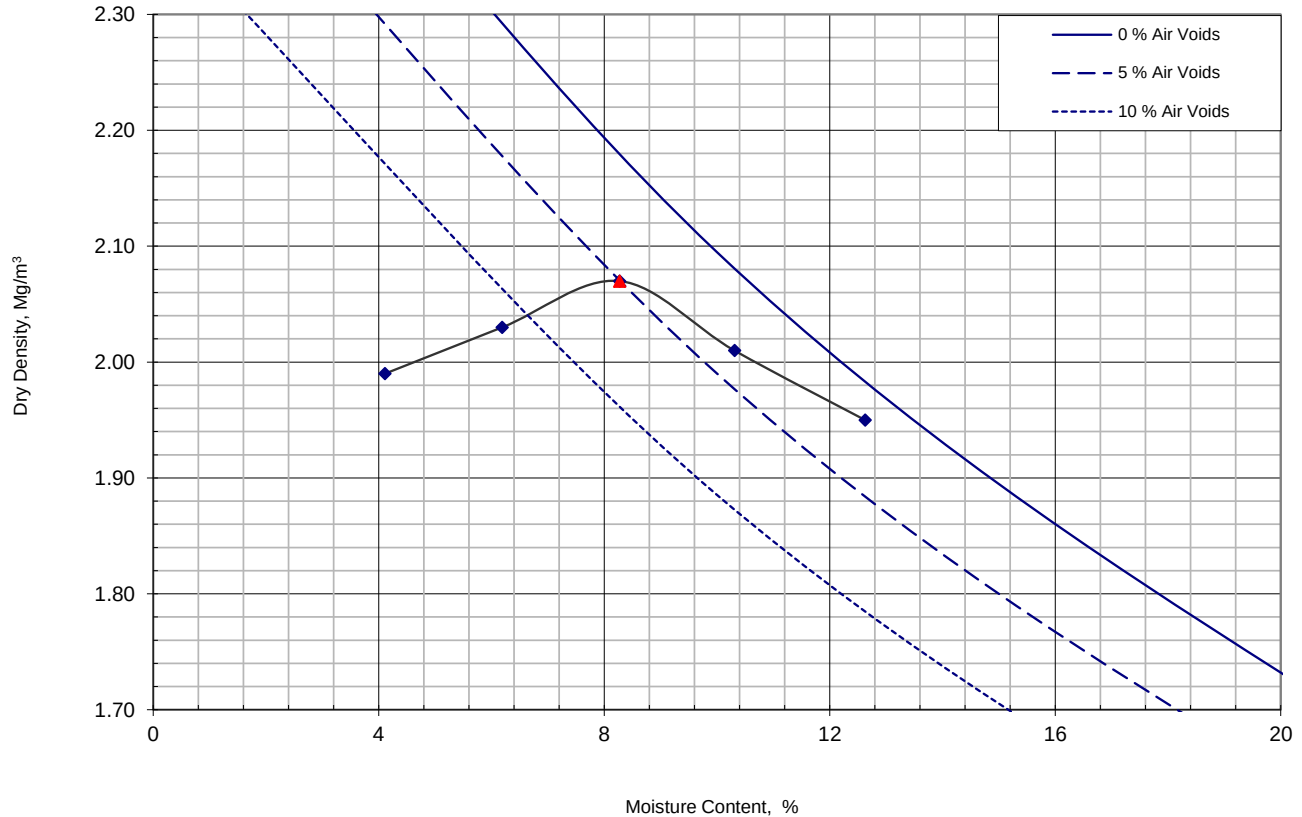
Depth Base 2.00

Compaction Clause BS1377:Part 4:1990, Clause 3.5

Sample Type B

Sample Description Brown clayey silty GRAVEL

Single or Separate Sample Used Single



Compaction Point	1	2	3	4	5							
Moisture Content	4.1	6.2	8.3	10	13							
Bulk Density	2.07	2.16	2.24	2.22	2.20							
Dry Density	1.99	2.03	2.07	2.01	1.95							

Initial Moisture Content	8.3	%
Maximum Dry Density	2.07	Mg/m3
Optimum Moisture Content	8.3	%
Particle Density	2.65 Assumed	Mg/m3
Material Retained 37.5mm	0	%
Material Retained 20mm	10	%

Operator

Conal

**Dry Density / Moisture Content Relationship
BS 1377:Part 4:1990**

Contract Number 66835

Borehole / Pit No S2-TP237

Project Name Global Centre of Rail Excellence Stage 2 (20)

Sample No 8

Date Tested 19/06/2023

Depth Top 2.80

Compaction Method 4.5 Kg Rammer

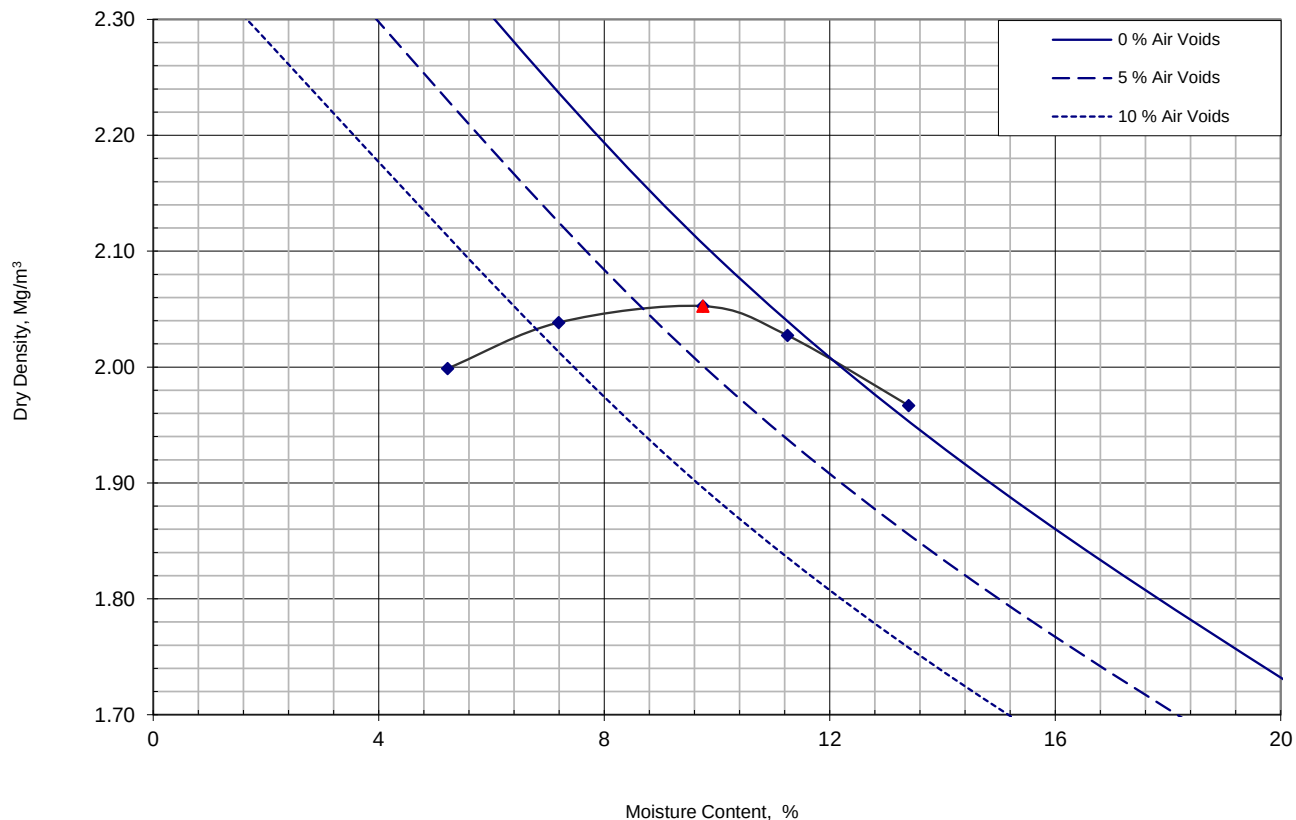
Depth Base 3.00

Compaction Clause BS1377:Part 4:1990, Clause 3.5

Sample Type B

Sample Description Brown clayey silty GRAVEL

Single or Separate Sample Used Single



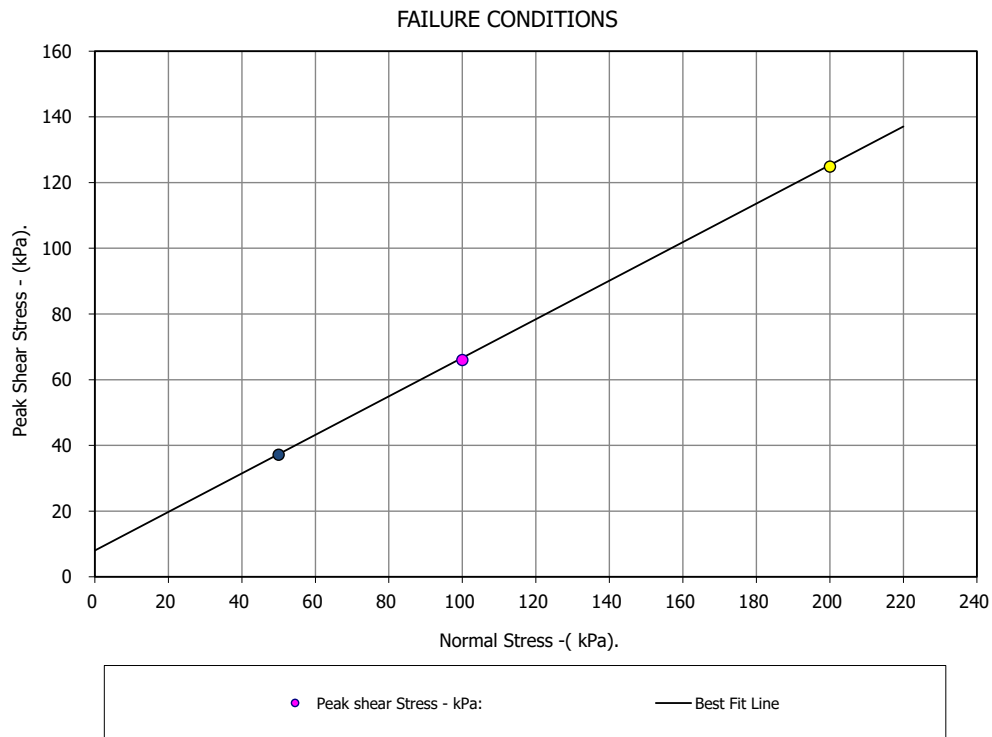
Compaction Point	1	2	3	4	5							
Moisture Content	5.2	7.2	9.8	11	13							
Bulk Density	2.10	2.18	2.25	2.26	2.23							
Dry Density	2.00	2.04	2.05	2.03	1.97							

