

Summary of in-situ density test results

Project No.			Project Name							
D10557AI			Giga One, Washington							
Test Position Reference	Test reference	Depth to top m	Date of test	Soil Description	Site conditions during test	Test Type <small>see below</small>	In-situ Bulk Density Mg/m ³	Moisture Content %	In-situ Dry Density Mg/m ³	Remarks
Z6-L1-433246-558854	CC383		27.07.22	Clay	Cloudy	CCD	2.08	22	1.70	
Z6-L1-433260-558860	CC384		27.07.22	Clay	Cloudy	CCD	2.12	18	1.79	
Z6-L1-433276-558864	CC385		27.07.22	Clay	Cloudy	CCD	2.06	24	1.67	
Z6-L1-433295-558870	CC386		27.07.22	Clay	Cloudy	CCD	2.06	26	1.63	
Z6-L1-433314-558876	CC387		27.07.22	Clay	Cloudy	CCD	2.08	19	1.76	

<p>Specifications</p> <p>BS 1377 : Part 2 : 1990 Clause 3 Moisture content by oven drying method</p> <p>BS 1377 : Part 9 : 1990 : In situ density tests, clauses :</p> <p>SRDS 2.1 Sand replacement method (Small pouring cylinder)</p> <p>SRDL 2.2 Sand replacement method (Large pouring cylinder)</p> <p>CCD 2.4 Core cutter method</p>	<p>Approved By</p> <p style="text-align: center;">Date</p> <p style="text-align: center;">28/07/2022</p>	<p style="text-align: center;">N Hodson</p> <p style="text-align: center;">Laboratory Manager</p> <p style="text-align: center;"><i>N Hodson</i></p>	<p>UKAS Accredited Laboratory</p> <p style="text-align: center;">No. 20632</p>
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TEST CERTIFICATE
Determination of the Shear Strength Using the Laboratory Handvane

Client: Groundwork Services (Durham) Ltd

Project No: D10557AI

Project: Envision, Washington

Date Tested: 27th July 2022

Sampled By: J. Curry for ETA

Ambient Temperature: 23°C

Weather Conditions: Dry, Cloudy

Vane Used: Small

Comments:

	433246- 558854	433260- 558860	433276- 558864	433295- 558870	433314- 558876
Client Reference	Z6, L1	Z6, L1	Z6, L1	Z6, L1	Z6, L1
Reading 1	11.2	12.0	9.6	8.8	10.2
Reading 2	11.6	12.0	10.2	10.0	11.0
Reading 3	10.8	12.0	10.0	9.4	9.8
Average Readings:	11.2	12.0	9.9	9.4	10.3
Equivalent Shear Stress (kN/m²)	224	240	199	188	207

Approved By:

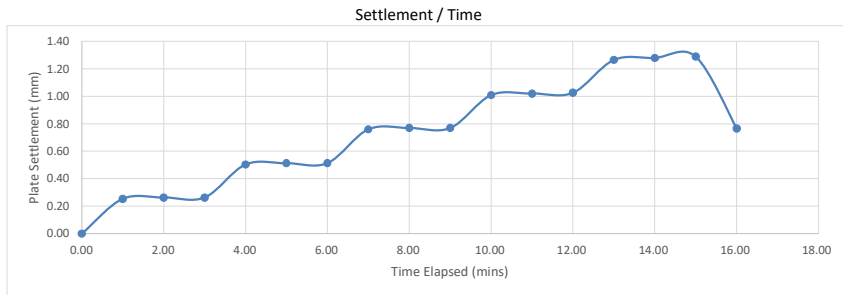
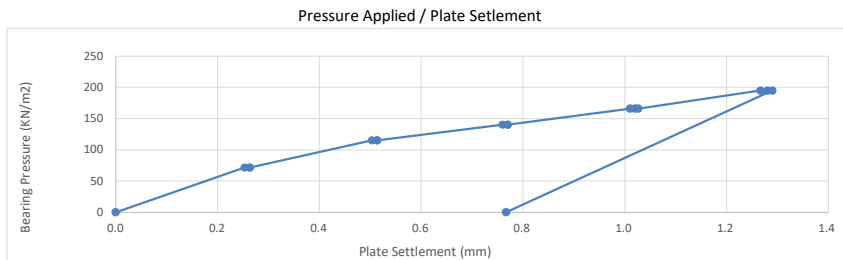


N.Hodson
Materials Director

Date: 28th July 2022

Test Report
Determination of the Vertical Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	Job Number	D10557AI
Client	Groundwork Services (Durham) Limited Thistle Road Littleburn Industrial Estate Langley Moor DH7 8HJ	Date Tested	27/07/2022
Depth of Test from Groundlevel	0	Weather Conditions	Cloudy
Plate Diameter (mm)	450	Air Temperature °C	23°C
		Sample Description	Clay
		Reaction Load	13t Tracked Excavator
		Denisty & Moisture	Not Requested
		Test Location	PLT1 Zone 6
	Distance between the edge of the plate and the wall of the excavation (mm)		N/A



Maximum Pressure Applied (kPa)	195	Maximum Deformation (mm)	1.29
Pressure at 1.25mm penetration (kPa)	193	Modulus of Subgrade Reaction (Mn/M²/M)	142.8
Calculated CBR (%) at 1.25mm	26.3		

In Accordance with CD225 Design for New Pavement Foundations, CBR Value has been calculated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superseded document HD 25/94

Comments:

Unless otherwise stated, this test has been carried out in accordance with the published standard, with no deviations from the test method outlined.

The published results are appertaining only to the locations tested

Test Carried Out By:

J. Curry
Quality Technician

Approved By:

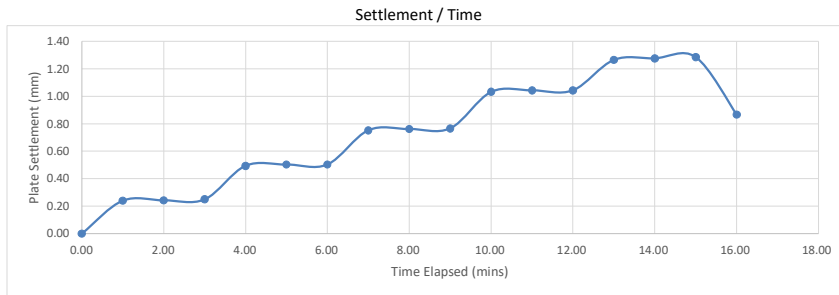
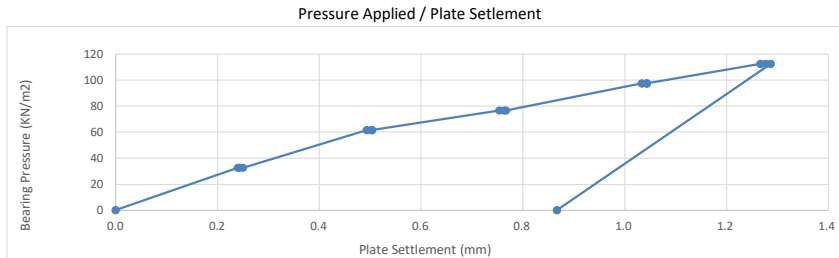
M. Chou
Materials Director

Approved Date:

28 July 2022

Test Report
Determination of the Vertical Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	Job Number	D10557AI
Client	Groundwork Services (Durham) Limited Thistle Road Littleburn Industrial Estate Langley Moor DH7 8HJ	Date Tested	27/07/2022
Depth of Test from Groundlevel	0	Weather Conditions	Cloudy
Plate Diameter (mm)	450	Air Temperature °C	23°C
		Sample Description	Clay
		Reaction Load	13t Tracked Excavator
		Denisty & Moisture	Not Requested
		Test Location	PLT2 Zone 6
		Distance between the edge of the plate and the wall of the excavation (mm)	N/A



Maximum Pressure Applied (kPa)	113	Maximum Deformation (mm)	1.29
Pressure at 1.25mm penetration (kPa)	111	Modulus of Subgrade Reaction (Mn/M²/M)	77.7
Calculated CBR (%) at 1.25mm	10.2		

In Accordance with CD225 Design for New Pavement Foundations, CBR Value has been calculated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

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 Quality Technician

Approved By:

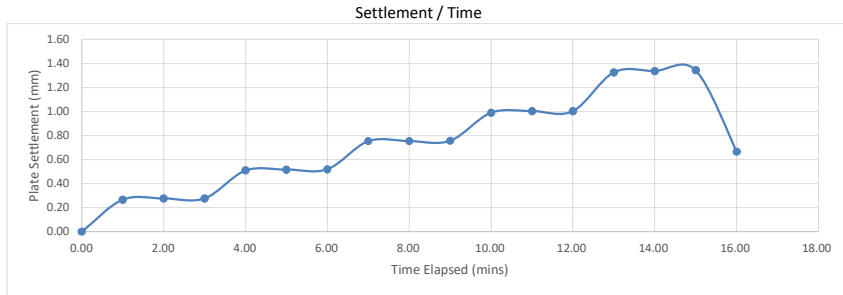
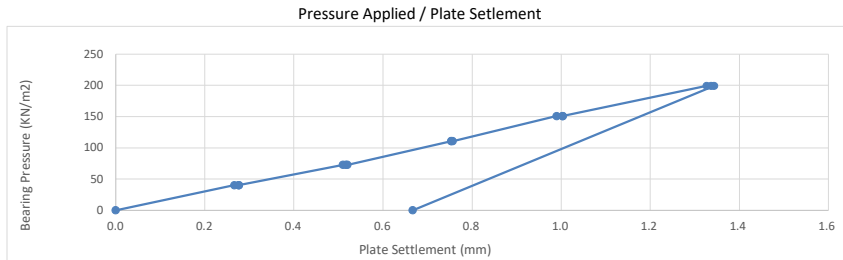
M. O'Connell
 Materials Director

Approved Date:

28 July 2022

Test Report
Determination of the Vertical Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	Job Number	D10557AI
Client	Groundwork Services (Durham) Limited Thistle Road Littleburn Industrial Estate Langley Moor DH7 8HJ	Date Tested	27/07/2022
Depth of Test from Groundlevel	0	Weather Conditions	Cloudy
Plate Diameter (mm)	450	Air Temperature °C	23°C
		Sample Description	Type 1
		Reaction Load	13t Tracked Excavator
		Density & Moisture	Not Requested
		Test Location	PLT1 Zone 2
		Distance between the edge of the plate and the wall of the excavation (mm)	N/A



Maximum Pressure Applied (kPa)	199	Maximum Deformation (mm)	1.34
Pressure at 1.25mm penetration (kPa)	188	Modulus of Subgrade Reaction (Mn/M²/M)	138.7
Calculated CBR (%) at 1.25mm	25.2		

In Accordance with CD225 Design for New Pavement Foundations, CBR Value has been calculated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

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Test Carried Out By:

J. Curry
 Quality Technician

Approved By:

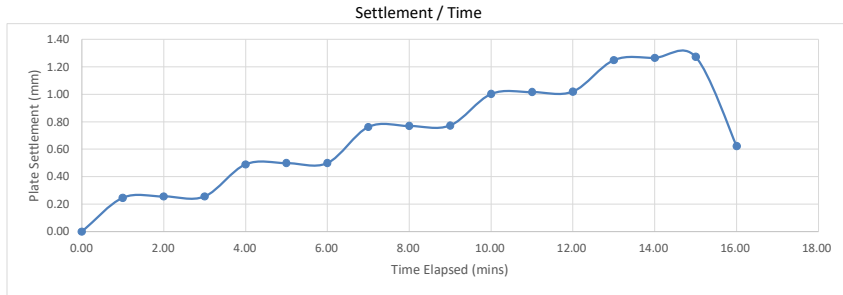
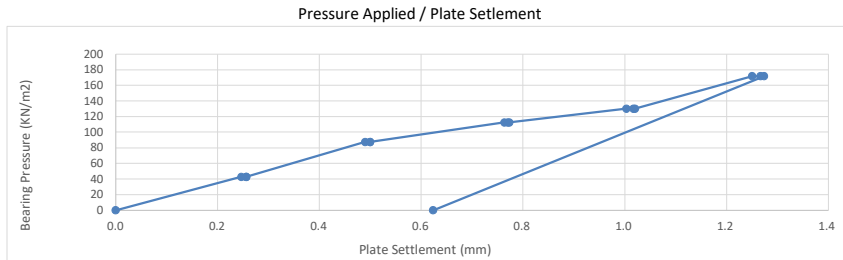
M. Chou
 Materials Director

Approved Date:

28 July 2022

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Determination of the Vertical Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	Job Number	D10557AI
Client	Groundwork Services (Durham) Limited Thistle Road Littleburn Industrial Estate Langley Moor DH7 8HJ	Date Tested	27/07/2022
Depth of Test from Groundlevel	0	Weather Conditions	Cloudy
Plate Diameter (mm)	450	Air Temperature °C	23°C
		Sample Description	Type 1
		Reaction Load	13t Tracked Excavator
		Denisty & Moisture	Not Requested
		Test Location	PLT2 Zone 2
		Distance between the edge of the plate and the wall of the excavation (mm)	N/A



Maximum Pressure Applied (kPa)	172	Maximum Deformation (mm)	1.27
Pressure at 1.25mm penetration (kPa)	172	Modulus of Subgrade Reaction (Mn/M²/M)	125.5
Calculated CBR (%) at 1.25mm	21.5		

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Test Carried Out By:

J. Curry
 Quality Technician

Approved By:

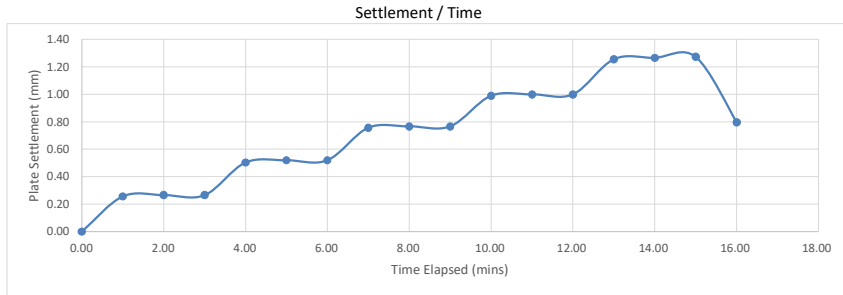
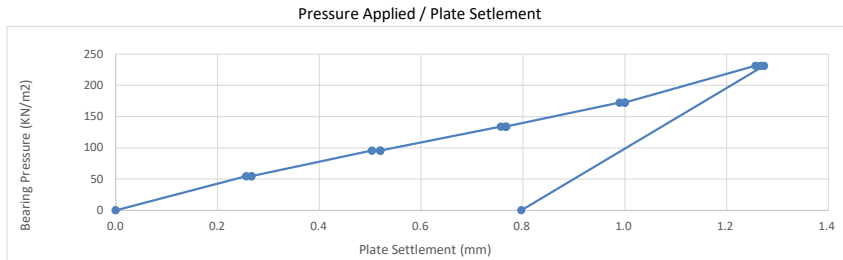
M. Chou
 Materials Director

Approved Date:

28 July 2022

Test Report
Determination of the Vertical Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	Job Number	D10557AI
Client	Groundwork Services (Durham) Limited Thistle Road Littleburn Industrial Estate Langley Moor DH7 8HJ	Date Tested	27/07/2022
Depth of Test from Groundlevel	0	Weather Conditions	Cloudy
Plate Diameter (mm)	450	Air Temperature °C	23°C
		Sample Description	Type 1
		Reaction Load	13t Tracked Excavator
		Denisty & Moisture	Not Requested
		Test Location	PLT3 Zone 2
		Distance between the edge of the plate and the wall of the excavation (mm)	N/A



Maximum Pressure Applied (kPa)	231	Maximum Deformation (mm)	1.27
Pressure at 1.25mm penetration (kPa)	230	Modulus of Subgrade Reaction (Mn/M²/M)	173.5
Calculated CBR (%) at 1.25mm	35.7		

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Test Carried Out By:

J. Curry
 Quality Technician

Approved By:

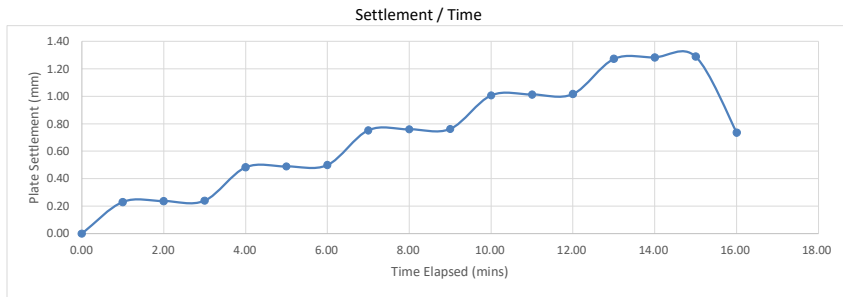
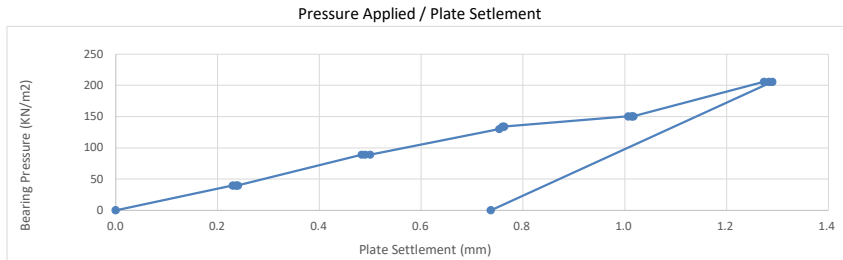
M. Ochoa
 Materials Director

Approved Date:

28 July 2022

Test Report
Determination of the Vertical Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	Job Number	D10557AI
Client	Groundwork Services (Durham) Limited Thistle Road Littleburn Industrial Estate Langley Moor DH7 8HJ	Date Tested	27/07/2022
Depth of Test from Groundlevel	0	Weather Conditions	Cloudy
Plate Diameter (mm)	450	Air Temperature °C	23°C
		Sample Description	Type 1
		Reaction Load	13t Tracked Excavator
		Denisty & Moisture	Not Requested
		Test Location	PLT4 Zone 2
		Distance between the edge of the plate and the wall of the excavation (mm)	N/A



Maximum Pressure Applied (kPa)	206	Maximum Deformation (mm)	1.29
Pressure at 1.25mm penetration (kPa)	201	Modulus of Subgrade Reaction (Mn/M²/M)	149.1
Calculated CBR (%) at 1.25mm	28.2		

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Test Carried Out By:

J. Curry
 Quality Technician

Approved By:

M. Chou
 Materials Director



Approved Date:

28 July 2022

Test Report

Client	Groundwork Services (Durham) Limited
Address	Littleburn Industrial Estate Langley Moor Durham DH7 8HJ
F.A.O	Paul Barton
Project:	Giga One Factory, Washington
Project Number:	D10557AJ
Report Number:	L22-624
Date Received:	28th July 2022

Testing Required:	<p>In situ Density by Core Cutter - BS:1377-9:1990 Clause 2.3</p> <p>Hand Shear Vane*</p> <p>Vertical Deformation and Strength Characteristics by the Incremental Plate Load Test - BS:1377-9:1990 Clause 4.1</p> <p>Determination of Equivalent CBR Value using the Plate Bearing Test - Design Manual for Roads and Bridges, Volume 7: Pavement Design and Maintenance - Foundations HD25/9</p>
Date Started:	28th July 2022
Date Finished:	29th July 2022

Report Issue Date:	29th July 2022
Reviewed By:	 Natalie Hodson - Materials Director
Authorised By:	 Nik O'Brien - Laboratory Manager
Remarks:	(*) denotes testing is outside of UKAS Scope of Accreditation. (+) denotes subcontracted testing.


Samples will be stored for one month after the report has been issue before being disposed of.

The published results appertain only to the specimens tested.

