APPENDIX F2
GEOTECHNICAL TESTING - ROCK

TEST	STANDARD
CLASSIFICATION TESTS	
Determination of water content	BS EN ISO 17892-1:2014
Determination of liquid limit	BS 1377 : 1990 : Part 2 : 4.3 and 4.4
Determination of liquid and plastic limits	BS EN ISO 17892-12:2018
Determination of bulk density	BS EN ISO 17892-2:2014
Determination of particle density	BS EN ISO 17892-3:2016
Determination of particle size distribution	BS EN ISO 17892-4:2016
CHEMICAL TESTS	
Determination of organic matter content	BS 1377 : 1990 : Part 3 : 3.4
Determination of mass loss on ignition	BS 1377 : 1990 : Part 3 : 4.3
Determination of sulphate content of soil and groundwater	BS 1377 : 1990 : Part 3 : 5.2, 5.3 and 5.5
Determination of chloride content	BS 1377 : 1990 : Part 3 : 7.2 and 7.3
Determination of pH value	BS 1377 : 1990 : Part 3 : 9.5
COMPACTION-RELATED TESTS	
Determination of dry density/moisture content relationship	BS 1377 : 1990 : Part 4 : 3.3 to 3.6
Determination of moisture condition value (MCV)	SDD Tech Memo SH7/83; SDD Appls Guide No.1 Rev. 1989
Determination of California Bearing Ratio (CBR)	BS 1377 : 1990 : Part 4 : 7.4
CONSOLIDATION AND STRENGTH TESTS	
Incremental loading oedemeter test	BS EN ISO 17892-5:2017
Unconfined compression test	BS EN ISO 17892-7:2018
Unconsolidated undrained triaxial test	BS EN ISO 17892-8:2018
Consolidated triaxial compression tests on water saturated soils	BS EN ISO 17892-9:2018
Lab Vane Tests	BS 1377 : 1990
Direct shear tests	BS EN ISO 17892-10:2019
Permeability tests	BS EN ISO 17892-11:2019
Fall cone test	BS EN ISO 17892-6:2017
ROCK TESTS	
Determination of point load strength	ISRM Commission on Testing Methods, 1985
Determination of unconfined compressive strength	ASTM D7012-14
LA Abrasion Tests	BS EN 1097-2-2010 and BS 818 : Part 2 : 1990
Magnesium Soundness Tests	BS EN 1367-2
Slake durability	ISRM Suggested methods
Rock porosity / density	ISRM Suggested methods

Exploratory Hole No.	Depth (m)	Sample Type	Test	Reason	Instruction
BH02	2.65	C	UCS	non suitable core	Axial and diametral taken at 2.65m
BH12	3.95	C	UCS	non suitable core	Axial and diametral taken at 3.95m
BH13	7.45	C	UCS	non suitable core	Axial and diametral taken at 7.58m and 7.65m respectively
BH16	7.10	C	UCS	non suitable core	Point load tested instead
BH23	3.55	C	Point Load	non suitable core	Lumps taken at 3.50m & 3.55m
BH24	3.80	C	Point Load	non suitable core	Carry out irregular lump test
BH24	5.90	C	UCS	non suitable core	Point load tested instead
BH25	5.90	C	UCS	non suitable core	Cancel test if there is no suitable core
BH25	11.70	C	UCS	Fractured upon reciept	Conduct Axial and Diametral PLT test at 11.7m. Where full diameter core is not available, undertake irregular (lump) test. Test to be undertaken at natural moisture content
BH27	6.60	C	Point Load	non suitable core	Lump taken at 6.60m

igne	Site: LT521 FASNAKYLE 400KV SUBSTATION Client: SSEN Transmission Engineer: Jacobs	**Contract No** **26560**

Sample Identification									
Hole ID	Depth m	Sample Ref	Sample Type	Lab Sample ID	10-14mm Size Fraction Passing 11.2mm Sieve %	Particle Density (8-12.5 mm) Mg/m³	Los Angeles Coefficient LA	Impact Value SZ	Test Date
BH13	4.00-4.55		C	2013658	35	~	21	~	~
BH16	1.40-4.40		C	2013703	35	~	21	~	~
BH22	7.50-10.00		C	2013218	35	~	37	~	~
BH27	5.50-7.10		C	2013653	35	~	22	~	~
						UKAS accredited test	Yes	No	

Notes: Opinions and interpretations are outside the scope of UKAS accreditation.

Originator	Approved
DW	CD 05/03/2024

RESISTANCE TO FRAGMENTATION BY LOS ANGELES AND IMPACT TEST METHODS
BS EN 1097-2:2020

Figure F1

Sheet 1 of 1

igne

Site LT521 FASNAKYLE 400KV SUBSTATION

Client SSEN Transmission

Engineer Jacobs

Contract No 26560

Sample Identification				Lab Sample ID	Size Fraction of the Aggregate	Mass of Material Tested	Apparent Particle Density (Pa)	Particle Density-Oven-dried Basis (Prd)	Particle Density-Saturated and Surface-dried Basis (Pssd)	Water Absorption (WA_{24})
Hole ID	Depth m	Sample Ref	Test Date		mm	g	Mg/m^3	Mg/m^3	Mg/m^3	%
BH21	4.40-4.90		C	2013215	31.5mm-4mm	4182	2.75	2.69	2.71	0.8

UKAS accredited test: Yes

Notes Opinions and interpretations are outside the scope of UKAS accreditation.

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DW	CD 05/03/2024

DETERMINATION OF PARTICLE DENSITY AND WATER ABSORPTION
BS EN 1097-6:2022 Clause 8

Figure F2

Sheet 1 of 1

igne

Site LT521 FASNAKYLE 400KV SUBSTATION

Client SSEN Transmission

Engineer Jacobs

Contract No 26560

Sample Identification				Lab Sample ID	Slaking Fluid Type / Temp	Fragments Retained in Drum	Fragments Passing Drum	Slake-Durability Index (second cycle)	Comments
Hole ID	Depth m	Sample Ref	Sample Type					%	
BH15	2.80-4.40		C	2013644	Tap Water / 20oC	Virtually Unchanged	Fines	98.6	~
BH17	4.30-6.10		C	2013646	Tap Water / 20oC	Virtually Unchanged	Fines	98.2	~
BH25	7.60-9.10		C	2013220	Tap Water / 20oC	Large and Small Fragments	Fines	82.8	~
BH27	7.90-9.90		C	2013655	Tap Water / 20oC	Large and Small Fragments	Fines	97.5	~
							UKAS accredited test	Yes	

Notes Opinions and interpretations are outside the scope of UKAS accreditation.

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SLAKE-DURABILITY INDEX (SECOND CYCLE)
ISRM Suggested Methods

Figure F3

62 Rochsolloch Road, Airdrie, ML6 9BG

igne

Site LT521 FASNAKYLE 400KV SUBSTATION

Client SSEN Transmission

Engineer Jacobs

Contract No 26560

Sample Identification				Lab Sample ID	Non Engineering Sample Description	Aggregate Size Fractions	Soundness Value (S) No.1	Soundness Value (S) No.2	Magnesium Sulphate Soundness Value (MS)
Location / Origin	Depth m	Sample Ref	Sample Type			mm	%	%	
BH18	2.90-4.40		C	2013648	Grey crushed gravel	14mm-10mm	9.2	7.3	8
BH22	4.00-5. 0		C	2013217	Grey Crushed Gravel	14mm-10mm	10.6	12.1	11
BH24	-6. 0		C	2013219	Grey Crushed Gravel	14mm-10mm	12.5	10.7	12
BH26			C	2013224	Grey Crushed Gravel	14mm-10mm	11.8	12.3	12

Subcontracted Test No

UKAS accredited test Yes

Notes Opinions and interpretations are outside the scope of UKAS accreditation.

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DETERMINATION OF MAGNESIUM SULFATE SOUNDNESS
BS EN 1367-2 : 2009

Figure F4

Sheet 1 of 1

igne

Site LT521 FASNAKYLE 400KV SUBSTATION

Client SSEN Transmission

Engineer Jacobs

Contract No 26560

Sample Identification				Lab Sample ID	Non Engineering Sample Description	Date Sample Received	Mass of Test Portion	Flakiness Index	Comments
Location / Origin	Depth m	Sample Ref	Sample Type				g	FI	
BH19	2.25-2.90		C	2013663	Grey Crushed Coarse to Fine Gravel	45310	11608	22	~

Subcontracted Test No

UKAS accredited test Yes

Notes Opinions and interpretations are outside the scope of UKAS accreditation.

Originator	Approved
DW	CD 05/03/2024

DETERMINATION OF PARTICLE SHAPE - FLAKINESS INDEX
BS EN 933-3 : 2012

Figure F5

Sheet 1 of 1

igne

Site LT521 FASNAKYLE 400KV SUBSTATION

Client SSEN Transmission

Engineer Jacobs

Contract No 26560

Sample Identification				Lab Sample ID	Non Engineering Sample Description	Sample Certificate Available	Test Condition Of Specimen	Aggregate Crushing Value	Comments
Location / Origin	Depth m	Sample Ref	Sample Type			Yes / No	Dry / Soaked		
BH11	3.70-6.10		C	2013702	Grey crushed gravel	No	Dry	18	~
BH20	2.90-3.50		C	2013650	Grey crushed gravel	No	Dry	15	~
BH25	9.50-13.10		C	2013221	Greys crushed GRAVEL	No	Dry	16	
BH28	6.95-9.95		C	2013706	Grey crushed gravel	No	Dry	16	~

Subcontracted Test

UKAS accredited test Yes

Notes Opinions and interpretations are outside the scope of UKAS accreditation.

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DETERMINATION OF AGGREGATE CRUSHING VALUE (ACV)
BS 812 : Part 110 : 1990

Figure F6

62 Rochsolloch Road, Airdrie, ML6 9BG
Lab Project No A15075-R1 : 05/03/2024

igne	Site: LT521 FASNAKYLE 400KV SUBSTATION	Contract No **26560**
	Client: SSEN Transmission	~ Indicates test not carried out
	Engineer: Jacobs	

Sample Identification								
Exploratory Hole	Depth m	Orientation of Test	Dimension A mm	Dimension B mm	Load kN	Is MN/m²	Corrected Is(50) MN/m²	Comments
BH02	2.65	Axial	79.0	34.0	4.3	1.26	1.35	
BH02	2.65	Diametral	254.0	79.0	4.4	0.71	0.87	
BH02	2.90	Axial	80.0	95.0	19.8	2.05	2.77	
BH02	4.40	Axial	80.0	56.0	5.8	1.02	1.22	
BH02	4.40	Diametral	237.0	80.0	30.2	4.72	5.83	
BH03	2.30	Lump	64.0	44.0	30.2	8.42	9.13	
BH03	2.60	Axial	80.0	42.0	45.0	10.52	11.87	
BH03	3.65	Axial	80.0	38.0	40.9	10.57	11.66	
BH03	3.65	Diametral	298.0	80.0	45.0	7.03	8.69	
BH04	2.00	Axial	103.0	59.0	40.5	5.23	6.75	

Notes

1. Dimension A= Minimum Width for Lump Tests
   Dimension A=Length for Diametral Tests
   Dimension A=Diameter for Axial Tests
   Dimension B=Platen Separation
2. Moisture Content of sample : as-received
3. All preparation and testing carried out in accordance with ISRM Commission on Testing Methods 1985
4. Opinions and interpretations are outside the scope of UKAS accreditation
5. Carried out parallel/perpendicular to bedding planes where obvious otherwise core shape used to determine orientation

Originator	Approved		
DW	CD 05/03/2024	**POINT LOAD INDEX TESTS**	**Figure F7**

Site	LT521 FASNAKYLE 400KV SUBSTATION	**Contract No 26560**
Client	SSEN Transmission	~ Indicates test not carried out
Engineer	Jacobs	

Sample Identification		Orientation of Test	Dimension A	Dimension B	Load	Is	Corrected Is(50)	Comments
Exploratory Hole	Depth m		mm	mm	kN	MN/m²	MN/m²	
BH04	2.00	Diametral	148.0	103.0	45.0	4.24	5.87	
BH04	4.65	Axial	102.0	69.0	28.0	3.12	4.16	
BH04	4.65	Diametral	179.0	102.0	12.7	1.22	1.68	
BH04	4.70	Lump	67.0	51.0	8.9	2.05	2.32	
BH04	5.70	Axial	102.0	88.0	25.7	2.25	3.17	
BH04	5.70	Diametral	299.0	103.0	39.8	3.75	5.19	
BH08	2.15	Axial	103.0	65.0	45.0	5.28	6.96	
BH08	2.15	Diametral	287.0	103.0	42.3	3.99	5.52	
BH08	3.50	Axial	103.0	59.0	35.4	4.58	5.90	
BH08	3.50	Diametral	226.0	103.0	30.2	2.85	3.94	

Notes

1. Dimension A= Minimum Width for Lump Tests
   Dimension A=Length for Diametral Tests
   Dimension A=Diameter for Axial Tests
   Dimension B=Platen Separation
2. Moisture Content of sample : as-received
3. All preparation and testing carried out in accordance with ISRM Commission on Testing Methods 1985
4. Opinions and interpretations are outside the scope of UKAS accreditation
5. Carried out parallel/perpendicular to bedding planes where obvious otherwise core shape used to determine orientation

Originator	Approved
DW	CD 05/03/2024

POINT LOAD INDEX TESTS

Figure F7

igne	Site: LT521 FASNAKYLE 400KV SUBSTATION	Contract No **26560**
	Client: SSEN Transmission	~ Indicates test not carried out
	Engineer: Jacobs	

Sample Identification								
Exploratory Hole	Depth m	Orientation of Test	Dimension A mm	Dimension B mm	Load kN	Is MN/m²	Corrected Is(50) MN/m²	Comments
BH09	3.40	Axial	103.0	61.0	29.6	3.70	4.81	
BH09	3.40	Diametral	135.0	103.0	32.5	3.06	4.24	
BH09	3.50	Lump	58.0	42.0	12.9	4.16	4.37	
BH09	5.10	Axial	103.0	59.0	28.7	3.71	4.78	
BH09	5.10	Diametral	209.0	103.0	25.4	2.39	3.31	
BH09	5.40	Lump	65.0	32.0	18.7	7.06	7.15	
BH09	6.50	Axial	103.0	60.0	32.0	4.07	5.26	
BH09	6.50	Diametral	165.0	103.0	35.1	3.31	4.58	
BH11	1.50	Axial	80.0	34.0	12.4	3.58	3.85	
BH11	1.50	Diametral	197.0	80.0	4.3	0.67	0.83	

Notes

1. Dimension A= Minimum Width for Lump Tests
   Dimension A=Length for Diametral Tests
   Dimension A=Diameter for Axial Tests
   Dimension B=Platen Separation
2. Moisture Content of sample : as-received
3. All preparation and testing carried out in accordance with ISRM Commission on Testing Methods 1985
4. Opinions and interpretations are outside the scope of UKAS accreditation
5. Carried out parallel/perpendicular to bedding planes where obvious otherwise core shape used to determine orientation

Originator	Approved	
DW	CD 05/03/2024	**POINT LOAD INDEX TESTS**

Figure F7

igne	Site: LT521 FASNAKYLE 400KV SUBSTATION	Contract No **26560**
	Client: SSEN Transmission	~ Indicates test not carried out
	Engineer: Jacobs	

Sample Identification		Orientation of Test	Dimension A	Dimension B	Load	Is	Corrected Is(50)	Comments
Exploratory Hole	Depth m		mm	mm	kN	MN/m²	MN/m²	
BH11	3.60	Lump	98.0	39.0	26.7	5.49	6.37	
BH11	3.90	Axial	80.0	45.0	40.7	8.88	10.18	
BH11	3.90	Diametral	149.0	80.0	37.6	5.88	7.26	
BH11	5.50	Axial	80.0	30.0	42.5	13.91	14.55	
BH12	3.95	Axial	80.0	45.0	35.8	7.81	8.95	
BH12	3.95	Diametral	1.0	80.0	40.2	6.28	7.76	
BH12	4.30	Axial	80.0	97.0	29.8	3.02	4.11	
BH12	5.85	Axial	79.0	48.0	30.6	6.34	7.35	
BH12	5.85	Diametral	265.0	80.0	35.4	5.53	6.83	
BH13	2.00	Lump	56.0	32.0	20.5	8.98	8.80	