Initial Moisture Content	9.8	%
Maximum Dry Density	2.05	Mg/m3
Optimum Moisture Content	9.8	%
Particle Density	2.65 Assumed	Mg/m3
Material Retained 37.5mm	0	%
Material Retained 20mm	8	%

Operator

Conal

Borehole Number:	S2-TP203	Depth from (m):	2.50
Sample Number :	7.0	Depth to (m):	2.80
Sample Type:	B		
Particle Density - Mg/m3:	2.65 (Assumed)		
Specimen Tested:	Submerged, Remoulded (Light Tamping) Material above 2mm removed.		
Sample Description:			
Brown sandy CLAY			
STAGE	1	2	3
Initial Conditions			
Height - mm:	25.03	25.03	25.03
Length - mm:	60.00	60.00	60.00
Moisture Content - %:	13	13	13
Bulk Density - Mg/m3:	1.85	1.85	1.85
Dry Density - Mg/m3:	1.64	1.64	1.64
Voids Ratio:	0.6164	0.6138	0.6141
Degree of Saturation - %:	54.14	54.37	54.34
Normal Pressure- kPa	50	100	200
Consolidation			
Consolidated Height - mm:	24.07	22.96	21.90
Shear			
Rate of Horizontal Displacement (mm/min)	0.200	0.200	0.200
Horizontal Displacement at Peak Shear Stress (mm)	6.04	6.67	6.67
Peak shear Stress - kPa:	37	66	125
PEAK			
Angle of Shearing Resistance:(θ)	31		
Effective Cohesion - kPa:	8		



Contract No.:
66835

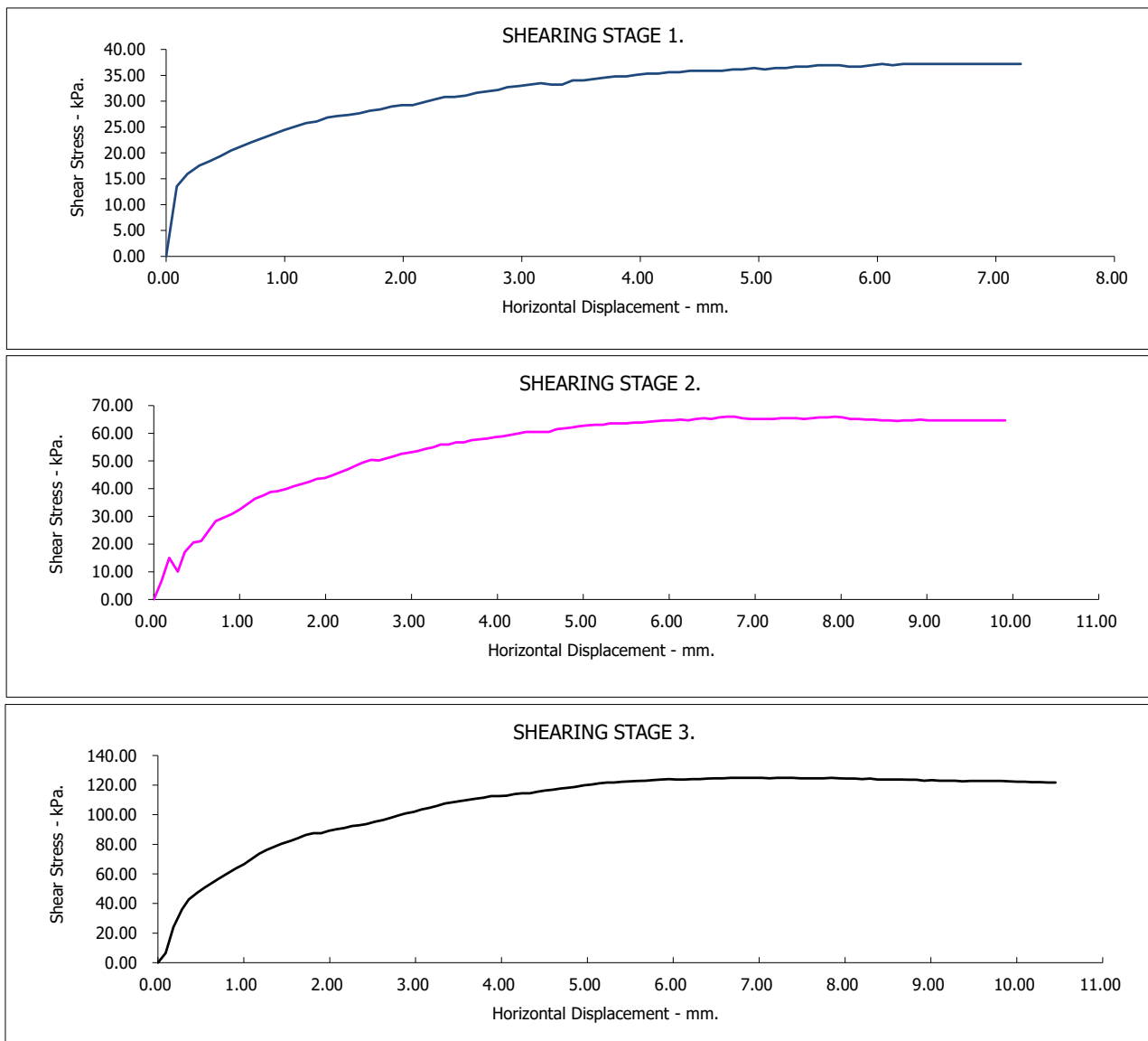
Global Centre of Rail Excellence Stage 2 (20)

Client Ref Number:

G23012

Borehole Number: S2-TP203
Sample Number : 7

Depth from (m): 2.50
Depth to (m): 2.80

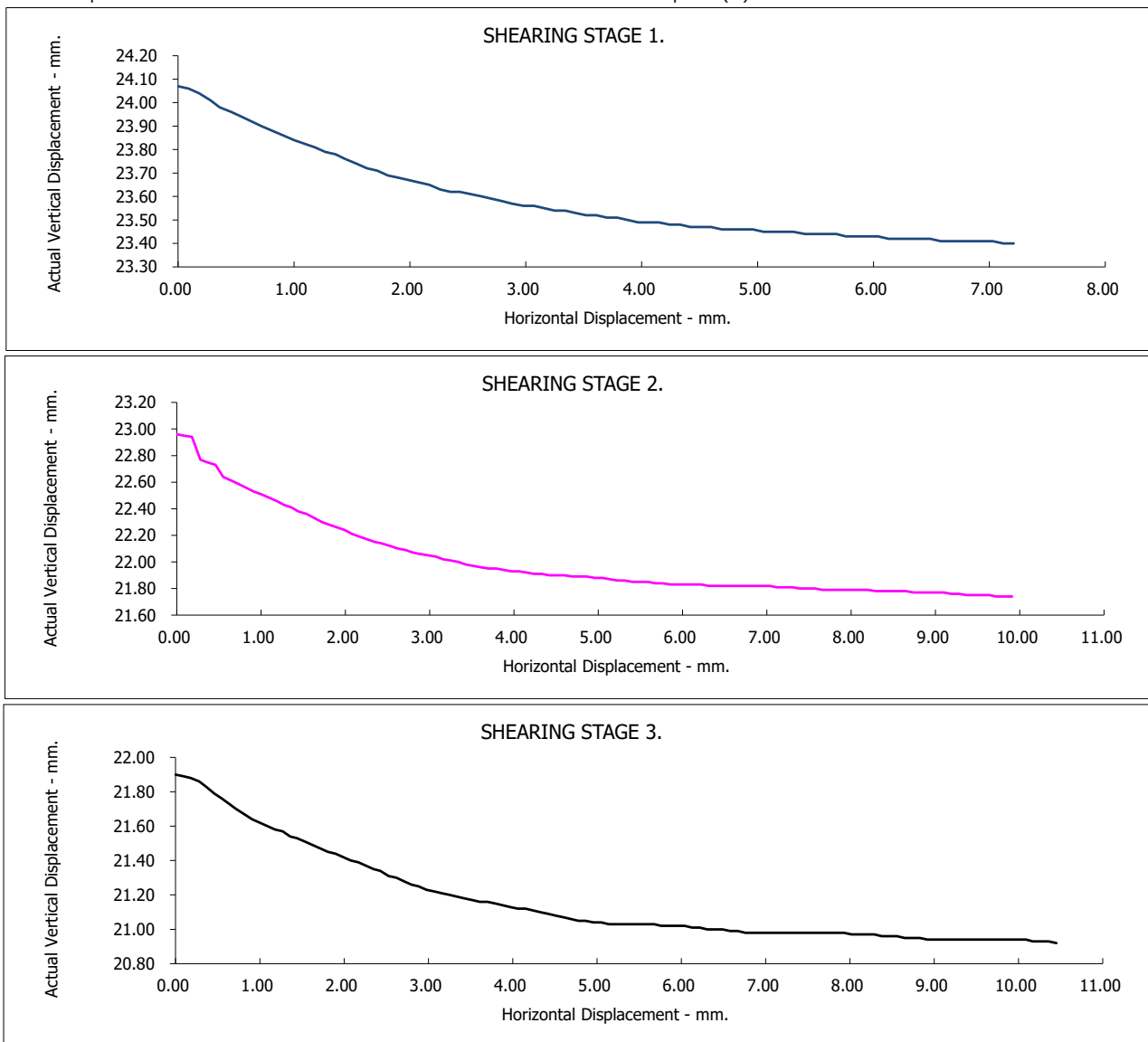


Global Centre of Rail Excellence Stage 2 (20)

Contract No.: **66835**
Client Ref Number: **G23012**
Figure.

