Project Wind

Compaction Trial Report – Stream 2 Material

31/10/25



Prepared By	Job Title	Signature	Date
Elliot Aiston	Site Engineer	*E Aiston*	31/10/2025
Client		**Client Contact**	
Cundall		Chris Lazenby	

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Compaction Trial – Stream 2

In accordance with Cundall's Earthworks Specification (*GBR1-ENA1-XXX-UG-SP-B-00-01 V02*) compaction trials are to be undertaken on any material type required as engineered general or granular fill. The trial aims to confirm the optimum moisture content and compaction methodology for each material type, validate the suitability of each material for reuse as engineered fill, determine achievable levels of stiffness and settlement performance and to establish QA/QC benchmarks for ongoing works.

Description of Material and Source

The compaction trial undertaken on 24/10/2025 was conducted on the site won granular arisings from the excavation to Formation at DC01 (Stream 2), which following PSD testing, conformed as 6F2.

Trial Setup and Procedures

As per the Technical Summary 4 – Compaction Trial Methodology (Rev 3), the following method was utilised in the compaction trial:

- Measure and mark out 10m x 15m area
- Proof roll and seal formation
- Place 3Nr layers of material in 250mm thick compacted layers (300mm compacted) – pushed out using CAT D6 Dozer and compacted using Bomag BW 213 Vibratory Roller (data sheet attached in appendix 1)
- Trim and grade back 50mm to achieve 700mm total pad thickness
- Undertake bulk density and moisture content determinations via SRTs & NDTs on the final layer after 2, 4, 6, 8, 10 and 12 passes of the roller to determine the optimum rolling pattern, at the in-situ moisture content
- Undertake stiffness testing on final layer, using PLT to 250kN/m^2

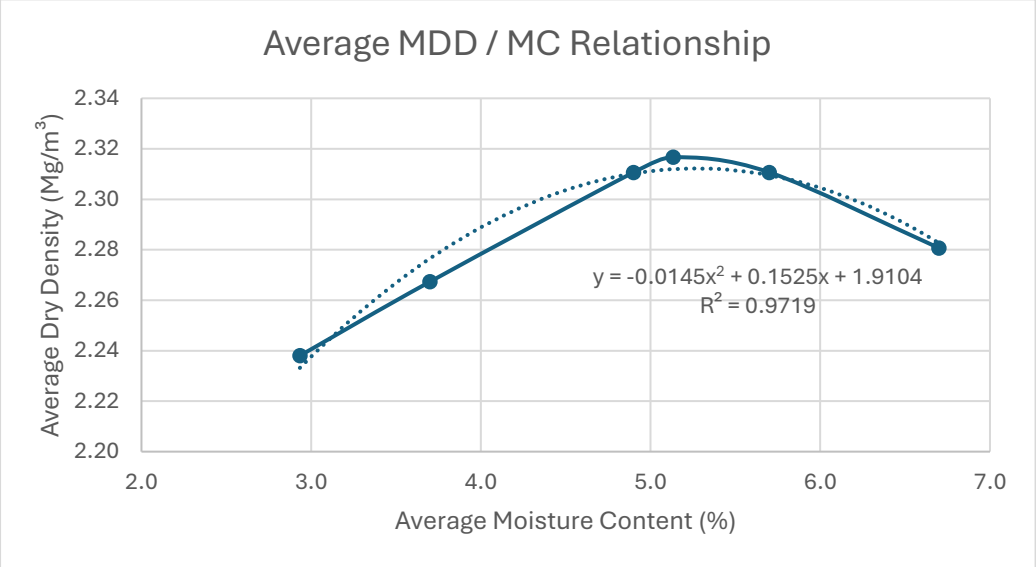
Test Results and Observations

Full testing information (in-situ & classification reports) can be found in Appendix 2. The data from the 3Nr Vibrating Hammer tests have been collated into the below tables and charts:

Table 1 - Summary of Vibrating Hammer Reports

	TP01 Report Ref MT2108 25-7479		TP02 Report Ref MT2108 25-7480		TP03 Report Ref MT2108 25-7481		Average	
	MC	MDD	MC	MDD	MC	MDD	MC	MDD
Stage 1	3.0	2.20	3.2	2.26	2.6	2.25	2.9	2.24
Stage 2	4.0	2.23	4.0	2.29	3.1	2.29	3.7	2.27
Stage 3	5.3	2.32	4.5	2.31	4.9	2.30	4.9	2.31
Peak	5.5	2.33	4.9	2.32	5.0	2.30	5.1	2.32
Stage 4	6.5	2.32	5.1	2.32	5.5	2.29	5.7	2.31
Stage 5	7.3	2.30	6.3	2.26	6.5	2.28	6.7	2.28
Natural Moisture Content (%)	3.9		4.9		4.7		4.5	

Table 2 - Chart showing Average DD / MC relationship, derived from 3Nr vib hmr reports



- As per the above table and graph:
    - Average Max. Dry Density : 2.32 Mg/m^3
    - Average OMC : 5.1 %
    - DD at 97% Compaction : 2.25 Mg/m^3
    - Polynomial Fit : $-0.0145x^2 + 0.1525x + 1.9104$
    - R^2 : 0.9719
        - Indicates an excellent fit and validates the use of this curve for determining the 97% MDD moisture limits below.

Moisture Limits Derivation

To determine the moisture content range corresponding to 97% MDD, the polynomial equation was solved for y = 2.25Mg/m^3

Equation: $-0.0145x^2 + 0.1525x + 1.9104 = 2.25$
Rearranged: $-0.0145x^2 + 0.1525x - 0.3396 = 0$

Using the quadratic formula: $x = (-b \pm \sqrt{(b^2 - 4ac)}) / (2a)$

Where a = -0.0145, b = 0.1525, c = 0.3396

Limit	**Moisture Content (%)**
Dry-side Limit (97% MDD)	3.2
Wet-side Limit (97% MDD)	7.3

The polynomial fit achieved an R^2 value of 0.9719, indicating an excellent correlation between moisture content and dry density. This level of correlation confirms that the compaction envelope (3.2% - 7.3%) is representative of the materials' true moisture-density behaviour.

In-situ Testing Summary

As per the technical submission summary, in-situ testing was undertaken on the first layer after 2, 4, 6, 8, 10, & 12 passes. The reports (NDT & SRT) are available in Appendix 3 below, with a summary table showing:

Test	Layer	# Passes	Bulk Density	MC	Dry Density	Compaction
NDT	1	2	2.14	4.00	2.06	89%
SRT	1	2	2.24	4.00	2.15	93%
NDT	1	4	2.16	3.80	2.08	90%
SRT	1	4	2.40	3.10	2.33	101%
NDT	1	6	2.19	3.70	2.11	91%
SRT	1	6	2.43	3.10	2.34	101%
NDT	1	8	2.24	3.80	2.16	93%
SRT	1	8	2.10	4.60	2.00	86%
NDT	1	10	2.24	4.00	2.16	93%

SRT	1	10	2.20	4.10	2.11	91%
NDT	1	12	2.32	4.20	2.23	96%
SRT	1	12	2.43	3.10	2.34	101%

As the above summary table shows, the desired compaction is achieved once 12 dynamic passes have been completed (verified by the sand replacement test). The moisture contents from the nuclear density tests indicate that the material should have performed better given that the in-situ moisture contents were within the dry and wet side limits (3.2% - 7.3%). Moving forward with this material, SRT testing will be undertaken alongside the NDT testing (1 per 30m x 30m area per layer)

The Plate Load Test was undertaken on the final layer, of which the below was calculated:

- Max pressure = 262.7kPa
- Modulus of Subgrade Reaction (Ks) = 241MN/m3
- CBR = 86%
- Compaction Indicator = 0.54

The results of the test indicated a very stiff, well-compacted granular platform, with the effective compaction indicator of 0.54 indicating satisfactory elastic recovery and load-spreading behaviour. The effective compaction indicator is the closest measure of “stiffness” given that only a single stage test was carried out, thus the EV1/EV2 ratio cannot be calculated.