Notes

1. Dimension A= Minimum Width for Lump Tests
   Dimension A=Length for Diametral Tests
   Dimension A=Diameter for Axial Tests
   Dimension B=Platen Separation
2. Moisture Content of sample : as-received
3. All preparation and testing carried out in accordance with ISRM Commission on Testing Methods 1985
4. Opinions and interpretations are outside the scope of UKAS accreditation
5. Carried out parallel/perpendicular to bedding planes where obvious otherwise core shape used to determine orientation

Originator	Approved
DW	CD 05/03/2024

POINT LOAD INDEX TESTS

Figure F7

Site	LT521 FASNAKYLE 400KV SUBSTATION	**Contract No 26560**
Client	SSEN Transmission	~ Indicates test not carried out
Engineer	Jacobs	

Sample Identification		Orientation of Test	Dimension A	Dimension B	Load	Is	Corrected Is(50)	Comments
Exploratory Hole	Depth m		mm	mm	kN	MN/m²	MN/m²	
BH13	2.33	Axial	103.0	59.0	32.8	4.24	5.47	
BH13	2.75	Axial	103.0	62.0	39.8	4.89	6.38	
BH13	2.75	Diametral	198.0	103.0	40.7	3.84	5.31	
BH13	3.70	Axial	103.0	84.0	38.5	3.49	4.88	
BH13	3.70	Diametral	234.0	103.0	35.8	3.37	4.67	
BH13	5.15	Lump	115.0	39.0	18.7	3.27	3.94	
BH13	5.70	Axial	103.0	58.0	43.2	5.68	7.30	
BH13	6.20	Axial	103.0	50.0	41.5	6.33	7.86	
BH13	6.20	Diametral	165.0	103.0	45.0	4.24	5.87	
BH13	7.50	Axial	103.0	62.0	43.1	5.30	6.91	

Notes

1. Dimension A= Minimum Width for Lump Tests
   Dimension A=Length for Diametral Tests
   Dimension A=Diameter for Axial Tests
   Dimension B=Platen Separation
2. Moisture Content of sample : as-received
3. All preparation and testing carried out in accordance with ISRM Commission on Testing Methods 1985
4. Opinions and interpretations are outside the scope of UKAS accreditation
5. Carried out parallel/perpendicular to bedding planes where obvious otherwise core shape used to determine orientation

Originator	Approved
DW	CD 05/03/2024

POINT LOAD INDEX TESTS

Figure F7

igne

Site: LT521 FASNAKYLE 400KV SUBSTATION

Client: SSEN Transmission

Engineer: Jacobs

Contract No 26560

~ Indicates test not carried out

Sample Identification		Orientation of Test	Dimension A	Dimension B	Load	Is	Corrected Is(50)	Comments
Exploratory Hole	Depth m		mm	mm	kN	MN/m²	MN/m²	
BH13	7.58	Diametral	254.0	103.0	45.0	4.24	5.87	
BH13	7.65	Axial	103.0	44.0	45.0	7.80	9.41	
BH14	1.54	Axial	79.0	69.0	42.6	6.14	7.72	
BH14	1.54	Diametral	156.0	79.0	40.2	6.44	7.91	
BH14	2.77	Lump	65.0	49.0	19.5	4.81	5.36	
BH14	3.17	Axial	79.0	59.0	43.2	7.28	8.84	
BH14	4.40	Axial	79.0	50.0	45.0	8.95	10.47	
BH14	4.40	Diametral	198.0	79.0	45.0	7.21	8.86	
BH14	4.70	Lump	87.0	65.0	23.4	3.25	4.12	
BH14	5.55	Axial	79.0	65.0	40.2	6.15	7.63	

Notes

1. Dimension A= Minimum Width for Lump Tests
   Dimension A=Length for Diametral Tests
   Dimension A=Diameter for Axial Tests
   Dimension B=Platen Separation
2. Moisture Content of sample : as-received
3. All preparation and testing carried out in accordance with ISRM Commission on Testing Methods 1985
4. Opinions and interpretations are outside the scope of UKAS accreditation
5. Carried out parallel/perpendicular to bedding planes where obvious otherwise core shape used to determine orientation

Originator	Approved
DW	CD 05/03/2024

POINT LOAD INDEX TESTS

Figure F7

Site	LT521 FASNAKYLE 400KV SUBSTATION	**Contract No 26560**
Client	SSEN Transmission	~ Indicates test not carried out
Engineer	Jacobs	

Sample Identification		Orientation of Test	Dimension A	Dimension B	Load	Is	Corrected Is(50)	Comments
Exploratory Hole	Depth m		mm	mm	kN	MN/m²	MN/m²	
BH14	6.52	Axial	79.0	54.0	43.2	7.95	9.47	
BH14	6.52	Diametral	123.0	79.0	38.4	6.15	7.56	
BH15	1.30	Axial	103.0	36.0	42.1	8.92	10.29	
BH15	1.65	Lump	87.0	40.0	19.2	4.33	4.93	
BH15	2.50	Axial	103.0	59.0	40.7	5.26	6.78	
BH15	2.50	Diametral	159.0	103.0	32.4	3.05	4.23	
BH15	3.40	Axial	102.0	30.0	45.0	11.55	12.76	
BH15	3.40	Diametral	235.0	102.0	45.0	4.33	5.96	
BH15	5.10	Lump	109.0	42.0	26.4	4.53	5.48	
BH15	5.45	Axial	103.0	50.0	30.1	4.59	5.70	

Notes

1. Dimension A= Minimum Width for Lump Tests
   Dimension A=Length for Diametral Tests
   Dimension A=Diameter for Axial Tests
   Dimension B=Platen Separation
2. Moisture Content of sample : as-received
3. All preparation and testing carried out in accordance with ISRM Commission on Testing Methods 1985
4. Opinions and interpretations are outside the scope of UKAS accreditation
5. Carried out parallel/perpendicular to bedding planes where obvious otherwise core shape used to determine orientation

Originator	Approved
DW	CD 05/03/2024

POINT LOAD INDEX TESTS

Figure F7

igne	Site: LT521 FASNAKYLE 400KV SUBSTATION	Contract No **26560**
	Client: SSEN Transmission	~ Indicates test not carried out
	Engineer: Jacobs	

Sample Identification		Orientation of Test	Dimension A	Dimension B	Load	Is	Corrected Is(50)	Comments
Exploratory Hole	Depth m		mm	mm	kN	MN/m²	MN/m²	
BH15	6.70	Axial	102.0	87.0	32.1	2.84	3.99	
BH15	6.70	Diametral	168.0	102.0	38.9	3.74	5.15	
BH16	5.25	Lump	112.0	35.0	18.9	3.79	4.42	
BH16	5.65	Axial	103.0	49.0	30.9	4.81	5.95	
BH16	5.75	Axial	102.0	80.0	35.8	3.45	4.75	
BH16	5.75	Diametral	214.0	103.0	28.7	2.71	3.74	
BH16	7.10	Axial	103.0	50.0	30.7	4.68	5.82	
BH16	7.10	Diametral	265.0	103.0	37.8	3.56	4.93	
BH16	7.25	Axial	103.0	56.0	40.7	5.54	7.06	
BH16	7.25	Diametral	168.0	103.0	31.4	2.96	4.10	

Notes

1. Dimension A= Minimum Width for Lump Tests
   Dimension A=Length for Diametral Tests
   Dimension A=Diameter for Axial Tests
   Dimension B=Platen Separation
2. Moisture Content of sample : as-received
3. All preparation and testing carried out in accordance with ISRM Commission on Testing Methods 1985
4. Opinions and interpretations are outside the scope of UKAS accreditation
5. Carried out parallel/perpendicular to bedding planes where obvious otherwise core shape used to determine orientation

Originator	Approved		
DW	CD 05/03/2024	**POINT LOAD INDEX TESTS**	**Figure F7**

Site	LT521 FASNAKYLE 400KV SUBSTATION	**Contract No 26560**
Client	SSEN Transmission	~ Indicates test not carried out
Engineer	Jacobs	

Sample Identification		Orientation of Test	Dimension A	Dimension B	Load	Is	Corrected Is(50)	Comments
Exploratory Hole	Depth m		mm	mm	kN	MN/m²	MN/m²	
BH17	3.50	Axial	103.0	64.0	45.0	5.36	7.04	
BH17	3.50	Diametral	312.0	103.0	40.2	3.79	5.25	
BH17	4.30	Axial	101.0	55.0	37.4	5.29	6.68	
BH17	4.60	Lump	141.0	33.0	15.4	2.60	3.16	
BH17	6.50	Axial	103.0	69.0	45.0	4.97	6.64	
BH17	6.80	Diametral	241.0	103.0	45.0	4.24	5.87	
BH17	8.00	Axial	103.0	58.0	45.0	5.92	7.60	
BH17	8.00	Diametral	177.0	103.0	39.8	3.75	5.19	
BH18	4.00	Axial	103.0	87.0	39.4	3.45	4.86	
BH18	4.00	Diametral	171.0	103.0	27.2	2.56	3.55	

Notes

1. Dimension A= Minimum Width for Lump Tests
   Dimension A=Length for Diametral Tests
   Dimension A=Diameter for Axial Tests
   Dimension B=Platen Separation
2. Moisture Content of sample : as-received
3. All preparation and testing carried out in accordance with ISRM Commission on Testing Methods 1985
4. Opinions and interpretations are outside the scope of UKAS accreditation
5. Carried out parallel/perpendicular to bedding planes where obvious otherwise core shape used to determine orientation

Originator	Approved
DW	CD 05/03/2024

POINT LOAD INDEX TESTS

Figure F7

igne	Site: LT521 FASNAKYLE 400KV SUBSTATION	Contract No **26560**
	Client: SSEN Transmission	~ Indicates test not carried out
	Engineer: Jacobs	

Sample Identification		Orientation of Test	Dimension A	Dimension B	Load	Is	Corrected Is(50)	Comments
Exploratory Hole	Depth m		mm	mm	kN	MN/m²	MN/m²	
BH18	5.10	Axial	103.0	56.0	35.4	4.82	6.14	
BH18	5.10	Diametral	193.0	103.0	4.5	0.42	0.59	
BH18	6.80	Axial	103.0	45.0	42.8	7.25	8.80	
BH18	6.80	Diametral	261.0	103.0	35.1	3.31	4.58	
BH19	3.33	Axial	103.0	64.0	42.9	5.11	6.71	
BH19	3.33	Diametral	153.0	103.0	40.1	3.78	5.23	
BH19	3.62	Lump	98.0	63.0	25.4	3.23	4.18	
BH19	4.03	Axial	103.0	58.0	36.5	4.80	6.16	
BH19	4.85	Lump	52.0	32.0	16.4	7.74	7.46	
BH19	5.15	Axial	103.0	52.0	38.7	5.67	7.11	

Notes

1. Dimension A= Minimum Width for Lump Tests
   Dimension A=Length for Diametral Tests
   Dimension A=Diameter for Axial Tests
   Dimension B=Platen Separation
2. Moisture Content of sample : as-received
3. All preparation and testing carried out in accordance with ISRM Commission on Testing Methods 1985
4. Opinions and interpretations are outside the scope of UKAS accreditation
5. Carried out parallel/perpendicular to bedding planes where obvious otherwise core shape used to determine orientation

Originator	Approved
DW	CD 05/03/2024

POINT LOAD INDEX TESTS

Figure F7

igne	Site: LT521 FASNAKYLE 400KV SUBSTATION	Contract No **26560**
	Client: SSEN Transmission	~ Indicates test not carried out
	Engineer: Jacobs	

Sample Identification		Orientation of Test	Dimension A	Dimension B	Load	Is	Corrected Is(50)	Comments
Exploratory Hole	Depth m		mm	mm	kN	MN/m²	MN/m²	
BH19	5.75	Axial	103.0	67.0	45.0	5.12	6.80	
BH19	5.75	Diametral	200.0	103.0	45.0	4.24	5.87	
BH20	1.10	Axial	103.0	45.0	19.8	3.36	4.07	
BH20	1.10	Diametral	205.0	103.0	13.2	1.24	1.72	
BH20	1.50	Lump	94.0	42.0	16.7	3.32	3.89	
BH20	2.30	Axial	102.0	86.0	42.5	3.81	5.33	
BH20	2.80	Axial	102.0	49.0	45.0	7.07	8.73	
BH20	2.80	Diametral	182.0	102.0	37.7	3.62	4.99	
BH20	5.10	Lump	84.0	55.0	23.1	3.93	4.76	
BH20	5.10	Lump	198.0	46.0	23.4	2.02	2.85	

Notes

1. Dimension A= Minimum Width for Lump Tests
   Dimension A=Length for Diametral Tests
   Dimension A=Diameter for Axial Tests
   Dimension B=Platen Separation
2. Moisture Content of sample : as-received
3. All preparation and testing carried out in accordance with ISRM Commission on Testing Methods 1985
4. Opinions and interpretations are outside the scope of UKAS accreditation
5. Carried out parallel/perpendicular to bedding planes where obvious otherwise core shape used to determine orientation

Originator	Approved		
DW	CD 05/03/2024	**POINT LOAD INDEX TESTS**	**Figure F7**

igne

Site: LT521 FASNAKYLE 400KV SUBSTATION

Client: SSEN Transmission

Engineer: Jacobs

Contract No 26560

~ Indicates test not carried out

Sample Identification		Orientation of Test	Dimension A	Dimension B	Load	Is	Corrected Is(50)	Comments
Exploratory Hole	Depth m		mm	mm	kN	MN/m²	MN/m²	
BH21	4.10	Axial	102.0	59.0	19.3	2.52	3.24	
BH21	4.15	Diametral	116.0	102.0	21.6	2.08	2.86	
BH21	5.30	Lump	103.0	95.0	10.6	0.85	1.22	
BH21	5.40	Diametral	131.0	103.0	11.9	1.12	1.55	
BH21	6.20	Lump	184.0	89.0	6.9	0.33	0.53	
BH21	7.00	Lump	109.0	54.0	7.8	1.04	1.33	
BH21	7.20	Axial	102.0	58.0	12.8	1.70	2.18	
BH21	7.30	Diametral	254.0	103.0	9.7	0.91	1.27	
BH21	7.40	Axial	103.0	78.0	11.5	1.12	1.54	
BH22	5.30	Diametral	241.0	103.0	1.4	0.13	0.18	

Notes

1. Dimension A= Minimum Width for Lump Tests
   Dimension A=Length for Diametral Tests
   Dimension A=Diameter for Axial Tests
   Dimension B=Platen Separation
2. Moisture Content of sample : as-received
3. All preparation and testing carried out in accordance with ISRM Commission on Testing Methods 1985
4. Opinions and interpretations are outside the scope of UKAS accreditation
5. Carried out parallel/perpendicular to bedding planes where obvious otherwise core shape used to determine orientation

Originator	Approved
DW	CD 05/03/2024

POINT LOAD INDEX TESTS

Figure F7

igne	Site: LT521 FASNAKYLE 400KV SUBSTATION	Contract No **26560**
	Client: SSEN Transmission	~ Indicates test not carried out
	Engineer: Jacobs	

Sample Identification		Orientation of Test	Dimension A	Dimension B	Load	Is	Corrected Is(50)	Comments
Exploratory Hole	Depth m		mm	mm	kN	MN/m²	MN/m²	
BH22	5.40	Axial	103.0	96.0	1.6	0.13	0.18	
BH22	5.90	Axial	103.0	82.0	0.3	0.03	0.04	
BH22	6.00	Diametral	178.0	102.0	1.7	0.16	0.23	
BH22	7.75	Diametral	240.0	102.0	4.7	0.45	0.62	
BH22	7.85	Axial	102.0	67.0	1.4	0.16	0.22	
BH22	9.20	Axial	102.0	54.0	3.0	0.43	0.54	
BH22	9.30	Diametral	271.0	102.0	7.2	0.69	0.95	
BH22	10.20	Axial	102.0	59.0	4.5	0.59	0.76	
BH22	10.30	Diametral	186.0	103.0	1.1	0.10	0.14	
BH22	11.10	Axial	103.0	43.0	3.2	0.57	0.68	