Borehole Number: S2-TP203
Sample Number : 7

Depth from (m): 2.50
Depth to (m): 2.80



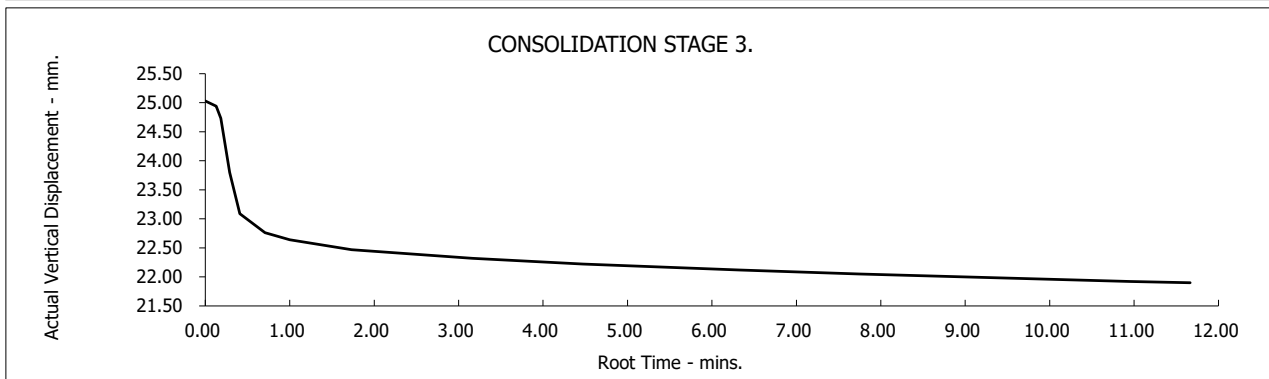
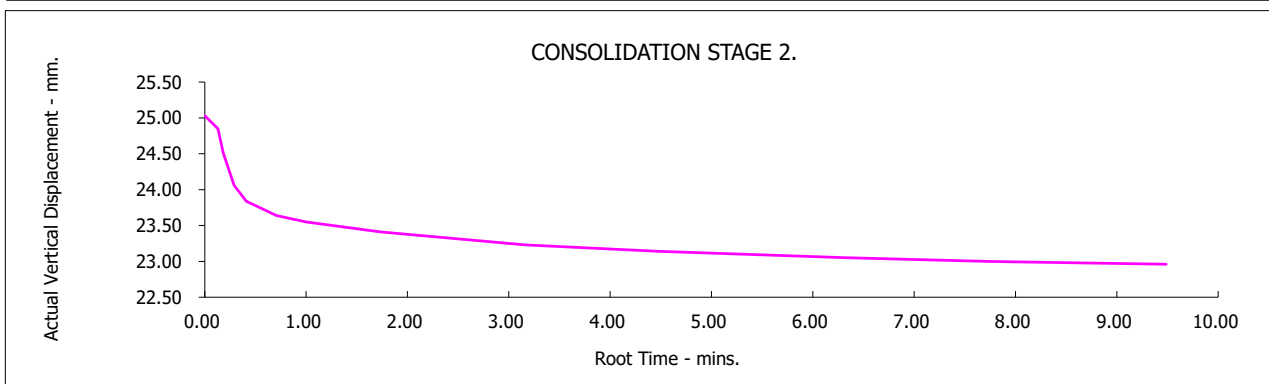
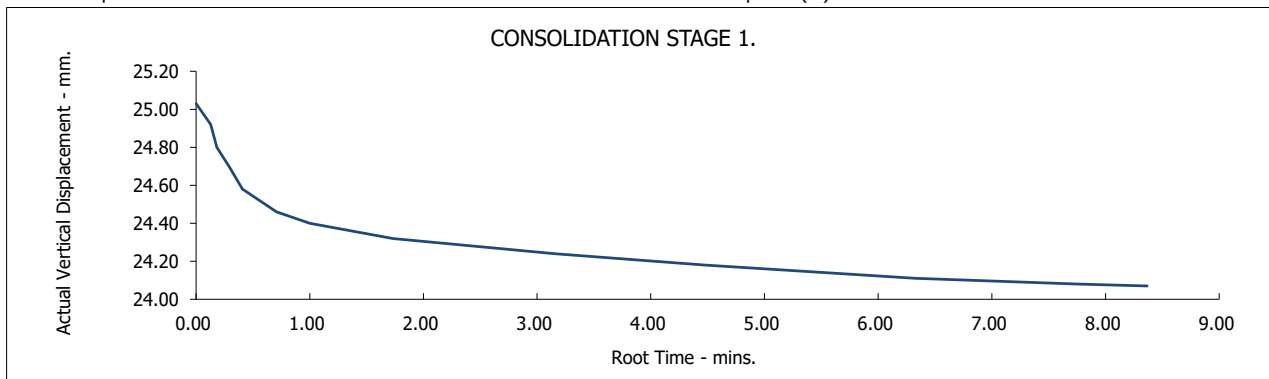
Contract No.:
66835

Global Centre of Rail Excellence Stage 2 (20)

Client Ref Number:
G23012

Borehole Number: S2-TP203
Sample Number : 7

Depth from (m): 2.50
Depth to (m): 2.80

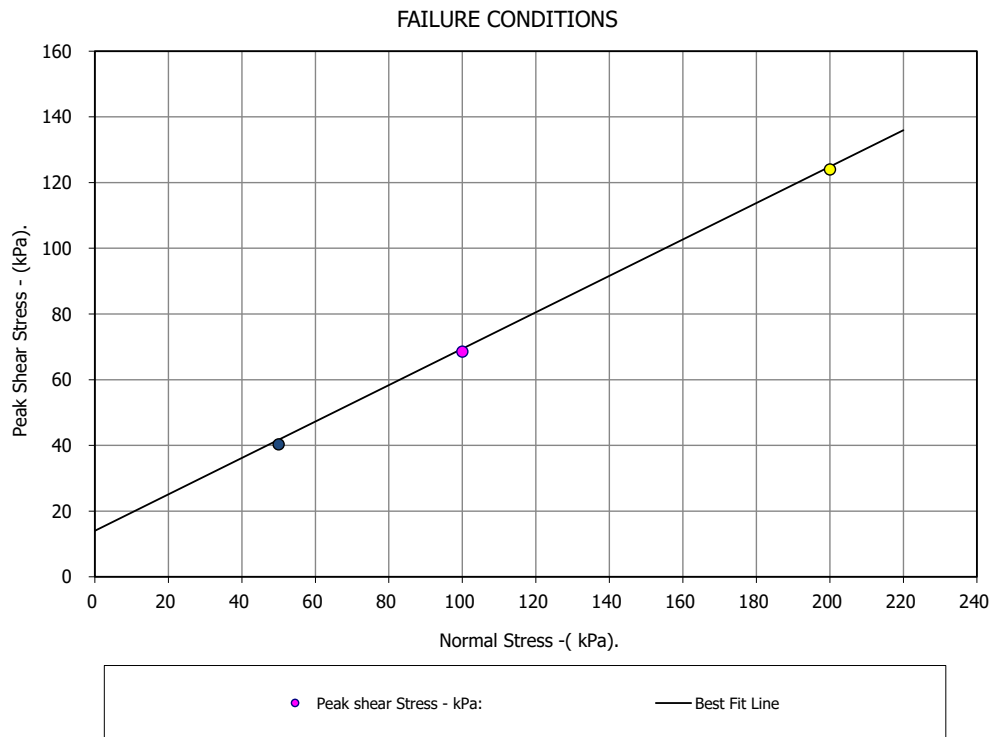


Global Centre of Rail Excellence Stage 2 (20)

Contract No.:
66835

Client Ref Number:
G23012

Borehole Number:	S2-TP237	Depth from (m):	2.80
Sample Number :	8.0	Depth to (m):	3.00
Sample Type:	B		
Particle Density - Mg/m3:	2.65 (Assumed)		
Specimen Tested:	Submerged, Remoulded (Light Tamping) Material above 2mm removed.		
Sample Description:			
Brown sandy CLAY			
STAGE	1	2	3
Initial Conditions			
Height - mm:	23.30	23.30	23.30
Length - mm:	60.00	60.00	60.00
Moisture Content - %:	12	12	12
Bulk Density - Mg/m3:	1.88	1.88	1.88
Dry Density - Mg/m3:	1.68	1.68	1.68
Voids Ratio:	0.5792	0.5813	0.5785
Degree of Saturation - %:	55.38	55.19	55.45
Normal Pressure- kPa	50	100	200
Consolidation			
Consolidated Height - mm:	22.02	20.49	20.01
Shear			
Rate of Horizontal Displacement (mm/min)	0.200	0.200	0.200
Horizontal Displacement at Peak Shear Stress (mm)	7.21	6.85	7.57
Peak shear Stress - kPa:	40	69	124
PEAK			
Angle of Shearing Resistance:(θ)			29.0
Effective Cohesion - kPa:			14



Contract No.:
66835

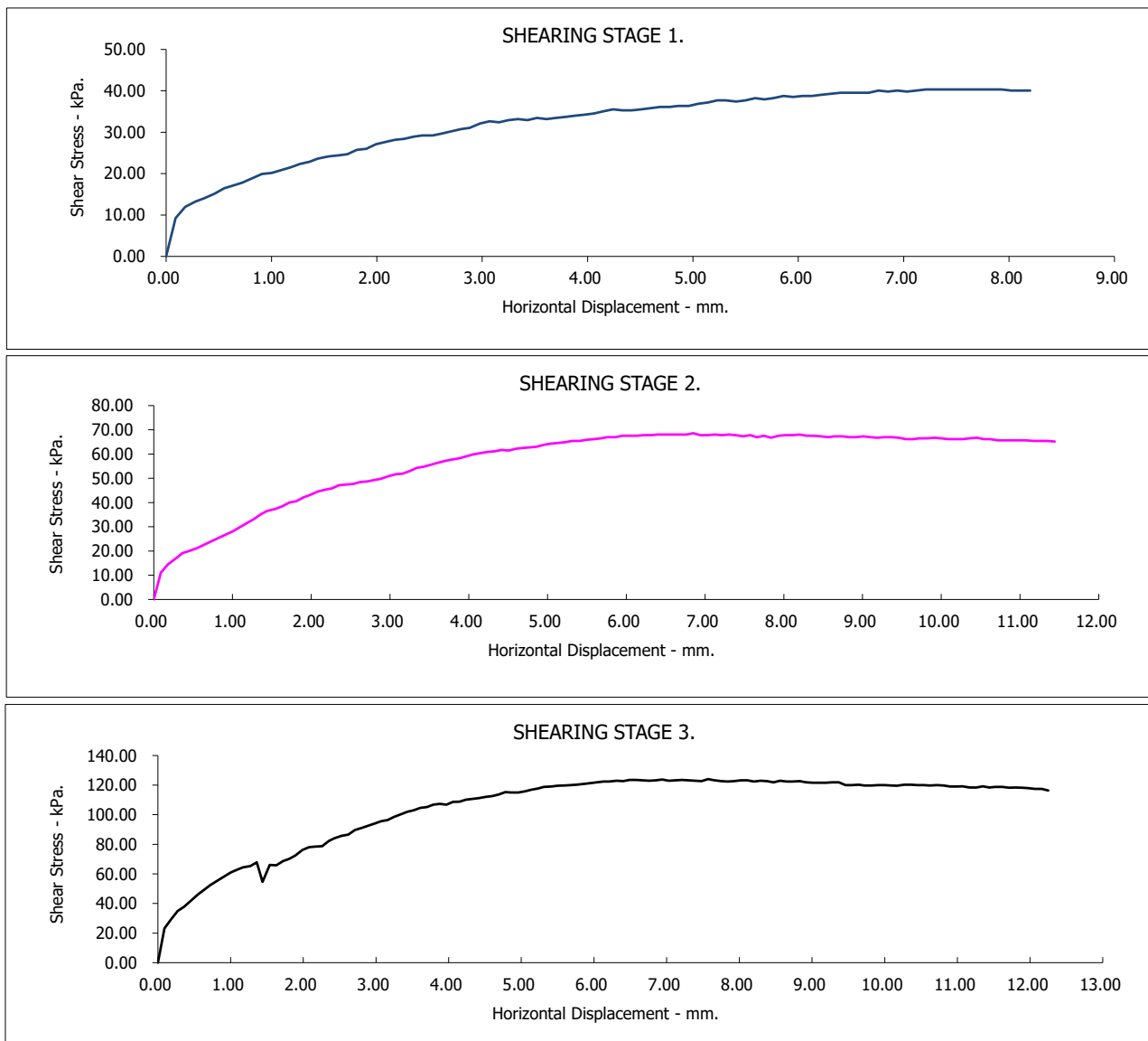
Global Centre of Rail Excellence Stage 2 (20)

