

ELECTROGAS MALTA CONSORTIUM
 Delimara LNG Regasification Terminal
 GEOTECHNICAL INVESTIGATION FOR REGASIFICATION PLANT AREA
 FACTUAL REPORT

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FOREWARD

No recommendations are made in this factual reports. Whilst opinions may be expressed relating to sub-soil conditions in parts of the site not investigated, for example away from the location of the borehole drilled, these are only for guidance and no liability can be accepted for their accuracy.

The rocks and soils encountered and the samples retained represent a limited amount of the material present in the subsurface at the site. Although the investigation recovered representative samples of the rocks present, some material present on the site may not have been examined. Should significantly different rocks or soils be determined during site works, then further investigation may prove necessary.

Unless otherwise stated in this report, drilling is undertaken using rotary techniques. This method is regarded as being one of the most reliable.

Boring and sampling procedures are undertaken in accordance with B.S.5930,; 1999 “Code of practice for Site Investigations”. Likewise laboratory testing complies with ISRM Suggested Method 1999.

1 INTRODUCTION

1.1 GENERAL

Terracore Limited was commissioned by J&P Avax S.A. to undertake a geotechnical investigation at a number of locations in Delimara, as part of the new proposed regasification plant.

Works included drilling of 4 onshore boreholes in made ground with continuous sampling to bedrock. This report contains the factual data collected during the investigation and the results of laboratory testing.



Figure 1: Aerial photograph indicating site location.

1.2 SCOPE AND METHODOLOGY OF WORKS

The aim of the investigation is to identify the existing material type and geotechnical properties through insitu testing, namely SPT's, Shelby tubes for undisturbed samples, disturbed sampling and laboratory testing.

The intrusive investigation consisted of rotary drilling at four (4) locations, drilled with continuous sampling and SPT's. Each sample was duly labelled with permanent ink, and the lid of each core box securely fastened.

The sampling and extraction operation was supervised by Terracore's consulting Geologist together with continuous supervision by a representative Geologist of Castor Ltd.

1.3 STANDARDS AND GUIDANCE

The site investigation was conducted in full accordance with BS 5930: 1999; Code of practice for geological site investigations and BS EN 1997 - 2: 2007 Geotechnical Design – Part 1 and Part 2. Uniaxial compressive strength tests were done according to BS 5930 and ISRM suggested methods.

In situ testing complies with BS1377:1990 "Soils for civil engineering purposes" – Part 9: In-situ tests, Eurocode 7 (DD ENV 1997-3) and EN ISO 22476:2012.

2 THE SITE

2.1 LOCATION



Figure 2: Map showing Delimara in 1984 (OS Sheet 1984)

The site consists of reclaimed land full of dumped material that was excavated when the delimara power station was built in the 1990's. The land was used to build 4 storage tanks and part of the BWSC power station extension. Some slopes were created on the new shore line, which show signs of marine erosion.



Figure 3: Superimposed Google aerial photo on 1984 OS Map

2.2 GEOLOGY

2.2.1 GEOLOGY OF MALTA

The geology of Malta can be divided into 5 major formations (**Figure 4**). These are listed below from oldest to youngest:

1. Lower Coralline Limestone (oldest)
2. Globigerina Limestone
3. Blue Clay
4. Green Sand
5. Upper Coralline Limestone (youngest)

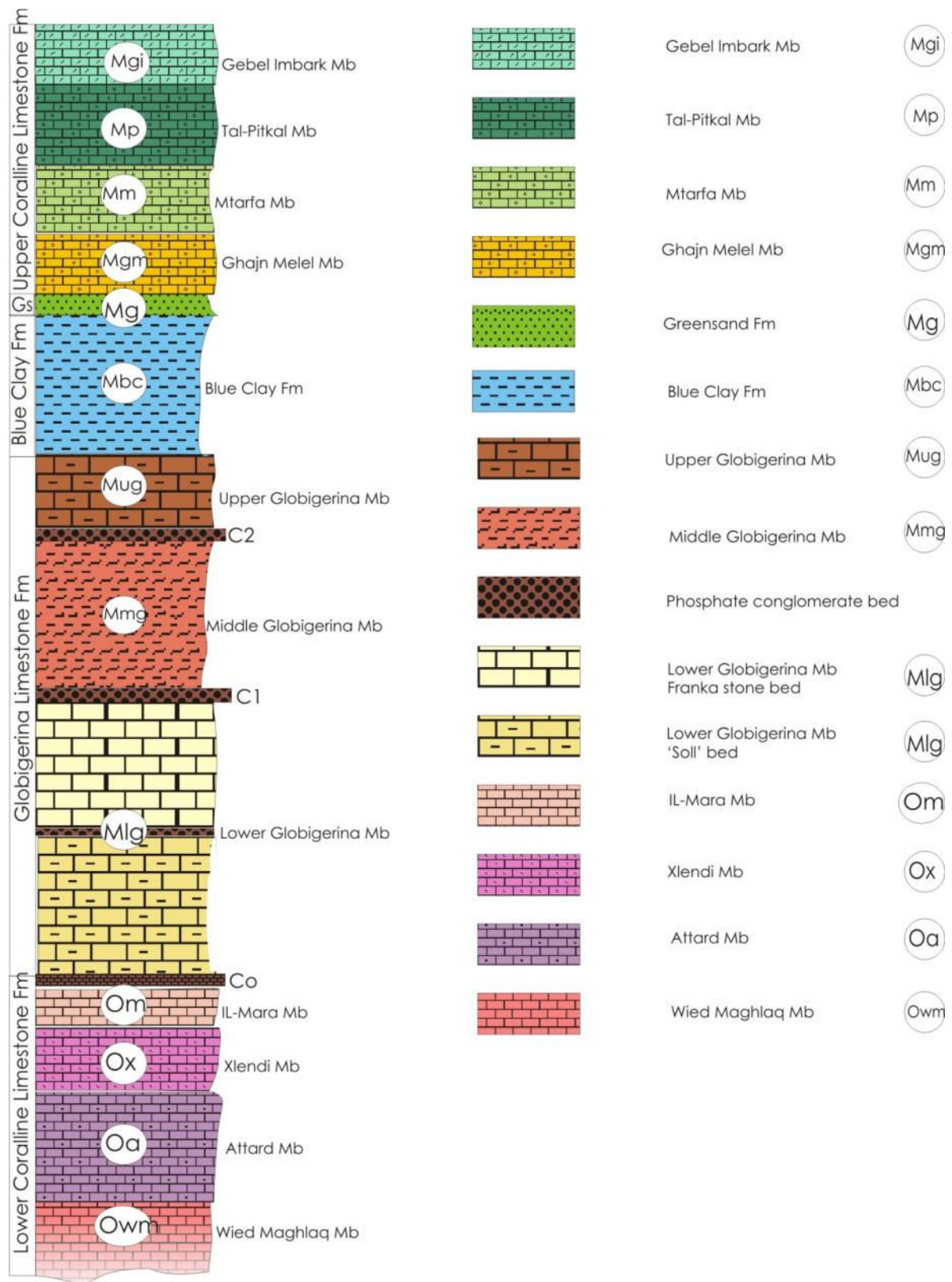


Figure 4: Lithostratigraphy of the Maltese Islands

2.2.2 GEOLOGY OF THE SITE



Figure 5: General geological view of DELIMARA and Marsaxlokk

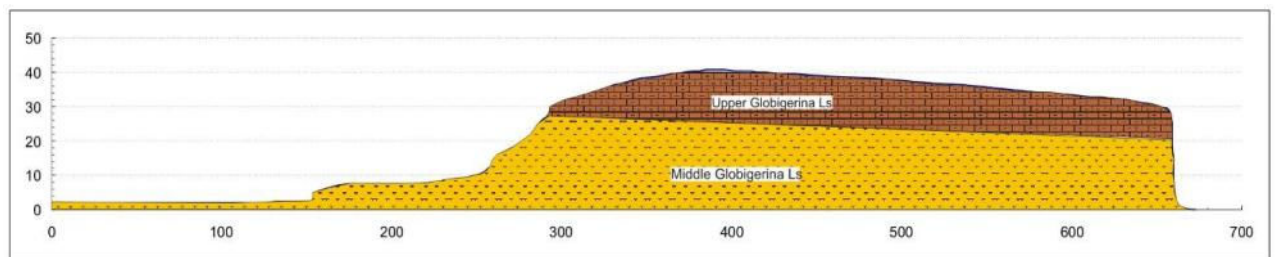


Figure 6: Geological cross-section across the site. Horizontal and vertical scales are in m . For line of section see Figure 6 (Vertical exaggeration 2X)

As show in figures 5-6, the rock exposed at the site is Upper Globigerina Limestone underlain by Middle Globigerina Limestone.

3 FIELD WORK

3.1 DRILLING

Field work was undertaken in October/November 2014 and comprised the drilling of 4 holes denoted as GL1 to GL4 (**Figure 7**), drilled with continuous sampling up to bedrock and continuous core recovery in rock. Borehole depths ranged from 20.0m in GL4 to 51.0m in GL3 above mean sea level. Drilling was performed using a T44 rotary drill, belonging to Terracore Limited. Casing was inserted as necessary to stabilise the hole walls during drilling.

Complete borehole records with laboratory results are found in **Appendix 1**. A drilling, rock core sampling summary is shown in **Table 1** below.

Table 1: Borehole drilling summary

	GL1	GL2	GL3	GL4
Date drilled	30-31/10/2014	29-30/10/2014	1-4/11/2014	28-29/10/2014
Northings	5283.054	5251.825	5260.413	5243.756
Eastings	10013.142	10022.881	9947.080	10043.94
Elevation	6.20	6.20	24.00	6.20
Bedrock (m)	11.00	9.00	38.90	10.50
TD	24.00	25.00	51.00	20.00

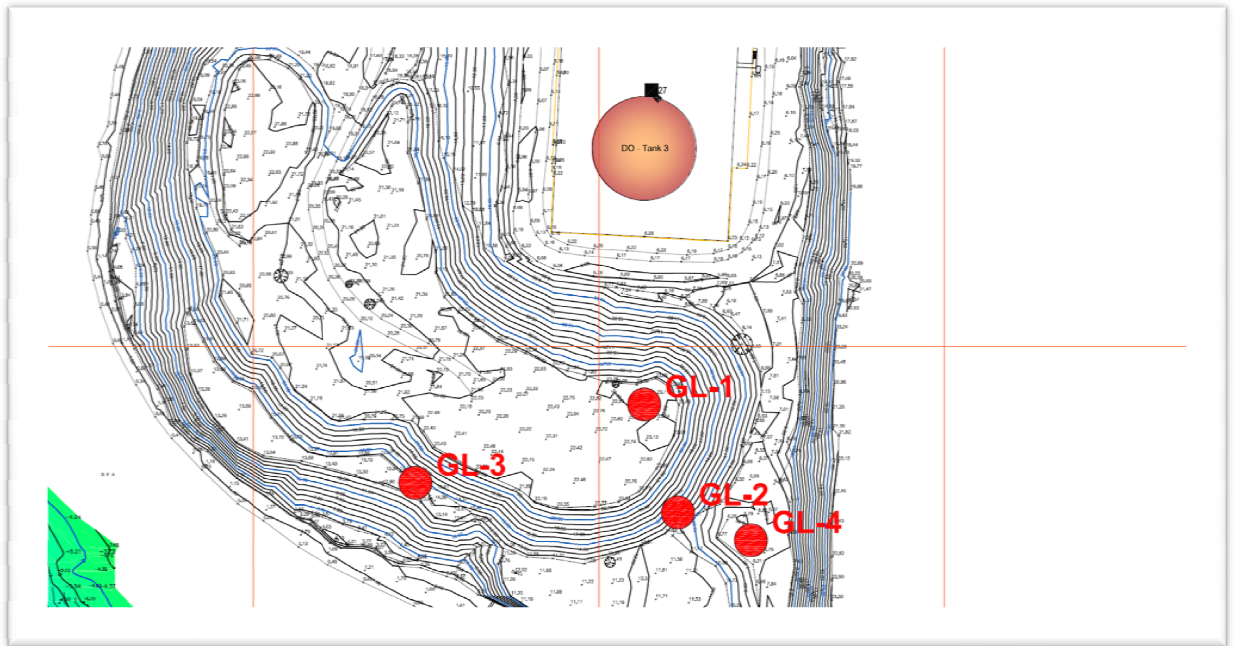


Figure 7: Plan showing borehole locations

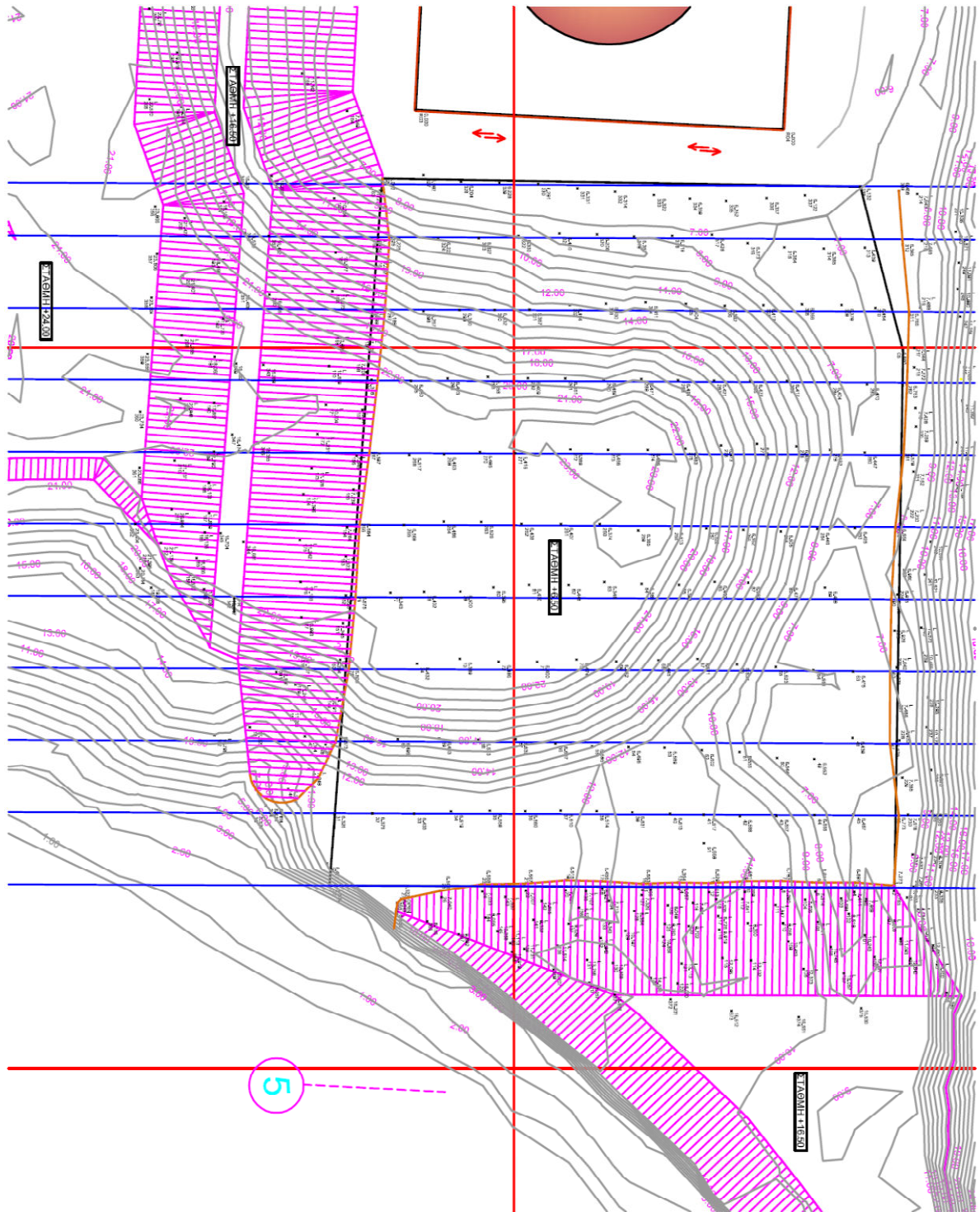


Figure 8: Plan showing as built levels

4 RESULTS AND FINDINGS

4.1 CLASSIFICATION

4.1.1 CLAY

Made ground consisted of CLAYEY gravel to gravelly clay, light brown to light grey in colour, with pieces of limestone gravel to marly limestone boulders.

4.1.2 SAND

Sand, grey in colour , medium to fine grained, with organic material, loose to very loose.

4.1.3 ROCK

Rock consisted of Middle Globigerina Limestone. First 1-3m cream in colour, weathered (W1-W2), very soft and clayey.

Then changes to Grey in colour, more hard and less weathered.

Detailed rock descriptions are available in the appended borehole logs

4.2 PIEZOMETER

A Piezometer was installed in borehole GL1 (5.50m). The readings indicate that there is water, but it is to be noted that there was heavy rainfall. Piezometers were sealed with bentonite at the bottom and top to prevent sea water and any surface water to enter

	Reading 1 - 5/11/2014	Reading 2 - 19/11/2014	Reading 3 - 09/10/2014
GL1	2.40m	4.45m	4.60m

4.3 LABORATORY RESULTS

Samples were selected for:

Test Type	Quantity
Atterberg Limits	15
Consolidation	4
Dry Density	8
Hydrometer	2
Loss on ignition	1
Moisture Content	15
Proctor	2
Point Load	10
Particle Size Distribution	15
Specific Gravity	3
Unconsolidated Undrained Triaxial	9
Unconfined Compressive Strength	14

Testing was carried out at the materials testing laboratory of Terracore Ltd with the supervision of a representative from Castor Ltd.

The test results are listed in the tables below.

BH No	Sample	Sample Type	Depth m	Depth to m	Length m	Water Content	Dry Unit Weight	Liquid Limit	Plastic Limit	Plasticity Index	Specific Gravity	Mass Loss on Ign %	Gravel %	Sand %	Finer %	Soil Type	SPT
GL1	2	US	1.5	2	0.5	17		35.4	10.6	24.8			40.96	18.6	40.44	CL	7.5/9
	5	US	4	4.5	0.5	20	1.71	33.6	9.9	23.7	2.47		38.89	15.5	45.61	CL	10.10/15
	8	US	8.5	9	0.5	18	1.80	33.3	10.6	22.7	2.53		38.46	18.5	43.04	CL	5.10/13
	11	US	9.5	10	0.5	31		27.2	9.5	17.7			34.68	54	11.32	SC	2.8/11
GL2	2	US	1.5	2	0.5	22		35.6	10.6	25.3			44.88	24.4	30.72	CL	10.12/16
	5	US	4	4.5	0.5	20	1.72	33.8	10.6	23.2			48.99	21.8	29.21	CL	9.13/13
	8	US	7.5	8	0.5	21		32.4	10.5	21.9			66.68	13.2	20.12	GC	29.21/16
	9	N	8	8.25	0.25	25						7.1					
	10	C	8.25	8.45	0.2	26	1.75	26.3	-	non plastic			23.31	60.7	15.99	SC	3.50/9
	11	N	8.45	8.75	0.3												
GL3	5	US	6	6.5	0.5												4.5/6
	8	US	8	8.5	0.5	17	1.72	36.5	11.4	25.1			63.54	14.3	22.16	GC	7.4/4
	11	US	13	13.5	0.5												
	17	US	21	21.5	0.5	17	1.82	36.0	11.0	25.0			34.8	13.2	52	CL	6.50/11
	23	US	29	29.5	0.5	39		32.9	-	non plastic			4.66	72.9	22.44	SC	1.2/1
	26a	C	32.2	32.5	0.3	40	1.30	33.7	-	non plastic	2.57		4.98	67	28.02	SC	2.4/3
	27	C	35.3	35.55	0.25												4.3/5
	28	N	35.55	36	0.45												
GL4	2	US	2	2.5	0.5	11		37.2	11.1	26.1			36.11	27.5	36.39	CL	8.50/8
	4	C	4.8	5	0.2	15	1.88	31.2	9.0	22.2			53.29	15	31.71	CL	
	5	N	5	5.45	0.45												13.8/7
	6	C	7.25	7.5	0.25												50/7
	7	C	8.8	9	0.2	18		31.44	10.17	21.3			70.2	11.9	17.9	GC	50/6

BH	Sample	Depth m	WC %	WD Mg/m3	DUW Mg/m3	Cell Pressure kPa	$\sigma_1 - \sigma_3$ kPa	Soil Type	C _u kPa
GL1	2	1.5	23	1.63	1.70	40	128	CL	64
	11	9.5	25	1.99	-	160	41	CL	20
GL2	2	1.5	25	1.74	-	50	40	CL	20
	8	7.5	24	1.98	-	140	185	CL	93
GL3	8	8.5	28	1.68	1.72	160	91	GC	46
	17	21	27	1.83	-	420	244	CL	122
	23	29	35	1.86	-	540	170		85
GL4	2	2	20	1.61	-	40	108	CL	54
	6	7.25	12	2.06	-	150	728		364

Bh Number	Sample	Depth m	Initial			Final			LL	PL	SG	Pressure kPa	Void Ratio	Soil Type
			DUW Mg/m ³	WC %	Saturation %	DUW Mg/m ³	WC %	Saturation %						
GL1	8	6.5	1.718	18	90.87	1.7	17.9	90.87	33.3	10.6	2.5	6	0.415	CL
												12	0.397	
												24	0.368	
												50	0.318	
												100	0.281	
												200	0.244	
												400	0.198	
GL3	26	32.2	1.406	19	60.33				33.7			6	0.766	CL
												12	0.739	
												24	0.692	
												50	0.593	
												100	0.503	
												200	0.406	
												400	0.308	
												800	0.277	

BH No	Sample	Depth m	Water Content %	Test Type	Diameter mm	Height mm	Failure Load kN	Is Mpa	Correction Coeff	Is (50)	Anisotropy Index
GL1	Run										
		15	15.54	Perpendicular	63.83	32.71	1.56	1.0	1.01	1.0	2.50
			15.62	Parallel	63.91	67.45	1.56	2.1	1.19	2.5	
		23.3	14.22	Perpendicular	63.86	35.55	1.75	1.2	1.03	1.3	2.15
			14.25	Parallel	63.78	68.19	1.75	2.4	1.2	2.8	
GL2		10.2	14.05	Perpendicular	70.18	34.64	8.82	5.5	1.05	5.8	0.33
			14.10	Parallel	66.91	72.94	1.14	1.6	1.23	1.9	
		22.5	15.36	Perpendicular	67.03	35.58	1.14	0.8	1.04	0.8	2.38
			15.42	Parallel	66.91	72.94	1.14	1.6	1.23	1.9	
GL4		9.8	14.98	Perpendicular	67.01	37.24	1.42	1.0	1.06	1.1	1.91
			15.03	Parallel	67.00	64.68	1.42	1.7	1.19	2.1	

<i>BH No</i>	<i>Depth</i>	<i>Diameter</i>	<i>Height</i>	<i>Bulk Density</i>	<i>Water Content</i>	<i>DUW</i>	<i>H/D Ratio</i>	<i>Mass</i>	<i>Max. Load</i>	UCS	Poisson	Em
GL1	11.6	59.6	133	2121	8.3	2.24	2.2	786.67	33.6	12.1	0.44	9.13
	14.8	59.6	133	2134	9.4	2.23	2.2	792.01	27.4	9.8	0.734	3.8
	20.2	59.5	133	2231	6.1	2.24	2.2	824.47	29.7	10.7	0.106	5.49
	23.1	54.4	133	2159		2.45	2.4		33.8	14.6	0.448	7.07
GL2	12.9	58.8	129	2165	8.1	2.2	2.2	761.16	36.2	13.3	0.733	5.64
	17.15	59.4	131	2149	8.7	2.2	2.2	776.27	26.8	9.7	0.574	4.2
	22.2	59.5	130	2145	9.4	2.2	2.2	776.99	22.9	8.3	0.266	2.92
GL3	42.6	58.6	128	2081	12.8	2.19	2.2	711.64	12.6	4.7	0.214	0.67
	47.4	58.5	127	2123	10.8	2.17	2.2	724.62	31.3	11.6	1.011	6.21
	50.4	58.5	128	2118	10.2	2.19	2.2	729.5	29.4	10.9	0.783	6.97
GL4	13.2	59.5	131	2143	8.3	2.19	2.2	778.16	35.4	12.7	0.64	6.04
	16.3	59.4	132	2098	9.8	2.22	2.2	766.6	22.7	8.2	0.292	1.44
	19.9	59.4	132	2142	6.6	2.22	2.2	783.65	38.1	13.7	0.314	3.57

APPENDIX 1 – SAMPLE PHOTOS



Plate 1: Photograph showing samples recover from GL1 from 0.00m to 4.00m



Plate 2: Photograph showing samples recover from GL1 from 4.950m to 9.5m



Plate 3: Photograph showing samples recover from GL1 from 9.95m to 11.00m

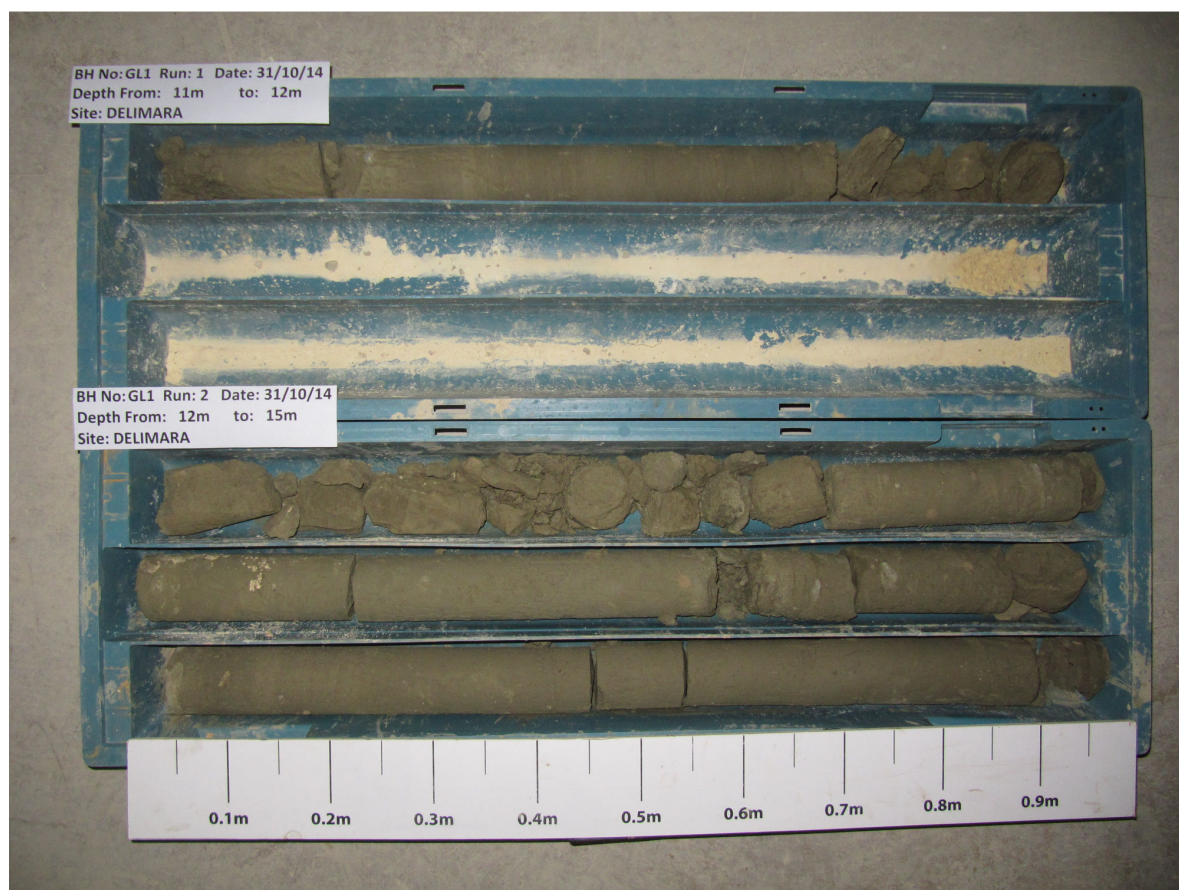


Plate 4: Photograph showing samples recover from GL1 from 11.00m to 15.00m

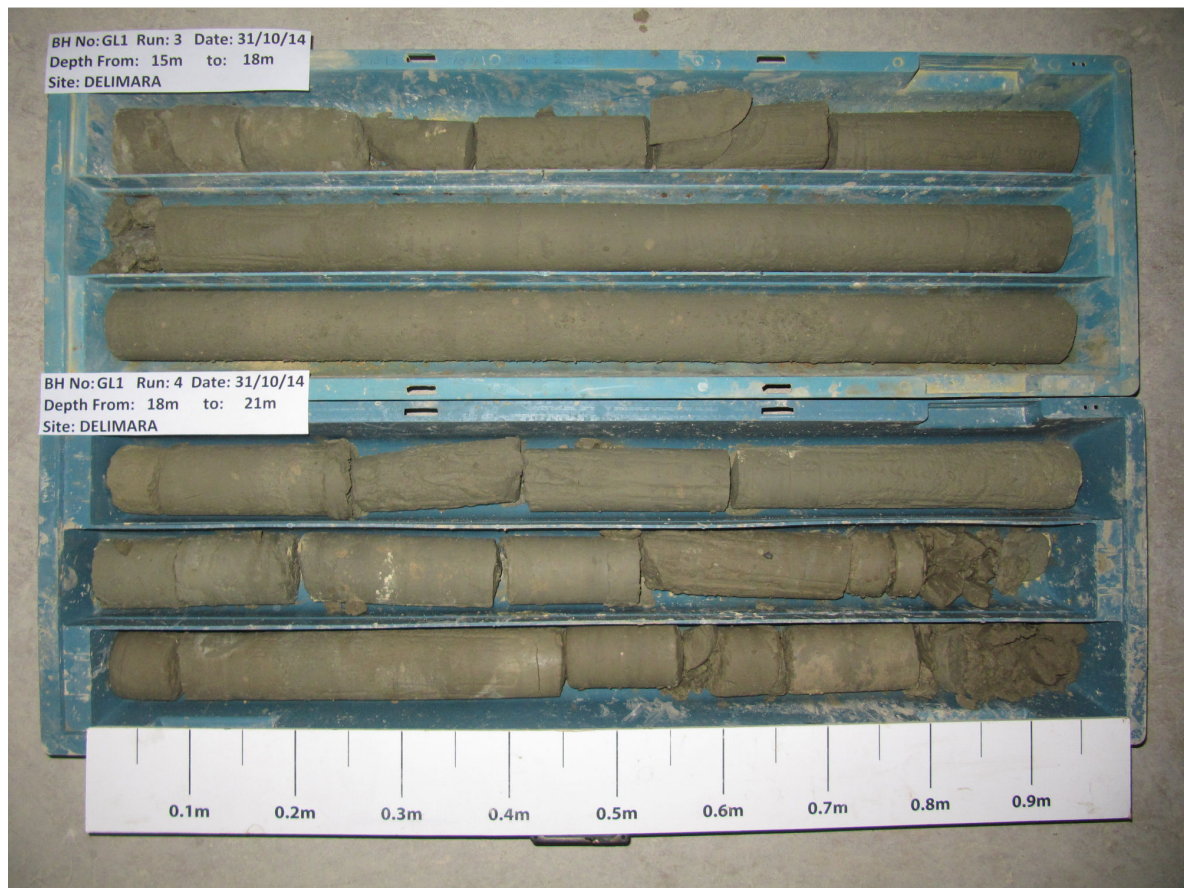


Plate 5: Photograph showing samples recover from GL1 from 15.00m to 21.00m

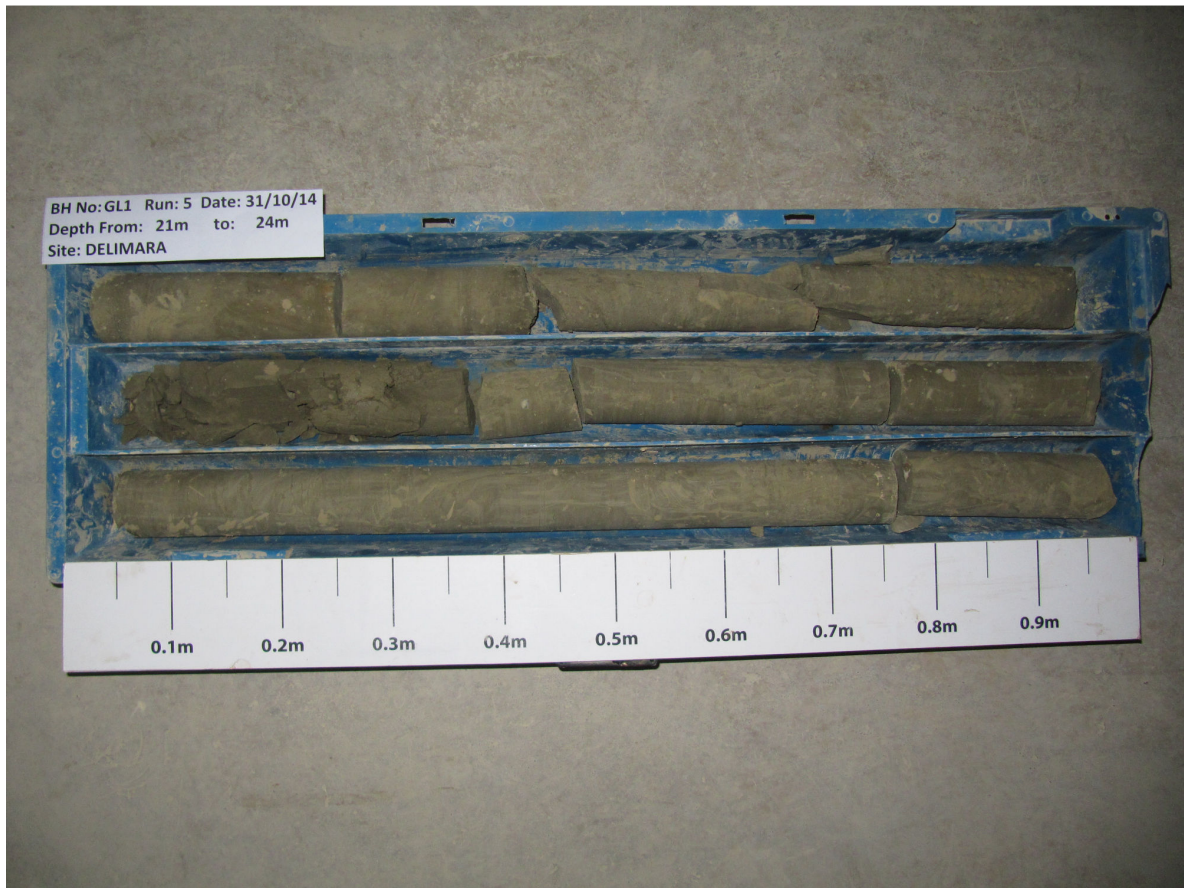


Plate 6: Photograph showing samples recover from GL1 from 21.00m to 24.00m



Plate 7: Photograph showing samples recover from GL2 from 0.00m to 4.50m



Plate 8: Photograph showing samples recover from GL2 from 4.95m to 9.80m

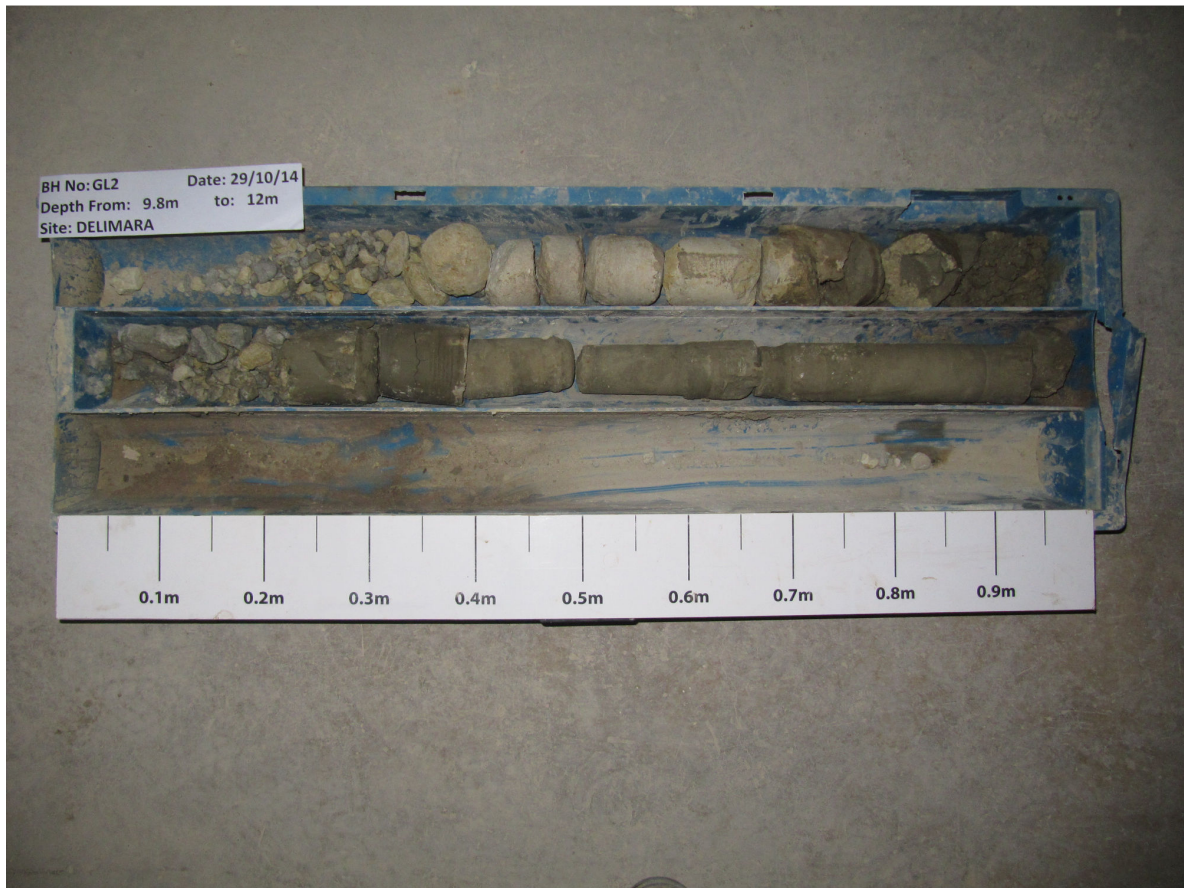


Plate 9: Photograph showing samples recover from GL2 from 9.80m to 12.00m

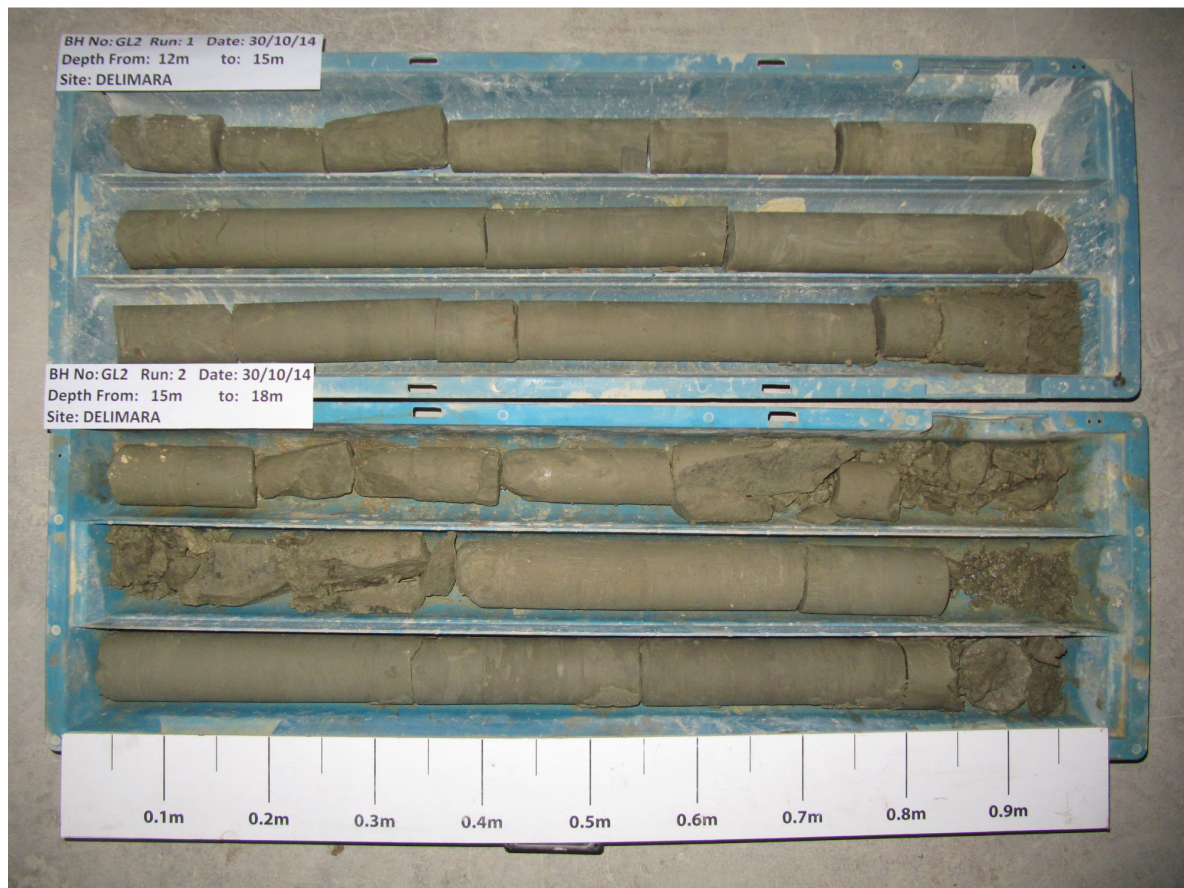


Plate 10: Photograph showing samples recover from GL2 from 12.00m to 18.00m



Plate 11: Photograph showing samples recover from GL2 from 18.00m to 24.00m



Plate 12: Photograph showing samples recover from GL2 from 24.00m to 25.00m



Plate 13: Photograph showing samples recover from GL3 from 1.00m to 3.00m



Plate 14: Photograph showing samples recover from GL3 from 3.95m to 9.00m



Plate 15: Photograph showing samples recover from GL3 from 9.95m to 17.00m



Plate 16: Photograph showing samples recover from GL3 from 18.00m to 25.00m



Plate 17: Photograph showing samples recover from GL3 from 25.95m to 32.50m



Plate 18: Photograph showing samples recover from GL3 from 32.95m to 38.50m



Plate 19: Photograph showing samples recover from GL3 from 38.95m to 45m

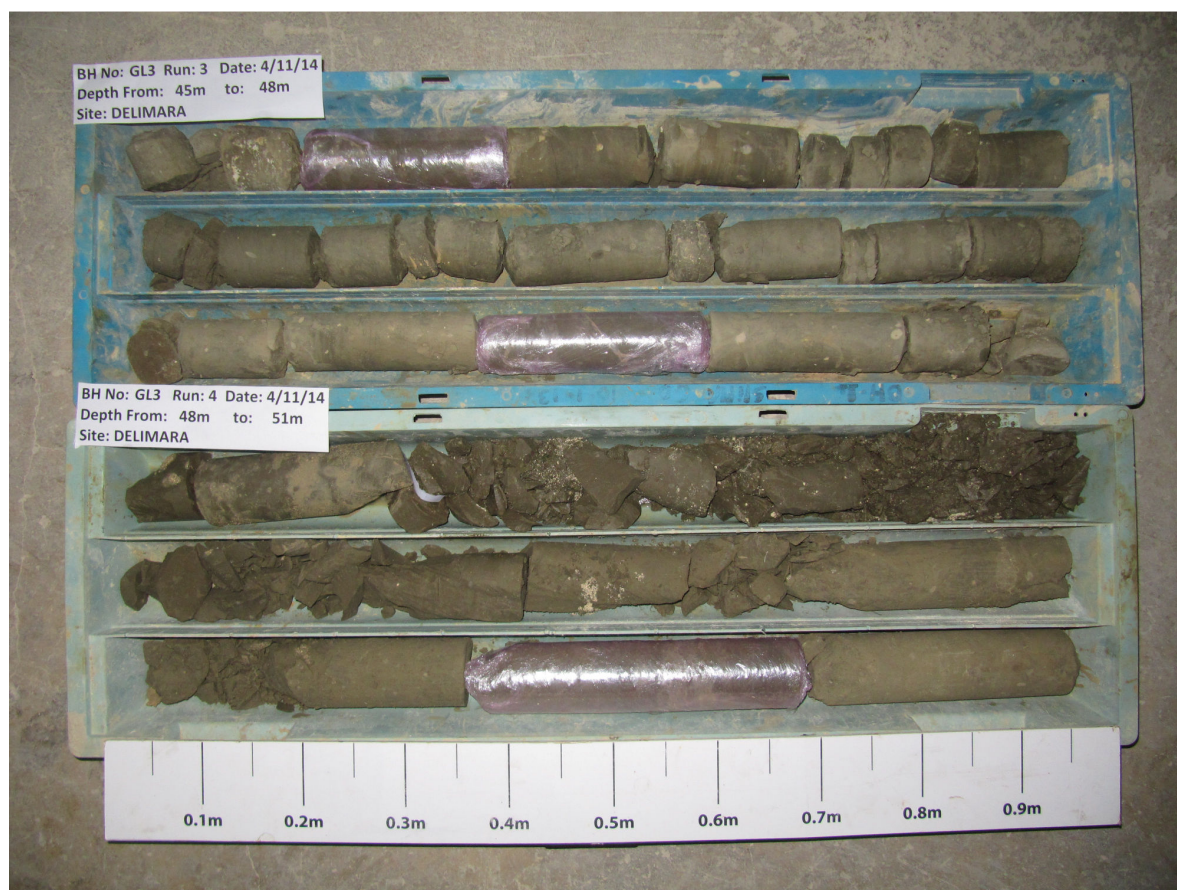


Plate 20: Photograph showing samples recover from GL3 from 45m to 51m



Plate 21: Photograph showing samples recover from GL4 from 0.00m to 5.00m



Plate 22: Photograph showing samples recover from GL4 from 5.45m to 10.50m



Plate 23: Photograph showing samples recover from GL4 from 10.50m to 15m



Plate 24: Photograph showing samples recover from GL4 from 15.00m to 20.00m



Plate 25: Photograph showing piezometer at GL1

APPENDIX 2 – BOREHOLE LOGS

SUBSURFACE EXPLORATION LOG



CLIENT: J&P Avax S.A.

PROJECT NAME: Delimara Regasification Plant

Project ID.: J2094

Borehole: GL01

Local X:

Local Y:

Location: Delimara

UTM33N X: 459955.67

UTM33N Y: 3965087.35

Described by: Rodney Xerri

Elevation: 6.20

Drilling Rig: Beretta

Sheet 1 of 2

Date: 30/10/2014

Depth (m)	Elevation	Temporary Casing	Sample	SPT N Value	Recovery & TCR (%)	RQD %	Piezometer	Symbol	Description	Sample No.	Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Specific Gravity (Gs)	Dry unit Weight (t/m3)	Consolidation Tests				TRIAXIAL TESTS				Unconfined Compression (kPa)	Early Groundwater Level																
																			Initial Void Ratio e0	Compression Ratio Cc	Consolidation Coefficient Cv	Oedometer Modulus Esd	Type	Undrained Shear Strength Cu (kPa)	Cohesion (kPa)	Internal Friction Angle																		
			C	14					CLAY (CL), sandy and gravelly clay, grey to brown in colour, with marly limestone, stiff to very stiff.	1	17.00	35	10.6	41.0	18.6	40.4	1.71					UU	64																					
		US						2																																				
		SPT						3																																				
		C	25				4	1.80																																				
		US																																				5						
		SPT																																				6						
		C	23				7										31.00	27	9.5	34.7	54.0	11.3	UU	20																				
		US																																										8
		SPT																																										9
		C	19				10	End of fill. Start of SANDY CLAY (SC), grey in colour, with organic material, fine to medium with some gravels, weak to medium.	11	18.00	33	10.6	38.5	18.5	43.1	1.80																												
		US							12																																			
		SPT							13																																			
		C						MARL to MARLY LIMESTONE, grey in colour, medium to fine grained, W1, R1-R2, fragmented at places, discontinuity planes mainly closed with no infill material																																				
					95	78																																						
					96	71																																						
					100	96																																						
					95	83																																						
									Next Page																																			

Sample Type:
B - Bulk Sample
C- Core Sample
US - Undisturbed Shelby Sample
UP - Undisturbed Piston Sample
SPT - SPT Sample

SUBSURFACE EXPLORATION LOG



CLIENT: J&P Avax S.A.

PROJECT NAME: Delimara Regasification Plant

Project ID.: J2094

Borehole: GL01

Local X:

Local Y:

Location: Delimara

UTM33N X: 459955.67

UTM33N Y: 3965087.35

Described by: Rodney Xerri

Elevation: 6.20

Drilling Rig: Beretta

Sheet 2 of 2

Date: 30/10/2014

Depth (m)	Elevation	Temporary Casing	Sample	SPT N Value	Recovery & TCR (%)	RQD %	Piezometer	Symbol	Description	Sample No.	Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Specific Gravity (Gs)	Dry unit Weight (t/m3)	Consolidation Tests				TRIAXIAL TESTS				Standardized Compression (kPa)	Standardized Compression (kPa)	Standardized Compression (kPa)
																			Initial Void Ratio e0	Compression Ratio Cr	Consolidation Co-efficient Cv	Swelling Swell	Type	Undrained Shear Strength Cu (kPa)	Correction (kPa)	Internal Friction angle	Standardized Compression (kPa)	Standardized Compression (kPa)	Standardized Compression (kPa)
21																													
22																													
23					100	88																							
24									End of Borehole at 24.00m																				
25																													
26																													
27																													
28																													
29																													
30																													
31																													
32																													
33																													
34																													
35																													
36																													
37																													
38																													
39																													
40																													

Sample Type:
B - Bulk Sample
C- Core Sample
US - Undisturbed Shelby Sample
UP - Undisturbed Piston Sample
SPT - SPT Sample

TERRACORE

Project ID.: J2094

Local Y:

UTM33N Y: 3965087.35

Drilling Rig: Beretta

Date: 30/10/2014

Sample Type:	
B - Bulk Sample	
C - Core Sample	
US - Undisturbed Shelby Sample	
UP - Undisturbed Piston Sample	
SPT - SPT Sample	

SUBSURFACE EXPLORATION LOG



CLIENT: J&P Avax S.A.

PROJECT NAME: Delimara Regasification Plant

Project ID.: J2094

Borehole: GL01

Local X:

Local Y:

Location: Delimara

UTM33N X: 459955.67

UTM33N Y: 3965087.35

Described by: Rodney Xerri

Elevation: 6.20

Drilling Rig: Beretta

Sheet 2 of 2

Date: 30/10/2014

Depth (m)	Elevation	Temporary Casing	Sample	SPT N Value	Recovery & TCR (%)	RQD %	Piezometer	Symbol	Description	Sample No.	Water Content (%)	Point Load		Anisotropy Index	Uniaxial Compressive Strength (MPa)	Dry Unit Weight (t/m ³)
												Is50	Type			
21															10.7	
22					100	88										
23															14.6	
24									End of Borehole at 24.00m							
25																
26																
27																
28																
29																
30																
31																
32																
33																
34																
35																
36																
37																
38																
39																
40																

Sample Type:

B - Bulk Sample

C - Core Sample

US - Undisturbed Shelby Sample

UP - Undisturbed Piston Sample

SPT - SPT Sample

SUBSURFACE EXPLORATION LOG



CLIENT: J&P Avax S.A.

PROJECT NAME: Delimara Regasification Plant

Project ID.: J2094

Borehole: GL02

Local X:

Local Y:

Location: Delimara

UTM33N X: 459965.95

UTM33N Y: 3965056.43

Described by: Rodney Xerri

Elevation: 6.20

Drilling Rig: Beretta

Sheet 1 of 2

Date: 29/10/2014

Depth (m)	Elevation	Temporary Casing	Sample	SPT N Value	Recovery & TCR (%)	RQD %	Piezometer	Symbol	Description	Sample No.	Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Specific Gravity (Gs)	Dry unit Weight (t/m3)	Consolidation Tests				TRIAXIAL TESTS				Standard Compression (kPa)	Daily Groundwater Level
																			Initial Void Ratio e0	Compression Ratio Cc	Consolidation Co-efficient Cv	Swelling Shrinkage Ratio Sw	Type	Undrained Shear Strength Cu (kPa)	Cohesion (kPa)	Internal Friction Angle		
			C	28					CLAY (CL), sandy and gravelly clay, grey to brown in colour, with marly limestone, stiff to very stiff.	1	22.00	36	10.6	44.9	24.4	30.7												
		US						2																				
		SPT						3																				
				26						4	20.00	34	10.6	49.0	21.8	29.2			1.72									
		C						5																				
		US						6																				
		SPT						7		21.00	32	10.5	66.7	13.2	20.1													
		C					8																					
		US					9																					
		SPT		37					10	25.00	26																	
		C						11																				
		SPT																										
									GRAVELLY CLAY (GC), grey in colour, with sand and gravel, soft to medium., with organic material at places																			
									MARL to MARLY LIMESTONE, grey in colour, medium to fine grained, W1, R1-R2, fragmented at places, discontinuity planes mainly closed with no infill material																			

Sample Type:
B - Bulk Sample
C- Core Sample
US - Undisturbed Shelby Sample
UP - Undisturbed Piston Sample
SPT - SPT Sample

SUBSURFACE EXPLORATION LOG



CLIENT: J&P Avax S.A.

PROJECT NAME: Delimara Regasification Plant

Project ID.: J2094

Borehole: GL02

Local X:

Local Y:

Location: Delimara

UTM33N X: 459965.95

UTM33N Y: 3965056.43

Described by: Rodney Xerri

Elevation: 6.20

Drilling Rig: Beretta

Sheet 2 of 2

Date: 29/10/2014

Depth (m)	Elevation	Temporary Casing	Sample	SPT N Value	Recovery & TCR (%)	RQD %	Piezometer	Symbol	Description	Sample No.	Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Specific Gravity (Gs)	Dry unit Weight (t/m3)	Consolidation Tests				TRIAXIAL TESTS				Standardized Compression (kPa)	Standardized Compression (kPa)	Standardized Compression (kPa)
																			Initial Void Ratio e0	Compression Ratio Cc	Consolidation Co-efficient Cv	Swelling Modulus Esd	Type	Undrained Shear Strength Cu (kPa)	cohesion (kPa)	Internal Friction angle			
21																													
22					100	100																							
23																													
24					98	86																							
25									End of Borehole at 25.00m																				
26																													
27																													
28																													
29																													
30																													
31																													
32																													
33																													
34																													
35																													
36																													
37																													
38																													
39																													
40																													

Sample Type:
B - Bulk Sample
C- Core Sample
US - Undisturbed Shelby Sample
UP - Undisturbed Piston Sample
SPT - SPT Sample

SUBSURFACE EXPLORATION LOG



CLIENT: J&P Avax S.A.

PROJECT NAME: Delimara Regasification Plant

Project ID.: J2094

Borehole: GL02

Local X:

Local Y:

Location: Delimara

UTM33N X: 459965.95

UTM33N Y: 3965056.43

Described by: Rodney Xerri

Elevation: 6.20

Drilling Rig: Beretta

Sheet 1 of 3

Date: 29/10/2014

Depth (m)	Elevation	Temporary Casing	Sample	SPT N Value	Recovery & TCR (%)	RQD %	Piezometer	Symbol	Description	Sample No.	Water Content (%)	Point Load		Anisotropy Index	Uniaxial Compression Strength (MPa)	Dry Unit Weight (t/m ³)
												Is50	Type			
1			C	28					CLAY (CL), sandy and gravelly clay, grey to brown in colour, with marly limestone, stiff to very stiff.	1						
			US							2						
2			SPT							3						
3																
4			C	26						4						
			US							5						
5			SPT							6						
6																
7			C	37						7						
			US							8						
8			SPT						End of fill. Start of SANDY CLAY (SC), grey in colour, with organic material, fine to medium with some gravels, weak to medium.	9						
9			C							10						
			SPT							11						
10																
									Next Page							

Sample Type:
B - Bulk Sample
C - Core Sample
US - Undisturbed Shelby Sample
UP - Undisturbed Piston Sample
SPT - SPT Sample

SUBSURFACE EXPLORATION LOG



CLIENT: J&P Avax S.A.

PROJECT NAME: Delimara Regasification Plant

Project ID.: J2094

Borehole: GL02

Local X:

Local Y:

Location: Delimara

UTM33N X: 459965.95

UTM33N Y: 3965056.43

Described by: Rodney Xerri

Elevation: 6.20

Drilling Rig: Beretta

Sheet 2 of 3

Date: 29/10/2014

Depth (m)	Elevation	Temporary Casing	Sample	SPT N Value	Recovery & TCR (%)	RQD %	Piezometer	Symbol	Description	Sample No.	Water Content (%)	Point Load		Anisotropy Index	Uniaxial Compression Strength (MPa)	Dry Unit Weight (t/m ³)
												Is50	Type			
11					95	45			GRAVELLY CLAY (GC), grey in colour, with sand and gravel, soft to medium., with organic material at places			5.8 1.9	P L	0.33		
12									MARL to MARLY LIMESTONE, grey in colour, medium to fine grained, W1, R1-R2, fragmented at places, discontinuity planes mainly closed with no infill material						13.3	
13					100	96										
14																
15																
16					95	76										
17															9.7	
18																
19					100	100										
20									Next Page							

Sample Type:
B - Bulk Sample
C - Core Sample
US - Undisturbed Shelby Sample
UP - Undisturbed Piston Sample
SPT - SPT Sample

SUBSURFACE EXPLORATION LOG



CLIENT: J&P Avax S.A.

PROJECT NAME: Delimara Regasification Plant

Project ID.: J2094

Borehole: GL02

Local X:

Local Y:

Location: Delimara

UTM33N X: 459965.95

UTM33N Y: 3965056.43

Described by: Rodney Xerri

Elevation: 6.20

Drilling Rig: Beretta

Sheet 3 of 3

Date: 29/10/2014

Depth (m)	Elevation	Temporary Casing	Sample	SPT N Value	Recovery & TCR (%)	RQD %	Piezometer	Symbol	Description	Sample No.	Water Content (%)	Point Load		Anisotropy Index	Uniaxial Compression Strength (MPa)	Dry Unit Weight (t/m ³)
												Is50	Type			
21																
22					100	100						0.8 1.9	P L	2.38	8.3	
23																
24					98	86										
25									End of Borehole at 25.00m							
26																
27																
28																
29																
30																

Sample Type:

B - Bulk Sample

C - Core Sample

US - Undisturbed Shelby Sample

UP - Undisturbed Piston Sample

SPT - SPT Sample

SUBSURFACE EXPLORATION LOG



CLIENT: J&P Avax S.A.