Notes

1. Dimension A= Minimum Width for Lump Tests
   Dimension A=Length for Diametral Tests
   Dimension A=Diameter for Axial Tests
   Dimension B=Platen Separation
2. Moisture Content of sample : as-received
3. All preparation and testing carried out in accordance with ISRM Commission on Testing Methods 1985
4. Opinions and interpretations are outside the scope of UKAS accreditation
5. Carried out parallel/perpendicular to bedding planes where obvious otherwise core shape used to determine orientation

Originator	Approved
DW	CD 05/03/2024

POINT LOAD INDEX TESTS

Figure F7

Site	LT521 FASNAKYLE 400KV SUBSTATION	Contract No **26560**
Client	SSEN Transmission	~ Indicates test not carried out
Engineer	Jacobs	

Sample Identification		Orientation of Test	Dimension A	Dimension B	Load	Is	Corrected Is(50)	Comments
Exploratory Hole	Depth m		mm	mm	kN	MN/m²	MN/m²	
BH22	11.20	Diametral	148.0	102.0	1.8	0.17	0.24	
BH23	2.16	Lump	124.0	42.0	5.9	0.89	1.11	
BH23	2.35	Axial	101.0	78.0	18.0	1.79	2.45	
BH23	3.55	Lump	175.0	60.0	13.7	1.02	1.49	
BH23	3.55	Lump	192.0	52.0	1.8	0.14	0.20	
BH23	5.00	Axial	103.0	47.0	8.7	1.41	1.73	
BH23	5.00	Diametral	202.0	103.0	16.1	1.52	2.10	
BH24	3.75	Lump	104.0	45.0	2.1	0.35	0.43	
BH24	3.80	Lump	135.0	45.0	4.8	0.62	0.80	
BH24	5.05	Axial	103.0	61.0	32.2	4.03	5.23	

Notes

1. Dimension A= Minimum Width for Lump Tests
   Dimension A=Length for Diametral Tests
   Dimension A=Diameter for Axial Tests
   Dimension B=Platen Separation
2. Moisture Content of sample : as-received
3. All preparation and testing carried out in accordance with ISRM Commission on Testing Methods 1985
4. Opinions and interpretations are outside the scope of UKAS accreditation
5. Carried out parallel/perpendicular to bedding planes where obvious otherwise core shape used to determine orientation

Originator	Approved
DW	CD 05/03/2024

POINT LOAD INDEX TESTS

Figure F7

igne	Site: LT521 FASNAKYLE 400KV SUBSTATION	Contract No **26560**
	Client: SSEN Transmission	~ Indicates test not carried out
	Engineer: Jacobs	

Sample Identification		Orientation of Test	Dimension A	Dimension B	Load	Is	Corrected Is(50)	Comments
Exploratory Hole	Depth m		mm	mm	kN	MN/m²	MN/m²	
BH24	5.10	Diametral	70.0	102.0	4.6	0.44	0.61	
BH24	6.10	Axial	103.0	63.0	2.0	0.24	0.32	
BH24	6.20	Axial	103.0	70.0	0.9	0.10	0.13	
BH24	6.40	Diametral	102.0	103.0	1.0	0.09	0.13	
BH24	7.85	Axial	103.0	98.0	2.3	0.18	0.26	
BH24	7.95	Diametral	213.0	103.0	1.6	0.15	0.21	
BH25	7.60	Axial	102.0	70.0	1.8	0.20	0.26	
BH25	7.65	Diametral	141.0	102.0	2.6	0.25	0.34	
BH25	9.20	Axial	103.0	45.0	2.4	0.41	0.49	
BH25	10.80	Axial	104.0	66.0	1.6	0.18	0.24	

Notes

1. Dimension A= Minimum Width for Lump Tests
   Dimension A=Length for Diametral Tests
   Dimension A=Diameter for Axial Tests
   Dimension B=Platen Separation
2. Moisture Content of sample : as-received
3. All preparation and testing carried out in accordance with ISRM Commission on Testing Methods 1985
4. Opinions and interpretations are outside the scope of UKAS accreditation
5. Carried out parallel/perpendicular to bedding planes where obvious otherwise core shape used to determine orientation

Originator	Approved
DW	CD 05/03/2024

POINT LOAD INDEX TESTS

Figure F7

Site	LT521 FASNAKYLE 400KV SUBSTATION	**Contract No 26560**
Client	SSEN Transmission	~ Indicates test not carried out
Engineer	Jacobs	

Sample Identification		Orientation of Test	Dimension A	Dimension B	Load	Is	Corrected Is(50)	Comments
Exploratory Hole	Depth m		mm	mm	kN	MN/m²	MN/m²	
BH25	11.70	Lump	97.0	65.0	1.9	0.24	0.31	
BH25	11.70	Lump	105.0	49.0	1.3	0.20	0.25	
BH25	12.80	Diametral	181.0	102.0	1.2	0.12	0.16	
BH25	13.00	Axial	104.0	72.0	0.4	0.04	0.06	
BH25	.00	Axial	104.0	77.0	0.6	0.06	0.08	
BH26	4.20	Axial	103.0	70.0	8.3	0.90	1.21	
BH26	4.30	Diametral	90.0	103.0	0.4	0.04	0.05	
BH26	6.00	Lump	59.0	50.0	4.7	1.25	1.37	
BH26	6.60	Axial	10.0	74.0	8.0	8.49	6.82	
BH26	7.20	Axial	103.0	25.0	3.3	1.01	1.07	

Notes

1. Dimension A= Minimum Width for Lump Tests
   Dimension A=Length for Diametral Tests
   Dimension A=Diameter for Axial Tests
   Dimension B=Platen Separation
2. Moisture Content of sample : as-received
3. All preparation and testing carried out in accordance with ISRM Commission on Testing Methods 1985
4. Opinions and interpretations are outside the scope of UKAS accreditation
5. Carried out parallel/perpendicular to bedding planes where obvious otherwise core shape used to determine orientation

Originator	Approved
DW	CD 05/03/2024

POINT LOAD INDEX TESTS

Figure F7

igne	Site: LT521 FASNAKYLE 400KV SUBSTATION	Contract No **26560**
	Client: SSEN Transmission	~ Indicates test not carried out
	Engineer: Jacobs	

Sample Identification		Orientation of Test	Dimension A	Dimension B	Load	Is	Corrected Is(50)	Comments
Exploratory Hole	Depth m		mm	mm	kN	MN/m²	MN/m²	
BH26	7.25	Diametral	204.0	103.0	1.3	0.12	0.17	
BH26	7.90	Lump	79.0	45.0	3.4	0.75	0.86	
BH26	7.90	Axial	101.0	60.0	3.8	0.49	0.63	
BH27	2.80	Axial	103.0	47.0	41.2	6.68	8.19	
BH27	2.80	Diametral	167.0	103.0	35.4	3.34	4.62	
BH27	4.10	Axial	103.0	95.0	12.1	0.97	1.39	
BH27	4.10	Diametral	302.0	103.0	6.0	0.57	0.78	
BH27	4.45	Axial	103.0	65.0	45.0	5.28	6.96	
BH27	4.45	Diametral	187.0	103.0	32.1	3.03	4.19	
BH27	6.60	Lump	95.0	38.0	4.3	0.94	1.07	

Notes

1. Dimension A= Minimum Width for Lump Tests
   Dimension A=Length for Diametral Tests
   Dimension A=Diameter for Axial Tests
   Dimension B=Platen Separation
2. Moisture Content of sample : as-received
3. All preparation and testing carried out in accordance with ISRM Commission on Testing Methods 1985
4. Opinions and interpretations are outside the scope of UKAS accreditation
5. Carried out parallel/perpendicular to bedding planes where obvious otherwise core shape used to determine orientation

Originator	Approved		
DW	CD 05/03/2024	**POINT LOAD INDEX TESTS**	**Figure F7**

igne	Site: LT521 FASNAKYLE 400KV SUBSTATION	Contract No **26560**
	Client: SSEN Transmission	~ Indicates test not carried out
	Engineer: Jacobs	

Sample Identification		Orientation of Test	Dimension A	Dimension B	Load	Is	Corrected Is(50)	Comments
Exploratory Hole	Depth m		mm	mm	kN	MN/m²	MN/m²	
BH27	7.68	Axial	103.0	54.0	28.7	4.05	5.12	
BH27	7.80	Lump	69.0	30.0	12.9	4.89	4.95	
BH27	9.40	Axial	103.0	69.0	45.0	4.97	6.64	
BH27	9.40	Diametral	193.0	103.0	29.4	2.77	3.84	
BH28	5.30	Lump	69.0	50.0	6.8	1.55	1.76	
BH28	5.65	Axial	103.0	42.0	8.4	1.53	1.82	
BH28	6.40	Lump	54.0	36.0	6.0	2.42	2.42	
BH28	6.75	Axial	103.0	52.0	5.6	0.82	1.03	

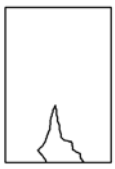
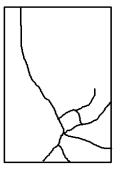
Notes

1. Dimension A= Minimum Width for Lump Tests
   Dimension A=Length for Diametral Tests
   Dimension A=Diameter for Axial Tests
   Dimension B=Platen Separation
2. Moisture Content of sample : as-received
3. All preparation and testing carried out in accordance with ISRM Commission on Testing Methods 1985
4. Opinions and interpretations are outside the scope of UKAS accreditation
5. Carried out parallel/perpendicular to bedding planes where obvious otherwise core shape used to determine orientation

Originator	Approved	
DW	CD 05/03/2024	**POINT LOAD INDEX TESTS**

Figure F7

igne	Site: LT521 FASNAKYLE 400KV SUBSTATION Client: SSEN Transmission Engineer: Jacobs	Contract No: 26560

Exploration Point		BH03	BH04	BH09	BH09
Depth	m	2.30-2.60	4.70-5.00	3.50-3.73	5.40-5.70
Date Received		19/01/2024	19/01/2024	19/01/2024	19/01/2024
Date Tested		26/01/2024	09/02/2024	26/01/2024	26/01/2024
Length	mm	173.7	195.5	116.1	208.1
Mean Diameter	mm	79.7	103.6	103.1	103.2
Length / Diameter Ratio		2.18	1.89	1.13	2.02
Straightness Compliance (see notes)	Y/N	Y	Y	Y	Y
Flatness Compliance (see notes)	Y/N	Y	Y	Y	Y
Perpendicularity	mm	0.0017	0.0015	0.0034	0.0012
Bulk Density	Mg/m^3	2.67	2.45	2.73	2.6
Moisture Content	%	0.3	1.8	0.2	0.3
Degree of Saturation	%	As received	As received	As received	As received
Stress Rate	MPa/sec	0.60	0.50	0.60	0.60
Test Duration		6mins 50secs	1min 20secs	3mins 17secs	1mins 43secs
Failure Load	kN	490	98.1	352.9	220.5
Uniaxial Compressive Strength	MPa	98.2	11.6	42.3	26.4
Type of Failure		Explosive	Normal	Normal	Normal
Strength Classification		Strong	Weak	Med strong	Med strong
Associated Comment Numbers (see notes)			3,7	3	7
Failure Diagram					

Notes:

1. Prepared in accordance with ASTM D4543-08.
2. Tested in accordance with ASTM D7012-14: Method C
3. Height/diameter ratio outwith limits of 2.0 to 2.5. Best effort conformance accepted - tested as is.
4. Straightness of core more than 0.50mm over length. Best effort conformance accepted - tested as is.
5. Flatness of core ends more than 0.025mm. Best effort conformance accepted - tested as is.
6. Perpendicularity of core more than 0.0043mm. Best effort conformance accepted - tested as is.
7. Test duration not falling between 2 and 15 minutes. Best effort conformance accepted.
8. There are some rock types with physical characteristics which preclude preparing specimens to the desired tolerances. Where this is the case the specimen is evaluated to determine whether a best effort was achieved for the rock type involved. Based upon the evaluation and professional judgement a determination is made whether the specimen should be discarded, tested as is, use of capping compound or start over.
9. Preparation and conformance measuring equipment: surface plate, V-block, displacement gauge assembly, feeler gauge set, vernier calipers, surface grinder and masonry saw.

Originator	Checked & Approved	UNIAXIAL COMPRESSIVE STRENGTH ASTM Methods	Figure F8
DW	CD 05/03/2024		Sheet 1 of 1

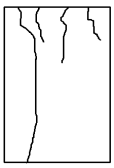
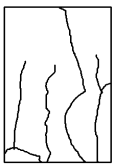
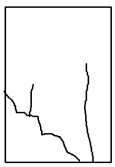
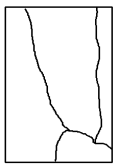
igne

Site LT521 FASNAKYLE 400KV SUBSTATION

Client SSEN Transmission

Engineer Jacobs

Contract No **26560**

Exploration Point		BH11	BH13	BH13	BH14
Depth	m	3.60-3.90	2.00-2.33	5.15-5.70	2.77-3.06
Date Received		19/01/2024	19/01/2024	19/01/2024	19/01/2024
Date Tested		26/01/2024	26/01/2024	26/01/2024	26/01/2024
Length	mm	166.3	127.6	211.7	167.5
Mean Diameter	mm	80	103.2	103.2	79.7
Length / Diameter Ratio		2.08	1.24	2.05	2.10
Straightness Compliance (see notes)	Y/N	Y	Y	Y	Y
Flatness Compliance (see notes)	Y/N	Y	Y	Y	Y
Perpendicularity	mm	0.0018	0.0024	0.0019	0.0018
Bulk Density	Mg/m³	2.69	2.72	2.7	2.7
Moisture Content	%	0.1	0.2	0.1	0.2
Degree of Saturation	%	As received	As received	As received	As received
Stress Rate	MPa/sec	0.60	0.60	0.60	0.60
Test Duration		2mins 34secs	3mins 12secs	3mins 37secs	4mins 34secs
Failure Load	kN	177.8	339	425	338.1
Uniaxial Compressive Strength	MPa	35.4	40.5	50.8	67.8
Type of Failure		Normal	Normal	Normal	Normal
Strength Classification		Med strong	Med strong	Strong	Strong
Associated Comment Numbers (see notes)			3		
Failure Diagram					

Notes:

1. Prepared in accordance with ASTM D4543-08.
2. Tested in accordance with ASTM D7012-14: Method C
3. Height/diameter ratio outwith limits of 2.0 to 2.5. Best effort conformance accepted - tested as is.
4. Straightness of core more than 0.50mm over length. Best effort conformance accepted - tested as is.
5. Flatness of core ends more than 0.025mm. Best effort conformance accepted - tested as is.
6. Perpendicularity of core more than 0.0043mm. Best effort conformance accepted - tested as is.
7. Test duration not falling between 2 and 15 minutes. Best effort conformance accepted.
8. There are some rock types with physical characteristics which preclude preparing specimens to the desired tolerances. Where this is the case the specimen is evaluated to determine whether a best effort was achieved for the rock type involved. Based upon the evaluation and professional judgement a determination is made whether the specimen should be discarded, tested as is, use of capping compound or start over.
9. Preparation and conformance measuring equipment: surface plate, V-block, displacement gauge assembly, feeler gauge set, vernier calipers, surface grinder and masonry saw.