Exploration and Testing Associates Limited, registered in England and Wales #11803869 at
 8B, Bowburn South Industrial Estate, Bowburn, Durham, DH6 5AD

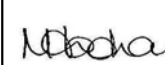
Summary of in-situ density test results

Project No.			Project Name							
D10557AJ			Giga One, Washington							
Test Position Reference	Test reference	Depth to top m	Date of test	Soil Description	Site conditions during test	Test Type <small>see below</small>	In-situ Bulk Density Mg/m ³	Moisture Content %	In-situ Dry Density Mg/m ³	Remarks
CC294-RT	CC294-RT		28/07/22	Clay	Overcast	CCD	2.03	21	1.68	
CC311-RT	CC311-RT		28/07/22	Clay	Overcast	CCD	2.03	22	1.66	
CC365-RT	CC365-RT		28/07/22	Clay	Overcast	CCD	1.98	28	1.55	
CC366--RT	CC366--RT		28/07/22	Clay	Overcast	CCD	2.07	19	1.75	
CC367-RT	CC367-RT		28/07/22	Clay	Overcast	CCD	2.05	22	1.68	
CC368-RT	CC368-RT		28/07/22	Clay	Overcast	CCD	2.05	19	1.72	

Specifications BS 1377 : Part 2 : 1990 Clause 3 Moisture content by oven drying method BS 1377 : Part 9 : 1990 : In situ density tests, clauses : SRDS 2.1 Sand replacement method (Small pouring cylinder) SRDL 2.2 Sand replacement method (Large pouring cylinder) CCD 2.4 Core cutter method	Approved By Date 29/07/2022	N Hodson Materials Director 	UKAS Accredited Laboratory No. 20632
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Summary of in-situ density test results

Project No.			Project Name							
D10557AJ			Giga One, Washington							
Test Position Reference	Test reference	Depth to top m	Date of test	Soil Description	Site conditions during test	Test Type <small>see below</small>	In-situ Bulk Density Mg/m ³	Moisture Content %	In-situ Dry Density Mg/m ³	Remarks
Z6-L1-480601-54.923684	CC338		28/09/22	Clay	Overcast	CCD	2.11	15	1.83	
Z6-L1-480639-54.923795	CC339		28/07/22	Clay	Overcast	CCD	1.98	22	1.63	
Z6-L1-480802-54.923642	CC340		28/07/22	Clay	Overcast	CCD	2.05	22	1.69	
Z6-L1-480887-54.923745	CC341		28/07/22	Clay	Overcast	CCD	2.09	16	1.81	
Z6-L1-481039-54.923537	CC342		28/07/22	Clay	~Overcast	CCD	2.04	19	1.71	
Z6-L1-481082-54.923537	CC343		28/07/22	Clay	Overcast	CCD	2.07	20	1.73	
Z6-L1-481239-54.923526	CC344		28/07/22	Clay	Overcast	CCD	2.09	21	1.73	
Z6-L1-481317-54.923670	CC345		28/07/22	Clay	Overcast	CCD	2.08	20	1.74	
Z6-L1-481450-54.923495	CC346		28/07/22	Clay	Overcast	CCD	2.01	25	1.61	
Z6-L1-481537-54.923605	CC347		28/07/22	Clay	Overcast	CCD	2.04	23	1.67	

Specifications BS 1377 : Part 2 : 1990 Clause 3 Moisture content by oven drying method BS 1377 : Part 9 : 1990 : In situ density tests, clauses : SRDS 2.1 Sand replacement method (Small pouring cylinder) SRDL 2.2 Sand replacement method (Large pouring cylinder) CCD 2.4 Core cutter method	Approved By Date 29/07/2022	N Hodson Materials Director 	UKAS Accredited Laboratory No. 20632
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TEST CERTIFICATE
Determination of the Shear Strength Using the Laboratory Handvane
Client: Groundwork Services (Durham) Ltd

Project No: D10557AJ

Project: Envision, Washington

Date Tested: 28th July 2022

Sampled By: M. Smith for ETA

Ambient Temperature: 15°C


Weather Conditions: Dry, Cloudy

Vane Used: Small

Comments:

	480601- 54.923684- 1	480639- 54.923795- 1	480802- 54.923642- 1	480881- 54.923745- 1	481039- 54.923537- 1
Client Reference	Z6, L1	Z6, L1	Z6, L1	Z6, L1	Z6, L1
Reading 1	9.2	11.0	9.4	10.8	10.2
Reading 2	9.8	11.2	9.2	11.0	11.6
Reading 3	9.8	10.6	10.0	11.0	11.2
Average Readings:	9.4	10.9	9.5	10.9	11.0
Equivalent Shear Stress (kN/m ²)	188	219	191	219	220

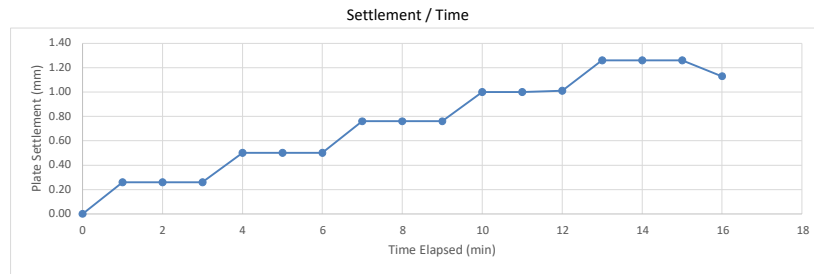
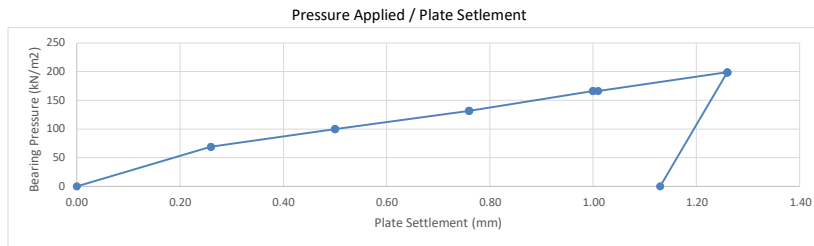
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Client Reference	Z6, L1	Z6, L1	Z6, L1	Z6, L1	Z6, L1
Reading 1	8.8	9.6	9.0	10.0	12.0
Reading 2	10.0	9.8	9.4	9.2	11.6
Reading 3	9.8	9.8	11.0	9.8	11.0
Average Readings:	9.5	9.7	9.8	9.6	11.5
Equivalent Shear Stress (kN/m ²)	191	195	196	193	231

Approved By: 
N.Hodson
Materials Director

Date: 29th July 2022

Test Report
Determination of the Vertical Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	Job Number	D10557AJ
Client	Groundwork Services (Durham) Limited	Date Tested	28/07/2022
	Thistle Road	Weather Conditions	Light Rain
	Littleburn Industrial Estate	Air Temperature °C	30°C
	Langley Moor	Sample Description	Clay
	DH7 8HJ	Reaction Load	18t Tracked Excavator
Depth of Test from Groundlevel	0	Denisty & Moisture	Not Requested
Plate Diameter (mm)	450	Test Location	CBR 1 54.924658-1.481839
	Distance between the edge of the plate and the wall of the excavation (mm)		N/A



Maximum Pressure Applied (kPa)	199	Maximum Deformation (mm)	1.26
Pressure at 1.25mm penetration (kPa)	185	Modulus of Subgrade Reaction (Mn/M²/M)	136.4
Calculated CBR (%) at 1.25mm	25		

In Accordance with CD225 Design for New Pavement Foundations, CBR Value has been calculated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

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Test Carried Out By:

M. Smith

Materials Technician

Approved By:



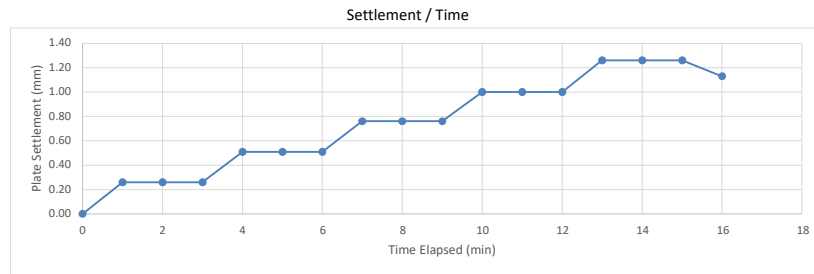
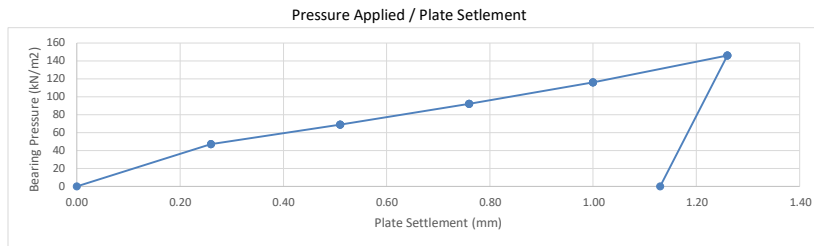
Materials Director

Approved Date:

29 July 2022

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Determination of the Vertical Deformation and Strength Characteristics of Soil by the Plate Load Testing
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Project	Envision, Washington	Job Number	D10557AJ
Client	Groundwork Services (Durham) Limited	Date Tested	28/07/2022
	Thistle Road	Weather Conditions	Light Rain
	Littleburn Industrial Estate	Air Temperature °C	30°C
	Langley Moor	Sample Description	Clay
	DH7 8HJ	Reaction Load	18t Tracked Excavator
Depth of Test from Groundlevel	0	Denisty & Moisture	Not Requested
Plate Diameter (mm)	450	Test Location	CBR 2 54.924759-1.481236
	Distance between the edge of the plate and the wall of the excavation (mm)		N/A



Maximum Pressure Applied (kPa)	146	Maximum Deformation (mm)	1.26
Pressure at 1.25mm penetration (kPa)	145	Modulus of Subgrade Reaction (Mn/M²/M)	103.9
Calculated CBR (%) at 1.25mm	16		

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M. Smith

Materials Technician

Approved By:

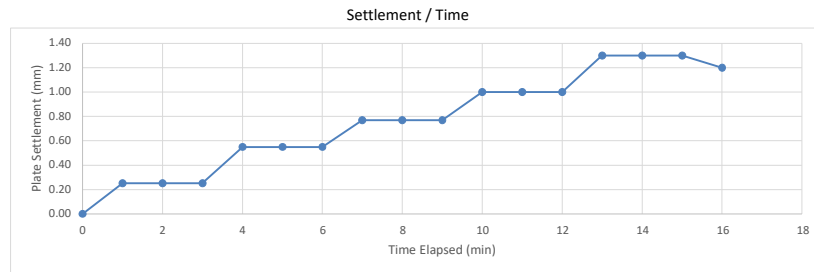
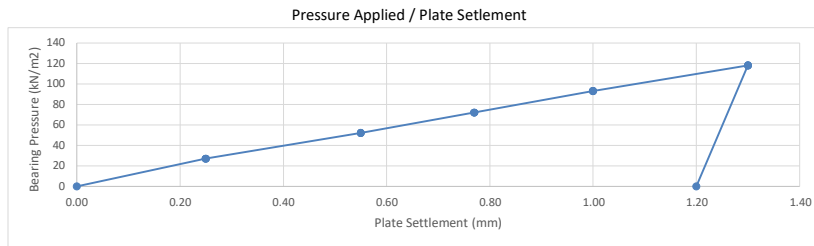
Materials Director

Approved Date:

29 July 2022

Test Report
Determination of the Vertical Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	Job Number	D10557AJ
Client	Groundwork Services (Durham) Limited	Date Tested	28/07/2022
	Thistle Road	Weather Conditions	Light Rain
	Littleburn Industrial Estate	Air Temperature °C	30°C
	Langley Moor	Sample Description	Clay
	DH7 8HJ	Reaction Load	18t Tracked Excavator
Depth of Test from Groundlevel	0	Denisty & Moisture	Not Requested
Plate Diameter (mm)	450	Test Location	CBR 3 54.924869-1.480797
	Distance between the edge of the plate and the wall of the excavation (mm)		N/A



Maximum Pressure Applied (kPa)	118	Maximum Deformation (mm)	1.30
Pressure at 1.25mm penetration (kPa)	114	Modulus of Subgrade Reaction (Mn/M²/M)	79.6
Calculated CBR (%) at 1.25mm	11		

In Accordance with CD225 Design for New Pavement Foundations, CBR Value has been calculated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superseded document HD 25/94

Comments:

Unless otherwise stated, this test has been carried out in accordance with the published standard, with no deviations from the test method outlined.

The published results are appertaining only to the locations tested and are correct at the time of testing.

Test Carried Out By:

M. Smith

Materials Technician

Approved By:



Materials Director

Approved Date:

29 July 2022

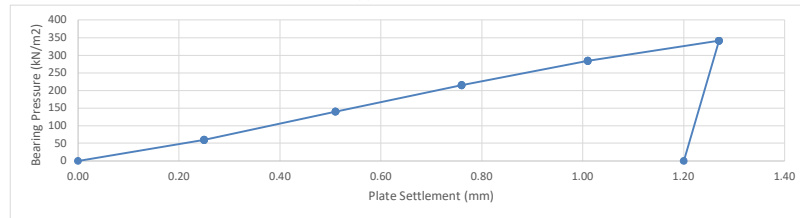
Unit 8B, Bowburn South Industrial Estate
Durham, DH6 5AD

Tel. (+44) 0191 389 6543

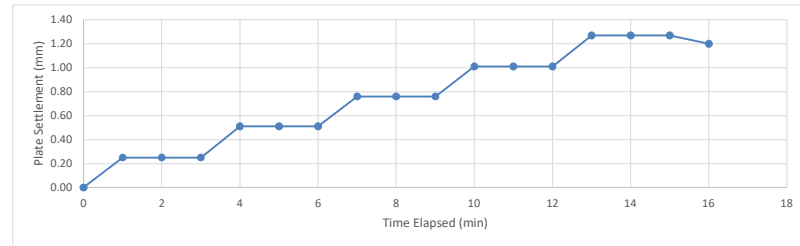
Test Report
Determination of the Vertical Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	Job Number	D10557AJ
Client	Groundwork Services (Durham) Limited	Date Tested	28/07/2022
	Thistle Road	Weather Conditions	Light Rain
	Littleburn Industrial Estate	Air Temperature °C	30°C
	Langley Moor	Sample Description	Clay
	DH7 8HJ	Reaction Load	18t Tracked Excavator
Depth of Test from Groundlevel	0	Denisty & Moisture	Not Requested
Plate Diameter (mm)	450	Test Location	CBR 4 54.921411-1.482966
	Distance between the edge of the plate and the wall of the excavation (mm)		N/A

Pressure Applied / Plate Settlement



Settlement / Time



Maximum Pressure Applied (kPa)	341	Maximum Deformation (mm)	1.27
Pressure at 1.25mm penetration (kPa)	337	Modulus of Subgrade Reaction (Mn/M²/M)	264.8
Calculated CBR (%) at 1.25mm	69		

In Accordance with CD225 Design for New Pavement Foundations, CBR Value has been calculated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superseded document HD 25/94

Comments:

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Test Carried Out By:

M. Smith

Materials Technician

Approved By:



Materials Director

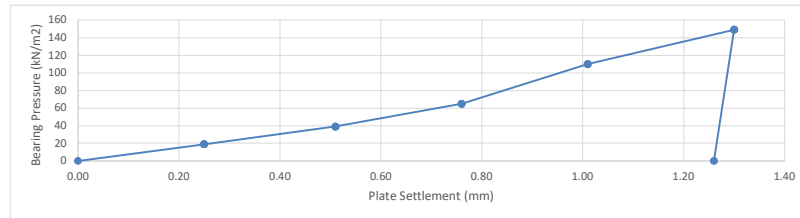
Approved Date:

29 July 2022

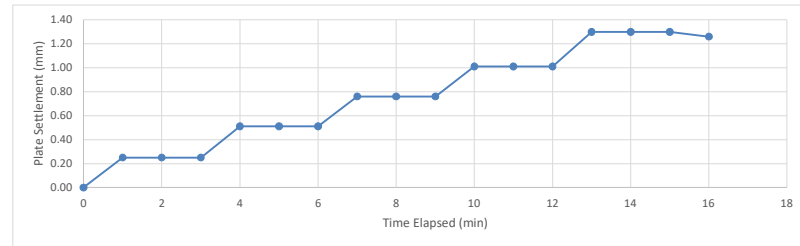
Test Report
Determination of the Vertical Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	Job Number	D10557AJ
Client	Groundwork Services (Durham) Limited	Date Tested	28/07/2022
	Thistle Road	Weather Conditions	Light Rain
	Littleburn Industrial Estate	Air Temperature °C	30°C
	Langley Moor	Sample Description	Clay
	DH7 8HJ	Reaction Load	18t Tracked Excavator
Depth of Test from Groundlevel	0	Denisty & Moisture	Not Requested
Plate Diameter (mm)	450	Test Location	CBR 5 54.922414-1.483388
	Distance between the edge of the plate and the wall of the excavation (mm)		N/A

Pressure Applied / Plate Settlement



Settlement / Time



Maximum Pressure Applied (kPa)	149	Maximum Deformation (mm)	1.30
Pressure at 1.25mm penetration (kPa)	142	Modulus of Subgrade Reaction (Mn/M²/M)	101.9
Calculated CBR (%) at 1.25mm	16		

In Accordance with CD225 Design for New Pavement Foundations, CBR Value has been calculated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superseded document HD 25/94

Comments:

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Test Carried Out By:

M. Smith

Materials Technician

Approved By:

Materials Director

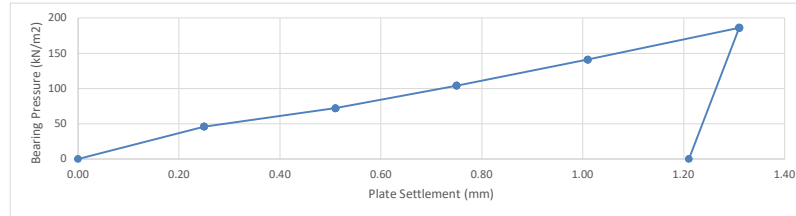
Approved Date:

29 July 2022

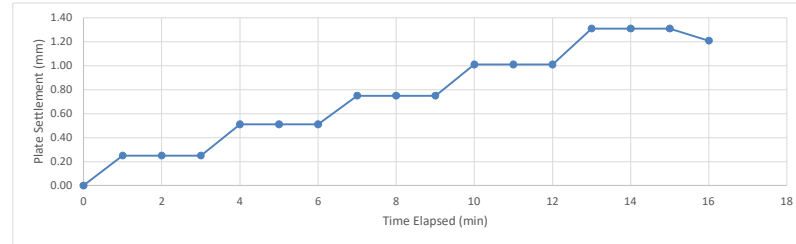
Test Report
Determination of the Vertical Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	Job Number	D10557AJ
Client	Groundwork Services (Durham) Limited	Date Tested	28/07/2022
	Thistle Road	Weather Conditions	Light Rain
	Littleburn Industrial Estate	Air Temperature °C	30°C
	Langley Moor	Sample Description	Clay
	DH7 8HJ	Reaction Load	18t Tracked Excavator
Depth of Test from Groundlevel	0	Denisty & Moisture	Not Requested
Plate Diameter (mm)	450	Test Location	CBR 6 54.922952-1.483789
	Distance between the edge of the plate and the wall of the excavation (mm)		N/A

Pressure Applied / Plate Settlement



Settlement / Time



Maximum Pressure Applied (kPa)	186	Maximum Deformation (mm)	1.31
Pressure at 1.25mm penetration (kPa)	177	Modulus of Subgrade Reaction (Mn/M²/M)	129.8
Calculated CBR (%) at 1.25mm	23		

In Accordance with CD225 Design for New Pavement Foundations, CBR Value has been calculated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superseded document HD 25/94

Comments:

Unless otherwise stated, this test has been carried out in accordance with the published standard, with no deviations from the test method outlined.

The published results are appertaining only to the locations tested and are correct at the time of testing.

Test Carried Out By:

M. Smith

Materials Technician

Approved By:

Materials Director

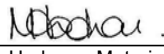

Approved Date:

29 July 2022

Test Report

Client	Groundwork Services (Durham) Limited
Address	Littleburn Industrial Estate Langley Moor Durham DH7 8HJ
F.A.O	Paul Barton
Project:	Giga One Factory, Washington
Project Number:	D10557Q
Report Number:	L22-502
Date Received:	2nd July 2022

Testing Required:	<p>Insitu Density by Core Cutter - BS:1377-9:1990 Clause 2.3</p> <p>Vertical Deformation and Strength Characteristics by the Incremental Plate Load Test - BS:1377-9:1990 Clause 4.1</p> <p>Determination of Equivalent CBR Value using the Plate Bearing Test - Design Manual for Roads and Bridges, Volume 7: Pavement Design and Maintenance - Foundations HD25/9</p> <p>Hand Shear Vane*</p>
Date Started:	2nd July 2022
Date Finished:	4th July 2022

Report Issue Date:	5th July 2022
Reviewed By:	 Natalie Hodson - Materials Director
Authorised By:	 Nik O'Brien - Laboratory Manager
Remarks:	(*) denotes testing is outside of UKAS Scope of Accreditation. (+) denotes subcontracted testing.

Samples will be stored for one month after the report has been issue before being disposed of.

The published results appertain only to the specimens tested.