PROJECT NAME: Delimara Regasification Plant

Project ID.: J2094

Borehole: GL03

Local X:

Local Y:

Location: Delimara

UTM33N X: 459889.92

UTM33N Y: 3965064.73

Described by: Rodney Xerri

Elevation: 24.00

Drilling Rig: Beretta

Sheet 1 of 3

Date: 01/11/2014

Depth (m)	Elevation	Temporary Casing	Sample	SPT N Value	Recovery & TCR (%)	RQD %	Piezometer	Symbol	Description	Sample No.	Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Specific Gravity (Gs)	Dry unit Weight (t/m3)	Consolidation Tests				TRIAXIAL TESTS				Unconfined Compression (kPa)	Only Groundwater Level
																			Initial Void Ratio (e)	Compression Ratio (Cr)	Consolidation Coefficient (Cc)	Oedometer Swell Ratio (e _{sw})	Type	Undrained Shear Strength (kPa)	Cohesion (kPa)	Internal Friction Angle		
				17					GRAVELLY CLAY, grey to brown in colour, with sand and gravel, soft to hard, with gravel and sand fragments of marl and marly limestone	1																		
			C							2																		
			US							3																		
			SPT																									
			C							4																		
			US							5																		
			SPT							6																		
			C							7																		
			US							8	17.00	37	11.4	63.5	14.3	22.2		1.72						UU	46			
			SPT							9																		
			C							10																		
			US							11																		
			SPT						12																			
			C						13																			
			US						14																			
			SPT						15																			

Sample Type:
B - Bulk Sample
C- Core Sample
US - Undisturbed Shelby Sample
UP - Undisturbed Piston Sample
SPT - SPT Sample

SUBSURFACE EXPLORATION LOG



CLIENT: J&P Avax S.A.

PROJECT NAME: Delimara Regasification Plant

Project ID.: J2094

Borehole: GL03

Local X:

Local Y:

Location: Delimara

UTM33N X: 459889.92

UTM33N Y: 3965064.73

Described by: Rodney Xerri

Elevation: 24.00

Drilling Rig: Beretta

Sheet 2 of 3

Date: 01/11/2014

Depth (m)	Elevation	Temporary Casing	Sample	SPT N Value	Recovery & TCR (%)	RQD %	Piezometer	Symbol	Description	Sample No.	Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Specific Gravity (Gs)	Dry unit Weight (t/m3)	Consolidation Tests				TRIAXIAL TESTS				Unconfined Compression (kPa)	Bulk Density (t/m3)
																			Initial Void Ratio (e0)	Compression Ratio (Cc)	Consolidation Coefficient (Cv)	Oedometer Modulus (kPa)	Type	Undrained Shear Strength (kPa)	Cohesion (kPa)	Internal Friction Angle		
			C	6					CLAY (CL), sandy and gravelly clay, grey to brown in colour, with marly limestone, stiff to very stiff.	16	17.00	36	11	34.8	13.2	52.0		1.82					UU	122				
			US							17																		
			SPT							18																		
			C	15						19																		
			US							20																		
			SPT							21																		
			C	3					End of fill. Start of SANDY CLAY (SC), grey in colour, with organic material, fine to medium with some gravels, weak to medium.	22	39.00	33		4.7	72.9	22.4							UU	85				
			US							23																		
			SPT							24																		
			C	7						25	40.00	34		5.0	67.0	28.0		1.30										
			SPT							26																		
			C	8						27																		
			SPT							28																		
			C	68					MARL to MARLY LIMESTONE, light brown to yellow in colour, medium to fine grained, W1, R1-R2, fragmented at places, discontinuity planes mainly closed with no infill material	29																		
			SPT							30																		
									Next Page																			

Sample Type:
B - Bulk Sample
C- Core Sample
US - Undisturbed Shelby Sample
UP - Undisturbed Piston Sample
SPT - SPT Sample

SUBSURFACE EXPLORATION LOG



CLIENT: J&P Avax S.A.

PROJECT NAME: Delimara Regasification Plant

Project ID.: J2094

Borehole: GL03

Local X:

Local Y:

Location: Delimara

UTM33N X: 459889.92

UTM33N Y: 3965064.73

Described by: Rodney Xerri

Elevation: 24.00

Drilling Rig: Beretta

Sheet 3 of 3

Date: 01/11/2014

Depth (m)	Elevation	Temporary Casing	Sample	SPT N Value	Recovery & TCR (%)	RQD %	Piezometer	Symbol	Description	Sample No.	Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Specific Gravity (Gs)	Dry unit Weight (t/m3)	Consolidation Tests				TRIAXIAL TESTS				Standardised Compression (kPa)	Early Groundwater Level
																			Initial Void Ratio (e0)	Compression Ratio Cc	Consolidation Coefficient Cv	Oedometer Modulus Esd	Type	Unconfined Shear Strength Cu (kPa)	Cohesion (kPa)	Internal Friction angle		
					100	68			MARL to MARLY LIMESTONE, grey in colour, medium to fine grained, W1, R1-R2, fragmented at places, discontinuity planes mainly closed with no infill material																			
					95	33																						
					100	72																						
					96	56																						
									End of Borehole at 51.00m																			

Sample Type:
B - Bulk Sample
C- Core Sample
US - Undisturbed Shelby Sample
UP - Undisturbed Piston Sample
SPT - SPT Sample

SUBSURFACE EXPLORATION LOG



CLIENT: J&P Avax S.A.

PROJECT NAME: Delimara Regasification Plant

Project ID.: J2094

Borehole: GL03

Local X:

Local Y:

Location: Delimara

UTM33N X: 459889.92

UTM33N Y: 3965064.73

Described by: Rodney Xerri

Elevation: 24.00

Drilling Rig: Beretta

Sheet 1 of 3

Date: 01/11/2014

Depth (m)	Elevation	Temporary Casing	Sample	SPT N Value	Recovery & TCR (%)	RQD %	Piezometer	Symbol	Description	Sample No.	Water Content (%)	Point Load		Anisotropy Index	Uniaxial Compression Strength (MPa)	Dry Unit Weight (t/m ³)
												Is50	Type			
1				17					GRAVELLY CLAY, grey to brown in colour, with sand and gravel, soft to hard, with gravel and sand fragments of marl and marly limestone	1						
2										2						
3			C							3						
4			US													
5			SPT													
6																
7			C	11					GRAVELLY CLAY (GC), grey to brown in colour, with sand and gravel, soft to hard, with gravel and sand fragments of marl and marly limestone	4						
8			US							5						
9			SPT							6						
10																
11			C	8						7						
12			US							8						
13			SPT						GRAVELLY CLAY (GC), grey to brown in colour, with sand and gravel, soft to hard, with gravel and sand fragments of marl and marly limestone	9						
14																
15			C													
16			US							10						
17			SPT							11						
18										12						
19			C						GRAVELLY CLAY (GC), grey to brown in colour, with sand and gravel, soft to hard, with gravel and sand fragments of marl and marly limestone	13						
20			US							14						
			SPT							15						
									Next Page							

Sample Type:

B - Bulk Sample

C - Core Sample

US - Undisturbed Shelby Sample

UP - Undisturbed Piston Sample

SPT - SPT Sample

SUBSURFACE EXPLORATION LOG



CLIENT: J&P Avax S.A.

PROJECT NAME: Delimara Regasification Plant

Project ID.: J2094

Borehole: GL03

Local X:

Local Y:

Location: Delimara

UTM33N X: 459889.92

UTM33N Y: 3965064.73

Described by: Rodney Xerri

Elevation: 24.00

Drilling Rig: Beretta

Sheet 2 of 3

Date: 01/11/2014

Depth (m)	Elevation	Temporary Casing	Sample	SPT N Value	Recovery & TCR (%)	RQD %	Piezometer	Symbol	Description	Sample No.	Water Content (%)	Point Load		Anisotropy Index	Uniaxial Compression Strength (MPa)	Dry Unit Weight (t/m ³)
												Is50	Type			
21			C	6					CLAY (CL), sandy and gravelly clay, grey to brown in colour, with marly limestone, stiff to very stiff.	16						
			US							17						
			SPT							18						
22																
23																
24																
25			C	15						19						
			US							20						
			SPT							21						
26																
27																
28																
29			C	3					End of fill. Start of SANDY CLAY (SC), grey in colour, with organic material, fine to medium with some gravels, weak to medium.	22						
			US							23						
			SPT							24						
30																
31																
32																
33			C	7						25						
			SPT							26						
34																
35																
36			C	8						27						
			SPT							28						
37																
38																
39			C	68					MARL to MARLY LESTONE, light brown to yellow in colour, medium to fine grained, W1, R1-R2, fragmented at places, discontinuity planes mainly closed with no infill material	29						
			SPT							30						
40																
									Next Page							

Sample Type:

B - Bulk Sample

C - Core Sample

US - Undisturbed Shelby Sample

UP - Undisturbed Piston Sample

SPT - SPT Sample

SUBSURFACE EXPLORATION LOG



CLIENT: J&P Avax S.A.

PROJECT NAME: Delimara Regasification Plant

Project ID.: J2094

Borehole: GL03

Local X:

Local Y:

Location: Delimara

UTM33N X: 459889.92

UTM33N Y: 3965064.73

Described by: Rodney Xerri

Elevation: 24.00

Drilling Rig: Beretta

Sheet 3 of 3

Date: 01/11/2014

Depth (m)	Elevation	Temporary Casing	Sample	SPT N Value	Recovery & TCR (%)	RQD %	Piezometer	Symbol	Description	Sample No.	Water Content (%)	Point Load		Anisotropy Index	Uniaxial Compression Strength (MPa)	Dry Unit Weight (t/m ³)
												Is50	Type			
41					100	68										
42																
43					95	33									4.7	
44																
45									MARL to MARLY LIMESTONE, grey in colour, medium to fine grained, W1, R1-R2, fragmented at places, discontinuity planes mainly closed with no infill material							
46					100	72										
47															11.6	
48																
49					96	56										
50																
51									End of Borehole at 51.00m						10.9	
52																
53																
54																
55																
56																
57																
58																
59																
60																

Sample Type:

B - Bulk Sample

C - Core Sample

US - Undisturbed Shelby Sample

UP - Undisturbed Piston Sample

SPT - SPT Sample

SUBSURFACE EXPLORATION LOG



CLIENT: J&P Avax S.A.

PROJECT NAME: Delimara Regasification Plant

Project ID.: J2094

Borehole: GL04

Local X:

Local Y:

Location: Delimara

UTM33N X: 459986.75

UTM33N Y: 3965048.13

Described by: Rodney Xerri

Elevation: 6.20

Drilling Rig: Beretta

Sheet 1 of 1

Date: 28/10/2014

Depth (m)	Elevation	Temporary Casing	Sample	SPT N Value	Recovery & TCR (%)	RQD %	Piezometer	Symbol	Description	Sample No.	Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Specific Gravity (Gs)	Dry unit Weight (t/m3)	Consolidation Tests				TRIAXIAL TESTS				Standardised Compression (kPa)	Early Groundwater Level
																			Initial Void Ratio (e0)	Compression Ratio (Cc)	Consolidation Coefficient (Cv)	Oedometer Modulus (Eed)	Type	Undrained Shear Strength (Cu (kPa))	Cohesion (kPa)	Internal Friction Angle		
									CLAY (CL), sandy and gravelly clay, grey to brown in colour, with marly limestone, stiff to very stiff.	1																		
			C							2	11.00	37	11.1	36.1	27.5	36.4							UU	54				
			US							3																		
			SPT																									
				15						4	15.00	31	9	53.3	15.0	31.7		1.88										
			C							5																		
			SPT																									
			C							6													UU	364				
			C							7	18.00	34	10.17	70.2	11.9	17.9												
									GRAVELLY CLAY (GC), grey to brown in colour, with sand and gravel, soft to hard, with gravel and sand fragments of marl and marly limestone																			
									MARL to MARLY LIMESTONE, grey in colour, medium to fine grained, W1, R1-R2, fragmented at places, discontinuity planes mainly closed with no infill material																			
																			</									

Sample Type:
B - Bulk Sample
C- Core Sample
US - Undisturbed Shelby Sample
UP - Undisturbed Piston Sample
SPT - SPT Sample

SUBSURFACE EXPLORATION LOG



CLIENT: J&P Avax S.A.

PROJECT NAME: Delimara Regasification Plant

Project ID.: J2094

Borehole: GL04

Local X:

Local Y:

Location: Delimara

UTM33N X: 459986.75

UTM33N Y: 3965048.13

Described by: Rodney Xerri

Elevation: 6.20

Drilling Rig: Beretta

Sheet 1 of 1

Date: 28/10/2014

Depth (m)	Elevation	Temporary Casing	Sample	SPT N Value	Recovery & TCR (%)	RQD %	Piezometer	Symbol	Description	Sample No.	Water Content (%)	Point Load		Anisotropy Index	Uniaxial Compression Strength (MPa)	Dry Unit Weight (t/m ³)
												Is50	Type			
1									CLAY (CL), sandy and gravelly clay, grey to brown in colour, with marly limestone, stiff to very stiff.							
2			C							1						
			US							2						
			SPT							3						
3																
4																
5			C							4						
			SPT	15						5						
6																
7			C							6						
8																
9			C							7						
10									GRAVELLY CLAY (GC), grey to brown in colour, with sand and gravel, soft to hard, with gravel and sand fragments of marl and marly limestone							
												1.1	P	1.91		
												2.1				
11									MARL to MARLY LIMESTONE, grey in colour, medium to fine grained, W1, R1-R2, fragmented at places, discontinuity planes mainly closed with no infill material							
12					100	100										
13																
14					100	100										
15																
16																
17					100	95									8.2	
18																
19					100	100										
20									End of Borehole at 20.00m							13.7

Sample Type:

B - Bulk Sample

C - Core Sample

US - Undisturbed Shelby Sample

UP - Undisturbed Piston Sample

SPT - SPT Sample

APPENDIX 3 – LABORATORY TEST CERTIFICATES

Laboratory Test Certificate

Determination of Liquid/Plastic Limit according to BS EN 1377 - 2: 1990 Clause 4.3

Client name:	J&P AVAX S.A.	Project:	Onshore & Offshore	Certificate N°:	TCR359
Client address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Location/Town:	Delimara	Date of certificate:	10/11/2014
Attn:	Giorgos Rousopoulos			Client/Job N°:	J2094
Client Tel N°:	306972019434			Test Reference No:	ATT077
				Tested by:	LS
				Date of test:	08/11/2014

Test Information

Sample Ref No: 141031- Soil
 Sampling Location: BH GL1
 Sample Description: BH GL1 Sample 5
 Date of sampling: 31/10/2014
 Type of Material: Soil

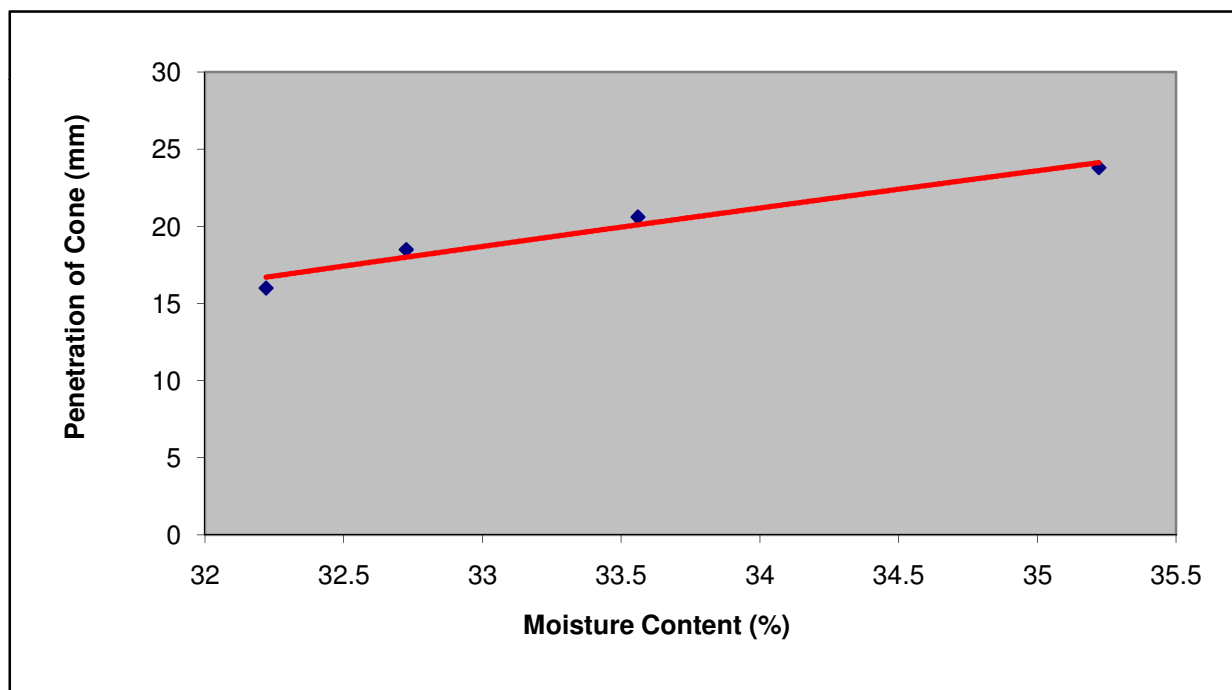
Results

Proportion received on 425µm sieve : _____

Liquid Limit (%): 33.62

Plastic Limit (%): 9.91

Placticity Index (%): 23.71



Deviation from Standard:

Nil

Remarks:

Nil

Prepared By:

Jessica Farrugia
Quality Manager

Approved By:

Chris Magro
Laboratory Manager

TEST CERTIFICATE

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Terracore Ltd,

Plot 23, New Street in Kappara Street, Mosta Industrial Estate, Mosta, MST4003, Malt; Directors:

T: (+356) 21583241 F: (+356) 21418645

E: info@terracoiremalta.com W: www.terracoiremalta.com

Registration No.: C32227

Alfred Xerri

Filename:

J2094_Soil_ATT_TCR359_ATT077.xls

Laboratory Test Certificate

Determination of Liquid/Plastic Limit according to BS EN 1377 - 2: 1990 Clause 4.3

Client name:	J&P AVAX S.A.	Project:	Onshore & Offshore	Certificate N°:	TCR360
Client address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Location/Town:	Delimara	Date of certificate:	10/11/2014
Attn:	Giorgos Rousopoulos			Client/Job N°:	J2094
Client Tel N°:	306972019434			Test Reference No:	ATT078
				Tested by:	LS
				Date of test:	07/11/2014

Test Information

Sample Ref No: 141031- Soil
 Sampling Location: BH GL1
 Sample Description: BH GL1 Sample 8
 Date of sampling: 31/10/2014
 Type of Material: Soil

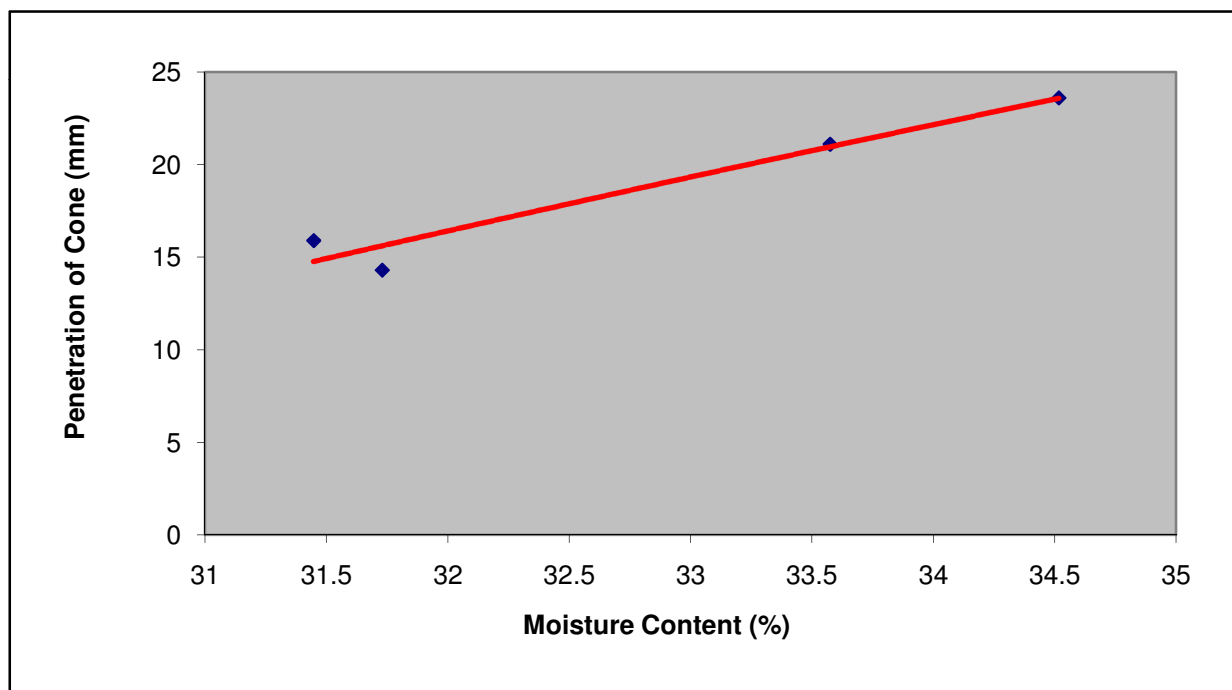
Results

Proportion received on 425µm sieve : _____

Liquid Limit (%): 33.34

Plastic Limit (%): 10.64

Placticity Index (%): 22.70



Deviation from Standard:

Nil

Remarks:

Nil

Prepared By:

Jessica Farrugia
Quality Manager

Approved By:

Chris Magro
Laboratory Manager

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Registration No.: C32227

Alfred Xerri

Filename:

J2094_Soil_ATT_TCR360_ATT078.xls

Laboratory Test Certificate

Determination of Liquid/Plastic Limit according to BS EN 1377 - 2: 1990 Clause 4.3

Client name:	J&P AVAX S.A.	Project:	Onshore & Offshore	Certificate N°:	TCR361
Client address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece		Geotechnical Investigation	Date of certificate:	10/11/2014
Attn:	Giorgos Rousopoulos	Location/Town:	Delimara	Client/Job N°:	J2094
Client Tel N°:	306972019434			Test Reference No:	ATT077
				Tested by:	LS
				Date of test:	08/11/2014

Test Information

Sample Ref No: 141031- Soil
 Sampling Location: BH GL1
 Sample Description: BH GL1 Sample 11
 Date of sampling: 31/10/2014
 Type of Material: Soil

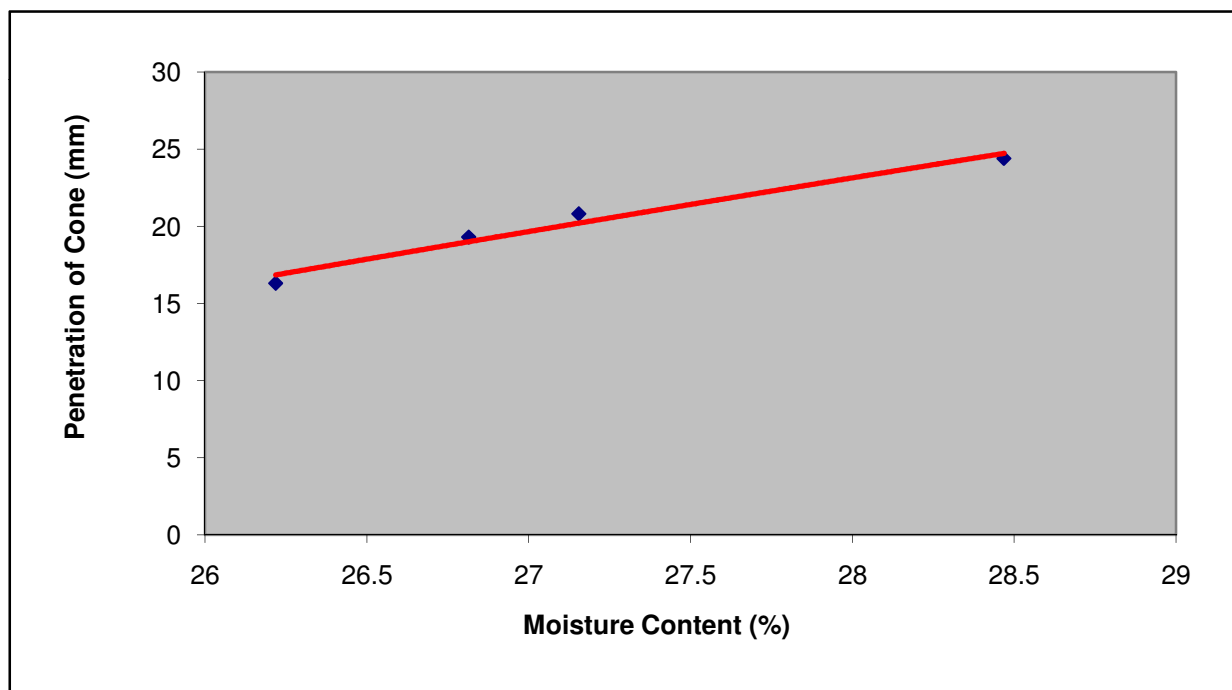
Results

Proportion received on 425µm sieve : _____

Liquid Limit (%): 27.17

Plastic Limit (%): 9.48

Placticity Index (%): 17.69



Deviation from Standard:

Nil

Remarks:

Nil

Prepared By:

Jessica Farrugia
Quality Manager

Approved By:

Chris Magro
Laboratory Manager

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Registration No.: C32227

Alfred Xerri

Filename:

J2094_Soil_ATT_TCR361_ATT079.xls

Laboratory Test Certificate

Determination of Liquid/Plastic Limit according to BS EN 1377 - 2: 1990 Clause 4.3

Client name:	J&P AVAX S.A.	Project:	Onshore & Offshore	Certificate Nº:	TCR391
Client address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Location/Town:	Delimara	Date of certificate:	18/11/2014
Attn:	Giorgos Rousopoulos			Client/Job Nº:	J2094
Client Tel Nº:	306972019434			Test Reference No:	ATT087
				Tested by:	LS
				Date of test:	17/11/2014

Test Information

Sample Ref No: 141030- Soil
Sampling Location: BH GL1
Sample Description: BH GL1 Sample 2
Date of sampling: 30/10/2014
Type of Material: Soil

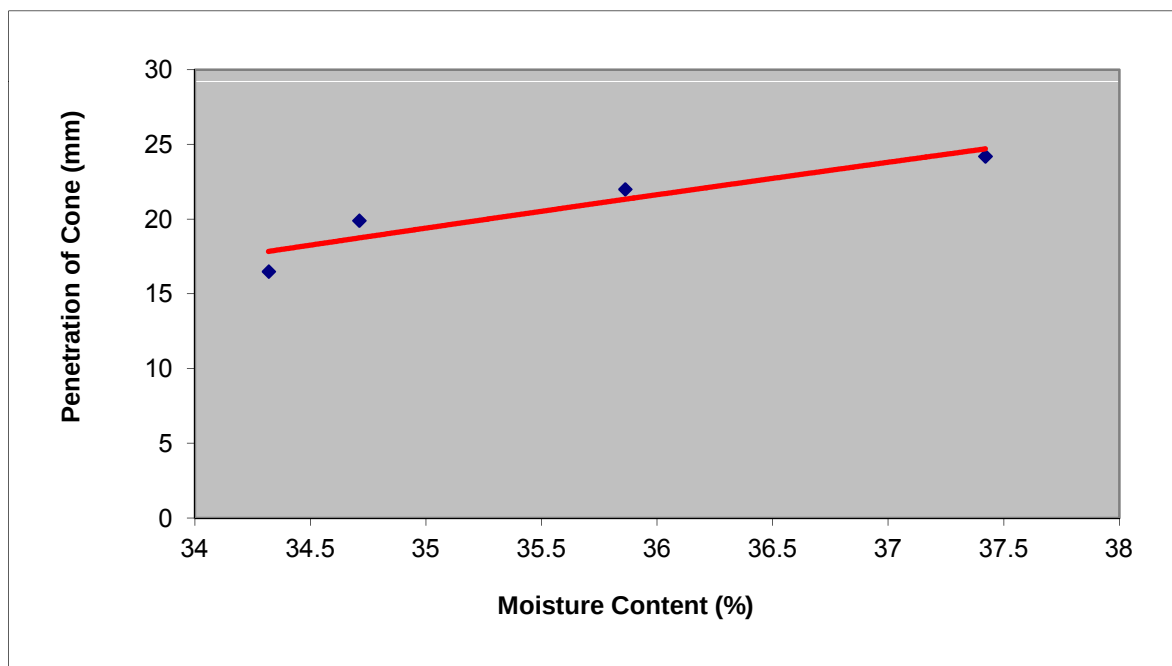
Results

Proportion received on 425µm sieve _____

Liquid Limit (%): 35.41

Plastic Limit (%): 10.64

Placticity Index (%): 24.77



Deviation from Standard:

Nil

Remarks:

Nil

Prepared By:

Jessica Farrugia
Quality Manager

Approved By:

Chris Magro
Laboratory Manager

TEST CERTIFICATE

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Laboratory Test Certificate

Determination of Liquid/Plastic Limit according to BS EN 1377 - 2: 1990 Clause 4.3

Client name:	J&P AVAX S.A.	Project:	Onshore & Offshore	Certificate N°:	TCR355
Client address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece		Geotechnical Investigation	Date of certificate:	07/11/2014
Attn:	Giorgos Rousopoulos	Location/Town:	Delimara	Client/Job N°:	J2094
Client Tel N°:	306972019434			Test Reference No:	ATT074
				Tested by:	LS
				Date of test:	06/11/2014

Test Information

Sample Ref No: 141029 - Soil
 Sampling Location: BH GL2
 Sample Description: BH GL2 Sample 5
 Date of sampling: 29/10/2014
 Type of Material: Soil

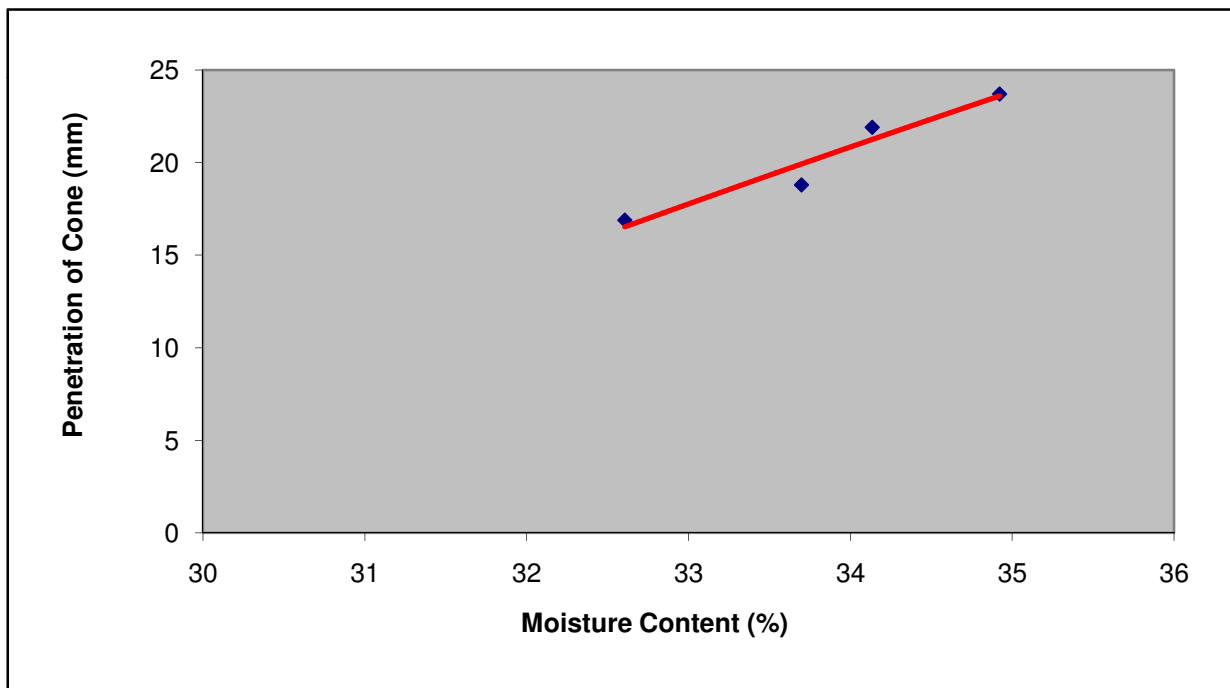
Results

Proportion received on 425µm sieve : _____

Liquid Limit (%): 33.79

Plastic Limit (%): 10.64

Placticity Index (%): 23.15



Deviation from Standard:

Nil

Remarks:

Nil

Prepared By:

Jessica Farrugia
Quality Manager

Approved By:

Chris Magro
Laboratory Manager

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E: info@terracoiremalta.com W: www.terracoiremalta.com

Registration No.: C32227

Alfred Xerri

Filename:

J2094_Soil_ATT_TCR355_ATT074.xls

Laboratory Test Certificate

Determination of Liquid/Plastic Limit according to BS EN 1377 - 2: 1990 Clause 4.3

Client name:	J&P AVAX S.A.	Project:	Onshore & Offshore	Certificate N°:	TCR356
Client address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Location/Town:	Delimara	Date of certificate:	07/11/2014
Attn:	Giorgos Rousopoulos			Client/Job N°:	J2094
Client Tel N°:	306972019434			Test Reference No:	ATT075
				Tested by:	LS
				Date of test:	06/11/2014

Test Information

Sample Ref No: 141029 - Soil
 Sampling Location: BH GL2
 Sample Description: BH GL2 Sample 10
 Date of sampling: 29/10/2014
 Type of Material: Soil

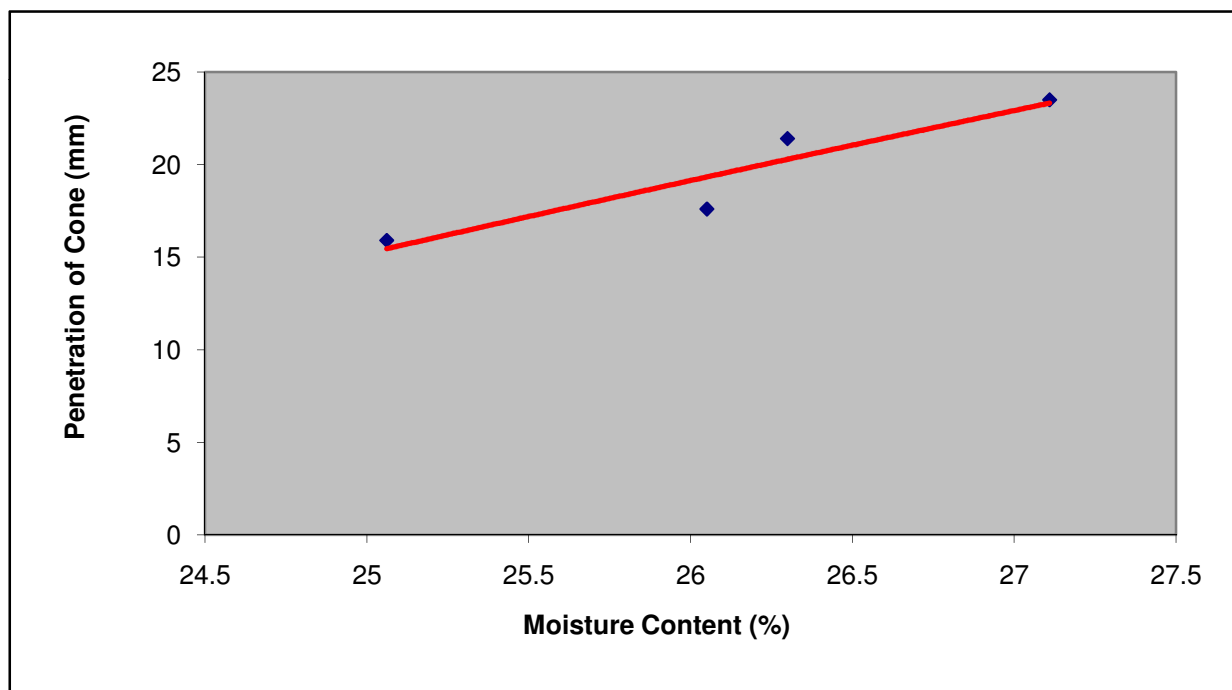
Results

Proportion received on 425µm sieve : _____

Liquid Limit (%): 26.27

Plastic Limit (%): Non Plastic

Placticity Index (%): -



Deviation from Standard:

Nil

Remarks:

Plastic limit determination could not be obtained due to non plasticity in Material

Prepared By:

Jessica Farrugia
Quality Manager

Approved By:

Chris Magro
Laboratory Manager

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Registration No.: C32227

Alfred Xerri

Filename:

J2094_Soil_ATT_TCR356_ATT075.xls

Laboratory Test Certificate

Determination of Liquid/Plastic Limit according to BS EN 1377 - 2: 1990 Clause 4.3

Client name:	J&P AVAX S.A.	Project:	Onshore & Offshore	Certificate Nº:	TCR392
Client address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Location/Town:	Delimara	Date of certificate:	18/11/2014
Attn:	Giorgos Rousopoulos			Client/Job Nº:	J2094
Client Tel Nº:	306972019434			Test Reference No:	ATT088
				Tested by:	LS
				Date of test:	17/11/2014

Test Information

Sample Ref No: 141029 - Soil
Sampling Location: BH GL2
Sample Description: BH GL2 Sample 2
Date of sampling: 29/10/2014
Type of Material: Soil

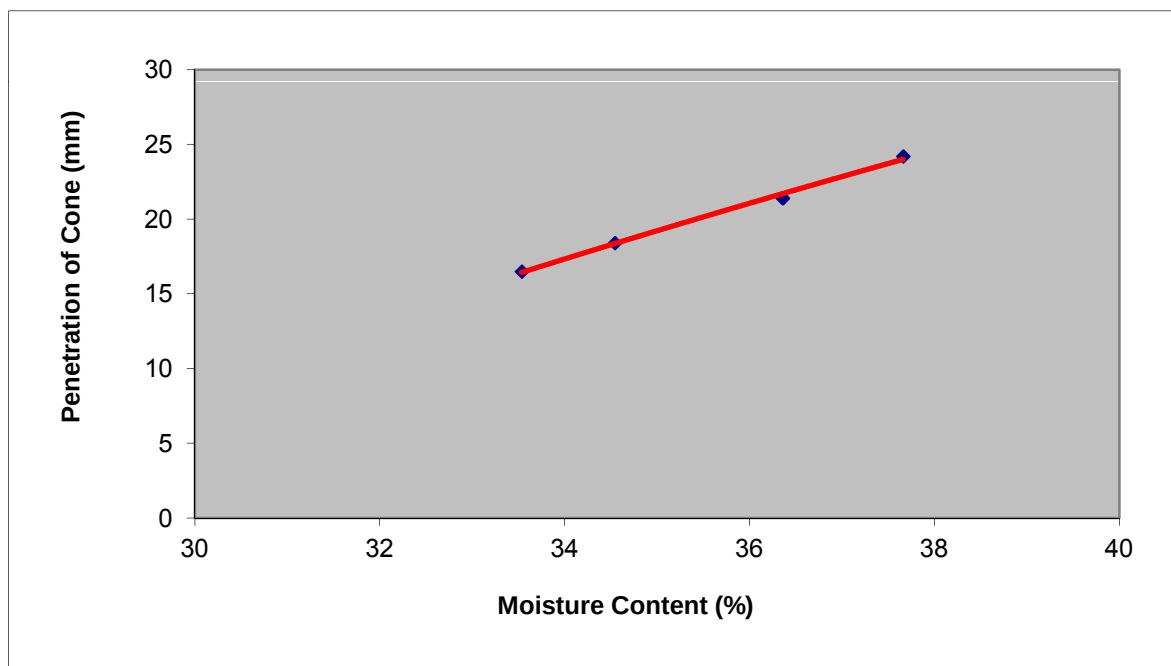
Results

Proportion received on 425µm sieve _____

Liquid Limit (%): 35.57

Plastic Limit (%): 10.26

Placticity Index (%): 25.32



Deviation from Standard:

Nil

Remarks:

Nil

Prepared By:

Jessica Farrugia
Quality Manager

Approved By:

Chris Magro
Laboratory Manager

TEST CERTIFICATE

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Laboratory Test Certificate

Determination of Liquid/Plastic Limit according to BS EN 1377 - 2: 1990 Clause 4.3

Client name:	J&P AVAX S.A.	Project:	Onshore & Offshore	Certificate Nº:	TCR395
Client address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Location/Town:	Geotechnical Investigation Delimara	Date of certificate:	19/11/2014
Attn:	Giorgos Rousopoulos			Client/Job Nº:	J2094
Client Tel Nº:	306972019434			Test Reference No:	ATT090
				Tested by:	LS
				Date of test:	18/11/2014

Test Information

Sample Ref No: 141029 - Soil
Sampling Location: BH GL2
Sample Description: BH GL2 Sample 8
Date of sampling: 29/10/2014
Type of Material: Soil

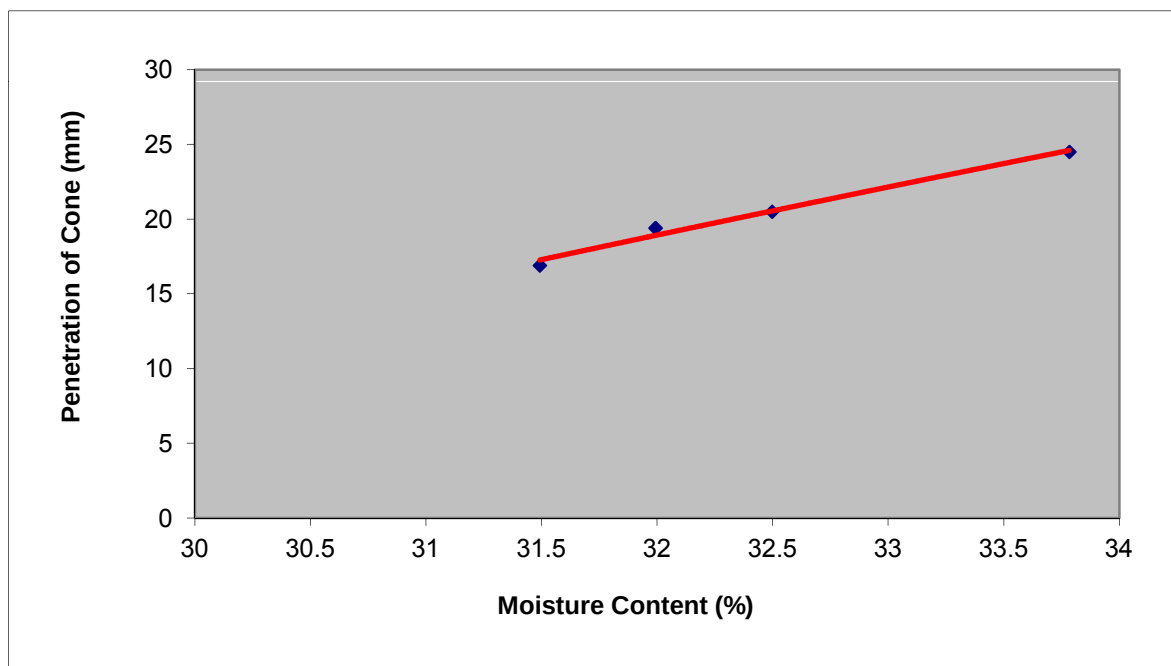
Results

Proportion received on 425µm sieve _____

Liquid Limit (%): 32.40

Plastic Limit (%): 10.47

Placticity Index (%): 21.93



Deviation from Standard:

Nil

Remarks:

Nil

Prepared By:

Jessica Farrugia
Quality Manager

Approved By:

Chris Magro
Laboratory Manager

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Laboratory Test Certificate

Determination of Liquid/Plastic Limit according to BS EN 1377 - 2: 1990 Clause 4.3

Client name:	J&P AVAX S.A.	Project:	Onshore & Offshore	Certificate Nº:	TCR375
Client address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Location/Town:	Delimara	Date of certificate:	14/11/2014
Attn:	Giorgos Rousopoulos			Client/Job Nº:	J2094
Client Tel Nº:	306972019434			Test Reference No:	ATT084
				Tested by:	LS
				Date of test:	13/11/2014

Test Information

Sample Ref No: 141101- Soil
 Sampling Location: BH GL3
 Sample Description: BH GL3 Sample 8
 Date of sampling: 01/11/2014
 Type of Material: Soil

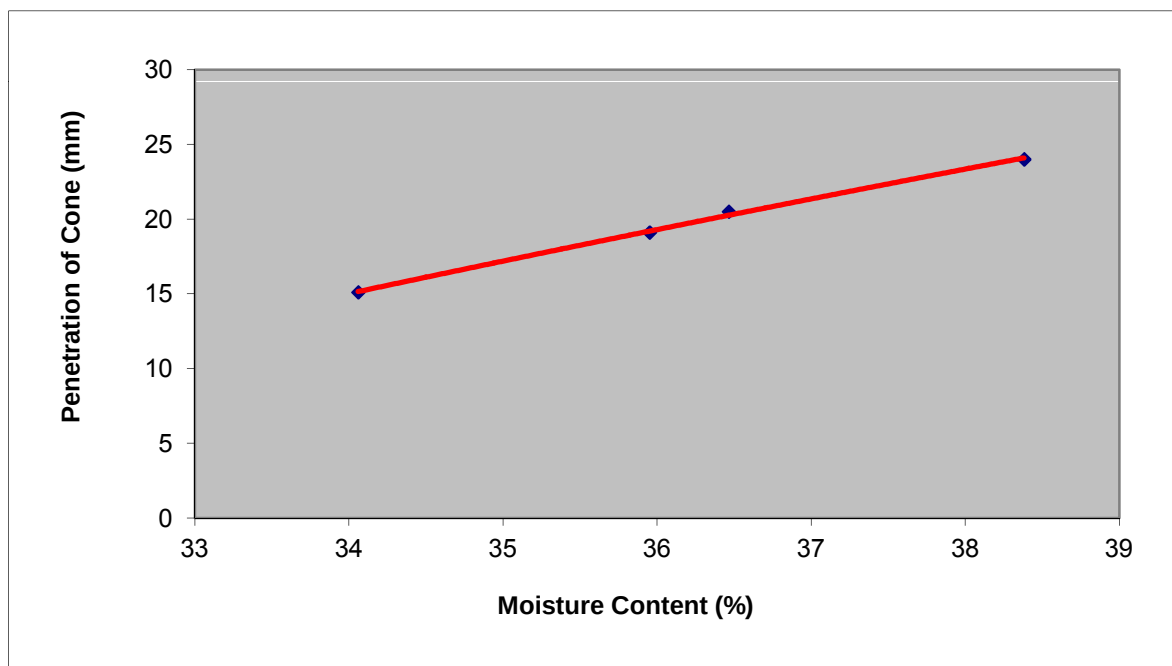
Results

Proportion received on 425µm sieve _____

Liquid Limit (%): 36.49

Plastic Limit (%): 11.42

Placticity Index (%): 25.07



Deviation from Standard:

Nil

Remarks:

Nil

Prepared By:

Jessica Farrugia

Jessica Farrugia
Quality Manager

Approved By:

Chris Magro

Chris Magro
Laboratory Manager

TEST CERTIFICATE

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Laboratory Test Certificate

Determination of Liquid/Plastic Limit according to BS EN 1377 - 2: 1990 Clause 4.3

Client name:	J&P AVAX S.A.	Project:	Onshore & Offshore	Certificate Nº:	TCR376
Client address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Location/Town:	Delimara	Date of certificate:	14/11/2014
Attn:	Giorgos Rousopoulos			Client/Job Nº:	J2094
Client Tel Nº:	306972019434			Test Reference No:	ATT085
				Tested by:	LS
				Date of test:	13/11/2014

Test Information

Sample Ref No: 141101- Soil
Sampling Location: BH GL3
Sample Description: BH GL3 Sample 17
Date of sampling: 01/11/2014
Type of Material: Soil

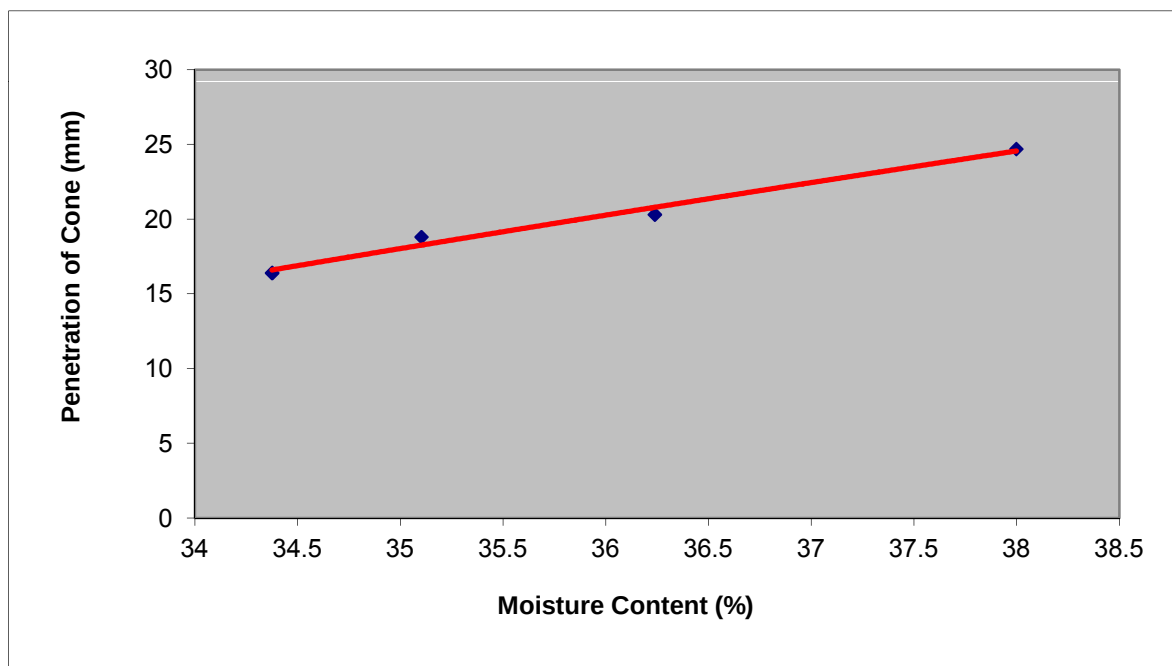
Results

Proportion received on 425µm sieve _____

Liquid Limit (%): 36.01

Plastic Limit (%): 11.04

Placticity Index (%): 24.97



Deviation from Standard:

Nil

Remarks:

Nil

Prepared By:

Jessica Farrugia
Quality Manager

Approved By:

Chris Magro
Laboratory Manager

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Laboratory Test Certificate

Determination of Liquid/Plastic Limit according to BS EN 1377 - 2: 1990 Clause 4.3

Client name:	J&P AVAX S.A.	Project:	Onshore & Offshore	Certificate Nº:	TCR377
Client address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Location/Town:	Geotechnical Investigation Delimara	Date of certificate:	14/11/2014
Attn:	Giorgos Rousopoulos			Client/Job Nº:	J2094
Client Tel Nº:	306972019434			Test Reference No:	ATT086
				Tested by:	LS
				Date of test:	12/11/2014

Test Information

Sample Ref No: 141101- Soil
Sampling Location: BH GL3
Sample Description: BH GL3 Sample 26
Date of sampling: 01/11/2014
Type of Material: Soil

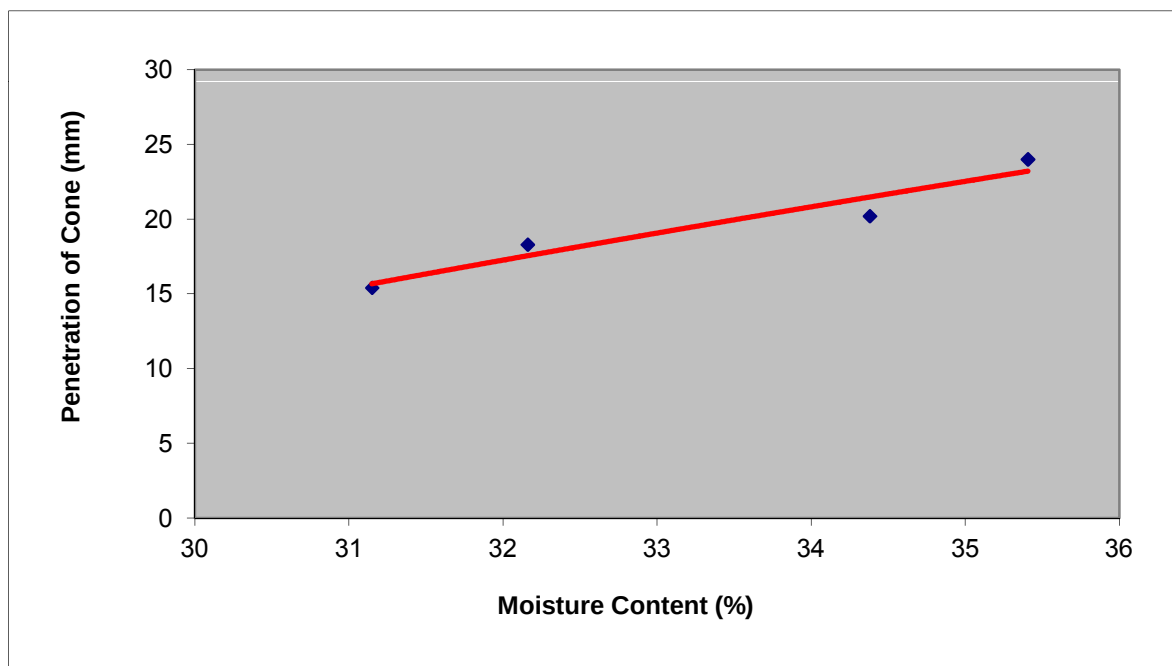
Results

Proportion received on 425µm sieve _____

Liquid Limit (%): 33.68

Plastic Limit (%): Non Plastic

Placticity Index (%): -



Deviation from Standard:

Nil

Remarks:

Plastic limit determination could not be obtained due to non plasticity in Material

Prepared By:

Jessica Farrugia
Quality Manager

Approved By:

Chris Magro
Laboratory Manager

TEST CERTIFICATE

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Laboratory Test Certificate

Determination of Liquid/Plastic Limit according to BS EN 1377 - 2: 1990 Clause 4.3

Client name:	J&P AVAX S.A.	Project:	Onshore & Offshore	Certificate Nº:	TCR396
Client address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Location/Town:	Geotechnical Investigation Delimara	Date of certificate:	20/11/2014
Attn:	Giorgos Rousopoulos			Client/Job Nº:	J2094
Client Tel Nº:	306972019434			Test Reference No:	ATT091
				Tested by:	LS
				Date of test:	19/11/2014

Test Information

Sample Ref No: 141101- Soil
Sampling Location: BH GL3
Sample Description: BH GL3 Sample 23
Date of sampling: 01/11/2014
Type of Material: Soil

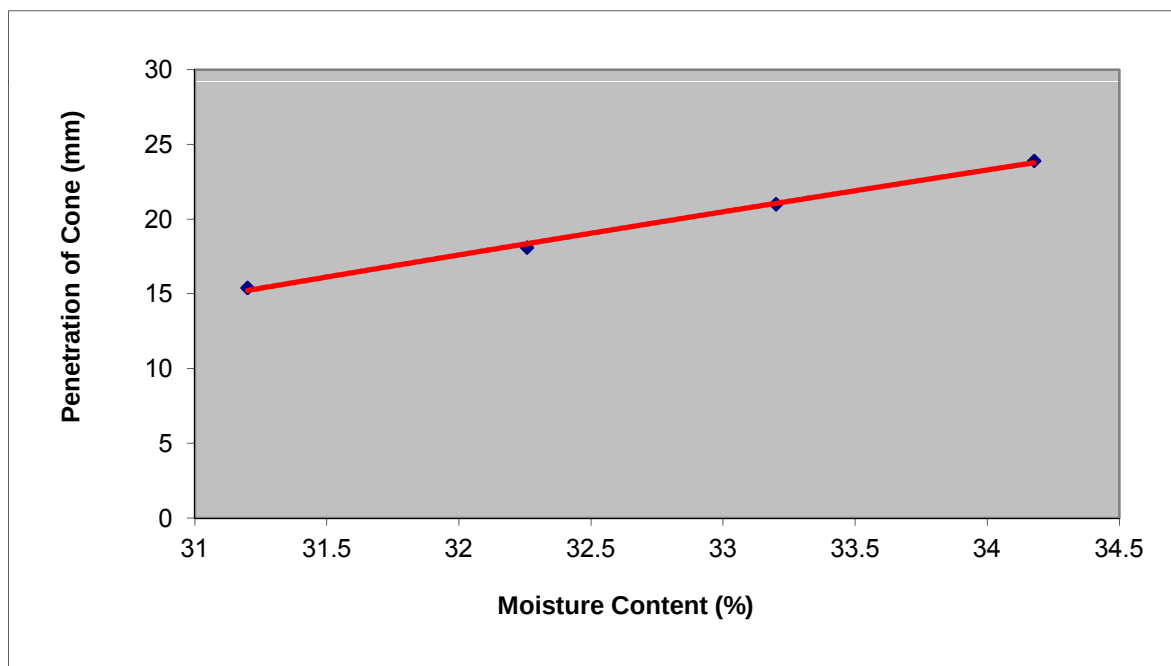
Results

Proportion received on 425µm sieve _____

Liquid Limit (%): 32.93

Plastic Limit (%): Non Plastic

Placticity Index (%): -



Deviation from Standard:

Nil

Remarks:

Plastic limit determination could not be obtained due to non plasticity in Material

Prepared By:

Jessica Farrugia
Quality Manager

Approved By:

Chris Magro
Laboratory Manager

TEST CERTIFICATE

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Laboratory Test Certificate

Determination of Liquid/Plastic Limit according to BS EN 1377 - 2: 1990 Clause 4.3

Client name:	J&P AVAX S.A.	Project:	Onshore & Offshore	Certificate N°:	TCR357
Client address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece		Geotechnical Investigation	Date of certificate:	07/11/2014
Attn:	Giorgos Rousopoulos	Location/Town:	Delimara	Client/Job N°:	J2094
Client Tel N°:	306972019434			Test Reference No:	ATT076
				Tested by:	LS
				Date of test:	06/11/2014

Test Information

Sample Ref No: 141028 - Soil
 Sampling Location: BH GL4
 Sample Description: BH GL4 Sample 4
 Date of sampling: 28/10/2014
 Type of Material: Soil