Client Ref Number:

G23012

Borehole Number: S2-TP237
Sample Number : 8

Depth from (m): 2.80
Depth to (m): 3.00



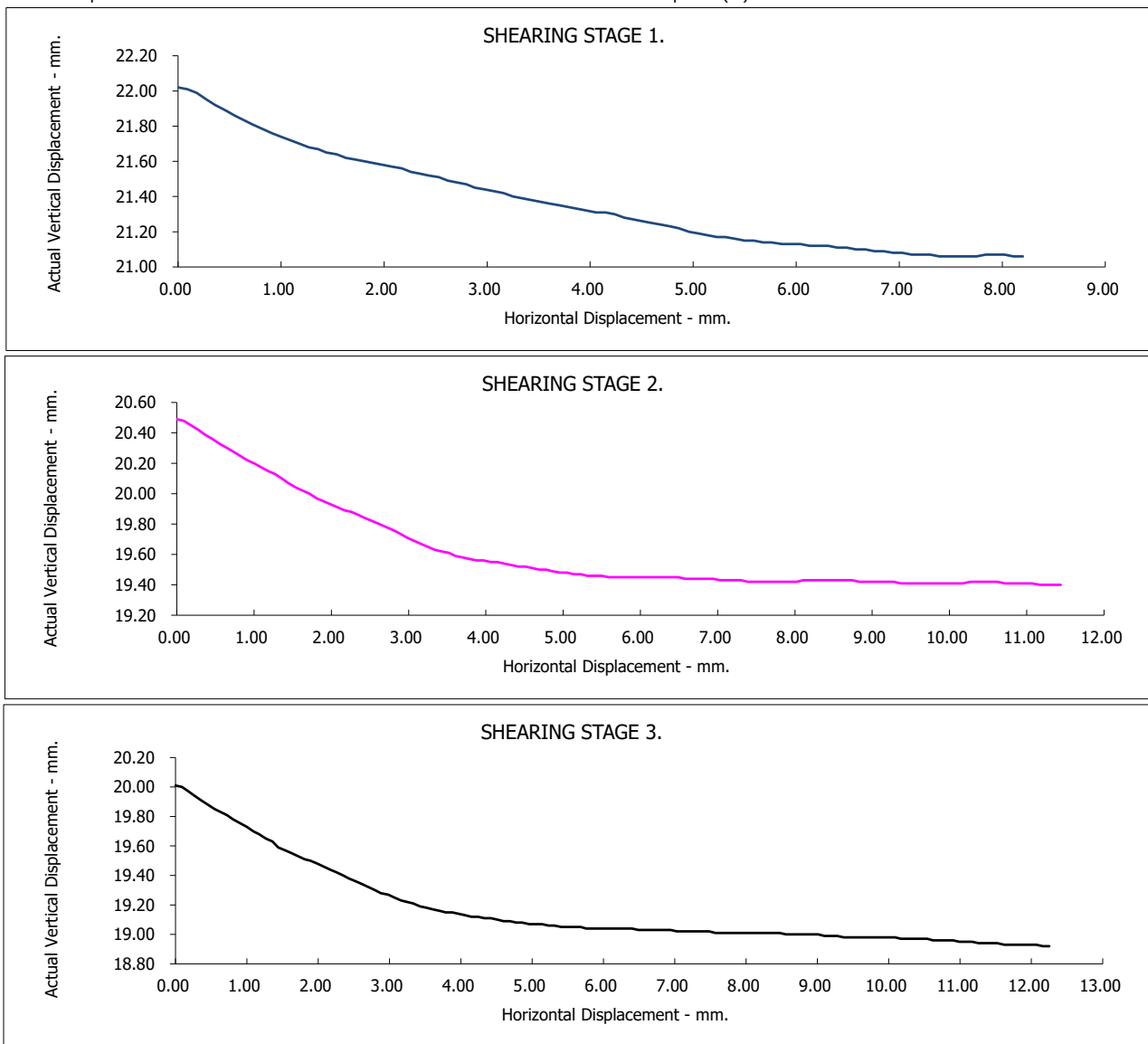
Global Centre of Rail Excellence Stage 2 (20)

Contract No.:
66835

Client Ref Number:
G23012
Figure.

Borehole Number: S2-TP237
Sample Number : 8

Depth from (m): 2.80
Depth to (m): 3.00



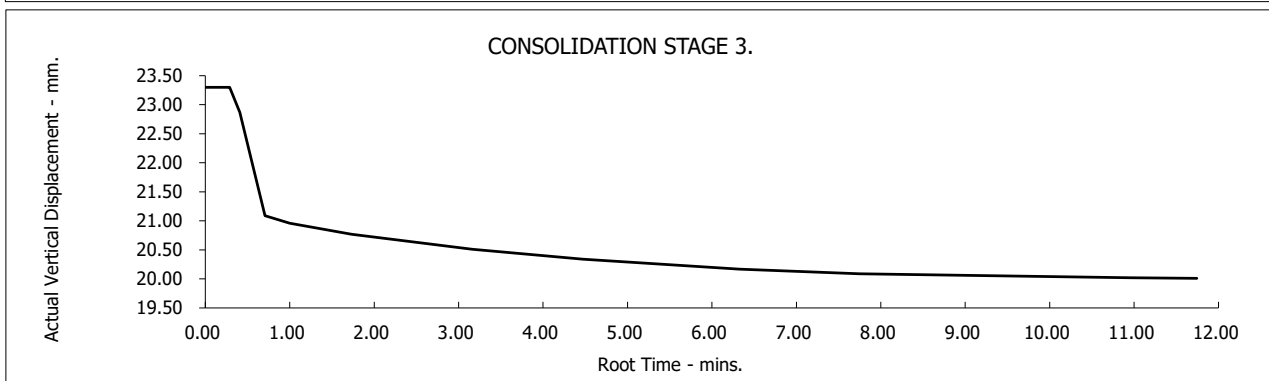
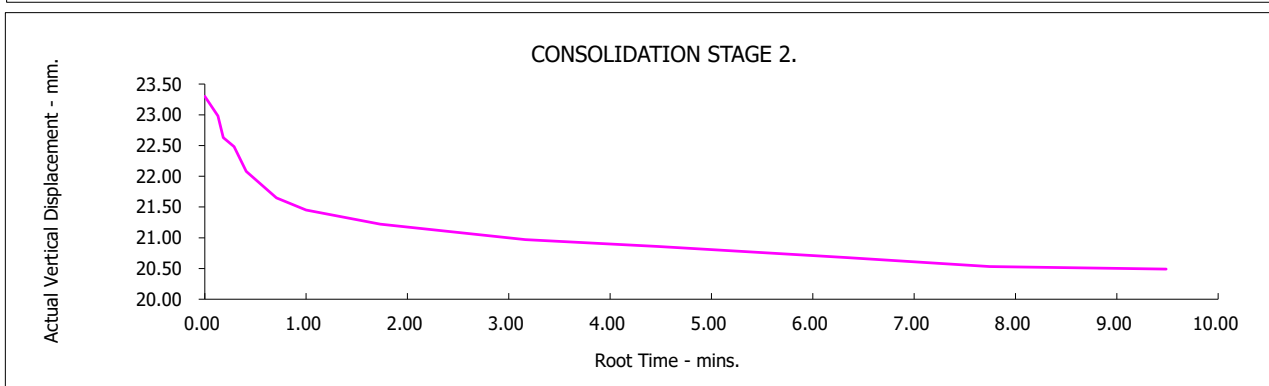
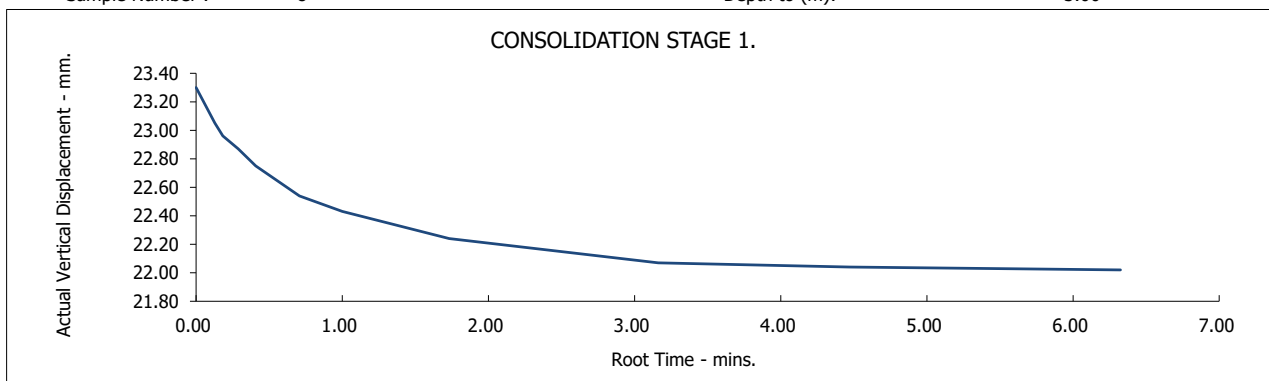
Contract No.:
66835