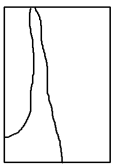
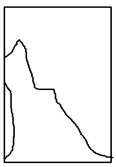
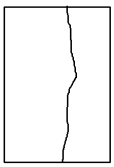
Originator	Checked & Approved
DW	CD 05/03/2024

UNIAXIAL COMPRESSIVE STRENGTH
ASTM Methods

Figure F9

62 Rochsolloch Road, Airdrie, ML6 9BG

igne	Site: LT521 FASNAKYLE 400KV SUBSTATION Client: SSEN Transmission Engineer: Jacobs	Contract No: 26560

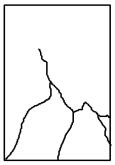
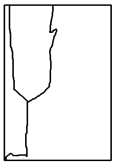
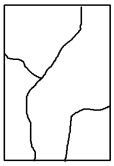
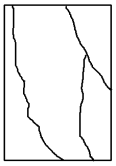
Exploration Point		BH14	BH15	BH15	BH16
Depth	m	4.70-5.17	1.65-2.00	5.10-5.45	5.25-5.55
Date Received		19/01/2024	19/01/2024	19/01/2024	19/01/2024
Date Tested		26/01/2024	26/01/2024	26/01/2024	26/01/2024
Length	mm	169.7	198.5	165.2	212.3
Mean Diameter	mm	79.7	103.5	79.7	103.3
Length / Diameter Ratio		2.13	1.92	2.07	2.06
Straightness Compliance (see notes)	Y/N	Y	Y	Y	Y
Flatness Compliance (see notes)	Y/N	Y	Y	Y	Y
Perpendicularity	mm	0.0015	0.0015	0.0024	0.0014
Bulk Density	Mg/m³	2.68	2.73	2.61	2.69
Moisture Content	%	0.4	0.3	0.1	0.1
Degree of Saturation	%	As received	As Received	As Received	As received
Stress Rate	MPa/sec	0.60	0.60	0.60	0.60
Test Duration		3mins 45secs	3mins 47secs	5mins 6secs	2mins 38secs
Failure Load	kN	274.4	428	360.8	309.9
Uniaxial Compressive Strength	MPa	55.0	50.9	72.3	37.0
Type of Failure		Normal	Explosive	Explosive	Normal
Strength Classification		Strong	Strong	Strong	Med strong
Associated Comment Numbers (see notes)			3		
Failure Diagram					

Notes:

1. Prepared in accordance with ASTM D4543-08.
2. Tested in accordance with ASTM D7012-14: Method C
3. Height/diameter ratio outwith limits of 2.0 to 2.5. Best effort conformance accepted - tested as is.
4. Straightness of core more than 0.50mm over length. Best effort conformance accepted - tested as is.
5. Flatness of core ends more than 0.025mm. Best effort conformance accepted - tested as is.
6. Perpendicularity of core more than 0.0043mm. Best effort conformance accepted - tested as is.
7. Test duration not falling between 2 and 15 minutes. Best effort conformance accepted.
8. There are some rock types with physical characteristics which preclude preparing specimens to the desired tolerances. Where this is the case the specimen is evaluated to determine whether a best effort was achieved for the rock type involved. Based upon the evaluation and professional judgement a determination is made whether the specimen should be discarded, tested as is, use of capping compound or start over.
9. Preparation and conformance measuring equipment: surface plate, V-block, displacement gauge assembly, feeler gauge set, vernier calipers, surface grinder and masonry saw.

Originator	Checked & Approved	UNIAXIAL COMPRESSIVE STRENGTH ASTM Methods	Figure F10
DW	CD 05/03/2024		Sheet 1 of 1

igne	Site: LT521 FASNAKYLE 400KV SUBSTATION Client: SSEN Transmission Engineer: Jacobs	**Contract No** **26560**

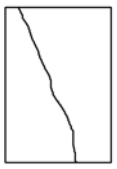
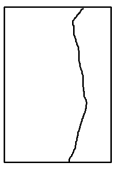
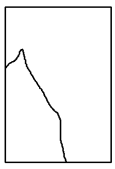
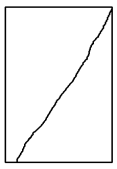
Exploration Point		BH17	BH19	BH19	BH20
Depth	m	4.60-5.23	3.62-4.03	4.85-5.15	1.50-2.20
Date Received		19/01/2024	19/01/2024	19/01/2024	19/01/2024
Date Tested		26/01/2024	26/01/2024	26/01/2024	26/01/2024
Length	mm	162.8	212.2	179	146.6
Mean Diameter	mm	79.4	103.3	103.5	103.2
Length / Diameter Ratio		2.05	2.05	1.73	1.42
Straightness Compliance (see notes)	Y/N	Y	Y	Y	Y
Flatness Compliance (see notes)	Y/N	Y	Y	Y	Y
Perpendicularity	mm	0.0018	0.0014	0.0014	0.0014
Bulk Density	Mg/m³	2.69	2.64	2.77	2.73
Moisture Content	%	0.2	0.2	0.2	0.5
Degree of Saturation	%	As Received	As received	As received	As Received
Stress Rate	MPa/sec	0.60	0.60	0.60	0.60
Test Duration		5mins 20secs	4mins 45secs	5mins 24secs	1min 35secs
Failure Load	kN	405	530	605	135.2
Uniaxial Compressive Strength	MPa	81.8	63.2	71.9	16.2
Type of Failure		Explosive	Normal	Explosive	Normal
Strength Classification		Strong	Strong	Strong	Weak
Associated Comment Numbers (see notes)				3	3,7
Failure Diagram					

Notes:

1. Prepared in accordance with ASTM D4543-08.
2. Tested in accordance with ASTM D7012-14: Method C
3. Height/diameter ratio outwith limits of 2.0 to 2.5. Best effort conformance accepted - tested as is.
4. Straightness of core more than 0.50mm over length. Best effort conformance accepted - tested as is.
5. Flatness of core ends more than 0.025mm. Best effort conformance accepted - tested as is.
6. Perpendicularity of core more than 0.0043mm. Best effort conformance accepted - tested as is.
7. Test duration not falling between 2 and 15 minutes. Best effort conformance accepted.
8. There are some rock types with physical characteristics which preclude preparing specimens to the desired tolerances. Where this is the case the specimen is evaluated to determine whether a best effort was achieved for the rock type involved. Based upon the evaluation and professional judgement a determination is made whether the specimen should be discarded, tested as is, use of capping compound or start over.
9. Preparation and conformance measuring equipment: surface plate, V-block, displacement gauge assembly, feeler gauge set, vernier calipers, surface grinder and masonry saw.

Originator	Checked & Approved	**UNIAXIAL COMPRESSIVE STRENGTH** ASTM Methods		**Figure F11**
DW	CD 05/03/2024			Sheet 1 of 1

igne	Site LT521 FASNAKYLE 400KV SUBSTATION	Contract No 26560
	Client SSEN Transmission	
	Engineer Jacobs	

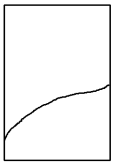
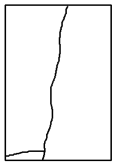
Exploration Point		BH21	BH23	BH26	BH26
Depth	m	7.00-7.20	2.16-2.35	6.00-6.30	8.00-8.20
Date Received		15/12/2023	19/01/2024	15/12/2023	15/12/2023
Date Tested		21/12/2023	26/01/2024	21/12/2023	21/12/2023
Length	mm	235.3	133.5	238.6	157.7
Mean Diameter	mm	103.4	103.4	103.6	103.1
Length / Diameter Ratio		2.28	1.29	2.30	1.53
Straightness Compliance (see notes)	Y/N	Y	Y	Y	Y
Flatness Compliance (see notes)	Y/N	Y	Y	Y	Y
Perpendicularity	mm	0	0.0019	0	0
Bulk Density	Mg/m³	2.73	2.62	2.6	2.63
Moisture Content	%	0.3	0.4	0.2	0.1
Degree of Saturation	%	As Received	As received	As Received	As Received
Stress Rate	MPa/sec	0.70	0.60	0.70	0.70
Test Duration		2mins 8secs	2mins 47secs	4mins 50secs	2mins 26secs
Failure Load	kN	279.6	333.9	594	261
Uniaxial Compressive Strength	MPa	33.3	39.8	70.5	31.3
Type of Failure		Normal	Normal	Normal	Normal
Strength Classification		Medium Strong	Med strong	Strong	Weak
Associated Comment Numbers (see notes)			3		3
Failure Diagram					

Notes:

1. Prepared in accordance with ASTM D4543-08.
2. Tested in accordance with ASTM D7012-14: Method C
3. Height/diameter ratio outwith limits of 2.0 to 2.5. Best effort conformance accepted - tested as is.
4. Straightness of core more than 0.50mm over length. Best effort conformance accepted - tested as is.
5. Flatness of core ends more than 0.025mm. Best effort conformance accepted - tested as is.
6. Perpendicularity of core more than 0.0043mm. Best effort conformance accepted - tested as is.
7. Test duration not falling between 2 and 15 minutes. Best effort conformance accepted.
8. There are some rock types with physical characteristics which preclude preparing specimens to the desired tolerances. Where this is the case the specimen is evaluated to determine whether a best effort was achieved for the rock type involved. Based upon the evaluation and professional judgement a determination is made whether the specimen should be discarded, tested as is, use of capping compound or start over.
9. Preparation and conformance measuring equipment: surface plate, V-block, displacement gauge assembly, feeler gauge set, vernier calipers, surface grinder and masonry saw.

Originator	Checked & Approved	UNIAXIAL COMPRESSIVE STRENGTH ASTM Methods		Figure F12
NW	CD 05/03/2024			Sheet 1 of 1

igne	Site: LT521 FASNAKYLE 400KV SUBSTATION Client: SSEN Transmission Engineer: Jacobs	Contract No: 26560

Exploration Point		BH27	BH28	BH28
Depth	m	7.80-8.35	5.30-5.60	6.40-6.70
Date Received		19/01/2024	19/01/2024	19/01/2024
Date Tested		26/01/2024	26/01/2024	26/01/2024
Length	mm	205.5	215	189.1
Mean Diameter	mm	103.1	103.3	103.4
Length / Diameter Ratio		1.99	2.08	1.83
Straightness Compliance (see notes)	Y/N	Y	Y	Y
Flatness Compliance (see notes)	Y/N	Y	Y	Y
Perpendicularity	mm	0.0019	0.0012	0.0016
Bulk Density	Mg/m³	2.67	2.57	2.7
Moisture Content	%	0.5	0.2	0.2
Degree of Saturation	%	As received	As received	As received
Stress Rate	MPa/sec	0.60	0.60	0.60
Test Duration		4mins 2secs	1min 29secs	40secs
Failure Load	kN	467	175.6	80.3
Uniaxial Compressive Strength	MPa	55.9	21.0	9.6
Type of Failure		Normal	Normal	Normal
Strength Classification		Strong	Weak	Weak
Associated Comment Numbers (see notes)		3	7	7
Failure Diagram				

Notes:

1. Prepared in accordance with ASTM D4543-08.
2. Tested in accordance with ASTM D7012-14: Method C
3. Height/diameter ratio outwith limits of 2.0 to 2.5. Best effort conformance accepted - tested as is.
4. Straightness of core more than 0.50mm over length. Best effort conformance accepted - tested as is.
5. Flatness of core ends more than 0.025mm. Best effort conformance accepted - tested as is.
6. Perpendicularity of core more than 0.0043mm. Best effort conformance accepted - tested as is.
7. Test duration not falling between 2 and 15 minutes. Best effort conformance accepted.
8. There are some rock types with physical characteristics which preclude preparing specimens to the desired tolerances. Where this is the case the specimen is evaluated to determine whether a best effort was achieved for the rock type involved. Based upon the evaluation and professional judgement a determination is made whether the specimen should be discarded, tested as is, use of capping compound or start over.
9. Preparation and conformance measuring equipment: surface plate, V-block, displacement gauge assembly, feeler gauge set, vernier calipers, surface grinder and masonry saw.

Originator	Checked & Approved	UNIAXIAL COMPRESSIVE STRENGTH ASTM Methods	Figure F13
DW	CD 05/03/2024		Sheet 1 of 1

Revision 1.21 22/11/2016

9392 - PhotoFrame Rock BH03 02.30 C - A15075-R4-2013699.xls

igne	Site	LT521 FASNAKYLE 400KV SUBSTATION	**Contract No** **26560**
	Client	SSEN Transmission	Hole ID BH03
	Engineer	Jacobs	Sample Ref Depth (m) 2.30 Sample Type C

Originator	Checked & Approved	PHOTOGRAPHS OF SPECIMEN FAILURE	Figure F14
DW	CD 05/03/2024		Sheet 1 of 1

Lab Project No A15075-R1

Revision 1.21 22/11/2016

9392 - PhotoFrame Rock BH04 04.70 C - A15075-R5-2013719.xls

igne	Site LT521 FASNAKYLE 400KV SUBSTATION	**Contract No 26560**
	Client SSEN Transmission	Hole ID BH04
	Engineer Jacobs	Sample Ref
		Depth (m) 4.70
		Sample Type C

Originator	Checked & Approved	PHOTOGRAPHS OF SPECIMEN FAILURE	Figure F15
DW	CD 05/03/2024		Sheet 1 of 1

Lab Project No A15075-R1

Revision 1.21 22/11/2016

9392 - PhotoFrame Rock BH09 03.50 C - A15075-R4-2013700.xls

igne	Site LT521 FASNAKYLE 400KV SUBSTATION	**Contract No 26560**
	Client SSEN Transmission	Hole ID BH09
	Engineer Jacobs	Sample Ref
		Depth (m) 3.50
		Sample Type C

Originator	Checked & Approved	PHOTOGRAPHS OF SPECIMEN FAILURE	Figure F16
DW	CD 05/03/2024		Sheet 1 of 1

Lab Project No A15075-R1

Revision 1.21 22/11/2016

9392 - PhotoFrame Rock BH09 05.40 C - A15075-R4-2013896.xls

igne	Site LT521 FASNAKYLE 400KV SUBSTATION	**Contract No 26560**
	Client SSEN Transmission	Hole ID BH09
	Engineer Jacobs	Sample Ref
		Depth (m) 5.40
		Sample Type C

Originator	Checked & Approved	PHOTOGRAPHS OF SPECIMEN FAILURE	Figure F17
DW	CD 05/03/2024		Sheet 1 of 1

Lab Project No A15075-R1

Revision 1.21 22/11/2016

9392 - PhotoFrame Rock BH11 03.60 C - A15075-R4-2013701.xls

igne	Site LT521 FASNAKYLE 400KV SUBSTATION	**Contract No 26560**
	Client SSEN Transmission	Hole ID BH11
	Engineer Jacobs	Sample Ref
		Depth (m) 3.60
		Sample Type C

Originator	Checked & Approved	PHOTOGRAPHS OF SPECIMEN FAILURE	Figure F18
DW	CD 05/03/2024		Sheet 1 of 1

Lab Project No A15075-R1

Revision 1.21 22/11/2016

9392 - PhotoFrame Rock BH13 02.00 C - A15075-R3-2013659.xls

igne	Site: LT521 FASNAKYLE 400KV SUBSTATION Client: SSEN Transmission Engineer: Jacobs	**Contract No 26560** Hole ID BH13 Sample Ref Depth (m) 2.00 Sample Type C

Originator	Checked & Approved		
DW	CD 05/03/2024	**PHOTOGRAPHS OF SPECIMEN FAILURE**	**Figure F19** Sheet 1 of 1

Lab Project No A15075-R1

Revision 1.21 22/11/2016

9392 - PhotoFrame Rock BH13 05.15 C - A15075-R3-2013660.xls

igne	Site LT521 FASNAKYLE 400KV SUBSTATION	**Contract No 26560**
	Client SSEN Transmission	Hole ID BH13
	Engineer Jacobs	Sample Ref
		Depth (m) 5.15
		Sample Type C

Originator	Checked & Approved	PHOTOGRAPHS OF SPECIMEN FAILURE	Figure F20
DW	CD 05/03/2024		Sheet 1 of 1

Lab Project No A15075-R1

igne	Site: LT521 FASNAKYLE 400KV SUBSTATION Client: SSEN Transmission Engineer: Jacobs	**Contract No 26560** Hole ID BH14 Sample Ref Depth (m) 2.77 Sample Type C

Originator	Checked & Approved		
DW	CD 05/03/2024	**PHOTOGRAPHS OF SPECIMEN FAILURE**	**Figure F21** Sheet 1 of 1

Revision 1.21 22/11/2016

9392 - PhotoFrame Rock BH14 04.70 C - A15075-R3-2013662.xls

igne	Site LT521 FASNAKYLE 400KV SUBSTATION	**Contract No 26560**
	Client SSEN Transmission	Hole ID BH14
	Engineer Jacobs	Sample Ref
		Depth (m) 4.70
		Sample Type C

Originator	Checked & Approved	PHOTOGRAPHS OF SPECIMEN FAILURE	Figure F22
DW	CD 05/03/2024		Sheet 1 of 1