Accepted Earthworks Methodology

1. Specification for Highways Works Table 6/4 – Compaction of Earthworks Materials and Capping Layers					
Compaction Equipment					
	Plant Category	**Operating Weight (kg)**	**Drum Weight (kg)**	**Drum Width (m)**	**Mass per m Width**
1.	**BOMAG BW 213 D-5**	12600	7550	2.130	3545

Comments

Bomag BW 213 D-5 Specification Sheet:

Technical Data		BOMAG BW 213 D-5	BOMAG BW 213 DH-5	BOMAG BW 213 PDH-5
Weights				
Grossweight	kg	14.800	15.800	14.870
Operating weight CECE w. ROPS-cabin	kg	12.600	12.720	13.830
Axle load, drum CECE	kg	7.550	7.560	8.670
Axle load, wheels CECE	kg	5.050	5.160	5.160
Static linear load CECE	kg/cm	35,4	35,5	
Dimensions				
Working width	mm	2.130	2.130	2.130
Track radius, inner	mm	3.680	3.680	3.680

2. Class of Material and Compaction Method (ref table 6/4)

Earthworks Class of Material	Compaction Method	Comments
1A	2	
1B	3	
1C	5	
2A	1	
2B	2	
2C	2	
6F2	6	Material geotechnically classified as class 6F2

Comments: *GBR1-ENA1-XXX-UG-SP-B-00-01 V02* Classification and Compaction Requirements

GBR1-ENA1-XXX-UG-SP-B-00-01 V02

Class	General Material Description	Permitted Constituents (All subject to requirements of Table 6/1 SHW Series 600 and Appendix 6/1)	Typical Use	Material Properties				Compaction Requirements
				Property	Test	Lower Limit	Upper Limit	
				Moisture Content	BS 1377: Part 2	OMC-2%	OMC+2%	
6F2 (site won)	Selected granular material (coarse grading)	Recycled aggregates including concrete, brick and masonry with not more 5% bituminous materials and asphalt	General Fill or Capping	Grading	BS 1377: Part 2	Table 6/2	Table 6/2	Table 6/4 Method 6. End product specification to achieve 97% of maximum dry density of BS1377: Part 4 (Vibrating hammer method) in Zone A and Zone C.
				Moisture Content	BS 1377: Part 2	OMC-2%	OMC+2%	
				Los Angeles Coefficient	Clause 635 – SHW Series 600	-	50	
				Class Ra (asphalt) content	Clause 710	-	50	
				Bitumen content	BS EN 12697-1 or BS EN 12697-39	-	2.0	
				Constituents of Coarse Recycled Aggregate	BS EN 933-11	-	-	
				Water soluble sulfate content	BS EN 1744-1 Clause 10	-	3000 mg/l as SO4	
				Oxidisable sulphides content	BS EN 1744-1 Clause 13	-	0.3% as SO4	
				pH value	BS 1377: Part 3	6	9	

3. Compaction Methods (ref table 6/4)

Compaction Methodology

- Class 6F2 Material – End Product compaction methodology as below
- Vibratory roller – Bomag BW213 D-5 Smooth drum used for compaction
- Mass per m width of roller: 3545kg

Comments

- **Method of Compaction:**
- Undertake moisture content testing at a rate of 1 per 500m3 on placement of material – must be completed prior to placement of material
- Place material in 300mm thick uncompacted layer (250mm compacted)
- Compact using Bomag BW 213 D-5 Smooth Drum Vibratory Roller, using 12 dynamic passes
- Undertake NDT & SRT testing on each layer:
    - 1 x NDT per 30m x 30m area
    - 1 x SRT per 30m x 30m area
- Undertake PLT Stiffness testing on final layer:
    - 1 x PLT per 30m x 30m area

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Surveys & Photographs





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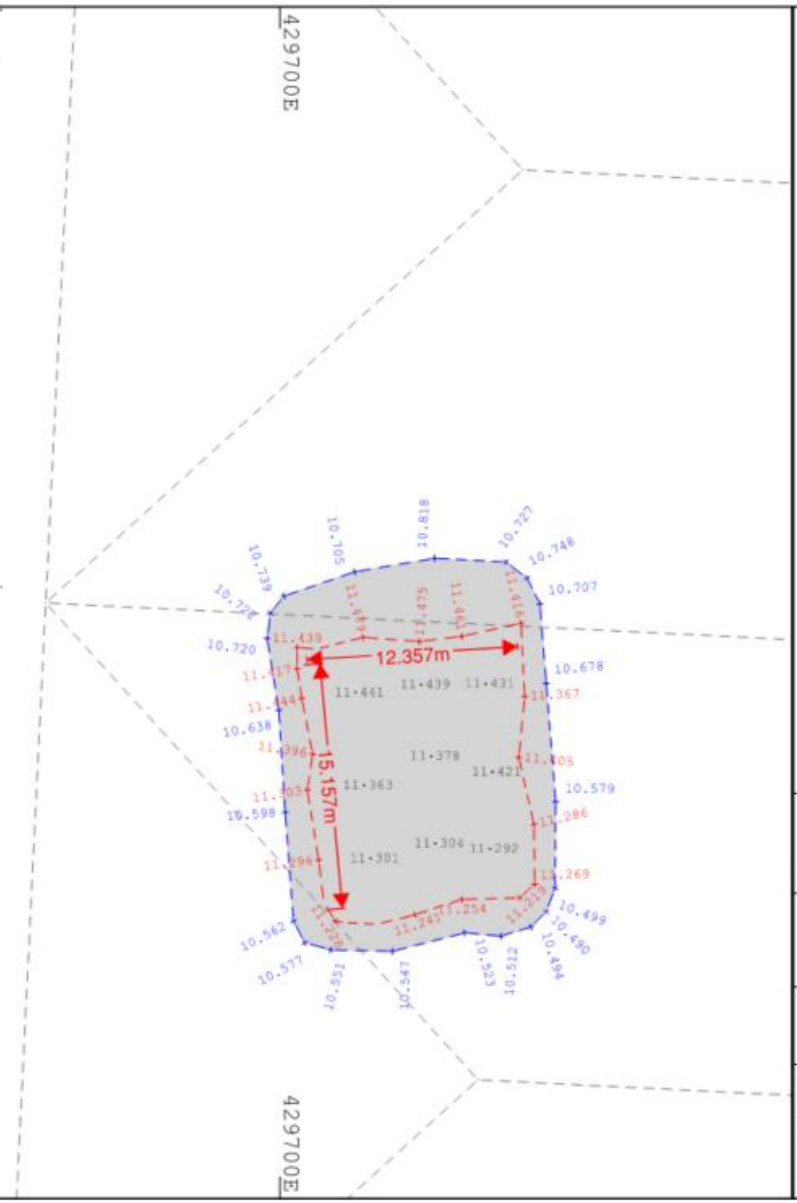


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Project
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Title
RCL
Stream 2 Compaction Trial

Designed EA
Drawn DS
Checked
Date 31/10/25
Scale 1 : 250
Drawing No. MGL-70114-EA-COMP-001