Exploration and Testing Associates Limited, registered in England and Wales #11803869 at
 8B, Bowburn South Industrial Estate, Bowburn, Durham, DH6 5AD

Summary of in-situ density test results

Project No.			Project Name							
D10557Q			Giga One, Envision, Washington							
Test Position Reference	Test reference	Depth to top m	Date of test	Soil Description	Site conditions during test	Test Type <small>see below</small>	In-situ Bulk Density Mg/m ³	Moisture Content %	In-situ Dry Density Mg/m ³	Remarks
CC1	CC160		02/07/22	Clay	Dry	CCD	2.01	21	1.66	
CC2	CC161		02/07/22	Clay	Dry	CCD	2.13	20	1.78	
CC3	CC162		02/07/22	Clay	Dry	CCD	2.20	17	1.88	

Specifications BS 1377 : Part 2 : 1990 Clause 3 Moisture content by oven drying method BS 1377 : Part 9 : 1990 : In situ density tests, clauses : SRDS 2.1 Sand replacement method (Small pouring cylinder) SRDL 2.2 Sand replacement method (Large pouring cylinder) CCD 2.4 Core cutter method	Approved By Date 05/07/2022	N Hodson Materials Director 	UKAS Accredited Laboratory No. 20632
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TEST CERTIFICATE
Determination of the Shear Strength Using the Laboratory Handvane

Client: Groundwork Services (Durham) Ltd

Project No: D10557Q

Project: Envision, Washington

Date Tested: 2nd July 2022

Sampled By: D. Salt for ETA


Ambient Temperature: 17°C

Weather Conditions: Dry

Vane Used: Small

Comments:

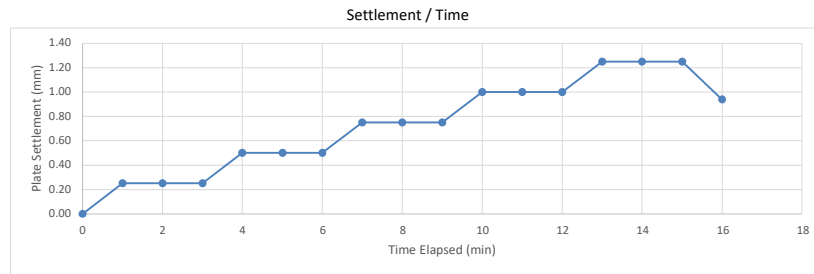
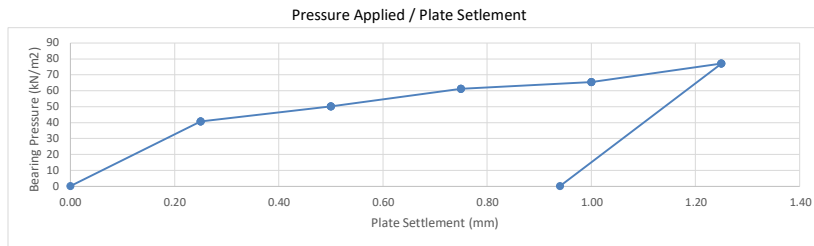
	CBR 1	CBR 2	CBR 3
Client Reference	1	2	3
Reading 1	7.2	8.2	8.4
Reading 2	7.2	7.8	8.4
Reading 3	8.4	7.8	8.6
Average Readings:	7.6	7.9	8.4
Equivalent Shear Stress (kN/m²)	152	159	169

Approved By: 
 N.Hodson
 Materials Director

Date: 4th July 2022

Test Report
Determination of the Vertical Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	Job Number	D10557Q
Client	Groundwork Services (Durham) Limited	Date Tested	02/07/2022
	Thistle Road	Weather Conditions	Cloudy
	Littleburn Industrial Estate	Air Temperature °C	11°C
	Langley Moor	Sample Description	Clay
	DH7 8HJ	Reaction Load	13t Tracked Excavator
Depth of Test from Groundlevel	0	Denisty & Moisture	Not Requested
Plate Diameter (mm)	450	Test Location	CBR1
		Distance between the edge of the plate and the wall of the excavation (mm)	N/A



Maximum Pressure Applied (kPa)	77	Maximum Deformation (mm)	1.25
Pressure at 1.25mm penetration (kPa)	77	Modulus of Subgrade Reaction (Mn/M²/M)	38.5
Calculated CBR (%) at 1.25mm	5		

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superceded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, CBR Value has been calculated in conjunction with superceded document HD 25/94

Comments:

Unless otherwise stated, this test has been carried out in accordance with the published standard, with no deviations from the test method outlined.

The published results are appertaining only to the locations tested

Test Carried Out By:

D. Salt

Materials Technician

Approved By:



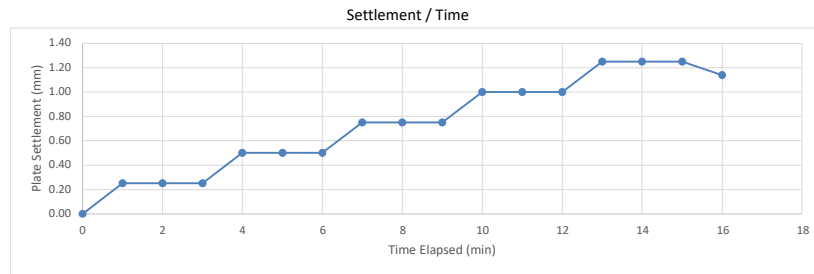
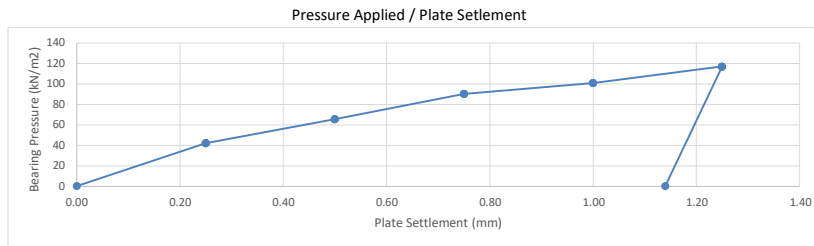
Materials Director

Approved Date:

04 July 2022

Test Report
Determination of the Vertical Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	Job Number	D10557Q
Client	Groundwork Services (Durham) Limited	Date Tested	02/07/2022
	Thistle Road	Weather Conditions	Cloudy
	Littleburn Industrial Estate	Air Temperature °C	11°C
	Langley Moor	Sample Description	Clay
	DH7 8HJ	Reaction Load	13t Tracked Excavator
Depth of Test from Groundlevel	0	Denisty & Moisture	Not Requested
Plate Diameter (mm)	450	Test Location	CBR2
		Distance between the edge of the plate and the wall of the excavation (mm)	N/A



Maximum Pressure Applied (kPa)	117	Maximum Deformation (mm)	1.25
Pressure at 1.25mm penetration (kPa)	117	Modulus of Subgrade Reaction (Mn/M²/M)	58.3
Calculated CBR (%) at 1.25mm	11		

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superceded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, CBR Value has been calculated in conjunction with superceded document HD 25/94

Comments:

Unless otherwise stated, this test has been carried out in accordance with the published standard, with no deviations from the test method outlined.

The published results are appertaining only to the locations tested

Test Carried Out By:

D. Salt

Materials Technician

Approved By:



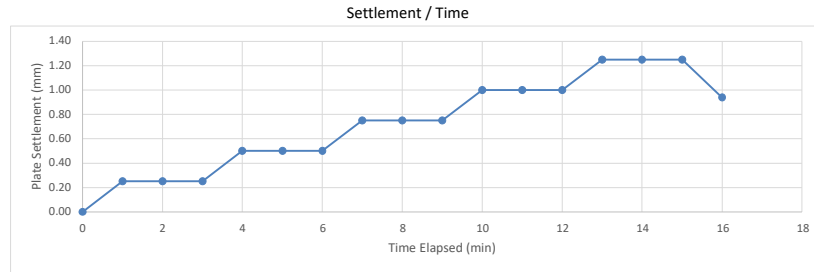
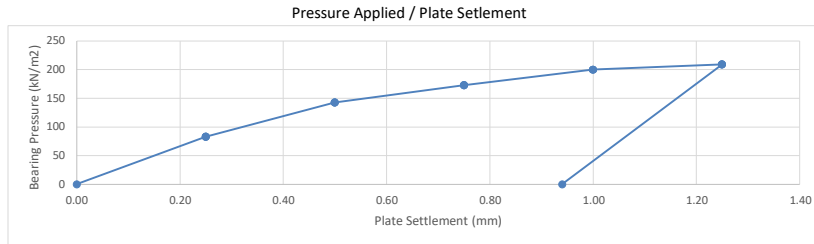
Materials Director

Approved Date:

04 July 2022

Test Report
Determination of the Vertical Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	Job Number	D10557Q
Client	Groundwork Services (Durham) Limited	Date Tested	02/07/2022
	Thistle Road	Weather Conditions	Cloudy
	Littleburn Industrial Estate	Air Temperature °C	11°C
	Langley Moor	Sample Description	Clay
	DH7 8HJ	Reaction Load	13t Tracked Excavator
Depth of Test from Groundlevel	0	Denisty & Moisture	Not Requested
Plate Diameter (mm)	450	Test Location	CBR3
		Distance between the edge of the plate and the wall of the excavation (mm)	N/A



Maximum Pressure Applied (kPa)	209	Maximum Deformation (mm)	1.25
Pressure at 1.25mm penetration (kPa)	209	Modulus of Subgrade Reaction (Mn/M²/M)	104.2
Calculated CBR (%) at 1.25mm	30		

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superceded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, CBR Value has been calculated in conjunction with superceded document HD 25/94

Comments:

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Test Carried Out By:

D. Salt

Materials Technician

Approved By:

Materials Director

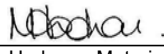

Approved Date:

04 July 2022

Test Report

Client	Groundwork Services (Durham) Limited
Address	Littleburn Industrial Estate Langley Moor Durham DH7 8HJ
F.A.O	Paul Barton
Project:	Giga One Factory, Washington
Project Number:	D10557Q
Report Number:	L22-502
Date Received:	2nd July 2022

Testing Required:	<p>Insitu Density by Core Cutter - BS:1377-9:1990 Clause 2.3</p> <p>Vertical Deformation and Strength Characteristics by the Incremental Plate Load Test - BS:1377-9:1990 Clause 4.1</p> <p>Determination of Equivalent CBR Value using the Plate Bearing Test - Design Manual for Roads and Bridges, Volume 7: Pavement Design and Maintenance - Foundations HD25/9</p> <p>Hand Shear Vane*</p>
Date Started:	2nd July 2022
Date Finished:	4th July 2022

Report Issue Date:	17th July 2022
Reviewed By:	 Natalie Hodson - Materials Director
Authorised By:	 Nik O'Brien - Laboratory Manager
Remarks:	(*) denotes testing is outside of UKAS Scope of Accreditation. (+) denotes subcontracted testing. Test location references updated as per GWS instruction.

Samples will be stored for one month after the report has been issue before being disposed of.

The published results appertain only to the specimens tested.

Exploration and Testing Associates Limited, registered in England and Wales #11803869 at
 8B, Bowburn South Industrial Estate, Bowburn, Durham, DH6 5AD

TEST CERTIFICATE
Determination of the Shear Strength Using the Laboratory Handvane

Client: Groundwork Services (Durham) Ltd

Project No: D10557Q

Project: Envision, Washington

Date Tested: 2nd July 2022

Sampled By: D. Salt for ETA

Ambient Temperature: 17°C

Weather Conditions: *Dry*

Vane Used: Small

Comments:

	CBR 1	CBR 2	CBR 3
Client Reference	1	2	3
Reading 1	7.2	8.2	8.4
Reading 2	7.2	7.8	8.4
Reading 3	8.4	7.8	8.6
Average Readings:	7.6	7.9	8.4
Equivalent Shear Stress (kN/m²)	152	159	169

Approved By:

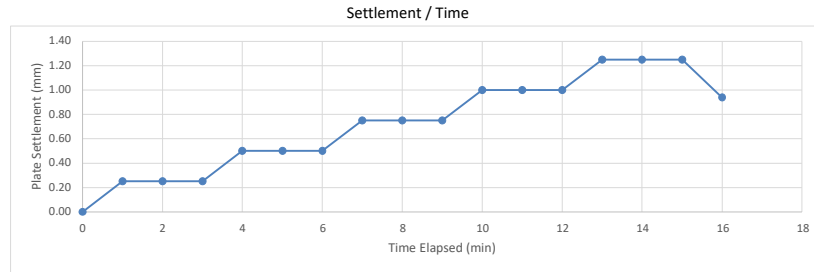
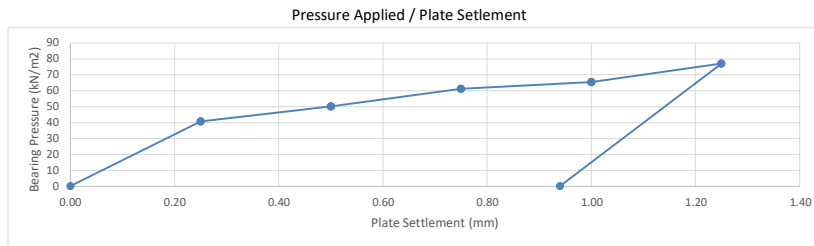


N.Hodson
Materials Director

Date: 4th July 2022

Test Report
Determination of the Vertical Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	Job Number	D10557Q
Client	Groundwork Services (Durham) Limited	Date Tested	02/07/2022
	Thistle Road	Weather Conditions	Cloudy
	Littleburn Industrial Estate	Air Temperature °C	11°C
	Langley Moor	Sample Description	Clay
	DH7 8HJ	Reaction Load	13t Tracked Excavator
Depth of Test from Groundlevel	0	Denisty & Moisture	Not Requested
Plate Diameter (mm)	450	Test Location	CBR1
		Distance between the edge of the plate and the wall of the excavation (mm)	N/A



Maximum Pressure Applied (kPa)	77	Maximum Deformation (mm)	1.25
Pressure at 1.25mm penetration (kPa)	77	Modulus of Subgrade Reaction (Mn/M²/M)	51.7
Calculated CBR (%) at 1.25mm	5		

In Accordance with CD225 Design for New Pavement Foundations, CBR Value has been calculated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superseded document HD 25/94

Comments:

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Test Carried Out By:

D. Salt

Materials Technician

Approved By:



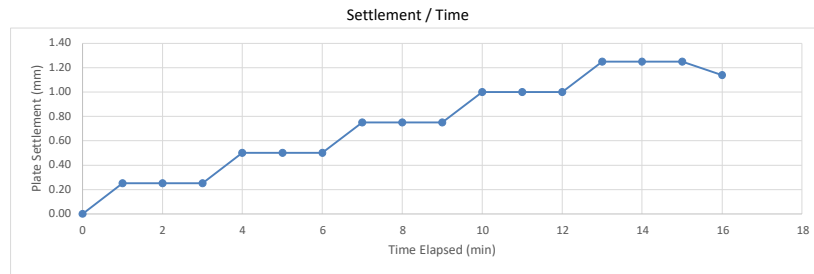
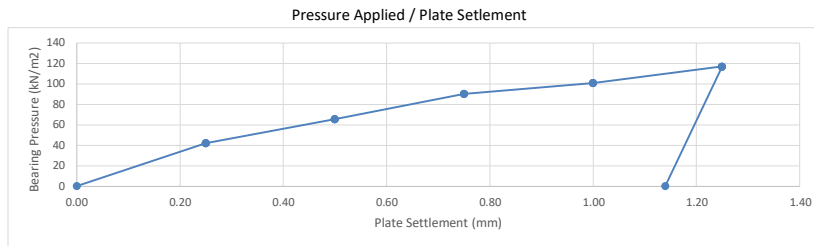
Materials Director

Approved Date:

04 July 2022

Test Report
Determination of the Vertical Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	Job Number	D10557Q
Client	Groundwork Services (Durham) Limited	Date Tested	02/07/2022
	Thistle Road	Weather Conditions	Cloudy
	Littleburn Industrial Estate	Air Temperature °C	11°C
	Langley Moor	Sample Description	Clay
	DH7 8HJ	Reaction Load	13t Tracked Excavator
Depth of Test from Groundlevel	0	Denisty & Moisture	Not Requested
Plate Diameter (mm)	450	Test Location	CBR2
		Distance between the edge of the plate and the wall of the excavation (mm)	N/A



Maximum Pressure Applied (kPa)	117	Maximum Deformation (mm)	1.25
Pressure at 1.25mm penetration (kPa)	117	Modulus of Subgrade Reaction (Mn/M²/M)	82.0
Calculated CBR (%) at 1.25mm	11		

In Accordance with CD225 Design for New Pavement Foundations, CBR Value has been calculated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superseded document HD 25/94

Comments:

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The published results are appertaining only to the locations tested

Test Carried Out By:

D. Salt

Materials Technician

Approved By:

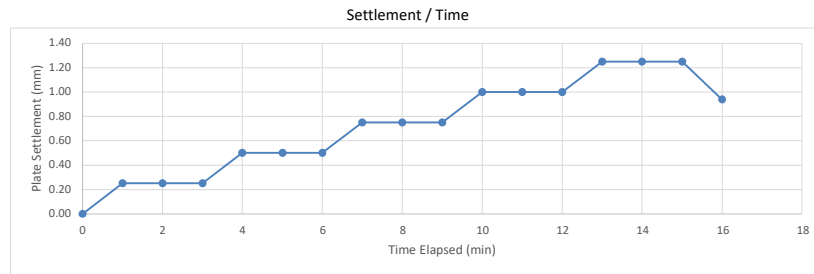
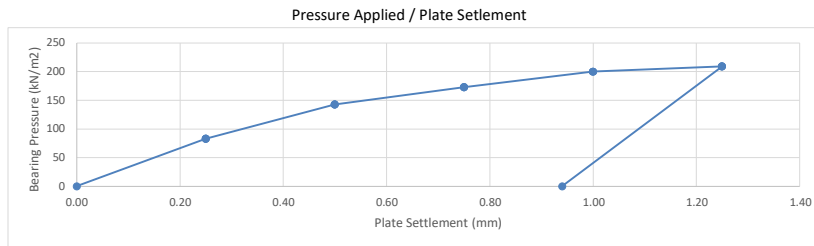
Materials Director

Approved Date:

04 July 2022

Test Report
Determination of the Vertical Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	Job Number	D10557Q
Client	Groundwork Services (Durham) Limited	Date Tested	02/07/2022
	Thistle Road	Weather Conditions	Cloudy
	Littleburn Industrial Estate	Air Temperature °C	11°C
	Langley Moor	Sample Description	Clay
	DH7 8HJ	Reaction Load	13t Tracked Excavator
Depth of Test from Groundlevel	0	Denisty & Moisture	Not Requested
Plate Diameter (mm)	450	Test Location	CBR3
		Distance between the edge of the plate and the wall of the excavation (mm)	N/A



Maximum Pressure Applied (kPa)	209	Maximum Deformation (mm)	1.25
Pressure at 1.25mm penetration (kPa)	209	Modulus of Subgrade Reaction (Mn/M²/M)	156.1
Calculated CBR (%) at 1.25mm	30		

In Accordance with CD225 Design for New Pavement Foundations, CBR Value has been calculated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superseded document HD 25/94

Comments:

Unless otherwise stated, this test has been carried out in accordance with the published standard, with no deviations from the test method outlined.

The published results are appertaining only to the locations tested

Test Carried Out By:

D. Salt

Materials Technician

Approved By:

Materials Director



Approved Date:

04 July 2022

Test Report

Client	Groundwork Services (Durham) Limited
Address	Littleburn Industrial Estate Langley Moor Durham DH7 8HJ
F.A.O	Paul Barton
Project:	Giga One Factory, Washington
Project Number:	D10557R
Report Number:	L22-503
Date Received:	4th July 2022

Testing Required:	<p>Insitu Density by Core Cutter - BS:1377-9:1990 Clause 2.3</p> <p>Vertical Deformation and Strength Characteristics by the Incremental Plate Load Test - BS:1377-9:1990 Clause 4.1</p> <p>Determination of Equivalent CBR Value using the Plate Bearing Test - Design Manual for Roads and Bridges, Volume 7: Pavement Design and Maintenance - Foundations HD25/9</p> <p>Hand Shear Vane*</p> <p>In-Situ Density by Sand Replacement Test - Large Pouring Cylinder - BS:1377-9:1990 Clause 2.2</p>
Date Started:	4th July 2022
Date Finished:	5th July 2022

Report Issue Date:	5th July 2022
Reviewed By:	 Natalie Hodson - Materials Director
Authorised By:	 Nik O'Brien - Laboratory Manager
Remarks:	(*) denotes testing is outside of UKAS Scope of Accreditation. (+) denotes subcontracted testing.


Samples will be stored for one month after the report has been issue before being disposed of.

The published results appertain only to the specimens tested.