Lab Project No A15075-R1

Revision 1.21 22/11/2016

9392 - PhotoFrame Rock BH15 01.65 C - A15075-R2-2013643.xls

igne	Site LT521 FASNAKYLE 400KV SUBSTATION	**Contract No 26560**
	Client SSEN Transmission	Hole ID BH15
	Engineer Jacobs	Sample Ref
		Depth (m) 1.65
		Sample Type C

Originator	Checked & Approved	PHOTOGRAPHS OF SPECIMEN FAILURE	Figure F23
DW	CD 05/03/2024		Sheet 1 of 1

Lab Project No A15075-R1

igne	Site LT521 FASNAKYLE 400KV SUBSTATION Client SSEN Transmission Engineer Jacobs	**Contract No 26560** Hole ID BH15 Sample Ref Depth (m) 5.10 Sample Type C

Originator	Checked & Approved		
DW	CD 05/03/2024	**PHOTOGRAPHS OF SPECIMEN FAILURE**	**Figure F24** Sheet 1 of 1

Revision 1.21 22/11/2016

9392 - PhotoFrame Rock BH16 05.25 C - A15075-R4-2013897.xls

Lab Project No A15075-R1

Site	LT521 FASNAKYLE 400KV SUBSTATION	**Contract No** **26560**
Client	SSEN Transmission	Hole ID BH16
Engineer	Jacobs	Sample Ref
		Depth (m) 5.25
		Sample Type C

Originator	Checked & Approved
DW	CD 05/03/2024

PHOTOGRAPHS OF SPECIMEN FAILURE

Figure F25

Revision 1.21 22/11/2016

9392 - PhotoFrame Rock BH17 04.60 C - A15075-R2-2013647.xls

igne	Site LT521 FASNAKYLE 400KV SUBSTATION	**Contract No 26560**
	Client SSEN Transmission	Hole ID BH17
	Engineer Jacobs	Sample Ref
		Depth (m) 4.60
		Sample Type C

Originator	Checked & Approved	PHOTOGRAPHS OF SPECIMEN FAILURE	Figure F26
DW	CD 05/03/2024		Sheet 1 of 1

Lab Project No A15075-R1

igne	Site LT521 FASNAKYLE 400KV SUBSTATION	**Contract No 26560**
	Client SSEN Transmission	Hole ID BH19
	Engineer Jacobs	Sample Ref
		Depth (m) 3.62
		Sample Type C

Originator	Checked & Approved	PHOTOGRAPHS OF SPECIMEN FAILURE	Figure F27
DW	CD 05/03/2024		Sheet 1 of 1

Revision 1.21 22/11/2016

9392 - PhotoFrame Rock BH19 04.85 C - A15075-R3-2013666.xls

igne	Site LT521 FASNAKYLE 400KV SUBSTATION	**Contract No 26560**
	Client SSEN Transmission	Hole ID BH19
	Engineer Jacobs	Sample Ref
		Depth (m) 4.85
		Sample Type C

Originator	Checked & Approved	PHOTOGRAPHS OF SPECIMEN FAILURE	Figure F28
DW	CD 05/03/2024		Sheet 1 of 1

Lab Project No A15075-R1

Revision 1.21 22/11/2016

9392 - PhotoFrame Rock BH20 01.50 C - A15075-R2-2013651.xls

igne	Site: LT521 FASNAKYLE 400KV SUBSTATION Client: SSEN Transmission Engineer: Jacobs	**Contract No 26560** Hole ID BH20 Sample Ref Depth (m) 1.50 Sample Type C

Originator	Checked & Approved		
DW	CD 05/03/2024	**PHOTOGRAPHS OF SPECIMEN FAILURE**	**Figure F29** Sheet 1 of 1

Lab Project No A15075-R1

Revision 1.21 22/11/2016

9392 - PhotoFrame Rock BH21 07.00 C - A15075-R1-2013216.xls

Lab Project No A15075-R1

Site	LT521 FASNAKYLE 400KV SUBSTATION	**Contract No** **26560**
Client	SSEN Transmission	Hole ID BH21
Engineer	Jacobs	Sample Ref
		Depth (m) 7.00
		Sample Type C

Originator	Checked & Approved
DW	CD 05/03/2024

PHOTOGRAPHS OF SPECIMEN FAILURE

Figure F30

Revision 1.21 22/11/2016

9392 - PhotoFrame Rock BH23 02.16 C - A15075-R2-2013652.xls

igne	Site LT521 FASNAKYLE 400KV SUBSTATION	Contract No **26560**
	Client SSEN Transmission	Hole ID BH23
	Engineer Jacobs	Sample Ref
		Depth (m) 2.16
		Sample Type C

Originator	Checked & Approved	PHOTOGRAPHS OF SPECIMEN FAILURE	Figure F31
DW	CD 05/03/2024		Sheet 1 of 1

Lab Project No A15075-R1

Site	LT521 FASNAKYLE 400KV SUBSTATION	**Contract No** **26560**
Client	SSEN Transmission	Hole ID BH26
Engineer	Jacobs	Sample Ref
		Depth (m) 6.00
		Sample Type C

Originator	Checked & Approved
DW	CD 05/03/2024

PHOTOGRAPHS OF SPECIMEN FAILURE

Figure F32

Revision 1.21 22/11/2016

9392 - PhotoFrame Rock BH26 07.90 C - A15075-R1-2013226.xls

igne	Site LT521 FASNAKYLE 400KV SUBSTATION	**Contract No 26560**
	Client SSEN Transmission	Hole ID BH26
	Engineer Jacobs	Sample Ref
		Depth (m) 7.90
		Sample Type C

Originator	Checked & Approved	PHOTOGRAPHS OF SPECIMEN FAILURE	Figure F33
DW	CD 05/03/2024		Sheet 1 of 1

Lab Project No A15075-R1

Revision 1.21 22/11/2016

9392 - PhotoFrame Rock BH27 07.80 C - A15075-R2-2013654.xls

igne	Site LT521 FASNAKYLE 400KV SUBSTATION	**Contract No 26560**
	Client SSEN Transmission	Hole ID BH27
	Engineer Jacobs	Sample Ref
		Depth (m) 7.80
		Sample Type C

Originator	Checked & Approved	PHOTOGRAPHS OF SPECIMEN FAILURE	Figure F34
DW	CD 05/03/2024		Sheet 1 of 1

Lab Project No A15075-R1

igne	Site: LT521 FASNAKYLE 400KV SUBSTATION Client: SSEN Transmission Engineer: Jacobs	**Contract No 26560** Hole ID BH28 Sample Ref Depth (m) 5.30 Sample Type C

Originator	Checked & Approved	PHOTOGRAPHS OF SPECIMEN FAILURE	Figure F35
DW	CD 05/03/2024		Sheet 1 of 1

Revision 1.21 22/11/2016

9392 - PhotoFrame Rock BH28 06.40 C - A15075-R4-2013705.xls

igne	Site LT521 FASNAKYLE 400KV SUBSTATION	**Contract No 26560**
	Client SSEN Transmission	Hole ID BH28
	Engineer Jacobs	Sample Ref
		Depth (m) 6.40
		Sample Type C

Originator	Checked & Approved	PHOTOGRAPHS OF SPECIMEN FAILURE	Figure F36
DW	CD 05/03/2024		Sheet 1 of 1

Lab Project No A15075-R1

LABORATORY TEST CERTIFICATE

Certificate No : 24/025 - 01-1

To : Stephen McDonagh

Client : Igne

DETERMINATION OF THE RESISTANCE TO WEAR (micro-Deval) - BS EN 1097-1 : 2011

Introduction

Material & Source

Test Results

Test Specimen 1	**55.7**
Test Specimen 2	**57.6**
micro-Deval coefficient, M_{DE}	**57**

Comments

Remarks

Approved for Issue

UKAS TESTING
2643

Certificate of Analysis

Certificate Number 24-01641-0 *Issued:*

Client Terra Tek
62 Rochsolloch Road
Airdrie
ML6 9BG

Our Reference 24-01641-0

Client Reference A15075-R2

Order No (not supplied)

Contract Title A15075-R2 / FASNAKYLE

Description 3 Aggregate samples.

Date Received 26-Jan-24

Date Started 26-Jan-24

Date Completed 04-Mar-24

Test Procedures Identified by prefix DETSn (details on request).

Notes **This report supersedes 24-01641, amendments made**

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

Kirk Bridgewood
General Manager

2139

Summary of Chemical Analysis
Aggregate Samples

Our Ref 24-01641-0
Client Ref A15075-R2
Contract Title A15075-R2 / FASNAKYLE

			Lab No	2291430	2291431	2291432
			.Sample ID	BH18	BH21	BH24
			Depth	3.10	3.30-3.60	3.50-3.70
			Other ID	2013649	2013656	2013657
			Sample Type	C	C	C
			Sampling Date	23/11/2023	21/11/2023	16/11/2023
			Sampling Time	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**			
Inorganics						
pH	DETSC 2008#		pH	9.0	7.3	8.1
Sulphate Aqueous Extract as SO4 (2:1)	DETSC 2076#	10	mg/l	18	27	< 10
Sulphur as S, Total	DETSC 2320	0.01	%	0.02	0.05	0.01
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.02	0.09	0.02

Key: # -MCERTS (accreditation only applies if report carries the MCERTS logo). n/s -not supplied.

Information in Support of the Analytical Results

Our Ref 24-01641-0
Client Ref A15075-R2
Contract A15075-R2 / FASNAKYLE

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2291430	BH18 3.10 AGGREGATE	23/11/23	PG	Anions 2:1 (30 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), pH + Conductivity (7 days)	
2291431	BH21 3.30-3.60 AGGREGATE	21/11/23	PG	Anions 2:1 (30 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), pH + Conductivity (7 days)	
2291432	BH24 3.50-3.70 AGGREGATE	16/11/23	PG	Anions 2:1 (30 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), pH + Conductivity (7 days)	

Key: P-Plastic G-Bag

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 425µm sieve, in accordance with BS1377.

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

End of Report

Certificate of Analysis

Certificate Number 24-01642-0 *Issued:*

Client Terra Tek
62 Rochsolloch Road
Airdrie
ML6 9BG

Our Reference 24-01642-0

Client Reference A15075-R3

Order No (not supplied)

Contract Title A15075-R3 / FASNAKYLE

Description One Core sample.

Date Received 26-Jan-24

Date Started 26-Jan-24

Date Completed 04-Mar-24

Test Procedures Identified by prefix DETSn (details on request).

Notes **This report supersedes 24-01642, amendments made**

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Approved By

Kirk Bridgewood
General Manager

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Summary of Chemical Analysis
Core Samples

Our Ref 24-01642-0
Client Ref A15075-R3
Contract Title A15075-R3 / FASNAKYLE

Lab No	2291433
.Sample ID	BH19
Depth	
Other ID	2013664
Sample Type	C
Sampling Date	08/12/2023
Sampling Time	n/s

Test	Method	LOD	Units	
Inorganics				
pH	DETSC 2008#		pH	8.9
Sulphate Aqueous Extract as SO4 (2:1)	DETSC 2076#	10	mg/l	30
Sulphur as S, Total	DETSC 2320	0.01	%	0.43
Sulphate as SO4, Total	DETSC 2321#	0.01	%	1.1

Key: # -MCERTS (accreditation only applies if report carries the MCERTS logo). n/s -not supplied.

Information in Support of the Analytical Results

Our Ref 24-01642-0
Client Ref A15075-R3
Contract A15075-R3 / FASNAKYLE

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2291433	BH19 CORE	08/12/23	PG	Anions 2:1 (30 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), pH + Conductivity (7 days)	

Key: P-Plastic G-Bag

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Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

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

End of Report

APPENDIX G
GEOCHEMICAL TESTING

Certificate of Analysis

Certificate Number 23-27909 *Issued:* 08-Dec-23

Client Raeburn Drilling
East Avenue
Blantyre
Glasgow
G72 0JB

Our Reference 23-27909

Client Reference 26560

Order No (not supplied)

Contract Title LT521 FASNAKYLE

Description 2 Soil samples.

Date Received 27-Nov-23

Date Started 27-Nov-23

Date Completed 08-Dec-23

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

Kirk Bridgewood
General Manager

2139

Summary of Chemical Analysis
Soil Samples

Our Ref 23-27909
Client Ref 26560
Contract Title LT521 FASNAKYLE

			Lab No	2268558	2268559
			.Sample ID	BH24A	BH26A
			Depth	0.50	0.30
			Other ID		
			Sample Type	ES	ES
			Sampling Date	20/11/2023	20/11/2023
			Sampling Time	n/s	n/s
Test	**Method**	**LOD**	**Units**		
Metals					
Arsenic	DETSC 2301#	0.2	mg/kg	2.0	0.9
Boron, Water Soluble (2.5:1)	DETSC 2311#	0.2	mg/kg	< 0.2	< 0.2
Cadmium	DETSC 2301#	0.1	mg/kg	< 0.1	< 0.1
Chromium	DETSC 2301#	0.15	mg/kg	17	12
Copper	DETSC 2301#	0.2	mg/kg	11	5.6
Lead	DETSC 2301#	0.3	mg/kg	12	8.0
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	< 0.05
Nickel	DETSC 2301#	1	mg/kg	8.3	3.4
Zinc	DETSC 2301#	1	mg/kg	36	27
Inorganics					
pH	DETSC 2008#		pH	6.5	5.8
Cyanide, Total	DETSC 2130#	0.1	mg/kg	0.1	0.3
Organic matter	DETSC 2002#	0.1	%	1.2	2.1
Sulphate Aqueous Extract as SO4 (2:1)	DETSC 2076#	10	mg/l	13	17
Petroleum Hydrocarbons					
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C10-C12	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5
Aliphatic C12-C16	DETSC 3072#	1.2	mg/kg	< 1.2	< 1.2
Aliphatic C16-C21	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5
Aliphatic C21-C35	DETSC 3072#	3.4	mg/kg	< 3.4	< 3.4
Aliphatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C10-C12	DETSC 3072#	0.9	mg/kg	< 0.9	< 0.9
Aromatic C12-C16	DETSC 3072#	0.5	mg/kg	< 0.5	< 0.5
Aromatic C16-C21	DETSC 3072#	0.6	mg/kg	< 0.6	< 0.6
Aromatic C21-C35	DETSC 3072#	1.4	mg/kg	< 1.4	< 1.4
Aromatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10
TPH Ali/Aro Total C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10
PAHs					
Naphthalene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Acenaphthylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Acenaphthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Fluorene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Phenanthrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). n/s -not supplied.

Summary of Chemical Analysis
Soil Samples

Our Ref 23-27909
Client Ref 26560
Contract Title LT521 FASNAKYLE

			Lab No	2268558	2268559
			.Sample ID	BH24A	BH26A
			Depth	0.50	0.30
			Other ID		
			Sample Type	ES	ES
			Sampling Date	20/11/2023	20/11/2023
			Sampling Time	n/s	n/s
Test	**Method**	**LOD**	**Units**		
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Chrysene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
PAH 16 Total	DETSC 3301	1.6	mg/kg	< 1.6	< 1.6
Phenols					
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3	< 0.3
VOCs					
Vinyl Chloride	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1 Dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Trans-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Cis-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
2,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Bromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Chloroform	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1,1-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Carbon tetrachloride	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Benzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Trichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Dibromomethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Bromodichloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
cis-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Toluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
trans-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1,2-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Tetrachloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,3-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Dibromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2-dibromoethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Chlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1,1,2-tetrachloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Ethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
m+p-Xylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
o-Xylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). n/s -not supplied.