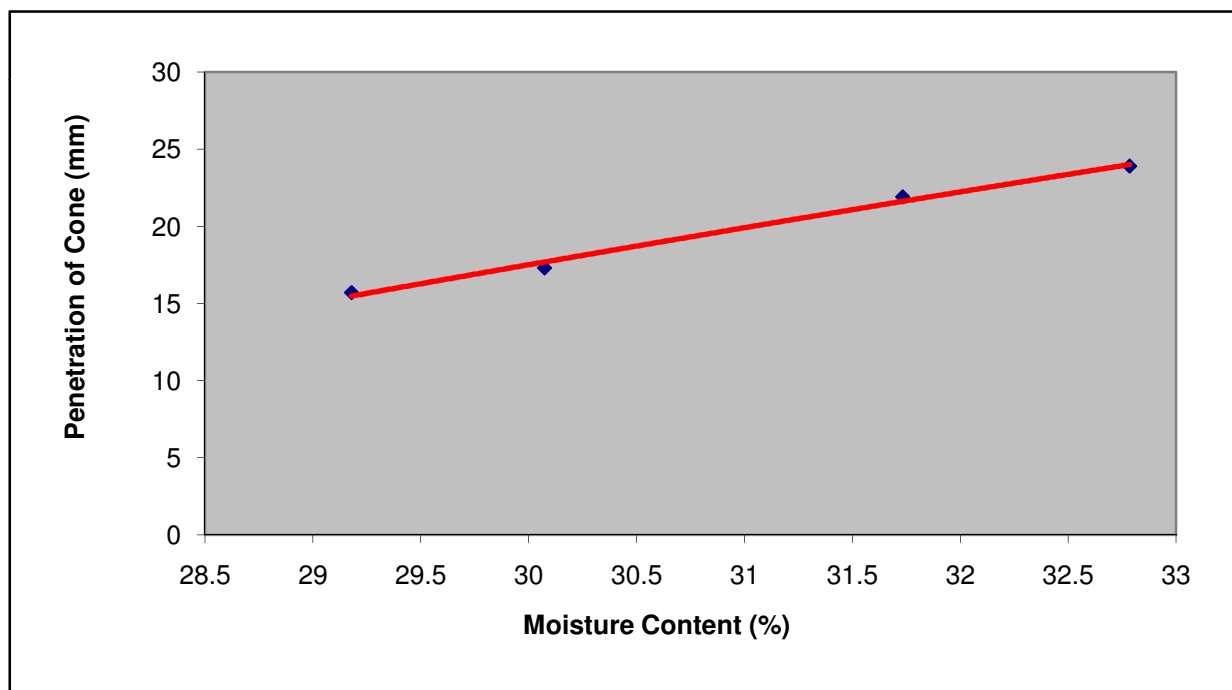
Results

Proportion received on 425µm sieve : _____

Liquid Limit (%): 31.19

Plastic Limit (%): 9.02

Placticity Index (%): 22.17



Deviation from Standard:

Nil

Remarks:

Nil

Prepared By:

Jessica Farrugia
Quality Manager

Approved By:

Chris Magro
Laboratory Manager

TEST CERTIFICATE

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E: info@terracoiremalta.com W: www.terracoiremalta.com

Registration No.: C32227

Alfred Xerri

Filename:

J2094_Soil_ATT_TCR357_ATT076.xls

Laboratory Test Certificate

Determination of Liquid/Plastic Limit according to BS EN 1377 - 2: 1990 Clause 4.3

Client name:	J&P AVAX S.A.	Project:	Onshore & Offshore	Certificate Nº:	TCR394
Client address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Location/Town:	Delimara	Date of certificate:	19/11/2014
Attn:	Giorgos Rousopoulos			Client/Job Nº:	J2094
Client Tel Nº:	306972019434			Test Reference No:	ATT089
				Tested by:	LS
				Date of test:	18/11/2014

Test Information

Sample Ref No: 141028 - Soil
Sampling Location: BH GL4
Sample Description: BH GL4 Sample 7
Date of sampling: 28/10/2014
Type of Material: Soil

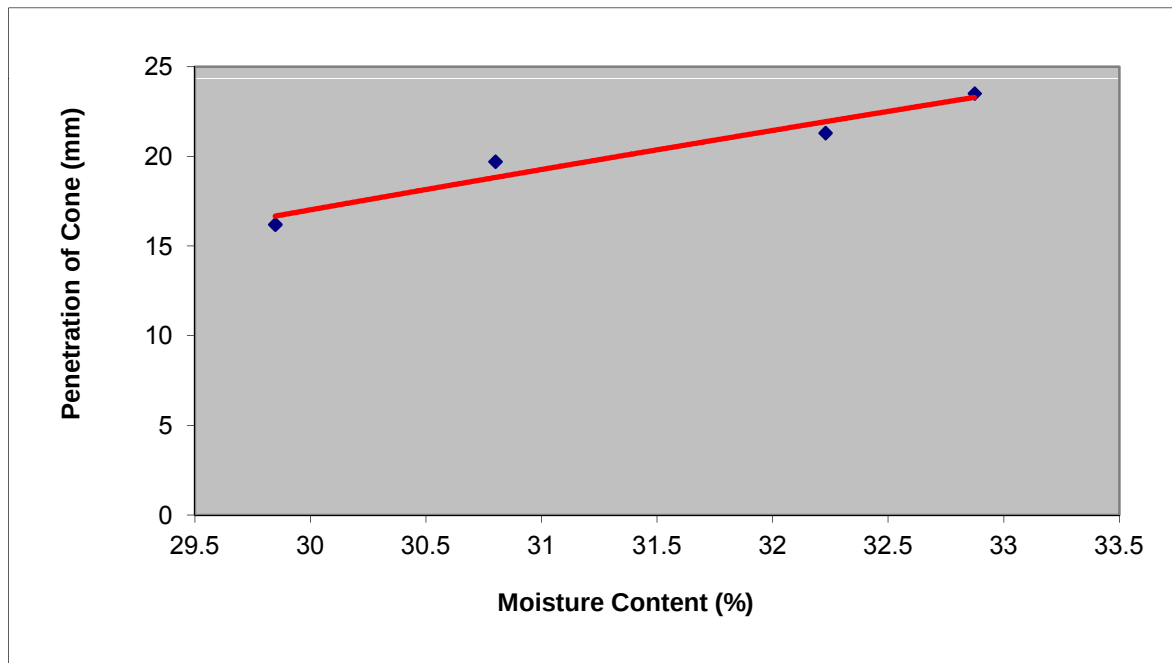
Results

Proportion received on 425µm sieve _____

Liquid Limit (%): 31.44

Plastic Limit (%): 10.17

Placticity Index (%): 21.27



Deviation from Standard:

Nil

Remarks:

Nil

Prepared By:

Jessica Farrugia
Quality Manager

Approved By:

Chris Magro
Laboratory Manager

TEST CERTIFICATE

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Laboratory Test Certificate

Determination of Liquid/Plastic Limit according to BS EN 1377 - 2: 1990 Clause 4.3

Client name:	J&P AVAX S.A.	Project:	Onshore & Offshore	Certificate Nº:	TCR397
Client address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Location/Town:	Delimara	Date of certificate:	20/11/2014
Attn:	Giorgos Rousopoulos			Client/Job Nº:	J2094
Client Tel Nº:	306972019434			Test Reference No:	ATT092
				Tested by:	LS
				Date of test:	19/11/2014

Test Information

Sample Ref No: 141028 - Soil
 Sampling Location: BH GL4
 Sample Description: BH GL4 Sample 2
 Date of sampling: 28/10/2014
 Type of Material: Soil

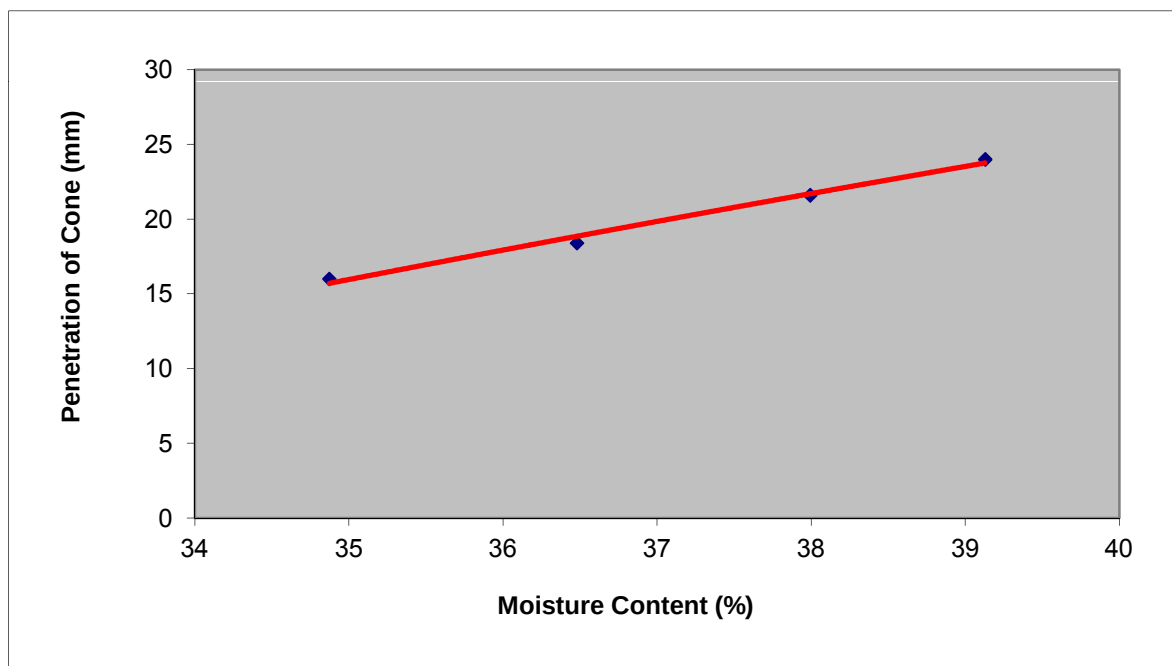
Results

Proportion received on 425µm sieve _____

Liquid Limit (%): 37.24

Plastic Limit (%): 11.13

Placticity Index (%): 26.11



Deviation from Standard:

Nil

Remarks:

Nil

Prepared By:

Jessica Farrugia
Quality Manager

Approved By:

Chris Magro
Laboratory Manager

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TERRACORE

Laboratory Test Result sheet

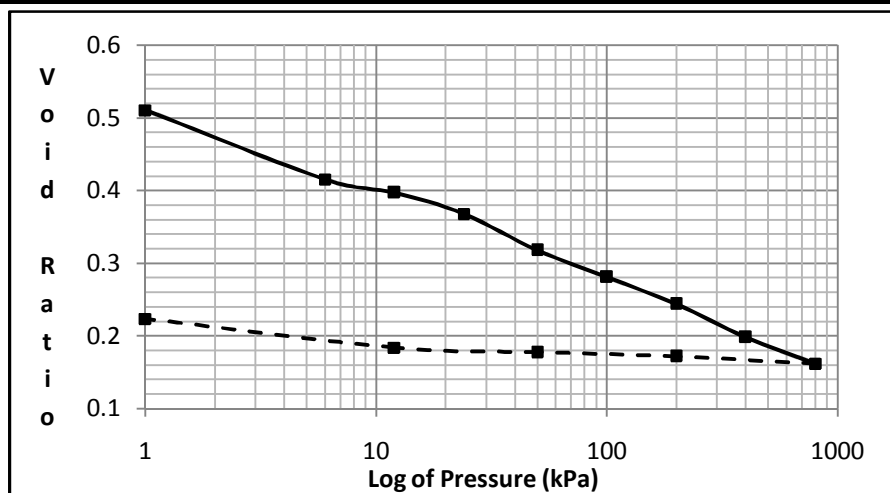
Determination of the One-Dimensional Consolidation Properties according to BS 1377-5: 1990 Clause 3

Client:	J&P AVAX S.A.	Date of sampling:	30/10/2014	Certificate no:	TCR373
Address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Date of test:	3/11/2014	Date of certificate:	14/11/2014
Commisined by:	Giorgos Rousopoulos	Sample source:	BH GL1 Sample 8	Job no:	J2094
Client Tel No:	306972019434	Project:	Geotechnical Investigation	Test reference no:	CON002
		Location/Town:	Delimara	Tested by:	LS

Sampling Information:

Sampling location:	BH GL1	Description of sample:	Grey Clay
Type of sample:	Undisturbed	Sample depth:	Sample 8

General Certificate



Area of Sample (A)	1963.75	mm ²
Height of Sample (H_o)	20	mm
Initial Sample Mass (m_o)	79.54	g
Initial Bulk Density (ρ)	2.025	Mg/m ³
Particle Density (ρ_s)	2.595	Mg/m ³
Moisture Content (w_o)	17.87	%
Initial Dry Density (ρ_d)	1.718	Mg/m ³
Initial Voids Ratio (e_o)	0.510	
Initial Degree of Saturation (S_o)	90.87	
Equivalent Height of Solid Particles (H_s)	13.24	mm

Pressure Increment (kPa)	Coef. of Volume Compressibility (m ² /MN)	Coef. of Consolidation (m ² /year)	Coef. of Secondary Compression	Time Fitting Method (t ₅₀)	Voids Ratio
6	10.50	0.868	0.3150	10	0.415
12	2.13	0.891	0.0600	9	0.397
24	1.76	2.769	0.0975	2.8	0.368
50	1.41	29.258	0.1655	0.25	0.318
100	0.56	7.610	0.1220	0.9	0.281
200	0.29	7.183	0.1230	0.9	0.244
400	0.18	9.753	0.1515	0.62	0.198
800	0.08	2.259	0.1205	2.5	0.161

Comments:
Nil

Deviations from Standard:
Nil

Prepared by

Jessica Farrugia
Quality Manager

Approved By

Chris Magro
Laboratory Manager

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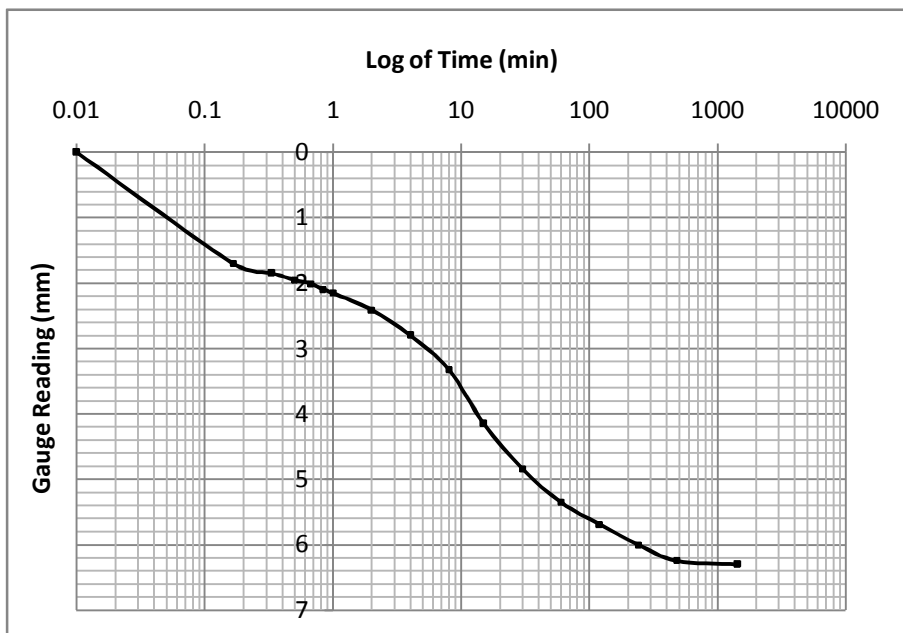
Determination of the One-Dimensional Consolidation Properties according to BS 1377-5: 1990 Clause 3

Client:	J&P AVAX S.A.	Date of sampling:	26/09/2014	Certificate no:	TCR342
Address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Date of test:	13/10/2014	Date of certificate:	30/10/2014
Commisined by:	Giorgos Rousopoulos	Sample source:	BH NB2	Job no:	J2094
Client Tel No:	306972019434	Project:	Geotechnical Investigation	Test reference no:	CON001
		Location/Town:	Delimara	Tested by:	LS

Sampling Information:

Sampling location:	BH GL1	Description of sample:	Grey Clay
Type of sample:	Undisturbed	Sample depth:	Sample 8

Load Incriment 1



Initial Height (H_1)	20.00	mm	d_0	-1.00	mm
Final Height (H_2)	18.74	mm	d_{100}	6.20	mm
Average Height ($\bar{H}$)	19.37	mm	d_{90}	5.48	mm
Test Temperature	25	°C	d_{50}	3.60	mm
Incriment Pressure	6	kPa	t_{50}	10.00	min

Time (min)	Gauge Reading (mm)	Specimen Deflection (mm)
0	0.00	0.00
0.17	1.70	0.34
0.33	1.85	0.37
0.5	1.95	0.39
0.67	2.01	0.40
0.83	2.10	0.42
1	2.15	0.43
2	2.41	0.48
4	2.80	0.56
8	3.32	0.66
15	4.15	0.83
30	4.84	0.97
60	5.35	1.07
120	5.69	1.14
240	6.00	1.20
480	6.24	1.25
1440	6.30	1.26
2280	0.00	0.00
3390	0.00	0.00

Comments:
Nil

Deviations from Standard:
Nil

Prepared by

Approved By

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Quality Manager

Chris Magro
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Terracore Ltd,

Registration No.:

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Plot 23, New Street in Kappas Street Mosta Industrial Estate MST 4003

Directors:

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Filename:

J2094_Soil_TCR373_CON002.xlsx

E: info@terracoemalta.com W: www.terracoemalta.com

Laboratory Test Result sheet

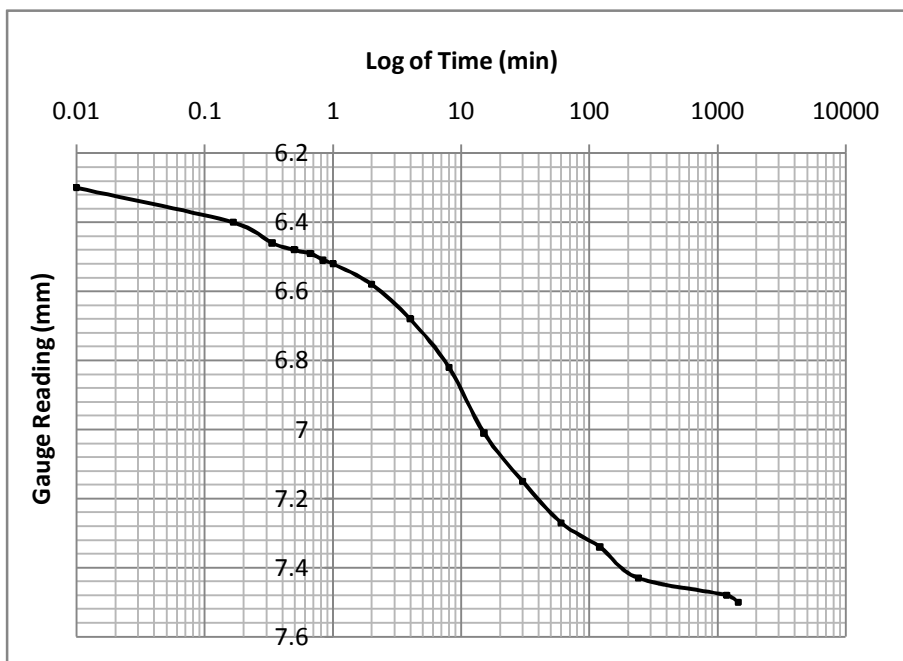
Determination of the One-Dimensional Consolidation Properties according to BS 1377-5: 1990 Clause 3

Client:	J&P AVAX S.A.	Date of sampling:	26/09/2014	Certificate no:	TCR342
Address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Date of test:	13/10/2014	Date of certificate:	30/10/2014
Commisined by:	Giorgos Rousopoulos	Sample source:	BH NB2	Job no:	J2094
Client Tel No:	306972019434	Project:	Geotechnical Investigation	Test reference no:	CON001
		Location/Town:	Delimara	Tested by:	LS

Sampling Information:

Sampling location:	BH GL1	Description of sample:	Grey Clay
Type of sample:	Undisturbed	Sample depth:	Sample 8

Load Increment 2



Initial Height (H_1)	18.74	mm	d_0	6.24	mm
Final Height (H_2)	18.50	mm	d_{100}	7.45	mm
Average Height ($\bar{H}$)	18.62	mm	d_{90}	7.33	mm
Test Temperature	25	°C	d_{50}	6.85	mm
Increment Pressure	12	kPa	t_{50}	9.00	min

Time (min)	Gauge Reading (mm)	Specimen Deflection (mm)
0	6.30	1.26
0.17	6.40	1.28
0.33	6.46	1.29
0.5	6.48	1.30
0.67	6.49	1.30
0.83	6.51	1.30
1	6.52	1.30
2	6.58	1.32
4	6.68	1.34
8	6.82	1.36
15	7.01	1.40
30	7.15	1.43
60	7.27	1.45
120	7.34	1.47
240	7.43	1.49
1170	7.48	1.50
1440	7.50	1.50
2940	0.00	0.00
5760	0.00	0.00

Comments:
Nil

Deviations from Standard:
Nil

Prepared by

Approved By

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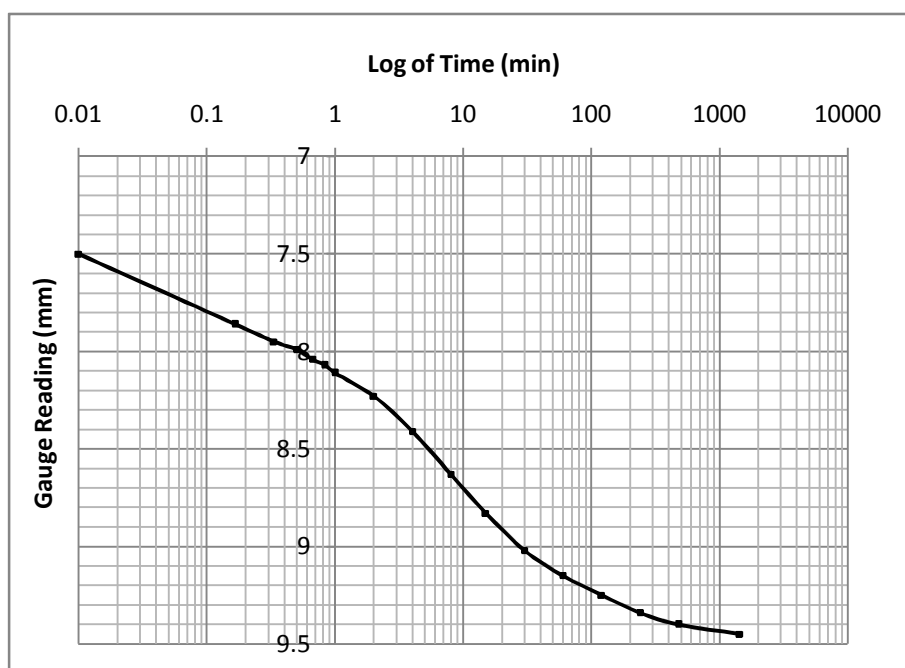
Determination of the One-Dimensional Consolidation Properties according to BS 1377-5: 1990 Clause 3

Client:	J&P AVAX S.A.	Date of sampling:	26/09/2014	Certificate no:	TCR342
Address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Date of test:	13/10/2014	Date of certificate:	30/10/2014
Commisined by:	Giorgos Rousopoulos	Sample source:	BH NB2	Job no:	J2094
Client Tel No:	306972019434	Project:	Geotechnical Investigation	Test reference no:	CON001
		Location/Town:	Delimara	Tested by:	LS

Sampling Information:

Sampling location:	BH GL1	Description of sample:	Grey Clay
Type of sample:	Undisturbed	Sample depth:	Sample 8

Load Increment 3



Initial Height (H_1)	18.50	mm	d_0	7.30	mm
Final Height (H_2)	18.11	mm	d_{100}	9.33	mm
Average Height ($\bar{H}$)	18.31	mm	d_{90}	9.13	mm
Test Temperature	25	°C	d_{50}	8.31	mm
Increment Pressure	24	kPa	t_{50}	2.80	min

Time (min)	Gauge Reading (mm)	Specimen Deflection (mm)
0	7.50	1.50
0.17	7.86	1.57
0.33	7.95	1.59
0.5	7.99	1.60
0.67	8.04	1.61
0.83	8.07	1.61
1	8.11	1.62
2	8.23	1.65
4	8.41	1.68
8	8.63	1.73
15	8.83	1.77
30	9.02	1.80
60	9.15	1.83
120	9.25	1.85
240	9.34	1.87
480	9.40	1.88
1440	9.45	1.89
0	0.00	0.00
0	0.00	0.00

Comments:
Nil

Deviations from Standard:
Nil

Prepared by

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Approved By

Chris Magro
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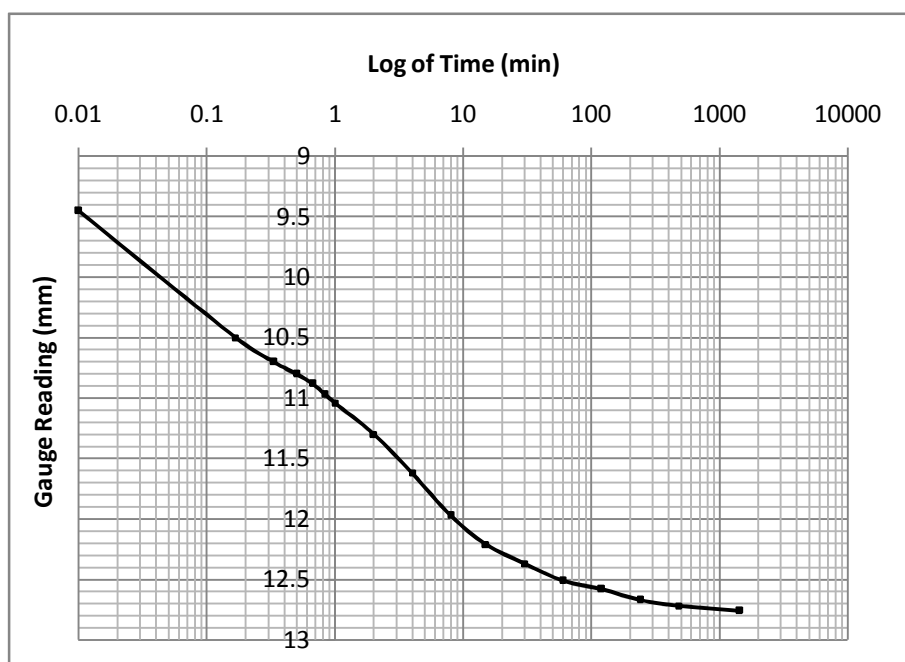
Determination of the One-Dimensional Consolidation Properties according to BS 1377-5: 1990 Clause 3

Client:	J&P AVAX S.A.	Date of sampling:	26/09/2014	Certificate no:	TCR342
Address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Date of test:	13/10/2014	Date of certificate:	30/10/2014
Commisined by:	Giorgos Rousopoulos	Sample source:	BH NB2	Job no:	J2094
Client Tel No:	306972019434	Project:	Geotechnical Investigation	Test reference no:	CON001
		Location/Town:	Delimara	Tested by:	LS

Sampling Information:

Sampling location:	BH GL1	Description of sample:	Grey Clay
Type of sample:	Undisturbed	Sample depth:	Sample 8

Load Increment 4



Initial Height (H_1)	18.11	mm	d_0	8.85	mm
Final Height (H_2)	17.45	mm	d_{100}	12.64	mm
Average Height ($\bar{H}$)	17.78	mm	d_{90}	12.26	mm
Test Temperature	25	°C	d_{50}	10.74	mm
Increment Pressure	50	kPa	t_{50}	0.25	min

Time (min)	Gauge Reading (mm)	Specimen Deflection (mm)
0	9.45	1.89
0.17	10.50	2.10
0.33	10.70	2.14
0.5	10.80	2.16
0.67	10.88	2.18
0.83	10.97	2.19
1	11.04	2.21
2	11.30	2.26
4	11.62	2.32
8	11.97	2.39
15	12.21	2.44
30	12.37	2.47
60	12.51	2.50
120	12.58	2.52
240	12.67	2.53
480	12.72	2.54
1440	12.76	2.55
0	0.00	0.00
0	0.00	0.00

Comments:

Nil

Deviations from Standard:

Nil

Prepared by

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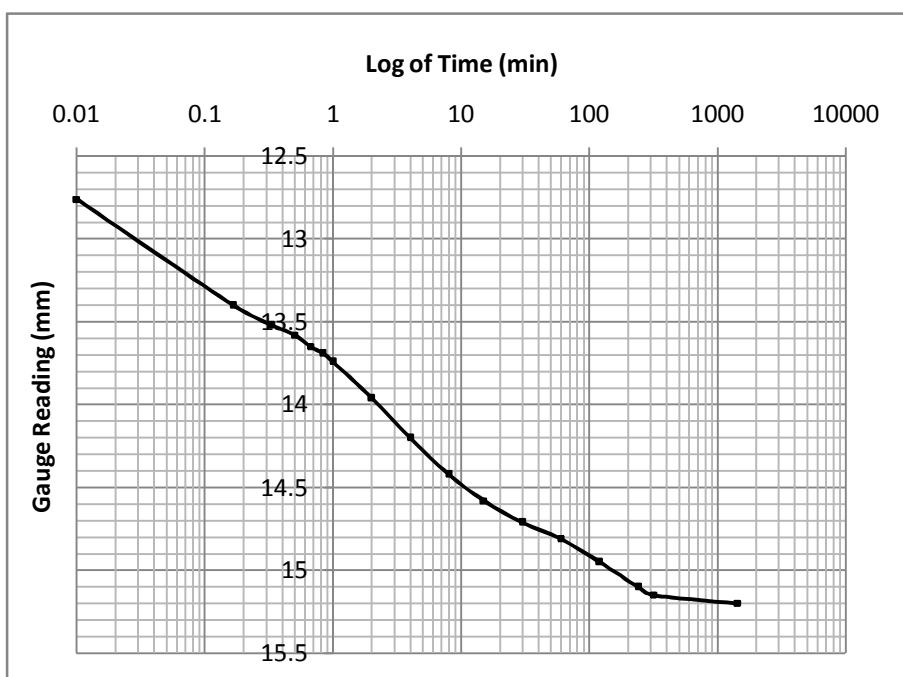
Determination of the One-Dimensional Consolidation Properties according to BS 1377-5: 1990 Clause 3

Client:	J&P AVAX S.A.	Date of sampling:	26/09/2014	Certificate no:	TCR342
Address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Date of test:	13/10/2014	Date of certificate:	30/10/2014
Commisined by:	Giorgos Rousopoulos	Sample source:	BH NB2	Job no:	J2094
Client Tel No:	306972019434	Project:	Geotechnical Investigation	Test reference no:	CON001
		Location/Town:	Delimara	Tested by:	LS

Sampling Information:

Sampling location:	BH GL1	Description of sample:	Grey Clay
Type of sample:	Undisturbed	Sample depth:	Sample 8

Load Increment 5



Time (min)	Gauge Reading (mm)	Specimen Deflection (mm)
0	12.76	2.55
0.17	13.40	2.68
0.33	13.52	2.70
0.5	13.58	2.72
0.67	13.65	2.73
0.83	13.69	2.74
1	13.74	2.75
2	13.96	2.79
4	14.20	2.84
8	14.42	2.88
15	14.58	2.92
30	14.71	2.94
60	14.81	2.96
120	14.95	2.99
240	15.10	3.02
318	15.15	3.03
1440	15.20	3.04
0	0.00	0.00
0	0.00	0.00

Initial Height (H_1)	17.45	mm	d_0	12.35	mm
Final Height (H_2)	16.96	mm	d_{100}	15.06	mm
Average Height ($\bar{H}$)	17.20	mm	d_{90}	14.79	mm
Test Temperature	25	°C	d_{50}	13.71	mm
Increment Pressure	100	kPa	t_{50}	0.90	min

Comments:
Nil

Deviations from Standard:
Nil

Prepared by

Approved By

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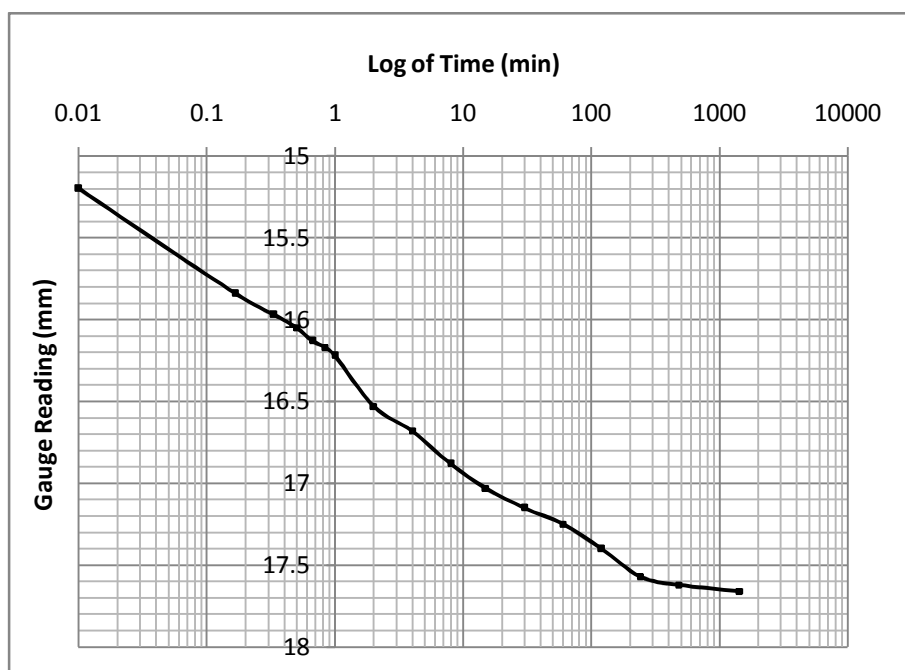
Determination of the One-Dimensional Consolidation Properties according to BS 1377-5: 1990 Clause 3

Client:	J&P AVAX S.A.	Date of sampling:	26/09/2014	Certificate no:	TCR342
Address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Date of test:	13/10/2014	Date of certificate:	30/10/2014
Commisined by:	Giorgos Rousopoulos	Sample source:	BH NB2	Job no:	J2094
Client Tel No:	306972019434	Project:	Geotechnical Investigation	Test reference no:	CON001
		Location/Town:	Delimara	Tested by:	LS

Sampling Information:

Sampling location:	BH GL1	Description of sample:	Grey Clay
Type of sample:	Undisturbed	Sample depth:	Sample 8

Load Increment 6



Initial Height (H_1)	16.96	mm	d_0	14.85	mm
Final Height (H_2)	16.47	mm	d_{100}	17.57	mm
Average Height ($\bar{H}$)	16.71	mm	d_{90}	17.30	mm
Test Temperature	25	°C	d_{50}	16.21	mm
Increment Pressure	200	kPa	t_{50}	0.90	min

Time (min)	Gauge Reading (mm)	Specimen Deflection (mm)
0	15.20	3.04
0.17	15.84	3.17
0.33	15.97	3.19
0.5	16.05	3.21
0.67	16.13	3.23
0.83	16.17	3.23
1	16.22	3.24
2	16.53	3.31
4	16.68	3.34
8	16.88	3.38
15	17.03	3.41
30	17.15	3.43
60	17.25	3.45
120	17.40	3.48
240	17.57	3.51
480	17.62	3.52
1440	17.66	3.53
0	0.00	0.00
0	0.00	0.00

Comments:

Nil

Deviations from Standard:

Nil

Prepared by

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Registration No.:

C32227

Directors:

Alfred Xerri

Filename:

J2094_Soil_TCR373_CON002.xlsx

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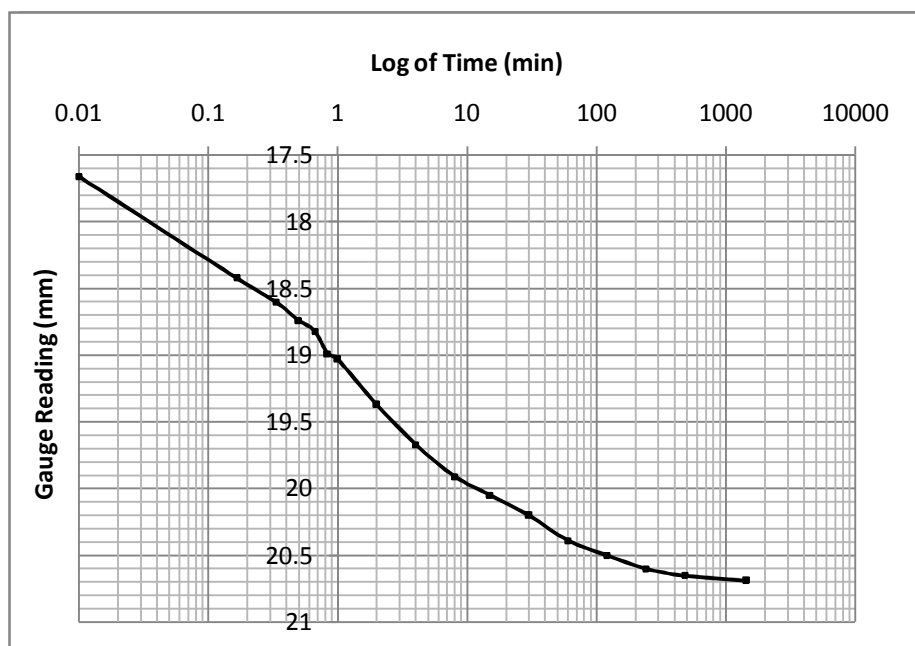
Determination of the One-Dimensional Consolidation Properties according to BS 1377-5: 1990 Clause 3

Client:	J&P AVAX S.A.	Date of sampling:	26/09/2014	Certificate no:	TCR342
Address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Date of test:	13/10/2014	Date of certificate:	30/10/2014
Commisined by:	Giorgos Rousopoulos	Sample source:	BH NB2	Job no:	J2094
Client Tel No:	306972019434	Project:	Geotechnical Investigation	Test reference no:	CON001
		Location/Town:	Delimara	Tested by:	LS

Sampling Information:

Sampling location:	BH GL1	Description of sample:	Grey Clay
Type of sample:	Undisturbed	Sample depth:	Sample 8

Load Increment 7



Initial Height (H_1)	16.47	mm	d_0	17.20	mm
Final Height (H_2)	15.86	mm	d_{100}	20.55	mm
Average Height ($\bar{H}$)	16.17	mm	d_{90}	20.22	mm
Test Temperature	25	°C	d_{50}	18.88	mm
Increment Pressure	400	kPa	t_{50}	0.62	min

Time (min)	Gauge Reading (mm)	Specimen Deflection (mm)
0	17.66	3.53
0.17	18.42	3.68
0.33	18.60	3.72
0.50	18.74	3.75
0.67	18.82	3.76
0.83	18.99	3.80
1	19.03	3.81
2	19.37	3.87
4	19.67	3.93
8	19.91	3.98
15	20.05	4.01
30	20.20	4.04
60	20.39	4.08
120	20.50	4.10
240	20.60	4.12
480	20.65	4.13
1440	20.69	4.14
0	0.00	0.00
0	0.00	0.00

Comments:

Nil

Deviations from Standard:

Nil

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Approved By

Chris Magro
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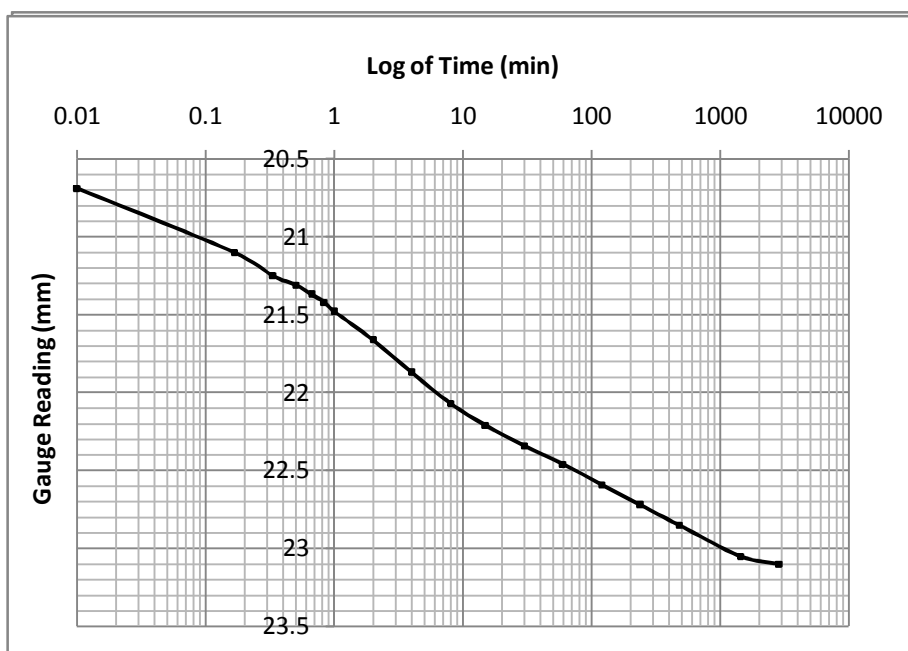
Determination of the One-Dimensional Consolidation Properties according to BS 1377-5: 1990 Clause 3

Client:	J&P AVAX S.A.	Date of sampling:	26/09/2014	Certificate no:	TCR342
Address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Date of test:	13/10/2014	Date of certificate:	30/10/2014
Commisined by:	Giorgos Rousopoulos	Sample source:	BH NB2	Job no:	J2094
Client Tel No:	306972019434	Project:	Geotechnical Investigation	Test reference no:	CON001
		Location/Town:	Delimara	Tested by:	LS

Sampling Information:

Sampling location:	BH GL1	Description of sample:	Grey Clay
Type of sample:	Undisturbed	Sample depth:	Sample 8

Load Increment 8



Initial Height (H_1)	15.86	mm	d_0	20.45	mm
Final Height (H_2)	15.38	mm	d_{100}	23.00	mm
Average Height ($\bar{H}$)	15.62	mm	d_{90}	22.75	mm
Test Temperature	25	°C	d_{50}	21.73	mm
Increment Pressure	800	kPa	t_{50}	2.50	min

Time (min)	Gauge Reading (mm)	Specimen Deflection (mm)
0	20.69	4.14
0.17	21.10	4.22
0.33	21.25	4.25
0.50	21.31	4.26
0.67	21.37	4.27
0.83	21.42	4.28
1	21.48	4.30
2	21.66	4.33
4	21.87	4.37
8	22.07	4.41
15	22.21	4.44
30	22.34	4.47
60	22.46	4.49
120	22.59	4.52
240	22.72	4.54
480	22.85	4.57
1440	23.05	4.61
2880	23.10	4.62
0	0.00	0.00

Comments:
Nil

Deviations from Standard:
Nil

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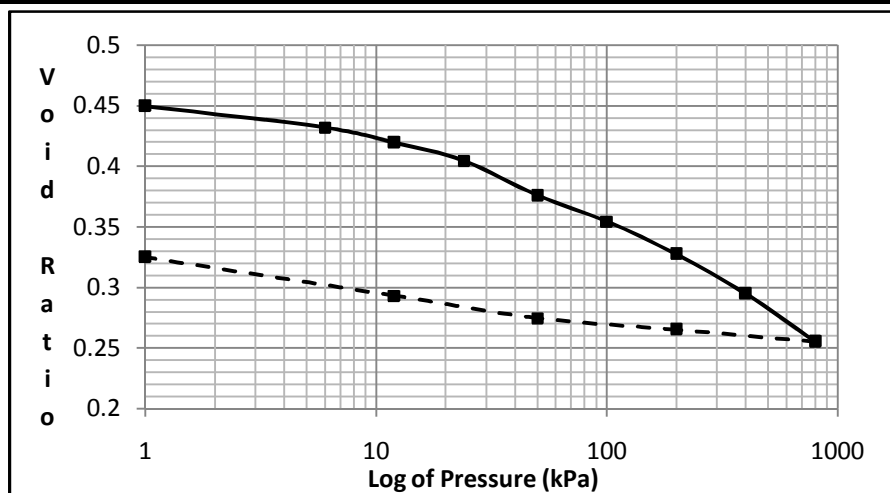
Determination of the One-Dimensional Consolidation Properties according to BS 1377-5: 1990 Clause 3

Client:	J&P AVAX S.A.	Date of sampling:	30/10/2014	Certificate no:	TCR410
Address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Date of test:	14/11/2014	Date of certificate:	26/11/2014
Commisined by:	Giorgos Rousopoulos	Sample source:	Proctor Sample	Job no:	J2094
Client Tel No:	306972019434	Project:	Geotechnical Investigation	Test reference no:	CON003
		Location/Town:	Delimara	Tested by:	LS

Sampling Information:

Sampling location:	Proctor Sample	Description of sample:	Grey Clay
Type of sample:	Compacted	Sample depth:	n/a

General Certificate



Area of Sample (A)	1963.75	mm ²
Height of Sample (H_o)	20.12	mm
Initial Sample Mass (m_o)	81.21	g
Initial Bulk Density (ρ)	2.055	Mg/m ³
Particle Density (ρ_s)	2.595	Mg/m ³
Moisture Content (w_o)	14.81	%
Initial Dry Density (ρ_d)	1.790	Mg/m ³
Initial Voids Ratio (e_o)	0.450	
Initial Degree of Saturation (S_o)	85.50	
Equivalent Height of Solid Particles (H_s)	13.88	mm

Pressure Increment (kPa)	Coef. of Volume Compressibility (m ² /MN)	Coef. of Consolidation (m ² /year)	Coef. of Secondary Compression	Time Fitting Method (t ₅₀)	Voids Ratio
6	2.02	185.083	0.0606	0.05	0.432
12	1.46	25.891	0.0432	0.35	0.419
24	0.88	40.398	0.0517	0.22	0.404
50	0.79	15.384	0.0989	0.56	0.376
100	0.31	87.442	0.0741	0.095	0.354
200	0.20	80.158	0.0924	0.1	0.327
400	0.12	42.573	0.1133	0.18	0.295
800	0.08	2.499	0.1362	2.9	0.255

Comments:
Nil

Deviations from Standard:
Nil

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Approved By

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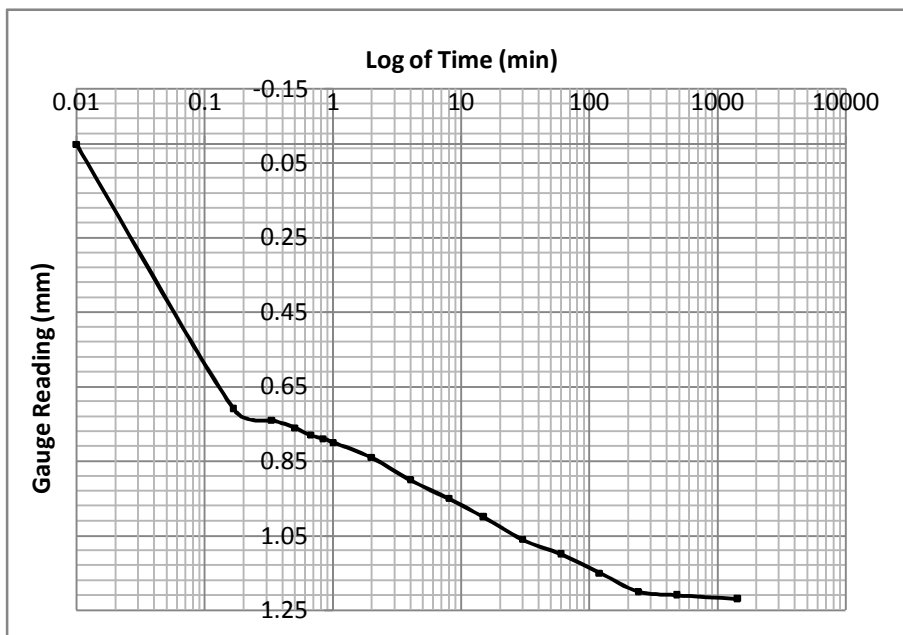
Determination of the One-Dimensional Consolidation Properties according to BS 1377-5: 1990 Clause 3

Client:	J&P AVAX S.A.	Date of sampling:	30/10/2014	Certificate no:	TCR410
Address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Date of test:	14/11/2014	Date of certificate:	26/11/2014
Commisined by:	Giorgos Rousopoulos	Sample source:	Proctor Sample	Job no:	J2094
Client Tel No:	306972019434	Project:	Geotechnical Investigat	Test reference no:	CON003
		Location/Town:	Delimara	Tested by:	LS

Sampling Information:

Sampling location:	Proctor Sample	Description of sample:	Grey Clay
Type of sample:	Compacted	Sample depth:	n/a

Load Incriment 1



Time (min)	Gauge Reading (mm)	Specimen Deflection (mm)
0	0.00	0.00
0.17	0.71	0.14
0.33	0.74	0.15
0.5	0.76	0.15
0.67	0.78	0.16
0.83	0.79	0.16
1	0.80	0.16
2	0.84	0.17
4	0.90	0.18
8	0.95	0.19
15	1.00	0.20
30	1.06	0.21
60	1.10	0.22
120	1.15	0.23
240	1.20	0.24
480	1.21	0.24
1440	1.22	0.24
2280	0.00	0.00
3390	0.00	0.00

Initial Height (H_1)	20.12	mm	d_0	-0.40	mm
Final Height (H_2)	19.88	mm	d_{100}	1.20	mm
Average Height ($\bar{H}$)	20.00	mm	d_{90}	1.04	mm
Test Temperature	25	°C	d_{50}	0.40	mm
Increment Pressure	6	kPa	t_{50}	0.05	min

Comments:
Nil

Deviations from Standard:
Nil

Prepared by

Approved By

Jessica Farrugia
Quality Manager

Chris Magro
Laboratory Manager

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Registration No.:

C32227

Directors:

Alfred Xerri

Filename:

J2094_Soil_TCR410_CON003.xlsx

Laboratory Test Result sheet

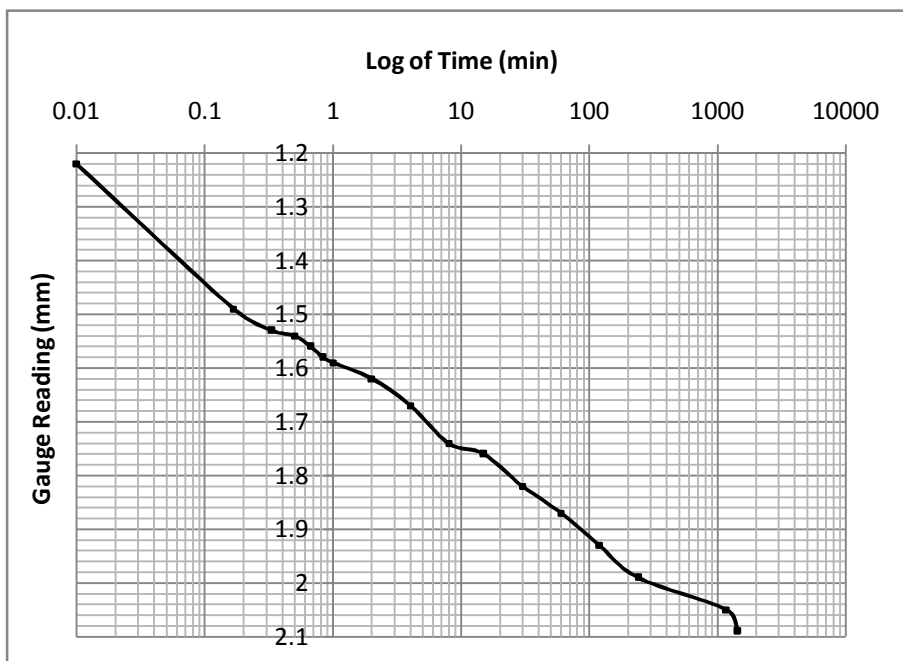
Determination of the One-Dimensional Consolidation Properties according to BS 1377-5: 1990 Clause 3

Client:	J&P AVAX S.A.	Date of sampling:	30/10/2014	Certificate no:	TCR410
Address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Date of test:	14/11/2014	Date of certificate:	26/11/2014
Commisined by:	Giorgos Rousopoulos	Sample source:	Proctor Sample	Job no:	J2094
Client Tel No:	306972019434	Project:	Geotechnical Investigat	Test reference no:	CON003
		Location/Town:	Delimara	Tested by:	LS

Sampling Information:

Sampling location:	Proctor Sample	Description of sample:	Grey Clay
Type of sample:	Compacted	Sample depth:	n/a

Load Increment 2



Initial Height (H_1)	19.88	mm	d_0	1.04	mm
Final Height (H_2)	19.70	mm	d_{100}	2.05	mm
Average Height ($\bar{H}$)	19.79	mm	d_{90}	1.95	mm
Test Temperature	25	°C	d_{50}	1.55	mm
Increment Pressure	12	kPa	t_{50}	0.35	min

Time (min)	Gauge Reading (mm)	Specimen Deflection (mm)
0	1.22	0.24
0.17	1.49	0.30
0.33	1.53	0.31
0.5	1.54	0.31
0.67	1.56	0.31
0.83	1.58	0.32
1	1.59	0.32
2	1.62	0.32
4	1.67	0.33
8	1.74	0.35
15	1.76	0.35
30	1.82	0.36
60	1.87	0.37
120	1.93	0.39
240	1.99	0.40
1170	2.05	0.41
1440	2.09	0.42
2940	0.00	0.00
5760	0.00	0.00

Comments:
Nil

Deviations from Standard:
Nil

Prepared by

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Quality Manager

Approved By

Chris Magro
Laboratory Manager

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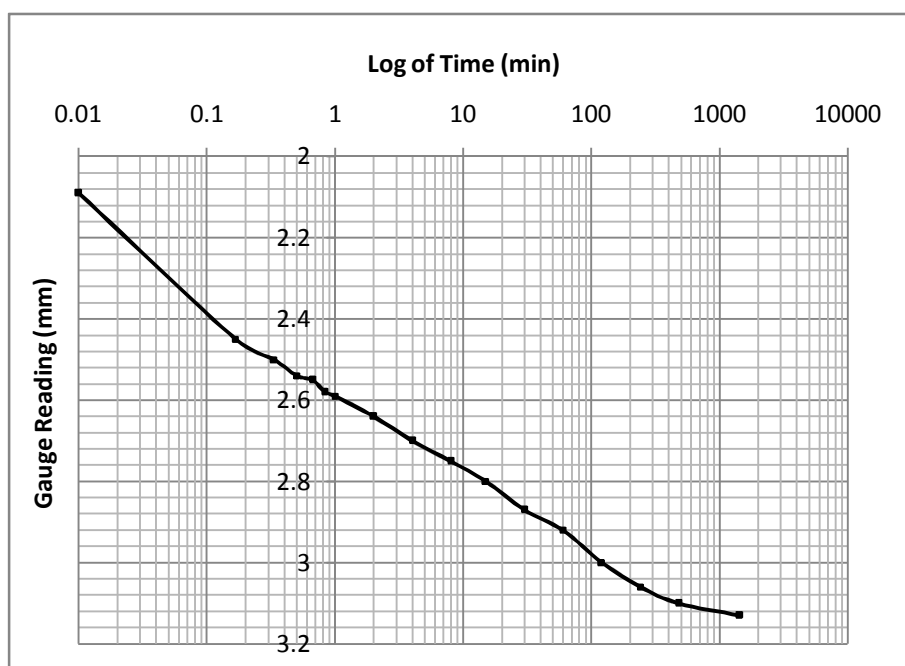
Determination of the One-Dimensional Consolidation Properties according to BS 1377-5: 1990 Clause 3

Client:	J&P AVAX S.A.	Date of sampling:	30/10/2014	Certificate no:	TCR410
Address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Date of test:	14/11/2014	Date of certificate:	26/11/2014
Commisined by:	Giorgos Rousopoulos	Sample source:	Proctor Sample	Job no:	J2094
Client Tel No:	306972019434	Project:	Geotechnical Investigat	Test reference no:	CON003
		Location/Town:	Delimara	Tested by:	LS

Sampling Information:

Sampling location:	Proctor Sample	Description of sample:	Grey Clay
Type of sample:	Compacted	Sample depth:	n/a

Load Increment 3



Initial Height (H_1)	19.70	mm	d_0	1.88	mm
Final Height (H_2)	19.49	mm	d_{100}	3.08	mm
Average Height ($\bar{H}$)	19.60	mm	d_{90}	2.96	mm
Test Temperature	25	°C	d_{50}	2.48	mm
Increment Pressure	24	kPa	t_{50}	0.22	min

Time (min)	Gauge Reading (mm)	Specimen Deflection (mm)
0	2.09	0.42
0.17	2.45	0.49
0.33	2.50	0.50
0.5	2.54	0.51
0.67	2.55	0.51
0.83	2.58	0.52
1	2.59	0.52
2	2.64	0.53
4	2.70	0.54
8	2.75	0.55
15	2.80	0.56
30	2.87	0.57
60	2.92	0.58
120	3.00	0.60
240	3.06	0.61
480	3.10	0.62
1440	3.13	0.63
0	0.00	0.00
0	0.00	0.00

Comments:
Nil

Deviations from Standard:
Nil

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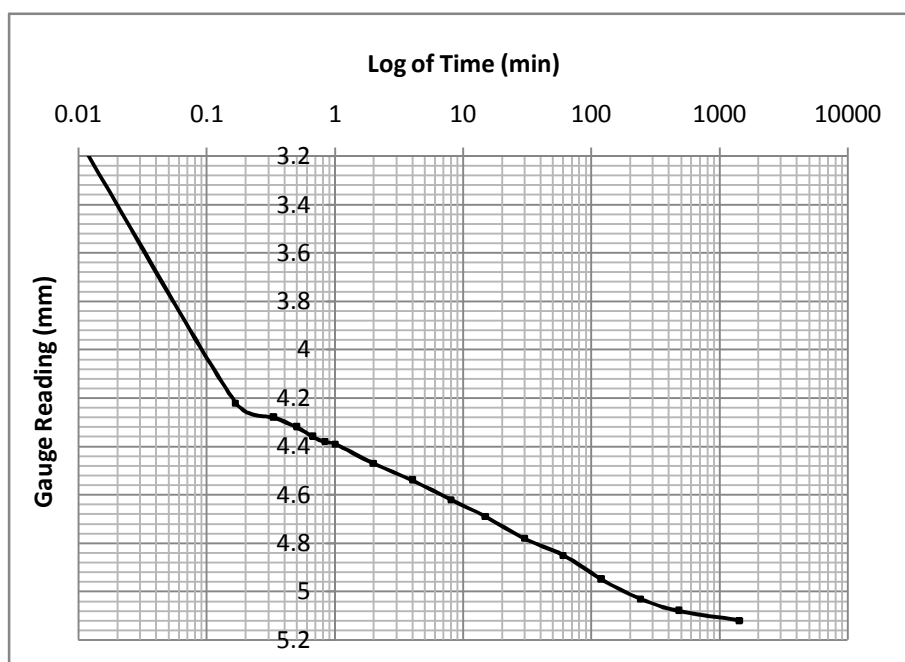
Determination of the One-Dimensional Consolidation Properties according to BS 1377-5: 1990 Clause 3

Client:	J&P AVAX S.A.	Date of sampling:	30/10/2014	Certificate no:	TCR410
Address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Date of test:	14/11/2014	Date of certificate:	26/11/2014
Commisined by:	Giorgos Rousopoulos	Sample source:	Proctor Sample	Job no:	J2094
Client Tel No:	306972019434	Project:	Geotechnical Investigat	Test reference no:	CON003
		Location/Town:	Delimara	Tested by:	LS

Sampling Information:

Sampling location:	Proctor Sample	Description of sample:	Grey Clay
Type of sample:	Compacted	Sample depth:	n/a

Load Increment 4



Time (min)	Gauge Reading (mm)	Specimen Deflection (mm)
0	3.13	0.63
0.17	4.22	0.84
0.33	4.28	0.86
0.5	4.32	0.86
0.67	4.36	0.87
0.83	4.38	0.88
1	4.39	0.88
2	4.47	0.89
4	4.54	0.91
8	4.62	0.92
15	4.69	0.94
30	4.78	0.96
60	4.85	0.97
120	4.95	0.99
240	5.03	1.01
480	5.08	1.02
1440	5.12	1.02
0	0.00	0.00
0	0.00	0.00

Initial Height (H_1)	19.49	mm	d_0	2.55	mm
Final Height (H_2)	19.10	mm	d_{100}	5.08	mm
Average Height ($\bar{H}$)	19.30	mm	d_{90}	4.83	mm
Test Temperature	25	°C	d_{50}	3.82	mm
Increment Pressure	50	kPa	t_{50}	0.56	min

Comments:

Nil

Deviations from Standard:

Nil

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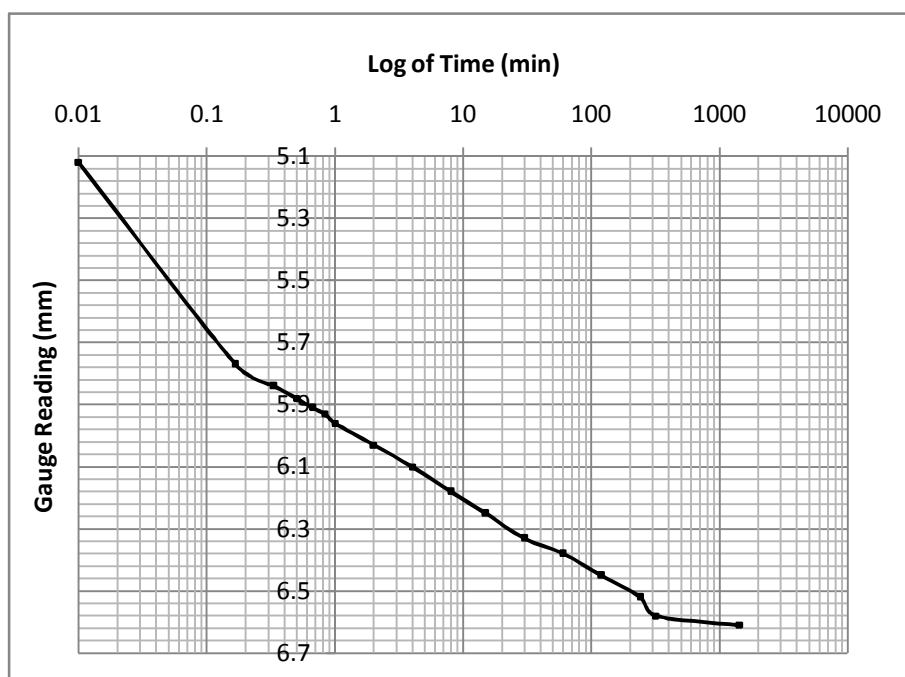
Determination of the One-Dimensional Consolidation Properties according to BS 1377-5: 1990 Clause 3

Client:	J&P AVAX S.A.	Date of sampling:	30/10/2014	Certificate no:	TCR410
Address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Date of test:	14/11/2014	Date of certificate:	26/11/2014
Commisined by:	Giorgos Rousopoulos	Sample source:	Proctor Sample	Job no:	J2094
Client Tel No:	306972019434	Project:	Geotechnical Investigat	Test reference no:	CON003
		Location/Town:	Delimara	Tested by:	LS

Sampling Information:

Sampling location:	Proctor Sample	Description of sample:	Grey Clay
Type of sample:	Compacted	Sample depth:	n/a

Load Increment 5



Time (min)	Gauge Reading (mm)	Specimen Deflection (mm)
0	5.12	1.02
0.17	5.77	1.15
0.33	5.84	1.17
0.5	5.88	1.18
0.67	5.91	1.18
0.83	5.93	1.19
1	5.96	1.19
2	6.03	1.21
4	6.10	1.22
8	6.18	1.24
15	6.25	1.25
30	6.33	1.27
60	6.38	1.28
120	6.45	1.29
240	6.52	1.30
318	6.58	1.32
1440	6.61	1.32
0	0.00	0.00
0	0.00	0.00

Initial Height (H_1)	19.10	mm	d_0	4.74	mm
Final Height (H_2)	18.80	mm	d_{100}	6.56	mm
Average Height ($\bar{H}$)	18.95	mm	d_{90}	6.38	mm
Test Temperature	25	°C	d_{50}	5.65	mm
Increment Pressure	100	kPa	t_{50}	0.10	min

Comments:
Nil

Deviations from Standard:
Nil

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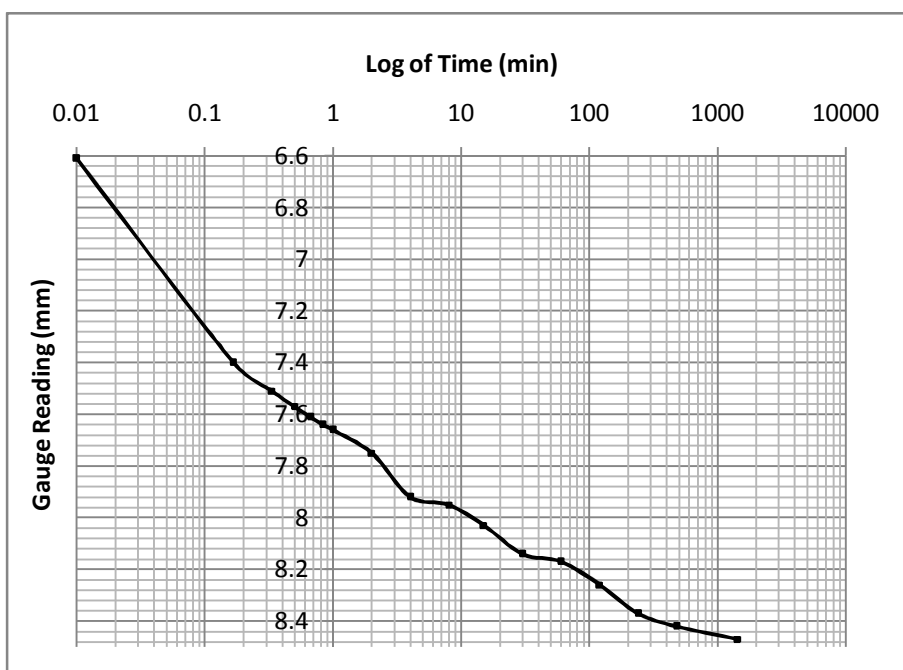
Determination of the One-Dimensional Consolidation Properties according to BS 1377-5: 1990 Clause 3

Client:	J&P AVAX S.A.	Date of sampling:	30/10/2014	Certificate no:	TCR410
Address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Date of test:	14/11/2014	Date of certificate:	26/11/2014
Commisined by:	Giorgos Rousopoulos	Sample source:	Proctor Sample	Job no:	J2094
Client Tel No:	306972019434	Project:	Geotechnical Investigat	Test reference no:	CON003
		Location/Town:	Delimara	Tested by:	LS

Sampling Information:

Sampling location:	Proctor Sample	Description of sample:	Grey Clay
Type of sample:	Compacted	Sample depth:	n/a

Load Increment 6



Initial Height (H_1)	18.80	mm	d_0	6.16	mm
Final Height (H_2)	18.43	mm	d_{100}	8.40	mm
Average Height ($\bar{H}$)	18.61	mm	d_{90}	8.18	mm
Test Temperature	25	°C	d_{50}	7.28	mm
Increment Pressure	200	kPa	t_{50}	0.10	min

Time (min)	Gauge Reading (mm)	Specimen Deflection (mm)
0	6.61	1.32
0.17	7.40	1.48
0.33	7.51	1.50
0.5	7.57	1.51
0.67	7.61	1.52
0.83	7.64	1.53
1	7.66	1.53
2	7.75	1.55
4	7.92	1.58
8	7.95	1.59
15	8.03	1.61
30	8.14	1.63
60	8.17	1.63
120	8.26	1.65
240	8.37	1.67
480	8.42	1.68
1440	8.47	1.69
0	0.00	0.00
0	0.00	0.00

Comments:

Nil

Deviations from Standard:

Nil

Prepared by

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Directors:

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Filename:

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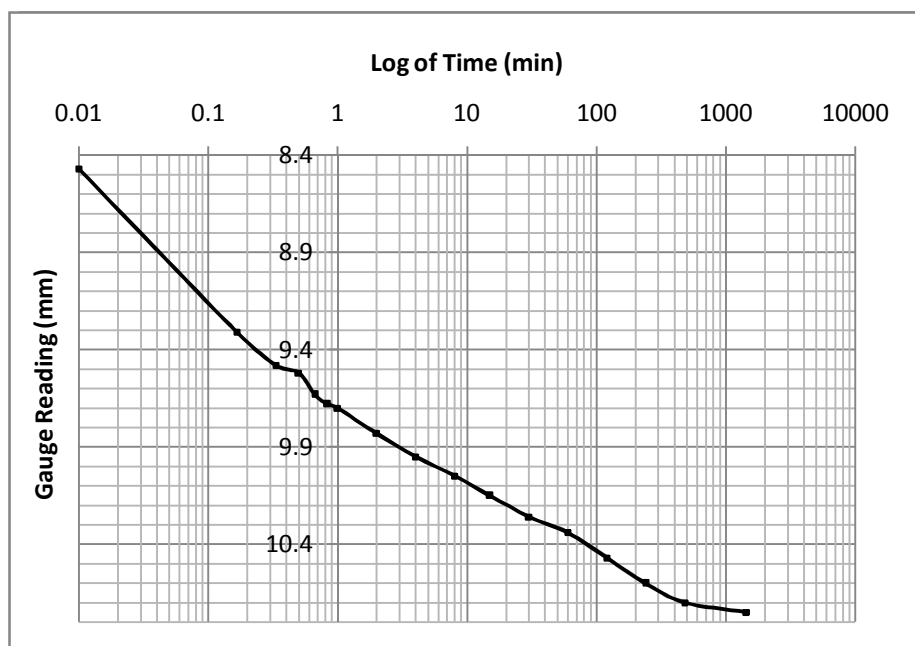
Determination of the One-Dimensional Consolidation Properties according to BS 1377-5: 1990 Clause 3

Client:	J&P AVAX S.A.	Date of sampling:	30/10/2014	Certificate no:	TCR410
Address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Date of test:	14/11/2014	Date of certificate:	26/11/2014
Commisined by:	Giorgos Rousopoulos	Sample source:	Proctor Sample	Job no:	J2094
Client Tel No:	306972019434	Project:	Geotechnical Investigat	Test reference no:	CON003
		Location/Town:	Delimara	Tested by:	LS

Sampling Information:

Sampling location:	Proctor Sample	Description of sample:	Grey Clay
Type of sample:	Compacted	Sample depth:	n/a

Load Increment 7



Time (min)	Gauge Reading (mm)	Specimen Deflection (mm)
0	8.47	1.69
0.17	9.31	1.86
0.33	9.48	1.90
0.50	9.52	1.90
0.67	9.63	1.93
0.83	9.68	1.94
1	9.70	1.94
2	9.83	1.97
4	9.95	1.99
8	10.05	2.01
15	10.15	2.03
30	10.26	2.05
60	10.34	2.07
120	10.47	2.09
240	10.60	2.12
480	10.70	2.14
1440	10.75	2.15
0	0.00	0.00
0	0.00	0.00

Initial Height (H_1)	18.43	mm	d_0	7.95	mm
Final Height (H_2)	17.97	mm	d_{100}	10.70	mm
Average Height ($\bar{H}$)	18.20	mm	d_{90}	10.43	mm
Test Temperature	25	°C	d_{50}	9.33	mm
Increment Pressure	400	kPa	t_{50}	0.18	min

Comments:
Nil

Deviations from Standard:
Nil

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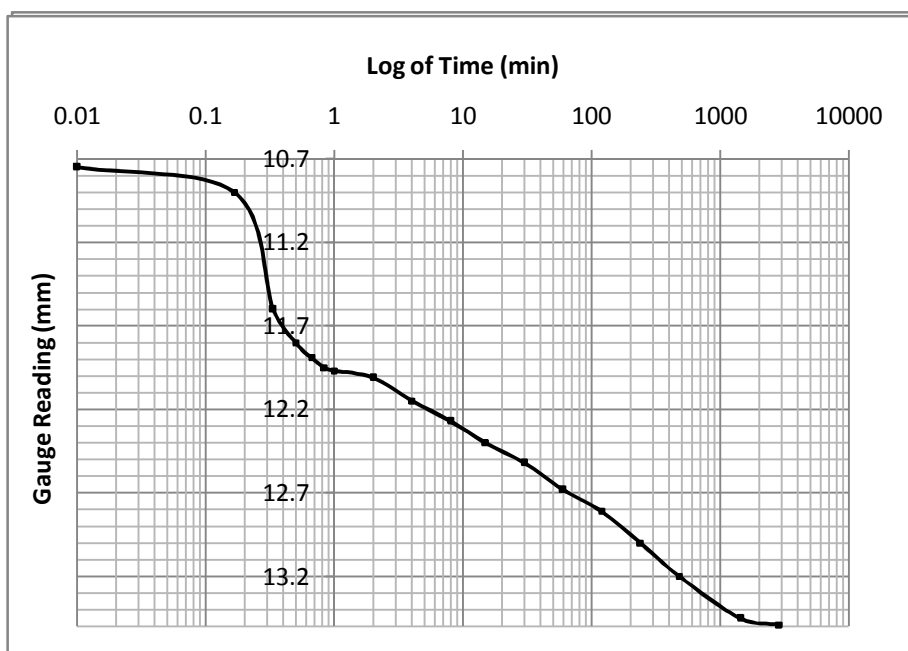
Determination of the One-Dimensional Consolidation Properties according to BS 1377-5: 1990 Clause 3

Client:	J&P AVAX S.A.	Date of sampling:	30/10/2014	Certificate no:	TCR410
Address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Date of test:	14/11/2014	Date of certificate:	26/11/2014
Commisined by:	Giorgos Rousopoulos	Sample source:	Proctor Sample	Job no:	J2094
Client Tel No:	306972019434	Project:	Geotechnical Investigat	Test reference no:	CON003
		Location/Town:	Delimara	Tested by:	LS

Sampling Information:

Sampling location:	Proctor Sample	Description of sample:	Grey Clay
Type of sample:	Compacted	Sample depth:	n/a

Load Increment 8



Time (min)	Gauge Reading (mm)	Specimen Deflection (mm)
0	10.75	2.15
0.17	10.90	2.18
0.33	11.60	2.32
0.50	11.80	2.36
0.67	11.89	2.38
0.83	11.95	2.39
1	11.97	2.39
2	12.01	2.40
4	12.15	2.43
8	12.27	2.45
15	12.40	2.48
30	12.52	2.50
60	12.68	2.54
120	12.81	2.56
240	13.00	2.60
480	13.20	2.64
1440	13.45	2.69
2880	13.49	2.70
0	0.00	0.00

Initial Height (H_1)	17.97	mm	d_0	10.70	mm
Final Height (H_2)	17.42	mm	d_{100}	13.45	mm
Average Height ($\bar{H}$)	17.70	mm	d_{90}	13.18	mm
Test Temperature	25	°C	d_{50}	12.08	mm
Increment Pressure	800	kPa	t_{50}	2.90	min

Comments:
Nil

Deviations from Standard:
Nil

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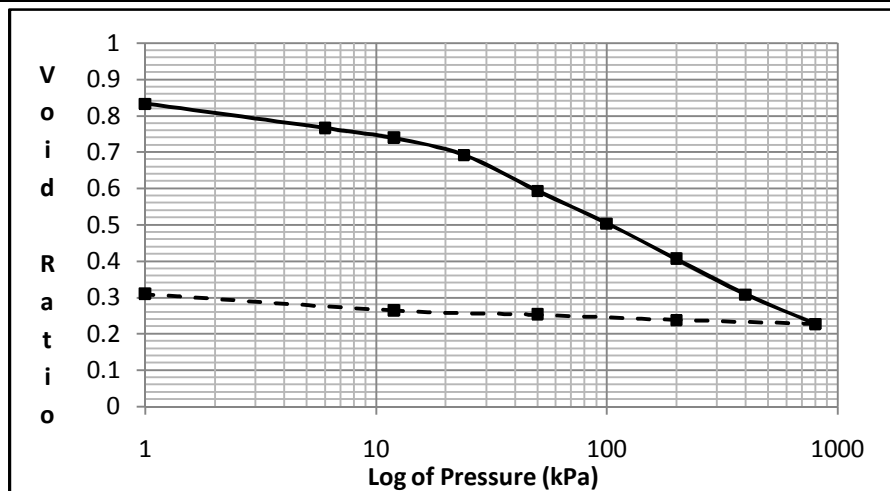
Determination of the One-Dimensional Consolidation Properties according to BS 1377-5: 1990 Clause 3

Client:	J&P AVAX S.A.	Date of sampling:	Certificate no:	TCR411
Address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Date of test:	Date of certificate:	9/12/2014
Commisined by:	Giorgos Rousopoulos	Sample source:	Job no:	J2094
Client Tel No:	306972019434	Project:	Test reference no:	CON004
		Location/Town:	Tested by:	LS

Sampling Information:

Sampling location:	BH GL3 S26	Description of sample:	Silty Loose Clay
Type of sample:	Undisturbed	Sample depth:	34.9m

General Certificate



Area of Sample (A)	1963.75	mm ²
Height of Sample (H_o)	20.45	mm
Initial Sample Mass (m_o)	67.87	g
Initial Bulk Density (ρ)	1.690	Mg/m ³
Particle Density (ρ_s)	2.595	Mg/m ³
Moisture Content (w_o)	19.36	%
Initial Dry Density (ρ_d)	1.416	Mg/m ³
Initial Voids Ratio (e_o)	0.833	
Initial Degree of Saturation (S_o)	60.33	
Equivalent Height of Solid Particles (H_s)	11.16	mm

Pressure Increment (kPa)	Coef. of Volume Compressibility (m ² /MN)	Coef. of Consolidation (m ² /year)	Coef. of Secondary Compression	Time Fitting Method (t ₅₀)	Voids Ratio
6	6.10	102.696	0.1829	0.1	0.766
12	2.55	24.349	0.0738	0.4	0.739
24	2.24	15.819	0.1276	0.59	0.692
50	2.24	42.796	0.2689	0.2	0.593
100	1.13	5.850	0.2455	1.3	0.503
200	0.65	13.983	0.2660	0.48	0.406
400	0.35	15.368	0.2675	0.38	0.308
800	0.15	5.792	0.2196	0.88	0.227

Comments:
Nil

Deviations from Standard:
Nil

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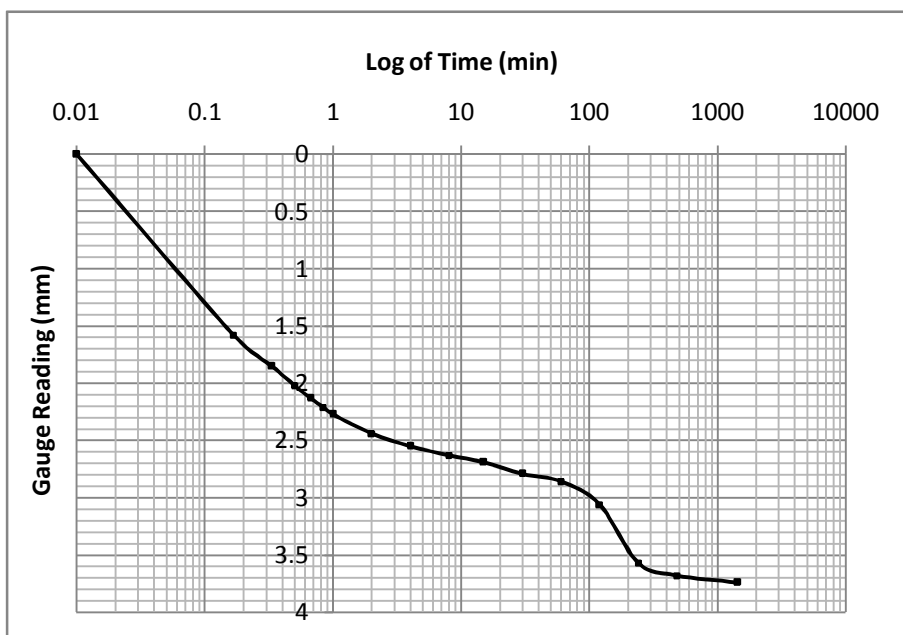
Determination of the One-Dimensional Consolidation Properties according to BS 1377-5: 1990 Clause 3

Client:	J&P AVAX S.A.	Date of sampling:		Certificate no:	TCR411
Address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Date of test:	26/11/2014	Date of certificate:	41894
Commisined by:	Giorgos Rousopoulos	Sample source:	BH GL3	Job no:	J2094
Client Tel No:	306972019434	Project:	Geotechnical Investigat	Test reference no:	CON004
		Location/Town:	Delimara	Tested by:	LS

Sampling Information:

Sampling location:	BH GL3 S26	Description of sample:	Silty Loose Clay
Type of sample:	Undisturbed	Sample depth:	34.9m

Load Incriment 1



Initial Height (H_1)	20.45	mm	d_0	-0.90	mm
Final Height (H_2)	19.70	mm	d_{100}	3.50	mm
Average Height ($\bar{H}$)	20.08	mm	d_{90}	3.06	mm
Test Temperature	21	°C	d_{50}	1.30	mm
Incriment Pressure	6	kPa	t_{50}	0.10	min

Time (min)	Gauge Reading (mm)	Specimen Deflection (mm)
0	0.00	0.00
0.17	1.58	0.32
0.33	1.85	0.37
0.5	2.02	0.40
0.67	2.13	0.43
0.83	2.21	0.44
1	2.27	0.45
2	2.44	0.49
4	2.55	0.51
8	2.63	0.53
15	2.69	0.54
30	2.79	0.56
60	2.86	0.57
120	3.06	0.61
240	3.57	0.71
480	3.68	0.74
1440	3.74	0.75
2280	0.00	0.00
3390	0.00	0.00

Comments:
Nil

Deviations from Standard:
Nil

Prepared by

Approved By

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Filename:

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Laboratory Test Result sheet

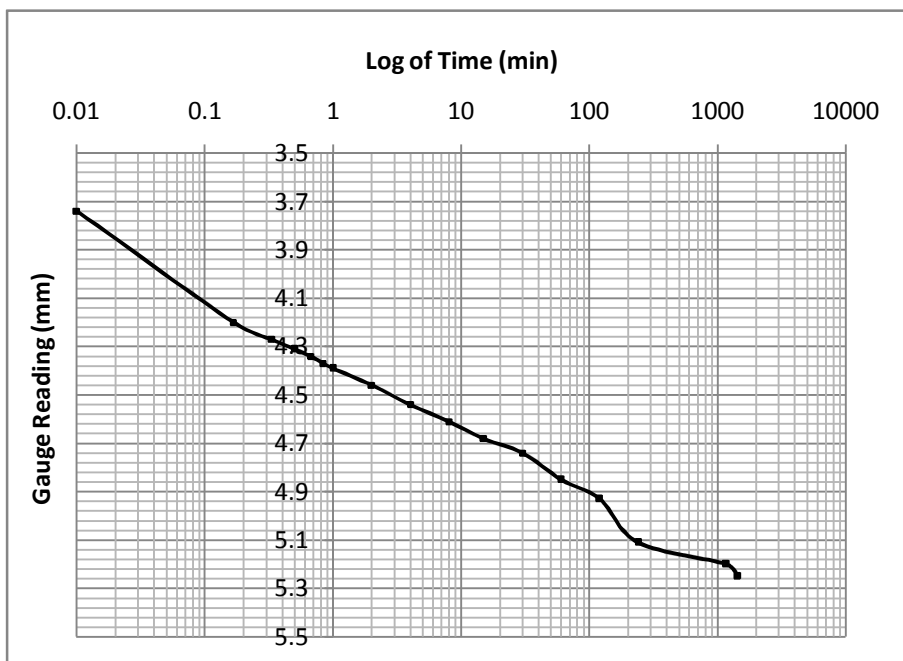
Determination of the One-Dimensional Consolidation Properties according to BS 1377-5: 1990 Clause 3

Client:	J&P AVAX S.A.	Date of sampling:		Certificate no:	TCR411
Address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Date of test:	26/11/2014	Date of certificate:	41894
Commisined by:	Giorgos Rousopoulos	Sample source:	BH GL3	Job no:	J2094
Client Tel No:	306972019434	Project:	Geotechnical Investigat	Test reference no:	CON004
		Location/Town:	Delimara	Tested by:	LS

Sampling Information:

Sampling location:	BH GL3 S26	Description of sample:	Silty Loose Clay
Type of sample:	Undisturbed	Sample depth:	34.9m

Load Increment 2



Initial Height (H_1)	19.70	mm	d_0	3.48	mm
Final Height (H_2)	19.40	mm	d_{100}	5.10	mm
Average Height ($\bar{H}$)	19.55	mm	d_{90}	4.94	mm
Test Temperature	21	°C	d_{50}	4.29	mm
Increment Pressure	12	kPa	t_{50}	0.40	min

Time (min)	Gauge Reading (mm)	Specimen Deflection (mm)
0	3.74	0.75
0.17	4.20	0.84
0.33	4.27	0.85
0.5	4.31	0.86
0.67	4.34	0.87
0.83	4.37	0.87
1	4.39	0.88
2	4.46	0.89
4	4.54	0.91
8	4.61	0.92
15	4.68	0.94
30	4.74	0.95
60	4.85	0.97
120	4.93	0.99
240	5.11	1.02
1170	5.20	1.04
1440	5.25	1.05
2940	0.00	0.00
5760	0.00	0.00

Comments:
Nil

Deviations from Standard:
Nil

Prepared by

Jessica Farrugia
Quality Manager

Approved By

Chris Magro
Laboratory Manager

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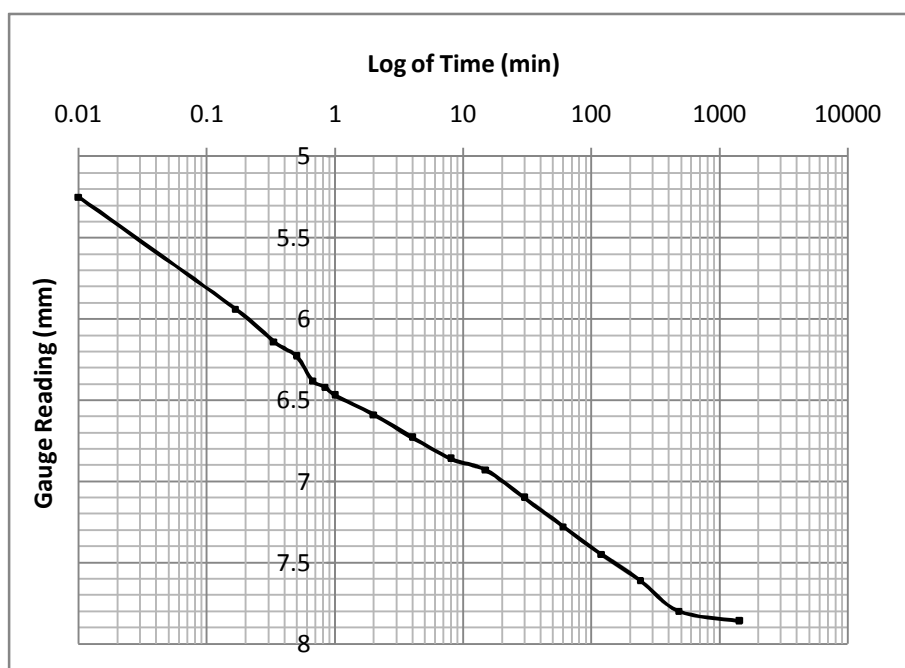
Determination of the One-Dimensional Consolidation Properties according to BS 1377-5: 1990 Clause 3

Client:	J&P AVAX S.A.	Date of sampling:	Certificate no:	TCR411
Address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Date of test:	Date of certificate:	41894
Commisined by:	Giorgos Rousopoulos	Sample source:	Job no:	J2094
Client Tel No:	306972019434	Project:	Test reference no:	CON004
		Location/Town:	Tested by:	LS

Sampling Information:

Sampling location:	BH GL3 S26	Description of sample:	Silty Loose Clay
Type of sample:	Undisturbed	Sample depth:	34.9m

Load Increment 3



Initial Height (H_1)	19.40	mm	d_0	4.85	mm
Final Height (H_2)	18.88	mm	d_{100}	7.78	mm
Average Height ($\bar{H}$)	19.14	mm	d_{90}	7.49	mm
Test Temperature	21	°C	d_{50}	6.32	mm
Increment Pressure	24	kPa	t_{50}	0.59	min

Time (min)	Gauge Reading (mm)	Specimen Deflection (mm)
0	5.25	1.05
0.17	5.94	1.19
0.33	6.14	1.23
0.5	6.23	1.25
0.67	6.38	1.28
0.83	6.42	1.28
1	6.47	1.29
2	6.59	1.32
4	6.73	1.35
8	6.86	1.37
15	6.93	1.39
30	7.10	1.42
60	7.28	1.46
120	7.45	1.49
240	7.61	1.52
480	7.80	1.56
1440	7.86	1.57
0	0.00	0.00
0	0.00	0.00

Comments:
Nil

Deviations from Standard:
Nil

Prepared by

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Approved By

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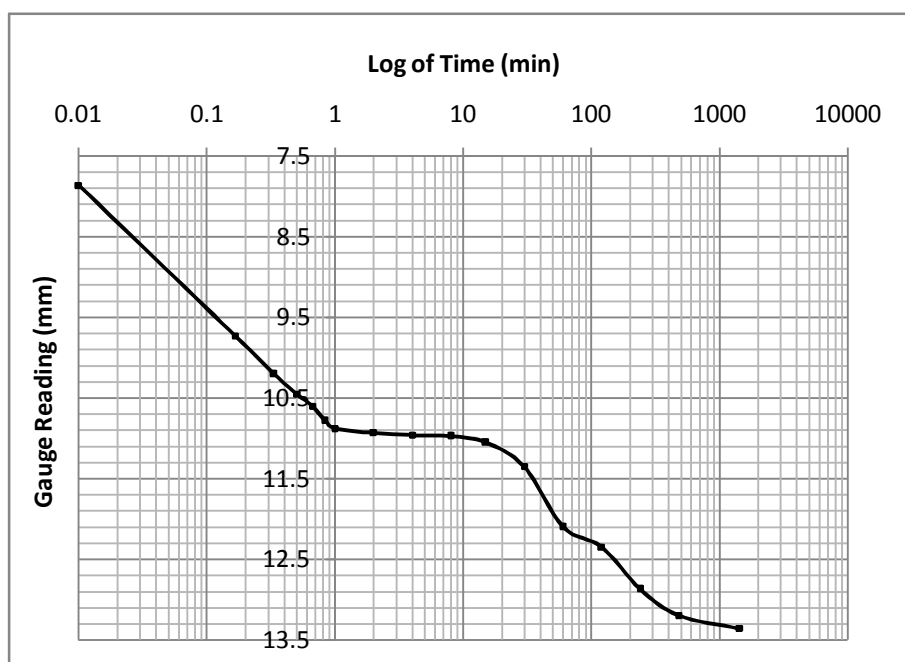
Determination of the One-Dimensional Consolidation Properties according to BS 1377-5: 1990 Clause 3

Client:	J&P AVAX S.A.	Date of sampling:	Certificate no:	TCR411
Address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Date of test:	Date of certificate:	41894
Commisined by:	Giorgos Rousopoulos	Sample source:	Job no:	J2094
Client Tel No:	306972019434	Project:	Test reference no:	CON004
		Location/Town:	Tested by:	LS

Sampling Information:

Sampling location:	BH GL3 S26	Description of sample:	Silty Loose Clay
Type of sample:	Undisturbed	Sample depth:	34.9m

Load Increment 4



Initial Height (H_1)	18.88	mm	d_0	6.90	mm
Final Height (H_2)	17.78	mm	d_{100}	12.85	mm
Average Height ($\bar{H}$)	18.33	mm	d_{90}	12.26	mm
Test Temperature	21	°C	d_{50}	9.88	mm
Increment Pressure	50	kPa	t_{50}	0.20	min

Time (min)	Gauge Reading (mm)	Specimen Deflection (mm)
0	7.86	1.57
0.17	9.73	1.95
0.33	10.20	2.04
0.5	10.45	2.09
0.67	10.60	2.12
0.83	10.78	2.16
1	10.88	2.18
2	10.93	2.19
4	10.96	2.19
8	10.97	2.19
15	11.05	2.21
30	11.35	2.27
60	12.10	2.42
120	12.35	2.47
240	12.87	2.57
480	13.20	2.64
1440	13.36	2.67
0	0.00	0.00
0	0.00	0.00

Comments:

Nil

Deviations from Standard:

Nil

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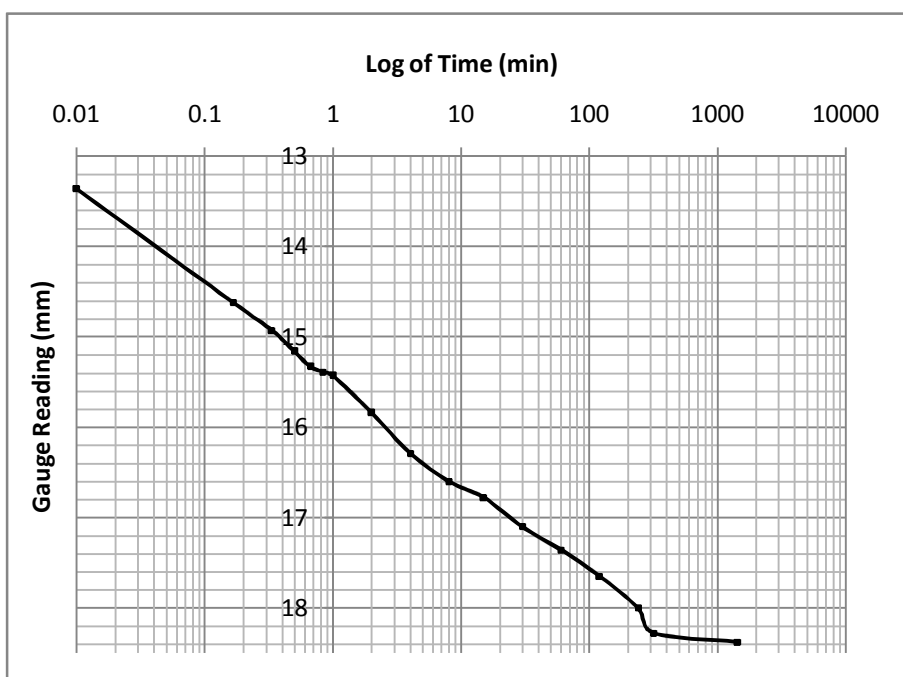
Determination of the One-Dimensional Consolidation Properties according to BS 1377-5: 1990 Clause 3

Client:	J&P AVAX S.A.	Date of sampling:	Certificate no:	TCR411
Address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Date of test:	Date of certificate:	41894
Commisined by:	Giorgos Rousopoulos	Sample source:	Job no:	J2094
Client Tel No:	306972019434	Project:	Test reference no:	CON004
		Location/Town:	Tested by:	LS

Sampling Information:

Sampling location:	BH GL3 S26	Description of sample:	Silty Loose Clay
Type of sample:	Undisturbed	Sample depth:	34.9m

Load Increment 5



Time (min)	Gauge Reading (mm)	Specimen Deflection (mm)
0	13.36	2.67
0.17	14.62	2.92
0.33	14.93	2.99
0.5	15.16	3.03
0.67	15.33	3.07
0.83	15.39	3.08
1	15.43	3.09
2	15.84	3.17
4	16.29	3.26
8	16.60	3.32
15	16.78	3.36
30	17.10	3.42
60	17.36	3.47
120	17.65	3.53
240	18.00	3.60
318	18.28	3.66
1440	18.38	3.68
0	0.00	0.00
0	0.00	0.00

Initial Height (H_1)	17.78	mm	d_0	12.70	mm
Final Height (H_2)	16.77	mm	d_{100}	18.30	mm
Average Height ($\bar{H}$)	17.28	mm	d_{90}	17.74	mm
Test Temperature	21	°C	d_{50}	15.50	mm
Increment Pressure	100	kPa	t_{50}	1.30	min

Comments:
Nil

Deviations from Standard:
Nil

Prepared by

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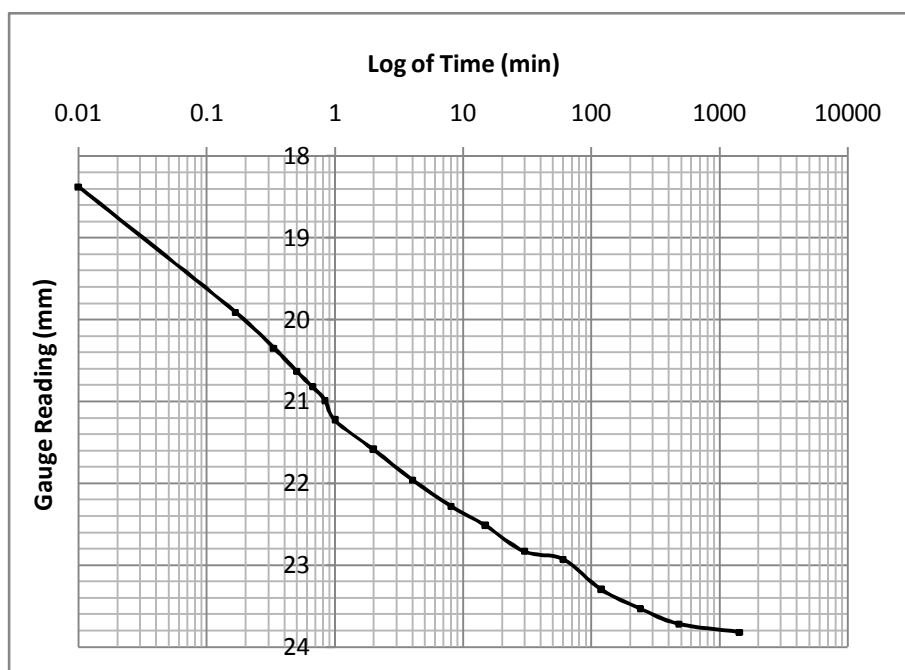
Determination of the One-Dimensional Consolidation Properties according to BS 1377-5: 1990 Clause 3

Client:	J&P AVAX S.A.	Date of sampling:	Certificate no:	TCR411
Address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Date of test:	Date of certificate:	41894
Commisined by:	Giorgos Rousopoulos	Sample source:	Job no:	J2094
Client Tel No:	306972019434	Project:	Test reference no:	CON004
		Location/Town:	Tested by:	LS

Sampling Information:

Sampling location:	BH GL3 S26	Description of sample:	Silty Loose Clay
Type of sample:	Undisturbed	Sample depth:	34.9m

Load Increment 6



Initial Height (H_1)	16.77	mm	d_0	17.60	mm
Final Height (H_2)	15.69	mm	d_{100}	23.55	mm
Average Height ($\bar{H}$)	16.23	mm	d_{90}	22.96	mm
Test Temperature	21	°C	d_{50}	20.58	mm
Increment Pressure	200	kPa	t_{50}	0.48	min

Time (min)	Gauge Reading (mm)	Specimen Deflection (mm)
0	18.38	3.68
0.17	19.91	3.98
0.33	20.35	4.07
0.5	20.63	4.13
0.67	20.82	4.16
0.83	20.99	4.20
1	21.23	4.25
2	21.59	4.32
4	21.96	4.39
8	22.28	4.46
15	22.52	4.50
30	22.83	4.57
60	22.93	4.59
120	23.30	4.66
240	23.53	4.71
480	23.72	4.74
1440	23.82	4.76
0	0.00	0.00
0	0.00	0.00

Comments:
Nil

Deviations from Standard:
Nil

Prepared by

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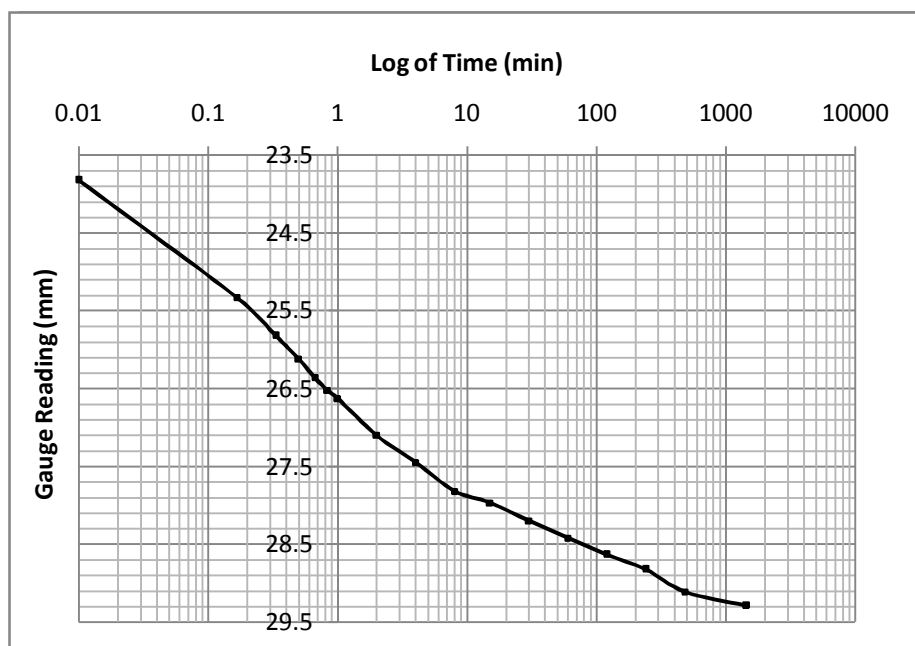
Determination of the One-Dimensional Consolidation Properties according to BS 1377-5: 1990 Clause 3

Client:	J&P AVAX S.A.	Date of sampling:		Certificate no:	TCR411
Address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Date of test:	26/11/2014	Date of certificate:	41894
Commisined by:	Giorgos Rousopoulos	Sample source:	BH GL3	Job no:	J2094
Client Tel No:	306972019434	Project:	Geotechnical Investigat	Test reference no:	CON004
		Location/Town:	Delimara	Tested by:	LS

Sampling Information:

Sampling location:	BH GL3 S26	Description of sample:	Silty Loose Clay
Type of sample:	Undisturbed	Sample depth:	34.9m

Load Incriment 7



Initial Height (H_1)	15.69	mm	d_0	22.90	mm
Final Height (H_2)	14.59	mm	d_{100}	28.84	mm
Average Height ($\bar{H}$)	15.14	mm	d_{90}	28.25	mm
Test Temperature	21	°C	d_{50}	25.87	mm
Incriment Pressure	400	kPa	t_{50}	0.38	min

Time (min)	Gauge Reading (mm)	Specimen Deflection (mm)
0	23.82	4.76
0.17	25.33	5.07
0.33	25.82	5.16
0.50	26.12	5.22
0.67	26.36	5.27
0.83	26.52	5.30
1	26.63	5.33
2	27.10	5.42
4	27.45	5.49
8	27.82	5.56
15	27.97	5.59
30	28.20	5.64
60	28.42	5.68
120	28.63	5.73
240	28.82	5.76
480	29.11	5.82
1440	29.29	5.86
0	0.00	0.00
0	0.00	0.00

Comments:

Nil

Deviations from Standard:

Nil

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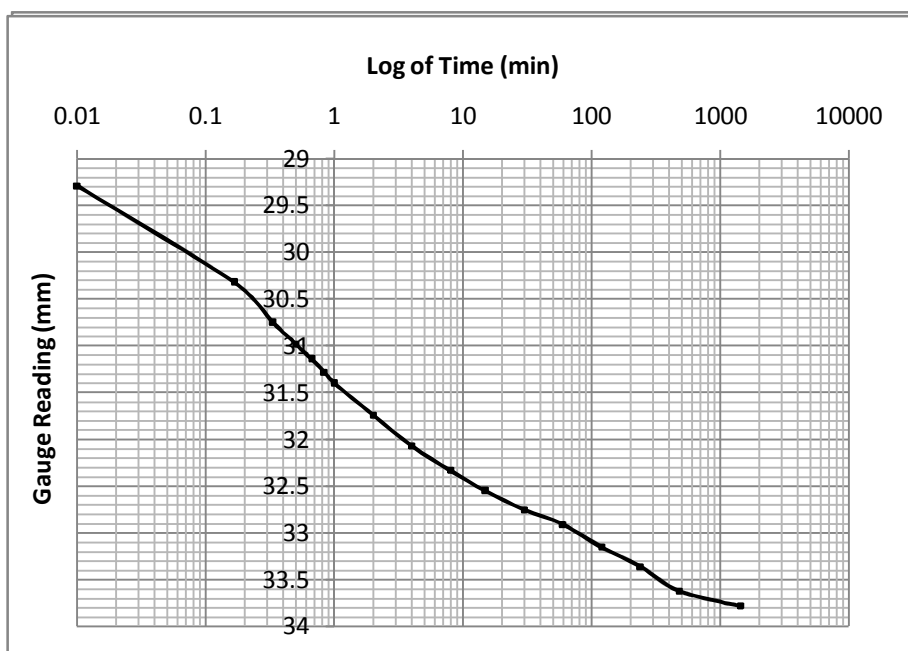
Determination of the One-Dimensional Consolidation Properties according to BS 1377-5: 1990 Clause 3

Client:	J&P AVAX S.A.	Date of sampling:	Certificate no:	TCR411
Address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Date of test:	Date of certificate:	41894
Commisined by:	Giorgos Rousopoulos	Sample source:	Job no:	J2094
Client Tel No:	306972019434	Project:	Test reference no:	CON004
		Location/Town:	Tested by:	LS

Sampling Information:

Sampling location:	BH GL3 S26	Description of sample:	Silty Loose Clay
Type of sample:	Undisturbed	Sample depth:	34.9m

Load Increment 8



Time (min)	Gauge Reading (mm)	Specimen Deflection (mm)
0	29.29	5.86
0.17	30.32	6.06
0.33	30.75	6.15
0.50	30.98	6.20
0.67	31.14	6.23
0.83	31.28	6.26
1	31.40	6.28
2	31.74	6.35
4	32.07	6.41
8	32.33	6.47
15	32.55	6.51
30	32.75	6.55
60	32.91	6.58
120	33.15	6.63
240	33.36	6.67
480	33.62	6.72
1440	33.78	6.76
0	0.00	0.00
0	0.00	0.00

Initial Height (H_1)	14.59	mm	d_0	28.70	mm
Final Height (H_2)	13.69	mm	d_{100}	33.86	mm
Average Height ($\bar{H}$)	14.14	mm	d_{90}	33.34	mm
Test Temperature	21	°C	d_{50}	31.28	mm
Increment Pressure	800	kPa	t_{50}	0.88	min

Comments:
Nil

Deviations from Standard:
Nil

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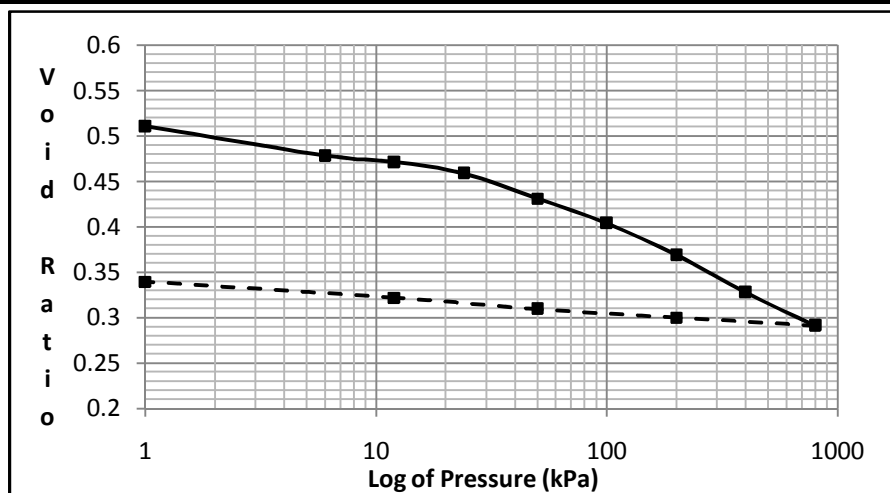
Determination of the One-Dimensional Consolidation Properties according to BS 1377-5: 1990 Clause 3

Client:	J&P AVAX S.A.	Date of sampling:	30/10/2014	Certificate no:	TCR412
Address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Date of test:	22/12/2014	Date of certificate:	9/12/2014
Commisined by:	Giorgos Rousopoulos	Sample source:	Proctor Sample	Job no:	J2094
Client Tel No:	306972019434	Project:	Geotechnical Investigation	Test reference no:	CON005
		Location/Town:	Delimara	Tested by:	LS

Sampling Information:

Sampling location:	Proctor Sample	Description of sample:	Grey Clay
Type of sample:	Compacted	Sample depth:	n/a

General Certificate



Area of Sample (A)	1963.75	mm ²
Height of Sample (H_o)	20.6	mm
Initial Sample Mass (m_o)	81.44	g
Initial Bulk Density (ρ)	2.013	Mg/m ³
Particle Density (ρ_s)	2.595	Mg/m ³
Moisture Content (w_o)	17.18	%
Initial Dry Density (ρ_d)	1.718	Mg/m ³
Initial Voids Ratio (e_o)	0.510	
Initial Degree of Saturation (S_o)	87.34	
Equivalent Height of Solid Particles (H_s)	13.64	mm

Pressure Increment (kPa)	Coef. of Volume Compressibility (m ² /MN)	Coef. of Consolidation (m ² /year)	Coef. of Secondary Compression	Time Fitting Method (t ₅₀)	Voids Ratio
6	3.58	587.885	0.1073	0.018	0.478
12	0.79	73.603	0.0233	0.14	0.471
24	0.70	67.797	0.0408	0.15	0.459
50	0.73	494.728	0.0913	0.02	0.431
100	0.38	158.693	0.0908	0.06	0.404
200	0.25	130.107	0.1155	0.07	0.369
400	0.15	114.858	0.1364	0.075	0.328
800	0.07	85.515	0.1214	0.095	0.291

Comments:
Nil

Deviations from Standard:
Nil

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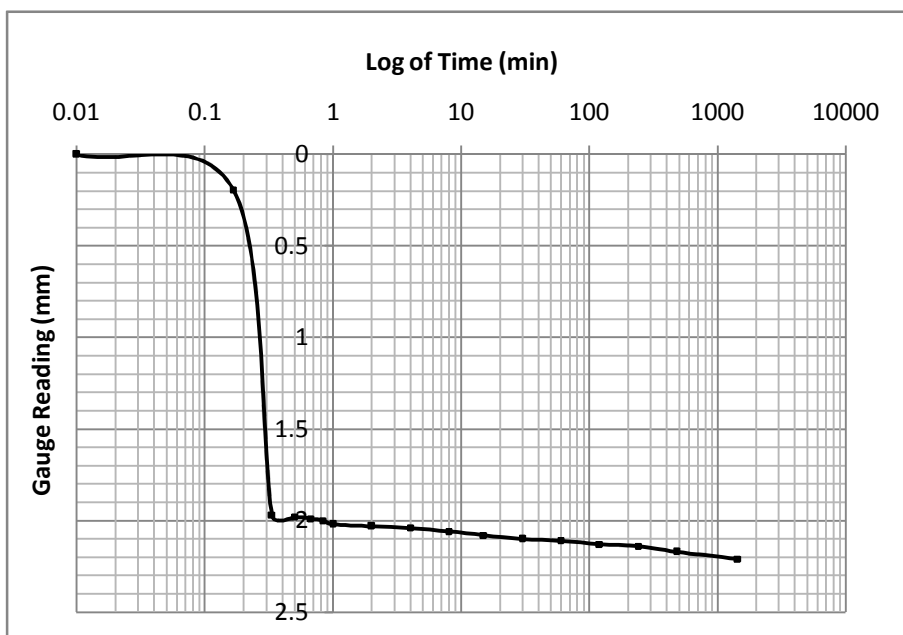
Determination of the One-Dimensional Consolidation Properties according to BS 1377-5: 1990 Clause 3

Client:	J&P AVAX S.A.	Date of sampling:	30/10/2014	Certificate no:	TCR412
Address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Date of test:	22/12/2014	Date of certificate:	41894
Commisined by:	Giorgos Rousopoulos	Sample source:	Proctor Sample	Job no:	J2094
Client Tel No:	306972019434	Project:	Geotechnical Investigat	Test reference no:	CON005
		Location/Town:	Delimara	Tested by:	LS

Sampling Information:

Sampling location:	Proctor Sample	Description of sample:	Grey Clay
Type of sample:	Compacted	Sample depth:	n/a

Load Incriment 1



Time (min)	Gauge Reading (mm)	Specimen Deflection (mm)
0	0.00	0.00
0.17	0.20	0.04
0.33	1.97	0.39
0.5	1.98	0.40
0.67	1.99	0.40
0.83	2.00	0.40
1	2.02	0.40
2	2.03	0.41
4	2.04	0.41
8	2.06	0.41
15	2.08	0.42
30	2.10	0.42
60	2.11	0.42
120	2.13	0.43
240	2.14	0.43
480	2.17	0.43
1440	2.21	0.44
2280	0.00	0.00
3390	0.00	0.00

Initial Height (H_1)	20.60	mm	d_0	-1.10	mm
Final Height (H_2)	20.16	mm	d_{100}	1.97	mm
Average Height ($\bar{H}$)	20.38	mm	d_{90}	1.66	mm
Test Temperature	21	°C	d_{50}	0.44	mm
Incriment Pressure	6	kPa	t_{50}	0.02	min

Comments:
Nil

Deviations from Standard:
Nil

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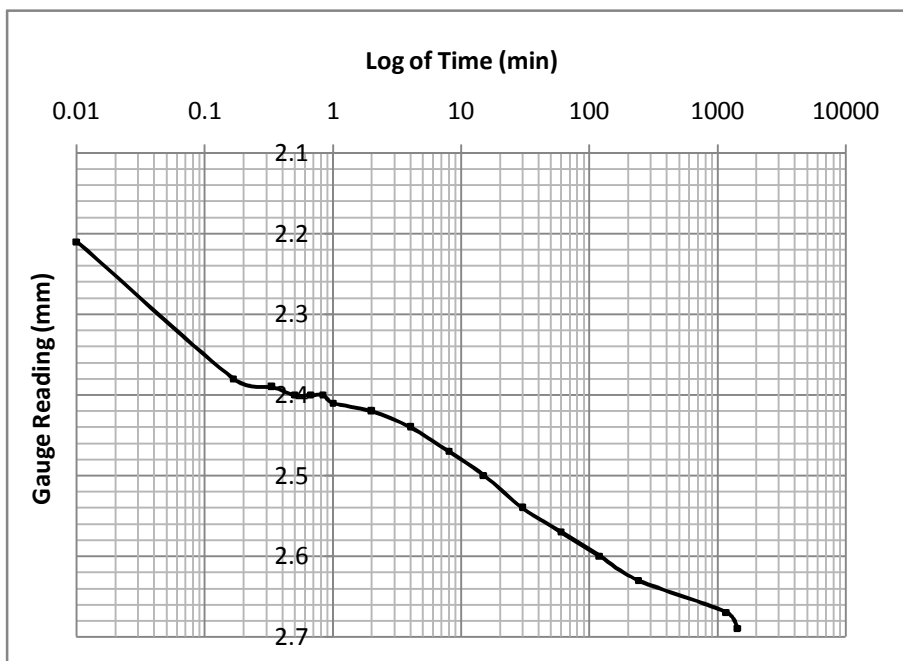
Determination of the One-Dimensional Consolidation Properties according to BS 1377-5: 1990 Clause 3

Client:	J&P AVAX S.A.	Date of sampling:	30/10/2014	Certificate no:	TCR412
Address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Date of test:	22/12/2014	Date of certificate:	41894
Commisined by:	Giorgos Rousopoulos	Sample source:	Proctor Sample	Job no:	J2094
Client Tel No:	306972019434	Project:	Geotechnical Investigat	Test reference no:	CON005
		Location/Town:	Delimara	Tested by:	LS

Sampling Information:

Sampling location:	Proctor Sample	Description of sample:	Grey Clay
Type of sample:	Compacted	Sample depth:	n/a

Load Increment 2



Time (min)	Gauge Reading (mm)	Specimen Deflection (mm)
0	2.21	0.44
0.17	2.38	0.48
0.33	2.39	0.48
0.5	2.40	0.48
0.67	2.40	0.48
0.83	2.40	0.48
1	2.41	0.48
2	2.42	0.48
4	2.44	0.49
8	2.47	0.49
15	2.50	0.50
30	2.54	0.51
60	2.57	0.51
120	2.60	0.52
240	2.63	0.53
1170	2.67	0.53
1440	2.69	0.54
2940	0.00	0.00
5760	0.00	0.00

Initial Height (H_1)	20.16	mm	d_0	2.12	mm
Final Height (H_2)	20.06	mm	d_{100}	2.62	mm
Average Height ($\bar{H}$)	20.11	mm	d_{90}	2.57	mm
Test Temperature	21	°C	d_{50}	2.37	mm
Increment Pressure	12	kPa	t_{50}	0.14	min

Comments:
Nil

Deviations from Standard:
Nil

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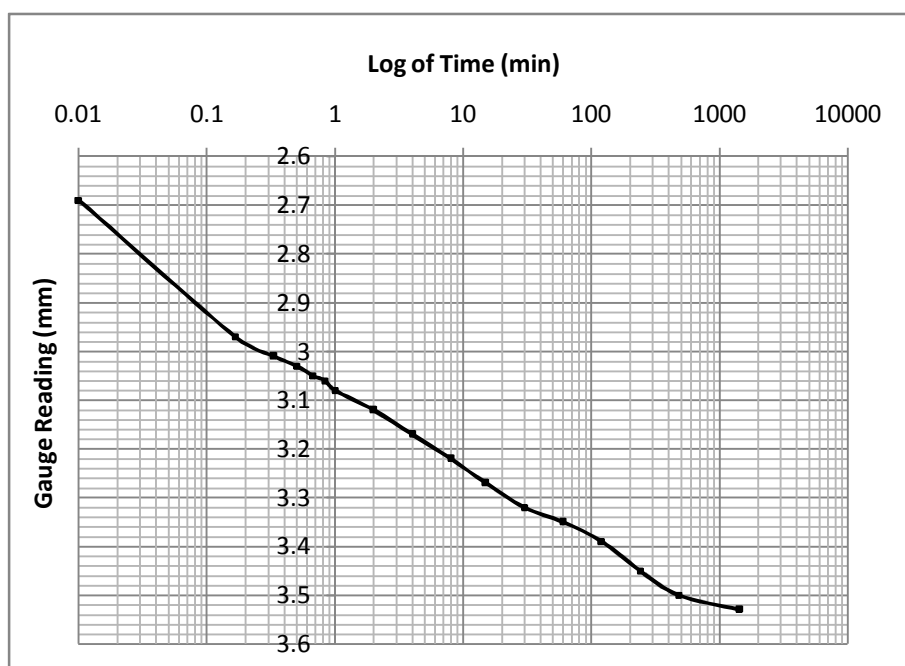
Determination of the One-Dimensional Consolidation Properties according to BS 1377-5: 1990 Clause 3