Appendices

Appendix 1 – Bomag BW 213 Datasheet

BOMAG
FAYAT GROUP

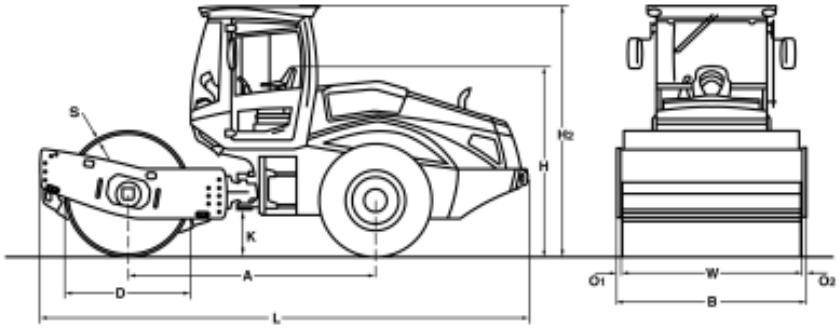
TECHNICAL DATA

SINGLE DRUM ROLLERS

BW 213 D-5, BW 213 DH-5, BW 213 PDH-5



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Dimensions in mm

	A	B	D	H	H2	K	L	O1	O2	S	W
BW 213 D-5	2975	2270	1500	2250	2990	490	5870	70	70	30	2130
BW 213 DH-5	2975	2270	1500	2250	2990	490	5870	70	70	30	2130
BW 213 PDH-5	2975	2270	1480	2250	2990	490	5870	70	70	25	2130

Shipping dimensions in m3	**without ROPS**	**with ROPS**
BW 213 D-5	29,981	39,841
BW 213 DH-5	29,981	39,841
BW 213 PDH-5	29,981	39,841

Machine type	**Compaction output (m3/h)**			
	Rock fill	**Gravel, sand**	**Mixed soil**	**Silt, clay**
BW 213 D-5	470-940	300-600	240-480	120-240
BW 213 DH-5	530-1060	360-720	270-540	180-360
BW 213 PDH-5	530-1060	360-720	270-540	210-420

Machine type	**Compacted layer thickness (m)**			
	Rock fill	**Gravel, sand**	**Mixed soil**	**Silt, clay**
BW 213 D-5	0,80	0,50	0,40	0,20
BW 213 DH-5	0,80	0,50	0,40	0,25
BW 213 PDH-5	0,90	0,60	0,50	0,30

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Technical Data		BOMAG BW 213 D-5	BOMAG BW 213 DH-5	BOMAG BW 213 PDH-5
Weights				
Grossweight	kg	14.800	15.800	14.870
Operating weight CECE w. ROPS-cabin	kg	12.600	12.720	13.830
Axle load, drum CECE	kg	7.550	7.560	8.670
Axle load, wheels CECE	kg	5.050	5.160	5.160
Static linear load CECE	kg/cm	35,4	35,5	
Dimensions				
Working width	mm	2.130	2.130	2.130
Track radius, inner	mm	3.680	3.680	3.680
Driving Characteristics				
Speed (1)	km/h	0- 5,0		
Speed (2)	km/h	0- 6,0		
Speed (3)	km/h	0- 8,0		
Speed (4)	km/h	0- 11,0		
Speed	km/h		0- 12,0	0- 12,0
Max. gradeability without/with vibr.	%	45/43	60/57	62/60
Drive				
Engine manufacturer		Deutz	Deutz	Deutz
Type		TCD 3.6 L4	TCD 4.1	TCD 4.1
Emission stage		Stage V	Stage V / TIER4f	Stage V / TIER4f
Exhaust gas aftertreatment		DOC+DPF+SCR	DOC+DPF+SCR	DOC+DPF+SCR
Cooling		Liquid	Liquid	Liquid
Number of cylinders		4	4	4
Performance ISO 3046	kW	95,0	115,0	115,0
Performance SAE J 1995	hp	128,0	155,0	155,0
Speed	min-1	2.000	2.100	2.100
Fuel		Diesel	Diesel	Diesel
Electric equipment	V	12	12	12
Drive system		hydrost.	hydrost.	hydrost.
Drum driven		standard	standard	standard
Drums and Tyres				
Number of pad feet				150
Area of one pad foot	cm2			137
Height of pad feet	mm			100
Tyre size		23.1-26 12PR	23.1-26 12PR	23.1-26 12PR
Brakes				
Service brake		hydrost.	hydrost.	hydrost.
Parking brake		hydromec.	hydromec.	hydromec.
Steering				
Steering system		oscil.artic.	oscil.artic.	oscil.artic.
Steering method		hydrost.	hydrost.	hydrost.
Steering / oscillating angle +/-	grad	35/12	35/12	35/12
Exciter system				
Drive system		hydrost.	hydrost.	hydrost.
Frequency	Hz	30/34	30/34	30/34
Amplitude	mm	2,10/1,10	2,10/1,10	1,70/0,90
Centrifugal force	kN	285/196	285/196	285/194
Centrifugal force	t	29,1/20,0	29,1/20,0	29,1/19,8
Capacities				
Fuel	l	250,0	250,0	250,0

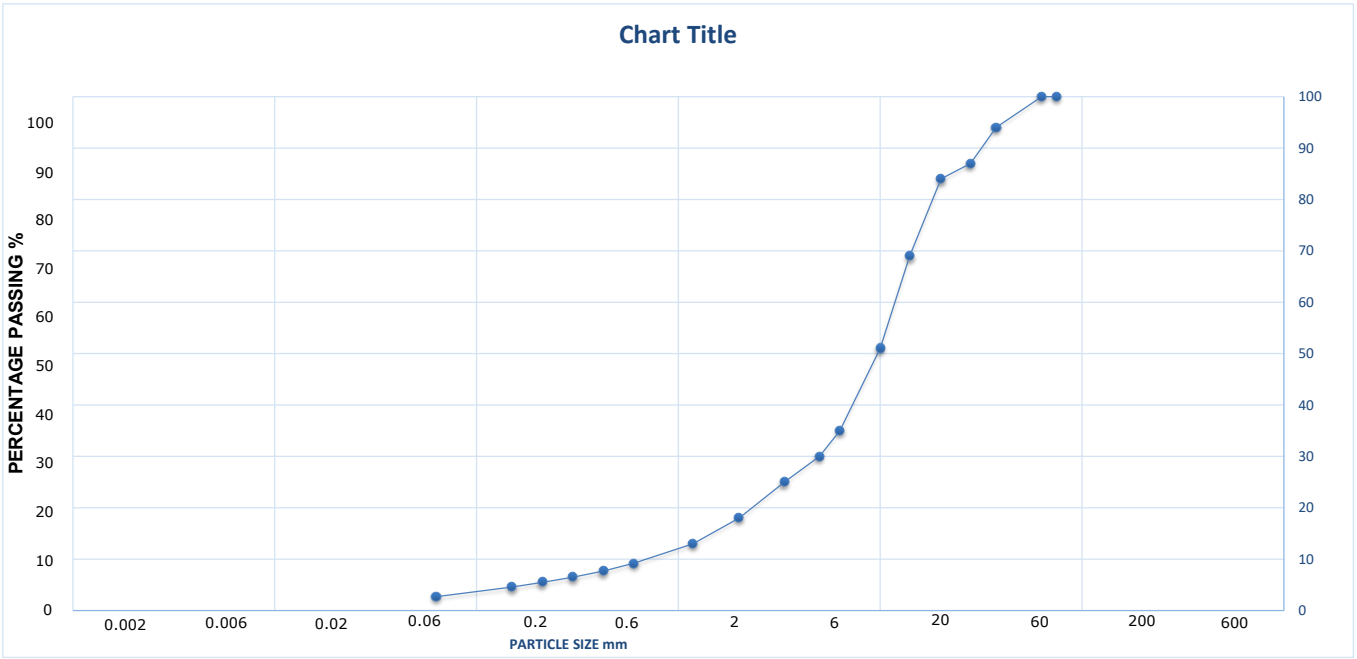
Technical modifications reserved. Machines may be shown with options.