Summary of Chemical Analysis
Soil Samples

Our Ref 23-27909
Client Ref 26560
Contract Title LT521 FASNAKYLE

			Lab No	2268558	2268559
			.Sample ID	BH24A	BH26A
			Depth	0.50	0.30
			Other ID		
			Sample Type	ES	ES
			Sampling Date	20/11/2023	20/11/2023
			Sampling Time	n/s	n/s
Test	**Method**	**LOD**	**Units**		
Styrene	DETSC 3431*	0.01	mg/kg	< 0.01	< 0.01
Bromoform	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Isopropylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Bromobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2,3-trichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
n-propylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
2-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,3,5-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
4-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Tert-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2,4-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
sec-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
p-isopropyltoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,3-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,4-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
n-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2-dibromo-3-chloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2,4-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Hexachlorobutadiene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2,3-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
MTBE	DETSC 3431*	0.01	mg/kg	< 0.01	< 0.01

Summary of Asbestos Analysis
Soil Samples

Our Ref 23-27909
Client Ref 26560
Contract Title LT521 FASNAKYLE

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
2268558	BH24A 0.50	SOIL	NAD	none	Steven Lambert
2268559	BH26A 0.30	SOIL	NAD	none	Steven Lambert

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * - not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 23-27909
Client Ref 26560
Contract LT521 FASNAKYLE

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2268558	BH24A 0.50 SOIL	20/11/23	GJ 250ml, GJ 60ml, PT 1L x2		
2268559	BH26A 0.30 SOIL	20/11/23	GJ 250ml, GJ 60ml, PT 1L x2		

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

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Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

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

End of Report

Certificate of Analysis

Certificate Number	23-27898	*Issued:*	08-Dec-23

Client Raeburn Drilling
East Avenue
Blantyre
Glasgow
G72 0JB

Our Reference	23-27898
Client Reference	lt521
Order No	(not supplied)
Contract Title	LT521 FASNAKYLE 400kV SUBSTATION
Description	2 Soil samples.
Date Received	27-Nov-23
Date Started	27-Nov-23
Date Completed	08-Dec-23
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

Kirk Bridgewood
General Manager

ilac-MRA

UKAS TESTING
2139

Summary of Chemical Analysis
Soil Samples

Our Ref 23-27898
Client Ref lt521
Contract Title LT521 FASNAKYLE 400kV SUBSTATION

			Lab No	2268485	2268486
			.Sample ID	TP29	TP30
			Depth	0.50	0.90
			Other ID		
			Sample Type	ES	ES
			Sampling Date	21/11/2023	21/11/2023
			Sampling Time	n/s	n/s
Test	**Method**	**LOD**	**Units**		
Metals					
Arsenic	DETSC 2301#	0.2	mg/kg	11	1.7
Boron, Water Soluble (2.5:1)	DETSC 2311#	0.2	mg/kg	0.4	< 0.2
Cadmium	DETSC 2301#	0.1	mg/kg	0.3	< 0.1
Chromium	DETSC 2301#	0.15	mg/kg	13	19
Copper	DETSC 2301#	0.2	mg/kg	20	7.4
Lead	DETSC 2301#	0.3	mg/kg	100	6.8
Mercury	DETSC 2325#	0.05	mg/kg	0.28	< 0.05
Nickel	DETSC 2301#	1	mg/kg	6.5	8.5
Zinc	DETSC 2301#	1	mg/kg	24	26
Inorganics					
pH	DETSC 2008#		pH	5.5	6.2
Cyanide, Total	DETSC 2130#	0.1	mg/kg	1.7	0.2
Organic matter	DETSC 2002#	0.1	%	1.8	18
Sulphate Aqueous Extract as SO4 (2:1)	DETSC 2076#	10	mg/l	71	30
Petroleum Hydrocarbons					
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C10-C12	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5
Aliphatic C12-C16	DETSC 3072#	1.2	mg/kg	< 1.2	< 1.2
Aliphatic C16-C21	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5
Aliphatic C21-C35	DETSC 3072#	3.4	mg/kg	< 3.4	< 3.4
Aliphatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C10-C12	DETSC 3072#	0.9	mg/kg	< 0.9	< 0.9
Aromatic C12-C16	DETSC 3072#	0.5	mg/kg	< 0.5	< 0.5
Aromatic C16-C21	DETSC 3072#	0.6	mg/kg	< 0.6	< 0.6
Aromatic C21-C35	DETSC 3072#	1.4	mg/kg	< 1.4	< 1.4
Aromatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10
TPH Ali/Aro Total C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10
PAHs					
Naphthalene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Acenaphthylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Acenaphthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Fluorene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Phenanthrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). n/s -not supplied.

Summary of Chemical Analysis
Soil Samples

Our Ref 23-27898
Client Ref lt521
Contract Title LT521 FASNAKYLE 400kV SUBSTATION

			Lab No	2268485	2268486
			.Sample ID	TP29	TP30
			Depth	0.50	0.90
			Other ID		
			Sample Type	ES	ES
			Sampling Date	21/11/2023	21/11/2023
			Sampling Time	n/s	n/s
Test	**Method**	**LOD**	**Units**		
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Chrysene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
PAH 16 Total	DETSC 3301	1.6	mg/kg	< 1.6	< 1.6
Phenols					
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	2.7	< 0.3
VOCs					
Vinyl Chloride	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1 Dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Trans-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Cis-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
2,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Bromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Chloroform	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1,1-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Carbon tetrachloride	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Benzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Trichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Dibromomethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Bromodichloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
cis-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Toluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
trans-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1,2-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Tetrachloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,3-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Dibromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2-dibromoethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Chlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1,1,2-tetrachloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Ethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
m+p-Xylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
o-Xylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). n/s -not supplied.

Summary of Chemical Analysis
Soil Samples

Our Ref 23-27898
Client Ref lt521
Contract Title LT521 FASNAKYLE 400kV SUBSTATION

			Lab No	2268485	2268486
			.Sample ID	TP29	TP30
			Depth	0.50	0.90
			Other ID		
			Sample Type	ES	ES
			Sampling Date	21/11/2023	21/11/2023
			Sampling Time	n/s	n/s
Test	**Method**	**LOD**	**Units**		
Styrene	DETSC 3431*	0.01	mg/kg	< 0.01	< 0.01
Bromoform	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Isopropylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Bromobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2,3-trichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
n-propylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
2-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,3,5-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
4-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Tert-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2,4-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
sec-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
p-isopropyltoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,3-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,4-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
n-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2-dibromo-3-chloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2,4-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Hexachlorobutadiene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2,3-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
MTBE	DETSC 3431*	0.01	mg/kg	< 0.01	< 0.01

Summary of Asbestos Analysis
Soil Samples

Our Ref 23-27898
Client Ref lt521
Contract Title LT521 FASNAKYLE 400kV SUBSTATION

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
2268485	TP29 0.50	SOIL	NAD	none	Steven Lambert
2268486	TP30 0.90	SOIL	NAD	none	Steven Lambert

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * - not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 23-27898
Client Ref lt521
Contract LT521 FASNAKYLE 400kV SUBSTATION

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2268485	TP29 0.50 SOIL	21/11/23	GJ 250ml, GJ 60ml, PT 1L x2		
2268486	TP30 0.90 SOIL	21/11/23	GJ 250ml, GJ 60ml, PT 1L x2		

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

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 425µm sieve, in accordance with BS1377.

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

End of Report

Certificate of Analysis

Certificate Number	23-28008	*Issued:*	08-Dec-23

Client Raeburn Drilling
East Avenue
Blantyre
Glasgow
G72 0JB

Our Reference	23-28008
Client Reference	26560
Order No	(not supplied)
Contract Title	LT521 FASNAKYLE 400kV SUBSTATION
Description	3 Soil samples.
Date Received	28-Nov-23
Date Started	28-Nov-23
Date Completed	08-Dec-23
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

Kirk Bridgewood
General Manager

ilac-MRA

UKAS TESTING
2139

Summary of Chemical Analysis
Soil Samples

Our Ref 23-28008
Client Ref 26560
Contract Title LT521 FASNAKYLE 400kV SUBSTATION

	Lab No	2268940	2268941	2268942
	.Sample ID	TP32	TP35	TP20
	Depth	0.50	1.00	1.00
	Other ID			
	Sample Type	ES	ES	ES
	Sampling Date	22/11/2023	22/11/2023	22/11/2023
	Sampling Time	n/s	n/s	n/s

Test	Method	LOD	Units			
Metals						
Arsenic	DETSC 2301#	0.2	mg/kg	10	1.2	1.3
Boron, Water Soluble (2.5:1)	DETSC 2311#	0.2	mg/kg	2.2	0.3	0.3
Cadmium	DETSC 2301#	0.1	mg/kg	0.2	< 0.1	< 0.1
Chromium	DETSC 2301#	0.15	mg/kg	28	18	17
Copper	DETSC 2301#	0.2	mg/kg	120	29	8.4
Lead	DETSC 2301#	0.3	mg/kg	89	11	6.8
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	< 0.05	0.06
Nickel	DETSC 2301#	1	mg/kg	13	7.5	8.1
Zinc	DETSC 2301#	1	mg/kg	620	140	63
Inorganics						
pH	DETSC 2008#		pH	9.1	6.2	6.3
Cyanide, Total	DETSC 2130#	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Organic matter	DETSC 2002#	0.1	%	3.6	1.8	1.1
Sulphate Aqueous Extract as SO4 (2:1)	DETSC 2076#	10	mg/l	450	36	57
Petroleum Hydrocarbons						
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aliphatic C10-C12	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5
Aliphatic C12-C16	DETSC 3072#	1.2	mg/kg	< 1.2	< 1.2	< 1.2
Aliphatic C16-C21	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5
Aliphatic C21-C35	DETSC 3072#	3.4	mg/kg	< 3.4	< 3.4	< 3.4
Aliphatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10	< 10
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aromatic C10-C12	DETSC 3072#	0.9	mg/kg	< 0.9	< 0.9	< 0.9
Aromatic C12-C16	DETSC 3072#	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Aromatic C16-C21	DETSC 3072#	0.6	mg/kg	< 0.6	< 0.6	< 0.6
Aromatic C21-C35	DETSC 3072#	1.4	mg/kg	< 1.4	< 1.4	< 1.4
Aromatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10	< 10
TPH Ali/Aro Total C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10	< 10
PAHs						
Naphthalene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Acenaphthylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Acenaphthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Fluorene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Phenanthrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). n/s -not supplied.

Summary of Chemical Analysis
Soil Samples

Our Ref 23-28008
Client Ref 26560
Contract Title LT521 FASNAKYLE 400kV SUBSTATION

	Lab No	2268940	2268941	2268942
	.Sample ID	TP32	TP35	TP20
	Depth	0.50	1.00	1.00
	Other ID			
	Sample Type	ES	ES	ES
	Sampling Date	22/11/2023	22/11/2023	22/11/2023
	Sampling Time	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**	
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Chrysene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
PAH 16 Total	DETSC 3301	1.6	mg/kg	< 1.6	< 1.6	< 1.6
Phenols						
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3	< 0.3	< 0.3
VOCs						
Vinyl Chloride	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,1 Dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Trans-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,1-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Cis-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
2,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Bromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Chloroform	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,1,1-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,1-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Carbon tetrachloride	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Benzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Trichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Dibromomethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Bromodichloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
cis-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Toluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
trans-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,1,2-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Tetrachloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,3-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Dibromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2-dibromoethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Chlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,1,1,2-tetrachloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Ethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
m+p-Xylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
o-Xylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). n/s -not supplied.

Summary of Chemical Analysis
Soil Samples

Our Ref 23-28008
Client Ref 26560
Contract Title LT521 FASNAKYLE 400kV SUBSTATION

			Lab No	2268940	2268941	2268942
			.Sample ID	TP32	TP35	TP20
			Depth	0.50	1.00	1.00
			Other ID			
			Sample Type	ES	ES	ES
			Sampling Date	22/11/2023	22/11/2023	22/11/2023
			Sampling Time	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**			
Styrene	DETSC 3431*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Bromoform	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Isopropylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Bromobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2,3-trichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
n-propylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
2-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,3,5-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
4-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Tert-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2,4-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
sec-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
p-isopropyltoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,3-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,4-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
n-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2-dibromo-3-chloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2,4-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Hexachlorobutadiene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2,3-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
MTBE	DETSC 3431*	0.01	mg/kg	< 0.01	< 0.01	< 0.01

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). n/s -not supplied.

Summary of Asbestos Analysis
Soil Samples

Our Ref 23-28008
Client Ref 26560
Contract Title LT521 FASNAKYLE 400kV SUBSTATION

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
2268940	TP32 0.50	SOIL	NAD	none	Michael Kay
2268941	TP35 1.00	SOIL	NAD	none	Michael Kay
2268942	TP20 1.00	SOIL	NAD	none	Michael Kay

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * - not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 23-28008
Client Ref 26560
Contract LT521 FASNAKYLE 400kV SUBSTATION

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2268940	TP32 0.50 SOIL	22/11/23	GJ 250ml, GJ 60ml, PT 1L x2		
2268941	TP35 1.00 SOIL	22/11/23	GJ 250ml, GJ 60ml, PT 1L x2		
2268942	TP20 1.00 SOIL	22/11/23	GJ 250ml, GJ 60ml, PT 1L x2		

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

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 425µm sieve, in accordance with BS1377.

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

End of Report

Certificate of Analysis

Certificate Number 23-28158-0 *Issued:* 26-Jan-24

Client Raeburn Drilling
East Avenue
Blantyre
Glasgow
G72 0JB

Our Reference 23-28158-0

Client Reference 26560

Order No (not supplied)

Contract Title LT521 FASNAKYLE 400kV SUBSTATION

Description 3 Soil samples.

Date Received 29-Nov-23

Date Started 29-Nov-23

Date Completed 26-Jan-24

Test Procedures Identified by prefix DETSn (details on request).

Notes **This report supersedes 23-28158, amendments made**

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

Kirk Bridgewood
General Manager

2139

Summary of Chemical Analysis
Soil Samples

Our Ref 23-28158-0
Client Ref 26560
Contract Title LT521 FASNAKYLE 400kV SUBSTATION

			Lab No	2269798	2269799	2269800
			.Sample ID	TP21	TP31	BH18
			Depth	0.50	0.50	1.00
			Other ID			
			Sample Type	ES	ES	ES
			Sampling Date	23/11/2023	23/11/2023	23/11/2023
			Sampling Time	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**			
Metals						
Arsenic	DETSC 2301#	0.2	mg/kg	1.8	0.7	0.7
Boron, Water Soluble (2.5:1)	DETSC 2311#	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Cadmium	DETSC 2301#	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Chromium	DETSC 2301#	0.15	mg/kg	1.7	10	7.3
Copper	DETSC 2301#	0.2	mg/kg	6.2	12	4.2
Lead	DETSC 2301#	0.3	mg/kg	12	5.6	3.5
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Nickel	DETSC 2301#	1	mg/kg	2.0	3.0	2.1
Zinc	DETSC 2301#	1	mg/kg	20	23	14
Inorganics						
pH	DETSC 2008#		pH	4.1	5.2	5.3
Cyanide, Total	DETSC 2130#	0.1	mg/kg	0.9	0.3	0.2
Organic matter	DETSC 2002#	0.1	%	13	3.0	4.4
Sulphate Aqueous Extract as SO4 (2:1)	DETSC 2076#	10	mg/l	14	< 10	< 10
Petroleum Hydrocarbons						
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aliphatic C10-C12	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5
Aliphatic C12-C16	DETSC 3072#	1.2	mg/kg	< 1.2	< 1.2	< 1.2
Aliphatic C16-C21	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5
Aliphatic C21-C35	DETSC 3072#	3.4	mg/kg	< 3.4	< 3.4	< 3.4
Aliphatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10	< 10
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aromatic C10-C12	DETSC 3072#	0.9	mg/kg	< 0.9	< 0.9	< 0.9
Aromatic C12-C16	DETSC 3072#	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Aromatic C16-C21	DETSC 3072#	0.6	mg/kg	< 0.6	< 0.6	< 0.6
Aromatic C21-C35	DETSC 3072#	1.4	mg/kg	< 1.4	< 1.4	< 1.4
Aromatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10	< 10
TPH Ali/Aro Total C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10	< 10
PAHs						
Naphthalene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Acenaphthylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Acenaphthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Fluorene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Phenanthrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Pyrene	DETSC 3301	0.1	mg/kg	1.2	< 0.1	< 0.1

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). n/s -not supplied.