Exploration and Testing Associates Limited, registered in England and Wales #11803869 at
8B, Bowburn South Industrial Estate, Bowburn, Durham, DH6 5AD


Summary of in-situ density test results

Project No.			Project Name							
D10557R			Giga One, Envision, Washington							
Test Position Reference	Test reference	Depth to top m	Date of test	Soil Description	Site conditions during test	Test Type <small>see below</small>	In-situ Bulk Density Mg/m ³	Moisture Content %	In-situ Dry Density Mg/m ³	Remarks
E433304_N 559102	CC163		04/07/22	Clay	Cloudy	CCD	2.05	20	1.71	
E433305_N 559103	CC164		04/07/22	Clay	Cloudy	CCD	2.06	16	1.78	
E433302_N 559103	CC165		04/07/22	Clay	Cloudy	CCD	2.02	14	1.77	
E433291_N 559097	CC166		04/07/22	Clay	Cloudy	CCD	2.01	20	1.67	
E433293_N 559099	CC167		04/07/22	Clay	Cloudy	CCD	2.03	20	1.69	
E433292_N 559098	CC168		04/07/22	Clay	Cloudy	CCD	1.99	20	1.66	
E433301_N 559074	CC169		04/07/22	Clay	Cloudy	CCD	2.04	17	1.74	
E433300_N 559074	CC170		04/07/22	Clay	Cloudy	CCD	2.01	18	1.70	
E433301_N 559074	CC171		04/07/22	Clay	Cloudy	CCD	2.04	18	1.74	
E433286_N 559069	CC172		04/07/22	Clay	Cloudy	CCD	2.05	16	1.77	
E433286_N 559068	CC173		04/07/22	Clay	Cloudy	CCD	2.04	19	1.72	
E433285_N 559068	CC174		04/07/22	Clay	Cloudy	CCD	2.05	18	1.74	

Specifications BS 1377 : Part 2 : 1990 Clause 3 Moisture content by oven drying method BS 1377 : Part 9 : 1990 : In situ density tests, clauses : SRDS 2.1 Sand replacement method (Small pouring cylinder) SRDL 2.2 Sand replacement method (Large pouring cylinder) CCD 2.4 Core cutter method	Approved By Date 06/07/2022	N O'Brien Laboratory Manager 	UKAS Accredited Laboratory No. 20632
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Summary of in-situ density test results

Project No.			Project Name							
D10557R			Giga One, Envision, Washington							
Test Position Reference	Test reference	Depth to top m	Date of test	Soil Description	Site conditions during test	Test Type <small>see below</small>	In-situ Bulk Density Mg/m ³	Moisture Content %	In-situ Dry Density Mg/m ³	Remarks
E433285_N 559045	CC175		04/07/22	Clay	Cloudy	CCD	1.95	14	1.72	
E433285_N 559046	CC176		04/07/22	Clay	Cloudy	CCD	2.00	18	1.69	
E433285_N 559045	CC177		04/07/22	Clay	Cloudy	CCD	2.11	18	1.79	
E433274_N 559061	CC178		04/07/22	Clay	Cloudy	CCD	2.08	17	1.77	
E433275_N 559063	CC179		04/07/22	Clay	Cloudy	CCD	2.02	10	1.84	
E433274_N 559062	CC180		04/07/22	Clay	Cloudy	CCD	1.99	8.3	1.84	
E433293_N 559027	CC181		04/07/22	Clay	Cloudy	CCD	2.01	18	1.71	
E433291_N 559027	CC182		04/07/22	Clay	Cloudy	CCD	2.03	17	1.73	
E433292_N 559026	CC183		04/07/22	Clay	Cloudy	CCD	2.05	19	1.73	

Specifications BS 1377 : Part 2 : 1990 Clause 3 Moisture content by oven drying method BS 1377 : Part 9 : 1990 : In situ density tests, clauses : SRDS 2.1 Sand replacement method (Small pouring cylinder) SRDL 2.2 Sand replacement method (Large pouring cylinder) CCD 2.4 Core cutter method	Approved By Date 06/07/2022	N O'Brien Laboratory Manager 	UKAS Accredited Laboratory No. 20632
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Summary of in-situ density test results

Project No.				Project Name							
D10557R				Giga One, Washington							
Test Position Reference	Test reference	Test No.	Depth to top m	Date of test	Soil Description	Site conditions during test	Test Type <small>see below</small>	In-situ Bulk Density Mg/m ³	Moisture Content %	In-situ Dry Density Mg/m ³	Remarks
SRT1	SRT1	SRT1	0.00	04/07/22	Brown, Slightly Sandy CLAY	Cloudy, 16C	SRDL	2.05	20	1.71	
SRT2	SRT2	SRT2	0.00	04/07/22	Brown, Slightly Sandy CLAY	Cloudy, 16C	SRDL	2.01	22	1.65	

Specifications BS 1377 : Part 2 : 1990 Clause 3 Moisture content by oven drying method BS 1377 : Part 9 : 1990 : In situ density tests, clauses : SRDS 2.1 Sand replacement method (Small pouring cylinder) SRDL 2.2 Sand replacement method (Large pouring cylinder) CCD 2.4 Core cutter method	Approved By Date 05/07/2022	N O'Brien Laboratory Manager 	UKAS Accredited Laboratory No. 20632
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TEST CERTIFICATE
Determination of the Shear Strength Using the Laboratory Handvane

Client: Groundwork Services (Durham) Ltd

Project No: D10557R

Project: Envision, Washington

Date Tested: 4th July 2022

Sampled By: D. Tennant for ETA

Ambient Temperature: 16°C


Weather Conditions: Dry

Vane Used: Small

Comments:

	E433304- N559102	E433305- N559103	E433302- N559103	E433291- N559097	E433293- N559099	E433292- N559098
Client Reference	1	2	3	4	5	6
Reading 1	12.0	12.0	12.0	9.6	12.0	11.0
Reading 2	8.2	12.0	11.4	11.0	10.4	12.0
Reading 3	11.0	12.0	12.0	11.8	12.0	12.0
Average Readings:	10.4	12.0	11.8	10.8	11.4	11.6
Equivalent Shear Stress (kN/m²)	208	240	236	216	229	233
	E433301- N559074	E433300- N559074	E433301- N559074	E433286- N559069	E433286- N559068	E433285- N559068
Client Reference	7	8	9	10	11	12
Reading 1	11.4	10.8	12.0	8.8	12.0	12.0
Reading 2	12.0	10.0	12.0	12.0	12.0	8.8
Reading 3	10.0	11.0	10.4	11.8	12.0	10.6
Average Readings:	11.1	10.6	11.4	10.8	12.0	10.8
Equivalent Shear Stress (kN/m²)	223	212	229	217	240	217
	E433285- N559045	E433285- N559046	E433285- N559045	E433274- N559016	E433275- N559063	E433274- N559062
Client Reference	13	14	15	16	17	18
Reading 1	12.0	11.8	8.8	11.4	12.0	11.4
Reading 2	10.0	11.2	10.0	8.6	12.0	12.0
Reading 3	11.4	12.0	11.0	12.0	11.0	12.0
Average Readings:	11.1	11.6	9.9	10.6	11.6	11.8
Equivalent Shear Stress (kN/m²)	223	233	199	213	233	236

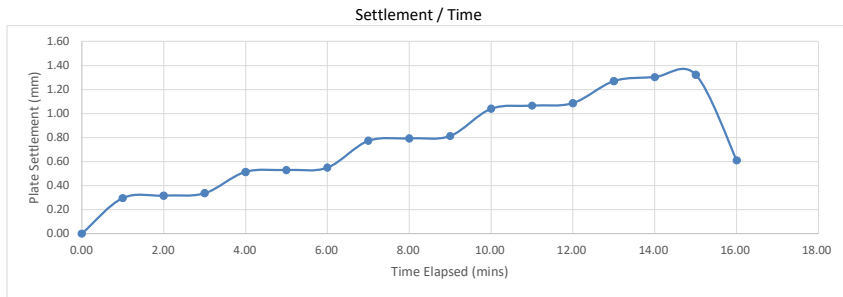
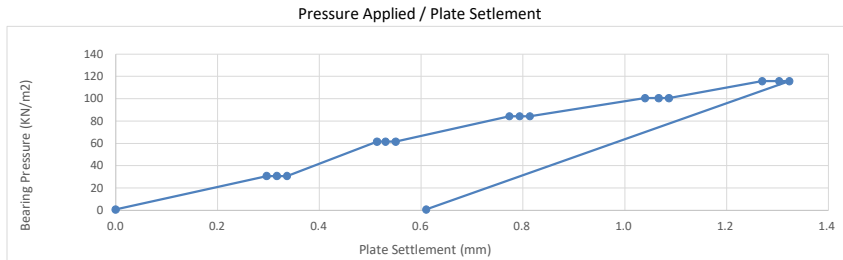
	E433293- N559027	E433291- N559027	E433292- N559026			
Client Reference	19	20	21			
Reading 1	12.0	8.6	12.0			
Reading 2	10.8	9.8	11.8			
Reading 3	10.8	10.2	8.6			
Average Readings:	11.2	9.5	10.8			
Equivalent Shear Stress (kN/m²)	224	191	216			

Approved By: 
N.Hodson
Materials Director

Date: 5th July 2022

Test Report
Determination of the Vertical Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	Job Number	D10557R
Client	Groundwork Services (Durham) Limited Thistle Road Littleburn Industrial Estate	Date Tested	04/07/2022
		Weather Conditions	Cloudy
		Air Temperature °C	15°C
		Sample Description	Clay
		Reaction Load	21t Tracked Excavator
Depth of Test from Groundlevel	0	Denisty & Moisture	Not Requested
Plate Diameter (mm)	450	Test Location	CBR 1 N433305 E559103
		Distance between the edge of the plate and the wall of the excavation (mm)	N/A



Maximum Pressure Applied (kPa)	116	Maximum Deformation (mm)	1.32
Pressure at 1.25mm penetration (kPa)	114	Modulus of Subgrade Reaction (Mn/M²/M)	56.8
Calculated CBR (%) at 1.25mm	11		

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superceded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, CBR Value has been calculated in conjunction with superceded document HD 25/94

Comments:

Unless otherwise stated, this test has been carried out in accordance with the published standard, with no deviations from the test method outlined.

The published results are appertaining only to the locations tested

Test Carried Out By:

D. Tennant

Materials Technician

Approved By:

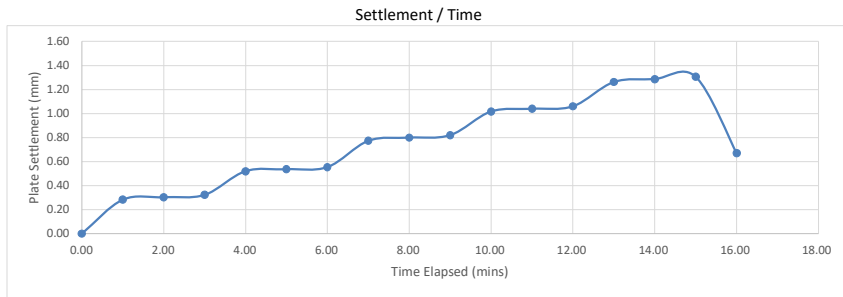
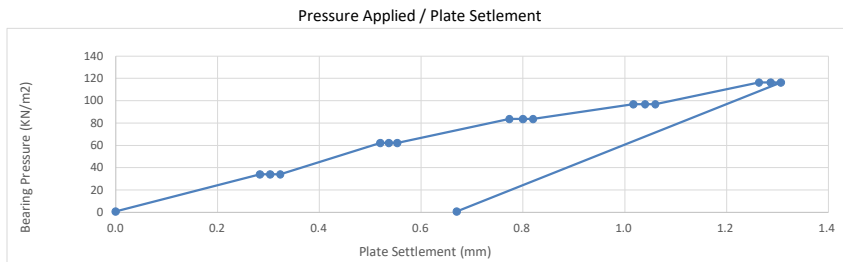
Materials Director

Approved Date:

05 July 2022

Test Report
Determination of the Vertical Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	Job Number	D10557R
Client	Groundwork Services (Durham) Limited Thistle Road Littleburn Industrial Estate	Date Tested	04/07/2022
		Weather Conditions	Cloudy
		Air Temperature °C	15°C
		Sample Description	Clay
		Reaction Load	21t Tracked Excavator
Depth of Test from Groundlevel	0	Density & Moisture	Not Requested
Plate Diameter (mm)	450	Test Location	CBR 2 N433291 E559095
		Distance between the edge of the plate and the wall of the excavation (mm)	N/A



Maximum Pressure Applied (kPa)	116	Maximum Deformation (mm)	1.31
Pressure at 1.25mm penetration (kPa)	115	Modulus of Subgrade Reaction (Mn/M²/M)	57.3
Calculated CBR (%) at 1.25mm	11		

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superceded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, CBR Value has been calculated in conjunction with superceded document HD 25/94

Comments:

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Test Carried Out By:

D. Tennant

Materials Technician

Approved By:

Materials Director

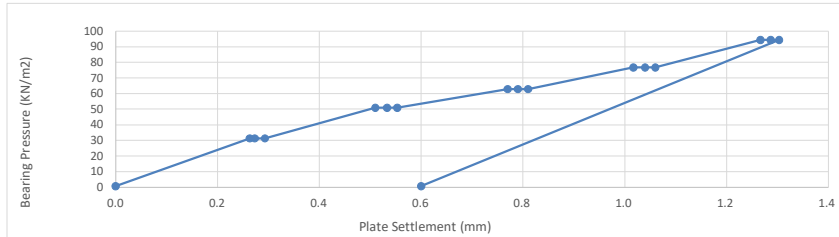
Approved Date:

05 July 2022

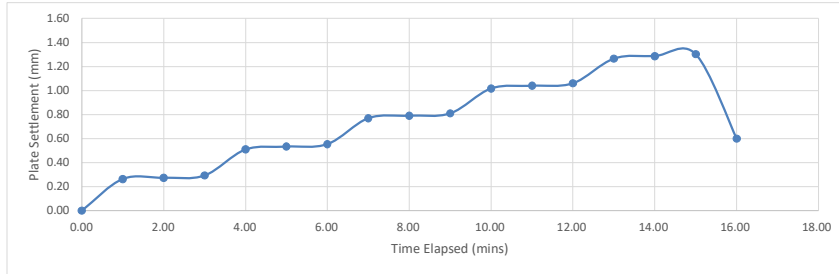
Test Report
Determination of the Vertical Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	Job Number	D10557R
Client	Groundwork Services (Durham) Limited Thistle Road Littleburn Industrial Estate	Date Tested	04/07/2022
		Weather Conditions	Cloudy
		Air Temperature °C	15°C
		Sample Description	Clay
		Reaction Load	21t Tracked Excavator
Depth of Test from Groundlevel	0	Density & Moisture	Not Requested
Plate Diameter (mm)	450	Test Location	CBR 3 N433274 E559089
		Distance between the edge of the plate and the wall of the excavation (mm)	N/A

Pressure Applied / Plate Settlement



Settlement / Time



Maximum Pressure Applied (kPa)	94	Maximum Deformation (mm)	1.30
Pressure at 1.25mm penetration (kPa)	93	Modulus of Subgrade Reaction (Mn/M²/M)	46.3
Calculated CBR (%) at 1.25mm	7		

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superceded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, CBR Value has been calculated in conjunction with superceded document HD 25/94

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Materials Technician

Approved By:

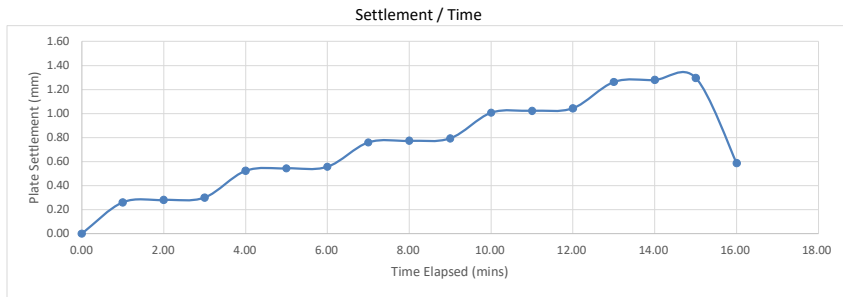
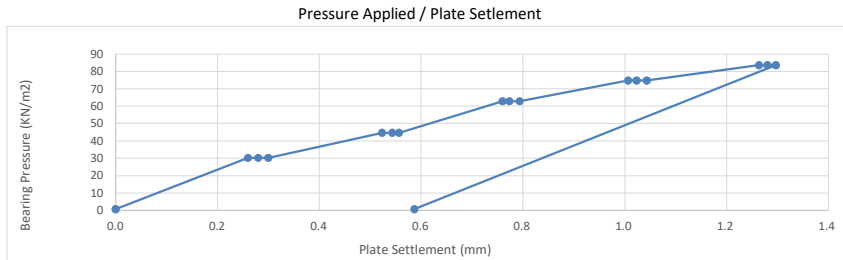
Materials Director

Approved Date:

05 July 2022

Test Report
Determination of the Vertical Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	Job Number	D10557R
Client	Groundwork Services (Durham) Limited Thistle Road Littleburn Industrial Estate	Date Tested	04/07/2022
		Weather Conditions	Cloudy
		Air Temperature °C	15°C
		Sample Description	Clay
		Reaction Load	21t Tracked Excavator
Depth of Test from Groundlevel	0	Density & Moisture	Not Requested
Plate Diameter (mm)	450	Test Location	CBR 4 N43315 E559086
		Distance between the edge of the plate and the wall of the excavation (mm)	N/A



Maximum Pressure Applied (kPa)	84	Maximum Deformation (mm)	1.30
Pressure at 1.25mm penetration (kPa)	83	Modulus of Subgrade Reaction (Mn/M²/M)	41.4
Calculated CBR (%) at 1.25mm	6		

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superceded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, CBR Value has been calculated in conjunction with superceded document HD 25/94

Comments:

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Test Carried Out By:

D. Tennant

Materials Technician

Approved By:

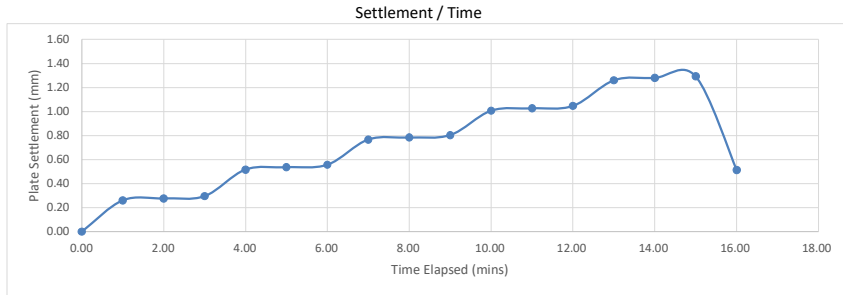
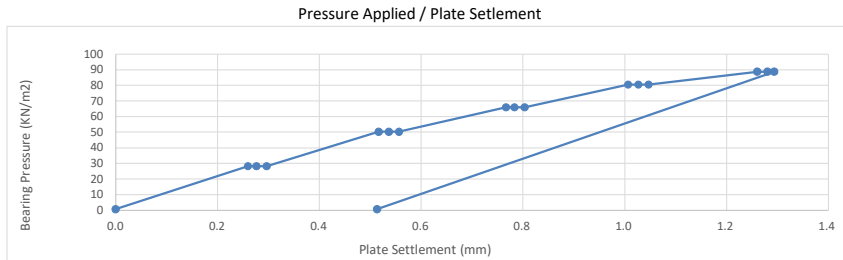
Materials Director

Approved Date:

05 July 2022

Test Report
Determination of the Vertical Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	Job Number	D10557R
Client	Groundwork Services (Durham) Limited Thistle Road Littleburn Industrial Estate	Date Tested	04/07/2022
		Weather Conditions	Cloudy
		Air Temperature °C	15°C
		Sample Description	Clay
		Reaction Load	21t Tracked Excavator
Depth of Test from Groundlevel	0	Denisty & Moisture	Not Requested
Plate Diameter (mm)	450	Test Location	CBR 5 N433301 E559075
		Distance between the edge of the plate and the wall of the excavation (mm)	N/A



Maximum Pressure Applied (kPa)	89	Maximum Deformation (mm)	1.29
Pressure at 1.25mm penetration (kPa)	88	Modulus of Subgrade Reaction (Mn/M²/M)	44.0
Calculated CBR (%) at 1.25mm	7		

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superceded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, CBR Value has been calculated in conjunction with superceded document HD 25/94

Comments:

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Test Carried Out By:

D. Tennant

Materials Technician

Approved By:

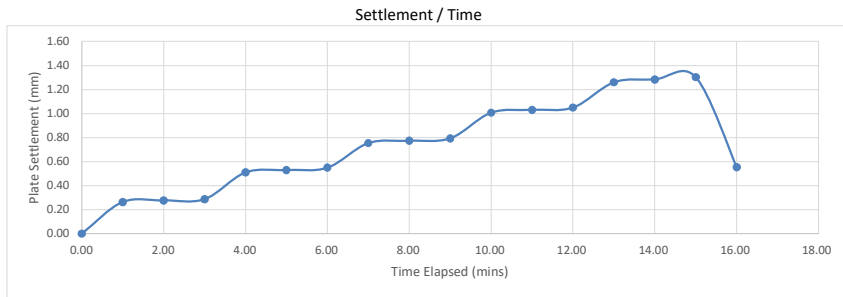
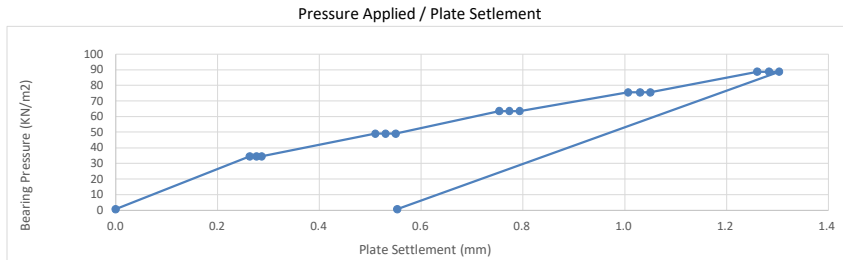
Materials Director

Approved Date:

05 July 2022

Test Report
Determination of the Vertical Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	Job Number	D10557R
Client	Groundwork Services (Durham) Limited Thistle Road Littleburn Industrial Estate	Date Tested	04/07/2022
		Weather Conditions	Cloudy
		Air Temperature °C	15°C
		Sample Description	Clay
		Reaction Load	21t Tracked Excavator
Depth of Test from Groundlevel	0	Denisty & Moisture	Not Requested
Plate Diameter (mm)	450	Test Location	CBR 6 N433286 E559068
		Distance between the edge of the plate and the wall of the excavation (mm)	N/A