Appendix 2 – Stream 2 Classification Reports

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

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Unit 5-6, Innovation Court, Meadowfield Industrial Estate, Meadowfield, Durham, DH7 8FA

Client	MGL Group			Lab Reference	245-7479	Test Report	ISO 17892-4:2016
Client Address	Davison House, Rennys Lane, Durham DH1 2RS			Material Description	Class 6F2	Test Method	Washing and Sieving
Site	QTS Blyth					Variation from Standard Method	None
Job Reference	MT2108						
Sample Location	TP02	Depth	0.50m			Method of Preparation	Cl 5.3.2
Source of Material	Site Arisings			Specification	SHW Series 600 Tbl 6/2	Pre-treatment Method	None



CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLE	BOULDERS
	SILT			SAND			GRAVEL				

Sieve (mm)	% Passing	Specification 6F2
500	100	
300	100	
125	100	100
90	100	80-100
75	100	65-100
63	100	
50	100	
37.5	94	45-100
28	88	
20	84	
14	69	
10	51	15-60
6.3	35	
5	30	10-45
3.35	25	
2	18	
1.18	13	
0.600	9.2	0-25
0.425	7.7	
0.300	6.5	
0.212	5.5	
0.150	4.6	
0.063	2.7	0-12

Dry Mass of Sample (g)		8170
BS EN 17892:2014 Water Content (%)		3.9
Particle Density	**Assumed**	2.65

Sample Proportions	% Dry mass
Very Coarse	0
Gravel	82
Sand	15
Fines <0.063mm	3

Grading Analysis	
D_{100}	50.000
D_{60}	12.0000
D_{30}	4.8250
D_{10}	0.72
Uniformity Coefficient	16.6
Curvature Coefficient	2.7

Sampled By	Client
Date Sampled	13/10/2025
Date Received	14/10/2025
Date Completed	23/10/2025
Date Reported	24/10/2025

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Remarks	Signed:
sample complies with 6F2 grading Specification	M. Aiston (Director)

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Unit 5-6, Innovation Court, Meadowfield Industrial Estate, Meadowfield, Durham, DH7 8FA

10258

Test Report:	**Determination of Resistance to Fragmentation - Los Angeles Method** BS EN 1097-2: 2020	**Report Date:**	31.10.2025
Client:	MGL Group Rennys Lane, Durham DH7 2RS	**Lab ref:** **Client ref:** **Date sampled:**	MT2108 25-7887 - 24.10.2025
Site:	QTS Blyth	**Sampled by:**	JK
Sample Location:	Stream 2 Stockpile (TP01)	**Date received:**	24.10.2025
Material Type:	6F2	**Date test completed:**	30.10.2025
Visual Description:	Natural Stone	**Test conducted by:**	HA
Size Fraction Used:	10-14mm		

Test Results

Los Angeles coefficient (LA)	**14**

Comments

Signed:

For & on behalf of
G2M Testing Ltd

Authorised Signatories:

[✓] M Aiston (Director)

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10258

Test Report:	**Classification Test for the Constituents of Coarse Recycled Aggregate** BS EN 933: Part 11: 2009	**Report Date:**	31.10.2025
Client:	MGL Group Rennys Lane Durham DH7 2RS	**Lab ref:** **Client ref:** **Date sampled:**	MT2108-25-7887 - 24.10.2025
Site:	QTS - Blyth	**Sampled by:**	Client
Sample Location:	Stream 2 Stockpile (TP01)	**Date received:**	24.10.2025
Material Type:	6F2 Site Won	**Date test completed:**	30.10.2025
Visual Description:	Natural Stone	**Test conducted by:**	NY
Specification:	SHW Series 600 Tbl6.5	**Drying Temperature:**	40C

Test Results

Material Description		Proportion Found	Specification %
Floating constituent (cm^3/kg)	**FL**	0	
Concrete & concrete products (%)	**Rc**	0	
Unbound aggregates, natural stone (%)	**Ru**	100	
Clay masonry (%)	**Rb**	0	
Bituminous material (%)	**Ra**	0	
Glass (%)	**Rg**	0	
Other materials (%)	**X**	0	

Comments:

Signed:

For & on behalf of
G2M Testing Ltd

Authorised Signatories:
[✓] M. Aiston (Director)

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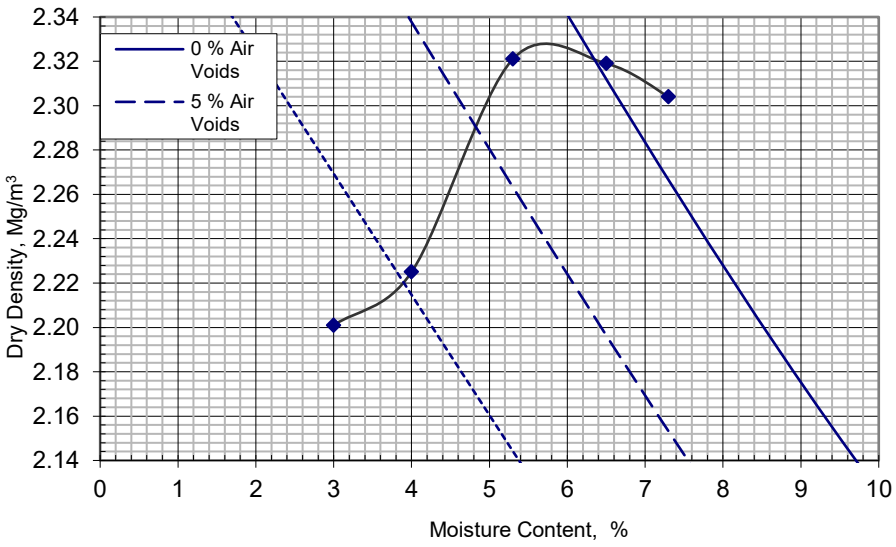
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Test Report:	**Determination of Dry Density/Moisture Content Relationship** BS 1377 Part 4 1990 Clause 3.7	**Report Date:**	30.10.2025
Client:	MGL Group Rennys Lane, durham DH7 2RS	**Lab ref:**	MT2108 25-7887
		Client ref:	
		Date sampled:	24.10.2025
Site:	QTS Blyth	**Sampled by:**	JK
Source:	Site Won	**Date received:**	24.10.2025
Sample location:	Stream 2 Stockpile (TP01)		
Material:	6F2 Natural Stone	**Date test completed:**	30.10.2025
Test Method:	3.7.5.1/3.7.5.2	**Test conducted by:**	DB
Sample Preparation:	Clause 3.2.4.2	**Max. size of cohesive pieces:**	20mm

Test Results

Mould Type:	CBR	% Retained on 37.5mm Sieve:	4.5
Grading Zone:	X	% Retained on 20mm Sieve:	22
~~Single~~/Multiple samples:		Particle Density (Mg/m^3) (assumed):	2.70

Maximum Dry Density (Mg/m^3):	2.33	**Optimum Moisture Content (%):**	5.5



Comments :

Material falls into grading zone X – Tested as a variation from standard.