Summary of Chemical Analysis
Soil Samples

Our Ref 23-28158-0
Client Ref 26560
Contract Title LT521 FASNAKYLE 400kV SUBSTATION

			Lab No	2269798	2269799	2269800
			.Sample ID	TP21	TP31	BH18
			Depth	0.50	0.50	1.00
			Other ID			
			Sample Type	ES	ES	ES
			Sampling Date	23/11/2023	23/11/2023	23/11/2023
			Sampling Time	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**			
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Chrysene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg	0.4	< 0.1	< 0.1
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg	0.1	< 0.1	< 0.1
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg	0.9	< 0.1	< 0.1
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg	11	< 0.1	< 0.1
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
PAH 16 Total	DETSC 3301	1.6	mg/kg	13	< 1.6	< 1.6
Phenols						
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	4.6	0.7	0.6
VOCs						
Vinyl Chloride	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,1 Dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Trans-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,1-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Cis-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
2,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Bromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Chloroform	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,1,1-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,1-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Carbon tetrachloride	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Benzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Trichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Dibromomethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Bromodichloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
cis-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Toluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
trans-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,1,2-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Tetrachloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,3-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Dibromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2-dibromoethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Chlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,1,1,2-tetrachloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Ethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
m+p-Xylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
o-Xylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). n/s -not supplied.

Summary of Chemical Analysis
Soil Samples

Our Ref 23-28158-0
Client Ref 26560
Contract Title LT521 FASNAKYLE 400kV SUBSTATION

			Lab No	2269798	2269799	2269800
			.Sample ID	TP21	TP31	BH18
			Depth	0.50	0.50	1.00
			Other ID			
			Sample Type	ES	ES	ES
			Sampling Date	23/11/2023	23/11/2023	23/11/2023
			Sampling Time	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**			
Styrene	DETSC 3431*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Bromoform	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Isopropylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Bromobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2,3-trichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
n-propylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
2-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,3,5-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
4-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Tert-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2,4-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
sec-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
p-isopropyltoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,3-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,4-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
n-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2-dibromo-3-chloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2,4-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Hexachlorobutadiene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2,3-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
MTBE	DETSC 3431*	0.01	mg/kg	< 0.01	< 0.01	< 0.01

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). n/s -not supplied.

Summary of Asbestos Analysis
Soil Samples

Our Ref 23-28158-0
Client Ref 26560
Contract Title LT521 FASNAKYLE 400kV SUBSTATION

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
2269798	TP21 0.50	SOIL	NAD	none	D Wilkinson
2269799	TP31 0.50	SOIL	NAD	none	D Wilkinson
2269800	BH18 1.00	SOIL	NAD	none	D Wilkinson

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * - not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 23-28158-0
Client Ref 26560
Contract LT521 FASNAKYLE 400kV SUBSTATION

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2269798	TP21 0.50 SOIL	23/11/23	GJ 250ml, GJ 60ml, PT 1L x2		
2269799	TP31 0.50 SOIL	23/11/23	GJ 250ml, GJ 60ml, PT 1L x2		
2269800	BH18 1.00 SOIL	23/11/23	GJ 250ml, GJ 60ml, PT 1L x2		

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

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 425µm sieve, in accordance with BS1377.

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

End of Report

Certificate of Analysis

Certificate Number	23-28261	*Issued:*	15-Dec-23

Client Raeburn Drilling
East Avenue
Blantyre
Glasgow
G72 0JB

Our Reference	23-28261
Client Reference	26560
Order No	(not supplied)
Contract Title	LT521 FASNAKYLE 400kV SUBSTATION
Description	3 Soil samples.
Date Received	30-Nov-23
Date Started	30-Nov-23
Date Completed	15-Dec-23
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

Kirk Bridgewood
General Manager

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Summary of Chemical Analysis
Soil Samples

Our Ref 23-28261
Client Ref 26560
Contract Title LT521 FASNAKYLE 400kV SUBSTATION

			Lab No	2270382	2270383	2270384
			.Sample ID	TP37	TP10	TP06
			Depth	0.50	1.00	0.50
			Other ID			
			Sample Type	SOIL	SOIL	SOIL
			Sampling Date	24/11/2023	24/11/2023	24/11/2023
			Sampling Time	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**			
Metals						
Arsenic	DETSC 2301#	0.2	mg/kg	0.7	5.3	1.4
Boron, Water Soluble (2.5:1)	DETSC 2311#	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Cadmium	DETSC 2301#	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Chromium	DETSC 2301#	0.15	mg/kg	7.4	24	13
Copper	DETSC 2301#	0.2	mg/kg	3.9	9.5	7.0
Lead	DETSC 2301#	0.3	mg/kg	4.5	55	4.8
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Nickel	DETSC 2301#	1	mg/kg	2.9	12	4.7
Zinc	DETSC 2301#	1	mg/kg	16	56	19
Inorganics						
pH	DETSC 2008#		pH	5.8	5.5	5.7
Cyanide, Total	DETSC 2130#	0.1	mg/kg	0.2	0.2	0.1
Organic matter	DETSC 2002#	0.1	%	2.1	3.8	3.6
Sulphate Aqueous Extract as SO4 (2:1)	DETSC 2076#	10	mg/l	16	< 10	< 10
Petroleum Hydrocarbons						
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	0.07
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg	0.08	< 0.01	0.08
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg	0.10	< 0.01	0.09
Aliphatic C10-C12	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5
Aliphatic C12-C16	DETSC 3072#	1.2	mg/kg	< 1.2	< 1.2	< 1.2
Aliphatic C16-C21	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5
Aliphatic C21-C35	DETSC 3072#	3.4	mg/kg	< 3.4	< 3.4	< 3.4
Aliphatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10	< 10
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aromatic C10-C12	DETSC 3072#	0.9	mg/kg	< 0.9	< 0.9	< 0.9
Aromatic C12-C16	DETSC 3072#	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Aromatic C16-C21	DETSC 3072#	0.6	mg/kg	< 0.6	< 0.6	< 0.6
Aromatic C21-C35	DETSC 3072#	1.4	mg/kg	< 1.4	< 1.4	< 1.4
Aromatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10	< 10
TPH Ali/Aro Total C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10	< 10
PAHs						
Naphthalene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Acenaphthylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Acenaphthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Fluorene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Phenanthrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). n/s -not supplied.

Summary of Chemical Analysis
Soil Samples

Our Ref 23-28261
Client Ref 26560
Contract Title LT521 FASNAKYLE 400kV SUBSTATION

			Lab No	2270382	2270383	2270384
			.Sample ID	TP37	TP10	TP06
			Depth	0.50	1.00	0.50
			Other ID			
			Sample Type	SOIL	SOIL	SOIL
			Sampling Date	24/11/2023	24/11/2023	24/11/2023
			Sampling Time	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**			
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Chrysene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
PAH 16 Total	DETSC 3301	1.6	mg/kg	< 1.6	< 1.6	< 1.6
Phenols						
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3	< 0.3	< 0.3
VOCs						
Vinyl Chloride	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,1 Dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Trans-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,1-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Cis-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
2,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Bromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Chloroform	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,1,1-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,1-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Carbon tetrachloride	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Benzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Trichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Dibromomethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Bromodichloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
cis-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Toluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
trans-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,1,2-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Tetrachloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,3-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Dibromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2-dibromoethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Chlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,1,1,2-tetrachloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Ethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
m+p-Xylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
o-Xylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). n/s -not supplied.

Summary of Chemical Analysis
Soil Samples

Our Ref 23-28261
Client Ref 26560
Contract Title LT521 FASNAKYLE 400kV SUBSTATION

			Lab No	2270382	2270383	2270384
			.Sample ID	TP37	TP10	TP06
			Depth	0.50	1.00	0.50
			Other ID			
			Sample Type	SOIL	SOIL	SOIL
			Sampling Date	24/11/2023	24/11/2023	24/11/2023
			Sampling Time	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**			
Styrene	DETSC 3431*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Bromoform	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Isopropylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Bromobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2,3-trichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
n-propylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
2-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,3,5-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
4-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Tert-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2,4-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
sec-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
p-isopropyltoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,3-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,4-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
n-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2-dibromo-3-chloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2,4-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Hexachlorobutadiene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2,3-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
MTBE	DETSC 3431*	0.01	mg/kg	< 0.01	< 0.01	< 0.01

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). n/s -not supplied.

Summary of Asbestos Analysis
Soil Samples

Our Ref 23-28261
Client Ref 26560
Contract Title LT521 FASNAKYLE 400kV SUBSTATION

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
2270382	TP37 0.50	SOIL	NAD	none	Pierce Booth
2270383	TP10 1.00	SOIL	NAD	none	Pierce Booth
2270384	TP06 0.50	SOIL	NAD	none	Pierce Booth

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * - not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 23-28261
Client Ref 26560
Contract LT521 FASNAKYLE 400kV SUBSTATION

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2270382	TP37 0.50 SOIL	24/11/23	GJ 250ml, GJ 60ml, PT 1L x2		
2270383	TP10 1.00 SOIL	24/11/23	GJ 250ml, GJ 60ml, PT 1L x2		
2270384	TP06 0.50 SOIL	24/11/23	GJ 250ml, GJ 60ml, PT 1L x2		

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

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 425µm sieve, in accordance with BS1377.

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

End of Report

Certificate of Analysis

Certificate Number 23-28262-0 *Issued:* 26-Jan-24

Client Raeburn Drilling
East Avenue
Blantyre
Glasgow
G72 0JB

Our Reference 23-28262-0

Client Reference 26560

Order No (not supplied)

Contract Title LT521 FASNAKYLE 400kV SUBSTATION

Description 4 Soil samples.

Date Received 30-Nov-23

Date Started 30-Nov-23

Date Completed 26-Jan-24

Test Procedures Identified by prefix DETSn (details on request).

Notes **This report supersedes 23-28262, amendments made**

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

Kirk Bridgewood
General Manager

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Summary of Chemical Analysis
Soil Samples

Our Ref 23-28262-0
Client Ref 26560
Contract Title LT521 FASNAKYLE 400kV SUBSTATION

			Lab No	2270385	2270386	2270387	2270388
			.Sample ID	TP16	TP33	TP14	BH27
			Depth	0.50	1.00	0.50	1.00
			Other ID				
			Sample Type	SOIL	SOIL	SOIL	SOIL
			Sampling Date	27/11/2023	27/11/2023	27/11/2023	27/11/2023
			Sampling Time	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**				
Metals							
Arsenic	DETSC 2301#	0.2	mg/kg	4.0	2.4	1.1	0.9
Boron, Water Soluble (2.5:1)	DETSC 2311#	0.2	mg/kg	0.7	0.9	< 0.2	< 0.2
Cadmium	DETSC 2301#	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Chromium	DETSC 2301#	0.15	mg/kg	17	13	37	17
Copper	DETSC 2301#	0.2	mg/kg	14	17	7.7	5.1
Lead	DETSC 2301#	0.3	mg/kg	4.1	7.1	1.9	2.1
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Nickel	DETSC 2301#	1	mg/kg	8.3	6.4	11	6.6
Zinc	DETSC 2301#	1	mg/kg	41	38	25	30
Inorganics							
pH	DETSC 2008#		pH	6.9	8.5	7.3	7.5
Cyanide, Total	DETSC 2130#	0.1	mg/kg	0.2	< 0.1	< 0.1	0.1
Organic matter	DETSC 2002#	0.1	%	1.5	1.1	1.0	1.5
Sulphate Aqueous Extract as SO4 (2:1)	DETSC 2076#	10	mg/l	27	96	14	14
Petroleum Hydrocarbons							
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C10-C12	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5	< 1.5
Aliphatic C12-C16	DETSC 3072#	1.2	mg/kg	< 1.2	< 1.2	< 1.2	< 1.2
Aliphatic C16-C21	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5	< 1.5
Aliphatic C21-C35	DETSC 3072#	3.4	mg/kg	< 3.4	< 3.4	< 3.4	< 3.4
Aliphatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10	< 10	< 10
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C10-C12	DETSC 3072#	0.9	mg/kg	< 0.9	< 0.9	< 0.9	< 0.9
Aromatic C12-C16	DETSC 3072#	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aromatic C16-C21	DETSC 3072#	0.6	mg/kg	< 0.6	< 0.6	< 0.6	< 0.6
Aromatic C21-C35	DETSC 3072#	1.4	mg/kg	< 1.4	< 1.4	< 1.4	< 1.4
Aromatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10	< 10	< 10
TPH Ali/Aro Total C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10	< 10	< 10
PAHs							
Naphthalene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Fluorene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1

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Summary of Chemical Analysis
Soil Samples

Our Ref 23-28262-0
Client Ref 26560
Contract Title LT521 FASNAKYLE 400kV SUBSTATION

			Lab No	2270385	2270386	2270387	2270388
			.Sample ID	TP16	TP33	TP14	BH27
			Depth	0.50	1.00	0.50	1.00
			Other ID				
			Sample Type	SOIL	SOIL	SOIL	SOIL
			Sampling Date	27/11/2023	27/11/2023	27/11/2023	27/11/2023
			Sampling Time	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**				
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Chrysene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
PAH 16 Total	DETSC 3301	1.6	mg/kg	< 1.6	< 1.6	< 1.6	< 1.6
Phenols							
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	0.4	< 0.3	< 0.3	< 0.3
VOCs							
Vinyl Chloride	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
1,1 Dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Trans-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
1,1-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Cis-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
2,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Bromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Chloroform	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
1,1,1-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
1,1-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Carbon tetrachloride	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Benzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
1,2-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Trichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
1,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Dibromomethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Bromodichloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
cis-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Toluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
trans-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
1,1,2-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Tetrachloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
1,3-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Dibromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
1,2-dibromoethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Chlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
1,1,1,2-tetrachloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Ethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
m+p-Xylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
o-Xylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). n/s -not supplied.

Summary of Chemical Analysis
Soil Samples

Our Ref 23-28262-0
Client Ref 26560
Contract Title LT521 FASNAKYLE 400kV SUBSTATION

			Lab No	2270385	2270386	2270387	2270388
			.Sample ID	TP16	TP33	TP14	BH27
			Depth	0.50	1.00	0.50	1.00
			Other ID				
			Sample Type	SOIL	SOIL	SOIL	SOIL
			Sampling Date	27/11/2023	27/11/2023	27/11/2023	27/11/2023
			Sampling Time	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**				
Styrene	DETSC 3431*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Bromoform	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Isopropylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Bromobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
1,2,3-trichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
n-propylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
2-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
1,3,5-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
4-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Tert-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
1,2,4-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
sec-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
p-isopropyltoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
1,3-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
1,4-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
n-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
1,2-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
1,2-dibromo-3-chloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
1,2,4-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Hexachlorobutadiene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
1,2,3-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
MTBE	DETSC 3431*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). n/s -not supplied.

Summary of Asbestos Analysis
Soil Samples

Our Ref 23-28262-0
Client Ref 26560
Contract Title LT521 FASNAKYLE 400kV SUBSTATION

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
2270385	TP16 0.50	SOIL	NAD	none	Pierce Booth
2270386	TP33 1.00	SOIL	NAD	none	Pierce Booth
2270387	TP14 0.50	SOIL	NAD	none	Pierce Booth
2270388	BH27 1.00	SOIL	NAD	none	Pierce Booth

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * - not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 23-28262-0
Client Ref 26560
Contract LT521 FASNAKYLE 400kV SUBSTATION

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2270385	TP16 0.50 SOIL	27/11/23	GJ 250ml, GJ 60ml, PT 1L x2		
2270386	TP33 1.00 SOIL	27/11/23	GJ 250ml, GJ 60ml, PT 1L x2		
2270387	TP14 0.50 SOIL	27/11/23	GJ 250ml, GJ 60ml, PT 1L x2		
2270388	BH27 1.00 SOIL	27/11/23	GJ 250ml, GJ 60ml, PT 1L x2		

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

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 425µm sieve, in accordance with BS1377.