Global Centre of Rail Excellence Stage 2 (20)

Client Ref Number:
G23012

Borehole Number: S2-TP237
Sample Number : 8

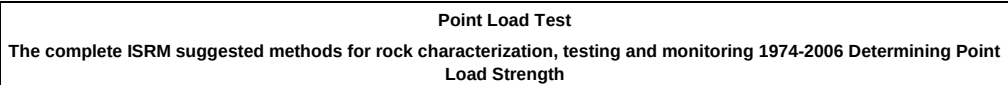
Depth from (m): 2.80
Depth to (m): 3.00



Global Centre of Rail Excellence Stage 2 (20)

Contract No.:
66835

Client Ref Number:
G23012



66835

Global Centre of Rail Excellence Stage 2 (20)

Core

13/06/2023

*Please note that GSTL is not accredited for the water content of rock



Laboratory Report



Contract Number: 66836

Client Ref: **G23012**

Client PO:

Date Received: **09-06-2023**

Date Completed: **19-06-2023**

Report Date: **19-06-2023**

Client: **Jackson Drilling Holdings Ltd**
Northwood Farm
Coxbridge Road
Baltonsborough
Somerset
BA6 8RA

This report has been checked and approved by:

Brendan Evans
Office Administrator

Contract Title: **Global Centre of Rail Excellence Stage 2 (23)**

For the attention of: **Adam Putt**

Test Description	Qty
Moisture Content of Soil BS1377 : Part 2 : Clause 3.2 : 1990 - * UKAS	1
PSD Wet & Dry Sieve method BS 1377:1990 - Part 2 : 9.2 - * UKAS	1
PSD: Sedimentation by pipette carried out with Wet Sieve (Wet Sieve must also be selected) BS 1377:1990 - Part 2 : 9.4 - * UKAS	1
Determination of Point Load Value Axial or Diametrical including WC *Please note GSTL is not accredited for the water content of rock* ISRM Suggested Method for Point Load Strength - * UKAS	3
Disposal of samples for job	1

Notes: **Observations and Interpretations are outside the UKAS Accreditation**

* - denotes test included in laboratory scope of accreditation

- denotes test carried out by approved contractor

@ - denotes non accredited tests

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Approved Signatories:

Brendan Evans (Office Administrator) - Darren Bourne (Quality Senior Technician) - Paul Evans (Director)
Richard John (Quality/Technical Manager) - Shaun Jones (Laboratory manager) - Shaun Thomas (Site Manager)
Wayne Honey (Human Resources/ Health and Safety Manager)



Natural Moisture Content
(BS 1377:1990 - Part 2 : 3.2)

Contract Number	66836	
Project Name	Global Centre of Rail Excellence Stage 2 (23)	
Date Tested	15/06/2023	

[illegible]

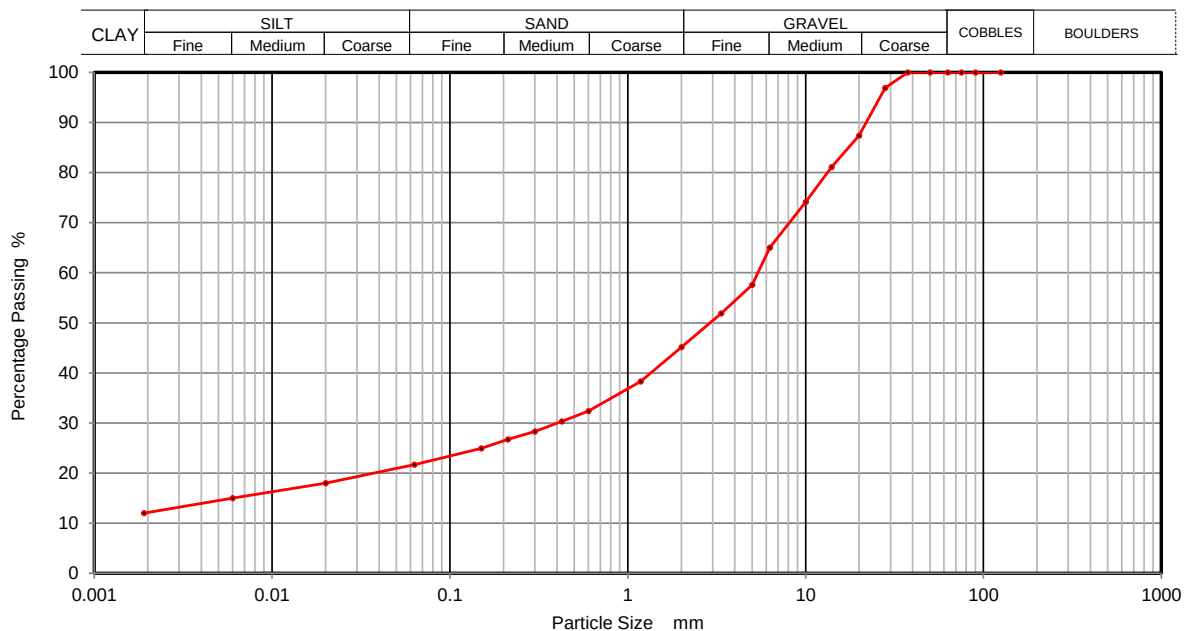
Operator

Darcy Etheridge



PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Contract Number	66836
Borehole/Pit No.	S2-BH212
Sample No.	3
Depth Top	0.20
Depth Base	0.50
Sample Type	B

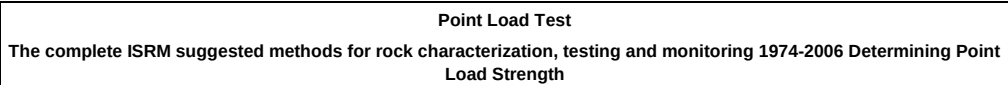


Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	18
90	100	0.0060	15
75	100	0.0020	12
63	100		
50	100		
37.5	100		
28	97		
20	87		
14	81		
10	74		
6.3	65		
5	58		
3.35	52		
2	45		
1.18	38		
0.6	32		
0.425	30		
0.3	28		
0.212	27		
0.15	25		
0.063	22		

Sample Proportions	% dry mass
Cobbles	0
Gravel	55
Sand	23
Silt	10
Clay	12

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards



66836

Global Centre of Rail Excellence Stage 2 (23)

Core

15/06/2023

*Please note that GSTL is not accredited for the water content of rock

[illegible]

<u>Key</u>	<u>Reported As</u>
Width	(W) mm
Platen Separation	(D) mm
Failure Load	(P) kN
Equivalent Diameter	(De) mm
Point Load	(Is) MPa
Size Factor	(F)
Point Load Index	(Is(50)) MPa
Moisture Content	%
Description	SC

Operator

Julian Jones



Laboratory Report



Contract Number: 66837

Client Ref: **G23012**

Client PO:

Date Received: **09-06-2023**

Date Completed: **26-06-2023**

Report Date: **26-06-2023**

Client: **Jackson Drilling Holdings Ltd**
Northwood Farm
Coxbridge Road
Baltonsborough
Somerset
BA6 8RA

This report has been checked and approved by:

Brendan Evans
Office Administrator

Contract Title: **Global Centre of Rail Excellence Stage 2 (24)**

For the attention of: **Adam Putt**

Test Description	Qty
Moisture Content of Soil BS1377 : Part 2 : Clause 3.2 : 1990 - * UKAS	25
4 Point Liquid & Plastic Limit BS 1377:1990 - Part 2 : 4.3 & 5.3 - * UKAS	10
PSD Wet & Dry Sieve method BS 1377:1990 - Part 2 : 9.2 - * UKAS	15
PSD: Sedimentation by pipette carried out with Wet Sieve (Wet Sieve must also be selected) BS 1377:1990 - Part 2 : 9.4 - * UKAS	9
Dry Den/MC (4.5kg Rammer Method 1 Litre Mould/CBR Mould) BS 1377:1990 - Part 4 : 3.5 - * UKAS	3
Consolidated Drained Peak Shear Strength - set of 3 - 60 x 60mm Shear Box Specimens by Direct Shearing (3 days) BS 1377:1990 - Part 7 : 4 - * UKAS	1
Disposal of samples for job	1

Notes: **Observations and Interpretations are outside the UKAS Accreditation**

* - denotes test included in laboratory scope of accreditation

- denotes test carried out by approved contractor

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Richard John (Quality/Technical Manager) - Shaun Jones (Laboratory manager) - Shaun Thomas (Site Manager)
Wayne Honey (Human Resources/ Health and Safety Manager)

Contract Number	66837	
Project Name	Global Centre of Rail Excellence Stage 2 (24)	
Date Tested	16/06/2023	

[illegible]

Operator
Clayton Jenkins

**NATURAL MOISTURE, LIQUID LIMIT, PLASTIC LIMIT AND
PLASTICITY INDEX
(BS 1377:1990 - Part 2 : 4.3 & 5.3)**

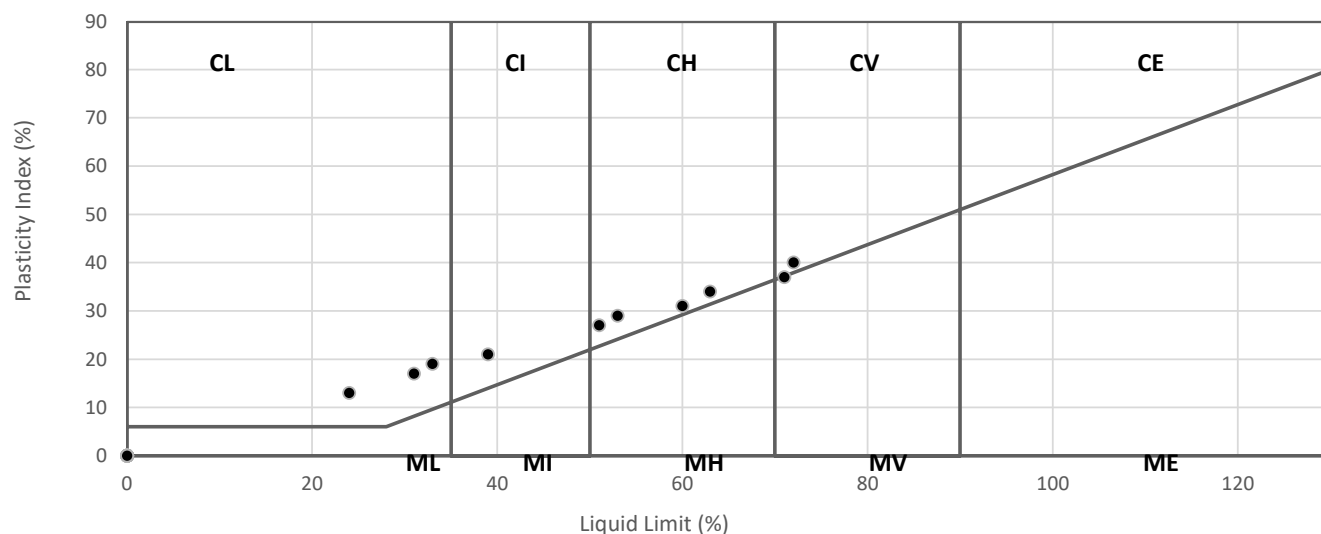
Contract Number	66837	
Project Name	Global Centre of Rail Excellence Stage 2 (24)	
Date Tested	16/06/2023	
	DESCRIPTIONS	