Signed:

For & on behalf of
G2M Testing Ltd

Authorised Signatories:

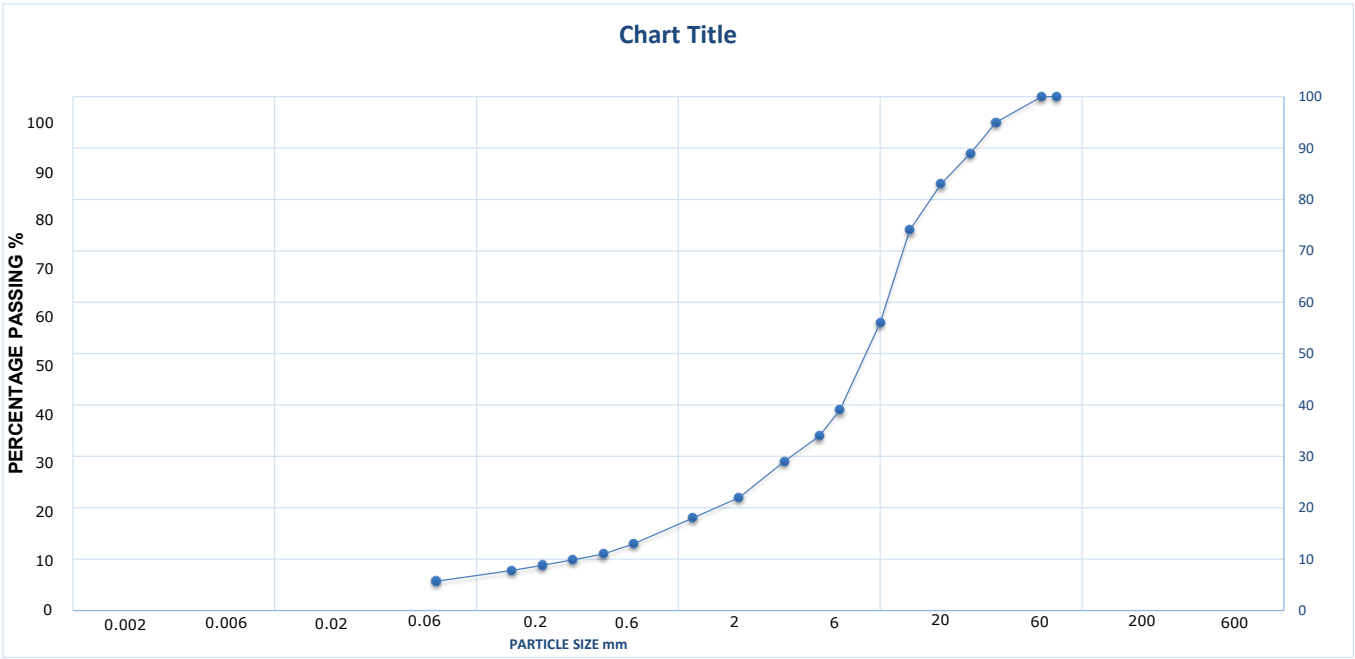
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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

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Unit 5-6, Innovation Court, Meadowfield Industrial Estate, Meadowfield, Durham, DH7 8FA

Client	MGL Group			Lab Reference	245-7480	Test Report	ISO 17892-4:2016
Client Address	Davison House, Rennys Lane, Durham DH1 2RS			Material Description	Class 6F2	Test Method	Washing and Sieving
Site	QTS Blyth					Variation from Standard Method	None
Job Reference	MT2108						
Sample Location	TP02	Depth	0.00			Method of Preparation	Cl 5.3.2
Source of Material	Site Arisings			Specification	SHW Series 600 Tbl 6/2	Pre-treatment Method	None



CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLE	BOULDERS
	SILT			SAND			GRAVEL				

Sieve (mm)	% Passing	Specification 6F2
500	100	
300	100	
125	100	100
90	100	80-100
75	100	65-100
63	100	
50	100	
37.5	95	45-100
28	89	
20	83	
14	74	
10	56	15-60
6.3	39	
5	34	10-45
3.35	29	
2	22	
1.18	18	
0.600	13	0-25
0.425	11	
0.300	10	
0.212	8.8	
0.150	7.8	
0.063	5.7	0-12

Dry Mass of Sample (g)		8620
BS EN 17892:2014 Water Content (%)		4.9
Particle Density	**Assumed**	2.65

Sample Proportions	% Dry mass
Very Coarse	0
Gravel	78
Sand	16
Fines <0.063mm	6

Grading Analysis	
D_{100}	50.000
D_{60}	10.8889
D_{30}	3.6800
D_{10}	0.31
Uniformity Coefficient	35.0
Curvature Coefficient	4.0

Sampled By	Client
Date Sampled	13/10/2025
Date Received	14/10/2025
Date Completed	23/10/2025
Date Reported	24/10/2025

UKAS TESTING
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Remarks	Signed:
sample complies with 6F2 grading Specification	M. Aiston (Director)

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Unit 5-6, Innovation Court, Meadowfield Industrial Estate, Meadowfield, Durham, DH7 8FA

10258

Test Report:	**Determination of Resistance to Fragmentation - Los Angeles Method** BS EN 1097-2: 2020	**Report Date:**	31.10.2025
Client:	MGL Group Rennys Lane, Durham DH7 2RS	**Lab ref:** **Client ref:** **Date sampled:**	MT2108 25-7888 - 24.10.2025
Site:	QTS Blyth	**Sampled by:**	JK
Sample Location:	Stream 2 Stockpile (TP02)	**Date received:**	24.10.2025
Material Type:	6F2	**Date test completed:**	30.10.2025
Visual Description:	Natural Stone	**Test conducted by:**	HA
Size Fraction Used:	10-14mm		

Test Results

Los Angeles coefficient (LA)	**14**

Comments

Signed:

Authorised Signatories:

[✓] M Aiston (Director)

For & on behalf of
G2M Testing Ltd

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Unit 5-6, Innovation Court, Meadowfield Industrial Estate, Meadowfield, Durham,

10258

Test Report:	**Classification Test for the Constituents of Coarse Recycled Aggregate** BS EN 933: Part 11: 2009	**Report Date:**	30.10.2025
Client:	MGL Group Rennys Lane Durham DH7 2RS	**Lab ref:** **Client ref:** **Date sampled:**	MT2108-25-7888 - 24.10.2025
Site:	QTS - Blyth	**Sampled by:**	Client
Sample Location:	Stream 2 Stockpile (TP02)	**Date received:**	24.10.2025
Material Type:	6F2 Site Won	**Date test completed:**	30.10.2025
Visual Description:	Natural Stone	**Test conducted by:**	NY
Specification:	SHW Series 600 Tbl6.5	**Drying Temperature:**	40C

Test Results

Material Description		Proportion Found	Specification %
Floating constituent (cm^3/kg)	**FL**	0	
Concrete & concrete products (%)	**Rc**	0	
Unbound aggregates, natural stone (%)	**Ru**	100	
Clay masonry (%)	**Rb**	0	
Bituminous material (%)	**Ra**	0	
Glass (%)	**Rg**	0	
Other materials (%)	**X**	0	

Comments:

Signed:

Authorised Signatories:
[✓] M. Aiston (Director)