Client:	J&P AVAX S.A.	Date of sampling:	30/10/2014	Certificate no:	TCR412
Address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Date of test:	22/12/2014	Date of certificate:	41894
Commisined by:	Giorgos Rousopoulos	Sample source:	Proctor Sample	Job no:	J2094
Client Tel No:	306972019434	Project:	Geotechnical Investigat	Test reference no:	CON005
		Location/Town:	Delimara	Tested by:	LS

Sampling Information:

Sampling location:	Proctor Sample	Description of sample:	Grey Clay
Type of sample:	Compacted	Sample depth:	n/a

Load Increment 3



Initial Height (H_1)	20.06	mm	d_0	2.54	mm
Final Height (H_2)	19.89	mm	d_{100}	3.38	mm
Average Height ($\bar{H}$)	19.98	mm	d_{90}	3.30	mm
Test Temperature	21	°C	d_{50}	2.96	mm
Increment Pressure	24	kPa	t_{50}	0.15	min

Time (min)	Gauge Reading (mm)	Specimen Deflection (mm)
0	2.69	0.54
0.17	2.97	0.59
0.33	3.01	0.60
0.5	3.03	0.61
0.67	3.05	0.61
0.83	3.06	0.61
1	3.08	0.62
2	3.12	0.62
4	3.17	0.63
8	3.22	0.64
15	3.27	0.65
30	3.32	0.66
60	3.35	0.67
120	3.39	0.68
240	3.45	0.69
480	3.50	0.70
1440	3.53	0.71
0	0.00	0.00
0	0.00	0.00

Comments:
Nil

Deviations from Standard:
Nil

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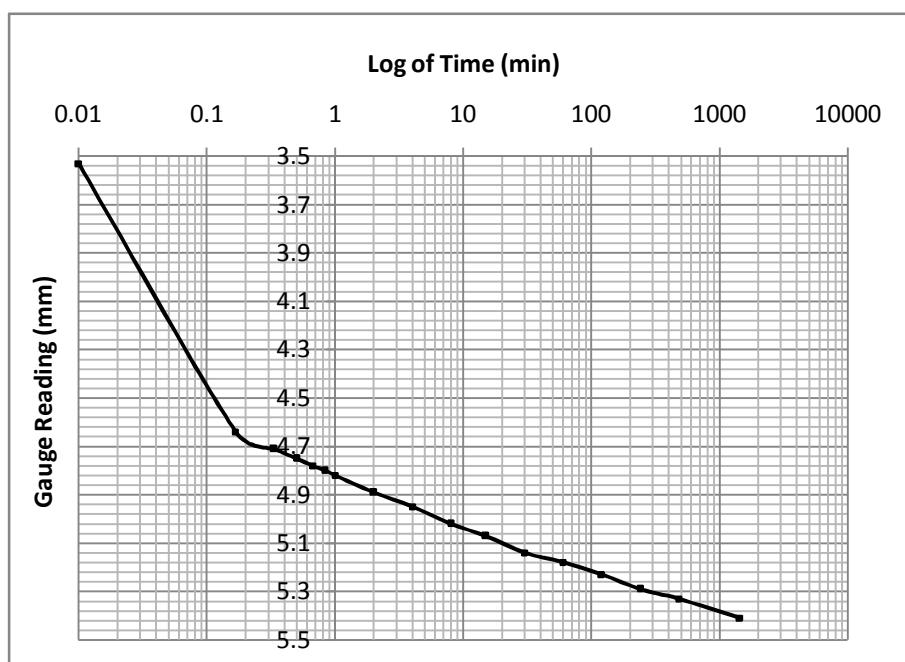
Determination of the One-Dimensional Consolidation Properties according to BS 1377-5: 1990 Clause 3

Client:	J&P AVAX S.A.	Date of sampling:	30/10/2014	Certificate no:	TCR412
Address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Date of test:	22/12/2014	Date of certificate:	41894
Commisined by:	Giorgos Rousopoulos	Sample source:	Proctor Sample	Job no:	J2094
Client Tel No:	306972019434	Project:	Geotechnical Investigat	Test reference no:	CON005
		Location/Town:	Delimara	Tested by:	LS

Sampling Information:

Sampling location:	Proctor Sample	Description of sample:	Grey Clay
Type of sample:	Compacted	Sample depth:	n/a

Load Increment 4



Time (min)	Gauge Reading (mm)	Specimen Deflection (mm)
0	3.53	0.71
0.17	4.64	0.93
0.33	4.71	0.94
0.5	4.75	0.95
0.67	4.78	0.96
0.83	4.80	0.96
1	4.82	0.96
2	4.89	0.98
4	4.95	0.99
8	5.02	1.00
15	5.07	1.01
30	5.14	1.03
60	5.18	1.04
120	5.23	1.05
240	5.29	1.06
480	5.33	1.07
1440	5.41	1.08
0	0.00	0.00
0	0.00	0.00

Initial Height (H_1)	19.89	mm	d_0	2.85	mm
Final Height (H_2)	19.52	mm	d_{100}	4.80	mm
Average Height ($\bar{H}$)	19.71	mm	d_{90}	4.61	mm
Test Temperature	21	°C	d_{50}	3.83	mm
Increment Pressure	50	kPa	t_{50}	0.02	min

Comments:

Nil

Deviations from Standard:

Nil

Prepared by

Jessica Farrugia
Quality Manager

Approved By

Chris Magro
Laboratory Manager

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Directors:

Alfred Xerri

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Laboratory Test Result sheet

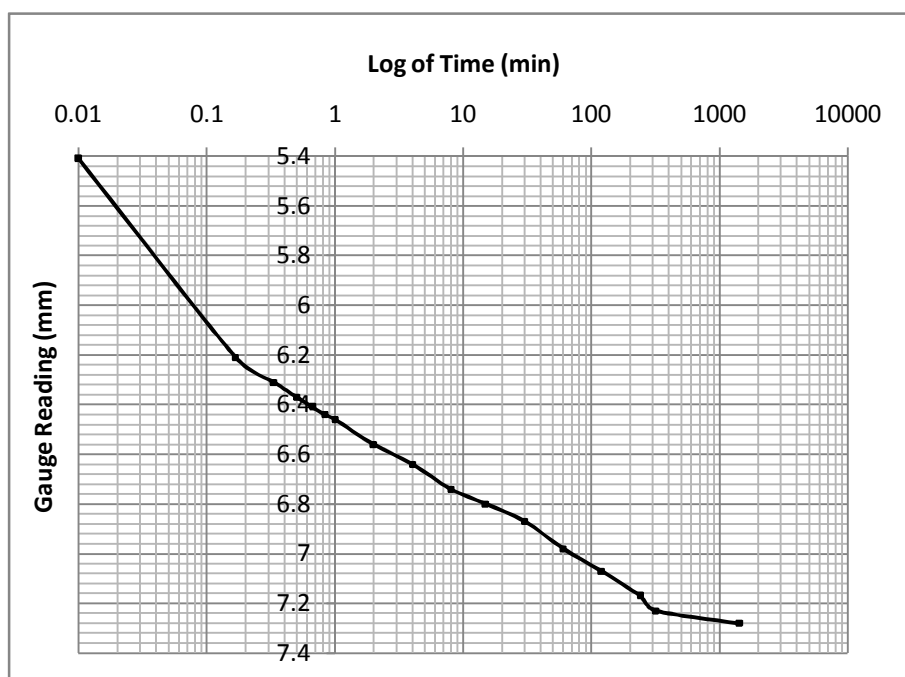
Determination of the One-Dimensional Consolidation Properties according to BS 1377-5: 1990 Clause 3

Client:	J&P AVAX S.A.	Date of sampling:	30/10/2014	Certificate no:	TCR412
Address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Date of test:	22/12/2014	Date of certificate:	41894
Commisined by:	Giorgos Rousopoulos	Sample source:	Proctor Sample	Job no:	J2094
Client Tel No:	306972019434	Project:	Geotechnical Investigat	Test reference no:	CON005
		Location/Town:	Delimara	Tested by:	LS

Sampling Information:

Sampling location:	Proctor Sample	Description of sample:	Grey Clay
Type of sample:	Compacted	Sample depth:	n/a

Load Increment 5



Initial Height (H_1)	19.52	mm	d_0	4.90	mm
Final Height (H_2)	19.14	mm	d_{100}	7.00	mm
Average Height ($\bar{H}$)	19.33	mm	d_{90}	6.79	mm
Test Temperature	21	°C	d_{50}	5.95	mm
Increment Pressure	100	kPa	t_{50}	0.06	min

Time (min)	Gauge Reading (mm)	Specimen Deflection (mm)
0	5.41	1.08
0.17	6.21	1.24
0.33	6.31	1.26
0.5	6.37	1.27
0.67	6.41	1.28
0.83	6.44	1.29
1	6.46	1.29
2	6.56	1.31
4	6.64	1.33
8	6.74	1.35
15	6.80	1.36
30	6.87	1.37
60	6.98	1.40
120	7.07	1.41
240	7.17	1.43
318	7.23	1.45
1440	7.28	1.46
0	0.00	0.00
0	0.00	0.00

Comments:
Nil

Deviations from Standard:
Nil

Prepared by

Approved By

Jessica Farrugia
Quality Manager

Chris Magro
Laboratory Manager

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Laboratory Test Result sheet

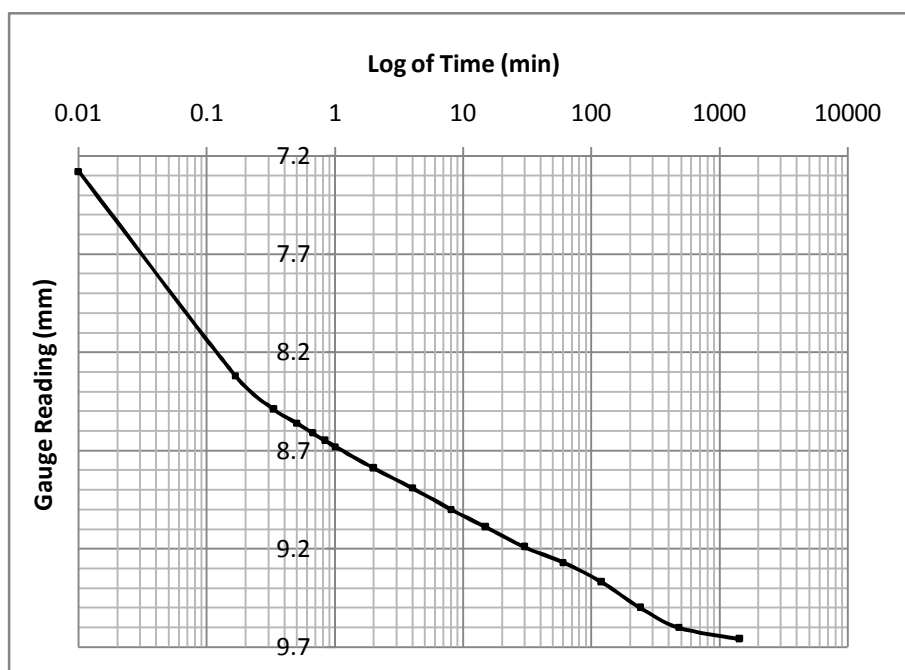
Determination of the One-Dimensional Consolidation Properties according to BS 1377-5: 1990 Clause 3

Client:	J&P AVAX S.A.	Date of sampling:	30/10/2014	Certificate no:	TCR412
Address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Date of test:	22/12/2014	Date of certificate:	41894
Commisined by:	Giorgos Rousopoulos	Sample source:	Proctor Sample	Job no:	J2094
Client Tel No:	306972019434	Project:	Geotechnical Investigat	Test reference no:	CON005
		Location/Town:	Delimara	Tested by:	LS

Sampling Information:

Sampling location:	Proctor Sample	Description of sample:	Grey Clay
Type of sample:	Compacted	Sample depth:	n/a

Load Increment 6



Initial Height (H_1)	19.14	mm	d_0	6.70	mm
Final Height (H_2)	18.67	mm	d_{100}	9.30	mm
Average Height ($\bar{H}$)	18.91	mm	d_{90}	9.04	mm
Test Temperature	21	°C	d_{50}	8.00	mm
Increment Pressure	200	kPa	t_{50}	0.07	min

Time (min)	Gauge Reading (mm)	Specimen Deflection (mm)
0	7.28	1.46
0.17	8.32	1.66
0.33	8.49	1.70
0.5	8.56	1.71
0.67	8.61	1.72
0.83	8.65	1.73
1	8.68	1.74
2	8.79	1.76
4	8.89	1.78
8	9.00	1.80
15	9.09	1.82
30	9.19	1.84
60	9.27	1.85
120	9.37	1.87
240	9.50	1.90
480	9.60	1.92
1440	9.66	1.93
0	0.00	0.00
0	0.00	0.00

Comments:

Nil

Deviations from Standard:

Nil

Prepared by

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Approved By

Chris Magro
Laboratory Manager

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Directors:

Alfred Xerri

Filename:

J2094_Soil_TCR412_CON005.xlsx

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Laboratory Test Result sheet

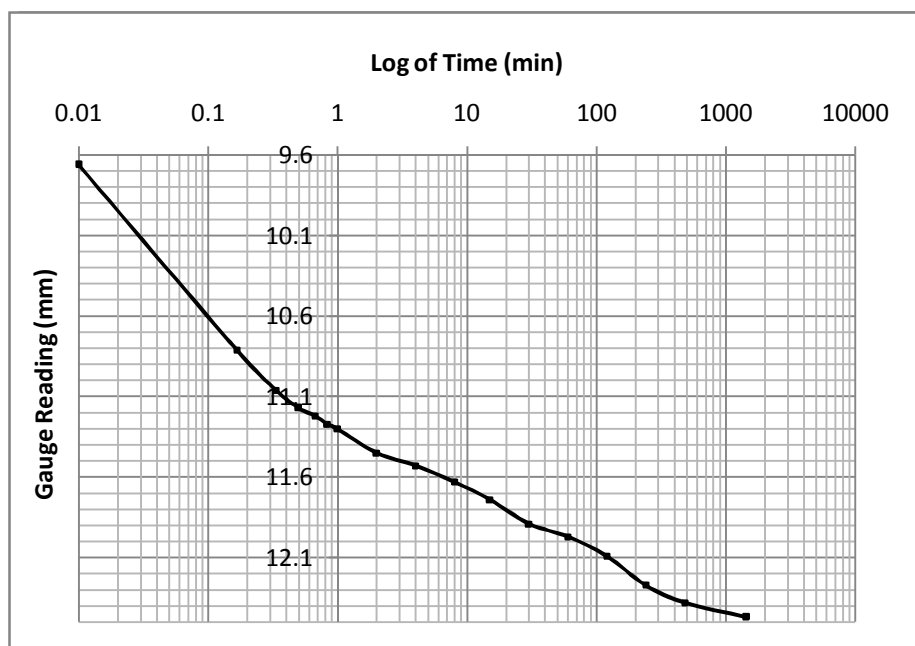
Determination of the One-Dimensional Consolidation Properties according to BS 1377-5: 1990 Clause 3

Client:	J&P AVAX S.A.	Date of sampling:	30/10/2014	Certificate no:	TCR412
Address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Date of test:	22/12/2014	Date of certificate:	41894
Commisined by:	Giorgos Rousopoulos	Sample source:	Proctor Sample	Job no:	J2094
Client Tel No:	306972019434	Project:	Geotechnical Investigat	Test reference no:	CON005
		Location/Town:	Delimara	Tested by:	LS

Sampling Information:

Sampling location:	Proctor Sample	Description of sample:	Grey Clay
Type of sample:	Compacted	Sample depth:	n/a

Load Incriment 7



Time (min)	Gauge Reading (mm)	Specimen Deflection (mm)
0	9.66	1.93
0.17	10.81	2.16
0.33	11.06	2.21
0.50	11.17	2.23
0.67	11.22	2.24
0.83	11.27	2.25
1	11.30	2.26
2	11.45	2.29
4	11.53	2.31
8	11.63	2.33
15	11.74	2.35
30	11.89	2.38
60	11.97	2.39
120	12.09	2.42
240	12.27	2.45
480	12.38	2.48
1440	12.47	2.49
0	0.00	0.00
0	0.00	0.00

Initial Height (H_1)	18.67	mm	d_0	9.00	mm
Final Height (H_2)	18.11	mm	d_{100}	11.98	mm
Average Height ($\bar{H}$)	18.39	mm	d_{90}	11.68	mm
Test Temperature	21	°C	d_{50}	10.49	mm
Incriment Pressure	400	kPa	t_{50}	0.08	min

Comments:

Nil

Deviations from Standard:

Nil

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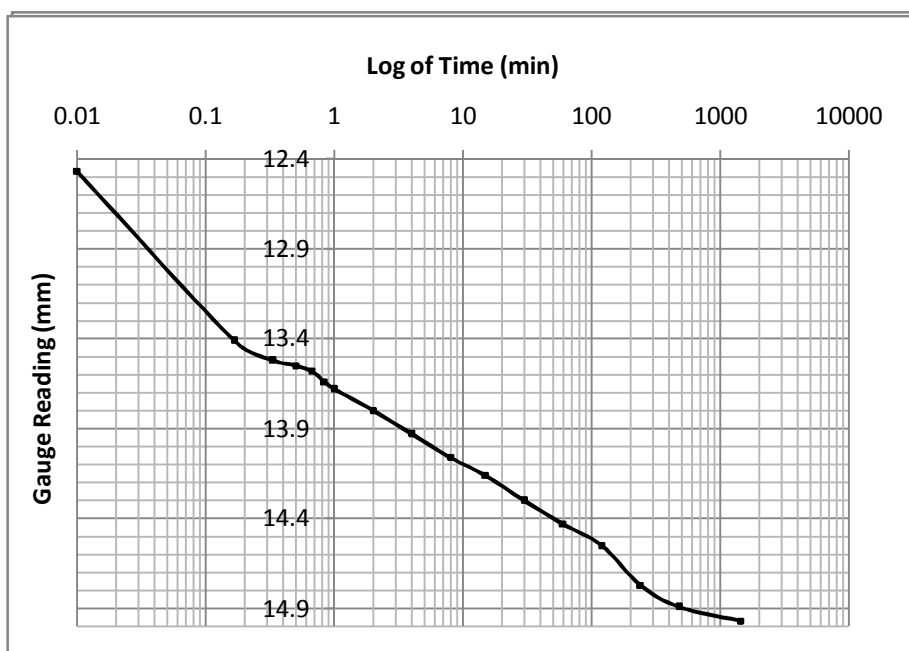
Determination of the One-Dimensional Consolidation Properties according to BS 1377-5: 1990 Clause 3

Client:	J&P AVAX S.A.	Date of sampling:	30/10/2014	Certificate no:	TCR412
Address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Date of test:	22/12/2014	Date of certificate:	41894
Commisined by:	Giorgos Rousopoulos	Sample source:	Proctor Sample	Job no:	J2094
Client Tel No:	306972019434	Project:	Geotechnical Investigat	Test reference no:	CON005
		Location/Town:	Delimara	Tested by:	LS

Sampling Information:

Sampling location:	Proctor Sample	Description of sample:	Grey Clay
Type of sample:	Compacted	Sample depth:	n/a

Load Increment 8



Initial Height (H_1)	18.11	mm	d_0	11.90	mm
Final Height (H_2)	17.61	mm	d_{100}	14.54	mm
Average Height ($\bar{H}$)	17.86	mm	d_{90}	14.28	mm
Test Temperature	21	°C	d_{50}	13.22	mm
Increment Pressure	800	kPa	t_{50}	0.10	min

Time (min)	Gauge Reading (mm)	Specimen Deflection (mm)
0	12.47	2.49
0.17	13.41	2.68
0.33	13.52	2.70
0.50	13.55	2.71
0.67	13.58	2.72
0.83	13.64	2.73
1	13.68	2.74
2	13.80	2.76
4	13.93	2.79
8	14.06	2.81
15	14.16	2.83
30	14.30	2.86
60	14.43	2.89
120	14.55	2.91
240	14.77	2.95
480	14.89	2.98
1440	14.97	2.99
0	0.00	0.00
0	0.00	0.00

Comments:
Nil

Deviations from Standard:
Nil

Prepared by

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Quality Manager

Approved By

Chris Magro
Laboratory Manager

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Laboratory Test Certificate

Determination of Density - Immersion in Water Method according to BS 1377-2: Clause 7.3

Client name:	J&P AVAX S.A.	Date of test:	11/04/2014	Certificate no:	TCR386
Client address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Project:	Onshore & Offshore Geotechnical Investigation	Date of certificate:	13/11/2014
Attn:	Giorgos Rousopoulos	Location/Town:	Delimara	Job no:	J2094
Client Tel No:	306972019434			Test reference no:	DIW061
				Tested by:	LS / MH

Sample Information:

Sample ref N°:	BH GL1	Sample description:	Soil
Sampling location:	BH GL1 Sample 5	Date of sampling:	30/10/2014

Dry Bulk Density:

Mass of specimen	m_s	121.80	g
Mass of specimen + Plasticine	m_f	137.20	g
Mass of specimen + Plasticine + Wax	m_w	151.70	g
Mass of specimen in water	m_g	76.36	g
Volume of specimen	$V_s = (m_w - m_g) / (m_w - m_f / \rho_p)$	59.23	cm ³
Bulk density of specimen	$\rho = m_s / V_s$	2.056	Mg/m ³
Moisture content	w	20.0	%
Dry Density	$\rho_d = 100\rho / 100 + w$	1.714	Mg / m³

Deviation from Standard:

Nil

Remarks:

Nil

Prepared By:



Jessica Farrugia
Quality Manager

Approved By:



Chris Magro
Laboratory Manager

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Registration No.: C32227

Directors: Alfred Xerri

Filename: J2094_Soil_BulkDensity_TCR386_DIW061.xls

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Laboratory Test Certificate

Determination of Density - Immersion in Water Method according to BS 1377-2: Clause 7.3

Client name:	J&P AVAX S.A.	Date of test:	11/04/2014	Certificate no:	TCR387
Client address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Project:	Onshore & Offshore Geotechnical Investigation	Date of certificate:	13/11/2014
Attn:	Giorgos Rousopoulos	Location/Town:	Delimara	Job no:	J2094
Client Tel No:	306972019434			Test reference no:	DIW062
				Tested by:	LS / MH

Sample Information:

Sample ref N°:	BH GL1	Sample description:	Soil
Sampling location:	BH GL1 Sample 8	Date of sampling:	30/10/2014

Dry Bulk Density:

Mass of specimen	m_s	118.30	g
Mass of specimen + Plasticine	m_f	127.30	g
Mass of specimen + Plasticine + Wax	m_w	140.90	g
Mass of specimen in water	m_g	69.90	g
Volume of specimen	$V_s = (m_w - m_g) / (m_w - m_f / \rho_p)$	55.89	cm ³
Bulk density of specimen	$\rho = m_s / V_s$	2.117	Mg/m ³
Moisture content	w	18.0	%
Dry Density	$\rho_d = 100\rho / 100 + w$	1.795	Mg / m³

Deviation from Standard:

Nil

Remarks:

Nil

Prepared By:



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Quality Manager

Approved By:



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Laboratory Manager

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Filename: J2094_Soil_BulkDensity_TCR387_DIW062.xls

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Laboratory Test Certificate

Determination of Density - Immersion in Water Method according to BS 1377-2: Clause 7.3

Client name:	J&P AVAX S.A.	Date of test:	11/04/2014	Certificate no:	TCR388
Client address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Project:	Onshore & Offshore Geotechnical Investigation	Date of certificate:	13/11/2014
Attn:	Giorgos Rousopoulos	Location/Town:	Delimara	Job no:	J2094
Client Tel No:	306972019434			Test reference no:	DIW063
				Tested by:	LS / MH

Sample Information:

Sample ref N°:	BH GL2	Sample description:	Soil
Sampling location:	BH GL2 Sample 5	Date of sampling:	29/10/2014

Dry Bulk Density:

Mass of specimen	m_s	134.20	g
Mass of specimen + Plasticine	m_f	153.10	g
Mass of specimen + Plasticine + Wax	m_w	161.70	g
Mass of specimen in water	m_g	86.65	g
Volume of specimen	$V_s = (m_w - m_g) / (m_w - m_f / \rho_p)$	65.49	cm ³
Bulk density of specimen	$\rho = m_s / V_s$	2.049	Mg/m ³
Moisture content	w	19.5	%
Dry Density	$\rho_d = 100\rho / 100 + w$	1.715	Mg / m³

Deviation from Standard:

Nil

Remarks:

Nil

Prepared By:



Jessica Farrugia
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Approved By:



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Filename: J2094_Soil_BulkDensity_TCR388_DIW063.xls

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Laboratory Test Certificate

Determination of Density - Immersion in Water Method according to BS 1377-2: Clause 7.3

Client name:	J&P AVAX S.A.	Date of test:	11/04/2014	Certificate no:	TCR389
Client address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Project:	Onshore & Offshore Geotechnical Investigation	Date of certificate:	13/11/2014
Attn:	Giorgos Rousopoulos	Location/Town:	Delimara	Job no:	J2094
Client Tel No:	306972019434			Test reference no:	DIW064
				Tested by:	LS / MH

Sample Information:

Sample ref N°:	BH GL2	Sample description:	Soil
Sampling location:	BH GL2 Sample 10	Date of sampling:	29/10/2014

Dry Bulk Density:

Mass of specimen	m_s	91.50	g
Mass of specimen + Plasticine	m_f	105.30	g
Mass of specimen + Plasticine + Wax	m_w	119.40	g
Mass of specimen in water	m_g	62.10	g
Volume of specimen	$V_s = (m_w - m_g) / (m_w - m_f / \rho_p)$	41.63	cm ³
Bulk density of specimen	$\rho = m_s / V_s$	2.198	Mg/m ³
Moisture content	w	25.9	%
Dry Density	$\rho_d = 100\rho / 100 + w$	1.746	Mg / m³

Deviation from Standard:

Nil

Remarks:

Nil

Prepared By:



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Approved By:



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Filename: J2094_Soil_BulkDensity_TCR389_DIW064.xls

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Laboratory Test Certificate

Determination of Density - Immersion in Water Method according to BS 1377-2: Clause 7.3

Client name:	J&P AVAX S.A.	Date of test:	12/11/2014	Certificate no:	TCR370
Client address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Project:	Onshore & Offshore Geotechnical Investigation	Date of certificate:	13/11/2014
Attn:	Giorgos Rousopoulos	Location/Town:	Delimara	Job no:	J2094
Client Tel No:	306972019434			Test reference no:	DIW058
				Tested by:	LS / MH

Sample Information:

Sample ref N°:	BH GL3	Sample description:	Soil
Sampling location:	BH GL3 Sample 26	Date of sampling:	01/11/2014

Dry Bulk Density:

Mass of specimen	m_s	102.20	g
Mass of specimen + Plasticine	m_f	128.40	g
Mass of specimen + Plasticine + Wax	m_w	143.10	g
Mass of specimen in water	m_g	70.46	g
Volume of specimen	$V_s = (m_w - m_g) / (m_w - m_f / \rho_p)$	56.31	cm ³
Bulk density of specimen	$\rho = m_s / V_s$	1.815	Mg/m ³
Moisture content	w	39.6	%
Dry Density	$\rho_d = 100\rho / 100 + w$	1.300	Mg / m³

Deviation from Standard:

Nil

Remarks:

Nil

Prepared By:



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Approved By:



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Filename: J2094_Soil_BulkDensity_TCR370_DIW058.xls



Laboratory Test Certificate

Determination of Density - Immersion in Water Method according to BS 1377-2: Clause 7.3

Client name:	J&P AVAX S.A.	Date of test:	12/11/2014	Certificate no:	TCR371
Client address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Project:	Onshore & Offshore Geotechnical Investigation	Date of certificate:	13/11/2014
Attn:	Giorgos Rousopoulos	Location/Town:	Delimara	Job no:	J2094
Client Tel No:	306972019434			Test reference no:	DIW059
				Tested by:	LS / MH

Sample Information:

Sample ref N°:	BH GL3	Sample description:	Soil
Sampling location:	BH GL3 Sample 8	Date of sampling:	01/11/2014

Dry Bulk Density:

Mass of specimen	m_s	51.90	g
Mass of specimen + Plasticine	m_f	62.70	g
Mass of specimen + Plasticine + Wax	m_w	70.20	g
Mass of specimen in water	m_g	35.95	g
Volume of specimen	$V_s = (m_w - m_g) / (\rho_w - \rho_p)$	25.92	cm ³
Bulk density of specimen	$\rho = m_s / V_s$	2.003	Mg/m ³
Moisture content	w	16.6	%
Dry Density	$\rho_d = 100\rho / 100 + w$	1.717	Mg / m³

Deviation from Standard:

Nil

Remarks:

Nil

Prepared By:

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Approved By:

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Registration No.: C32227

Directors: Alfred Xerri

Filename: J2094_Soil_BulkDensity_TCR371_DIW059.xls

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Laboratory Test Certificate

Determination of Density - Immersion in Water Method according to BS 1377-2: Clause 7.3

Client name:	J&P AVAX S.A.	Date of test:	12/11/2014	Certificate no:	TCR372
Client address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Project:	Onshore & Offshore Geotechnical Investigation	Date of certificate:	13/11/2014
Attn:	Giorgos Rousopoulos	Location/Town:	Delimara	Job no:	J2094
Client Tel No:	306972019434			Test reference no:	DIW060
				Tested by:	LS / MH

Sample Information:

Sample ref N°:	BH GL3	Sample description:	Soil
Sampling location:	BH GL3 Sample 17	Date of sampling:	01/11/2014

Dry Bulk Density:

Mass of specimen	m_s	137.40	g
Mass of specimen + Plasticine	m_f	151.70	g
Mass of specimen + Plasticine + Wax	m_w	169.10	g
Mass of specimen in water	m_g	85.00	g
Volume of specimen	$V_s = (m_w - m_g) / (m_w - m_f / \rho_p)$	64.77	cm ³
Bulk density of specimen	$\rho = m_s / V_s$	2.121	Mg/m ³
Moisture content	w	16.7	%
Dry Density	$\rho_d = 100\rho / 100 + w$	1.817	Mg / m³

Deviation from Standard:

Nil

Remarks:

Nil

Prepared By:



Jessica Farrugia
Quality Manager

Approved By:



Chris Magro
Laboratory Manager

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Registration No.: C32227

Directors: Alfred Xerri

Filename: J2094_Soil_BulkDensity_TCR372_DIW060.xls

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Laboratory Test Certificate

Determination of Density - Immersion in Water Method according to BS 1377-2: Clause 7.3

Client name:	J&P AVAX S.A.	Date of test:	11/04/2014	Certificate no:	TCR390
Client address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Project:	Onshore & Offshore Geotechnical Investigation	Date of certificate:	13/11/2014
Attn:	Giorgos Rousopoulos	Location/Town:	Delimara	Job no:	J2094
Client Tel No:	306972019434			Test reference no:	DIW065
				Tested by:	LS / MH

Sample Information:

Sample ref N°:	BH GL4	Sample description:	Soil
Sampling location:	BH GL4 Sample 4	Date of sampling:	28/10/2014

Dry Bulk Density:

Mass of specimen	m_s	330.40	g
Mass of specimen + Plasticine	m_f	351.70	g
Mass of specimen + Plasticine + Wax	m_w	366.80	g
Mass of specimen in water	m_g	197.20	g
Volume of specimen	$V_s = (m_w - m_g) / (m_w - m_f / \rho_p)$	152.82	cm ³
Bulk density of specimen	$\rho = m_s / V_s$	2.162	Mg/m ³
Moisture content	w	15.1	%
Dry Density	$\rho_d = 100\rho / 100 + w$	1.879	Mg / m³

Deviation from Standard:

Nil

Remarks:

Nil

Prepared By:



Jessica Farrugia
Quality Manager

Approved By:



Chris Magro
Laboratory Manager

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Registration No.: C32227

Directors: Alfred Xerri

Filename: J2094_Soil_BulkDensity_TCR390_DIW065.xls

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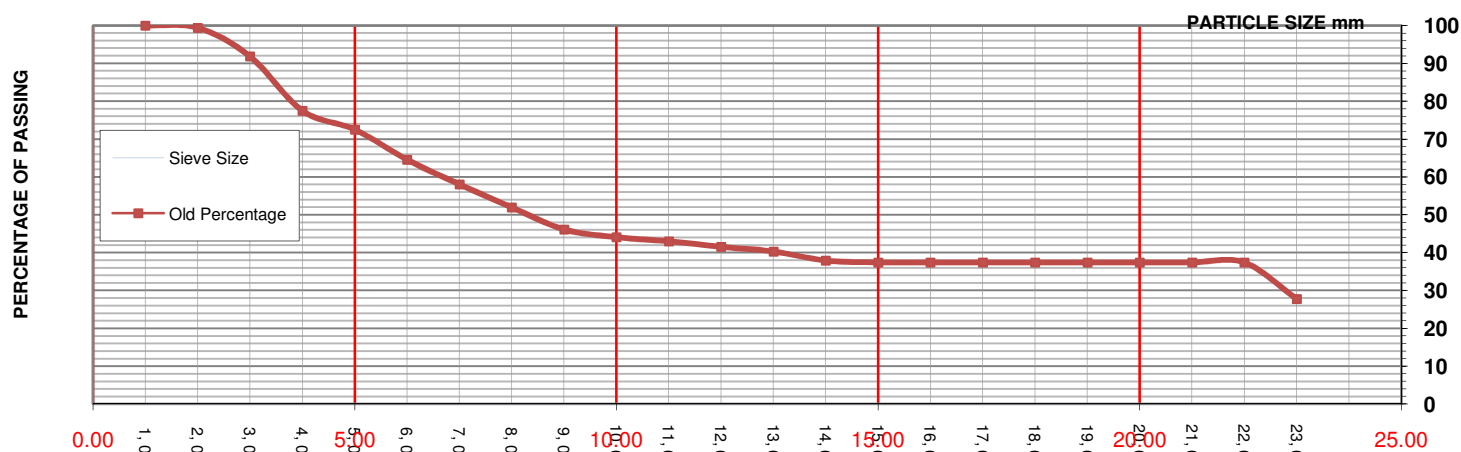
Laboratory Test Certificate

Determination of Combined Particle Size distribution and Sedimentation according to BS 7755-5.4: 1998 and ISO 11277: 1998

Client name:	J&P AVAX S.A.	Date of test:	08/11/2014	Certificate no:	TCR358
Client address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Project:	Onshore & Offshore Geotechnical Investigation	Date of certificate:	10/11/2014
Attn:	Giorgos Rousopoulos	Location/Town:	Delimara	Job no:	J2094
Client Tel No:	306972019434			Test reference no:	SED025
				Tested by:	LS

Sample Information:		Test Information:	
Sample ref N°:	141031 - BH GL1	Initial mass of sample as received:	560.9 g
Sampling location:	BH GL1	Mass of dry sample before washing:	438.9 g
Sample description:	Sample 8	Mass of dry sample after washing:	251.6 g
Date of sampling:	31/10/2014	Moisture content:	27.80 %
		Silt content:	37.90 %
		Mass of sample for grading:	438.9 g

Particle size distribution			Particle size distribution sedimentation by hydrometer					
Sieve size	Retained	Passing	Hydrometer No:					Percentage (P) by Mass from Sample %
mm	%	%	Meniscus correction:	z_m	0.3	Particle diameter d_p		
20.00	0.00	100.00	Reading in dispersant:	d_o'	1.5	mm		
14.00	0.67	99.33	Dry mass of sample:	m_t g	68.52			
10.00	7.48	91.85	Particle density:	ρ_s Mg/m ³	2.531	0.0661	37.40	
6.30	14.41	77.44	Viscosity of water:	η mPa s	0.9798	0.0561	37.40	
5.00	4.97	72.48			0.9909	0.0397	37.40	
3.35	7.90	64.58				0.0281	37.40	
2.00	6.58	57.99				0.0198	37.40	
1.18	6.06	51.93				0.0102	37.40	
0.600	5.81	46.12	Pretreatment			0.0051	37.40	
0.425	2.06	44.06	Preatreated with:			0.0034	37.40	
0.300	1.04	43.01	Initial dry mass of sample:	m_o g	78.36	0.0011	27.75	
0.212	1.52	41.50	Dry mass:	m_p g	76.22			
0.150	1.27	40.23	Preatreatment loss:	g	2.14			
0.063	2.34	37.90						



Deviation from Standard:	Remarks:
Nil	Nil

Prepared By:	Approved By:
Jessica Farrugia Manager	Chris Magro Laboratory Manager

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Registration No.: C32227
Directors: Alfred Xerri
Filename: J2094_Soil_TCR358_SED025.xlsx

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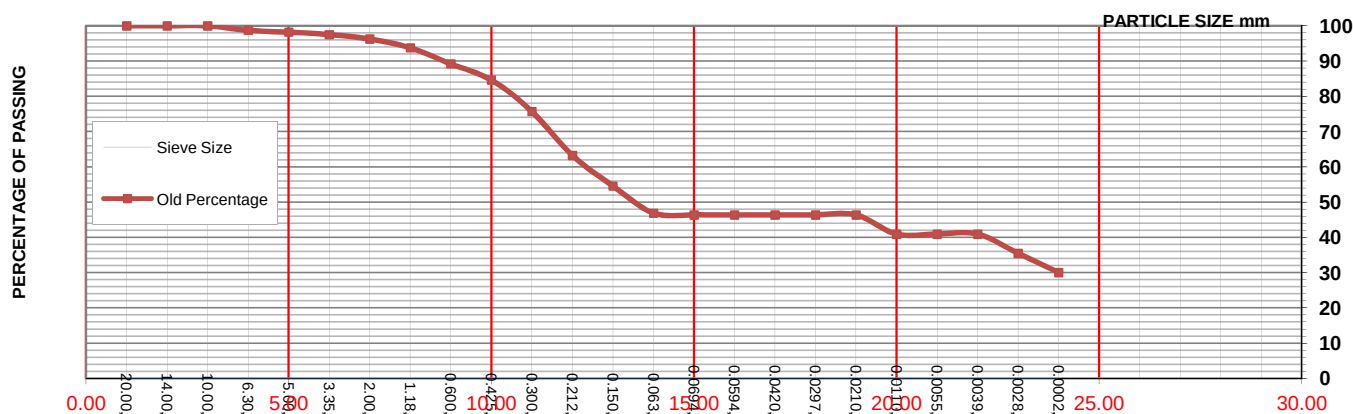
Laboratory Test Certificate

Determination of Combined Particle Size distribution and Sedimentation according to BS 7755-5.4: 1998 and ISO 11277: 1998

Client name:	J&P AVAX S.A.	Date of test:	12/11/2014	Certificate no:	TCR393
Client address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Project:	Onshore & Offshore Geotechnical Investigation	Date of certificate:	18/11/2014
Attn:	Giorgos Rousopoulos	Location/Town:	Delimara	Job no:	J2094
Client Tel No:	306972019434			Test reference no:	SED026
				Tested by:	LS

Sample Information:		Test Information:	
Sample ref N°:	141101 - BH GL3	Initial mass of sample as received:	419.0 g
Sampling location:	BH GL3	Mass of dry sample before washing:	292.7 g
Sample description:	Sample 26/33.9m	Mass of dry sample after washing:	214.1 g
Date of sampling:	01/11/2014	Moisture content:	43.15 %
		Silt content:	46.87 %
		Mass of sample for grading:	292.7 g

Particle size distribution			Particle size distribution sedimentation by hydrometer			
Sieve size mm	Retained %	Passing %	Hydrometer No:			
20.00	0.00	100.00	Meniscus correction:	Z _m	0.3	
14.00	0.00	100.00	Reading in despersant:	d ₀ '	1.5	
10.00	0.00	100.00	Dry mass of sample:	m _t g	30.03	
6.30	1.26	98.74	Particle density:	ρ _s Mg/m ³	2.567	
5.00	0.53	98.21	Viscosity of water:	η mPa s	0.9576	
3.35	0.71	97.50				
2.00	1.24	96.27				
1.18	2.50	93.77				
0.600	4.56	89.21	Pretreatment			
0.425	4.56	84.64	Pretreated with:			
0.300	8.95	75.69	Initial dry mass of sample:	m ₀ g	69.81	
0.212	12.46	63.23	Dry mass:	m _p g	67.84	
0.150	8.67	54.56	Pretreatment loss:	g	1.97	
0.063	7.69	46.87				



Deviation from Standard:	Remarks:
Nil	Nil

Prepared By:	Approved By:
Jessica Farrugia Manager	Chris Magro Manager
Quality	Laboratory

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Laboratory Test Certificate

Determination of the Mass loss on ignition according to BS 1377-3

Client Name:	J&P AVAX S.A.	Date of sampling:	29/10/2014	Certificate no:	TCR354
Client address:	29, Maroussiou Holandriou Street 151- 25 Maroussi Greece	Date of testing:	06/11/2014	Date of certificate:	7-Nov-2014
Attn:	Giorgos Rousopoulos	Project:	Onshore and Offshore Geotechnical Investigation	Tested by:	MH
Client Tel No:	306972019434	Location/Town:	Delimara	Job no:	J2094
				Test reference no:	LOI007

Sample Details

Sampling Location: BH GL2 Sample 9

Sampling report No: n/a

Type of material: Soil

Test details

	1	2
Weight of Sample (M ₁)	98.9	98.9
Passing 2mm (M ₂)	36.1	36.1
Weight of crucible (M _C)	111.785	140.852
Weight of crucible and sample before ignition (M ₃)	118.981	147.593
Weight of crucible and sample after ignition (M ₄)	118.466	147.118
Weight of sample after ignition	6.681	6.266
Weight of sample lost during ignition	92.219	92.634
LOI (%)	7.16	7.05
LOI Average	7.10	
Comments:		
Nil		
Deviation/s from standard:		
Nil		

Prepared By:

Approved By:



Jessica Farrugia
Quality Manager



Chris Magro
Laboratory Manager

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Laboratory Test Certificate

Determination of Moisture Content of soil to BS1377 Part 2:1990

Client name:	J&P AVAX S.A.	Project:	Onshore & Offshore	Certificate Nº:	TCR343
Client address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece		Geotechnical Investigation	Date of certificate:	06/11/2014
Attn:	Giorgos Rousopoulos	Location/Town:	Delimara	Client/Job Nº:	J2094
Client Tel Nº:	306972019434			Test Reference No:	MC024
				Tested by:	MH, LS
				Date of test:	05/11/2014

Sample Information:
 Sample ref Nº: 141030 - BH GL1
 Sampling location: BH GL1
 Sample depth: Various
 Date of sampling: 30/10/2014
 Type of material: Soil

Test Details

Test No:		1 BH GL1 - Sample 2	2 BH GL1 - Sample 5	3 BH GL1 - Sample 8	4 BH GL1 - Sample 11
Mass of Wet Soil + Container (m ₂)	g	228.2	587.7	560.9	553.9
Mass of Dry Soil + Container (m ₃)	g	195.0	469.6	438.9	421.5
Mass of Container (m ₁)	g	0	0	0	0
Mass of Moisture (m ₂ -m ₃)	g	33.2	118.1	122.0	132.4
Mass of Dry Soil (m ₃ -m ₁)	g	195.0	469.6	438.9	421.5
Moisture content:	%	17.03	25.15	27.80	31.41
Average moisture content:	%			25.35	

Comments:

Nil

Deviation from Standard: Nil	Remarks: Nil
---	---

Prepared By:

Approved By:



Jessica Farrugia
Quality Manager



Chris Magro
Laboratory Manager

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Laboratory Test Certificate

Determination of Moisture Content of soil to BS1377 Part 2:1990

Client name:	J&P AVAX S.A.	Project:	Onshore & Offshore	Certificate Nº:	TCR344
Client address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece		Geotechnical Investigation	Date of certificate:	06/11/2014
Attn:	Giorgos Rousopoulos	Location/Town:	Delimara	Client/Job Nº:	J2094
Client Tel Nº:	306972019434			Test Reference No:	MC025
				Tested by:	MH, LS
				Date of test:	04/11/2014

Sample Information:
 Sample ref Nº: 141029 - BH GL2
 Sampling location: BH GL2
 Sample depth: Various
 Date of sampling: 29/10/2014
 Type of material: Soil

Test Details

Test No:		1	2	3	4
		BH GL2 - Sample 2	BH GL2 - Sample 8	BH GL2 - Sample 9	BH GL2 - Sample 10
Mass of Wet Soil + Container (m ₂)	g	475.8	519.1	100.4	287.0
Mass of Dry Soil + Container (m ₃)	g	389.9	430.2	80.4	202.0
Mass of Container (m ₁)	g	0	0	0	0
Mass of Moisture (m ₂ -m ₃)	g	85.9	88.9	20.0	85.0
Mass of Dry Soil (m ₃ -m ₁)	g	389.9	430.2	80.4	202.0
Moisture content:	%	22.03	20.66	24.88	42.08
Average moisture content:	%	27.41			

Comments:

Nil

Deviation from Standard: Nil	Remarks: Nil
---	---

Prepared By:

Approved By:



Jessica Farrugia
Quality Manager



Chris Magro
Laboratory Manager

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Laboratory Test Certificate
Determination of Moisture Content of soil to BS1377 Part 2:1990

Client name: J&P AVAX S.A.	Project: Onshore & Offshore	Certificate Nº: TCR368
Client address: 29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Geotechnical Investigation	Date of certificate: 13/11/2014
Attn: Giorgos Rousopoulos	Location/Town: Delimara	Client/Job Nº: J2094
Client Tel Nº: 306972019434		Test Reference No: MC027
		Tested by: MH, LS
		Date of test: 13/11/2014

Sample Information:					
Sample ref Nº:	141101 - BH GL3				
Sampling location:	BH GL3				
Sample depth:	Various				
Date of sampling:	01/11/2014				
Type of material:	Soil				

Test Details					
Test No:		1	2	3	4
		BH GL3 - Sample 8	BH GL3 - Sample 17	BH GL3 - Sample 23	BH GL3 - Sample 26
Mass of Wet Soil + Container (m ₂)	g	283.9	558.0	345.1	419.0
Mass of Dry Soil + Container (m ₃)	g	246.4	466.5	247.7	292.7
Mass of Container (m ₁)	g	0	0	0	0
Mass of Moisture (m ₂ -m ₃)	g	37.5	91.5	97.4	126.3
Mass of Dry Soil (m ₃ -m ₁)	g	246.4	466.5	247.7	292.7
Moisture content:	%	15.22	19.61	39.32	43.15
Average moisture content:	%	29.33			

Comments:	
Nil	

Deviation from Standard:	Remarks:
Nil	Nil

Prepared By:



Jessica Farrugia
Quality Manager

Approved By:



Chris Magro
Laboratory Manager

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Laboratory Test Certificate
Determination of Moisture Content of soil to BS1377 Part 2:1990

Client name: J&P AVAX S.A.	Project: Onshore & Offshore	Certificate Nº: TCR345
Client address: 29, Maroussiou	Geotechnical	Date of certificate: 06/11/2014
Holandriou Street	Investigation	Client/Job Nº: J2094
151-25 Maroussi Greece	Location/Town: Delimara	Test Reference No: MC026
Attn: Giorgos Rousopoulos		Tested by: MH, LS
Client Tel Nº: 306972019434		Date of test: 04/11/2014

Sample Information:
 Sample ref Nº: 141028 - BH GL4
 Sampling location: BH GL4
 Sample depth: Various
 Date of sampling: 28/10/2014
 Type of material: Soil

Test Details

Test No:		1 BH GL4 - Sample 2	2 BH GL4 - Sample 4	3 BH GL4 - Sample 7
Mass of Wet Soil + Container (m ₂)	g	108.2	329.6	195.0
Mass of Dry Soil + Container (m ₃)	g	97.2	281.6	165.5
Mass of Container (m ₁)	g	0	0	0
Mass of Moisture (m ₂ -m ₃)	g	11.0	48.0	29.5
Mass of Dry Soil (m ₃ -m ₁)	g	97.2	281.6	165.5
Moisture content:	%	11.32	17.05	17.82
Average moisture content:	%			15.40

Comments:

Nil

Deviation from Standard: Nil	Remarks: Nil
---	---

Prepared By:

Approved By:



Jessica Farrugia
Quality Manager



Chris Magro
Laboratory Manager

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Laboratory Test Certificate Determination of Point load strength ISRM Suggested Methods

Client Name: J&P AVAX S.A.	Date of sampling: Various	Certificate no: 23
Client address: 29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Date of test: 08/11/2014	Date of certificate: 10-Nov-2014
Attn: Sfakianakis Costantinos	Project: Onshore & Offshore Geotechnical Investigation	Job no: J2094
Client Tel No: 306972019434	Location/Town: Delimara	Test reference no: PointLoad023
		Tested by: C.M

Sampling Location / Borehole Reference: Vaious	Calibration data of equipment: 17/06/2014	Grinding machine No: 135
Type of Drilling equipment used: Mobile Drill	Tested in Laboratory/In Situ Laboratory	Cutting machine No: 132
Type of Corebarrel used: T2-86		Sample selected by: LS

Test Details										
Sample No:	PLT	BH GL1 (1)	PLT	BH GL1 (2)	PLT	BH GL2 (3)	PLT	BH GL2 (4)	PLT	BH GL4 (5)
Storage condition of sample:	Air Sealed		Air Sealed		Air Sealed		Air Sealed		Air Sealed	
Water content of specimen:	15.54		14.22		14.05		15.36		14.98	
Specimen In situ orientation:	Perpendicular		Perpendicular		Perpendicular		Perpendicular		Perpendicular	
Depth:	15m		23.3m		10.2m		22.5m		9.8m	
Run No:	n/a		n/a		n/a		n/a		n/a	

Test Details					
Date of Test:	08/11/2014	08/11/2014	08/11/2014	08/11/2014	41951
Diameter: (mm)	63.83	63.86	70.18	67.03	67.01
Length: W (mm)	32.71	35.55	34.64	35.58	37.24
Area D_e	52	54	56	55	56
Length / diameter ratio:	2:1	2:1	2:1	2:1	2:1
Specimen condition before test:	As Received	As Received	As Received	As Received	As Received
Distance D	32	34	34	35	36
Test Duration:	25	24	35	23	26
Failure Load: P_k	1.56	1.75	8.82	1.14	1.42
Point load strength I_s	1.0	1.2	5.5	0.8	1.0
Size correction Factor	1.01	1.03	1.05	1.04	1.06
Corrected point load strength $I_s (50)$	1.0	1.3	5.8	0.8	1.1
Specimen position	Perpendicular	Perpendicular	Perpendicular	Perpendicular	Perpendicular
Failure mode:	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory
Sample description:	Samples tested Axial				
Remarks/Deviations from Suggested method:	Nil				



Chris Magro
Laboratory Manager

TEST CERTIFICATE

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Laboratory Test Certificate Determination of Point load strength ISRM Suggested Methods

Client Name: J&P AVAX S.A.	Date of sampling: Various	Certificate no: 24
Client address: 29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Date of test: 08/11/2014	Date of certificate: 10-Nov-2014
Attn: Sfakianakis Costantinos	Project: Onshore & Offshore Geotechnical Investigation	Job no: J2094
Client Tel No: 306972019434	Location/Town: Delimara	Test reference no: PointLoad024
		Tested by: C.M

Sampling Location / Borehole Reference: Vaious	Calibration data of equipment: 17/06/2014	Grinding machine No: 135
Type of Drilling equipment used: Mobile Drill	Tested in Laboratory/In Situ Laboratory	Cutting machine No: 132
Type of Corebarrel used: T2-86		Sample selected by: LS

Test Details										
Sample No:	PLT	BH GL1 (1)	PLT	BH GL1 (2)	PLT	BH GL2 (3)	PLT	BH GL2 (4)	PLT	BH GL4 (5)
Storage condition of sample:	Air Sealed		Air Sealed		Air Sealed		Air Sealed		Air Sealed	
Water content of specimen:	15.62		14.25		14.1		15.42		15.03	
Specimen In situ orientation:	Perpendicular		Perpendicular		Perpendicular		Perpendicular		Perpendicular	
Depth:	15m		23.3m		10.2m		22.5m		9.8m	
Run No:	n/a		n/a		n/a		n/a		n/a	

Test Details					
Date of Test:	08/11/2014	08/11/2014	08/11/2014	08/11/2014	41951
Diameter: (mm)	63.91	63.78	69.26	66.91	67
Length: W (mm)	67.45	68.19	62.88	72.94	64.68
Area D_e	74	74	74	79	74
Length / diameter ratio:	1:0	1:0	1:0	1:0	1:0
Specimen condition before test:	As Received	As Received	As Received	As Received	As Received
Distance D	63	63	69	66	66
Test Duration:	24	23	36	20	22
Failure Load: P_k	1.56	1.75	8.82	1.14	1.42
Point load strength I_s	2.1	2.4	10.2	1.6	1.7
Size correction Factor	1.19	1.20	1.20	1.23	1.19
Corrected point load strength $I_s (50)$	2.5	2.8	12.2	1.9	2.1
Specimen position	Parallel	Parallel	Parallel	Parallel	Parallel
Failure mode:	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory
Sample description:	Samples tested Diametrical				
Remarks/Deviations from Suggested method:	Nil				



Chris Magro
Laboratory Manager

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Laboratory Test Certificate Determination of Particle Size distribution according to BS 1377 - 2

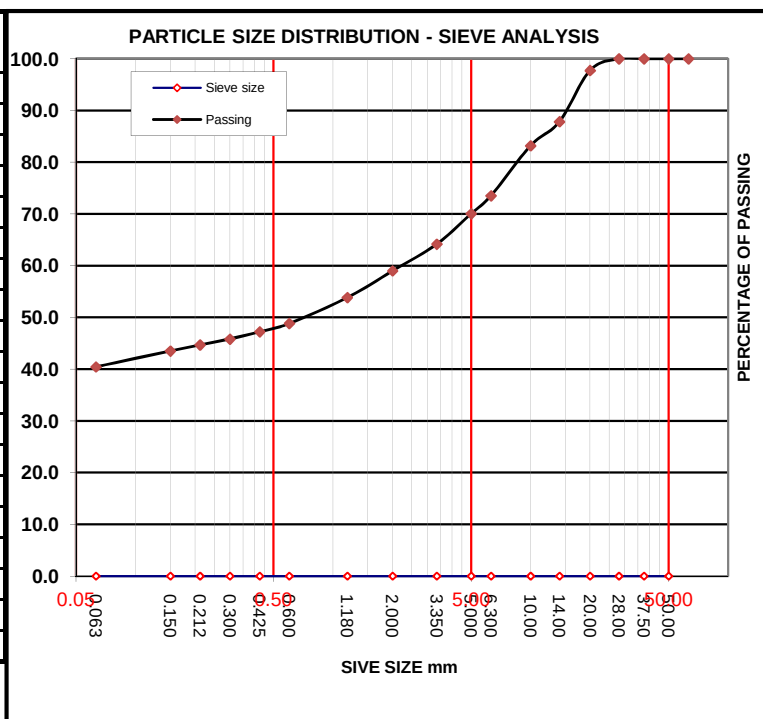
Client name:	J&P AVAX S.A.	Project:	Onshore & Offshore	Certificate Nº:	TCR378
Client address:	29, Maroussiou Holandriou Street 151- 25 Maroussi Greece		Geotechnical Investigation	Date of certificate:	17/11/2014
Attn:	Giorgos Rousopoulos	Location/Town:	Delimara	Client/Job Nº:	J2094
Client Tel Nº:	306972019434			Test reference no:	PSD086
				Tested by:	MH, LS
				Date of test:	15/11/2014

Sample Information:		Test Information:	
Sample ref Nº:	141030 - GL1	Initial mass of sample as received:	676.7 g
Sampling location:	BH GL1 Sample 2	Mass of dry sample before washing:	566.8 g
Sample description:	Soil	Mass of dry sample after washing:	338.8 g
Date of sampling:	30/10/2014	Moisture content:	19.39 %
Type of material:	Soil	Silt content:	40.44 %
		Mass of sample for grading:	566.8 g

Results:

Sieve size	Retained	Retained	Passing
mm	g	%	%
63.00	0.0	0.0	100.00
50.000	0.0	0.0	100.00
37.500	0.0	0.0	100.00
28.000	0.0	0.0	100.00
20.000	12.8	2.3	97.74
14.000	56.1	9.9	87.84
10.000	26.4	4.7	83.19
6.300	54.8	9.7	73.52
5.000	19.7	3.5	70.04
3.350	33.3	5.9	64.17
2.000	29.3	5.2	59.00
1.180	29.3	5.2	53.83
0.600	28.4	5.0	48.82
0.425	9.1	1.6	47.21
0.300	8.0	1.4	45.80
0.212	6.3	1.1	44.69
0.150	6.7	1.2	43.51
0.063	17.4	3.1	40.44

Pan 229.2
Total 566.8



Deviation from Standard:	Remarks:
Nil	Nil

Prepared By:	Approved By:
Jessica Farrugia Quality Manager	Chris Magro Laboratory Manager

TEST CERTIFICATE

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Laboratory Test Certificate Determination of Particle Size distribution according to BS 1377 - 2

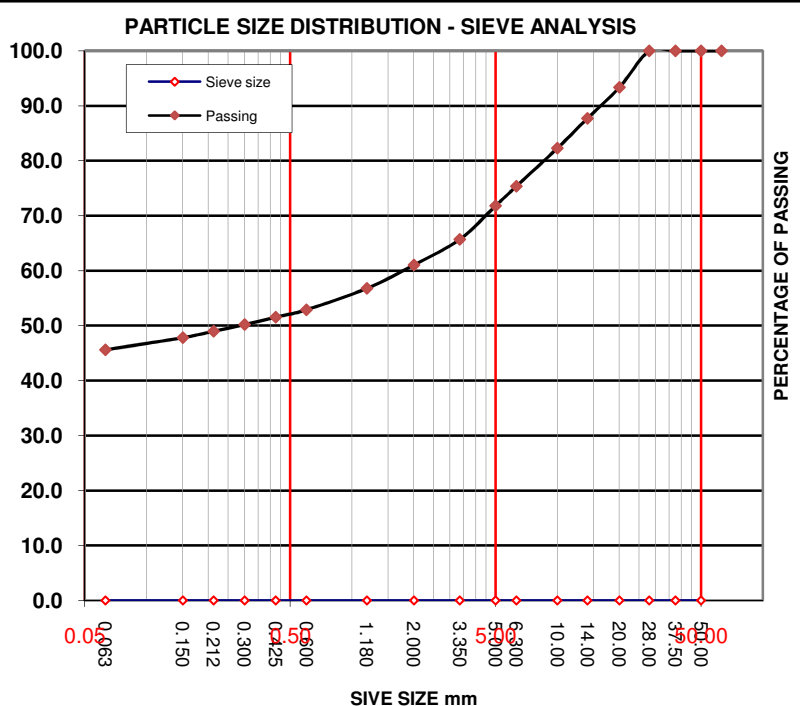
Client name:	J&P AVAX S.A.	Project:	Onshore & Offshore	Certificate N°:	TCR349
Client address:	29, Maroussiou Holandriou Street 151- 25 Maroussi Greece		Geotechnical Investigation	Date of certificate:	06/11/2014
Attn:	Giorgos Rousopoulos	Location/Town:	Delimara	Client/Job N°:	J2094
Client Tel N°:	306972019434			Test reference no:	PSD080
				Tested by:	MH
				Date of test:	05/11/2014