Maximum Pressure Applied (kPa)	89	Maximum Deformation (mm)	1.30
Pressure at 1.25mm penetration (kPa)	88	Modulus of Subgrade Reaction (Mn/M²/M)	43.9
Calculated CBR (%) at 1.25mm	7		

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superceded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, CBR Value has been calculated in conjunction with superceded document HD 25/94

Comments:

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Test Carried Out By:

D. Tennant

Materials Technician

Approved By:

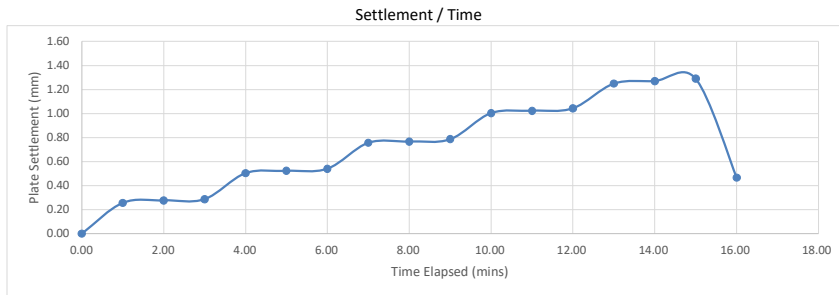
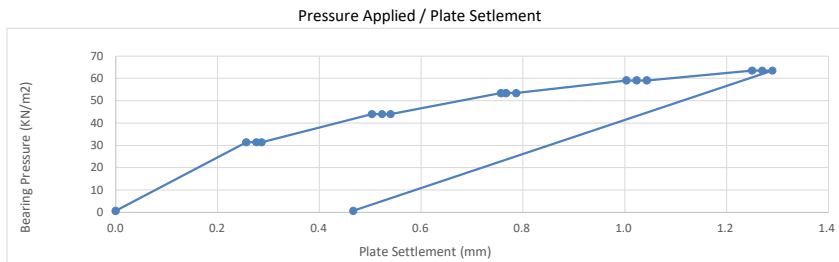
Materials Director

Approved Date:

05 July 2022

Test Report
Determination of the Vertical Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	Job Number	D10557R
Client	Groundwork Services (Durham) Limited Thistle Road Littleburn Industrial Estate	Date Tested	04/07/2022
		Weather Conditions	Cloudy
		Air Temperature °C	15°C
		Sample Description	Clay
		Reaction Load	21t Tracked Excavator
Depth of Test from Groundlevel	0	Denisty & Moisture	Not Requested
Plate Diameter (mm)	450	Test Location	CBR 7 N433274 E559063
		Distance between the edge of the plate and the wall of the excavation (mm)	N/A



Maximum Pressure Applied (kPa)	64	Maximum Deformation (mm)	1.29
Pressure at 1.25mm penetration (kPa)	64	Modulus of Subgrade Reaction (Mn/M²/M)	31.7
Calculated CBR (%) at 1.25mm	4		

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superceded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, CBR Value has been calculated in conjunction with superceded document HD 25/94

Comments:

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Test Carried Out By:

D. Tennant

Materials Technician

Approved By:

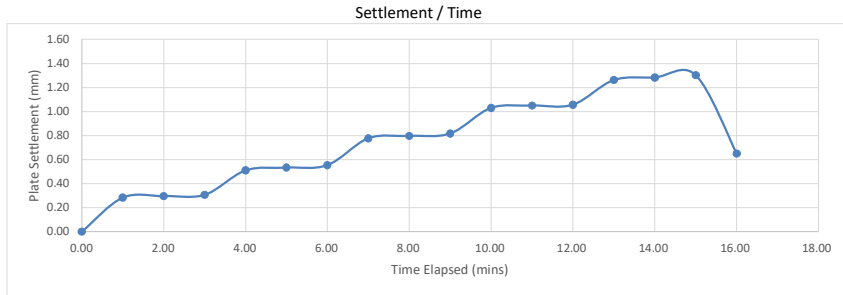
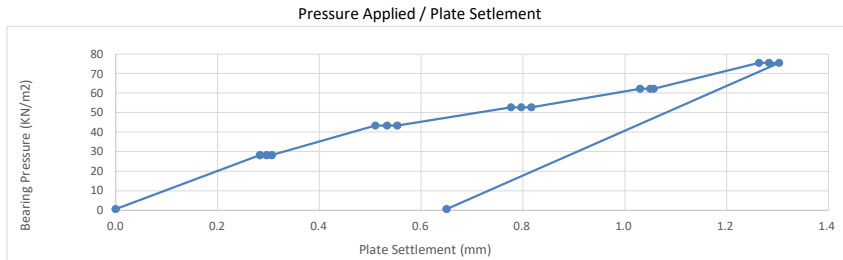
Materials Director

Approved Date:

05 July 2022

Test Report
Determination of the Vertical Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	Job Number	D10557R
Client	Groundwork Services (Durham) Limited Thistle Road Littleburn Industrial Estate	Date Tested	04/07/2022
		Weather Conditions	Cloudy
		Air Temperature °C	15°C
		Sample Description	Clay
		Reaction Load	21t Tracked Excavator
Depth of Test from Groundlevel	0	Density & Moisture	Not Requested
Plate Diameter (mm)	450	Test Location	CBR 8 N433285 E559046
		Distance between the edge of the plate and the wall of the excavation (mm)	N/A



Maximum Pressure Applied (kPa)	76	Maximum Deformation (mm)	1.30
Pressure at 1.25mm penetration (kPa)	75	Modulus of Subgrade Reaction (Mn/M²/M)	37.2
Calculated CBR (%) at 1.25mm	5		

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superceded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, CBR Value has been calculated in conjunction with superceded document HD 25/94

Comments:

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The published results are appertaining only to the locations tested

Test Carried Out By:

D. Tennant

Materials Technician

Approved By:

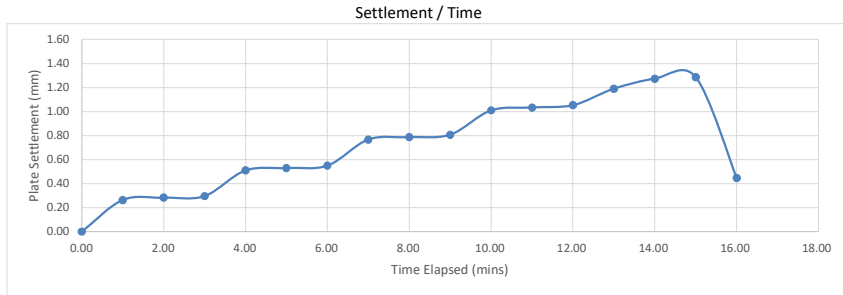
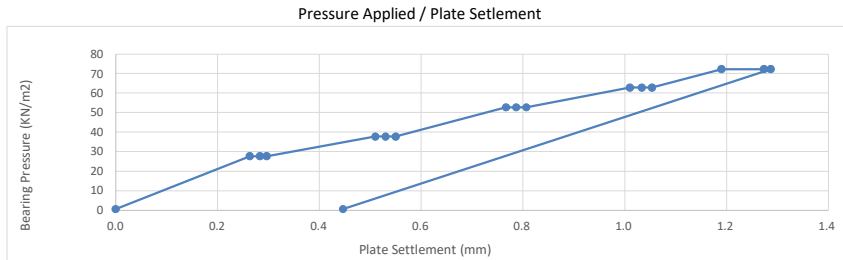
Materials Director

Approved Date:

05 July 2022

Test Report
Determination of the Vertical Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	Job Number	D10557R
Client	Groundwork Services (Durham) Limited Thistle Road Littleburn Industrial Estate	Date Tested	04/07/2022
		Weather Conditions	Cloudy
		Air Temperature °C	15°C
		Sample Description	Clay
		Reaction Load	21t Tracked Excavator
Depth of Test from Groundlevel	0	Density & Moisture	Not Requested
Plate Diameter (mm)	450	Test Location	CBR 9 N433293 E559027
		Distance between the edge of the plate and the wall of the excavation (mm)	N/A



Maximum Pressure Applied (kPa)	72	Maximum Deformation (mm)	1.29
Pressure at 1.25mm penetration (kPa)	72	Modulus of Subgrade Reaction (Mn/M²/M)	36.0
Calculated CBR (%) at 1.25mm	5		

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superceded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, CBR Value has been calculated in conjunction with superceded document HD 25/94

Comments:

Unless otherwise stated, this test has been carried out in accordance with the published standard, with no deviations from the test method outlined.

The published results are appertaining only to the locations tested

Test Carried Out By:
 D. Tennant
 Materials Technician

Approved By:



 Materials Director

Approved Date: 05 July 2022

Test Report

Client	Groundwork Services (Durham) Limited
Address	Littleburn Industrial Estate Langley Moor Durham DH7 8HJ
F.A.O	Paul Barton
Project:	Giga One Factory, Washington
Project Number:	D10557R
Report Number:	L22-503-1
Date Received:	4th July 2022

Testing Required:	<p>Insitu Density by Core Cutter - BS:1377-9:1990 Clause 2.3</p> <p>Vertical Deformation and Strength Characteristics by the Incremental Plate Load Test - BS:1377-9:1990 Clause 4.1</p> <p>Determination of Equivalent CBR Value using the Plate Bearing Test - Design Manual for Roads and Bridges, Volume 7: Pavement Design and Maintenance - Foundations HD25/9</p> <p>Hand Shear Vane*</p> <p>In-Situ Density by Sand Replacement Test - Large Pouring Cylinder - BS:1377-9:1990 Clause 2.2</p>
Date Started:	4th July 2022
Date Finished:	5th July 2022

Report Issue Date:	17th July 2022
Reviewed By:	 Natalie Hodson - Materials Director
Authorised By:	 Nik O'Brien - Laboratory Manager
Remarks:	(*) denotes testing is outside of UKAS Scope of Accreditation. (+) denotes subcontracted testing. Test reference locations updated as per GWS instruction.


Samples will be stored for one month after the report has been issue before being disposed of.

The published results appertain only to the specimens tested.

Exploration and Testing Associates Limited, registered in England and Wales #11803869 at
8B, Bowburn South Industrial Estate, Bowburn, Durham, DH6 5AD


Summary of in-situ density test results

Project No.			Project Name							
D10557R			Giga One, Envision, Washington							
Test Position Reference	Test reference	Depth to top m	Date of test	Soil Description	Site conditions during test	Test Type <small>see below</small>	In-situ Bulk Density Mg/m ³	Moisture Content %	In-situ Dry Density Mg/m ³	Remarks
E433304_N 559102	CC163		04/07/22	Clay	Cloudy	CCD	2.05	20	1.71	CTW - Zone 3
E433305_N 559103	CC164		04/07/22	Clay	Cloudy	CCD	2.06	16	1.78	CTW - Zone 3
E433302_N 559103	CC165		04/07/22	Clay	Cloudy	CCD	2.02	14	1.77	CTW - Zone 3
E433291_N 559097	CC166		04/07/22	Clay	Cloudy	CCD	2.01	20	1.67	CTW - Zone 3
E433293_N 559099	CC167		04/07/22	Clay	Cloudy	CCD	2.03	20	1.69	CTW - Zone 3
E433292_N 559098	CC168		04/07/22	Clay	Cloudy	CCD	1.99	20	1.66	CTW - Zone 3
E433301_N 559074	CC169		04/07/22	Clay	Cloudy	CCD	2.04	17	1.74	CTW - Zone 3
E433300_N 559074	CC170		04/07/22	Clay	Cloudy	CCD	2.01	18	1.70	CTW - Zone 3
E433301_N 559074	CC171		04/07/22	Clay	Cloudy	CCD	2.04	18	1.74	CTW - Zone 3
E433286_N 559069	CC172		04/07/22	Clay	Cloudy	CCD	2.05	16	1.77	CTW - Zone 3
E433286_N 559068	CC173		04/07/22	Clay	Cloudy	CCD	2.04	19	1.72	CTW - Zone 3
E433285_N 559068	CC174		04/07/22	Clay	Cloudy	CCD	2.05	18	1.74	CTW - Zone 3

Specifications BS 1377 : Part 2 : 1990 Clause 3 Moisture content by oven drying method BS 1377 : Part 9 : 1990 : In situ density tests, clauses : SRDS 2.1 Sand replacement method (Small pouring cylinder) SRDL 2.2 Sand replacement method (Large pouring cylinder) CCD 2.4 Core cutter method	Approved By Date 17/07/2022	N O'Brien Laboratory Manager 	UKAS Accredited Laboratory No. 20632
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Summary of in-situ density test results

Project No.			Project Name							
D10557R			Giga One, Envision, Washington							
Test Position Reference	Test reference	Depth to top m	Date of test	Soil Description	Site conditions during test	Test Type <small>see below</small>	In-situ Bulk Density Mg/m ³	Moisture Content %	In-situ Dry Density Mg/m ³	Remarks
E433285_N 559045	CC175		04/07/22	Clay	Cloudy	CCD	1.95	14	1.72	CTW - Zone 3
E433285_N 559046	CC176		04/07/22	Clay	Cloudy	CCD	2.00	18	1.69	CTW - Zone 3
E433285_N 559045	CC177		04/07/22	Clay	Cloudy	CCD	2.11	18	1.79	CTW - Zone 3
E433274_N 559061	CC178		04/07/22	Clay	Cloudy	CCD	2.08	17	1.77	CTW - Zone 3
E433275_N 559063	CC179		04/07/22	Clay	Cloudy	CCD	2.02	10	1.84	CTW - Zone 3
E433274_N 559062	CC180		04/07/22	Clay	Cloudy	CCD	1.99	8.3	1.84	CTW - Zone 3
E433293_N 559027	CC181		04/07/22	Clay	Cloudy	CCD	2.01	18	1.71	CTW - Zone 3
E433291_N 559027	CC182		04/07/22	Clay	Cloudy	CCD	2.03	17	1.73	CTW - Zone 3
E433292_N 559026	CC183		04/07/22	Clay	Cloudy	CCD	2.05	19	1.73	CTW - Zone 3

Specifications BS 1377 : Part 2 : 1990 Clause 3 Moisture content by oven drying method BS 1377 : Part 9 : 1990 : In situ density tests, clauses : SRDS 2.1 Sand replacement method (Small pouring cylinder) SRDL 2.2 Sand replacement method (Large pouring cylinder) CCD 2.4 Core cutter method	Approved By Date 17/07/2022	N O'Brien Laboratory Manager 	UKAS Accredited Laboratory No. 20632
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Summary of in-situ density test results

Project No.				Project Name							
D10557R				Giga One, Washington							
Test Position Reference	Test reference	Test No.	Depth to top m	Date of test	Soil Description	Site conditions during test	Test Type <small>see below</small>	In-situ Bulk Density Mg/m ³	Moisture Content %	In-situ Dry Density Mg/m ³	Remarks
E433306 N559087 CC159 & CC158-RT	SRT1	SRT1	0.00	04/07/22	Brown, Slightly Sandy CLAY	Cloudy, 16C	SRDL	2.05	20	1.71	CTW - Zone 3
E433321 N559024 CC134 & CC135-RT	SRT2	SRT2	0.00	04/07/22	Brown, Slightly Sandy CLAY	Cloudy, 16C	SRDL	2.01	22	1.65	CTW - Zone 3

Specifications BS 1377 : Part 2 : 1990 Clause 3 Moisture content by oven drying method BS 1377 : Part 9 : 1990 : In situ density tests, clauses : SRDS 2.1 Sand replacement method (Small pouring cylinder) SRDL 2.2 Sand replacement method (Large pouring cylinder) CCD 2.4 Core cutter method	Approved By Date 17/07/2022	N O'Brien Laboratory Manager 	UKAS Accredited Laboratory No. 20632

TEST CERTIFICATE
Determination of the Shear Strength Using the Laboratory Handvane

Client: Groundwork Services (Durham) Ltd

Project No: D10557R

Project: Envision, Washington

Date Tested: 4th July 2022

Sampled By: D. Tennant for ETA

Ambient Temperature: 16°C


Weather Conditions: Dry

Vane Used: Small

Comments:

	E433304- N559102	E433305- N559103	E433302- N559103	E433291- N559097	E433293- N559099	E433292- N559098
Client Reference	1	2	3	4	5	6
Reading 1	12.0	12.0	12.0	9.6	12.0	11.0
Reading 2	8.2	12.0	11.4	11.0	10.4	12.0
Reading 3	11.0	12.0	12.0	11.8	12.0	12.0
Average Readings:	10.4	12.0	11.8	10.8	11.4	11.6
Equivalent Shear Stress (kN/m²)	208	240	236	216	229	233
	E433301- N559074	E433300- N559074	E433301- N559074	E433286- N559069	E433286- N559068	E433285- N559068
Client Reference	7	8	9	10	11	12
Reading 1	11.4	10.8	12.0	8.8	12.0	12.0
Reading 2	12.0	10.0	12.0	12.0	12.0	8.8
Reading 3	10.0	11.0	10.4	11.8	12.0	10.6
Average Readings:	11.1	10.6	11.4	10.8	12.0	10.8
Equivalent Shear Stress (kN/m²)	223	212	229	217	240	217
	E433285- N559045	E433285- N559046	E433285- N559045	E433274- N559016	E433275- N559063	E433274- N559062
Client Reference	13	14	15	16	17	18
Reading 1	12.0	11.8	8.8	11.4	12.0	11.4
Reading 2	10.0	11.2	10.0	8.6	12.0	12.0
Reading 3	11.4	12.0	11.0	12.0	11.0	12.0
Average Readings:	11.1	11.6	9.9	10.6	11.6	11.8
Equivalent Shear Stress (kN/m²)	223	233	199	213	233	236

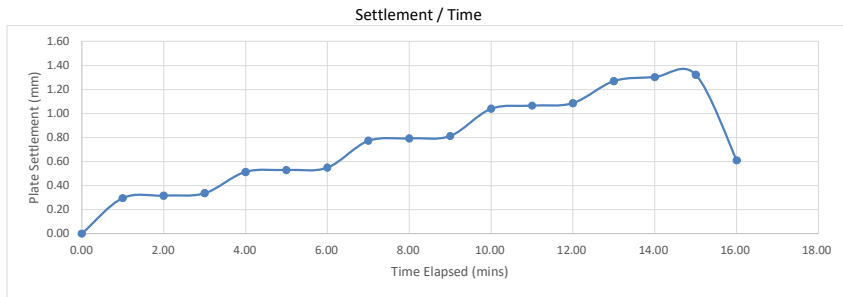
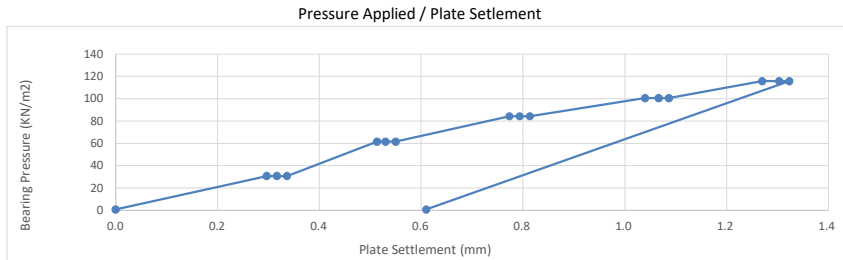
	E433293- N559027	E433291- N559027	E433292- N559026			
Client Reference	19	20	21			
Reading 1	12.0	8.6	12.0			
Reading 2	10.8	9.8	11.8			
Reading 3	10.8	10.2	8.6			
Average Readings:	11.2	9.5	10.8			
Equivalent Shear Stress (kN/m²)	224	191	216			

Approved By: 
N.Hodson
Materials Director

Date: 5th July 2022

Test Report
Determination of the Vertical Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	Job Number	D10557R
Client	Groundwork Services (Durham) Limited Thistle Road Littleburn Industrial Estate	Date Tested	04/07/2022
		Weather Conditions	Cloudy
		Air Temperature °C	15°C
		Sample Description	Clay
		Reaction Load	21t Tracked Excavator
Depth of Test from Groundlevel	0	Density & Moisture	Not Requested
Plate Diameter (mm)	450	Test Location	CBR 1 N433305 E559103
		Distance between the edge of the plate and the wall of the excavation (mm)	N/A



Maximum Pressure Applied (kPa)	116	Maximum Deformation (mm)	1.32
Pressure at 1.25mm penetration (kPa)	114	Modulus of Subgrade Reaction (Mn/M²/M)	79.7
Calculated CBR (%) at 1.25mm	11		

In Accordance with CD225 Design for New Pavement Foundations, CBR Value has been calculated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superseded document HD 25/94

Comments:

Unless otherwise stated, this test has been carried out in accordance with the published standard, with no deviations from the test method outlined.