[illegible]

Operator
Ethan Harper

: Liquid Limit and Plastic Limit Wet Sieved

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION BS 5930:2015+A1:2020



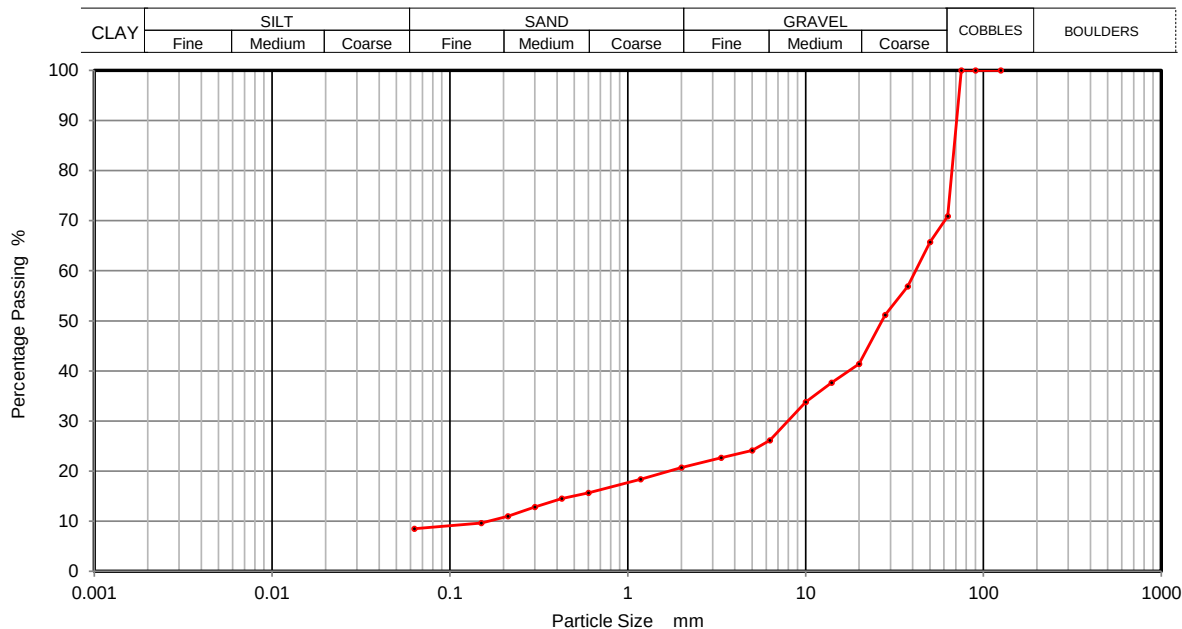
Operator

Ethan Harper

**PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2**

Contract Number	66837
Borehole/Pit No.	S2-TP201

Project Name	Global Centre of Rail Excellence Stage 2 (24)	Sample No.	2
Soil Description	Brown grey silty/clayey fine to coarse sandy fine to coarse GRAVEL (with cobbles)	Depth Top	0.20
		Depth Base	0.40
Date Tested	16/06/2023	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	71		
50	66		
37.5	57		
28	51		
20	41		
14	38		
10	34		
6.3	26		
5	24		
3.35	23		
2	21		
1.18	18		
0.6	16		
0.425	15		
0.3	13		
0.212	11		
0.15	10		
0.063	9		

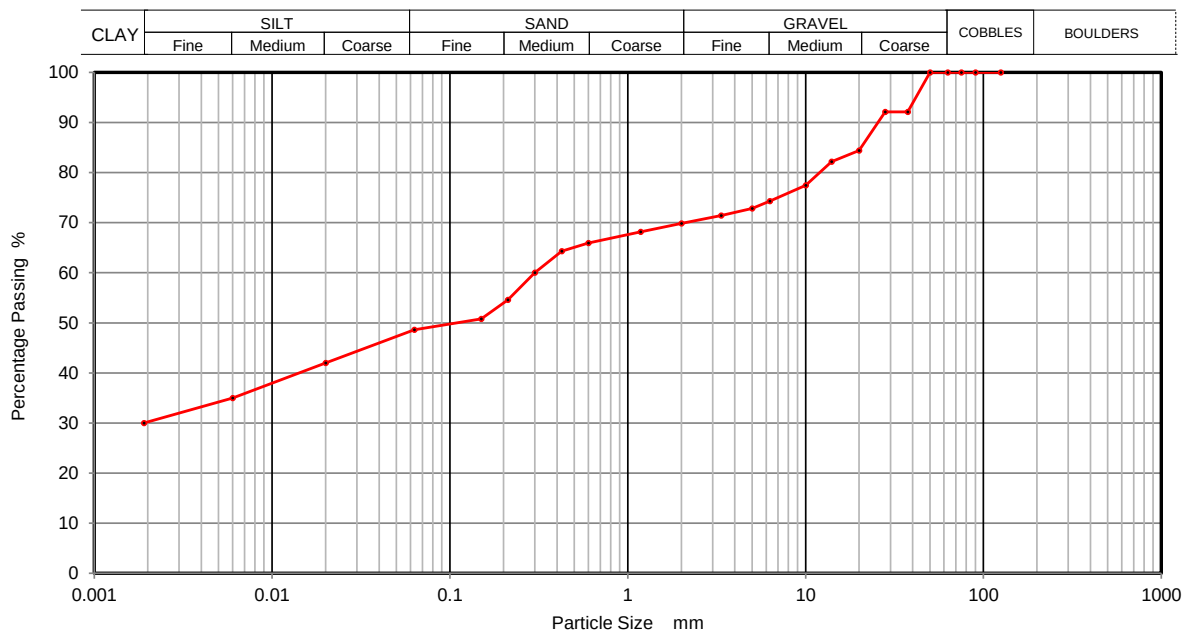
Sample Proportions	% dry mass
Cobbles	29
Gravel	50
Sand	12
Silt and Clay	9

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Contract Number	66837
Borehole/Pit No.	S2-TP201
Sample No.	6
Depth Top	1.40
Depth Base	1.50
Sample Type	D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	42
90	100	0.0060	35
75	100	0.0020	30
63	100		
50	100		
37.5	92		
28	92		
20	84		
14	82		
10	77		
6.3	74		
5	73		
3.35	71		
2	70		
1.18	68		
0.6	66		
0.425	64		
0.3	60		
0.212	55		
0.15	51		
0.063	49		

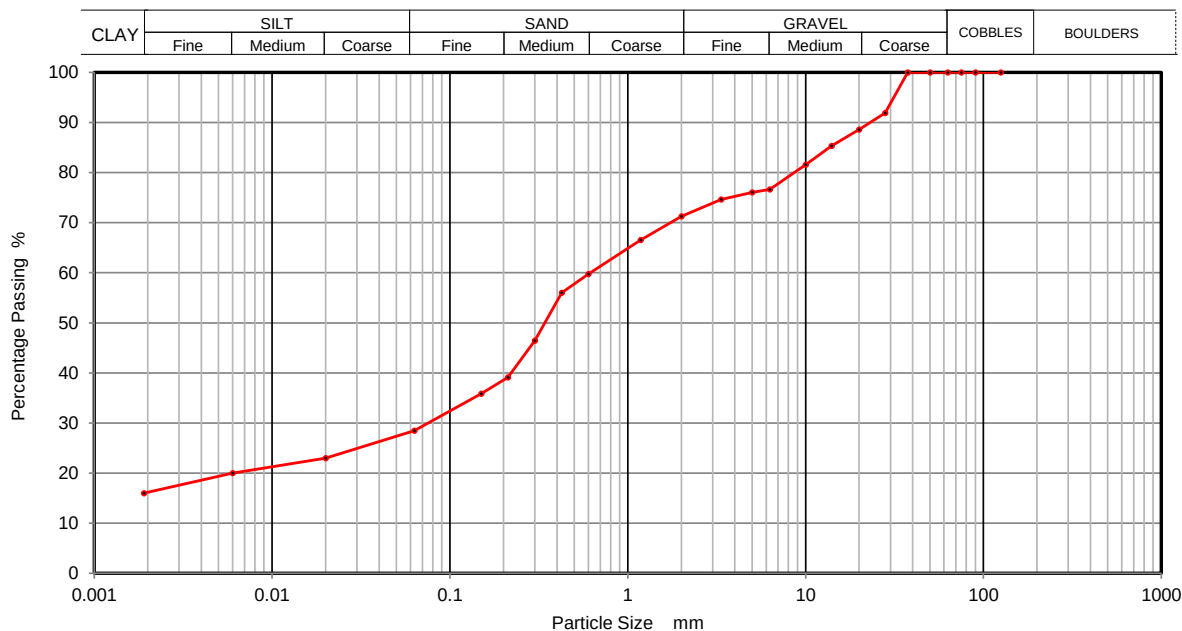
Sample Proportions	% dry mass
Cobbles	0
Gravel	30
Sand	21
Silt	19
Clay	30

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Contract Number	66837
Borehole/Pit No.	S2-TP201
Sample No.	10
Depth Top	3.10
Depth Base	3.20
Sample Type	D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	23
90	100	0.0060	20
75	100	0.0020	16
63	100		
50	100		
37.5	100		
28	92		
20	89		
14	85		
10	82		
6.3	77		
5	76		
3.35	75		
2	71		
1.18	67		
0.6	60		
0.425	56		
0.3	46		
0.212	39		
0.15	36		
0.063	28		