Sample Information:		Test Information:		
Sample ref N°:	141030 - GL1	Initial mass of sample as received:	587.7	g
Sampling location:	BH GL1 Sample 5	Mass of dry sample before washing:	469.6	g
Sample description:	Soil	Mass of dry sample after washing:	256.0	g
Date of sampling:	30/10/2014	Moisture content:	25.15	%
Type of material:	Soil	Silt content:	45.59	%
		Mass of sample for grading:	469.6	g

Results:

Sieve size	Retained	Retained	Passing
mm	g	%	%
63.00	0.0	0.0	100.00
50.000	0.0	0.0	100.00
37.500	0.0	0.0	100.00
28.000	0.0	0.0	100.00
20.000	31.3	6.7	93.33
14.000	26.3	5.6	87.73
10.000	25.6	5.5	82.28
6.300	32.5	6.9	75.36
5.000	16.8	3.6	71.78
3.350	28.7	6.1	65.67
2.000	21.7	4.6	61.05
1.180	20.1	4.3	56.77
0.600	18.2	3.9	52.90
0.425	6.4	1.4	51.53
0.300	6.3	1.3	50.19
0.212	5.7	1.2	48.98
0.150	5.5	1.2	47.81
0.063	10.3	2.2	45.61

Pan 214.1
Total 469.6



Deviation from Standard:	Remarks:
Nil	Nil

Prepared By:	Approved By:
 Jessica Farrugia Quality Manager	 Chris Magro Laboratory Manager

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Laboratory Test Certificate Determination of Particle Size distribution according to BS 1377 - 2

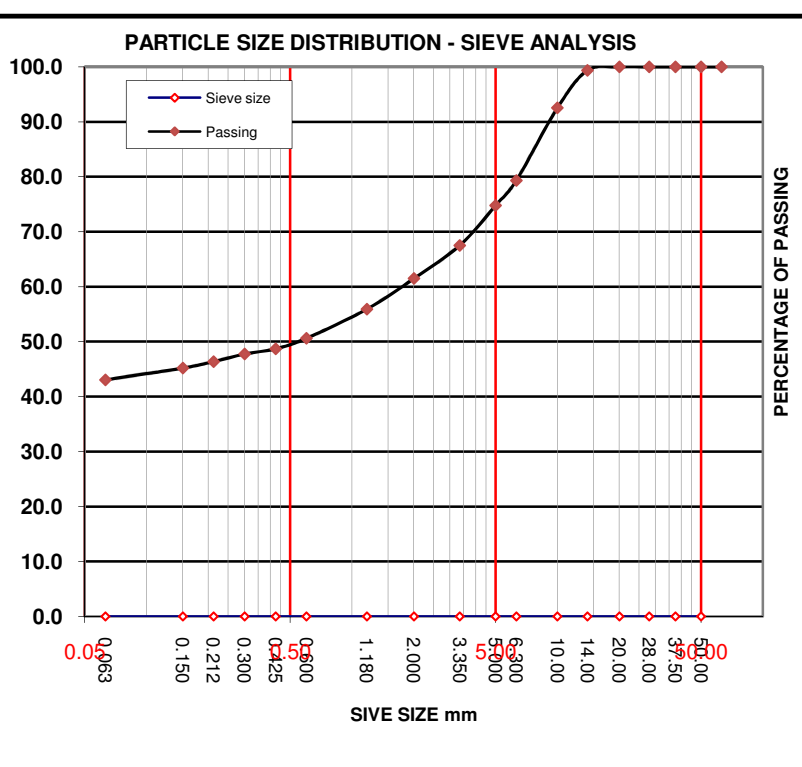
Client name:	J&P AVAX S.A.	Project:	Onshore & Offshore	Certificate N°:	TCR350
Client address:	29, Maroussiou Holandriou Street 151- 25 Maroussi Greece		Geotechnical Investigation	Date of certificate:	06/11/2014
Attn:	Giorgos Rousopoulos	Location/Town:	Delimara	Client/Job N°:	J2094
Client Tel N°:	306972019434			Test reference no:	PSD081
				Tested by:	MH
				Date of test:	05/11/2014

Sample Information:		Test Information:		
Sample ref N°:	141030 - GL1	Initial mass of sample as received:	560.9	g
Sampling location:	BH GL1 Sample 8	Mass of dry sample before washing:	438.9	g
Sample description:	Soil	Mass of dry sample after washing:	251.6	g
Date of sampling:	30/10/2014	Moisture content:	27.80	%
Type of material:	Soil	Silt content:	42.79	%
		Mass of sample for grading:	438.9	g

Results:

Sieve size	Retained	Retained	Passing
mm	g	%	%
63.00	0.0	0.0	100.00
50.000	0.0	0.0	100.00
37.500	0.0	0.0	100.00
28.000	0.0	0.0	100.00
20.000	0.0	0.0	100.00
14.000	2.7	0.6	99.38
10.000	30.1	6.9	92.53
6.300	58.0	13.2	79.31
5.000	20.0	4.6	74.76
3.350	31.8	7.2	67.51
2.000	26.5	6.0	61.47
1.180	24.4	5.6	55.91
0.600	23.4	5.3	50.58
0.425	8.3	1.9	48.69
0.300	4.2	1.0	47.73
0.212	6.1	1.4	46.34
0.150	5.1	1.2	45.18
0.063	9.4	2.1	43.04

Pan 187.8
Total 438.9



Deviation from Standard:	Remarks:
Nil	Nil

Prepared By:	Approved By:
 Jessica Farrugia Quality Manager	 Chris Magro Laboratory Manager

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Laboratory Test Certificate Determination of Particle Size distribution according to BS 1377 - 2

Client name:	J&P AVAX S.A.	Project:	Onshore & Offshore	Certificate N°:	TCR351
Client address:	29, Maroussiou Holandriou Street 151- 25 Maroussi Greece		Geotechnical Investigation	Date of certificate:	06/11/2014
Attn:	Giorgos Rousopoulos	Location/Town:	Delimara	Client/Job N°:	J2094
Client Tel N°:	306972019434			Test reference no:	PSD082
				Tested by:	MH
				Date of test:	06/11/2014

Sample Information:

Sample ref N°: 141030 - GL1
Sampling location: BH GL1 Sample 11
Sample description: Soil
Date of sampling: 30/10/2014
Type of material: Soil

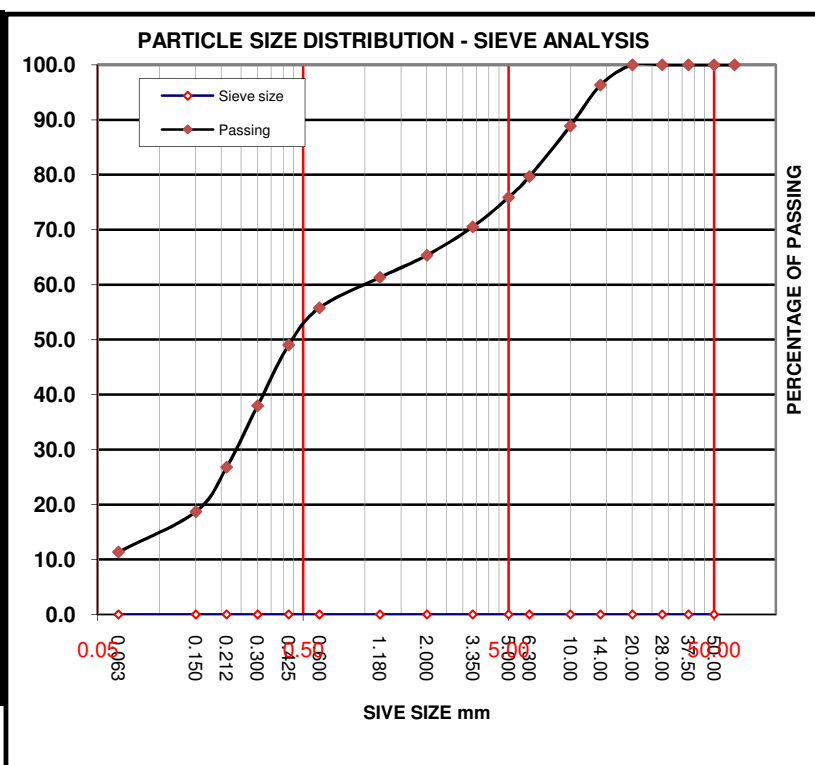
Test Information:

Initial mass of sample as received: 553.9 g
Mass of dry sample before washing: 421.5 g
Mass of dry sample after washing: 377.2 g
Moisture content: 31.41 %
Silt content: 11.13 %
Mass of sample for grading: 421.5 g

Results:

Sieve size	Retained	Retained	Passing
mm	g	%	%
63.00	0.0	0.0	100.00
50.000	0.0	0.0	100.00
37.500	0.0	0.0	100.00
28.000	0.0	0.0	100.00
20.000	0.0	0.0	100.00
14.000	15.6	3.7	96.30
10.000	31.2	7.4	88.90
6.300	39.0	9.3	79.64
5.000	15.9	3.8	75.87
3.350	22.6	5.4	70.51
2.000	21.7	5.1	65.36
1.180	17.0	4.0	61.33
0.600	23.4	5.6	55.78
0.425	28.5	6.8	49.02
0.300	46.5	11.0	37.98
0.212	47.3	11.2	26.76
0.150	34.2	8.1	18.65
0.063	30.9	7.3	11.32

Pan 46.9
Total 421.5



Deviation from Standard:

Nil

Remarks:

Nil

Prepared By:

Jessica Farrugia

Jessica Farrugia
Quality Manager

Approved By:

Chris Magro

Chris Magro
Laboratory Manager

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Terracore Ltd,

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Registration No.: C32227

Directors: Alfred Xerri

Filename: J2094_Soil_TCR351_PSD082.xls

Laboratory Test Certificate Determination of Particle Size distribution according to BS 1377 - 2

Client name:	J&P AVAX S.A.	Project:	Onshore & Offshore	Certificate N°:	TCR346
Client address:	29, Maroussiou Holandriou Street 151- 25 Maroussi Greece		Geotechnical Investigation	Date of certificate:	06/11/2014
Attn:	Giorgos Rousopoulos	Location/Town:	Delimara	Client/Job N°:	J2094
Client Tel N°:	306972019434			Test reference no:	PSD077
				Tested by:	MH
				Date of test:	05/11/2014

Sample Information:

Sample ref N°: 141029 - GL2
Sampling location: BH GL2 Sample 5
Sample description: Soil
Date of sampling: 29/10/2014
Type of material: Soil

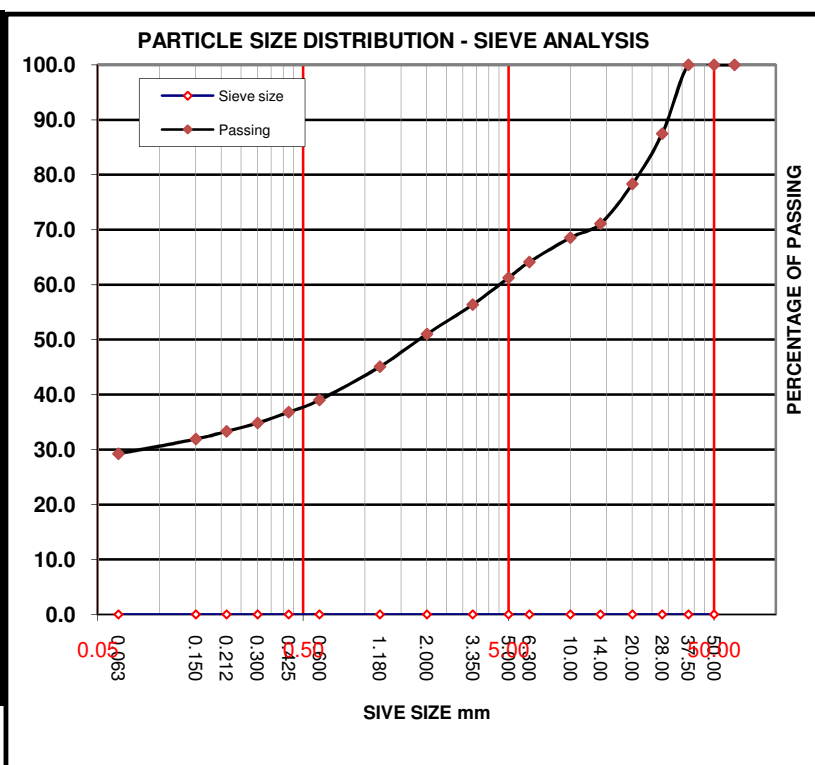
Test Information:

Initial mass of sample as received: 398.7 g
Mass of dry sample before washing: 331.7 g
Mass of dry sample after washing: 235.4 g
Moisture content: 20.20 %
Silt content: 29.18 %
Mass of sample for grading: 331.7 g

Results:

Sieve size	Retained	Retained	Passing
mm	g	%	%
63.00	0.0	0.0	100.00
50.000	0.0	0.0	100.00
37.500	0.0	0.0	100.00
28.000	41.5	12.5	87.49
20.000	30.4	9.2	78.32
14.000	23.9	7.2	71.12
10.000	8.5	2.6	68.56
6.300	14.7	4.4	64.12
5.000	9.5	2.9	61.26
3.350	16.3	4.9	56.35
2.000	17.8	5.4	50.98
1.180	19.6	5.9	45.07
0.600	20.2	6.1	38.98
0.425	7.3	2.2	36.78
0.300	6.5	2.0	34.82
0.212	5.1	1.5	33.28
0.150	4.6	1.4	31.90
0.063	8.9	2.7	29.21

Pan 96.8
Total 331.7



Deviation from Standard:

Nil

Remarks:

Nil

Prepared By:

Jessica Farrugia

Jessica Farrugia
Quality Manager

Approved By:

Chris Magro

Chris Magro
Laboratory Manager

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Registration No.: C32227

Directors: Alfred Xerri

Filename: J2094_Soil_TCR346_PSD077.xls

Laboratory Test Certificate Determination of Particle Size distribution according to BS 1377 - 2

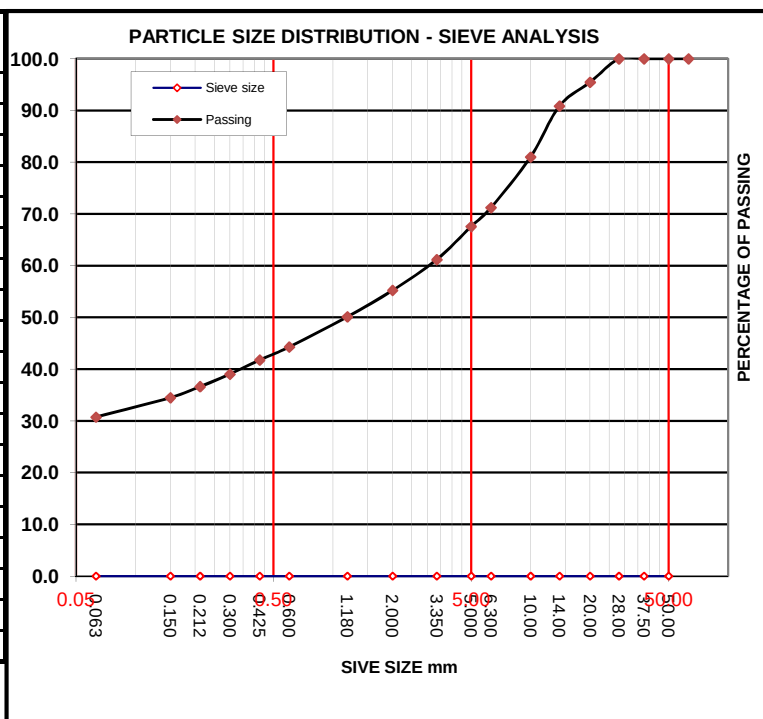
Client name:	J&P AVAX S.A.	Project:	Onshore & Offshore	Certificate Nº:	TCR379
Client address:	29, Maroussiou Holandriou Street 151- 25 Maroussi Greece		Geotechnical Investigation	Date of certificate:	17/11/2014
Attn:	Giorgos Rousopoulos	Location/Town:	Delimara	Client/Job Nº:	J2094
Client Tel Nº:	306972019434			Test reference no:	PSD087
				Tested by:	MH, LS
				Date of test:	15/11/2014

Sample Information:		Test Information:	
Sample ref Nº:	141029 - GL2	Initial mass of sample as received:	415.5 g
Sampling location:	BH GL2 Sample 2	Mass of dry sample before washing:	346.0 g
Sample description:	Soil	Mass of dry sample after washing:	240.8 g
Date of sampling:	29/10/2014	Moisture content:	20.09 %
Type of material:	Soil	Silt content:	30.66 %
		Mass of sample for grading:	346.0 g

Results:

Sieve size	Retained	Retained	Passing
mm	g	%	%
63.00	0.0	0.0	100.00
50.000	0.0	0.0	100.00
37.500	0.0	0.0	100.00
28.000	0.0	0.0	100.00
20.000	15.7	4.5	95.46
14.000	15.9	4.6	90.87
10.000	34.1	9.9	81.01
6.300	33.9	9.8	71.21
5.000	12.6	3.6	67.57
3.350	22.1	6.4	61.18
2.000	20.6	6.0	55.23
1.180	17.7	5.1	50.12
0.600	20.2	5.8	44.28
0.425	8.7	2.5	41.76
0.300	9.5	2.7	39.02
0.212	8.3	2.4	36.62
0.150	7.4	2.1	34.48
0.063	13.0	3.8	30.72

Pan 106.1
Total 346.0



Deviation from Standard:	Remarks:
Nil	Nil

Prepared By:	Approved By:
Jessica Farrugia Quality Manager	Chris Magro Laboratory Manager

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Laboratory Test Certificate Determination of Particle Size distribution according to BS 1377 - 2

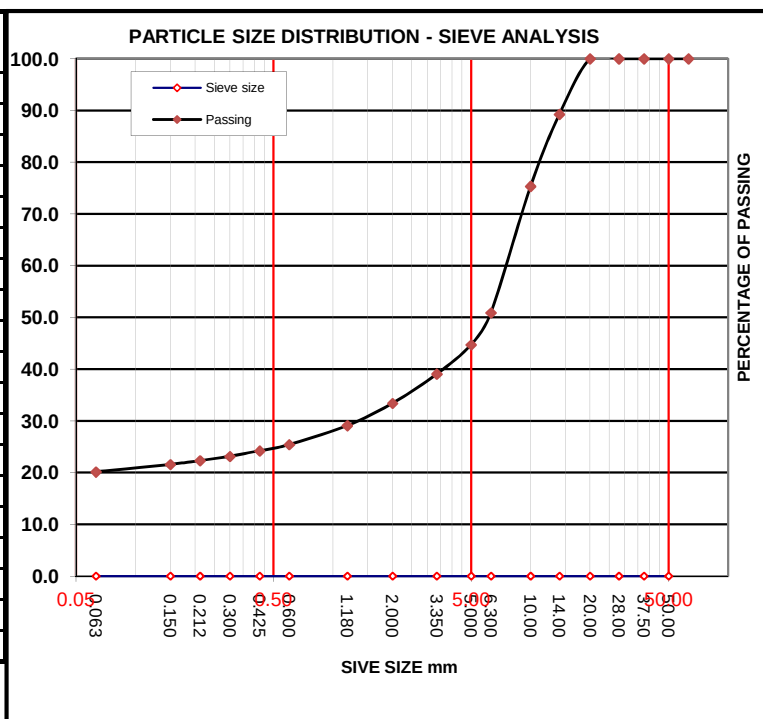
Client name:	J&P AVAX S.A.	Project:	Onshore & Offshore	Certificate Nº:	TCR380
Client address:	29, Maroussiou Holandriou Street 151- 25 Maroussi Greece		Geotechnical Investigation	Date of certificate:	17/11/2014
Attn:	Giorgos Rousopoulos	Location/Town:	Delimara	Client/Job Nº:	J2094
Client Tel Nº:	306972019434			Test reference no:	PSD088
				Tested by:	MH, LS
				Date of test:	15/11/2014

Sample Information:		Test Information:	
Sample ref Nº:	141029 - GL2	Initial mass of sample as received:	434.4 g
Sampling location:	BH GL2 Sample 8	Mass of dry sample before washing:	367.3 g
Sample description:	Soil	Mass of dry sample after washing:	300.3 g
Date of sampling:	29/10/2014	Moisture content:	18.27 %
Type of material:	Soil	Silt content:	19.77 %
		Mass of sample for grading:	367.3 g

Results:

Sieve size	Retained	Retained	Passing
mm	g	%	%
63.00	0.0	0.0	100.00
50.000	0.0	0.0	100.00
37.500	0.0	0.0	100.00
28.000	0.0	0.0	100.00
20.000	0.0	0.0	100.00
14.000	39.4	10.7	89.27
10.000	51.2	13.9	75.33
6.300	89.8	24.4	50.88
5.000	22.7	6.2	44.70
3.350	20.8	5.7	39.04
2.000	20.8	5.7	33.38
1.180	15.8	4.3	29.08
0.600	13.5	3.7	25.40
0.425	4.5	1.2	24.18
0.300	3.9	1.1	23.11
0.212	3.0	0.8	22.30
0.150	2.7	0.7	21.56
0.063	5.3	1.4	20.12

Pan 72.6
Total 367.3



Deviation from Standard:	Remarks:
Nil	Nil

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Laboratory Test Certificate Determination of Particle Size distribution according to BS 1377 - 2

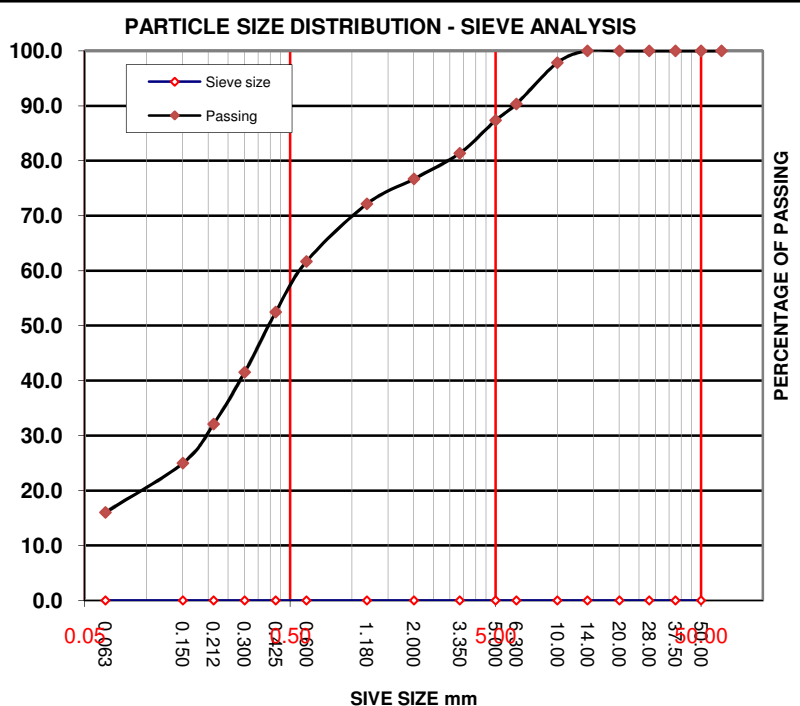
Client name:	J&P AVAX S.A.	Project:	Onshore & Offshore	Certificate N°:	TCR347
Client address:	29, Maroussiou Holandriou Street 151- 25 Maroussi Greece		Geotechnical Investigation	Date of certificate:	06/11/2014
Attn:	Giorgos Rousopoulos	Location/Town:	Delimara	Client/Job N°:	J2094
Client Tel N°:	306972019434			Test reference no:	PSD078
				Tested by:	MH
				Date of test:	05/11/2014

Sample Information:		Test Information:		
Sample ref N°:	141029 - GL2	Initial mass of sample as received:	287.0	g
Sampling location:	BH GL2 Sample 10	Mass of dry sample before washing:	202.0	g
Sample description:	Soil	Mass of dry sample after washing:	170.9	g
Date of sampling:	29/10/2014	Moisture content:	42.08	%
Type of material:	Soil	Silt content:	15.99	%
		Mass of sample for grading:	202.0	g

Results:

Sieve size	Retained	Retained	Passing
mm	g	%	%
63.00	0.0	0.0	100.00
50.000	0.0	0.0	100.00
37.500	0.0	0.0	100.00
28.000	0.0	0.0	100.00
20.000	0.0	0.0	100.00
14.000	0.0	0.0	100.00
10.000	4.4	2.2	97.82
6.300	15.1	7.5	90.35
5.000	6.1	3.0	87.33
3.350	12.1	6.0	81.34
2.000	9.4	4.7	76.68
1.180	9.2	4.6	72.13
0.600	21.1	10.4	61.68
0.425	18.6	9.2	52.48
0.300	22.2	11.0	41.49
0.212	19.0	9.4	32.08
0.150	14.4	7.1	24.95
0.063	18.1	9.0	15.99

Pan 32.3
Total 202.0



Deviation from Standard:	Remarks:
Nil	Nil

Prepared By:	Approved By:
	
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Laboratory Test Certificate Determination of Particle Size distribution according to BS 1377 - 2

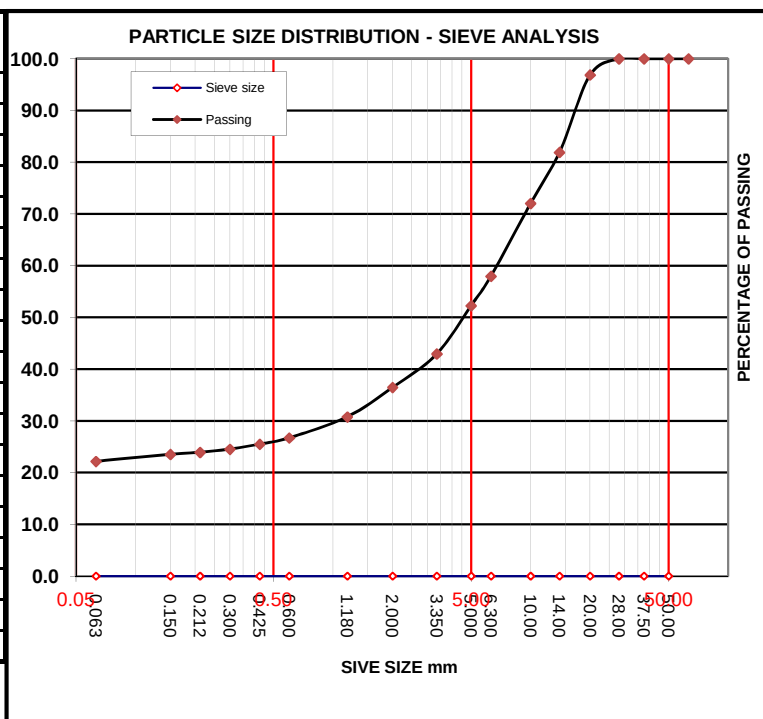
Client name:	J&P AVAX S.A.	Project:	Onshore & Offshore	Certificate Nº:	TCR381
Client address:	29, Maroussiou Holandriou Street 151- 25 Maroussi Greece		Geotechnical Investigation	Date of certificate:	17/11/2014
Attn:	Giorgos Rousopoulos	Location/Town:	Delimara	Client/Job Nº:	J2094
Client Tel Nº:	306972019434			Test reference no:	PSD089
				Tested by:	MH, LS
				Date of test:	14/11/2014

Sample Information:		Test Information:	
Sample ref Nº:	141101 - GL3	Initial mass of sample as received:	283.9 g
Sampling location:	BH GL3 Sample 8	Mass of dry sample before washing:	246.4 g
Sample description:	Soil	Mass of dry sample after washing:	195.6 g
Date of sampling:	01/11/2014	Moisture content:	15.22 %
Type of material:	Soil	Silt content:	20.74 %
		Mass of sample for grading:	246.4 g

Results:

Sieve size	Retained	Retained	Passing
mm	g	%	%
63.00	0.0	0.0	100.00
50.000	0.0	0.0	100.00
37.500	0.0	0.0	100.00
28.000	0.0	0.0	100.00
20.000	7.7	3.1	96.88
14.000	36.9	15.0	81.90
10.000	24.3	9.9	72.04
6.300	34.7	14.1	57.95
5.000	14.0	5.7	52.27
3.350	23.0	9.3	42.94
2.000	16.0	6.5	36.44
1.180	14.0	5.7	30.76
0.600	10.0	4.1	26.70
0.425	3.0	1.2	25.49
0.300	2.4	1.0	24.51
0.212	1.5	0.6	23.90
0.150	1.0	0.4	23.50
0.063	3.3	1.3	22.16

Pan 51.1
Total 246.4



Deviation from Standard:	Remarks:
Nil	Nil

Prepared By:	Approved By:
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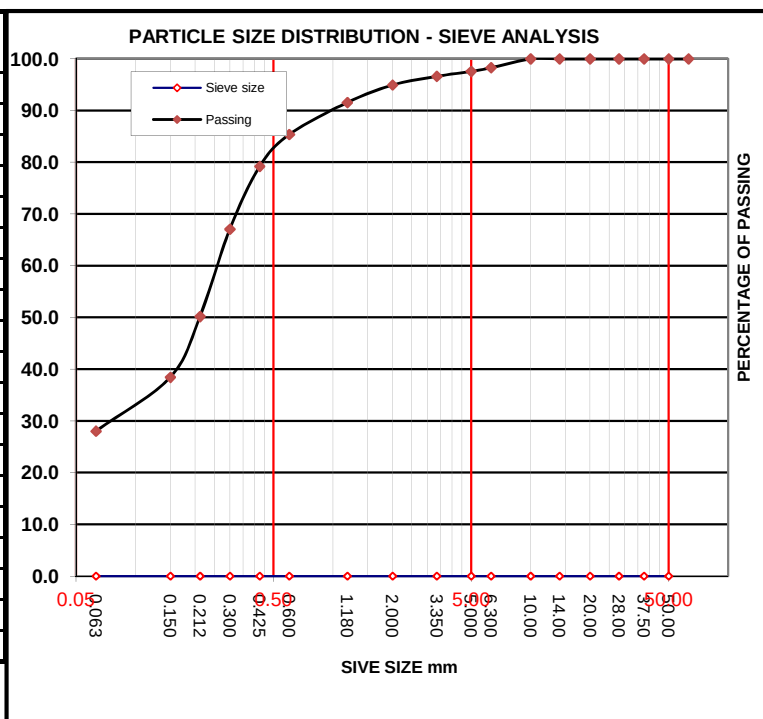
Client name:	J&P AVAX S.A.	Project:	Onshore & Offshore	Certificate Nº:	TCR367
Client address:	29, Maroussiou Holandriou Street 151- 25 Maroussi Greece		Geotechnical Investigation	Date of certificate:	13/11/2014
Attn:	Giorgos Rousopoulos	Location/Town:	Delimara	Client/Job Nº:	J2094
Client Tel Nº:	306972019434			Test reference no:	PSD084
				Tested by:	MH, LS
				Date of test:	13/11/2014

Sample Information:		Test Information:	
Sample ref Nº:	141101 - GL3	Initial mass of sample as received:	419.0 g
Sampling location:	BH GL3 Sample 26/ 33.9m	Mass of dry sample before washing:	292.7 g
Sample description:	Soil	Mass of dry sample after washing:	214.1 g
Date of sampling:	01/11/2014	Moisture content:	43.15 %
Type of material:	Soil	Silt content:	27.67 %
		Mass of sample for grading:	292.7 g

Results:

Sieve size	Retained	Retained	Passing
mm	g	%	%
63.00	0.0	0.0	100.00
50.000	0.0	0.0	100.00
37.500	0.0	0.0	100.00
28.000	0.0	0.0	100.00
20.000	0.0	0.0	100.00
14.000	0.0	0.0	100.00
10.000	0.0	0.0	100.00
6.300	5.0	1.7	98.29
5.000	2.1	0.7	97.57
3.350	2.8	1.0	96.62
2.000	4.9	1.7	94.94
1.180	9.9	3.4	91.56
0.600	18.1	6.2	85.38
0.425	18.1	6.2	79.19
0.300	35.5	12.1	67.07
0.212	49.4	16.9	50.19
0.150	34.4	11.8	38.44
0.063	30.5	10.4	28.02

Pan 81
Total 292.7



Deviation from Standard:	Remarks:
Nil	Nil

Prepared By:	Approved By:
	
Jessica Farrugia Quality Manager	Chris Magro Laboratory Manager

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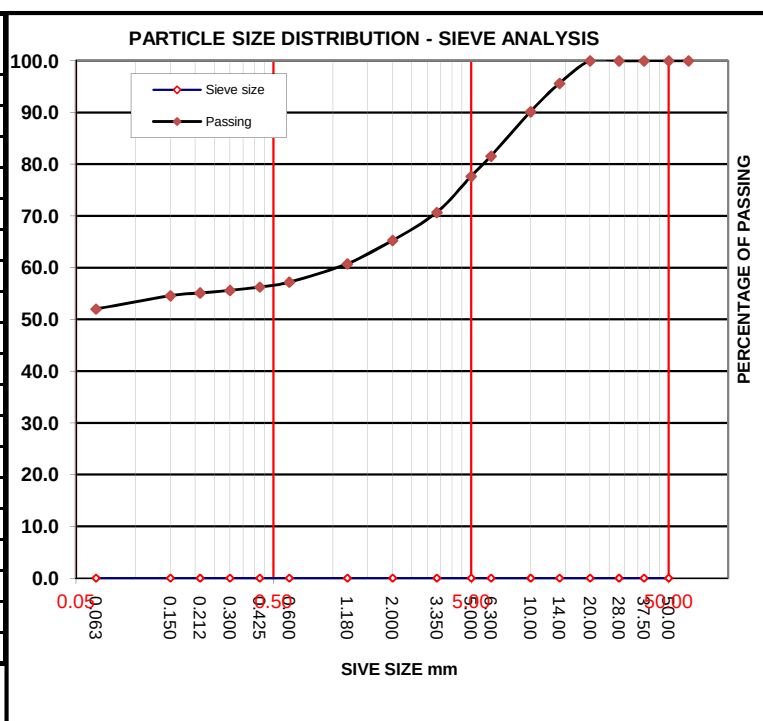
Client name:	J&P AVAX S.A.	Project:	Onshore & Offshore	Certificate Nº:	TCR382
Client address:	29, Maroussiou Holandriou Street 151- 25 Maroussi Greece		Geotechnical Investigation	Date of certificate:	17/11/2014
Attn:	Giorgos Rousopoulos	Location/Town:	Delimara	Client/Job Nº:	J2094
Client Tel Nº:	306972019434			Test reference no:	PSD090
				Tested by:	MH, LS
				Date of test:	14/11/2014

Sample Information:		Test Information:	
Sample ref Nº:	141101 - GL3	Initial mass of sample as received:	558.0 g
Sampling location:	BH GL3 Sample 17	Mass of dry sample before washing:	466.5 g
Sample description:	Soil	Mass of dry sample after washing:	224.9 g
Date of sampling:	01/11/2014	Moisture content:	19.61 %
Type of material:	Soil	Silt content:	51.96 %
		Mass of sample for grading:	466.5 g

Results:

Sieve size	Retained	Retained	Passing
mm	g	%	%
63.00	0.0	0.0	100.00
50.000	0.0	0.0	100.00
37.500	0.0	0.0	100.00
28.000	0.0	0.0	100.00
20.000	0.0	0.0	100.00
14.000	20.4	4.4	95.63
10.000	25.5	5.5	90.16
6.300	40.1	8.6	81.56
5.000	18.2	3.9	77.66
3.350	32.6	7.0	70.68
2.000	25.2	5.4	65.27
1.180	21.1	4.5	60.75
0.600	16.5	3.5	57.21
0.425	4.4	0.9	56.27
0.300	3.1	0.7	55.61
0.212	2.3	0.5	55.11
0.150	2.5	0.5	54.58
0.063	12.0	2.6	52.00

Pan 242.4
Total 466.5



Deviation from Standard:	Remarks:
Nil	Nil

Prepared By:	Approved By:
Jessica Farrugia Quality Manager	Chris Magro Laboratory Manager

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Laboratory Test Certificate Determination of Particle Size distribution according to BS 1377 - 2

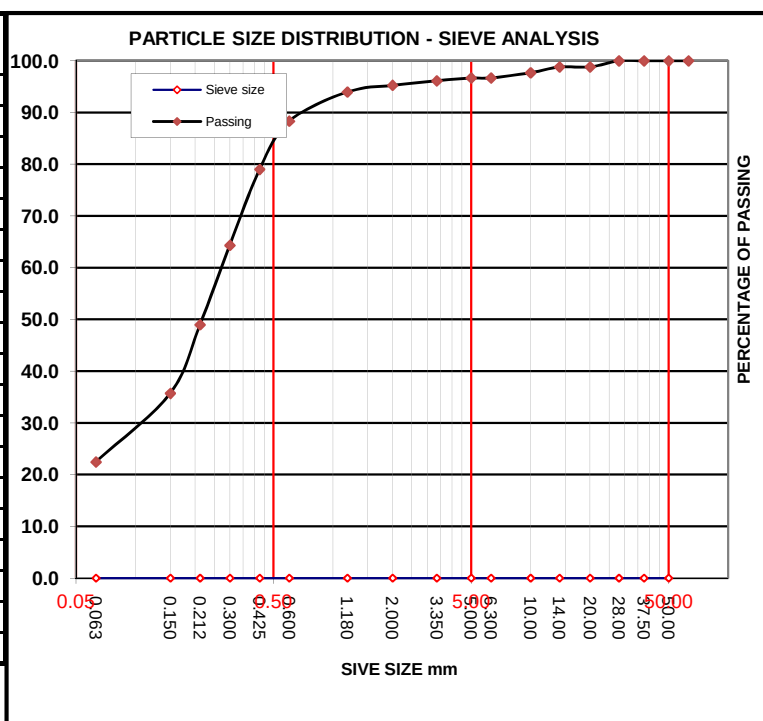
Client name:	J&P AVAX S.A.	Project:	Onshore & Offshore	Certificate Nº:	TCR383
Client address:	29, Maroussiou Holandriou Street 151- 25 Maroussi Greece		Geotechnical Investigation	Date of certificate:	17/11/2014
Attn:	Giorgos Rousopoulos	Location/Town:	Delimara	Client/Job Nº:	J2094
Client Tel Nº:	306972019434			Test reference no:	PSD091
				Tested by:	MH, LS
				Date of test:	15/11/2014

Sample Information:		Test Information:	
Sample ref Nº:	141101 - GL3	Initial mass of sample as received:	373.6 g
Sampling location:	BH GL3 Sample 23	Mass of dry sample before washing:	268.3 g
Sample description:	Soil	Mass of dry sample after washing:	211.8 g
Date of sampling:	01/11/2014	Moisture content:	39.25 %
Type of material:	Soil	Silt content:	21.51 %
		Mass of sample for grading:	268.3 g

Results:

Sieve size	Retained	Retained	Passing
mm	g	%	%
63.00	0.0	0.0	100.00
50.000	0.0	0.0	100.00
37.500	0.0	0.0	100.00
28.000	0.0	0.0	100.00
20.000	3.2	1.2	98.81
14.000	0.0	0.0	98.81
10.000	3.0	1.1	97.69
6.300	2.7	1.0	96.68
5.000	0.0	0.0	96.68
3.350	1.5	0.6	96.12
2.000	2.3	0.9	95.27
1.180	3.5	1.3	93.96
0.600	15.1	5.6	88.33
0.425	25.0	9.3	79.02
0.300	39.4	14.7	64.33
0.212	41.2	15.4	48.98
0.150	35.6	13.3	35.71
0.063	35.6	13.3	22.44

Pan 57.7
Total 268.3



Deviation from Standard:	Remarks:
Nil	Nil

Prepared By:	Approved By:	TEST CERTIFICATE This document can only be reproduced in its entirety without revision and with written authorisation from Terracore Ltd
 Jessica Farrugia Quality Manager	 Chris Magro Laboratory Manager	

Laboratory Test Certificate Determination of Particle Size distribution according to BS 1377 - 2

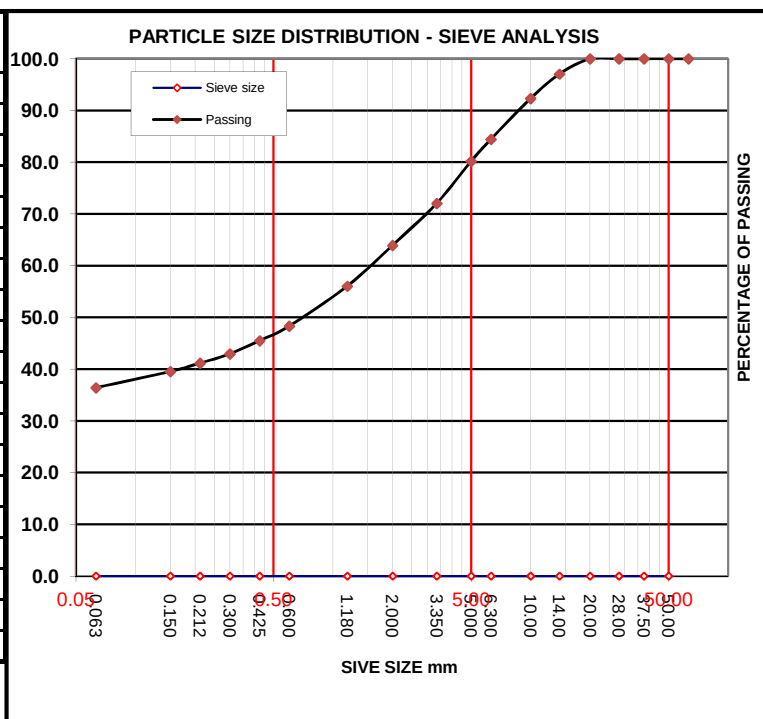
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Client address:	29, Maroussiou Holandriou Street 151- 25 Maroussi Greece		Geotechnical Investigation	Date of certificate:	17/11/2014
Attn:	Giorgos Rousopoulos	Location/Town:	Delimara	Client/Job Nº:	J2094
Client Tel Nº:	306972019434			Test reference no:	PSD092
				Tested by:	MH, LS
				Date of test:	15/11/2014

Sample Information:		Test Information:	
Sample ref Nº:	141028 - GL4	Initial mass of sample as received:	465.3 g
Sampling location:	BH GL4 Sample 2	Mass of dry sample before washing:	415.5 g
Sample description:	Soil	Mass of dry sample after washing:	265.4 g
Date of sampling:	28/10/2014	Moisture content:	11.99 %
Type of material:	Soil	Silt content:	36.27 %
		Mass of sample for grading:	415.5 g

Results:

Sieve size	Retained	Retained	Passing
mm	g	%	%
63.00	0.0	0.0	100.00
50.000	0.0	0.0	100.00
37.500	0.0	0.0	100.00
28.000	0.0	0.0	100.00
20.000	0.0	0.0	100.00
14.000	12.3	3.0	97.04
10.000	19.6	4.7	92.32
6.300	32.8	7.9	84.43
5.000	17.6	4.2	80.19
3.350	33.9	8.2	72.03
2.000	33.8	8.1	63.90
1.180	32.7	7.9	56.03
0.600	32.1	7.7	48.30
0.425	11.7	2.8	45.49
0.300	10.6	2.6	42.94
0.212	7.5	1.8	41.13
0.150	6.7	1.6	39.52
0.063	13.0	3.1	36.39

Pan 150.7
Total 415.5



Deviation from Standard:	Remarks:
Nil	Nil

Prepared By:	Approved By:
Jessica Farrugia Quality Manager	Chris Magro Laboratory Manager

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Laboratory Test Certificate Determination of Particle Size distribution according to BS 1377 - 2

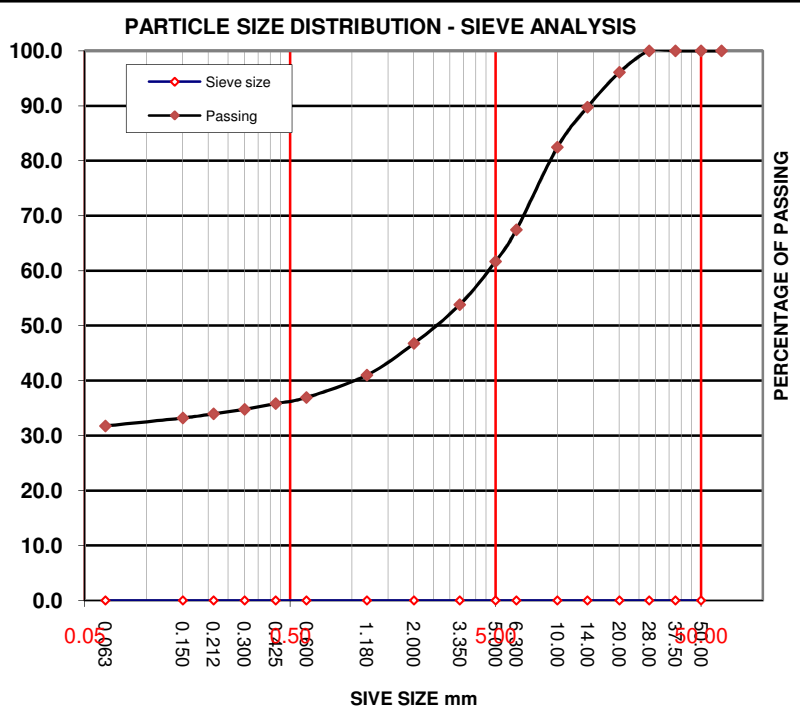
Client name:	J&P AVAX S.A.	Project:	Onshore & Offshore	Certificate N°:	TCR348
Client address:	29, Maroussiou Holandriou Street 151- 25 Maroussi Greece		Geotechnical Investigation	Date of certificate:	06/11/2014
Attn:	Giorgos Rousopoulos	Location/Town:	Delimara	Client/Job N°:	J2094
Client Tel N°:	306972019434			Test reference no:	PSD079
				Tested by:	MH
				Date of test:	05/11/2014

Sample Information:		Test Information:		
Sample ref N°:	141028 - GL4	Initial mass of sample as received:	329.6	g
Sampling location:	BH GL4 Sample 4	Mass of dry sample before washing:	281.6	g
Sample description:	Soil	Mass of dry sample after washing:	192.8	g
Date of sampling:	28/10/2014	Moisture content:	17.05	%
Type of material:	Soil	Silt content:	31.68	%
		Mass of sample for grading:	281.6	g

Results:

Sieve size	Retained	Retained	Passing
mm	g	%	%
63.00	0.0	0.0	100.00
50.000	0.0	0.0	100.00
37.500	0.0	0.0	100.00
28.000	0.0	0.0	100.00
20.000	11.0	3.9	96.09
14.000	17.9	6.4	89.74
10.000	20.5	7.3	82.46
6.300	42.3	15.0	67.44
5.000	16.3	5.8	61.65
3.350	22.1	7.8	53.80
2.000	19.9	7.1	46.73
1.180	16.2	5.8	40.98
0.600	11.4	4.0	36.93
0.425	3.2	1.1	35.80
0.300	2.9	1.0	34.77
0.212	2.4	0.9	33.91
0.150	2.1	0.7	33.17
0.063	4.1	1.5	31.71

Pan 89.2
Total 281.6



Deviation from Standard:	Remarks:
Nil	Nil

Prepared By:	Approved By:
Jessica Farrugia Quality Manager	Chris Magro Laboratory Manager

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Laboratory Test Certificate Determination of Particle Size distribution according to BS 1377 - 2

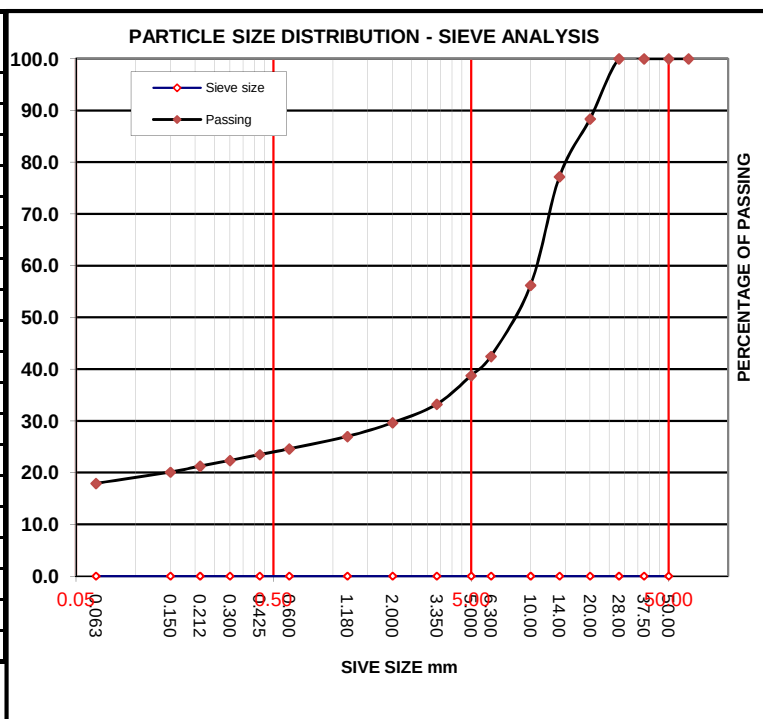
Client name:	J&P AVAX S.A.	Project:	Onshore & Offshore	Certificate Nº:	TCR385
Client address:	29, Maroussiou Holandriou Street 151- 25 Maroussi Greece		Geotechnical Investigation	Date of certificate:	17/11/2014
Attn:	Giorgos Rousopoulos	Location/Town:	Delimara	Client/Job Nº:	J2094
Client Tel Nº:	306972019434			Test reference no:	PSD093
				Tested by:	MH, LS
				Date of test:	15/11/2014

Sample Information:		Test Information:	
Sample ref Nº:	141028 - GL4	Initial mass of sample as received:	389.7 g
Sampling location:	BH GL4 Sample 7	Mass of dry sample before washing:	335.2 g
Sample description:	Soil	Mass of dry sample after washing:	276.3 g
Date of sampling:	28/10/2014	Moisture content:	16.26 %
Type of material:	Soil	Silt content:	17.75 %
		Mass of sample for grading:	335.2 g

Results:

Sieve size	Retained	Retained	Passing
mm	g	%	%
63.00	0.0	0.0	100.00
50.000	0.0	0.0	100.00
37.500	0.0	0.0	100.00
28.000	0.0	0.0	100.00
20.000	39.0	11.6	88.37
14.000	37.4	11.2	77.21
10.000	70.4	21.0	56.21
6.300	46.1	13.8	42.45
5.000	12.4	3.7	38.75
3.350	18.6	5.5	33.20
2.000	12.0	3.6	29.62
1.180	8.9	2.7	26.97
0.600	8.0	2.4	24.58
0.425	3.7	1.1	23.48
0.300	3.9	1.2	22.32
0.212	3.6	1.1	21.24
0.150	3.9	1.2	20.08
0.063	7.3	2.2	17.90

Pan 59.5
Total 335.2



Deviation from Standard:	Remarks:
Nil	Nil

Prepared By:	Approved By:
Jessica Farrugia Quality Manager	Chris Magro Laboratory Manager

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Laboratory Test Certificate

Determination of Particle Density according to BS 1377 - 2: 1990

Client name:	J&P AVAX S.A.	Project:	Onshore & Offshore Geotechnical Investigation	Certificate Nº:	TCR352
Client address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Location/Town:	Delimara	Date of certificate:	07/11/2014
Attn:	Giorgos Rousopoulos			Client/Job Nº:	J2094
Client Tel Nº:	306972019434			Test Reference No:	PD035
				Tested by:	MH
				Date of test:	06/11/2014

Test Information

Sample Ref No: 141030 - Soil
 Sampling Location: BH GL1
 Sample Description: Passing 2mm Sample 5
 Date of sampling: 30/10/2014
 Type of Material: Soil

Results

Method used for particle density: Clause 8.3 Small Pycnometer Method

Sample No: 1 Density (mg/m³): 2.459

Sample No: 2 Density (mg/m³): 2.472

Specific Gravity of Aggregate:

$$G_s = \frac{\text{Mass of Soil}}{\text{Mass of water displaced by soil}}$$

$$G_s = \underline{2.466} \text{ mg/m}^3$$

Deviation from Standard:

Nil

Remarks:

Nil

Prepared By:



Jessica Farrugia
Quality Manager

Approved By:



Chris Magro
Lab Manager

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Laboratory Test Certificate

Determination of Particle Density according to BS 1377 - 2: 1990

Client name:	J&P AVAX S.A.	Project:	Onshore & Offshore Geotechnical Investigation	Certificate Nº:	TCR353
Client address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Location/Town:	Delimara	Date of certificate:	07/11/2014
Attn:	Giorgos Rousopoulos			Client/Job Nº:	J2094
Client Tel Nº:	306972019434			Test Reference No:	PD036
				Tested by:	MH
				Date of test:	06/11/2014

Test Information

Sample Ref No: 141030 - Soil
 Sampling Location: BH GL1
 Sample Description: Passing 2mm Sample 8
 Date of sampling: 30/10/2014
 Type of Material: Soil

Results

Method used for particle density: Clause 8.3 Small Pyknometer Method

Sample No: 1 Density (mg/m3): 2.519

Sample No: 2 Density (mg/m3): 2.544

Specific Gravity of Aggregate:

$$G_s = \frac{\text{Mass of Soil}}{\text{Mass of water displaced by soil}}$$

$$G_s = \underline{2.531} \text{ mg/m}^3$$

Deviation from Standard:

Nil

Remarks:

Nil

Prepared By:



Jessica Farrugia
Quality Manager

Approved By:



Chris Magro
Lab Manager

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Laboratory Test Certificate
Determination of Particle Density according to BS 1377 - 2: 1990

Client name: J&P AVAX S.A.	Project: Onshore & Offshore Geotechnical Investigation	Certificate No: TCR369
Client address: 29, Maroussiou Holandriou Street	Location/Town: Delimara	Date of certificate: 13/11/2014
151-25 Maroussi Greece		Client/Job No: J2094
Attn: Giorgos Rousopoulos		Test Reference No: PD037
Client Tel No: 306972019434		Tested by: MH
		Date of test: 12/11/2014

Test Information
 Sample Ref No: 141101 - Soil
 Sampling Location: BH GL3
 Sample Description: Passing 2mm Sample 26
 Date of sampling: 01/11/2014
 Type of Material: Soil

Results

 Method used for particle density: Clause 8.3 Small Pyknometer Method

Sample No: 1	Density (mg/m3): <u>2.577</u>
Sample No: 2	Density (mg/m3): <u>2.557</u>

 Specific Gravity of Aggregate:

$$G_s = \frac{\text{Mass of Soil}}{\text{Mass of water displaced by soil}}$$

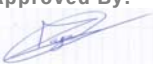
$$G_s = \underline{2.567} \text{ mg/m}^3$$

Deviation from Standard:

Nil

Remarks:

Nil

Prepared By:  Jessica Farrugia Quality Manager	Approved By:  Chris Magro Lab Manager
---	--

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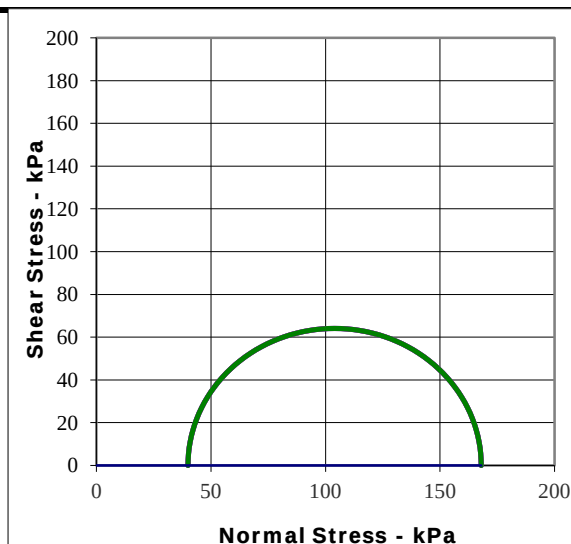
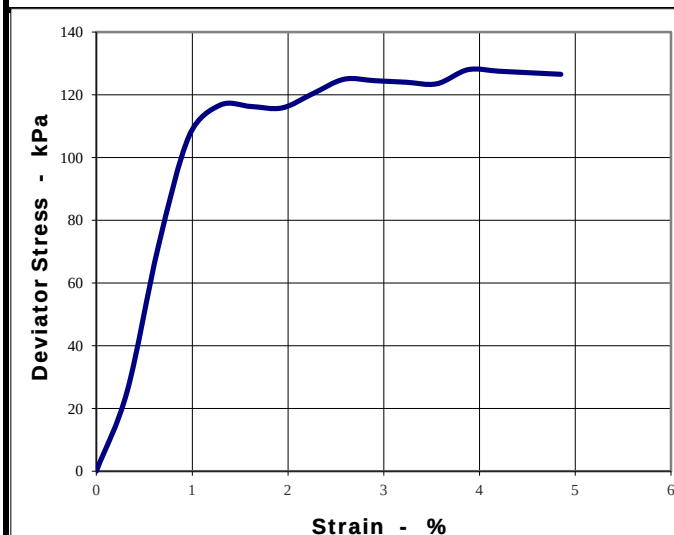
Laboratory Test Certificate

Determination of Undrained Triaxial Compression to BS 1377: Part 7:1990 Clause 8

Client name:	J&P AVAX S.A.	Project:	Onshore & Offshore	Certificate N°:	TCR401
Client address:	29, Maroussiou Holandriou Street 151- 25 Maroussi Greece	Location/Town:	Delimara	Date of certificate:	25/11/2014
Attn:	Sfakianakis Costantinos			Client/Job N°:	J2094
Client Tel N°:	3.06972E+11			Test Reference No:	TRI051
				Tested by:	CM
				Date of test:	21/11/2014

Test Information	Equipment Information
Sample Ref No: 141031 - Soil	Membrane thickness: 0.3
Sampling Location: BH GL1	Load device No: 8750
Sample Depth: Sample 2	Load device calibration: 0.0171703
Date of sampling: 31/10/14	Strain Device No: 1
Type of Material: Dry Silty Soil	StrainDevice Calibration mm/rev: 1
	Rate of deformation: 1

Specimen details	Specimen 1	Single Stage	Shear Strength Parameters
Height of Specimen: mm	77.34		
Diameter of Specimen: mm	38.72		
Mass of specimen: g	148.812		
Volume: ml	91.07		
Bulk Density - Wet: Mg/m ³	1.634		C - kPa
Moisture Content: %	22.70		Phi - °
Cell pressure: kPa	40	0	0
Test details			
Membrane correction: kPa	0.80		
Rate of Axial displacement: %/mm	1.29		
Strain at Failure: %	3.88		
Maximum deviator stress: kPa	128		
Shear strength: kPa	64		
Mode of failure:		Intermediate	