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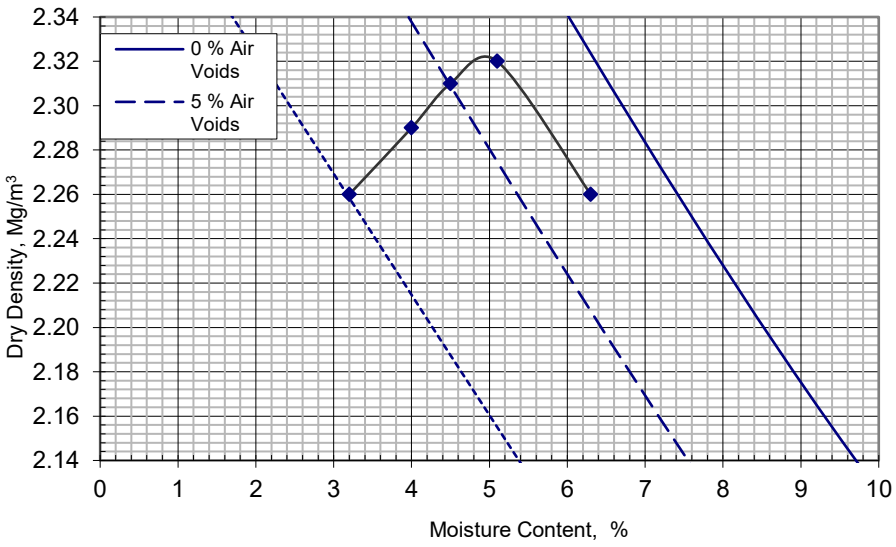
UKAS TESTING
10258

Test Report:	**Determination of Dry Density/Moisture Content Relationship** BS 1377 Part 4 1990 Clause 3.7	**Report Date:**	30.10.2025
Client:	MGL Group Rennys Lane, durham DH7 2RS	**Lab ref:**	MT2108 25-7888
		Client ref:	
		Date sampled:	24.10.2025
Site:	QTS Blyth	**Sampled by:**	JK
Source:	Site Won	**Date received:**	24.10.2025
Sample location:	Stream 2 Stockpile (TP02)		
Material:	6F2 Natural Stone	**Date test completed:**	30.10.2025
Test Method:	3.7.5.1/3.7.5.2	**Test conducted by:**	DB
Sample Preparation:	Clause 3.2.4.2	**Max. size of cohesive pieces:**	20mm

Test Results

Mould Type:	CBR	% Retained on 37.5mm Sieve:	4.8
Grading Zone:	X	% Retained on 20mm Sieve:	21
~~Single~~/Multiple samples:		Particle Density (Mg/m^3) (assumed):	2.70

Maximum Dry Density (Mg/m^3):	2.32	**Optimum Moisture Content (%):**	5.0



Comments :

Material falls into grading zone X – Tested as a variation from standard.

Signed:

Authorised Signatories:

[✓] M. Aiston (Director)

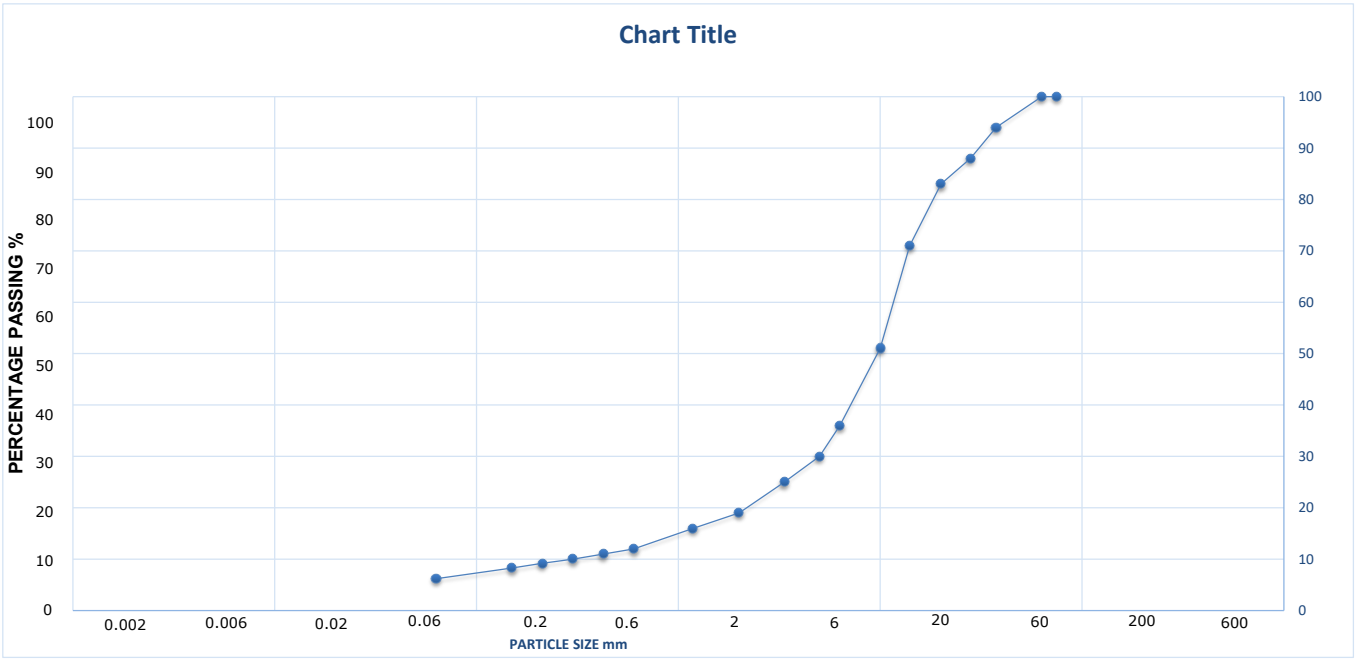
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DETERMINATION OF PARTICLE SIZE DISTRIBUTION

g2mtesting
Unit 5-6, Innovation Court, Meadowfield Industrial Estate, Meadowfield, Durham, DH7 8FA

Client	MGL Group			Lab Reference	245-7481	Test Report	ISO 17892-4:2016
Client Address	Davison House, Rennys Lane, Durham DH1 2RS			Material Description	Class 6F2	Test Method	Washing and Sieving
Site	QTS Blyth					Variation from Standard Method	None
Job Reference	MT2108						
Sample Location	TP03	Depth	0.00			Method of Preparation	Cl 5.3.2
Source of Material	Site Arisings			Specification	SHW Series 600 Tbl 6/2	Pre-treatment Method	None



CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLE	BOULDERS
	SILT			SAND			GRAVEL				

Sieve (mm)	% Passing	Specification 6F2
500	100	
300	100	
125	100	100
90	100	80-100
75	100	65-100
63	100	
50	100	
37.5	94	45-100
28	88	
20	83	
14	71	
10	51	15-60
6.3	36	
5	30	10-45
3.35	25	
2	19	
1.18	16	
0.600	12	0-25
0.425	11	
0.300	10	
0.212	9.2	
0.150	8.3	
0.063	6.2	0-12

Dry Mass of Sample (g)		8404
BS EN 17892:2014 Water Content (%)		4.7
Particle Density	**Assumed**	2.65

Sample Proportions	% Dry mass
Very Coarse	0
Gravel	81
Sand	13
Fines <0.063mm	6

Grading Analysis	
D_{100}	50.000
D_{60}	11.8000
D_{30}	4.6909
D_{10}	0.31
Uniformity Coefficient	38.5
Curvature Coefficient	6.1

Sampled By	Client
Date Sampled	13/10/2025
Date Received	14/10/2025
Date Completed	23/10/2025
Date Reported	24/10/2025

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Remarks	Signed:
sample complies with 6F2 grading Specification	M. Aiston (Director)

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Unit 5-6, Innovation Court, Meadowfield Industrial Estate, Meadowfield, Durham,