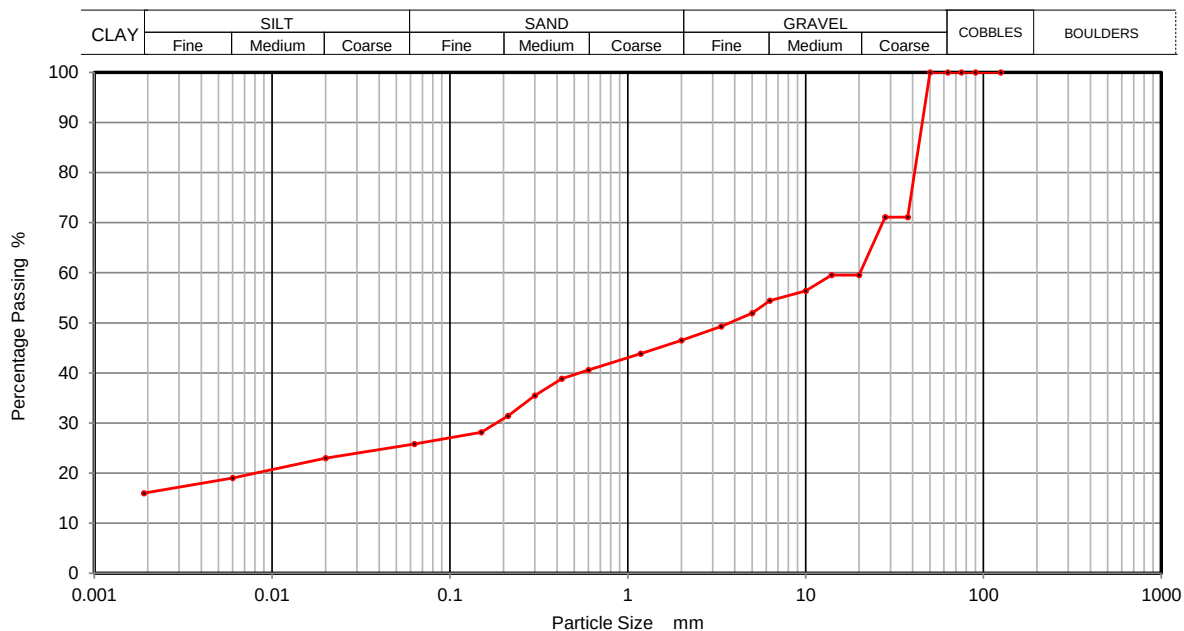
Sample Proportions	% dry mass
Cobbles	0
Gravel	29
Sand	43
Silt	12
Clay	16

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Contract Number	66837
Borehole/Pit No.	S2-TP205
Sample No.	3
Depth Top	0.50
Depth Base	0.60
Sample Type	D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	23
90	100	0.0060	19
75	100	0.0020	16
63	100		
50	100		
37.5	71		
28	71		
20	60		
14	60		
10	56		
6.3	54		
5	52		
3.35	49		
2	46		
1.18	44		
0.6	41		
0.425	39		
0.3	35		
0.212	31		
0.15	28		
0.063	26		

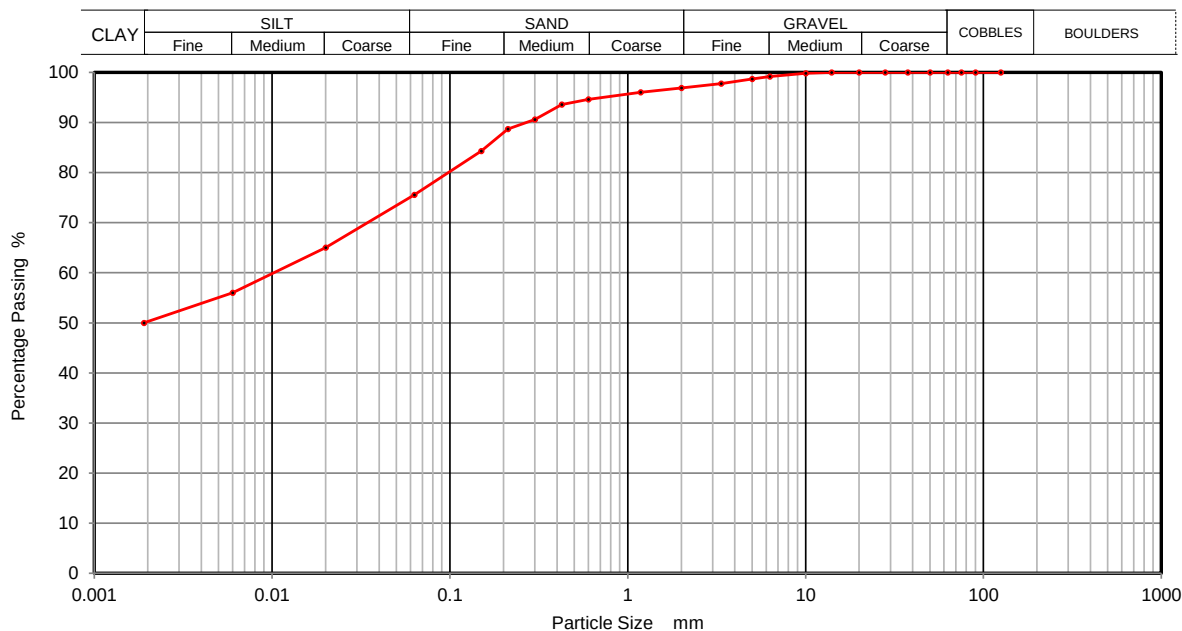
Sample Proportions	% dry mass
Cobbles	0
Gravel	54
Sand	20
Silt	10
Clay	16

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Contract Number	66837
Borehole/Pit No.	S2-TP205
Sample No.	7
Depth Top	1.50
Depth Base	1.60
Sample Type	D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	65
90	100	0.0060	56
75	100	0.0020	50
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	99		
5	99		
3.35	98		
2	97		
1.18	96		
0.6	95		
0.425	94		
0.3	91		
0.212	89		
0.15	84		
0.063	76		

Sample Proportions	% dry mass
Cobbles	0
Gravel	3
Sand	21
Silt	26
Clay	50

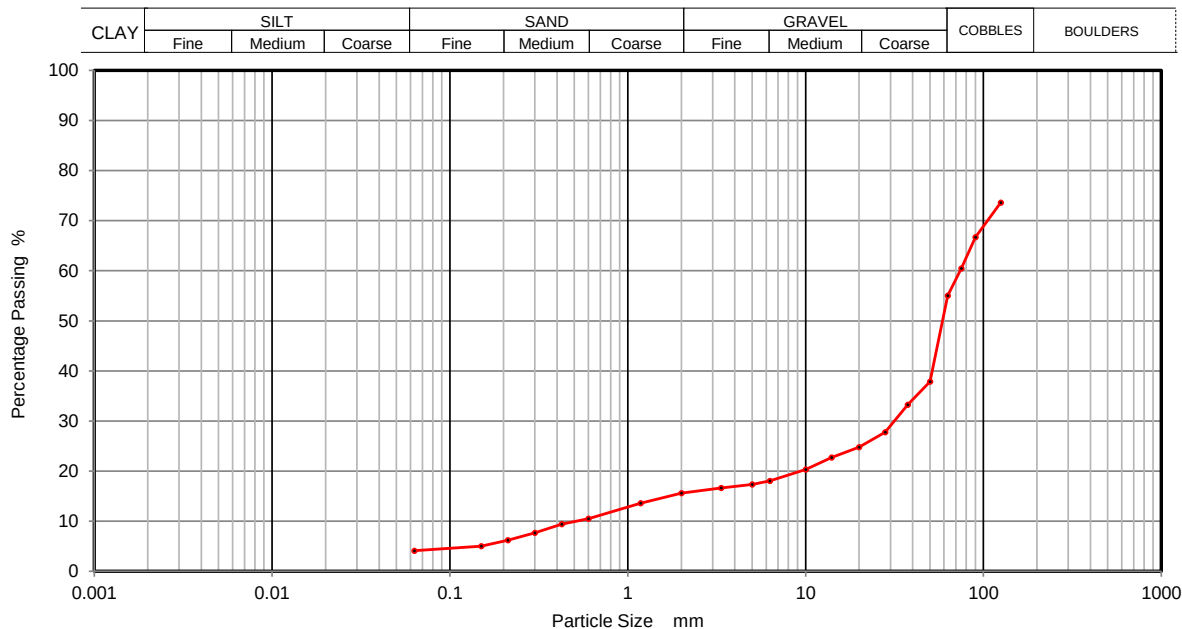
Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

**PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2**

Contract Number	66837
Borehole/Pit No.	S2-TP230

Project Name	Global Centre of Rail Excellence Stage 2 (24)	Sample No.	5
Soil Description	Brown grey slightly clayey/silty fine to coarse sandy fine to coarse GRAVEL (with cobbles)	Depth Top	1.10
		Depth Base	1.30
Date Tested	16/06/2023	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	74		
90	67		
75	60		
63	55		
50	38		
37.5	33		
28	28		
20	25		
14	23		
10	20		
6.3	18		
5	17		
3.35	17		
2	16		
1.18	14		
0.6	10		
0.425	9		
0.3	8		
0.212	6		
0.15	5		
0.063	4		

Sample Proportions	% dry mass
Cobbles	45
Gravel	39
Sand	12
Silt and Clay	4

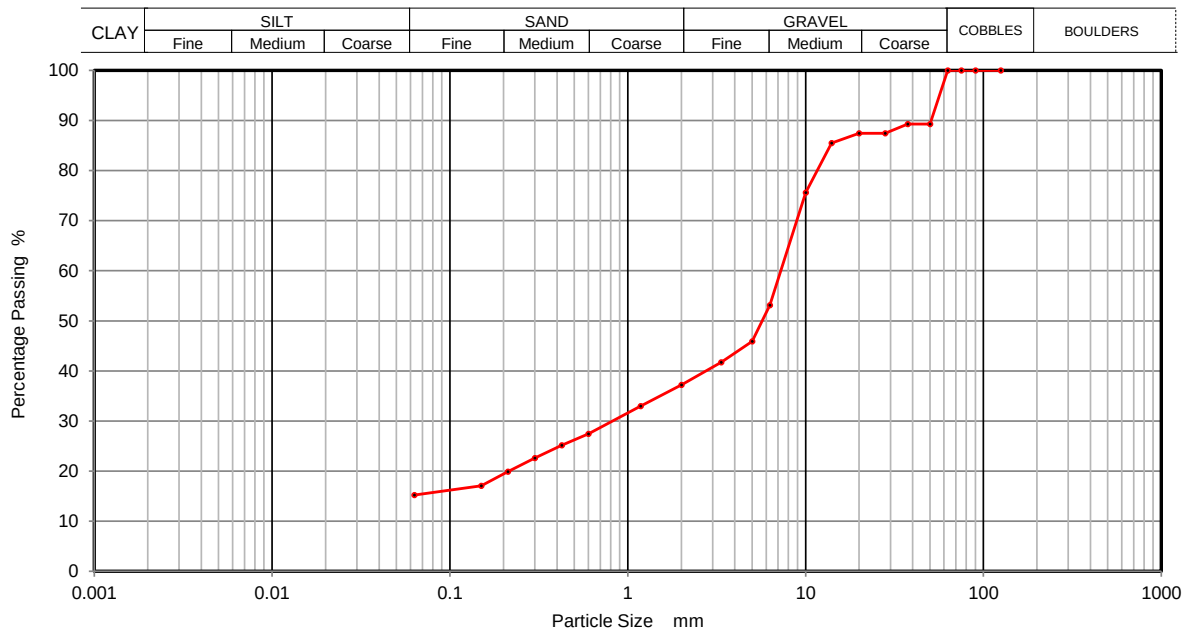
Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

**PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2**

Contract Number	66837
Borehole/Pit No.	S2-TP230

Project Name	Global Centre of Rail Excellence Stage 2 (24)	Sample No.	11
Soil Description	Brown silty/clayey fine to coarse sandy fine to coarse GRAVEL	Depth Top	3.10
		Depth Base	3.30
Date Tested	16/06/2023	Sample Type	B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	89		
37.5	89		
28	87		
20	87		
14	85		
10	76		
6.3	53		
5	46		
3.35	42		
2	37		
1.18	33		
0.6	27		
0.425	25		
0.3	23		
0.212	20		
0.15	17		
0.063	15		

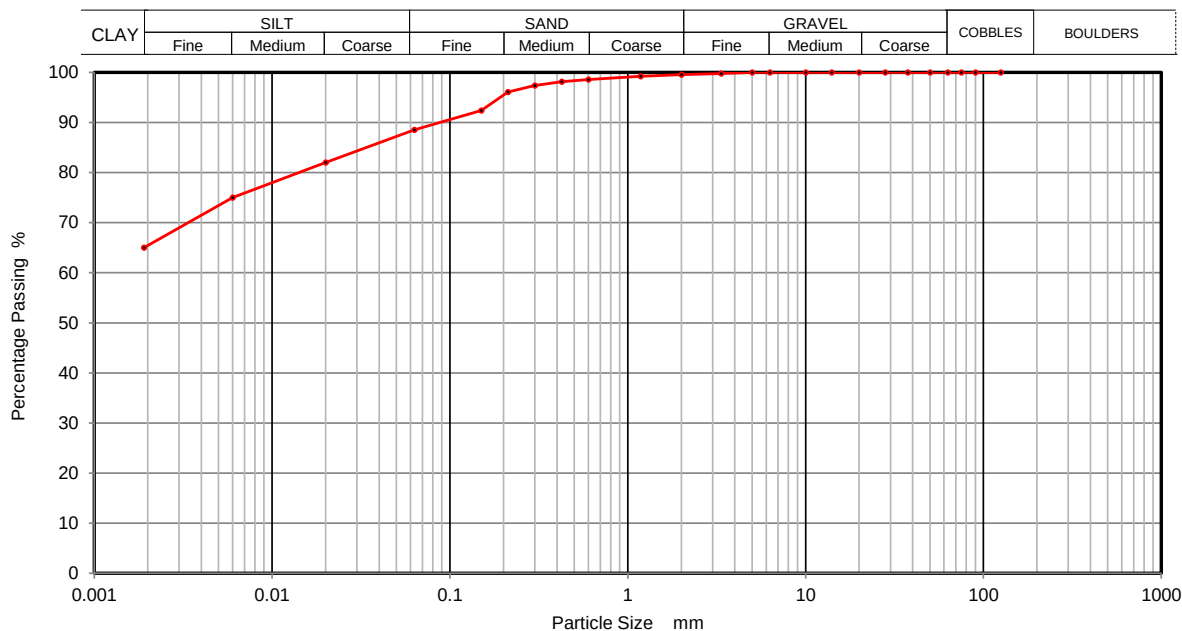
Sample Proportions	% dry mass
Cobbles	0
Gravel	63
Sand	22
Silt and Clay	15

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Contract Number	66837
Borehole/Pit No.	S2-TP2116
Sample No.	6
Depth Top	1.20
Depth Base	1.30
Sample Type	D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	82
90	100	0.0060	75
75	100	0.0020	65
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	99		
0.6	99		
0.425	98		
0.3	97		
0.212	96		
0.15	92		
0.063	89		

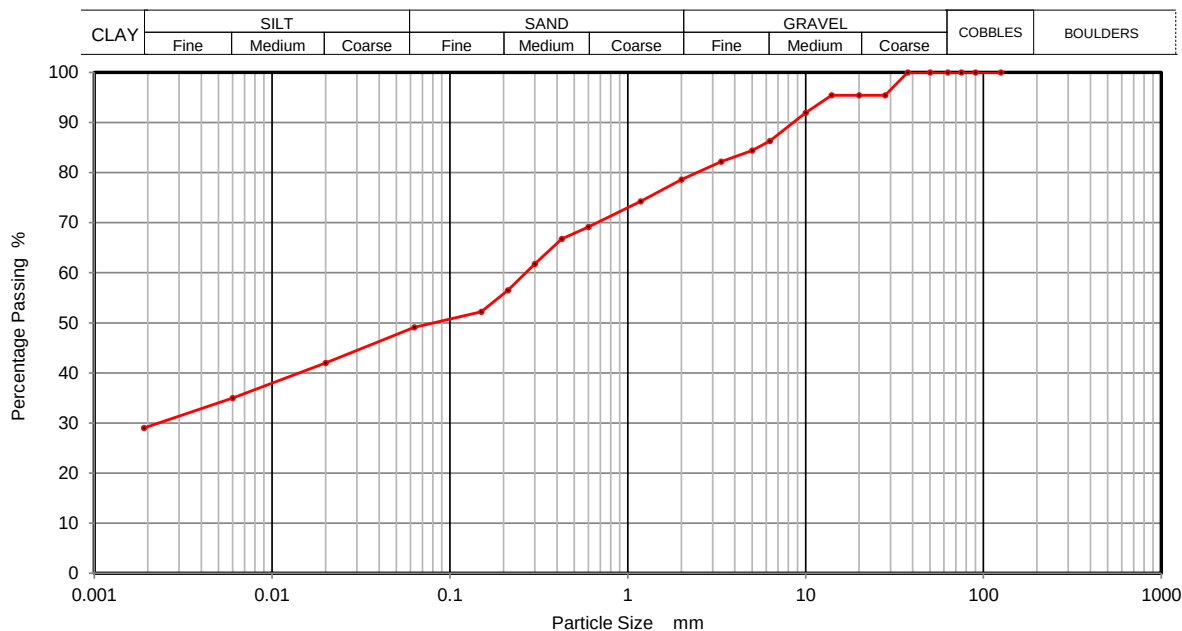
Sample Proportions	% dry mass
Cobbles	0
Gravel	0
Sand	11
Silt	24
Clay	65

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Contract Number	66837
Borehole/Pit No.	S2-TP2116
Sample No.	10
Depth Top	3.40
Depth Base	3.50
Sample Type	D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	42
90	100	0.0060	35
75	100	0.0020	29
63	100		
50	100		
37.5	100		
28	95		
20	95		
14	95		
10	92		
6.3	86		
5	84		
3.35	82		
2	79		
1.18	74		
0.6	69		
0.425	67		
0.3	62		
0.212	56		
0.15	52		
0.063	49		

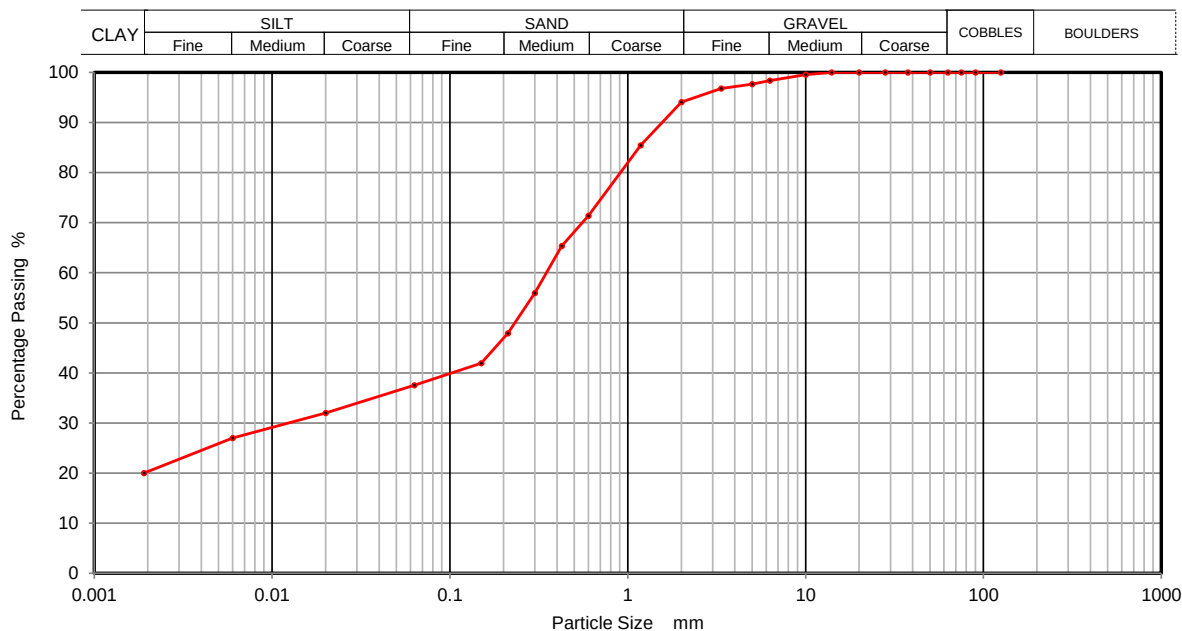
Sample Proportions	% dry mass
Cobbles	0
Gravel	21
Sand	30
Silt	20
Clay	29

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards

PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Contract Number	66837
Borehole/Pit No.	S2-TP2117
Sample No.	1
Depth Top	0.10
Depth Base	0.20
Sample Type	D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0200	32
90	100	0.0060	27
75	100	0.0020	20
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	98		
5	98		
3.35	97		
2	94		
1.18	85		
0.6	71		
0.425	65		
0.3	56		
0.212	48		
0.15	42		
0.063	38		

Sample Proportions	% dry mass
Cobbles	0
Gravel	6
Sand	56
Silt	18
Clay	20

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operator
David Edwards