Deviation from Standard:

Nil

Remarks:

Nil

Prepared By:

Jessica Farrugia
Quality Manager

Approved By:

Chris Magro
Lab Manager

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E: info@terracoemalta.com W: www.terracoemalta.com

Registration No.: C32227

Alfred Xerri

Filename:

141223 - G Offshore tables.xls.xlsx

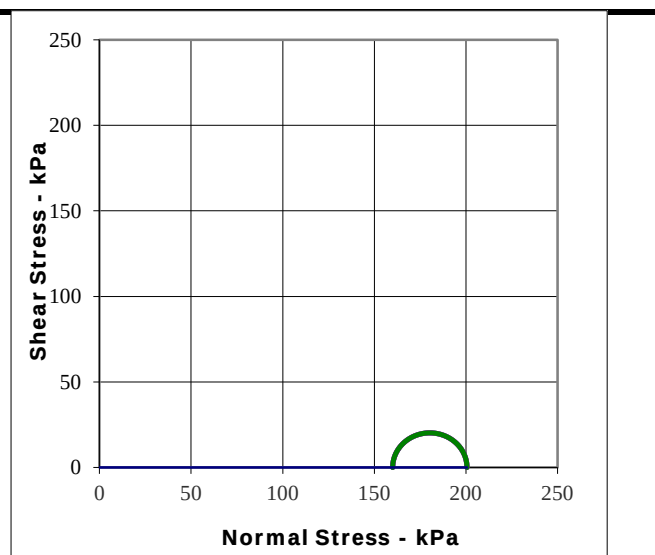
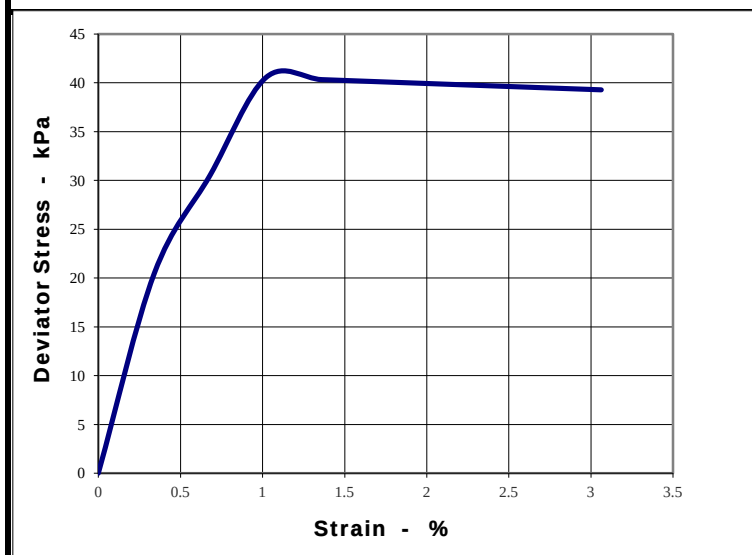
Laboratory Test Certificate

Determination of Undrained Triaxial Compression to BS 1377: Part 7:1990 Clause 8

Client name:	J&P AVAX S.A.	Project:	Onshore & Offshore	Certificate N°:	TCR402
Client address:	29, Maroussiou Holandriou Street 151- 25 Maroussi Greece	Location/Town:	Delimara	Date of certificate:	25/11/2014
Attn:	Sfakianakis Costantinos			Client/Job N°:	J2094
Client Tel N°:	3.06972E+11			Test Reference No:	TRI052
				Tested by:	CM
				Date of test:	21/11/2014

Test Information	Equipment Information
Sample Ref No: 141031 - Soil	Membrane thickness: 0.3
Sampling Location: BH GL1	Load device No: 8750
Sample Depth: Sample 11	Load device calibration: 0.0171703
Date of sampling: 31/10/14	Strain Device No: 1
Type of Material: Wet Silty Soil	StrainDevice Calibration mm/rev: 1
	Rate of deformation: 1

Specimen details	Specimen 1	Single Stage	Shear Strength Parameters
Height of Specimen: mm	73.46		
Diameter of Specimen: mm	38.74		
Mass of specimen: g	172.59		
Volume: ml	86.59		
Bulk Density - Wet: Mg/m ³	1.993		C - kPa
Moisture Content: %	25.16		Phi - °
Cell pressure: kPa	160	0	0
Test details			
Membrane correction: kPa	0.23		
Rate of Axial displacement: %/mm	1.36		
Strain at Failure: %	1.02		
Maximum deviator stress: kPa	41		
Shear strength: kPa	20		
Mode of failure:		Intermediate	



Deviation from Standard:	Remarks:
Nil	Nil

Prepared By:	Approved By:
Jessica Farrugia Quality Manager	Chris Magro Lab Manager

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Laboratory Test Certificate

Determination of Undrained Triaxial Compression to BS 1377: Part 7:1990 Clause 8

Client name:	J&P AVAX S.A.	Project:	Onshore & Offshore	Certificate N°:	TCR403
Client address:	29, Maroussiou Holandriou Street 151- 25 Maroussi Greece	Location/Town:	Delimara	Date of certificate:	25/11/2014
Attn:	Sfakianakis Costantinos			Client/Job N°:	J2094
Client Tel N°:	3.06972E+11			Test Reference No:	TRI053
				Tested by:	CM
				Date of test:	21/11/2014

Test Information

Sample Ref No: 141029 - Soil
Sampling Location: BH GL2
Sample Depth: Sample 2
Date of sampling: 29/10/14
Type of Material: Grey Clay

Equipment Information

Membrane thickness: 0.3
Load device No: 8750
Load device calibration: 0.0171703
Strain Device No: 1
StrainDevice Calibration mm/rev: 1
Rate of deformation: 1

Specimen details

Specimen 1
Height of Specimen: mm **76.3**
Diameter of Specimen: mm **38.87**
Mass of specimen: g **157.901**
Volume: ml **90.54**
Bulk Density - Wet: Mg/m³ **1.744**
Moisture Content: % **25.48**
Cell pressure: kPa **50**

Single Stage

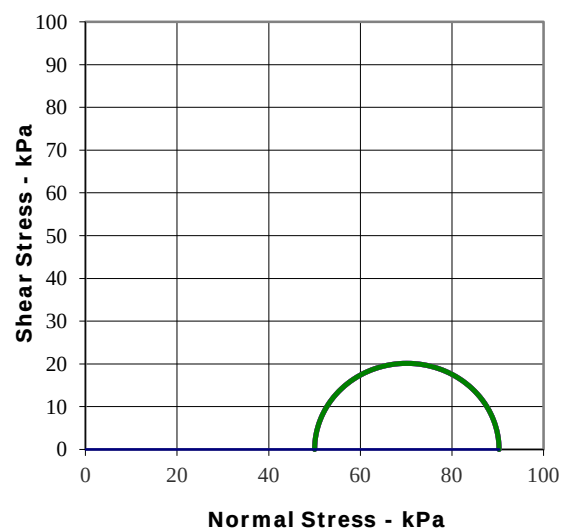
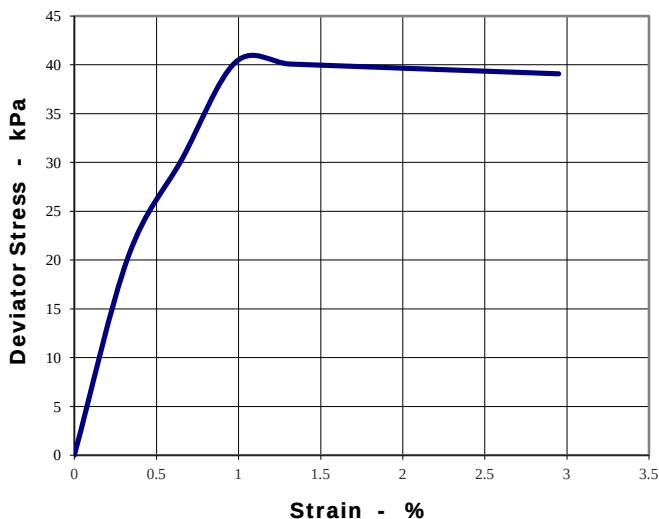
Shear Strength Parameters

C - kPa
Phi - °

Test details

Membrane correction: kPa **0.22**
Rate of Axial displacement: %/mm **1.31**
Strain at Failure: % **0.98**
Maximum deviator stress: kPa **40**
Shear strength: kPa **20**

Mode of failure: Intermediate



Deviation from Standard:

Nil

Remarks:

Nil

Prepared By:

Jessica Farrugia

Jessica Farrugia
Quality Manager

Approved By:

Chris Magro

Chris Magro
Lab Manager

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Registration No.: C32227

Alfred Xerri

Filename:

J2094_Soils_TCR403_TRI053_BH GL2 S2.xls

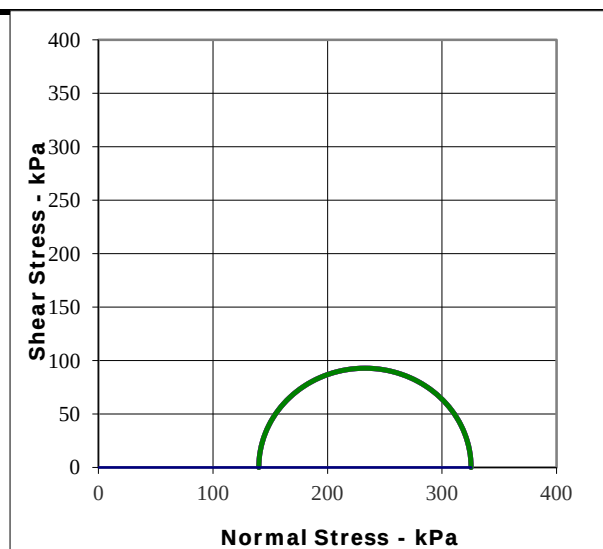
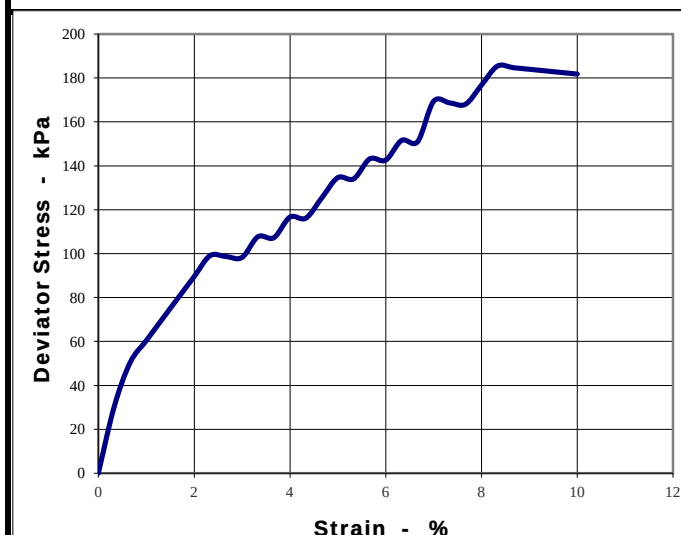
Laboratory Test Certificate

Determination of Undrained Triaxial Compression to BS 1377: Part 7:1990 Clause 8

Client name:	J&P AVAX S.A.	Project:	Onshore & Offshore	Certificate N°:	TCR404
Client address:	29, Maroussiou Holandriou Street 151- 25 Maroussi Greece	Location/Town:	Delimara	Date of certificate:	25/11/2014
Attn:	Sfakianakis Costantinos			Client/Job N°:	J2094
Client Tel N°:	3.06972E+11			Test Reference No:	TRI054
				Tested by:	CM
				Date of test:	21/11/2014

Test Information	Equipment Information
Sample Ref No: 141029 - Soil	Membrane thickness: 0.3
Sampling Location: BH GL2	Load device No: 8750
Sample Depth: Sample 8	Load device calibration: 0.0171703
Date of sampling: 29/10/14	Strain Device No: 1
Type of Material: Grey Clay	StrainDevice Calibration mm/rev: 1
	Rate of deformation: 1

Specimen details	Specimen 1	Single Stage	Shear Strength Parameters
Height of Specimen: mm	75.01		
Diameter of Specimen: mm	38.94		
Mass of specimen: g	176.68		
Volume: ml	89.33		
Bulk Density - Wet: Mg/m ³	1.978		C - kPa
Moisture Content: %	23.53		Phi - °
Cell pressure: kPa	140	0	0
Test details			
Membrane correction: kPa	1.51		
Rate of Axial displacement: %/mm	1.33		
Strain at Failure: %	8.33		
Maximum deviator stress: kPa	185		
Shear strength: kPa	93		
Mode of failure:		Intermediate	



Deviation from Standard:	Remarks:
Nil	Nil

Prepared By:

Approved By:

Jessica Farrugia
Quality Manager

Chris Magro
Lab Manager

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Registration No.: C32227

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Filename:

J2094_Soils_TCR404_TRI054_BH GL2 S8.xls

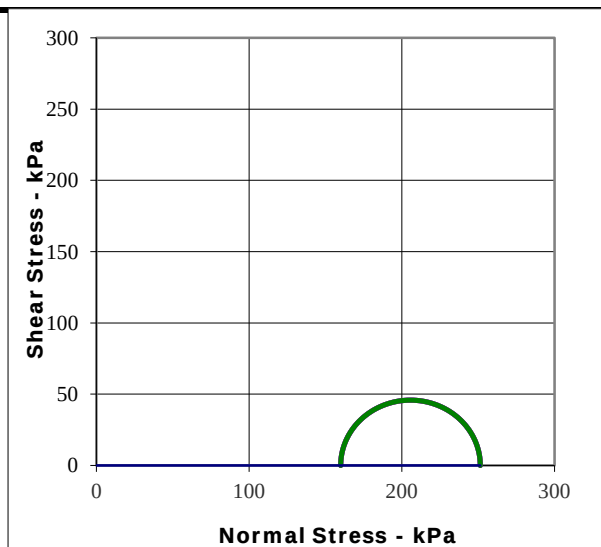
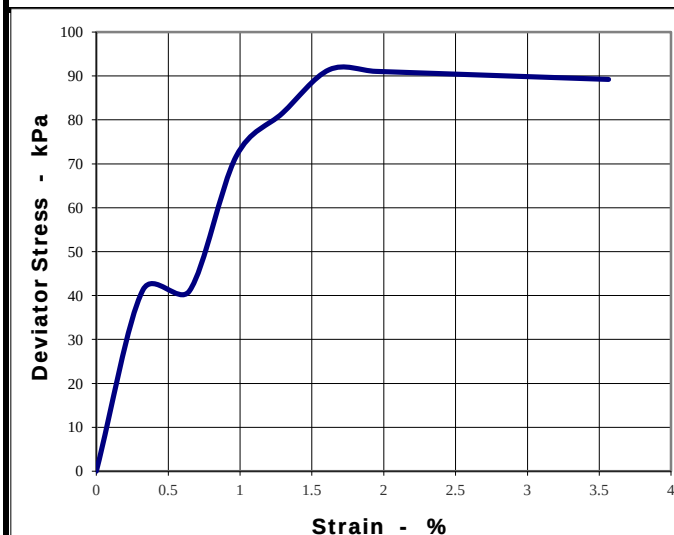
Laboratory Test Certificate

Determination of Undrained Triaxial Compression to BS 1377: Part 7:1990 Clause 8

Client name:	J&P AVAX S.A.	Project:	Onshore & Offshore	Certificate N°:	TCR405
Client address:	29, Maroussiou Holandriou Street 151- 25 Maroussi Greece	Location/Town:	Delimara	Date of certificate:	25/11/2014
Attn:	Sfakianakis Costantinos			Client/Job N°:	J2094
Client Tel N°:	3.06972E+11			Test Reference No:	TRI055
				Tested by:	CM
				Date of test:	21/11/2014

Test Information	Equipment Information
Sample Ref No: 141101 - Soil	Membrane thickness: 0.3
Sampling Location: BH GL3	Load device No: 8750
Sample Depth: Sample 8	Load device calibration: 0.0171703
Date of sampling: 11/01/2014	Strain Device No: 1
Type of Material: Dry Clay	StrainDevice Calibration mm/rev: 1
	Rate of deformation: 1

Specimen details	Specimen 1	Single Stage	Shear Strength Parameters
Height of Specimen: mm	77.13		
Diameter of Specimen: mm	38.61		
Mass of specimen: g	151.261		
Volume: ml	90.31		
Bulk Density - Wet: Mg/m ³	1.675		C - kPa
Moisture Content: %	27.69		Phi - °
Cell pressure: kPa	160	0	0
Test details			
Membrane correction: kPa	0.36		
Rate of Axial displacement: %/mm	1.30		
Strain at Failure: %	1.62		
Maximum deviator stress: kPa	91		
Shear strength: kPa	46		
Mode of failure:		Intermediate	



Deviation from Standard:

Nil

Remarks:

Nil

Prepared By:

Jessica Farrugia
Quality Manager

Approved By:

Chris Magro
Lab Manager

TEST CERTIFICATE

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Registration No.: C32227

Alfred Xerri

Filename:

J2094_Soils_TCR405_TRI055_BH GL3 S8.xls

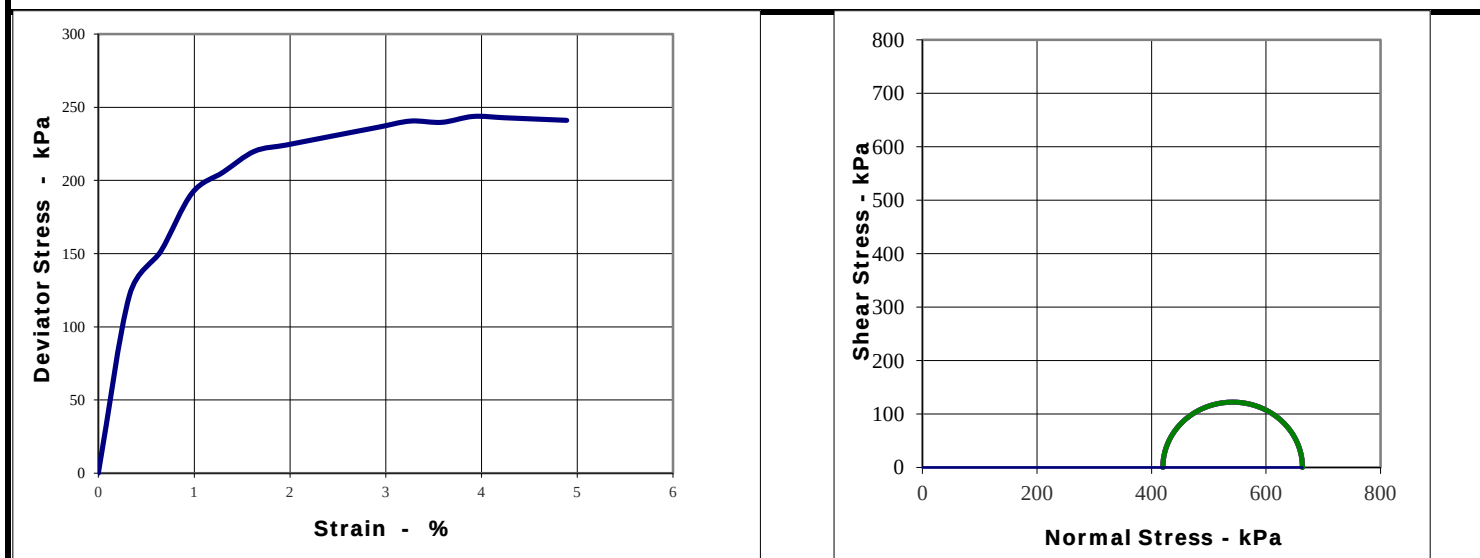
Laboratory Test Certificate

Determination of Undrained Triaxial Compression to BS 1377: Part 7:1990 Clause 8

Client name:	J&P AVAX S.A.	Project:	Onshore & Offshore	Certificate N°:	TCR406
Client address:	29, Maroussiou Holandriou Street 151- 25 Maroussi Greece	Location/Town:	Delimara	Date of certificate:	25/11/2014
Attn:	Sfakianakis Costantinos			Client/Job N°:	J2094
Client Tel N°:	3.06972E+11			Test Reference No:	TRI056
				Tested by:	CM
				Date of test:	21/11/2014

Test Information	Equipment Information
Sample Ref No: 141101 - Soil	Membrane thickness: 0.3
Sampling Location: BH GL3	Load device No: 8750
Sample Depth: Sample 17	Load device calibration: 0.0171703
Date of sampling: 11/01/2014	Strain Device No: 1
Type of Material: Dry Grey Silty Clay	StrainDevice Calibration mm/rev: 1
	Rate of deformation: 1

Specimen details	Specimen 1	Single Stage	Shear Strength Parameters
Height of Specimen: mm	76.68		
Diameter of Specimen: mm	38.97		
Mass of specimen: g	167.514		
Volume: ml	91.46		
Bulk Density - Wet: Mg/m ³	1.832		C - kPa
Moisture Content: %	26.72		Phi - °
Cell pressure: kPa	420	0	0
Test details			
Membrane correction: kPa	0.80		
Rate of Axial displacement: %/mm	1.30		
Strain at Failure: %	3.91		
Maximum deviator stress: kPa	244		
Shear strength: kPa	122		
Mode of failure:		Intermediate	



Deviation from Standard:	Remarks:
Nil	Nil

Prepared By:	Approved By:
	
Jessica Farrugia Quality Manager	Chris Magro Lab Manager

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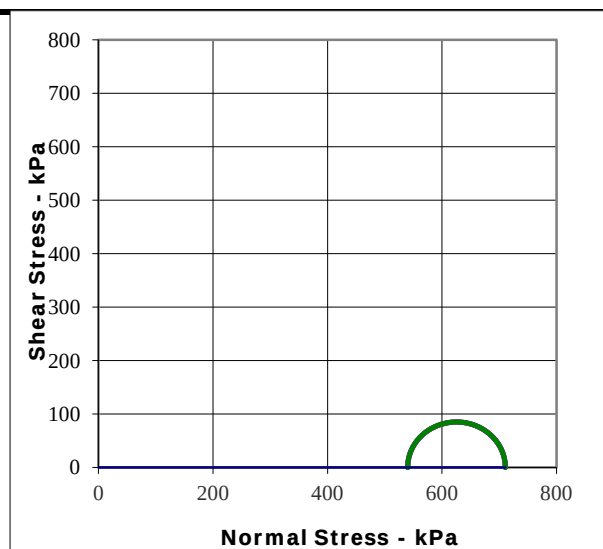
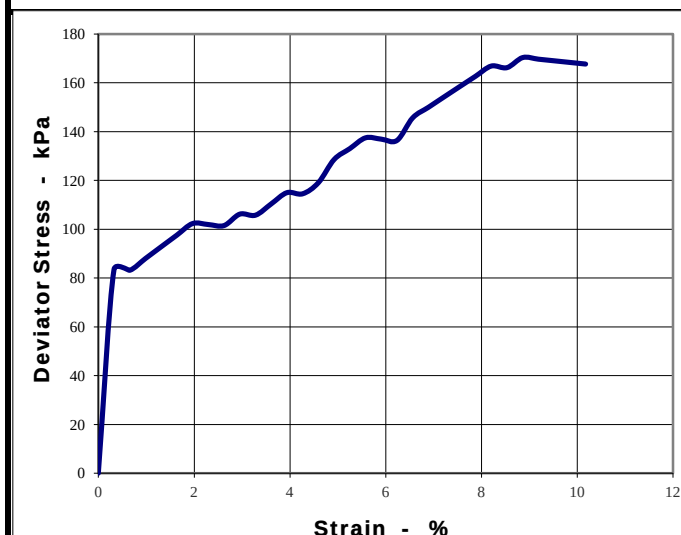
Laboratory Test Certificate

Determination of Undrained Triaxial Compression to BS 1377: Part 7:1990 Clause 8

Client name:	J&P AVAX S.A.	Project:	Onshore & Offshore	Certificate N°:	TCR407
Client address:	29, Maroussiou Holandriou Street 151- 25 Maroussi Greece	Location/Town:	Delimara	Date of certificate:	25/11/2014
Attn:	Sfakianakis Costantinos			Client/Job N°:	J2094
Client Tel N°:	3.06972E+11			Test Reference No:	TRI057
				Tested by:	CM
				Date of test:	21/11/2014

Test Information	Equipment Information
Sample Ref No: 141101 - Soil	Membrane thickness: 0.3
Sampling Location: BH GL3	Load device No: 8750
Sample Depth: Sample 23	Load device calibration: 0.0171703
Date of sampling: 11/01/2014	Strain Device No: 1
Type of Material: Silty Organic Wet Soil	StrainDevice Calibration mm/rev: 1
	Rate of deformation: 1

Specimen details	Specimen 1	Single Stage	Shear Strength Parameters
Height of Specimen: mm	76.18		
Diameter of Specimen: mm	38.39		
Mass of specimen: g	163.926		
Volume: ml	88.18		
Bulk Density - Wet: Mg/m ³	1.859		C - kPa
Moisture Content: %	34.63		Phi - °
Cell pressure: kPa	540	0	0
Test details			
Membrane correction: kPa	1.61		
Rate of Axial displacement: %/mm	1.31		
Strain at Failure: %	8.86		
Maximum deviator stress: kPa	170		
Shear strength: kPa	85		
Mode of failure:		Intermediate	



Deviation from Standard:	Remarks:
Nil	Nil

Prepared By:

Approved By:

Jessica Farrugia
Quality Manager

Chris Magro
Lab Manager

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Alfred Xerri

Filename:

J2094_Soils_TCR407_TRI057_BH GL3 S23.xls

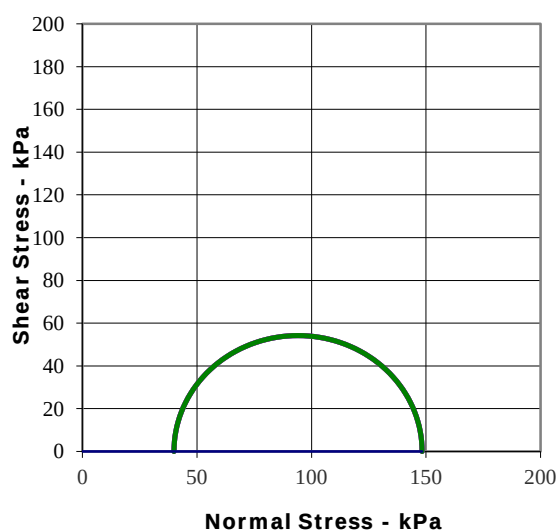
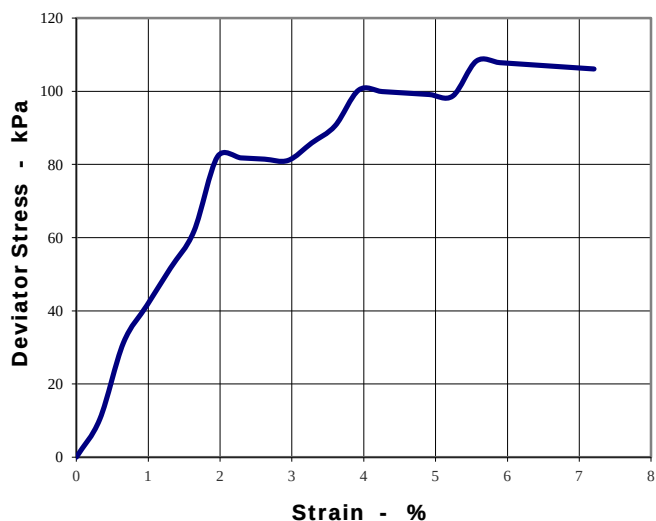
Laboratory Test Certificate

Determination of Undrained Triaxial Compression to BS 1377: Part 7:1990 Clause 8

Client name:	J&P AVAX S.A.	Project:	Onshore & Offshore	Certificate N°:	TCR408
Client address:	29, Maroussiou Holandriou Street 151- 25 Maroussi Greece	Location/Town:	Delimara	Date of certificate:	25/11/2014
Attn:	Sfakianakis Costantinos			Client/Job N°:	J2094
Client Tel N°:	3.06972E+11			Test Reference No:	TRI058
				Tested by:	CM
				Date of test:	21/11/2014

Test Information	Equipment Information
Sample Ref No: 141028 - Soil	Membrane thickness: 0.3
Sampling Location: BH GL4	Load device No: 8750
Sample Depth: Sample 2	Load device calibration: 0.0171703
Date of sampling: 28/10/14	Strain Device No: 1
Type of Material: Dry Grey Clay	StrainDevice Calibration mm/rev: 1
	Rate of deformation: 1

Specimen details	Specimen 1	Single Stage	Shear Strength Parameters
Height of Specimen: mm	76.33		
Diameter of Specimen: mm	38.31		
Mass of specimen: g	141.34		
Volume: ml	87.99		
Bulk Density - Wet: Mg/m ³	1.606		C - kPa
Moisture Content: %	20.24		Phi - °
Cell pressure: kPa	40	0	0
Test details			
Membrane correction: kPa	1.11		
Rate of Axial displacement: %/mm	1.31		
Strain at Failure: %	5.57		
Maximum deviator stress: kPa	108		
Shear strength: kPa	54		
Mode of failure:		Intermediate	



Deviation from Standard:	Remarks:
Nil	Nil

Prepared By:

Approved By:

Jessica Farrugia
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Chris Magro
Lab Manager

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Filename:

J2094_Soils_TCR408_TRI058_BH GL4 S2.xls

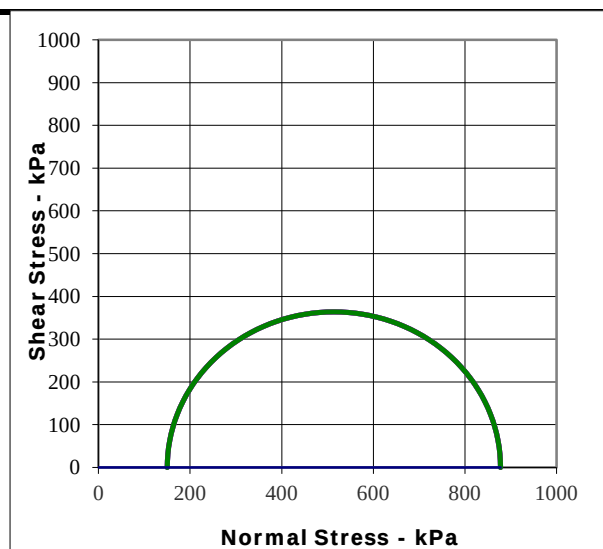
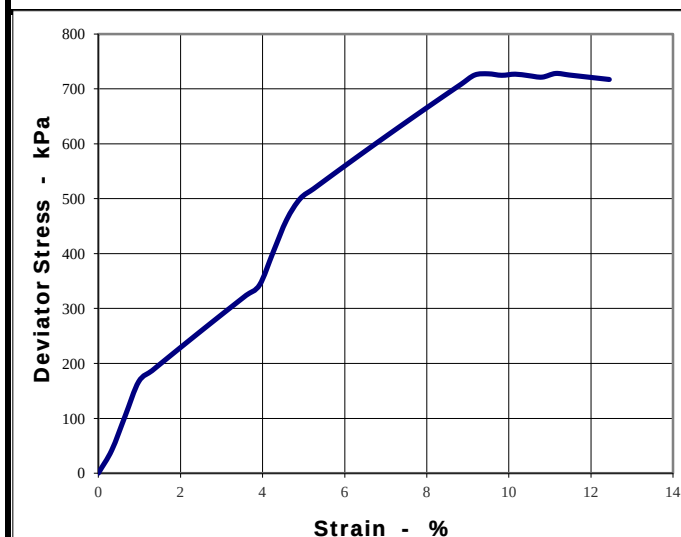
Laboratory Test Certificate

Determination of Undrained Triaxial Compression to BS 1377: Part 7:1990 Clause 8

Client name:	J&P AVAX S.A.	Project:	Onshore & Offshore	Certificate N°:	TCR409
Client address:	29, Maroussiou Holandriou Street 151- 25 Maroussi Greece	Location/Town:	Delimara	Date of certificate:	25/11/2014
Attn:	Sfakianakis Costantinos			Client/Job N°:	J2094
Client Tel N°:	3.06972E+11			Test Reference No:	TRI059
				Tested by:	CM
				Date of test:	21/11/2014

Test Information	Equipment Information
Sample Ref No: 141028 - Soil	Membrane thickness: 0.3
Sampling Location: BH GL4	Load device No: 8750
Sample Depth: Sample 6	Load device calibration: 0.0171703
Date of sampling: 28/10/14	Strain Device No: 1
Type of Material: Stiff Dry Grey Clay	StrainDevice Calibration mm/rev: 1
	Rate of deformation: 1

Specimen details	Specimen 1	Single Stage	Shear Strength Parameters
Height of Specimen: mm	76.33		
Diameter of Specimen: mm	38.31		
Mass of specimen: g	181.214		
Volume: ml	87.99		
Bulk Density - Wet: Mg/m ³	2.060		C - kPa
Moisture Content: %	11.77		Phi - °
Cell pressure: kPa	150	0	0
Test details			
Membrane correction: kPa	1.92		
Rate of Axial displacement: %/mm	1.31		
Strain at Failure: %	11.14		
Maximum deviator stress: kPa	728		
Shear strength: kPa	364		
Mode of failure:		Intermediate	



Deviation from Standard:	Remarks:
Nil	Nil

Prepared By:

Approved By:

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Quality Manager

Chris Magro
Lab Manager

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Filename:

J2094_Soils_TCR409_TRI059_BH GL4 S6.xls

Laboratory Test Certificate

Determination of Uniaxial Compressive Strength of Rock materials according to ISRM Suggested Method + Annex W

Client Name:	J&P AVAX S.A.	Date of sampling:	31/10/2014	Certificate no:	64
Client address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Date of test:	04/11/2014	Date of certificate:	06/11/2014
Commisioned by:	Giorgos Rousopoulos	Type of Corebarrel:	T286	Job no:	J2094
Attn:	Giorgos Rousopoulos	Location/Town:	Delimara	Test reference no:	RCC064
Client Tel No:	3.06972E+11	Project:	Onshore & Offshor	Tested by:	CM
				Drill Type:	T44

Details of prepared specimens

		BoreHole Number:		GL1	
Specimen No:		RC 1	RC 2	RC 3	RC 4
Orientation of bedding planes with respect to the test specimen:		Perpendicular	Perpendicular	Perpendicular	Perpendicular
Storage condition of specimens:		Air Sealed	Air Sealed	Air Sealed	Air Sealed
Depth:		11.6m	14.8m	20.2m	23.1m
Run No:		n/a	n/a	n/a	n/a
Specimen end flat to 0.02mm:		Yes	Yes	Yes	Yes
Specimen perpendicular to 0.001 Radian, about 3.5' or 0.05mm/50mm:		Yes	Yes	Yes	Yes
Specimen sides smooth and straight to 0.3mm over full length of specimen:		Yes	Yes	Yes	Yes
Initial diameter:(Average)	mm	59.6	59.6	59.5	54.4
Initial length:(Average)	mm	133	133	133	133
Initial area:	mm ²	2786.6	2788.3	2776.4	2320.3
Initial volume:	mL	370.9	371.1	369.5	308.9
Length/diameter ratio:	L/D	2.24	2.23	2.24	2.45
Condition as tested:		Slightly Dried	Slightly Dried	Slightly Dried	
Mass of specimen	g	786.67	792.01	824.47	
Water content (to 0.1%)	%	8.3	9.4	6.1	0.0
Bulk Density	kg/m ³	2121	2134	2231	2159
Dry Density	kg/m ³	1944.357	1932.974	2095.865	2020.671

Test details

		EQ001 No:6 (Range 0 - 150kN)	EQ001 No:6 (Range 0 - 150kN)	EQ001 No:6 (Range 0 - 150kN)	EQ001 No:6 (Range 0 - 150kN)
Machine type/ref:					
Rate of loading	N/min	5000	5000	5000	5000
Stress rate:	Mpa/s	0.030	0.030	0.030	0.036
Maximum failure load:	kN	33.6	27.4	29.7	33.8
Test duration:	sec	403	330	357	406
Uniaxial compressive strength:	Mpa	12.1	9.8	10.7	14.6
Average UCS:			11.8		
Mode of failure:		Multiple shear	Multiple shear	Multiple shear	Multiple shear
Degree of saturation:		100.0	100.0	100.0	100.0

Comments/Deviations from suggested method:

Nil

Measurment of Uncertainty:

Nil

Prepared by:

Approved by:




Jessica Farrugia
Quality Manager

Chris Magro
Laboratory Manager

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Laboratory Test Certificate

Determination of Uniaxial Compressive Strength and Deformability of Rock Materials according to ISRM Suggested Method Part 2

Client Name:	J&P AVAX S.A.	Project:	Onshore & Offshore Geotechnical Investigation	Certificate no:	Rock054
Client address:	Street 151-25 Maroussi Greece Sardine Street	Site:	Delimara	Date of certificate:	4 November 2014
Attn:	Sfakianakis Costantinos	Drill Type:	T44	Job no:	J2094
Client Tel No:	3.06972E+11	Type of Corebarrel:	T286	Test reference no:	Rock054
				Tested by:	CM

Sample Information

Borehole No: GL1
Depth of Sample: 11.6M
Date of Sampling: 31/10/2014
Length / Diameter Ratio: 2.23

Test Information

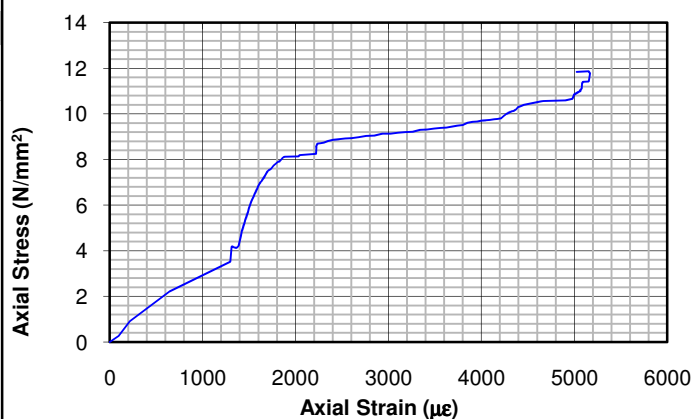
Date of Test: 41947
Date of Preparation: 41946
Type of Gauges Used: 30mm Strain Gauges

Elongation Modulus and Poisson Ratio

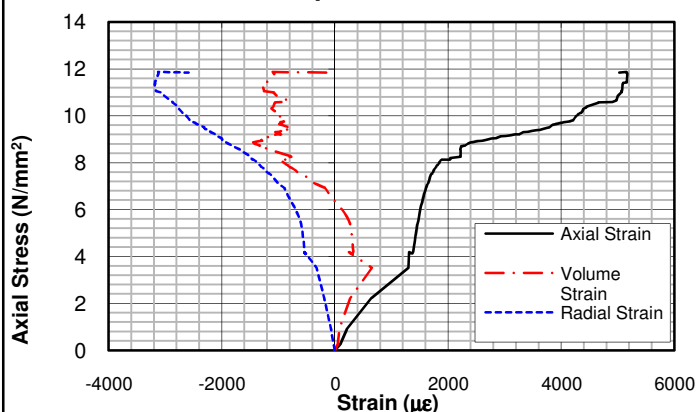
Calculated for axial σ : 5.93 N/mm²
 E_{medio} : 9.13 kN/mm²
 E_{tan} : 14.35 kN/mm²
 E_{sec} : 3.91 kN/mm²

Max. strength: 11.87 N/mm²
Poisson at failure: 0.606
Poisson: 0.444

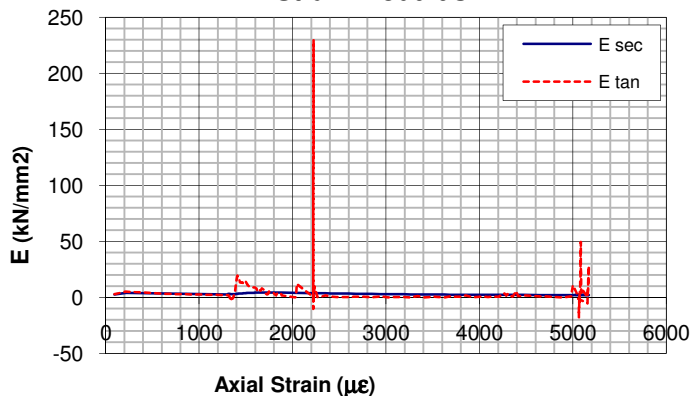
Compression Curve



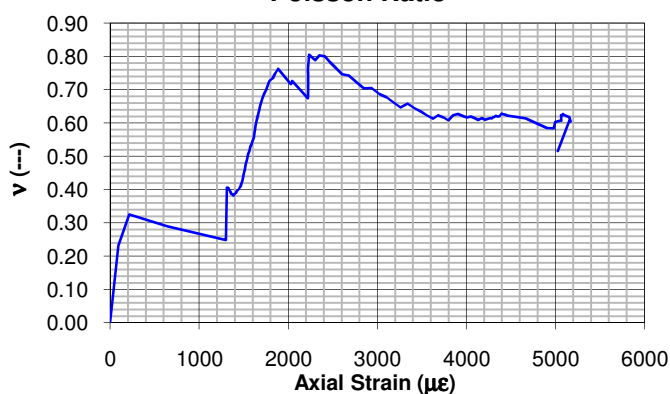
Compression Curve



Strain Modulus



Poisson Ratio



Prepared by:

Jessica Farrugia
Quality Manager

Approved by:

Chris Magro
Laboratory Manager

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Laboratory Test Certificate

Determination of Uniaxial Compressive Strength and Deformability of Rock Materials according to ISRM Suggested Method Part 2

Client Name:	J&P AVAX S.A.	Project:	Onshore & Offshore Geotechnical Investigation	Certificate no:	Rock055
Client address:	Street 151-25 Maroussi Greece Sardine Street	Site:	Delimara	Date of certificate:	4 November 2014
Attn:	Sfakianakis Costantinos	Drill Type:	T44	Job no:	J2094
Client Tel No:	3.06972E+11	Type of Corebarrel:	T286	Test reference no:	Rock055
				Tested by:	CM

Sample Information

Borehole No: GL1
Depth of Sample: 14.8m
Date of Sampling: 31/10/2014
Length / Diameter Ratio: 2.23

Test Information

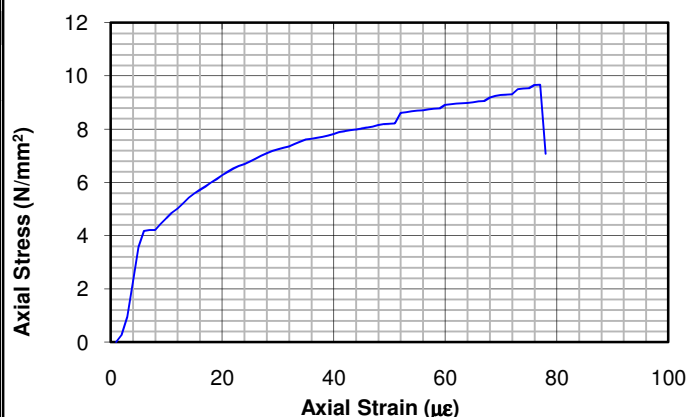
Date of Test: 41947
Date of Preparation: 41946
Type of Gauges Used: 30mm Strain Gauges

Elongation Modulus and Poisson Ratio

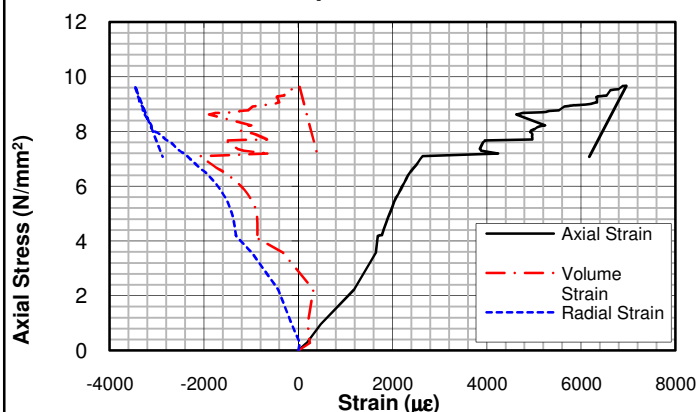
Calculated for axial σ : 4.84 N/mm²
E_{medio}: 3.80 kN/mm²
E_{tan}: 5.09 kN/mm²
E_{sec}: 2.51 kN/mm²

Max. strength: 9.67 N/mm²
Poisson at failure: 0.498
Poisson: 0.734

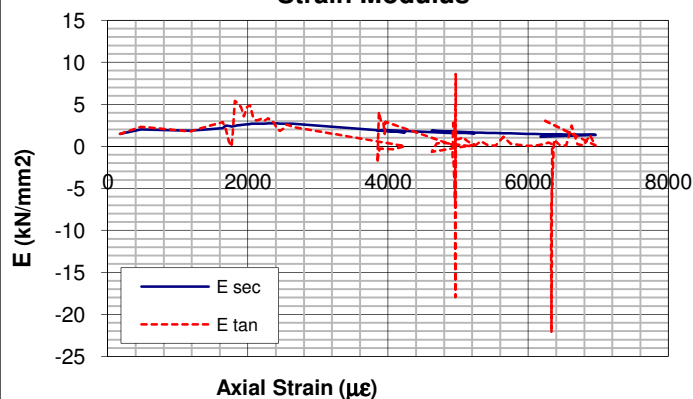
Compression Curve



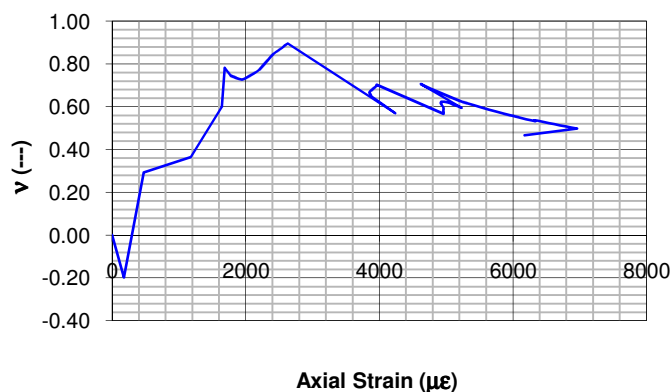
Compression Curve



Strain Modulus



Poisson Ratio



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Laboratory Test Certificate

Determination of Uniaxial Compressive Strength and Deformability of Rock Materials according to ISRM Suggested Method Part 2

Client Name:	J&P AVAX S.A.	Project:	Onshore & Offshore Geotechnical Investigation	Certificate no:	Rock056
Client address:	Street 151-25 Maroussi Greece Sardine Street	Site:	Delimara	Date of certificate:	4 November 2014
Attn:	Sfakianakis Costantinos	Drill Type:	T44	Job no:	J2094
Client Tel No:	3.06972E+11	Type of Corebarrel:	T286	Test reference no:	Rock056
				Tested by:	CM

Sample Information

Borehole No: GL1
Depth of Sample: 20.2m
Date of Sampling: 31/10/2014
Length / Diameter Ratio: 2.24

Test Information

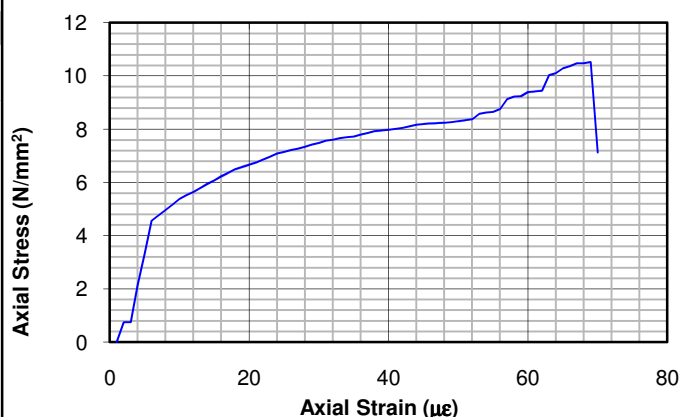
Date of Test: 41947
Date of Preparation: 41946
Type of Gauges Used: 30mm Strain Gauges

Elongation Modulus and Poisson Ratio

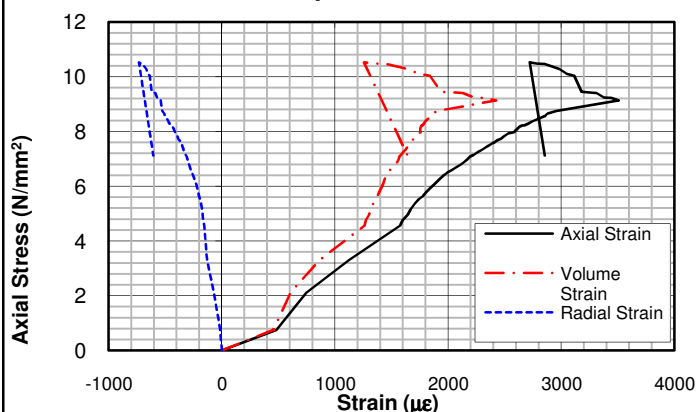
Calculated for axial σ : 5.26 N/mm²
E_{medio}: 5.49 kN/mm²
E_{tan}: 7.88 kN/mm²
E_{sec}: 3.09 kN/mm²

Max. strength: 10.52 N/mm²
Poisson at failure: 0.212
Poisson: 0.106

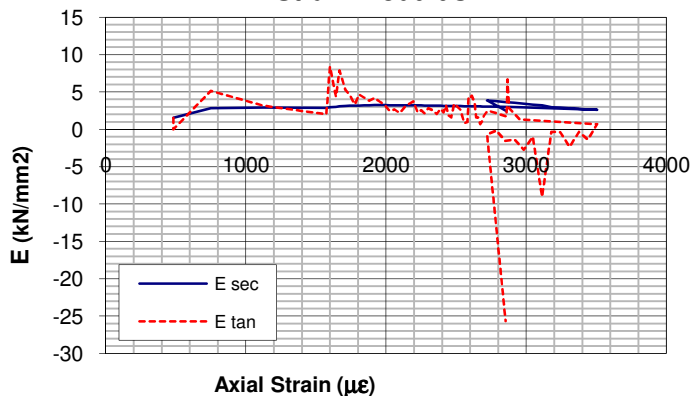
Compression Curve



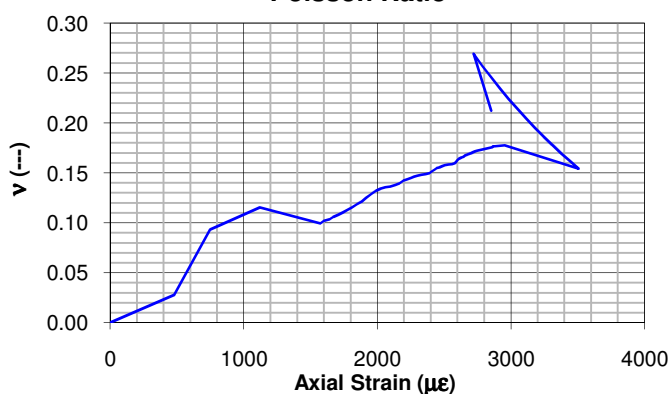
Compression Curve



Strain Modulus



Poisson Ratio



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Approved by:

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Laboratory Test Certificate

Determination of Uniaxial Compressive Strength and Deformability of Rock Materials according to ISRM Suggested Method Part 2

Client Name:	J&P AVAX S.A.	Project:	Onshore & Offshore Geotechnical Investigation	Certificate no:	Rock057
Client address:	Street 151-25 Maroussi Greece Sardine Street	Site:	Delimara	Date of certificate:	4 November 2014
Attn:	Sfakianakis Costantinos	Drill Type:	T44	Job no:	J2094
Client Tel No:	3.06972E+11	Type of Corebarrel:	T286	Test reference no:	Rock057
				Tested by:	CM

Sample Information

Borehole No: GL1
Depth of Sample: 25.1m
Date of Sampling: 31/10/2014
Length / Diameter Ratio: 2.45

Test Information

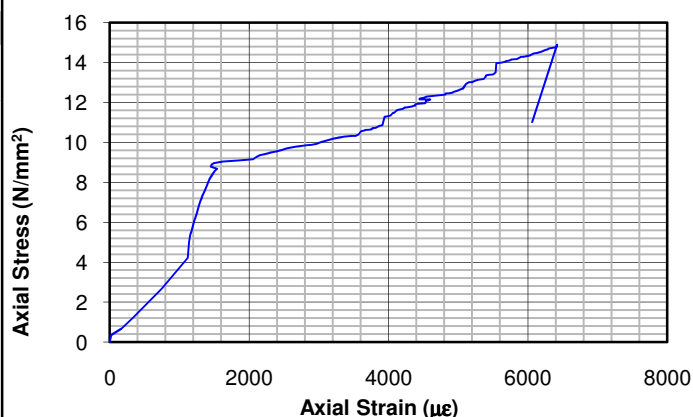
Date of Test: 41947
Date of Preparation: 41946
Type of Gauges Used: 30mm Strain Gauges

Elongation Modulus and Poisson Ratio

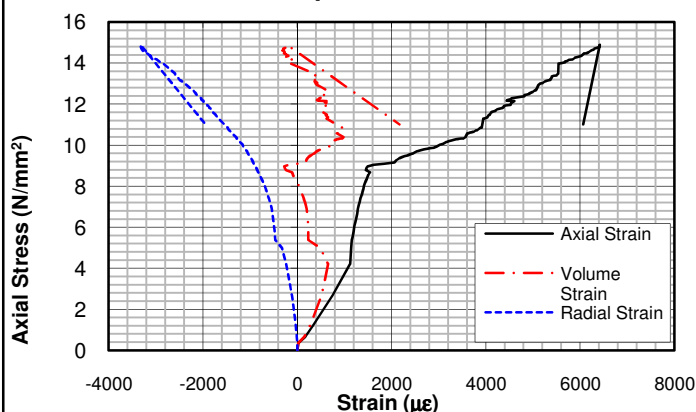
Calculated for axial σ : 7.45 N/mm²
 E_{medio} : 7.07 kN/mm²
 E_{tan} : 8.62 kN/mm²
 E_{sec} : 5.52 kN/mm²

Max. strength: 14.90 N/mm²
 Poisson at failure: 0.321
 Poisson: 0.448

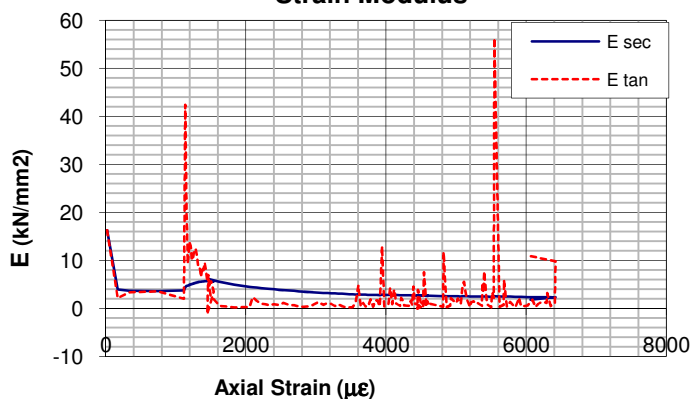
Compression Curve



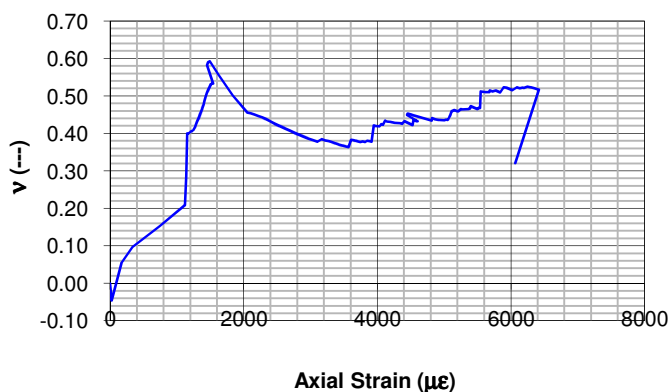
Compression Curve



Strain Modulus



Poisson Ratio



Prepared by:

Jessica Farrugia
Quality Manager

Approved by:

Chris Magro
Laboratory Manager

TEST CERTIFICATE

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Laboratory Test Certificate

Determination of Uniaxial Compressive Strength of Rock materials according to ISRM Suggested Method + Annex W

Client Name:	J&P AVAX S.A.	Date of sampling:	30/10/2014	Certificate no:	65
Client address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Date of test:	04/11/2014	Date of certificate:	06/11/2014
Commisioned by:	Giorgos Rousopoulos	Type of Corebarrel:	T286	Job no:	J2094
Attn:	Giorgos Rousopoulos	Location/Town:	Delimara	Test reference no:	RCC065
Client Tel No:	3.06972E+11	Project:	Onshore & Offshor	Tested by:	CM
				Drill Type:	T44

Details of prepared specimens

<i>Details of prepared specimens</i>			<i>BoreHole Number:</i>		<i>GL2</i>		
Specimen No:		RC	5	RC	6	RC	7
Orientation of bedding planes with respect to the test specimen:		Perpendicular		Perpendicular		Perpendicular	
Storage condition of specimens:		Air Sealed		Air Sealed		Air Sealed	
Depth:		12.9m		17.15m		22.2m	
Run No:		n/a		n/a		n/a	
Specimen end flat to 0.02mm:		Yes		Yes		Yes	
Specimen perpendicular to 0.001 Radian, about 3.5' or 0.05mm/50mm:		Yes		Yes		Yes	
Specimen sides smooth and straight to 0.3mm over full length of specimen:		Yes		Yes		Yes	
Initial diameter:(Average)	mm	58.8		59.4		59.5	
Initial length:(Average)	mm	129		131		130	
Initial area:	mm ²	2714.6		2768.0		2776.2	
Initial volume:	mL	351.5		361.2		362.3	
Length/diameter ratio:	L/D	2.20		2.20		2.20	
Condition as tested:		As received		As received		As received	
Mass of specimen	g	761.16		776.27		776.99	
Water content (to 0.1%)	%	8.1		8.7		9.4	
Bulk Density	kg/m ³	2165		2149		2145	
Drv Density	kg/m ³	1989.712		1962.305		1943.899	

Test details

		EQ001 No:6 (Range 0 - 150kN)	EQ001 No:6 (Range 0 - 150kN)	EQ001 No:6 (Range 0 - 150kN)
Machine type/ref:				
Rate of loading	N/min	5000	5000	5000
Stress rate:	Mpa/s	0.031	0.030	0.030
Maximum failure load:	kN	36.2	26.8	22.9
Test duration:	sec	434	321	229
Uniaxial compressive strength:	Mpa	13.3	9.7	8.3
Average UCS:			10.4	
Mode of failure:		Multiple shear	Multiple shear	Multiple shear
Degree of saturation:		100.0	100.0	100.0

Comments/Deviations from suggested method:

Nil

Measurment of Uncertainty:

Nil

Prepared by:

Approved by:





Jessica Farrugia
Quality Manager

Chris Magro
Laboratory Manager

TEST CERTIFICATE

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Laboratory Test Certificate

Determination of Uniaxial Compressive Strength and Deformability of Rock Materials according to ISRM Suggested Method Part 2

Client Name:	J&P AVAX S.A.	Project:	Onshore & Offshore Geotechnical Investigation	Certificate no:	Rock058
Client address:	Street 151-25 Maroussi Greece Sardine Street	Site:	Delimara	Date of certificate:	4 November 2014
Attn:	Sfakianakis Costantinos	Drill Type:	T44	Job no:	J2094
Client Tel No:	3.06972E+11	Type of Corebarrel:	T286	Test reference no:	Rock058
				Tested by:	CM

Sample Information

Borehole No: GL2
Depth of Sample: 12.9m
Date of Sampling: 30/10/2014
Length / Diameter Ratio: 2.20

Test Information

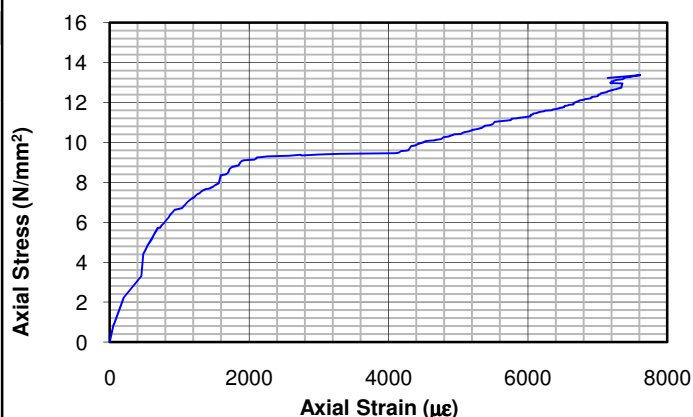
Date of Test: 41947
Date of Preparation: 41946
Type of Gauges Used: 30mm Strain Gauges

Elongation Modulus and Poisson Ratio

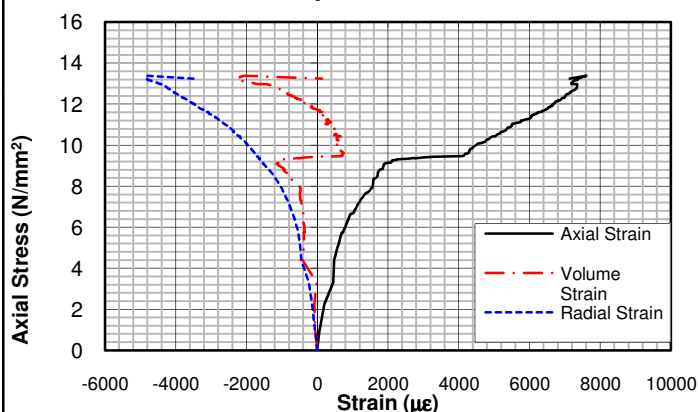
Calculated for axial σ : 6.69 N/mm²
 E_{medio} : 5.64 kN/mm²
 E_{tan} : 4.17 kN/mm²
 E_{sec} : 7.10 kN/mm²

Max. strength: 13.38 N/mm²
Poisson at failure: 0.618
Poisson: 0.733

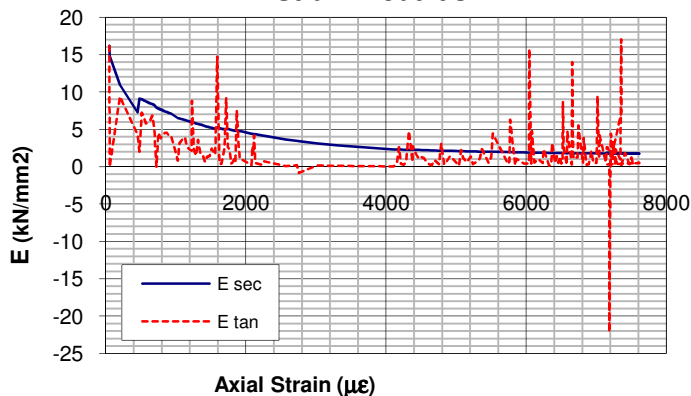
Compression Curve



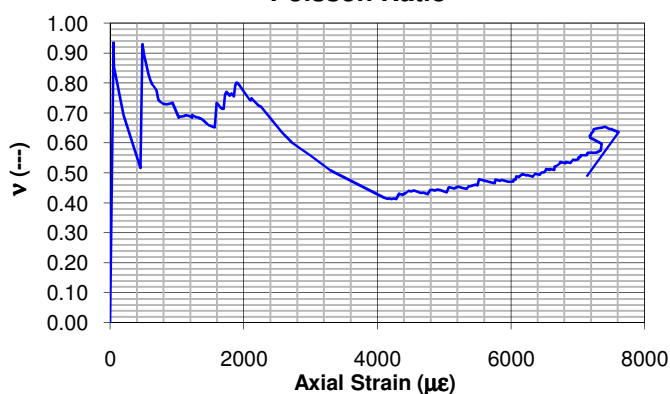
Compression Curve



Strain Modulus



Poisson Ratio



Prepared by:

Jessica Farrugia
Quality Manager

Approved by:

Chris Magro
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Laboratory Test Certificate

Determination of Uniaxial Compressive Strength and Deformability of Rock Materials according to ISRM Suggested Method Part 2

Client Name:	J&P AVAX S.A.	Project:	Onshore & Offshore Geotechnical Investigation	Certificate no:	Rock059
Client address:	Street 151-25 Maroussi Greece Sardine Street	Site:	Delimara	Date of certificate:	4 November 2014
Attn:	Sfakianakis Costantinos	Drill Type:	T44	Job no:	J2094
Client Tel No:	3.06972E+11	Type of Corebarrel:	T286	Test reference no:	Rock059
				Tested by:	CM

Sample Information

Borehole No: GL2
Depth of Sample: 17.15m
Date of Sampling: 30/10/2014
Length / Diameter Ratio: 2.20

Test Information

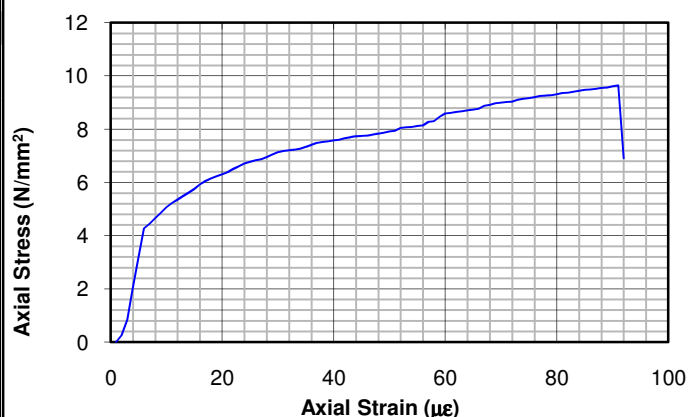
Date of Test: 41947
Date of Preparation: 41946
Type of Gauges Used: 30mm Strain Gauges

Elongation Modulus and Poisson Ratio

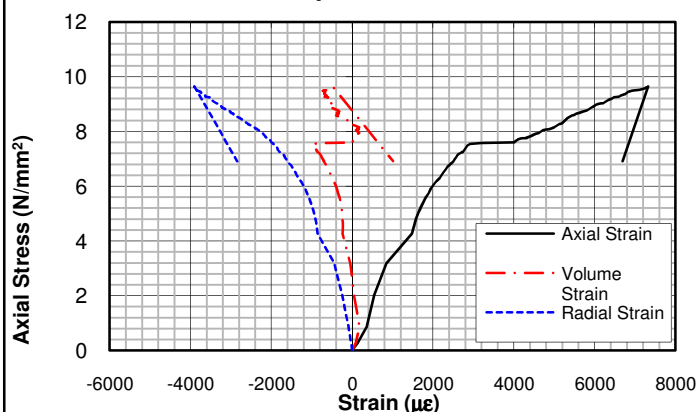
Calculated for axial σ : 4.82 N/mm²
 E_{medio} : 4.20 kN/mm²
 E_{tan} : 5.39 kN/mm²
 E_{sec} : 3.00 kN/mm²

Max. strength: 9.65 N/mm²
 Poisson at failure: 0.424
 Poisson: 0.574

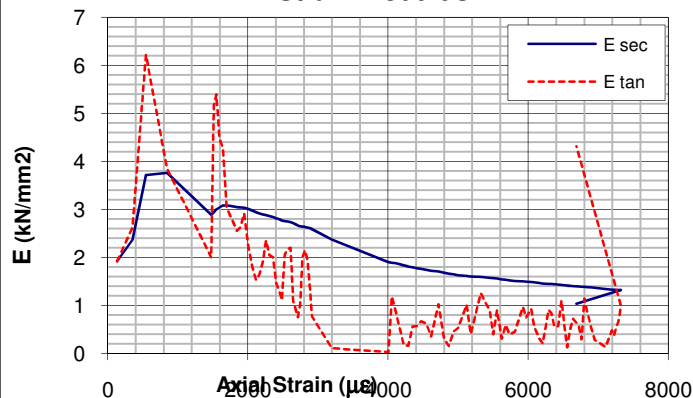
Compression Curve



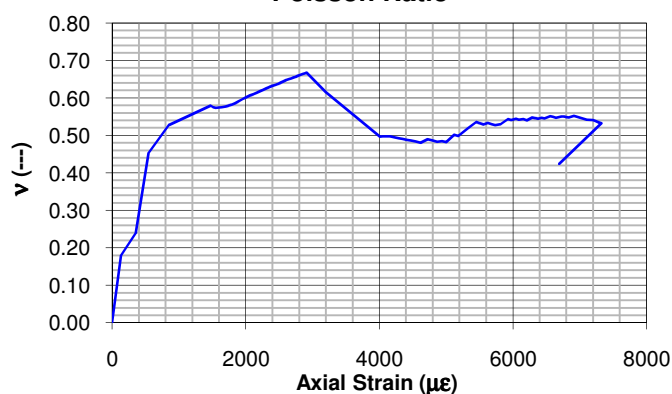
Compression Curve



Strain Modulus



Poisson Ratio



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Laboratory Test Certificate

Determination of Uniaxial Compressive Strength and Deformability of Rock Materials according to ISRM Suggested Method Part 2

Client Name:	J&P AVAX S.A.	Project:	Onshore & Offshore Geotechnical Investigation	Certificate no:	Rock060
Client address:	Street 151-25 Maroussi Greece Sardine Street	Site:	Delimara	Date of certificate:	4 November 2014
Attn:	Sfakianakis Costantinos	Drill Type:	T44	Job no:	J2094
Client Tel No:	3.06972E+11	Type of Corebarrel:	T286	Test reference no:	Rock060
				Tested by:	CM

Sample Information

Borehole No: GL2
Depth of Sample: 22.2m
Date of Sampling: 30/10/2014
Length / Diameter Ratio: 2.19

Test Information

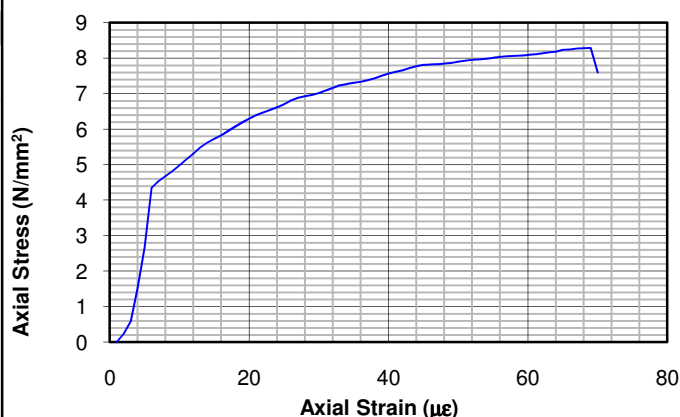
Date of Test: 41947
Date of Preparation: 41946
Type of Gauges Used: 30mm Strain Gauges

Elongation Modulus and Poisson Ratio

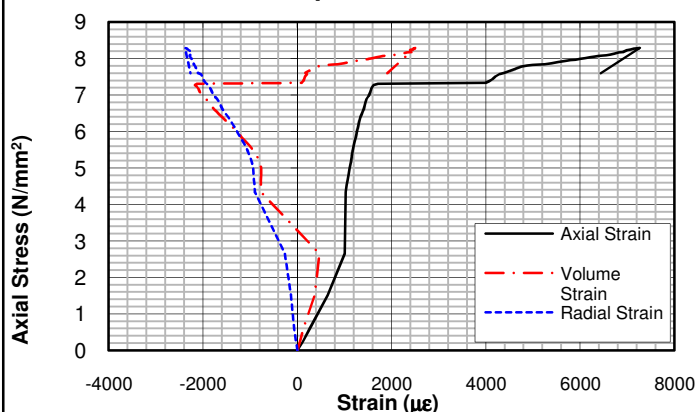
Calculated for axial σ : 4.15 N/mm²
 E_{medio} : 2.92 kN/mm²
 E_{tan} : 3.20 kN/mm²
 E_{sec} : 2.64 kN/mm²

Max. strength: 8.29 N/mm²
 Poisson at failure: 0.352
 Poisson: 0.266

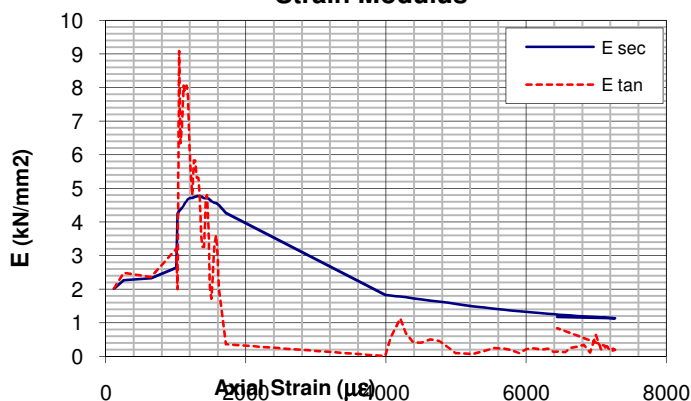
Compression Curve



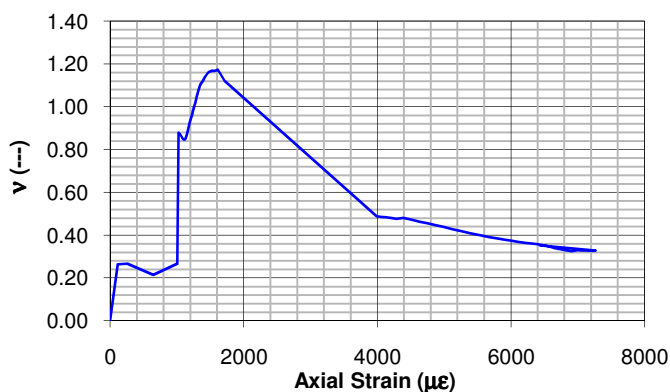
Compression Curve



Strain Modulus



Poisson Ratio



Prepared by:

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Laboratory Test Certificate

Determination of Uniaxial Compressive Strength of Rock materials according to ISRM Suggested Method

Client Name:	J&P AVAX S.A.	Date of sampling:	03/11/2014	Certificate no:	Report070
Client address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Date of test:	14/11/2014	Date of certificate:	17/11/2014
		Type of Corebarrel:	T286	Job no:	J2094
Commisioned by:	Giorgos Rousopoulos	Project:	Onshore & Offshore Geotechnical Investigation	Test reference no:	RCC070
Attn:	Giorgos Rousopoulos			Tested by:	CM
Client Tel No:	306972019434	Location/Town:	Delimara	Drill Type:	T44

Details of prepared specimens

Borehole number:

BH GL3

	RC	1	RC	2	RC	3	RC	4
Specimen No:								
Orientation of bedding planes with respect to the test specimen:		Perpendicular		Perpendicular		Perpendicular		Perpendicular
Storage condition of specimens:		Air Sealed		Air Sealed		Air Sealed		Air Sealed
Depth:		41.5m		42.6m		47.4m		50.4m
Run No:		n/a		n/a		n/a		n/a
Specimen end flat to 0.02mm:		Yes		Yes		Yes		Yes
Specimen perpendicular to 0.001 Radian, about 3.5' or 0.05mm/50mm:		Yes		Yes		Yes		Yes
Specimen sides smooth and straight to 0.3mm over full length of specimen:		Yes		Yes		Yes		Yes
Initial diameter: (Average)	mm			58.6		58.5		58.5
Initial length: (Average)	mm			128		127		128
Initial area:	mm ²			2694.5		2689.4		2692.0
Initial volume:	mL			342.0		341.4		344.4
Length/diameter ratio:	L/D			2.19		2.17		2.19
Condition as tested:				Slightly Dried		Slightly Dried		Slightly Dried
Mass of specimen	g			711.64		724.62		729.5
Water content (to 0.1%)	%			12.8		10.8		10.2
Pore Volume	m ³							
Average	m ³							
Porosity	%							
Average	%							
Bulk Density	kg/m ³			2081		2123		2118
Average	kg/m ³				2107			
Dry Density	kg/m ³			1814		1894		1903
Average	kg/m ³				1870			

Test details

	EQ001 No:6 (Range 0 - 150kN)	EQ001 No:6 (Range 0 - 150kN)	EQ001 No:6 (Range 0 - 150kN)
Machine type/ref:			
Rate of loading	N/min	2000	5000
Stress rate:	Mpa/s	0.012	0.031
Maximum failure load:	kN	12.6	31.3
Test duration:	sec	378	375
Uniaxial compressive strength:	Mpa	4.7	11.6
Average UCS:		9.1	
Mode of failure:		Multiple shear	Multiple shear
Degree of saturation:		100.0	100.0
Comments/Deviations from suggested method:		Nil	
Measurment of Uncertainty:		Nil	

Prepared by:



Jessica Farrugia
Quality Manager

Approved by:



Chris Magro
Laboratory Manager

TEST CERTIFICATE

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Laboratory Test Certificate

Determination of Uniaxial Compressive Strength and Deformability of Rock Materials according to ISRM Suggested Method Part 2

Client Name:	J&P AVAX S.A.	Project:	Onshore & Offshore Geotechnical Investigation	Certificate no:	Rock067
Client address:	27, Marousiou Pothos Street 151-25 Maroussi Greece	Site:	Delimara	Date of certificate:	14 November 2014
Attn:	Sfakianakis Costantinos	Drill Type:	T44	Job no:	J2094
Client Tel No:	3.06972E+11	Type of Corebarrel:	T286	Test reference no:	Rock067
				Tested by:	CM

Sample Information

Borehole No: GL3
Depth of Sample: 42.6 m
Date of Sampling: 3/11/2014
Length / Diameter Ratio: 2.18

Test Information

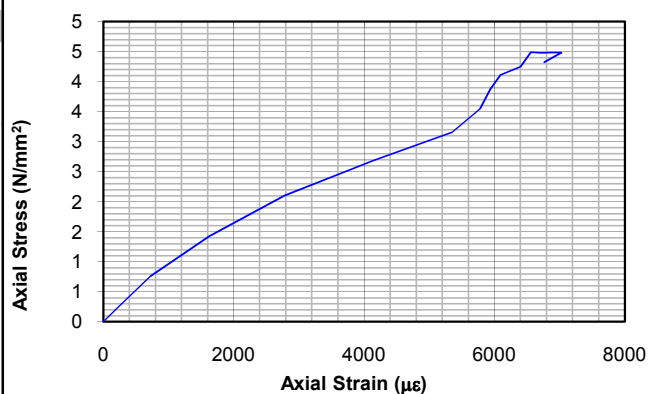
Date of Test: 14/11/2014
Date of Preparation: 13/11/2014
Type of Gauges Used: 30mm Strain Gauges

Elongation Modulus and Poisson Ratio

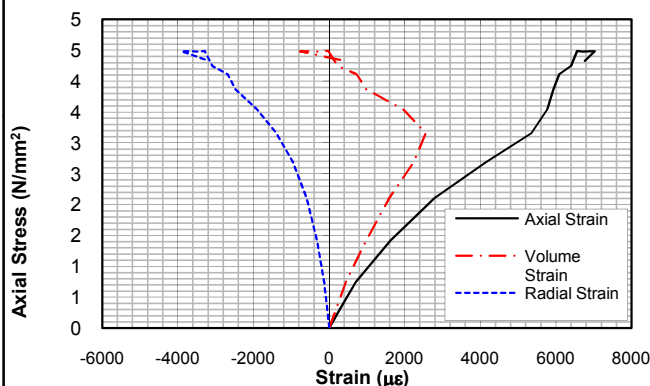
Calculated for axial σ : 2.24 N/mm²
 E_{medio} : 0.67 kN/mm²
 E_{tan} : 0.59 kN/mm²
 E_{sec} : 0.76 kN/mm²

Max. strength: 4.49 N/mm²
Poisson at failure: 0.470
Poisson: 0.214

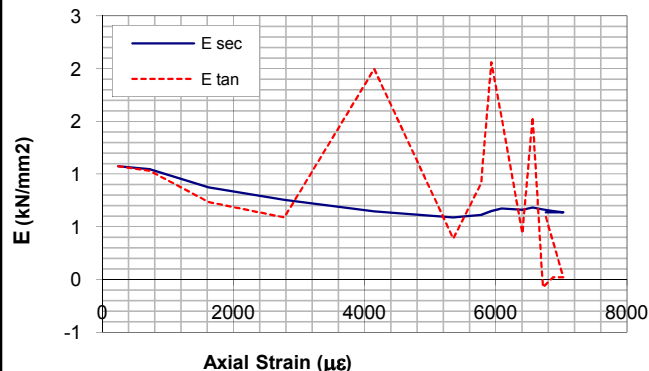
Compression Curve



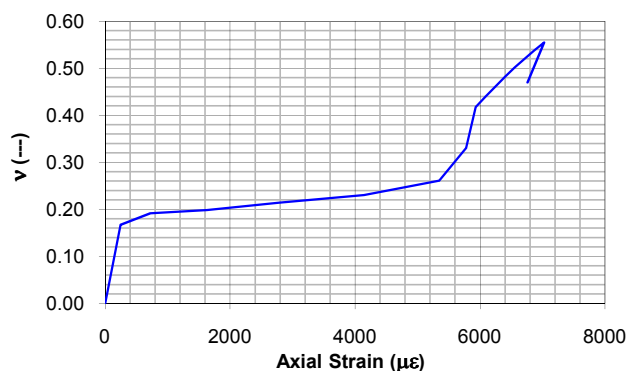
Compression Curve



Strain Modulus



Poisson Ratio



Prepared by:

Jessica Farrugia
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Approved by:

Chris Magro
Laboratory Manager

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Laboratory Test Certificate

Determination of Uniaxial Compressive Strength and Deformability of Rock Materials according to ISRM Suggested Method Part 2

Client Name:	J&P AVAX S.A.	Project:	Onshore & Offshore Geotechnical Investigation	Certificate no:	Rock068
Client address:	27, Marousiou Pionerasia Street 151-25 Maroussi Greece Sardine Street	Site:	Delimara	Date of certificate:	14 November 2014
Attn:	Sfakianakis Costantinos	Drill Type:	T44	Job no:	J2094
Client Tel No:	3.06972E+11	Type of Corebarrel:	T286	Test reference no:	Rock068
				Tested by:	CM

Sample Information

Borehole No: GL3
Depth of Sample: 47.4 m
Date of Sampling: 3/11/2014
Length / Diameter Ratio: 2.17

Test Information

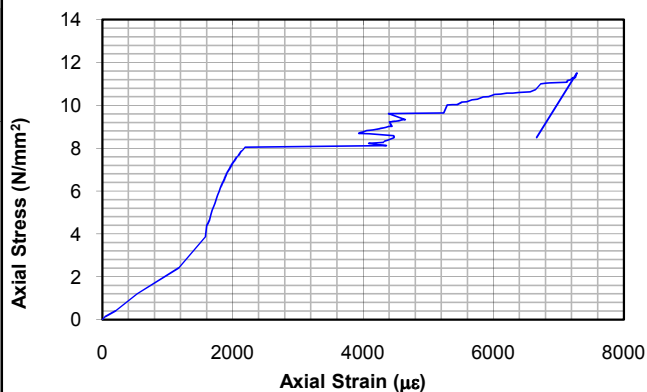
Date of Test: 14/11/2014
Date of Preparation: 13/11/2014
Type of Gauges Used: 30mm Strain Gauges

Elongation Modulus and Poisson Ratio

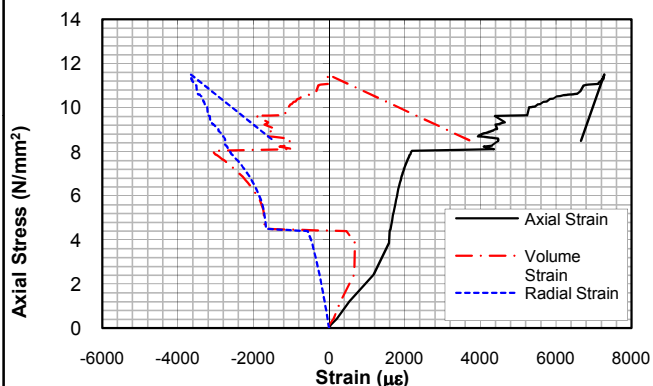
Calculated for axial σ : 5.75 N/mm²
 E_{medio} : 6.21 kN/mm²
 E_{tan} : 9.20 kN/mm²
 E_{sec} : 3.22 kN/mm²

Max. strength: 11.51 N/mm²
Poisson at failure: 0.503
Poisson: 1.011

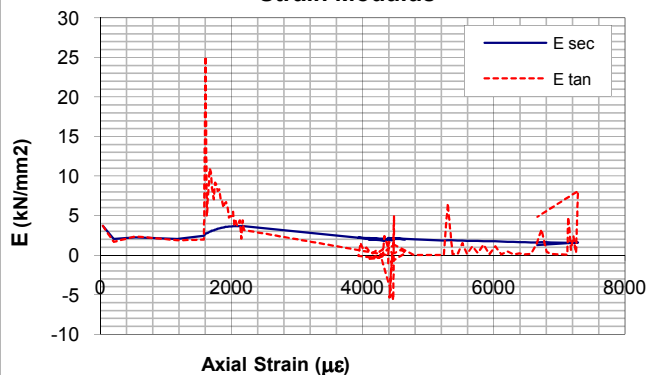
Compression Curve



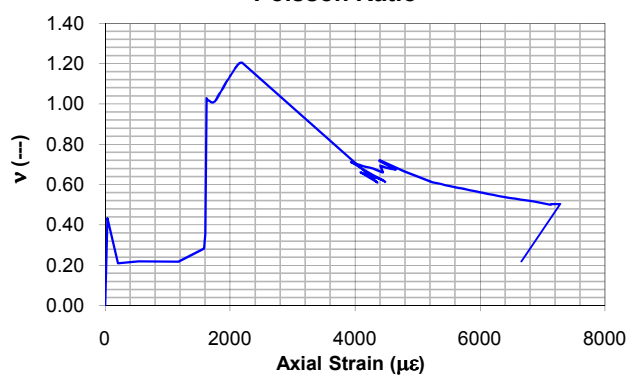
Compression Curve



Strain Modulus



Poisson Ratio



Prepared by:

Jessica Farrugia
Quality Manager

Approved by:

Chris Magro
Laboratory Manager

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Laboratory Test Certificate

Determination of Uniaxial Compressive Strength and Deformability of Rock Materials according to ISRM Suggested Method Part 2

Client Name:	J&P AVAX S.A.	Project:	Onshore & Offshore Geotechnical Investigation	Certificate no:	Rock069
Client address:	27, Marousiou Pothiarou Street 151-25 Maroussi Greece Sardine Street	Site:	Delimara	Date of certificate:	14 November 2014
Attn:	Sfakianakis Costantinos	Drill Type:	T44	Job no:	J2094
Client Tel No:	3.06972E+11	Type of Corebarrel:	T286	Test reference no:	Rock069
				Tested by:	CM

Sample Information

Borehole No: GL3
Depth of Sample: 50.4 m
Date of Sampling: 3/11/2014
Length / Diameter Ratio: 2.19

Test Information

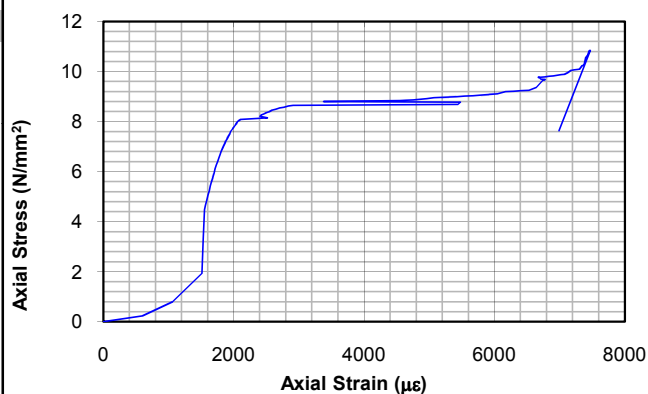
Date of Test: 14/11/2014
Date of Preparation: 13/11/2014
Type of Gauges Used: 30mm Strain Gauges

Elongation Modulus and Poisson Ratio

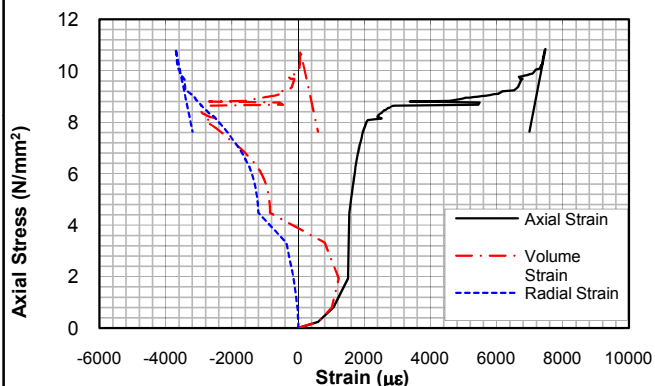
Calculated for axial σ : 5.43 N/mm²
 E_{medio} : 6.97 kN/mm²
 E_{tan} : 10.64 kN/mm²
 E_{sec} : 3.30 kN/mm²

Max. strength: 10.85 N/mm²
Poisson at failure: 0.496
Poisson: 0.783

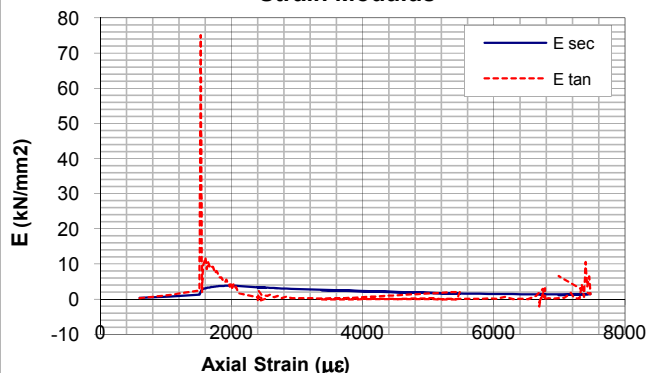
Compression Curve



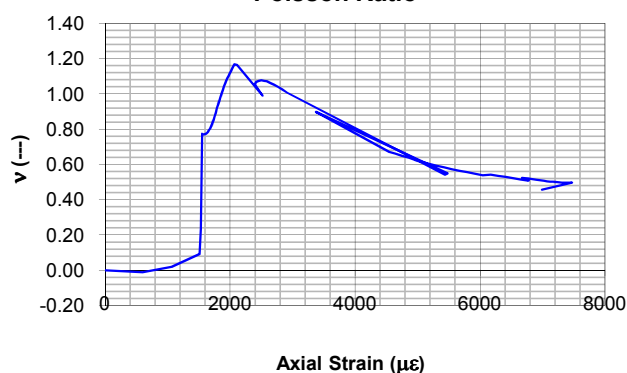
Compression Curve



Strain Modulus



Poisson Ratio



Prepared by:

Jessica Farrugia
Quality Manager

Approved by:

Chris Magro
Laboratory Manager

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Laboratory Test Certificate

Determination of Uniaxial Compressive Strength of Rock materials according to ISRM Suggested Method + Annex W

Client Name:	J&P AVAX S.A.	Date of sampling:	29/10/2014	Certificate no:	66
Client address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Date of test:	04/11/2014	Date of certificate:	06/11/2014
Commisioned by:	Giorgos Rousopoulos	Type of Corebarrel:	T286	Job no:	J2094
Attn:	Giorgos Rousopoulos	Location/Town:	Delimara	Test reference no:	RCC066
Client Tel No:	3.06972E+11	Project:	Onshore & Offshor	Tested by:	CM
				Drill Type:	T44

Details of prepared specimens

		BoreHole Number:		GL4
Specimen No:		RC 8	RC 9	RC 10
Orientation of bedding planes with respect to the test specimen:		Perpendicular	Perpendicular	Perpendicular
Storage condition of specimens:		Air Sealed	Air Sealed	Air Sealed
Depth:		13.2m	16.3m	19.9m
Run No:		n/a	n/a	n/a
Specimen end flat to 0.02mm:		Yes	Yes	Yes
Specimen perpendicular to 0.001 Radian, about 3.5' or 0.05mm/50mm:		Yes	Yes	Yes
Specimen sides smooth and straight to 0.3mm over full length of specimen:		Yes	Yes	Yes
Initial diameter:(Average)	mm	59.5	59.4	59.4
Initial length:(Average)	mm	131	132	132
Initial area:	mm ²	2781.6	2771.8	2775.3
Initial volume:	mL	363.1	365.4	365.8
Length/diameter ratio:	L/D	2.19	2.22	2.22
Condition as tested:		Slightly Dried	Slightly Dried	Slightly Dried
Mass of specimen	g	778.16	766.6	783.65
Water content (to 0.1%)	%	8.3	9.8	6.6
Bulk Density	kg/m ³	2143	2098	2142
Dry Density	kg/m ³	1966.404	1893.273	2001.761

Test details

		EQ001 No:6 (Range 0 - 150kN)	EQ001 No:6 (Range 0 - 150kN)	EQ001 No:6 (Range 0 - 150kN)
Machine type/ref:				
Rate of loading	N/min	5000	5000	5000
Stress rate:	Mpa/s	0.030	0.030	0.030
Maximum failure load:	kN	35.4	22.7	38.1
Test duration:	sec	354	272	457
Uniaxial compressive strength:	Mpa	12.7	8.2	13.7
Average UCS:			11.5	
Mode of failure:		Multiple shear	Multiple shear	Multiple shear
Degree of saturation:		100.0	100.0	100.0

Comments/Deviations from suggested method:

Nil

Measurment of Uncertainty:

Nil

Prepared by:

Approved by:





Jessica Farrugia
Quality Manager

Chris Magro
Laboratory Manager

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Laboratory Test Certificate

Determination of Uniaxial Compressive Strength and Deformability of Rock Materials according to ISRM Suggested Method Part 2

Client Name:	J&P AVAX S.A.	Project:	Onshore & Offshore Geotechnical Investigation	Certificate no:	Rock061
Client address:	Street 151-25 Maroussi Greece Sardine Street	Site:	Delimara	Date of certificate:	4 November 2014
Attn:	Sfakianakis Costantinos	Drill Type:	T44	Job no:	J2094
Client Tel No:	3.06972E+11	Type of Corebarrel:	T286	Test reference no:	Rock061
				Tested by:	CM

Sample Information

Borehole No: GL4
Depth of Sample: 13.2m
Date of Sampling: 29/10/2014
Length / Diameter Ratio: 2.19

Test Information

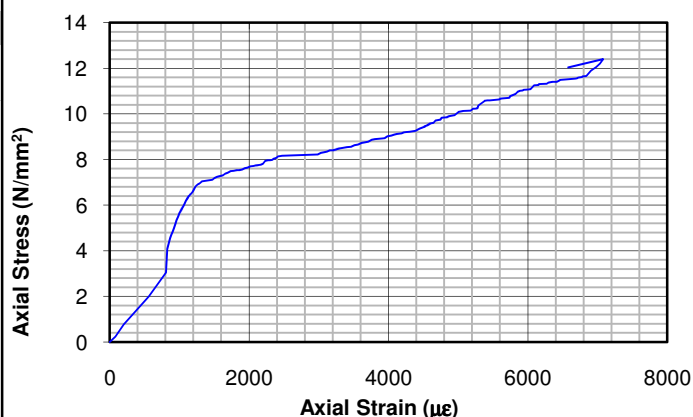
Date of Test: 41947
Date of Preparation: 41946
Type of Gauges Used: 30mm Strain Gauges

Elongation Modulus and Poisson Ratio

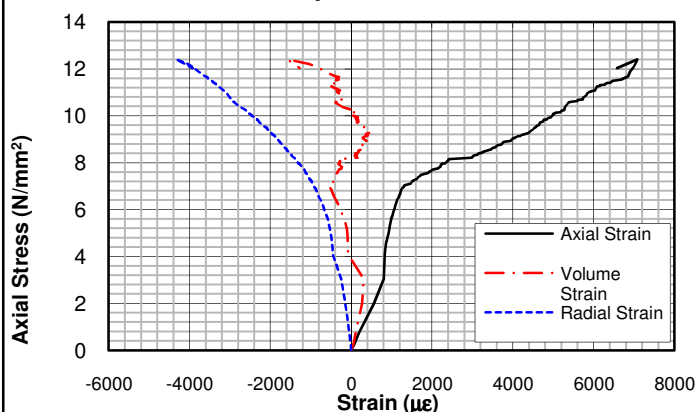
Calculated for axial σ : 6.20 N/mm²
 E_{medio} : 6.04 kN/mm²
 E_{tan} : 6.43 kN/mm²
 E_{sec} : 5.65 kN/mm²

Max. strength: 12.40 N/mm²
 Poisson at failure: 0.611
 Poisson: 0.640

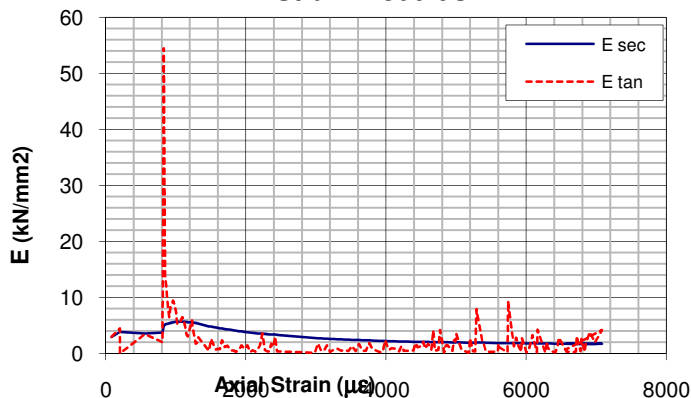
Compression Curve



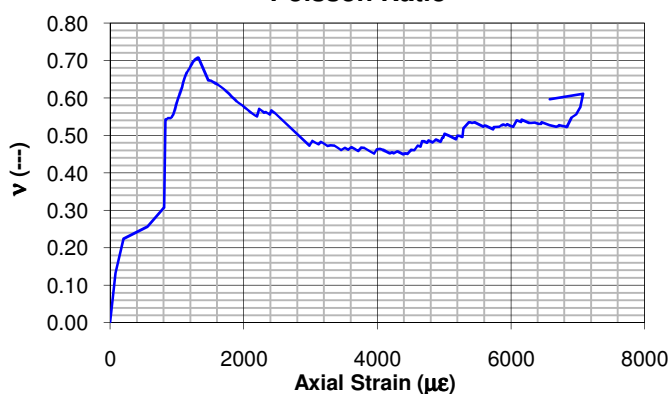
Compression Curve



Strain Modulus



Poisson Ratio



Prepared by:

Jessica Farrugia
Quality Manager

Approved by:

Chris Magro
Laboratory Manager

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TERRACORE

Laboratory Test Certificate

Determination of Uniaxial Compressive Strength and Deformability of Rock Materials according to ISRM Suggested Method Part 2

Client Name:	J&P AVAX S.A.	Project:	Onshore & Offshore Geotechnical Investigation	Certificate no:	Rock062
Client address:	Street 151-25 Maroussi Greece Sardine Street	Site:	Delimara	Date of certificate:	4 November 2014
Attn:	Sfakianakis Costantinos	Drill Type:	T44	Job no:	J2094
Client Tel No:	3.06972E+11	Type of Corebarrel:	T286	Test reference no:	Rock062
				Tested by:	CM

Sample Information

Borehole No: GL4
 Depth of Sample: 16.3m
 Date of Sampling: 29/10/2014
 Length / Diameter Ratio: 2.22

Test Information

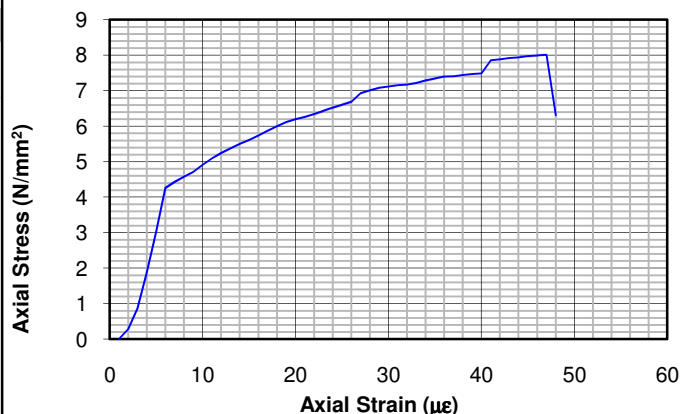
Date of Test: 41947
 Date of Preparation: 41946
 Type of Gauges Used: 30mm Strain Gauges

Elongation Modulus and Poisson Ratio

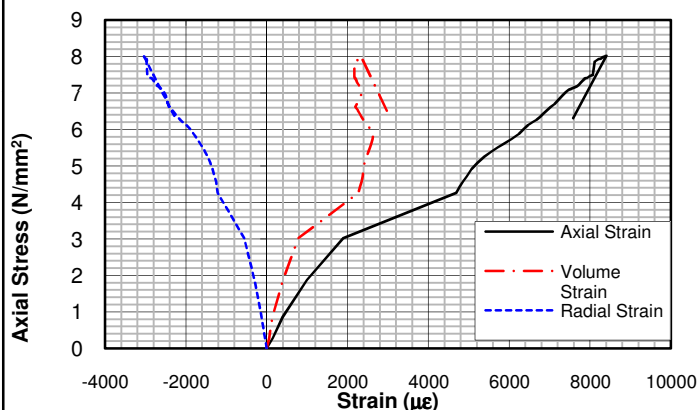
Calculated for axial σ : 4.01 N/mm²
 E_{medio} : 1.44 kN/mm²
 E_{tan} : 1.28 kN/mm²
 E_{sec} : 1.59 kN/mm²

Max. strength: 8.01 N/mm²
 Poisson at failure: 0.362
 Poisson: 0.292

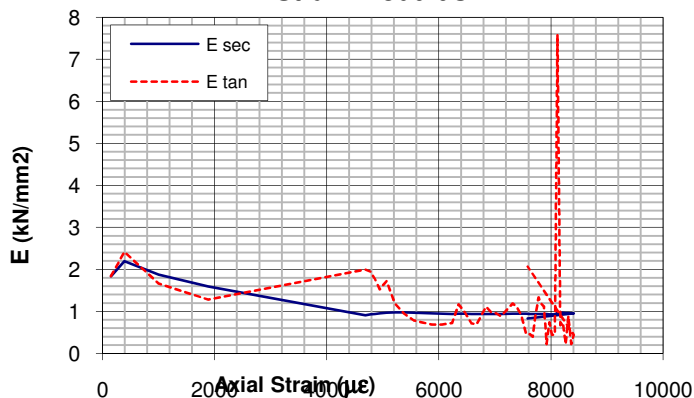
Compression Curve



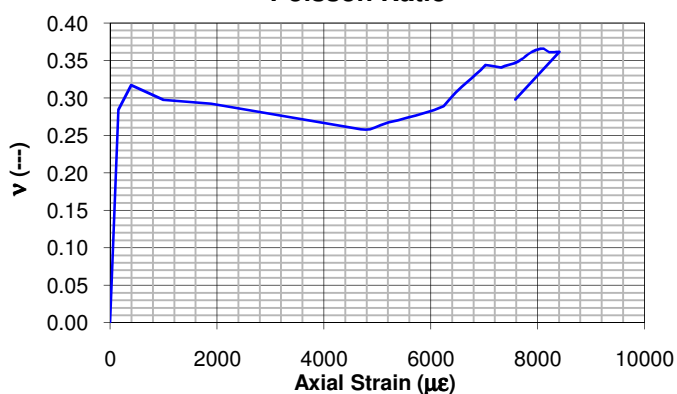
Compression Curve



Strain Modulus



Poisson Ratio



Prepared by:

Jessica Farrugia
Quality Manager

Approved by:

Chris Magro
Laboratory Manager

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Determination of Uniaxial Compressive Strength and Deformability of Rock Materials according to ISRM Suggested Method Part 2

Client Name:	J&P AVAX S.A.	Project:	Onshore & Offshore Geotechnical Investigation	Certificate no:	Rock063
Client address:	Street 151-25 Maroussi Greece Sardine Street	Site:	Delimara	Date of certificate:	4 November 2014
Attn:	Sfakianakis Costantinos	Drill Type:	T44	Job no:	J2094
Client Tel No:	3.06972E+11	Type of Corebarrel:	T286	Test reference no:	Rock063
				Tested by:	CM

Sample Information

Borehole No: GL4
Depth of Sample: 19.9m
Date of Sampling: 29/10/2014
Length / Diameter Ratio: 2.22

Test Information

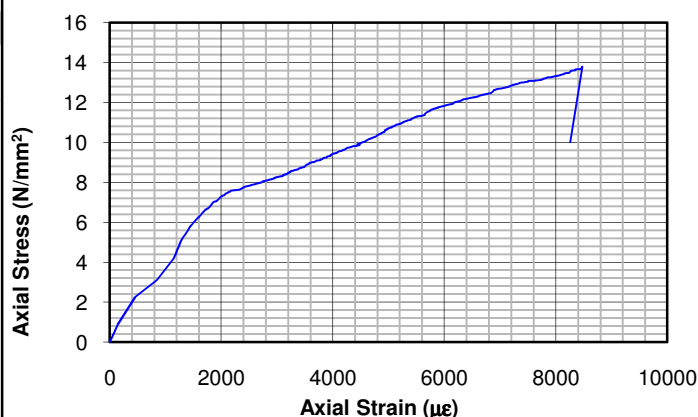
Date of Test: 41947
Date of Preparation: 41946
Type of Gauges Used: 30mm Strain Gauges

Elongation Modulus and Poisson Ratio

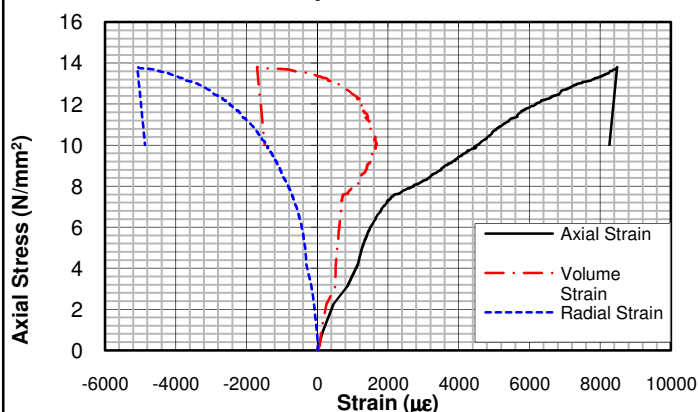
Calculated for axial σ : 6.90 N/mm²
E_{medio}: 3.57 kN/mm²
E_{tan}: 3.36 kN/mm²
E_{sec}: 3.78 kN/mm²

Max. strength: 13.79 N/mm²
Poisson at failure: 0.363
Poisson: 0.314

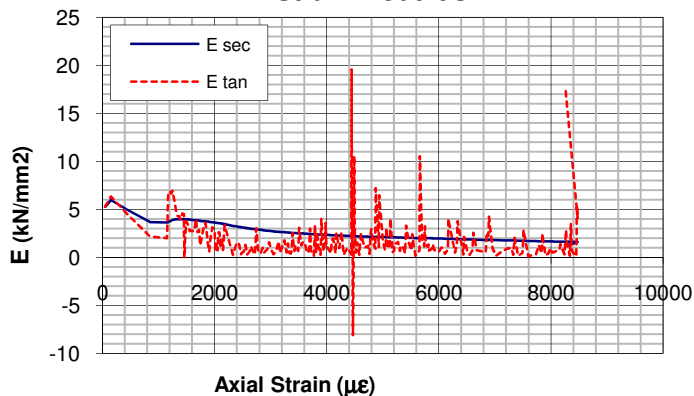
Compression Curve



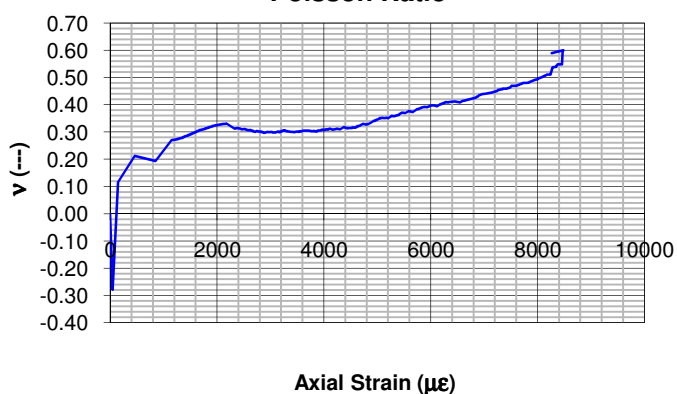
Compression Curve



Strain Modulus



Poisson Ratio



Prepared by:

Jessica Farrugia
Quality Manager

Approved by:

Chris Magro
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Laboratory Test Certificate

Determination of Dry Density/Moisture Content relationship according to BS 1377 - 4:1990

Procedure used: 4.5kg rammer, No of Layers 5, Blows per layer 62

Client name:	J&P AVAX S.A.	Project:	Onshore & Offshore	Certificate N°:	TCR333
Client address:	29, Maroussiou Holandriou Street 151-25 Maroussi Greece	Location/Town:	Delimara	Date of certificate:	23/10/2014
Attn:	Giorgos Rousopoulos			Client/Job N°:	J2094
Client Tel N°:	306972019434			Test Reference No:	PM002
				Tested by:	LS
				Date of test:	22/10/2014

Test Information

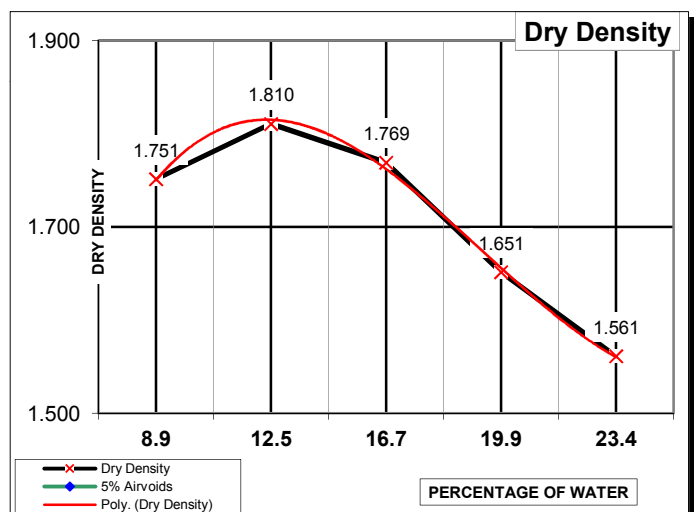
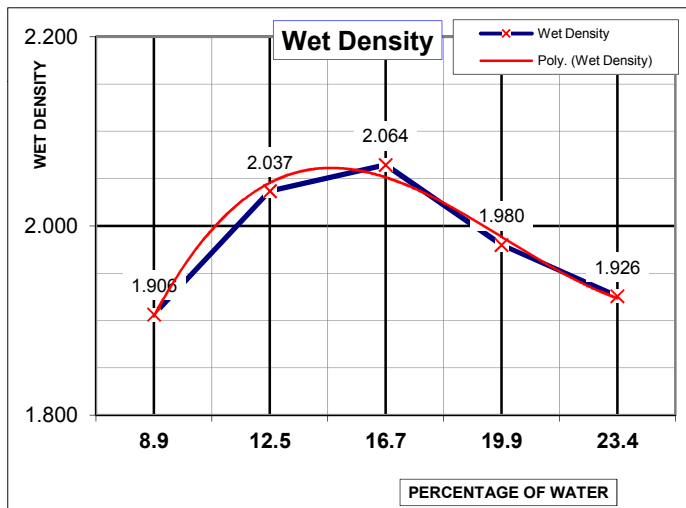
Sample Ref No: 141016 - Soil
 Sampling Location: Excavated Material from site
 Sample Description: Excavated Material from site
 Particle Size: n/a
 Type of Material: Clay/Soil

PERCENTAGE OF WATER
%

WET (Moist) DENSITY
Mg/m³

DRY (OVEN 110°C) DENSITY
Mg/m³

1	8.9	1.906	1.751
2	12.5	2.037	1.810
3	16.7	2.064	1.769
4	19.9	1.980	1.651
5	23.4	1.926	1.561



Optimum moisture content: % **13**

Maximum Dry Density: Mg/m³ **1.81**

Deviation from Standard:

Nil

Remarks:

Nil

Prepared By:

Jessica Farrugia

Jessica Farrugia
Quality Manager

Approved By:

Chris Magro

Chris Magro
Lab Manager

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 E: info@terracoiremalta.com W: www.terracoiremalta.com

Registration No.: C32227
 Alfred Xerri

Filename: J2094_Soil_Proctor_TCR333_PM002.xls

Laboratory Test Certificate

Determination of Undrained Triaxial Compression to BS 1377: Part 7:1990 Clause 8

Client name:	J&P AVAX S.A.	Project:	Onshore & Offshore	Certificate N°:	TCR398 (2)
Client address:	29, Maroussiou Holandriou Street 151- 25 Maroussi Greece	Location/Town:	Delimara	Date of certificate:	18/12/2014
Attn:	Sfakianakis Costantinos			Client/Job N°:	J2094
Client Tel N°:	3.06972E+11			Test Reference No:	TRI048 (2)
				Tested by:	CM
				Date of test:	18/12/2014

Test Information

Sample Ref No: 141016 - Proctor
Sampling Location: Proctor
Sample Depth: Sample 1
Date of sampling: 16/10/14
Type of Material: Grey Silty Clay

Equipment Information

Membrane thickness: 0.3
Load device No: 8750
Load device calibration: 0.0171703
Strain Device No: 1
StrainDevice Calibration mm/rev: 1
Rate of deformation: 1

Specimen details

Specimen 1

Height of Specimen: mm **76.21**
Diameter of Specimen: mm **37.03**
Mass of specimen: g **171.1**
Volume: ml **82.07**
Bulk Density - Wet: Mg/m³ **2.085**
Moisture Content: % **16.92**
Cell pressure: kPa **50**

Single Stage

Shear Strength Parameters

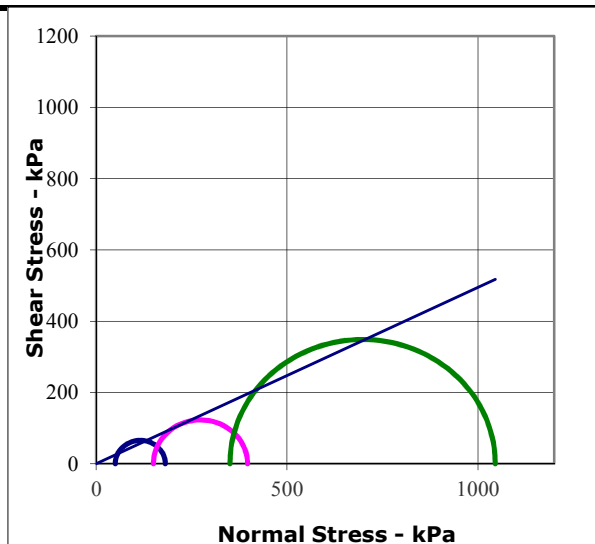
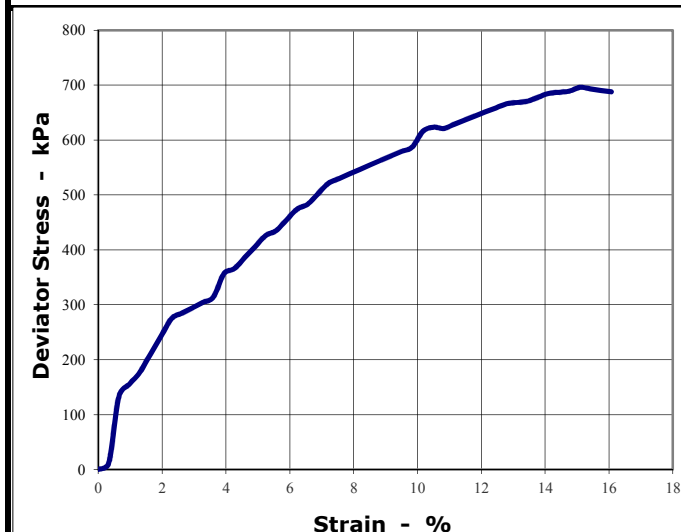
C **0** kPa
Phi **26.3** °

Test details

Test details	Cell pressure: kPa	1.26	1.57	2.51
Membrane correction:	kPa	1.26	1.57	2.51
Rate of Axial displacement:	%/mm	1.31	1.31	1.31
Strain at Failure:	%	6.23	8.20	15.09
Maximum deviator stress:	kPa	131	247	696
Shear strength:	kPa	65	123	348

Mode of failure:

Intermediate



Deviation from Standard:

Nil

Remarks:

Nil

Prepared By:

Jessica Farrugia
Quality Manager

Approved By:

Chris Magro
Lab Manager

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Registration No.: C32227

Alfred Xerri

Filename:

J2094_Soils_TCR398 (2)_TRI048 (2)_Proctor S1 (2).xls

Sample: Compacted Material

Unloading Stage

Pressure	Initial Reading	Final Reading	Voids Ratio	Coeff. Volume Comp.
800	-	-	0.2909	-
200	14.97	14.36	0.2999	0.0679
50	14.36	13.72	0.3093	0.2971
12	13.72	12.87	0.3217	1.6304
0	12.87	11.67	0.3393	7.7700

Sample: BH GL1 Sample 8

Unloading Stage

Pressure	Initial Reading	Final Reading	Voids Ratio	Coeff. Volume Comp.
800	-	-	0.1614	-
200	23.05	22.43	0.1716	0.0448
50	22.43	22.06	0.1771	0.1100
12	22.06	21.64	1.835	0.5010
0	21.64	19.01	0.2232	10.1278

Sample: BH GL3 Sample 26

Unloading Stage

Pressure	Initial Reading	Final Reading	Voids Ratio	Coeff. Volume Comp.
800	-	-	0.2273	-
200	33.78	33.2	0.2377	0.0286
50	33.2	32.36	0.2527	0.1687
12	32.36	31.75	0.2636	0.4961
0	31.75	29.24	0.3086	6.5879