10258

Test Report:	**Classification Test for the Constituents of Coarse Recycled Aggregate** BS EN 933: Part 11: 2009	**Report Date:**	31.10.2025
Client:	MGL Group Rennys Lane Durham DH7 2RS	**Lab ref:** **Client ref:** **Date sampled:**	MT2108-25-7889 - 24.10.2025
Site:	QTS - Blyth	**Sampled by:**	Client
Sample Location:	Stream 2 Stockpile (TP03)	**Date received:**	24.10.2025
Material Type:	6F2 Site Won	**Date test completed:**	30.10.2025
Visual Description:	Natural Stone	**Test conducted by:**	NY
Specification:	SHW Series 600 Tbl6.5	**Drying Temperature:**	40C

Test Results

Material Description		Proportion Found	Specification %
Floating constituent (cm^3/kg)	**FL**	0	
Concrete & concrete products (%)	**Rc**	0	
Unbound aggregates, natural stone (%)	**Ru**	100	
Clay masonry (%)	**Rb**	0	
Bituminous material (%)	**Ra**	0	
Glass (%)	**Rg**	0	
Other materials (%)	**X**	0	

Comments:

Signed:

Authorised Signatories:
[✓] M. Aiston (Director)

For & on behalf of
G2M Testing Ltd

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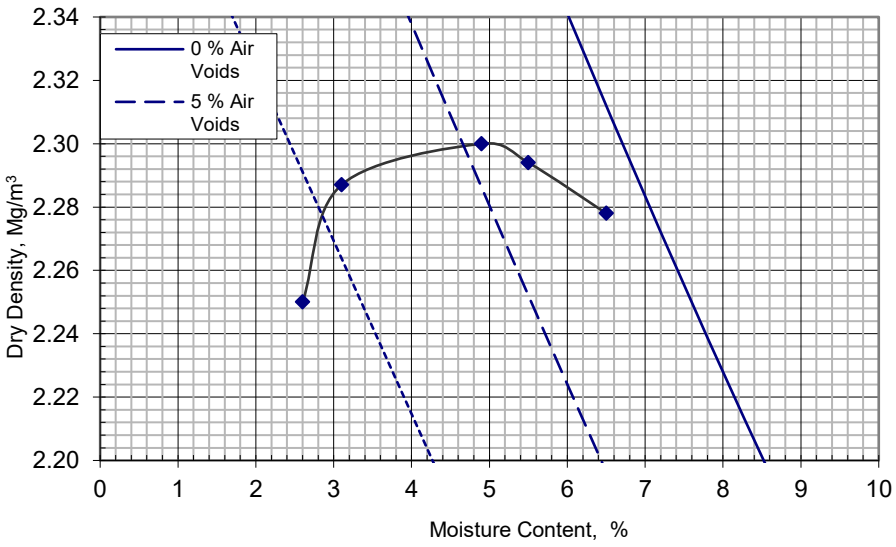
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Test Report:	**Determination of Dry Density/Moisture Content Relationship** BS 1377 Part 4 1990 Clause 3.7	**Report Date:**	30.10.2025
Client:	MGL Group Rennys Lane, durham DH7 2RS	**Lab ref:**	MT2108 25-7889
		Client ref:	
		Date sampled:	24.10.2025
Site:	QTS Blyth	**Sampled by:**	JK
Source:	Site Won	**Date received:**	24.10.2025
Sample location:	Stream 2 Stockpile (TP03)		
Material:	6F2 Natural Stone	**Date test completed:**	30.10.2025
Test Method:	3.7.5.1/3.7.5.2	**Test conducted by:**	DB
Sample Preparation:	Clause 3.2.4.2	**Max. size of cohesive pieces:**	20mm

Test Results

Mould Type:	CBR	% Retained on 37.5mm Sieve:	3.8
Grading Zone:	X	% Retained on 20mm Sieve:	18
~~Single~~/Multiple samples:		Particle Density (Mg/m^3) (assumed):	2.70

Maximum Dry Density (Mg/m^3):	2.30	**Optimum Moisture Content (%):**	4.9



Comments :

Material falls into grading zone X – Tested as a variation from standard.

Signed:

For & on behalf of
G2M Testing Ltd

Authorised Signatories:

[✓] M. Aiston (Director)

Page: 1 of 1

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Certificate of Analysis

Certificate Number	25-23908	*Issued:*	24-Oct-25

Client G2M Testing Ltd
Unit 5/6 Innovation Court
Meadowfield
County Durham
DH7 8FA

Our Reference	25-23908
Client Reference ~	MT2108
Order No ~	DT2658
Contract Title ~	QTS Blyth
Description	3 Soil samples.
Date Received	16-Oct-25
Date Started	16-Oct-25
Date Completed	24-Oct-25
Test Procedures	Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Louise Cook
Contracts Manager

2139

Normec DETS Limited
Unit 2, Park Road Industrial Estate South, Consett, Co Durham, DH8 5PY
Tel: 01207 582333 • email: info-dets@normecgroup.com • normecdets.com

Appendix 3 – In-Situ Testing Reports

Summary of Chemical Analysis
Soil Samples

Our Ref 25-23908
Client Ref ~ MT2108
Contract Title ~ QTS Blyth

			Lab No	2583780	2583781	2583782
			Sample ID ~	TP01	TP02	TP03
			Depth ~			
			Other ID ~	25-7479	25-7480	25-7481
			Sample Type ~	D	D	D
			Sampling Date ~	13/10/2025	13/10/2025	13/10/2025
			Sampling Time ~	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**			
Inorganics						
Loss on Ignition at 440oC	DETSC 2003#	0.01	%	1.5	1.2	1.4
pH	DETSC 2008#		pH	8.9	9.3	9.0
Sulphate Aqueous Extract as SO4 (2:1)	DETSC 2076#	10	mg/l	16	24	20
Sulphate, Total Potential as SO4	*	0.03	%	0.12	0.14	0.09
Sulphide, Oxidisable as SO4	*	0.01	%	0.11	0.13	0.09

Information in Support of the Analytical Results

Our Ref 25-23908
Client Ref ~ MT2108
Contract ~ QTS Blyth

Containers Received & Deviating Samples

Lab No	Sample ID ~	Date Sampled ~	Containers Received	Holding time exceeded for tests	Incorrect container for tests
2583780	TP01 SOIL	13/10/25	GJ 250ml, PT 1L		
2583781	TP02 SOIL	13/10/25	GJ 250ml, PT 1L		
2583782	TP03 SOIL	13/10/25	GJ 250ml, PT 1L		

Key: G-Glass P-Plastic J-Jar T-Tub

Normec DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 250µm sieve
Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.
The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-
Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Key:
~ Sample details are provided by the client and can affect the validity of the results
***** -not accredited.
# -MCERTS (accreditation only applies if report carries the MCERTS logo).
$ -subcontracted.
n/s -not supplied.
I/S -insufficient sample.
U/S -unsuitable sample.
t/f -to follow.
nd -not detected.

End of Report Ver 25.10.01

EXPLORATION
& TESTING ASSOCIATES

Unit 8B Bowburn South Industrial Estate
Durham
DH6 5AD

Tel. (+44) 0191 389 6543

UKAS TESTING 20632

Test Report
Determination of In-Situ Density by Nuclear Density Gauge
BS 1377-9:1990 Clause 2.5

Project	QTS Blyth	**Job Number**	D12042A
Client	G2M	**Date Tested**	24.10.2025
	Unit 5/6 Innovation Court	**Weather Conditions**	Sun
	Meadowfield Industrial Estate	**Air Temperature °C**	8
	Durham	**Sample Description**	Stream 2 6F2
	DH7 8FA	**Test Carried Out By:**	J.Cockburn

Requested By Client

Depth of Test from Groundlevel (m) 0

Comments 0

Gauge Used: Instro-Tek Nuclear Density Gauge - Model 3500 - Xplorer 2

Mode of Operation: Direct transmission procedure for bulk density

Test Method: Sec. 2.5.5.2 - Initial site calibration for bulk density
2) Ground investigation absolute test

Test Number :	Bulk Density Mg / m^3	Mositure Content %	Dry Density Mg / m^3
CT Layer1-2P	2.14	4.0	2.06
CT Layer1-4P	2.16	3.8	2.08
CT Layer1-6P	2.19	3.7	2.11
CT Layer1-8P	2.24	3.8	2.16
CT Layer1-10P	2.24	4.0	2.16
CT Layer1-12P	2.32	4.2	2.23

Unless otherwise specified, the tests were carried out in accordance with the published standards with no deviations.
Test results appertain to the locations referenced above and are correct at the time of testing.