The published results are appertaining only to the locations tested

Test Carried Out By:

D. Tennant

Materials Technician

Approved By:

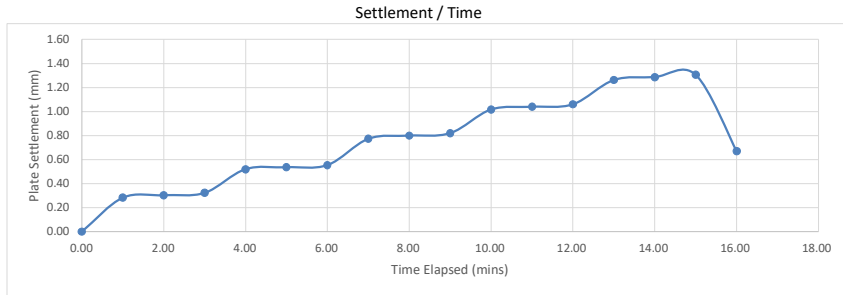
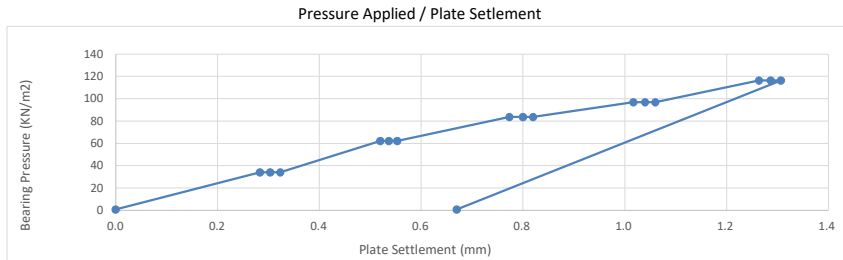
Materials Director

Approved Date:

05 July 2022

Test Report
Determination of the Vertical Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	Job Number	D10557R
Client	Groundwork Services (Durham) Limited Thistle Road Littleburn Industrial Estate	Date Tested	04/07/2022
		Weather Conditions	Cloudy
		Air Temperature °C	15°C
		Sample Description	Clay
		Reaction Load	21t Tracked Excavator
Depth of Test from Groundlevel	0	Density & Moisture	Not Requested
Plate Diameter (mm)	450	Test Location	CBR 2 N433291 E559095
		Distance between the edge of the plate and the wall of the excavation (mm)	N/A



Maximum Pressure Applied (kPa)	116	Maximum Deformation (mm)	1.31
Pressure at 1.25mm penetration (kPa)	115	Modulus of Subgrade Reaction (Mn/M²/M)	80.5
Calculated CBR (%) at 1.25mm	11		

In Accordance with CD225 Design for New Pavement Foundations, CBR Value has been calculated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superseded document HD 25/94

Comments:

Unless otherwise stated, this test has been carried out in accordance with the published standard, with no deviations from the test method outlined.

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Test Carried Out By:

D. Tennant

Materials Technician

Approved By:

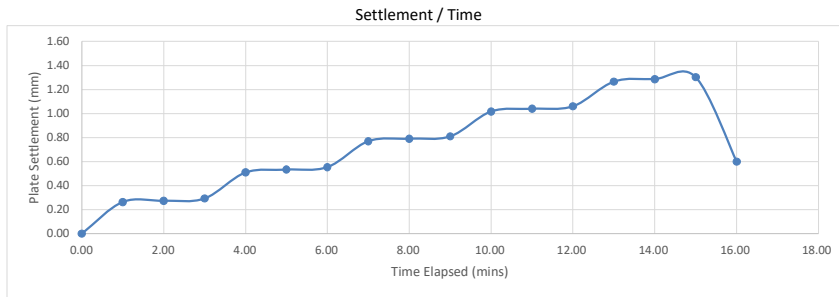
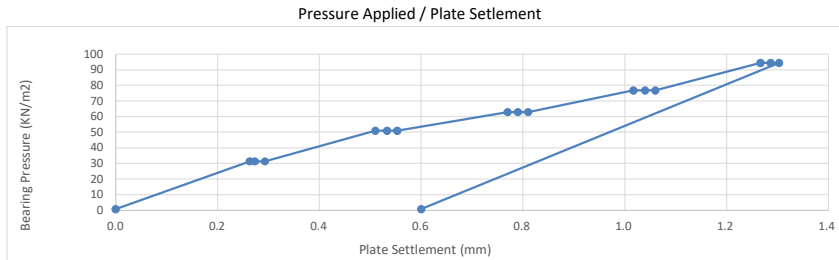
Materials Director

Approved Date:

05 July 2022

Test Report
Determination of the Vertical Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	Job Number	D10557R
Client	Groundwork Services (Durham) Limited Thistle Road Littleburn Industrial Estate	Date Tested	04/07/2022
		Weather Conditions	Cloudy
		Air Temperature °C	15°C
		Sample Description	Clay
		Reaction Load	21t Tracked Excavator
Depth of Test from Groundlevel	0	Density & Moisture	Not Requested
Plate Diameter (mm)	450	Test Location	CBR 3 N433274 E559089
		Distance between the edge of the plate and the wall of the excavation (mm)	N/A



Maximum Pressure Applied (kPa)	94	Maximum Deformation (mm)	1.30
Pressure at 1.25mm penetration (kPa)	93	Modulus of Subgrade Reaction (Mn/M²/M)	63.5
Calculated CBR (%) at 1.25mm	7		

In Accordance with CD225 Design for New Pavement Foundations, CBR Value has been calculated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superseded document HD 25/94

Comments:

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Test Carried Out By:

D. Tennant

Materials Technician

Approved By:

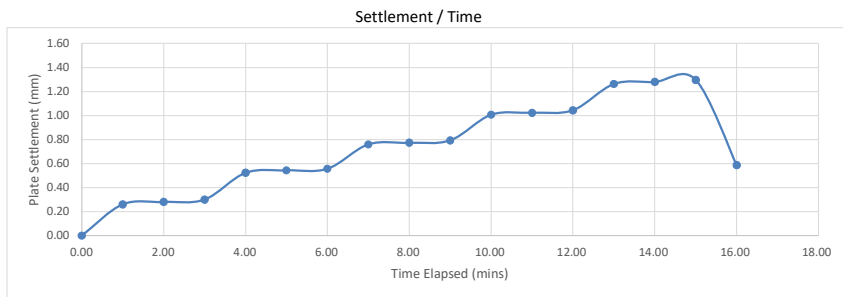
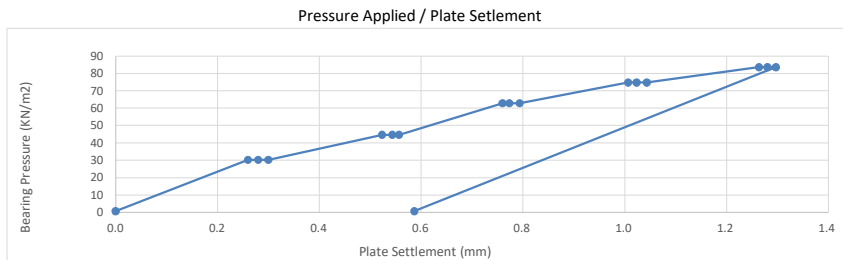
Materials Director

Approved Date:

05 July 2022

Test Report
Determination of the Vertical Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	Job Number	D10557R
Client	Groundwork Services (Durham) Limited Thistle Road Littleburn Industrial Estate	Date Tested	04/07/2022
		Weather Conditions	Cloudy
		Air Temperature °C	15°C
		Sample Description	Clay
		Reaction Load	21t Tracked Excavator
Depth of Test from Groundlevel	0	Density & Moisture	Not Requested
Plate Diameter (mm)	450	Test Location	CBR 4 N43315 E559086
		Distance between the edge of the plate and the wall of the excavation (mm)	N/A



Maximum Pressure Applied (kPa)	84	Maximum Deformation (mm)	1.30
Pressure at 1.25mm penetration (kPa)	83	Modulus of Subgrade Reaction (Mn/M²/M)	56.1
Calculated CBR (%) at 1.25mm	6		

In Accordance with CD225 Design for New Pavement Foundations, CBR Value has been calculated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superseded document HD 25/94

Comments:

Unless otherwise stated, this test has been carried out in accordance with the published standard, with no deviations from the test method outlined.

The published results are appertaining only to the locations tested

Test Carried Out By:

D. Tennant

Materials Technician

Approved By:

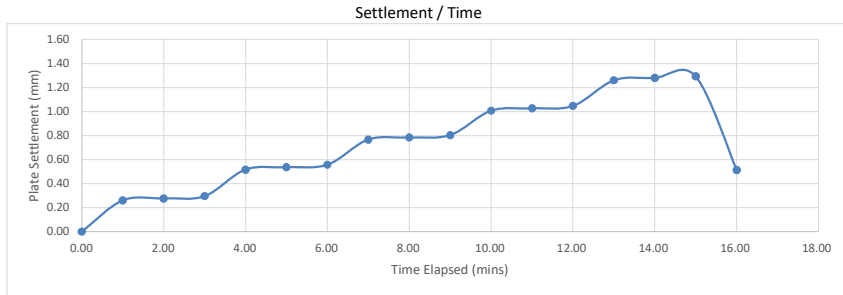
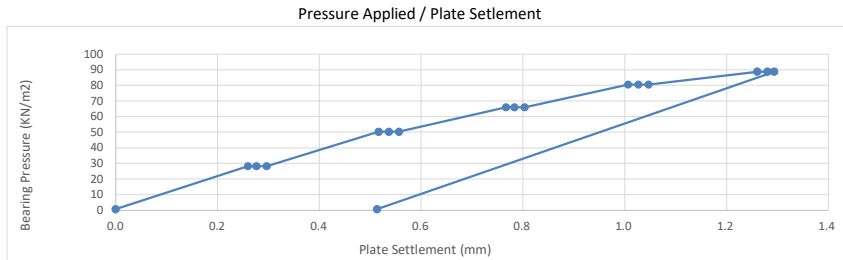
Materials Director

Approved Date:

05 July 2022

Test Report
Determination of the Vertical Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	Job Number	D10557R
Client	Groundwork Services (Durham) Limited Thistle Road Littleburn Industrial Estate	Date Tested	04/07/2022
		Weather Conditions	Cloudy
		Air Temperature °C	15°C
		Sample Description	Clay
		Reaction Load	21t Tracked Excavator
Depth of Test from Groundlevel	0	Density & Moisture	Not Requested
Plate Diameter (mm)	450	Test Location	CBR 5 N433301 E559075
		Distance between the edge of the plate and the wall of the excavation (mm)	N/A



Maximum Pressure Applied (kPa)	89	Maximum Deformation (mm)	1.29
Pressure at 1.25mm penetration (kPa)	88	Modulus of Subgrade Reaction (Mn/M²/M)	60.0
Calculated CBR (%) at 1.25mm	7		

In Accordance with CD225 Design for New Pavement Foundations, CBR Value has been calculated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superseded document HD 25/94

Comments:

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The published results are appertaining only to the locations tested

Test Carried Out By:

D. Tennant

Materials Technician

Approved By:

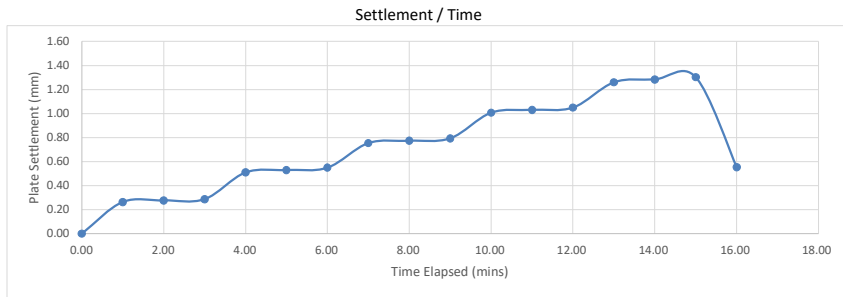
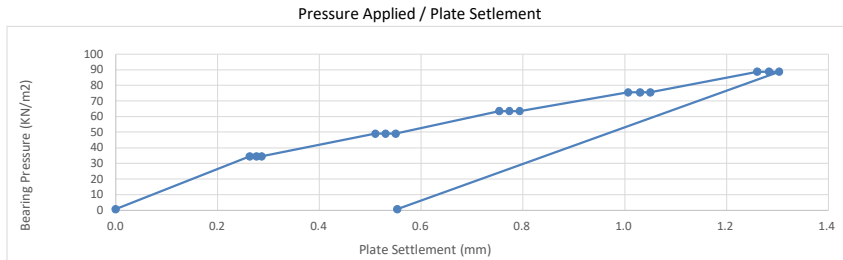
Materials Director

Approved Date:

05 July 2022

Test Report
Determination of the Vertical Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	Job Number	D10557R
Client	Groundwork Services (Durham) Limited Thistle Road Littleburn Industrial Estate	Date Tested	04/07/2022
		Weather Conditions	Cloudy
		Air Temperature °C	15°C
		Sample Description	Clay
		Reaction Load	21t Tracked Excavator
Depth of Test from Groundlevel	0	Density & Moisture	Not Requested
Plate Diameter (mm)	450	Test Location	CBR 6 N433286 E559068
		Distance between the edge of the plate and the wall of the excavation (mm)	N/A



Maximum Pressure Applied (kPa)	89	Maximum Deformation (mm)	1.30
Pressure at 1.25mm penetration (kPa)	88	Modulus of Subgrade Reaction (Mn/M²/M)	59.8
Calculated CBR (%) at 1.25mm	7		

In Accordance with CD225 Design for New Pavement Foundations, CBR Value has been calculated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superseded document HD 25/94

Comments:

Unless otherwise stated, this test has been carried out in accordance with the published standard, with no deviations from the test method outlined.

The published results are appertaining only to the locations tested

Test Carried Out By:

D. Tennant

Materials Technician

Approved By:

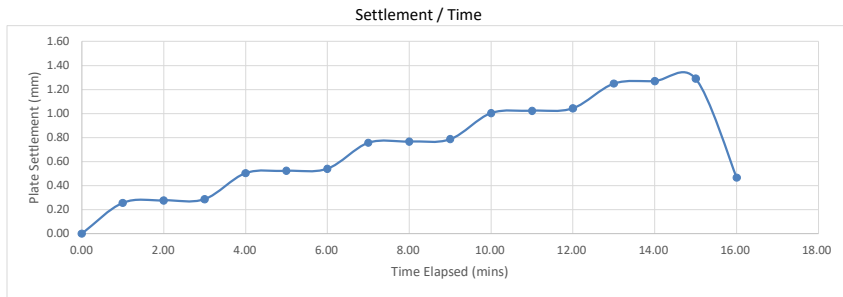
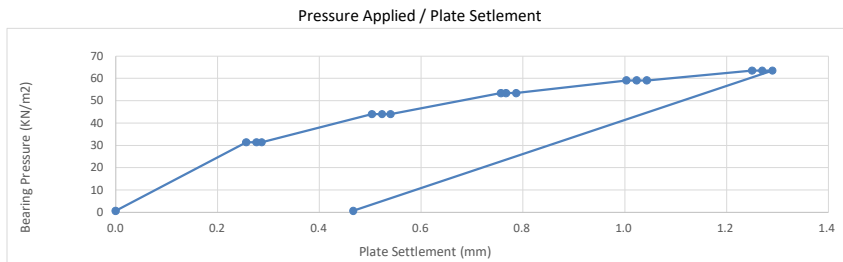
Materials Director

Approved Date:

05 July 2022

Test Report
Determination of the Vertical Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	Job Number	D10557R
Client	Groundwork Services (Durham) Limited Thistle Road Littleburn Industrial Estate	Date Tested	04/07/2022
		Weather Conditions	Cloudy
		Air Temperature °C	15°C
		Sample Description	Clay
		Reaction Load	21t Tracked Excavator
Depth of Test from Groundlevel	0	Density & Moisture	Not Requested
Plate Diameter (mm)	450	Test Location	CBR 7 N433274 E559063
		Distance between the edge of the plate and the wall of the excavation (mm)	N/A



Maximum Pressure Applied (kPa)	64	Maximum Deformation (mm)	1.29
Pressure at 1.25mm penetration (kPa)	64	Modulus of Subgrade Reaction (Mn/M²/M)	41.6
Calculated CBR (%) at 1.25mm	4		

In Accordance with CD225 Design for New Pavement Foundations, CBR Value has been calculated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superseded document HD 25/94

Comments:

Unless otherwise stated, this test has been carried out in accordance with the published standard, with no deviations from the test method outlined.

The published results are appertaining only to the locations tested

Test Carried Out By:

D. Tennant

Materials Technician

Approved By:

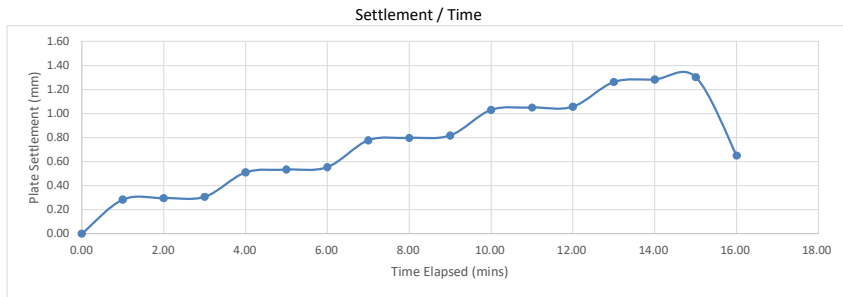
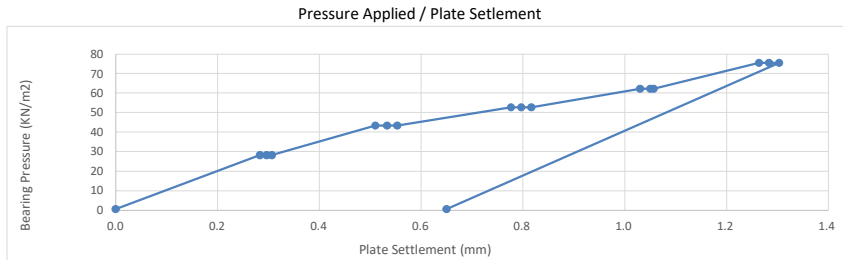
Materials Director

Approved Date:

05 July 2022

Test Report
Determination of the Vertical Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envison, Washington	Job Number	D10557R
Client	Groundwork Services (Durham) Limited Thistle Road Littleburn Industrial Estate	Date Tested	04/07/2022
		Weather Conditions	Cloudy
		Air Temperature °C	15°C
		Sample Description	Clay
		Reaction Load	21t Tracked Excavator
Depth of Test from Groundlevel	0	Density & Moisture	Not Requested
Plate Diameter (mm)	450	Test Location	CBR 8 N433285 E559046
		Distance between the edge of the plate and the wall of the excavation (mm)	N/A



Maximum Pressure Applied (kPa)	76	Maximum Deformation (mm)	1.30
Pressure at 1.25mm penetration (kPa)	75	Modulus of Subgrade Reaction (Mn/M²/M)	49.8
Calculated CBR (%) at 1.25mm	5		

In Accordance with CD225 Design for New Pavement Foundations, CBR Value has been calculated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superseded document HD 25/94

Comments:

Unless otherwise stated, this test has been carried out in accordance with the published standard, with no deviations from the test method outlined.

The published results are appertaining only to the locations tested

Test Carried Out By:

 D. Tennant
 Materials Technician

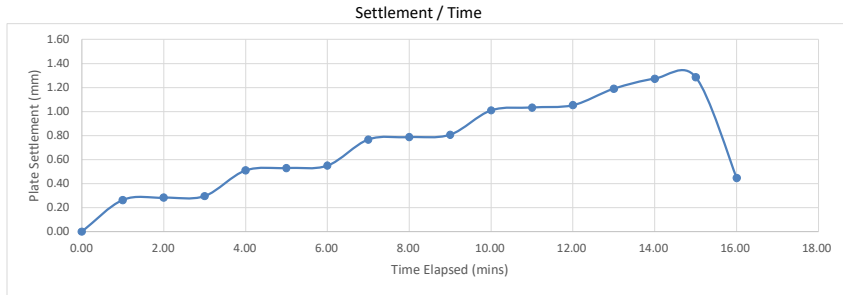
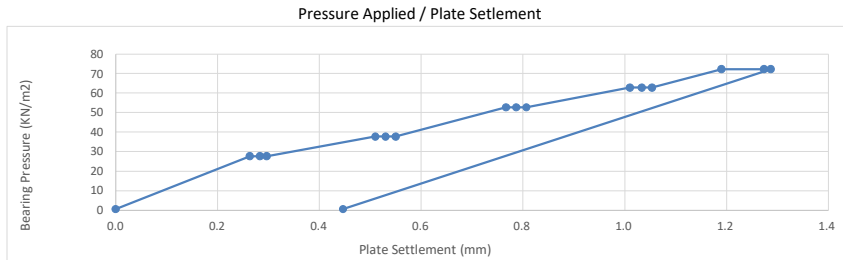
Approved By:

 Materials Director

Approved Date: 05 July 2022

Test Report
Determination of the Vertical Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	Job Number	D10557R
Client	Groundwork Services (Durham) Limited Thistle Road Littleburn Industrial Estate	Date Tested	04/07/2022
		Weather Conditions	Cloudy
		Air Temperature °C	15°C
		Sample Description	Clay
		Reaction Load	21t Tracked Excavator
Depth of Test from Groundlevel	0	Density & Moisture	Not Requested
Plate Diameter (mm)	450	Test Location	CBR 9 N433293 E559027
		Distance between the edge of the plate and the wall of the excavation (mm)	N/A



Maximum Pressure Applied (kPa)	72	Maximum Deformation (mm)	1.29
Pressure at 1.25mm penetration (kPa)	72	Modulus of Subgrade Reaction (Mn/M²/M)	48.1
Calculated CBR (%) at 1.25mm	5		

In Accordance with CD225 Design for New Pavement Foundations, CBR Value has been calculated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superseded document HD 25/94

Comments:

Unless otherwise stated, this test has been carried out in accordance with the published standard, with no deviations from the test method outlined.