Checked By: _____ Date: 27/10/2025
N. O'Brien - Quality and Technical Manager

Authorised By: _____ Date: 27/10/2025
M. Taberham - Quality Technician

EXPLORATION
& TESTING ASSOCIATES

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

Tel. (+44) 0191 389 6543

Test Report

Determination of In-Situ Density by Sand Replacement Method (Large Pouring Cylinder)

BS:1377-9:1990 Clause 2.2

Project	QTS Blyth	**Job Number**	D12042A
Client	G2M	**Date Tested**	24.10.2025
	Unit 5/6 Innovation Court	**Weather Conditions**	Cloudy
	Meadowfield Industrial Estate	**Air Temperature °C**	8
	Durham	**Sample Description**	Stream 2 6F2
	DH7 8FA	**Test Carried Out By:**	J.Cockburn
Depth of Test from Groundlevel	0	**Comments**	0

Test Number :	Bulk Density Mg / m^3	Moisture Content %	Dry Density Mg / m^3
CT L1-10P	2.24	4.0	2.15
CTL1-2P	2.10	4.6	2.00
CTL1-8P	2.20	4.1	2.11

Unless otherwise specified, the tests were carried out in accordance with the published standards with no deviations.
Test results appertain to the locations referenced above and are correct at the time of testing.

Checked By: _____ Date: 27/10/2025

N O'Brien - Quality & Technical Manager

Authorised By: _____ Date: 27/10/2025

Maxine Taberham - Quality Technician

Unit 5-6, Innovation Court, Meadowfield Industrial Estate, Meadowfield, Durham, DH7 8FA

UKAS TESTING
10258

Test Report: **Insitu-Density Test – Sand Replacement Method**

BS 1377: Part 9: 1990

Client:	MGL Group, Davison House, Rennys Lane, Durham, DH1 2RS	**Report Date:**	29.10.2025
		Lab ref:	MT2108 - 257882-7886
		Client ref:	-
Site:	QTS - Blyth	**Date Tested:**	24.10.2025
		Tested By:	JK / ETA
Sample Location:	CT L1	**Date Received:**	24.10.2025
Source of material:	Site Won	**Weather Conditions:**	Overcast / Wet 13°c
Visual Discription of Material	Stream 2 - 6F2	**Variation from Standard Method:**	None
Test Method	Clause 2.2 (large pouring cylinder)		

Test Results

Test No.	Bulk Density Mg/m³	MC %	Dry Density Mg/m³	Max D.D Mg/m³	Compaction %
CT - L1 - 4P (25-7882)	2.40	3.1	2.33	2.32	100
CT - L1 - 6P (25-7883)	2.43	3.1	2.34	2.32	101
CT - L1 -12P (25-7886)	2.43	3.1	2.34	2.32	101

Comments: Max D.D taken from average results of samples **25-7887-7889**

Signed:

Authorised Signatories:
[✓] M. Aiston (Director)
[ ] D. Anderson (Director)
[ ] J.Kelly Senior Site Technician

For & on behalf of
G2M Testing Ltd

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10258

In-Situ Vertical Deformation & Strength Test – Plate Loading Test

BS 1377: Part 9: 1990 clause 4.1

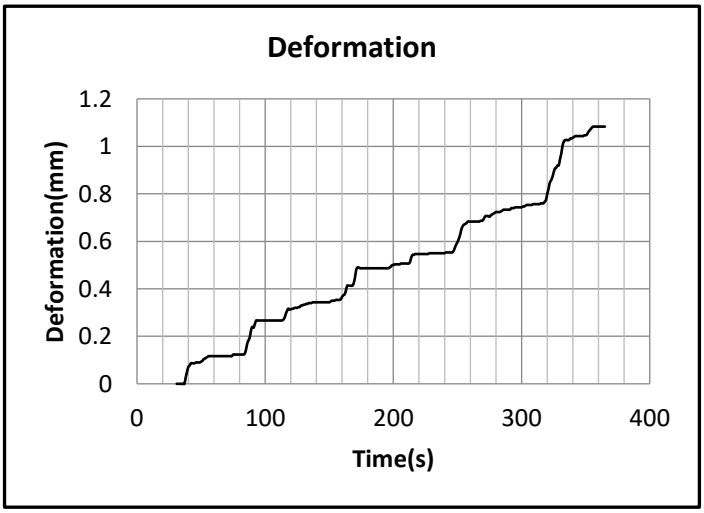
Client: MGL Group, Davison House, Rennys Lane, Durham, DH1 2RS

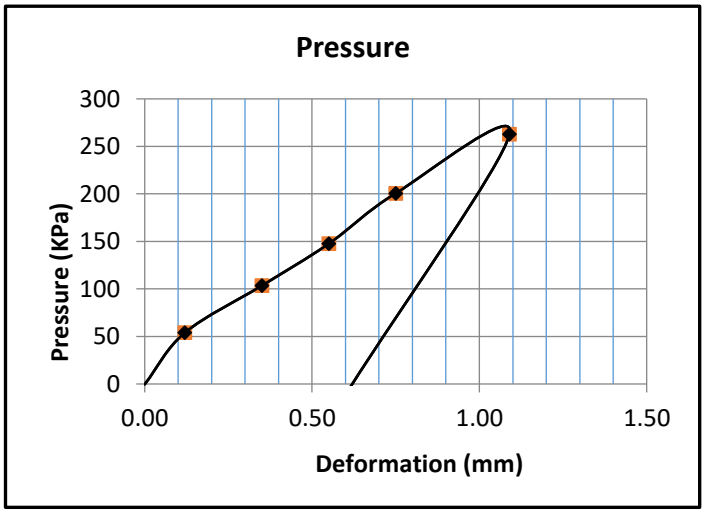
Site: QTS - Blyth

Location: CT L3 PLT 01
Test Depth (m): -
Visual Description: Stream 3 - 6F2

Report Date: 31.10.2025
Lab Reference: MT2108 - 257896
Date Tested: 24.10.2025
Conducted By: JK
Reaction Load: 33T Excavator
Weather: Overcast / Dry
Temperature (C): 13°c
Plate Diameter (mm): 610

Test Results





Increment	Pressure (kPa)	Plate Settlement (mm)
0	-0.3	0.00
1	54	0.12
2	103.5	0.35
3	147.6	0.55
4	200.6	0.75
5	262.7	1.09
Recovery	0	0.61

Maximum Applied Pressure (kPa)	262.7
Maximum Deformation (mm)	1.09
Pressure at 1.25mm (kPa)	291.9
Equivalent CBR Value (%)	86
Corrected CBR (BS 1377-9 - Cl. 4.3.5.1)	86
Modulus of Subgrade Reaction (MN/m2/m)	241.0
Effective compaction Indicator	0.54

Signed:

For and on behalf of
G2M Testing Ltd

Authorised Signatories:
[✓] M. Aiston (Director)
[ ] G. Batley (Laboratory Supervisor)
[ ] J. Kelly (Senior Site Technician)

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