The published results are appertaining only to the locations tested

Test Carried Out By:

D. Tennant

Materials Technician

Approved By:

Materials Director



Approved Date:

05 July 2022

Test Report

Client	Groundwork Services (Durham) Limited
Address	Littleburn Industrial Estate Langley Moor Durham DH7 8HJ
F.A.O	Paul Barton
Project:	Giga One Factory, Washington
Project Number:	D10557S
Report Number:	L22-509
Date Received:	5th July 2022

Testing Required:	<p>Insitu Density by Core Cutter - BS:1377-9:1990 Clause 2.3</p> <p>Vertical Deformation and Strength Characteristics by the Incremental Plate Load Test - BS:1377-9:1990 Clause 4.1</p> <p>Determination of Equivalent CBR Value using the Plate Bearing Test - Design Manual for Roads and Bridges, Volume 7: Pavement Design and Maintenance - Foundations HD25/9</p> <p>Hand Shear Vane*</p>
Date Started:	5th July 2022
Date Finished:	6th July 2022

Report Issue Date:	6th July 2022
Reviewed By:	 Natalie Hodson - Materials Director
Authorised By:	 Nik O'Brien - Laboratory Manager
Remarks:	(*) denotes testing is outside of UKAS Scope of Accreditation. (+) denotes subcontracted testing.


Samples will be stored for one month after the report has been issue before being disposed of.

The published results appertain only to the specimens tested.

Exploration and Testing Associates Limited, registered in England and Wales #11803869 at
 8B, Bowburn South Industrial Estate, Bowburn, Durham, DH6 5AD

Summary of in-situ density test results

Project No.			Project Name							
D10557S			Giga One, Envision, Washington							
Test Position Reference	Test reference	Depth to top m	Date of test	Soil Description	Site conditions during test	Test Type <small>see below</small>	In-situ Bulk Density Mg/m ³	Moisture Content %	In-situ Dry Density Mg/m ³	Remarks
E433373_N 559101	CC184		05/07/22	Clay	Cloudy	CCD	2.03	17	1.74	
E433371_N 559102	CC185		05/07/22	Clay	Cloudy	CCD	2.05	16	1.77	
E433379_N 559088	CC186		05/07/22	Clay	Cloudy	CCD	2.02	18	1.71	
E433377_N 559087	CC187		05/07/22	Clay	Cloudy	CCD	2.00	17	1.71	
E433383_N 559074	CC188		05/07/22	Clay	Cloudy	CCD	2.03	15	1.76	
E433384_N 559076	CC189		05/07/22	Clay	Cloudy	CCD	2.07	16	1.78	
E433347_N 559097	CC190		05/07/22	Clay	Cloudy	CCD	2.04	16	1.75	
E433348_N 559097	CC191		05/07/22	Clay	Cloudy	CCD	2.04	17	1.74	
E433359_N 559080	CC192		05/07/22	Clay	Cloudy	CCD	2.03	28	1.58	
E433359_N 559081	CC193		05/07/22	Clay	Cloudy	CCD	2.06	16	1.78	
E433367_N 559060	CC194		05/07/22	Clay	Cloudy	CCD	2.03	17	1.74	
E433367_N 559060	CC195		05/07/22	Clay	Cloudy	CCD	2.03	17	1.73	

Specifications BS 1377 : Part 2 : 1990 Clause 3 Moisture content by oven drying method BS 1377 : Part 9 : 1990 : In situ density tests, clauses : SRDS 2.1 Sand replacement method (Small pouring cylinder) SRDL 2.2 Sand replacement method (Large pouring cylinder) CCD 2.4 Core cutter method	Approved By Date 06/07/2022	N O'Brien Laboratory Manager 	UKAS Accredited Laboratory No. 20632
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TEST CERTIFICATE

Determination of the Shear Strength Using the Laboratory Handvane

Client: Groundwork Services (Durham) Ltd

Project No: D10557S

Project: Envision, Washington

Date Tested: 5th July 2022

Sampled By: D. Tennant for ETA

Ambient Temperature: 16°C

Weather Conditions: Dry

Vane Used: Small

Comments:

	E433373- N559101	E433371- N559102	E433379- N559088	E433377- N559087	E433383- N559074	E433384- N559076
Client Reference	1	2	3	4	5	6
Reading 1	12.0	10.0	12.0	7.4	12.0	9.4
Reading 2	8.4	11.4	8.6	8.8	11.0	7.8
Reading 3	10.6	10.8	9.2	11.0	8.0	8.4
Average Readings:	10.3	10.7	9.9	9.0	10.3	8.5
Equivalent Shear Stress (kN/m²)	207	215	195	181	207	171
	E433347- N559097	E433348- N559097	E433359- N559080	E433359- N559081	E433367- N559060	E433367- N559060
Client Reference	7	8	9	10	11	12
Reading 1	12.0	10.8	9.0	9.4	8.8	12.0
Reading 2	11.8	11.4	12.0	11.6	9.4	10.2
Reading 3	10.0	8.2	8.6	10.8	10.8	10.0
Average Readings:	11.2	10.1	9.8	10.6	9.6	10.7
Equivalent Shear Stress (kN/m²)	225	203	197	212	193	215

Approved By:

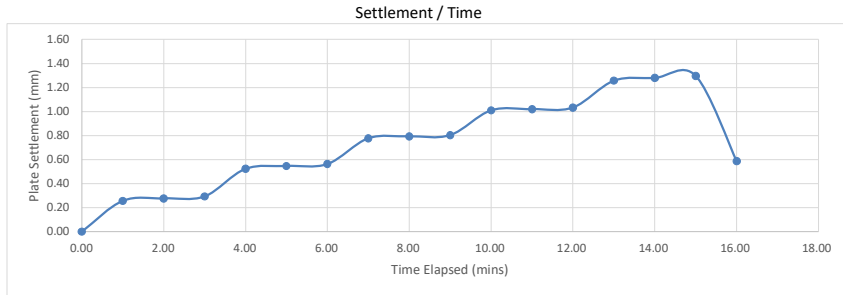
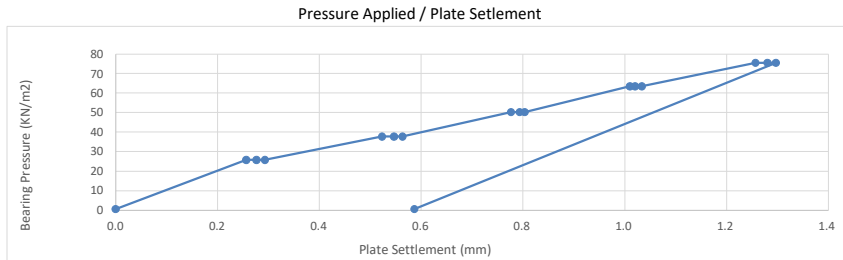


N. O'Brien
Laboratory Manager

Date: 5th July 2022

Test Report
Determination of the Vertical Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	Job Number	D10557S
Client	Groundwork Services (Durham) Limited Thistle Road Littleburn Industrial Estate	Date Tested	05/07/2022
		Weather Conditions	Cloudy
		Air Temperature °C	15°C
		Sample Description	Clay
		Reaction Load	14t Tracked Excavator
Depth of Test from Groundlevel	0	Density & Moisture	Not Requested
Plate Diameter (mm)	450	Test Location	CBR 1 N433373 E559102
		Distance between the edge of the plate and the wall of the excavation (mm)	N/A



Maximum Pressure Applied (kPa)	76	Maximum Deformation (mm)	1.30
Pressure at 1.25mm penetration (kPa)	75	Modulus of Subgrade Reaction (Mn/M²/M)	37.5
Calculated CBR (%) at 1.25mm	5		

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superceded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, CBR Value has been calculated in conjunction with superceded document HD 25/94

Comments:

Unless otherwise stated, this test has been carried out in accordance with the published standard, with no deviations from the test method outlined.

The published results are appertaining only to the locations tested

Test Carried Out By:

D. Tennant

Materials Technician

Approved By:

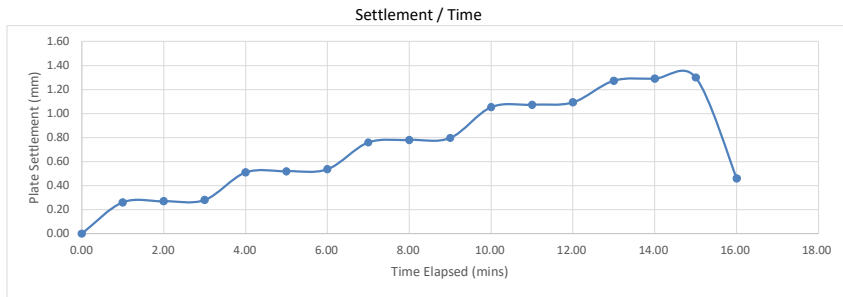
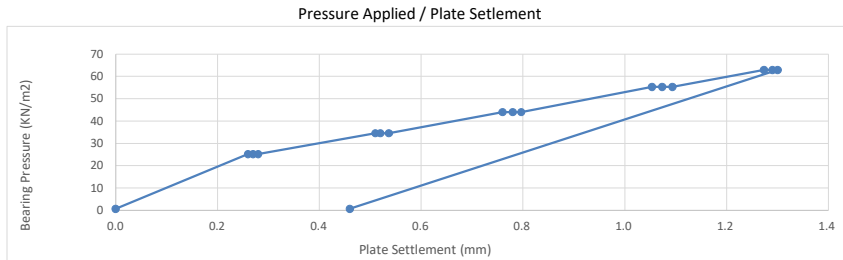
Laboratory Manager

Approved Date:

06 July 2022

Test Report
Determination of the Vertical Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	Job Number	D10557S
Client	Groundwork Services (Durham) Limited Thistle Road Littleburn Industrial Estate	Date Tested	05/07/2022
		Weather Conditions	Cloudy
		Air Temperature °C	15°C
		Sample Description	Clay
		Reaction Load	14t Tracked Excavator
Depth of Test from Groundlevel	0	Denisty & Moisture	Not Requested
Plate Diameter (mm)	450	Test Location	CBR 2 N433377 E559087
		Distance between the edge of the plate and the wall of the excavation (mm)	N/A



Maximum Pressure Applied (kPa)	63	Maximum Deformation (mm)	1.30
Pressure at 1.25mm penetration (kPa)	62	Modulus of Subgrade Reaction (Mn/M²/M)	30.9
Calculated CBR (%) at 1.25mm	4		

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superceded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, CBR Value has been calculated in conjunction with superceded document HD 25/94

Comments:

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Test Carried Out By:

D. Tennant

Materials Technician

Approved By:

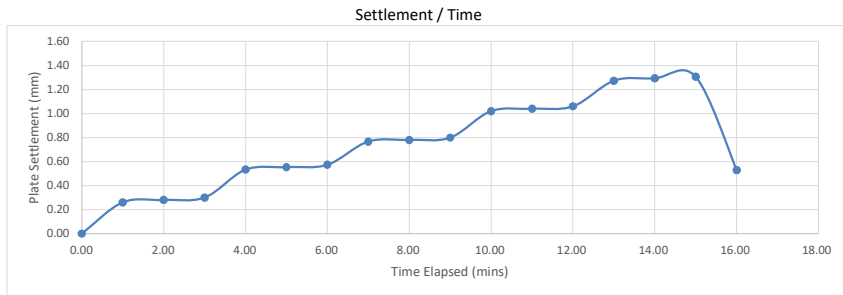
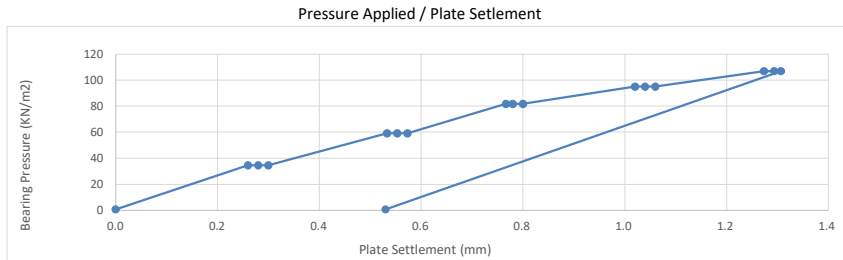
Laboratory Manager

Approved Date:

06 July 2022

Test Report
Determination of the Vertical Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	Job Number	D10557S
Client	Groundwork Services (Durham) Limited Thistle Road Littleburn Industrial Estate	Date Tested	05/07/2022
		Weather Conditions	Cloudy
		Air Temperature °C	15°C
		Sample Description	Clay
		Reaction Load	14t Tracked Excavator
Depth of Test from Groundlevel	0	Denisty & Moisture	Not Requested
Plate Diameter (mm)	450	Test Location	CBR 3 N433383 E559073
		Distance between the edge of the plate and the wall of the excavation (mm)	N/A



Maximum Pressure Applied (kPa)	107	Maximum Deformation (mm)	1.31
Pressure at 1.25mm penetration (kPa)	106	Modulus of Subgrade Reaction (Mn/M²/M)	52.6
Calculated CBR (%) at 1.25mm	9		

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superceded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, CBR Value has been calculated in conjunction with superceded document HD 25/94

Comments:

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Test Carried Out By:

D. Tennant

Materials Technician

Approved By:

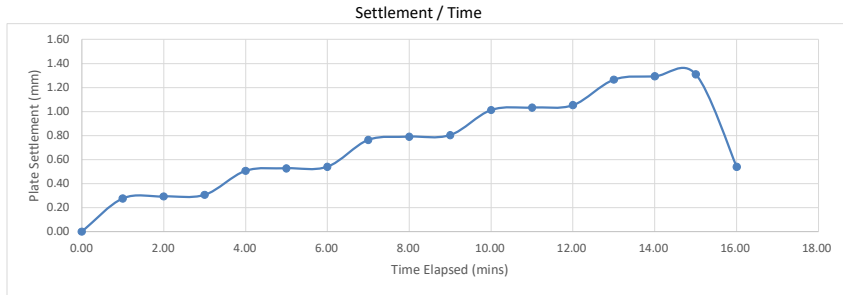
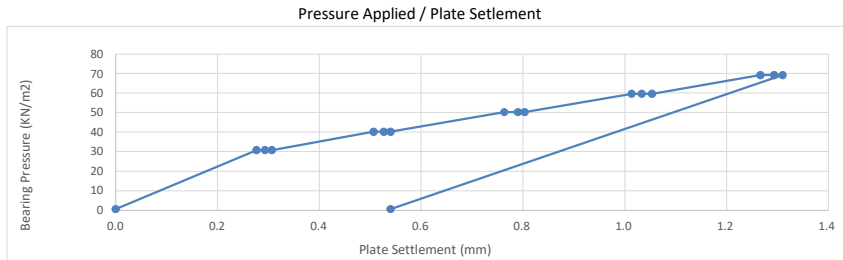
Laboratory Manager

Approved Date:

06 July 2022

Test Report
Determination of the Vertical Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	Job Number	D10557S
Client	Groundwork Services (Durham) Limited Thistle Road Littleburn Industrial Estate	Date Tested	05/07/2022
		Weather Conditions	Cloudy
		Air Temperature °C	15°C
		Sample Description	Clay
		Reaction Load	14t Tracked Excavator
Depth of Test from Groundlevel	0	Density & Moisture	Not Requested
Plate Diameter (mm)	450	Test Location	CBR 4 N433347 E559096
		Distance between the edge of the plate and the wall of the excavation (mm)	N/A



Maximum Pressure Applied (kPa)	69	Maximum Deformation (mm)	1.31
Pressure at 1.25mm penetration (kPa)	68	Modulus of Subgrade Reaction (Mn/M²/M)	34.1
Calculated CBR (%) at 1.25mm	4		

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superceded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, CBR Value has been calculated in conjunction with superceded document HD 25/94

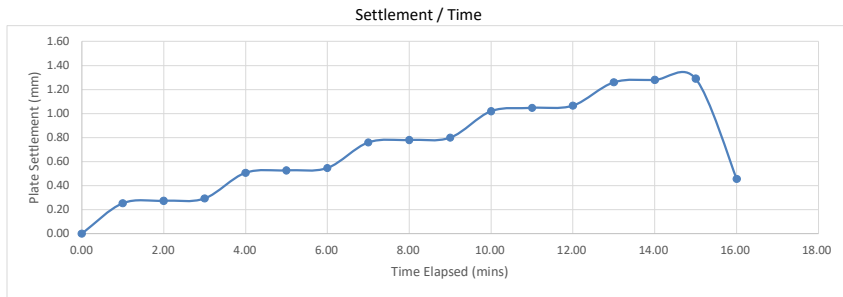
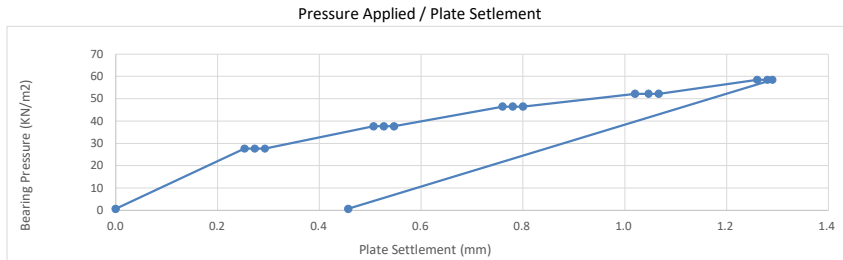
Comments:
 Unless otherwise stated, this test has been carried out in accordance with the published standard, with no deviations from the test method outlined.

The published results are appertaining only to the locations tested

Test Carried Out By:	Approved By:
D. Tennant	
Materials Technician	Laboratory Manager
Approved Date:	06 July 2022

Test Report
Determination of the Vertical Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	Job Number	D10557S
Client	Groundwork Services (Durham) Limited Thistle Road Littleburn Industrial Estate	Date Tested	05/07/2022
		Weather Conditions	Cloudy
		Air Temperature °C	15°C
		Sample Description	Clay
		Reaction Load	14t Tracked Excavator
Depth of Test from Groundlevel	0	Density & Moisture	Not Requested
Plate Diameter (mm)	450	Test Location	CBR 5 N433359 E559080
		Distance between the edge of the plate and the wall of the excavation (mm)	N/A



Maximum Pressure Applied (kPa)	59	Maximum Deformation (mm)	1.29
Pressure at 1.25mm penetration (kPa)	58	Modulus of Subgrade Reaction (Mn/M²/M)	29.0
Calculated CBR (%) at 1.25mm	3		

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superceded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, CBR Value has been calculated in conjunction with superceded document HD 25/94

Comments:

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Test Carried Out By:

D. Tennant

Materials Technician

Approved By:

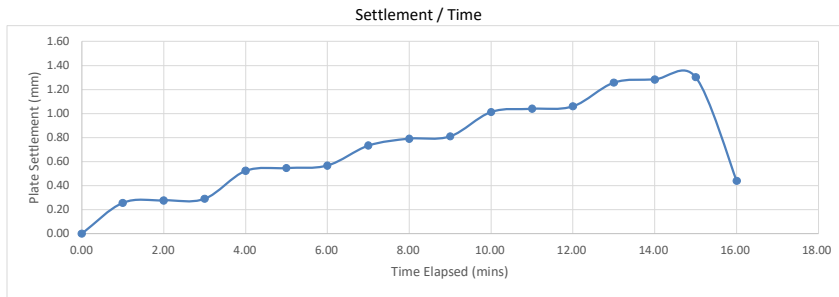
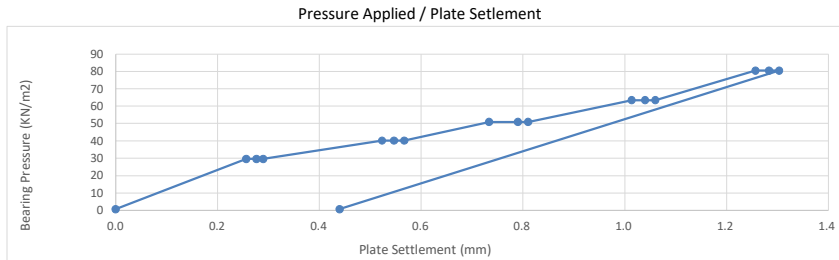
Laboratory Manager

Approved Date:

06 July 2022

Test Report
Determination of the Vertical Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	Job Number	D10557S
Client	Groundwork Services (Durham) Limited Thistle Road Littleburn Industrial Estate	Date Tested	05/07/2022
		Weather Conditions	Cloudy
		Air Temperature °C	15°C
		Sample Description	Clay
		Reaction Load	14t Tracked Excavator
Depth of Test from Groundlevel	0	Density & Moisture	Not Requested
Plate Diameter (mm)	450	Test Location	CBR 6 N433367 E559060
		Distance between the edge of the plate and the wall of the excavation (mm)	N/A



Maximum Pressure Applied (kPa)	81	Maximum Deformation (mm)	1.30
Pressure at 1.25mm penetration (kPa)	80	Modulus of Subgrade Reaction (Mn/M²/M)	39.8
Calculated CBR (%) at 1.25mm	6		

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superceded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, CBR Value has been calculated in conjunction with superceded document HD 25/94

Comments:

Unless otherwise stated, this test has been carried out in accordance with the published standard, with no deviations from the test method outlined.

The published results are appertaining only to the locations tested

Test Carried Out By:

D. Tennant

Materials Technician

Approved By:

Laboratory Manager



Approved Date:

06 July 2022

Test Report

Client	Groundwork Services (Durham) Limited
Address	Littleburn Industrial Estate Langley Moor Durham DH7 8HJ
F.A.O	Paul Barton
Project:	Giga One Factory, Washington
Project Number:	D10557S
Report Number:	L22-509-1
Date Received:	5th July 2022

Testing Required:	<p>Insitu Density by Core Cutter - BS:1377-9:1990 Clause 2.3</p> <p>Vertical Deformation and Strength Characteristics by the Incremental Plate Load Test - BS:1377-9:1990 Clause 4.1</p> <p>Determination of Equivalent CBR Value using the Plate Bearing Test - Design Manual for Roads and Bridges, Volume 7: Pavement Design and Maintenance - Foundations HD25/9</p> <p>Hand Shear Vane*</p>
Date Started:	5th July 2022
Date Finished:	6th July 2022

Report Issue Date:	17th July 2022
Reviewed By:	 Natalie Hodson - Materials Director
Authorised By:	 Nik O'Brien - Laboratory Manager
Remarks:	(*) denotes testing is outside of UKAS Scope of Accreditation. (+) denotes subcontracted testing. Test location references updated as per GWS instruction.


Samples will be stored for one month after the report has been issue before being disposed of.

The published results appertain only to the specimens tested.

Exploration and Testing Associates Limited, registered in England and Wales #11803869 at
 8B, Bowburn South Industrial Estate, Bowburn, Durham, DH6 5AD

Summary of in-situ density test results

Project No.			Project Name							
D10557S			Giga One, Envision, Washington							
Test Position Reference	Test reference	Depth to top m	Date of test	Soil Description	Site conditions during test	Test Type <small>see below</small>	In-situ Bulk Density Mg/m ³	Moisture Content %	In-situ Dry Density Mg/m ³	Remarks
E433373_N 559101	CC184		05/07/22	Clay	Cloudy	CCD	2.03	17	1.74	Zone 3
E433371_N 559102	CC185		05/07/22	Clay	Cloudy	CCD	2.05	16	1.77	Zone 3
E433379_N 559088	CC186		05/07/22	Clay	Cloudy	CCD	2.02	18	1.71	Zone 3
E433377_N 559087	CC187		05/07/22	Clay	Cloudy	CCD	2.00	17	1.71	Zone 3
E433383_N 559074	CC188		05/07/22	Clay	Cloudy	CCD	2.03	15	1.76	Zone 3
E433384_N 559076	CC189		05/07/22	Clay	Cloudy	CCD	2.07	16	1.78	Zone 3
E433347_N 559097	CC190		05/07/22	Clay	Cloudy	CCD	2.04	16	1.75	Zone 3
E433348_N 559097	CC191		05/07/22	Clay	Cloudy	CCD	2.04	17	1.74	Zone 3
E433359_N 559080	CC192		05/07/22	Clay	Cloudy	CCD	2.03	28	1.58	Zone 3
E433359_N 559081	CC193		05/07/22	Clay	Cloudy	CCD	2.06	16	1.78	Zone 3
E433367_N 559060	CC194		05/07/22	Clay	Cloudy	CCD	2.03	17	1.74	CTW - Zone 3
E433367_N 559060	CC195		05/07/22	Clay	Cloudy	CCD	2.03	17	1.73	CTW - Zone 3

Specifications BS 1377 : Part 2 : 1990 Clause 3 Moisture content by oven drying method BS 1377 : Part 9 : 1990 : In situ density tests, clauses : SRDS 2.1 Sand replacement method (Small pouring cylinder) SRDL 2.2 Sand replacement method (Large pouring cylinder) CCD 2.4 Core cutter method	Approved By Date 17/07/2022	N O'Brien Laboratory Manager 	UKAS Accredited Laboratory No. 20632
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TEST CERTIFICATE

Determination of the Shear Strength Using the Laboratory Handvane

Client: Groundwork Services (Durham) Ltd

Project No: D10557S

Project: Envision, Washington

Date Tested: 5th July 2022

Sampled By: D. Tennant for ETA

Ambient Temperature: 16°C

Weather Conditions: Dry

Vane Used: Small

Comments:

	E433373- N559101	E433371- N559102	E433379- N559088	E433377- N559087	E433383- N559074	E433384- N559076
Client Reference	1	2	3	4	5	6
Reading 1	12.0	10.0	12.0	7.4	12.0	9.4
Reading 2	8.4	11.4	8.6	8.8	11.0	7.8
Reading 3	10.6	10.8	9.2	11.0	8.0	8.4
Average Readings:	10.3	10.7	9.9	9.0	10.3	8.5
Equivalent Shear Stress (kN/m²)	207	215	195	181	207	171
	E433347- N559097	E433348- N559097	E433359- N559080	E433359- N559081	E433367- N559060	E433367- N559060
Client Reference	7	8	9	10	11	12
Reading 1	12.0	10.8	9.0	9.4	8.8	12.0
Reading 2	11.8	11.4	12.0	11.6	9.4	10.2
Reading 3	10.0	8.2	8.6	10.8	10.8	10.0
Average Readings:	11.2	10.1	9.8	10.6	9.6	10.7
Equivalent Shear Stress (kN/m²)	225	203	197	212	193	215

Approved By:

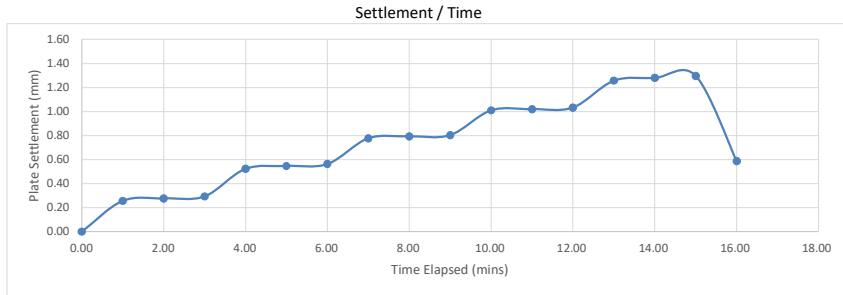
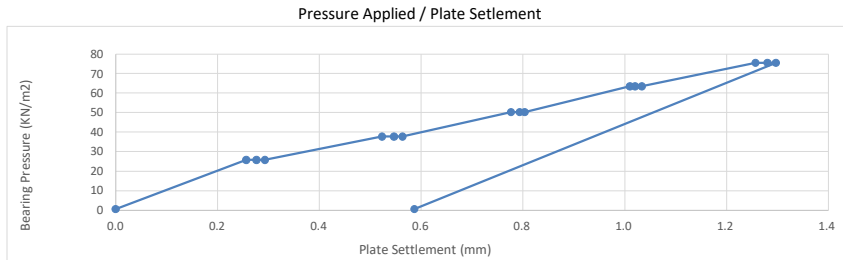


N. O'Brien
Laboratory Manager

Date: 5th July 2022

Test Report
Determination of the Vertical Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	Job Number	D10557S
Client	Groundwork Services (Durham) Limited Thistle Road Littleburn Industrial Estate	Date Tested	05/07/2022
		Weather Conditions	Cloudy
		Air Temperature °C	15°C
		Sample Description	Clay
		Reaction Load	14t Tracked Excavator
Depth of Test from Groundlevel	0	Denisty & Moisture	Not Requested
Plate Diameter (mm)	450	Test Location	CBR 1 N433373 E559102
		Distance between the edge of the plate and the wall of the excavation (mm)	N/A



Maximum Pressure Applied (kPa)	76	Maximum Deformation (mm)	1.30
Pressure at 1.25mm penetration (kPa)	75	Modulus of Subgrade Reaction (Mn/M²/M)	50.2
Calculated CBR (%) at 1.25mm	5		

In Accordance with CD225 Design for New Pavement Foundations, CBR Value has been calculated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superseded document HD 25/94

Comments:

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The published results are appertaining only to the locations tested

Test Carried Out By:

D. Tennant

Materials Technician

Approved By:

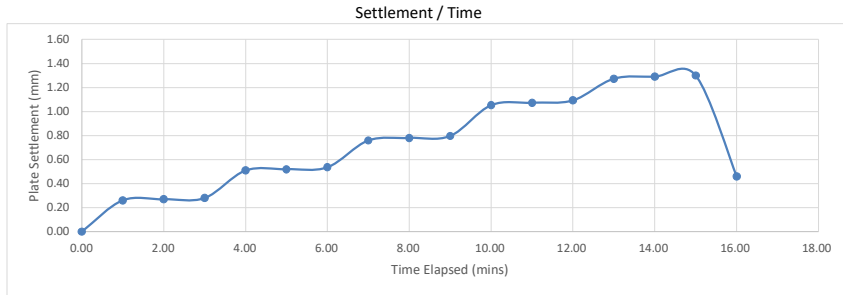
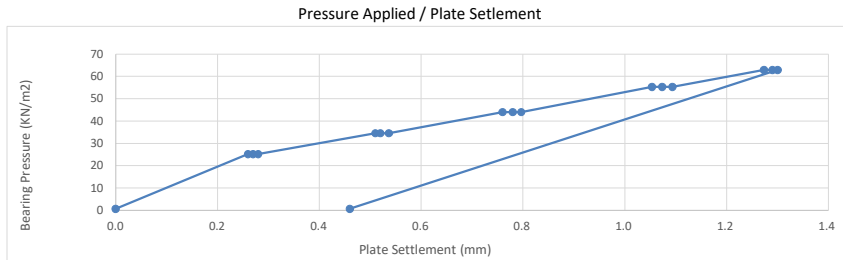
Laboratory Manager

Approved Date:

06 July 2022

Test Report
Determination of the Vertical Deformation and Strength Characteristics of Soil by the Plate Load Testing
BS 1377-9:1990 Clause 4.1

Project	Envision, Washington	Job Number	D10557S
Client	Groundwork Services (Durham) Limited Thistle Road Littleburn Industrial Estate	Date Tested	05/07/2022
		Weather Conditions	Cloudy
		Air Temperature °C	15°C
		Sample Description	Clay
		Reaction Load	14t Tracked Excavator
Depth of Test from Groundlevel	0	Denisty & Moisture	Not Requested
Plate Diameter (mm)	450	Test Location	CBR 2 N433377 E559087
		Distance between the edge of the plate and the wall of the excavation (mm)	N/A



Maximum Pressure Applied (kPa)	63	Maximum Deformation (mm)	1.30
Pressure at 1.25mm penetration (kPa)	62	Modulus of Subgrade Reaction (Mn/M²/M)	40.5
Calculated CBR (%) at 1.25mm	4		

In Accordance with CD225 Design for New Pavement Foundations, CBR Value has been calculated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

In Accordance with CD225 Design for New Pavement Foundations, Modulus of Subgrade Reaction has been calculated in conjunction with superseded document HD 25/94

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Materials Technician

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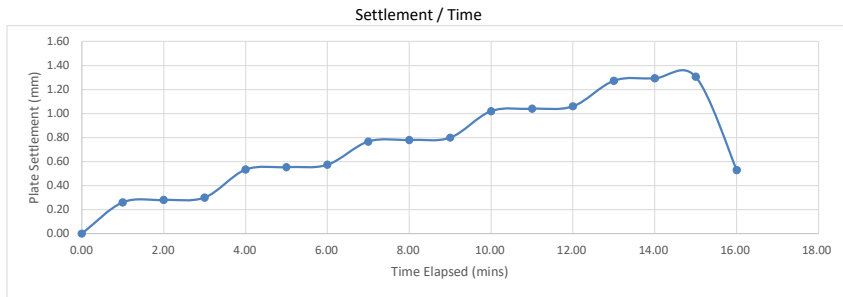
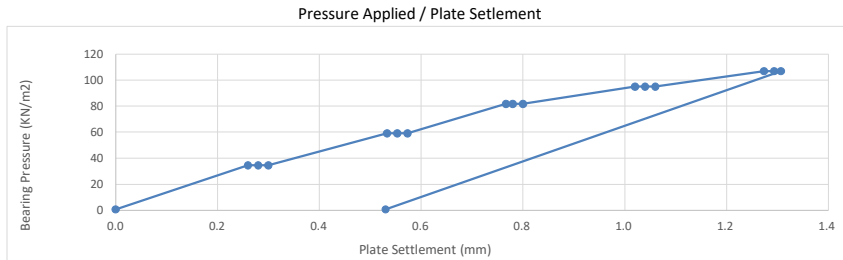
Laboratory Manager

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Test Report
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BS 1377-9:1990 Clause 4.1

Project	Envison, Washington	Job Number	D10557S
Client	Groundwork Services (Durham) Limited Thistle Road Littleburn Industrial Estate	Date Tested	05/07/2022
		Weather Conditions	Cloudy
		Air Temperature °C	15°C
		Sample Description	Clay
		Reaction Load	14t Tracked Excavator
Depth of Test from Groundlevel	0	Density & Moisture	Not Requested
Plate Diameter (mm)	450	Test Location	CBR 3 N433383 E559073
		Distance between the edge of the plate and the wall of the excavation (mm)	N/A



Maximum Pressure Applied (kPa)	107	Maximum Deformation (mm)	1.31
Pressure at 1.25mm penetration (kPa)	106	Modulus of Subgrade Reaction (Mn/M²/M)	73.2
Calculated CBR (%) at 1.25mm	9		

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D. Tennant

Materials Technician

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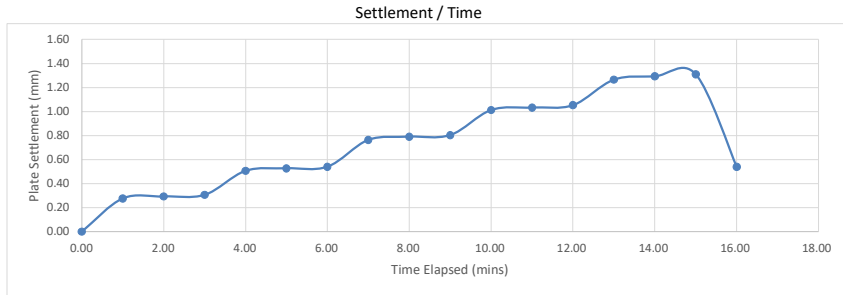
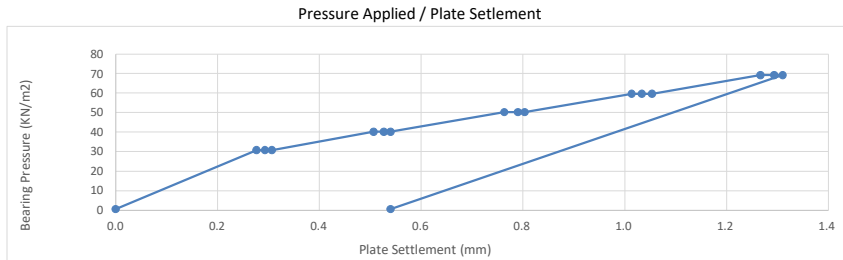
Laboratory Manager

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BS 1377-9:1990 Clause 4.1

Project	Envison, Washington	Job Number	D10557S
Client	Groundwork Services (Durham) Limited Thistle Road Littleburn Industrial Estate	Date Tested	05/07/2022
		Weather Conditions	Cloudy
		Air Temperature °C	15°C
		Sample Description	Clay
		Reaction Load	14t Tracked Excavator
Depth of Test from Groundlevel	0	Density & Moisture	Not Requested
Plate Diameter (mm)	450	Test Location	CBR 4 N433347 E559096
		Distance between the edge of the plate and the wall of the excavation (mm)	N/A



Maximum Pressure Applied (kPa)	69	Maximum Deformation (mm)	1.31
Pressure at 1.25mm penetration (kPa)	68	Modulus of Subgrade Reaction (Mn/M²/M)	45.2
Calculated CBR (%) at 1.25mm	4		

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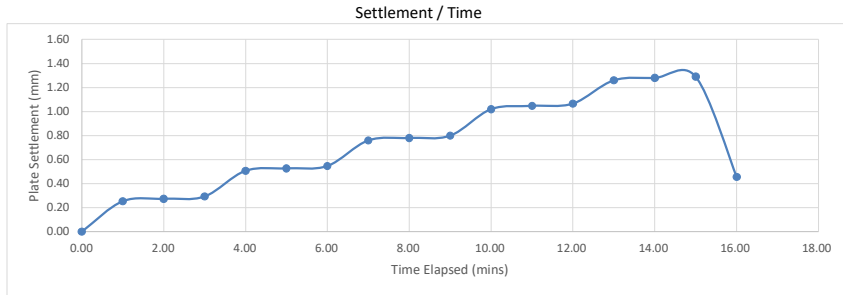
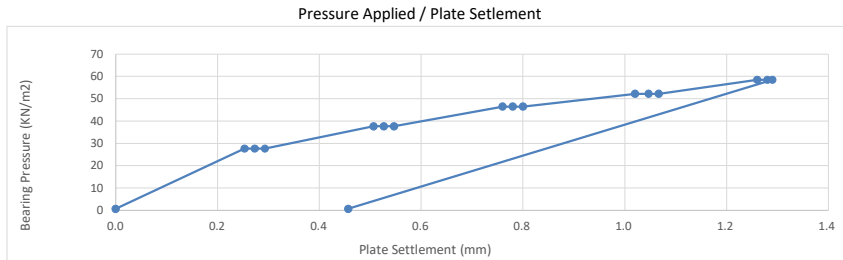
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 Laboratory Manager

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Test Report
Determination of the Vertical Deformation and Strength Characteristics of Soil by the Plate Load Testing
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Project	Envison, Washington	Job Number	D10557S
Client	Groundwork Services (Durham) Limited Thistle Road Littleburn Industrial Estate	Date Tested	05/07/2022
		Weather Conditions	Cloudy
		Air Temperature °C	15°C
		Sample Description	Clay
		Reaction Load	14t Tracked Excavator
Depth of Test from Groundlevel	0	Denisty & Moisture	Not Requested
Plate Diameter (mm)	450	Test Location	CBR 5 N433359 E559080
		Distance between the edge of the plate and the wall of the excavation (mm)	N/A



Maximum Pressure Applied (kPa)	59	Maximum Deformation (mm)	1.29
Pressure at 1.25mm penetration (kPa)	58	Modulus of Subgrade Reaction (Mn/M²/M)	37.7
Calculated CBR (%) at 1.25mm	3		

In Accordance with CD225 Design for New Pavement Foundations, CBR Value has been calculated in conjunction with superseded document IAN 73/06 Revision 1 (2009)

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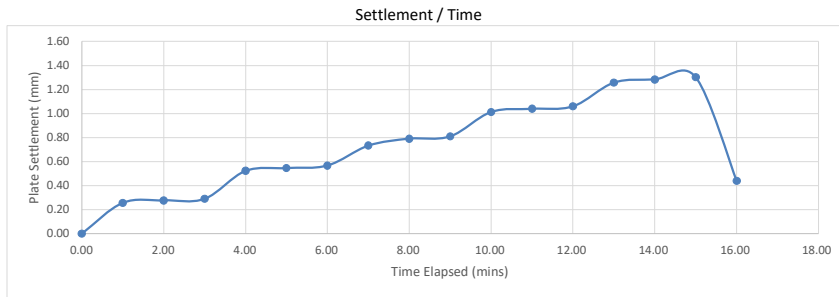
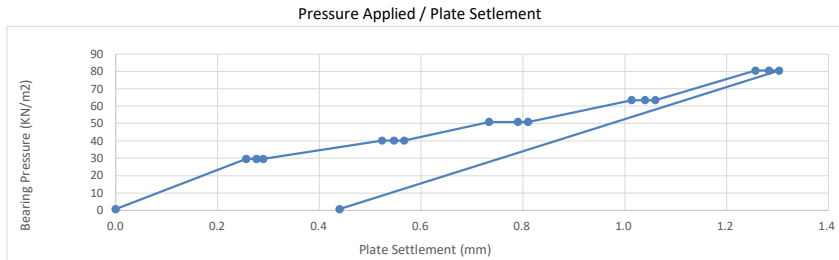
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Approved Date: 06 July 2022

Test Report
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Project	Envison, Washington	Job Number	D10557S
Client	Groundwork Services (Durham) Limited Thistle Road Littleburn Industrial Estate	Date Tested	05/07/2022
		Weather Conditions	Cloudy
		Air Temperature °C	15°C
		Sample Description	Clay
		Reaction Load	14t Tracked Excavator
Depth of Test from Groundlevel	0	Denisty & Moisture	Not Requested
Plate Diameter (mm)	450	Test Location	CBR 6 N433367 E559060
		Distance between the edge of the plate and the wall of the excavation (mm)	N/A



Maximum Pressure Applied (kPa)	81	Maximum Deformation (mm)	1.30
Pressure at 1.25mm penetration (kPa)	80	Modulus of Subgrade Reaction (Mn/M²/M)	53.7
Calculated CBR (%) at 1.25mm	6		

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Test Carried Out By:

D. Tennant

Materials Technician

Approved By:



Laboratory Manager

Approved Date:

06 July 2022