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

End of Report

Certificate of Analysis

Certificate Number	23-28468	*Issued:*	18-Dec-23

Client Raeburn Drilling
East Avenue
Blantyre
Glasgow
G72 0JB

Our Reference	23-28468
Client Reference	26560
Order No	(not supplied)
Contract Title	LT521 FASNAKYLE 400kV SUBSTATION
Description	2 Soil samples.
Date Received	04-Dec-23
Date Started	04-Dec-23
Date Completed	18-Dec-23
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

Kirk Bridgewood
General Manager

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UKAS TESTING
2139

Summary of Chemical Analysis
Soil Samples

Our Ref 23-28468
Client Ref 26560
Contract Title LT521 FASNAKYLE 400kV SUBSTATION

			Lab No	2271575	2271576
			.Sample ID	TP05	BH15
			Depth	0.50	0.50
			Other ID		
			Sample Type	SOIL	SOIL
			Sampling Date	28/11/2023	28/11/2023
			Sampling Time	n/s	n/s
Test	**Method**	**LOD**	**Units**		
Metals					
Arsenic	DETSC 2301#	0.2	mg/kg	2.2	2.2
Boron, Water Soluble (2.5:1)	DETSC 2311#	0.2	mg/kg	< 0.2	0.2
Cadmium	DETSC 2301#	0.1	mg/kg	< 0.1	0.5
Chromium	DETSC 2301#	0.15	mg/kg	17	2.7
Copper	DETSC 2301#	0.2	mg/kg	9.9	9.8
Lead	DETSC 2301#	0.3	mg/kg	6.0	24
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	< 0.05
Nickel	DETSC 2301#	1	mg/kg	8.2	2.9
Zinc	DETSC 2301#	1	mg/kg	37	91
Inorganics					
pH	DETSC 2008#		pH	6.6	6.1
Cyanide, Total	DETSC 2130#	0.1	mg/kg	< 0.1	< 0.1
Organic matter	DETSC 2002#	0.1	%	0.4	0.7
Sulphate Aqueous Extract as SO4 (2:1)	DETSC 2076#	10	mg/l	32	26
Petroleum Hydrocarbons					
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C10-C12	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5
Aliphatic C12-C16	DETSC 3072#	1.2	mg/kg	< 1.2	< 1.2
Aliphatic C16-C21	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5
Aliphatic C21-C35	DETSC 3072#	3.4	mg/kg	< 3.4	< 3.4
Aliphatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C10-C12	DETSC 3072#	0.9	mg/kg	< 0.9	< 0.9
Aromatic C12-C16	DETSC 3072#	0.5	mg/kg	< 0.5	< 0.5
Aromatic C16-C21	DETSC 3072#	0.6	mg/kg	< 0.6	< 0.6
Aromatic C21-C35	DETSC 3072#	1.4	mg/kg	< 1.4	< 1.4
Aromatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10
TPH Ali/Aro Total C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10
PAHs					
Naphthalene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Acenaphthylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Acenaphthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Fluorene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Phenanthrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). n/s -not supplied.

Summary of Chemical Analysis
Soil Samples

Our Ref 23-28468
Client Ref 26560
Contract Title LT521 FASNAKYLE 400kV SUBSTATION

			Lab No	2271575	2271576
			.Sample ID	TP05	BH15
			Depth	0.50	0.50
			Other ID		
			Sample Type	SOIL	SOIL
			Sampling Date	28/11/2023	28/11/2023
			Sampling Time	n/s	n/s
Test	**Method**	**LOD**	**Units**		
Chrysene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1
PAH 16 Total	DETSC 3301	1.6	mg/kg	< 1.6	< 1.6
Phenols					
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3	< 0.3
VOCs					
Vinyl Chloride	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1 Dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Trans-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Cis-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
2,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Bromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Chloroform	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1,1-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Carbon tetrachloride	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Benzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Trichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Dibromomethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Bromodichloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
cis-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Toluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
trans-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1,2-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Tetrachloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,3-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Dibromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2-dibromoethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Chlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1,1,2-tetrachloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Ethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
m+p-Xylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
o-Xylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). n/s -not supplied.

Summary of Chemical Analysis
Soil Samples

Our Ref 23-28468
Client Ref 26560
Contract Title LT521 FASNAKYLE 400kV SUBSTATION

			Lab No	2271575	2271576
			.Sample ID	TP05	BH15
			Depth	0.50	0.50
			Other ID		
			Sample Type	SOIL	SOIL
			Sampling Date	28/11/2023	28/11/2023
			Sampling Time	n/s	n/s
Test	**Method**	**LOD**	**Units**		
Styrene	DETSC 3431*	0.01	mg/kg	< 0.01	< 0.01
Bromoform	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Isopropylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Bromobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2,3-trichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
n-propylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
2-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,3,5-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
4-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Tert-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2,4-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
sec-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
p-isopropyltoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,3-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,4-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
n-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2-dibromo-3-chloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2,4-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Hexachlorobutadiene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2,3-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
MTBE	DETSC 3431*	0.01	mg/kg	< 0.01	< 0.01

Summary of Asbestos Analysis
Soil Samples

Our Ref 23-28468
Client Ref 26560
Contract Title LT521 FASNAKYLE 400kV SUBSTATION

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
2271575	TP05 0.50	SOIL	NAD	none	Lee Kerridge
2271576	BH15 0.50	SOIL	NAD	none	Lee Kerridge

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * - not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 23-28468
Client Ref 26560
Contract LT521 FASNAKYLE 400kV SUBSTATION

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2271575	TP05 0.50 SOIL	28/11/23	GJ 250ml, GJ 60ml, PT 1L x2		
2271576	BH15 0.50 SOIL	28/11/23	GJ 250ml, GJ 60ml, PT 1L x2		

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

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 425µm sieve, in accordance with BS1377.

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

End of Report

Certificate of Analysis

Certificate Number	23-28626	*Issued:*	19-Dec-23

Client Raeburn Drilling
East Avenue
Blantyre
Glasgow
G72 0JB

Our Reference	23-28626
Client Reference	26560
Order No	(not supplied)
Contract Title	LT521 FASNAKYLE 400kV SUBSTATION
Description	3 Soil samples.
Date Received	05-Dec-23
Date Started	05-Dec-23
Date Completed	19-Dec-23
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

Kirk Bridgewood
General Manager

2139

Summary of Chemical Analysis
Soil Samples

Our Ref 23-28626
Client Ref 26560
Contract Title LT521 FASNAKYLE 400kV SUBSTATION

			Lab No	2272260	2272261	2272262
			.Sample ID	TP02	TP07	TP12
			Depth	0.50	0.50	0.50
			Other ID			
			Sample Type	SOIL	SOIL	SOIL
			Sampling Date	29/11/2023	29/11/2023	29/11/2023
			Sampling Time	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**			
Metals						
Arsenic	DETSC 2301#	0.2	mg/kg	1.4	1.9	1.2
Boron, Water Soluble (2.5:1)	DETSC 2311#	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Cadmium	DETSC 2301#	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Chromium	DETSC 2301#	0.15	mg/kg	12	14	16
Copper	DETSC 2301#	0.2	mg/kg	4.2	7.0	2.9
Lead	DETSC 2301#	0.3	mg/kg	4.7	4.7	8.4
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Nickel	DETSC 2301#	1	mg/kg	4.6	6.5	3.2
Zinc	DETSC 2301#	1	mg/kg	24	31	18
Inorganics						
pH	DETSC 2008#		pH	6.6	6.6	5.1
Cyanide, Total	DETSC 2130#	0.1	mg/kg	0.2	0.1	0.3
Organic matter	DETSC 2002#	0.1	%	2.7	2.6	6.6
Sulphate Aqueous Extract as SO4 (2:1)	DETSC 2076#	10	mg/l	16	< 10	18
Petroleum Hydrocarbons						
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg	0.04	< 0.01	< 0.01
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg	0.04	< 0.01	0.05
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	0.02
Aliphatic C10-C12	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5
Aliphatic C12-C16	DETSC 3072#	1.2	mg/kg	< 1.2	< 1.2	< 1.2
Aliphatic C16-C21	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5
Aliphatic C21-C35	DETSC 3072#	3.4	mg/kg	< 3.4	< 3.4	< 3.4
Aliphatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10	< 10
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aromatic C10-C12	DETSC 3072#	0.9	mg/kg	< 0.9	< 0.9	< 0.9
Aromatic C12-C16	DETSC 3072#	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Aromatic C16-C21	DETSC 3072#	0.6	mg/kg	< 0.6	< 0.6	< 0.6
Aromatic C21-C35	DETSC 3072#	1.4	mg/kg	< 1.4	< 1.4	< 1.4
Aromatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10	< 10
TPH Ali/Aro Total C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10	< 10
PAHs						
Naphthalene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Acenaphthylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Acenaphthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Fluorene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Phenanthrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). n/s -not supplied.

Summary of Chemical Analysis
Soil Samples

Our Ref 23-28626
Client Ref 26560
Contract Title LT521 FASNAKYLE 400kV SUBSTATION

			Lab No	2272260	2272261	2272262
			.Sample ID	TP02	TP07	TP12
			Depth	0.50	0.50	0.50
			Other ID			
			Sample Type	SOIL	SOIL	SOIL
			Sampling Date	29/11/2023	29/11/2023	29/11/2023
			Sampling Time	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**			
Chrysene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
PAH 16 Total	DETSC 3301	1.6	mg/kg	< 1.6	< 1.6	< 1.6
Phenols						
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3	0.4	0.7
VOCs						
Vinyl Chloride	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,1 Dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Trans-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,1-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Cis-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
2,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Bromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Chloroform	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,1,1-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,1-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Carbon tetrachloride	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Benzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Trichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Dibromomethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Bromodichloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
cis-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Toluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
trans-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,1,2-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Tetrachloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,3-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Dibromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2-dibromoethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Chlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,1,1,2-tetrachloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Ethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
m+p-Xylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
o-Xylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). n/s -not supplied.

Summary of Chemical Analysis
Soil Samples

Our Ref 23-28626
Client Ref 26560
Contract Title LT521 FASNAKYLE 400kV SUBSTATION

			Lab No	2272260	2272261	2272262
			.Sample ID	TP02	TP07	TP12
			Depth	0.50	0.50	0.50
			Other ID			
			Sample Type	SOIL	SOIL	SOIL
			Sampling Date	29/11/2023	29/11/2023	29/11/2023
			Sampling Time	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**			
Styrene	DETSC 3431*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Bromoform	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Isopropylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Bromobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2,3-trichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
n-propylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
2-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,3,5-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
4-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Tert-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2,4-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
sec-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
p-isopropyltoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,3-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,4-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
n-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2-dibromo-3-chloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2,4-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Hexachlorobutadiene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2,3-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
MTBE	DETSC 3431*	0.01	mg/kg	< 0.01	< 0.01	< 0.01

Summary of Asbestos Analysis
Soil Samples

Our Ref 23-28626
Client Ref 26560
Contract Title LT521 FASNAKYLE 400kV SUBSTATION

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
2272260	TP02 0.50	SOIL	NAD	none	Josh Best
2272261	TP07 0.50	SOIL	NAD	none	Josh Best
2272262	TP12 0.50	SOIL	NAD	none	Josh Best

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * - not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 23-28626
Client Ref 26560
Contract LT521 FASNAKYLE 400kV SUBSTATION

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2272260	TP02 0.50 SOIL	29/11/23	GJ 250ml, GJ 60ml, PT 1L x2		
2272261	TP07 0.50 SOIL	29/11/23	GJ 250ml, GJ 60ml, PT 1L x2		
2272262	TP12 0.50 SOIL	29/11/23	GJ 250ml, GJ 60ml, PT 1L x2		

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

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 425µm sieve, in accordance with BS1377.

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

End of Report

Certificate of Analysis

Certificate Number	23-29162	*Issued:*	22-Dec-23

Client Raeburn Drilling
East Avenue
Blantyre
Glasgow
G72 0JB

Our Reference	23-29162
Client Reference	26500
Order No	(not supplied)
Contract Title	LT521 FASNAKYLE 400kV SUBSTATION
Description	3 Soil samples.
Date Received	11-Dec-23
Date Started	11-Dec-23
Date Completed	22-Dec-23
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

Kirk Bridgewood
General Manager

ilac-MRA

UKAS TESTING
2139

Summary of Chemical Analysis
Soil Samples

Our Ref 23-29162
Client Ref 26500
Contract Title LT521 FASNAKYLE 400kV SUBSTATION

			Lab No	2275378	2275379	2275380
			.Sample ID	TP03	TP08	BH14
			Depth	0.50	0.50	0.50
			Other ID			
			Sample Type	ES	ES	ES
			Sampling Date	04/12/2023	04/12/2023	04/12/2023
			Sampling Time	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**			
Metals						
Arsenic	DETSC 2301#	0.2	mg/kg	2.6	4.0	1.5
Boron, Water Soluble (2.5:1)	DETSC 2311#	0.2	mg/kg	1.0	2.2	0.3
Cadmium	DETSC 2301#	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Chromium	DETSC 2301#	0.15	mg/kg	17	18	22
Copper	DETSC 2301#	0.2	mg/kg	5.1	13	7.7
Lead	DETSC 2301#	0.3	mg/kg	5.8	12	3.9
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	0.05	< 0.05
Nickel	DETSC 2301#	1	mg/kg	7.6	11	6.3
Zinc	DETSC 2301#	1	mg/kg	34	68	28
Inorganics						
pH	DETSC 2008#		pH	6.5	7.2	6.2
Cyanide, Total	DETSC 2130#	0.1	mg/kg	0.2	< 0.1	0.1
Organic matter	DETSC 2002#	0.1	%	3.6	1.5	2.7
Sulphate Aqueous Extract as SO4 (2:1)	DETSC 2076#	10	mg/l	40	90	30
Petroleum Hydrocarbons						
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aliphatic C10-C12	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5
Aliphatic C12-C16	DETSC 3072#	1.2	mg/kg	< 1.2	< 1.2	< 1.2
Aliphatic C16-C21	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5
Aliphatic C21-C35	DETSC 3072#	3.4	mg/kg	< 3.4	< 3.4	< 3.4
Aliphatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10	< 10
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aromatic C10-C12	DETSC 3072#	0.9	mg/kg	< 0.9	< 0.9	< 0.9
Aromatic C12-C16	DETSC 3072#	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Aromatic C16-C21	DETSC 3072#	0.6	mg/kg	< 0.6	< 0.6	< 0.6
Aromatic C21-C35	DETSC 3072#	1.4	mg/kg	< 1.4	< 1.4	< 1.4
Aromatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10	< 10
TPH Ali/Aro Total C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10	< 10
PAHs						
Naphthalene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Acenaphthylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Acenaphthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Fluorene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Phenanthrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). n/s -not supplied.

Summary of Chemical Analysis
Soil Samples

Our Ref 23-29162
Client Ref 26500
Contract Title LT521 FASNAKYLE 400kV SUBSTATION

			Lab No	2275378	2275379	2275380
			.Sample ID	TP03	TP08	BH14
			Depth	0.50	0.50	0.50
			Other ID			
			Sample Type	ES	ES	ES
			Sampling Date	04/12/2023	04/12/2023	04/12/2023
			Sampling Time	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**			
Chrysene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1
PAH 16 Total	DETSC 3301	1.6	mg/kg	< 1.6	< 1.6	< 1.6
Phenols						
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	0.4	< 0.3	< 0.3
VOCs						
Vinyl Chloride	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,1 Dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Trans-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,1-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Cis-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
2,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Bromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Chloroform	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,1,1-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,1-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Carbon tetrachloride	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Benzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Trichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Dibromomethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Bromodichloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
cis-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Toluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
trans-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,1,2-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Tetrachloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,3-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Dibromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2-dibromoethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Chlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,1,1,2-tetrachloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Ethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
m+p-Xylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
o-Xylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). n/s -not supplied.

Summary of Chemical Analysis
Soil Samples

Our Ref 23-29162
Client Ref 26500
Contract Title LT521 FASNAKYLE 400kV SUBSTATION

			Lab No	2275378	2275379	2275380
			.Sample ID	TP03	TP08	BH14
			Depth	0.50	0.50	0.50
			Other ID			
			Sample Type	ES	ES	ES
			Sampling Date	04/12/2023	04/12/2023	04/12/2023
			Sampling Time	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**			
Styrene	DETSC 3431*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Bromoform	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Isopropylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Bromobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2,3-trichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
n-propylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
2-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,3,5-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
4-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Tert-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2,4-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
sec-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
p-isopropyltoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,3-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,4-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
n-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2-dibromo-3-chloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2,4-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Hexachlorobutadiene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2,3-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
MTBE	DETSC 3431*	0.01	mg/kg	< 0.01	< 0.01	< 0.01

Summary of Asbestos Analysis
Soil Samples

Our Ref 23-29162
Client Ref 26500
Contract Title LT521 FASNAKYLE 400kV SUBSTATION

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
2275378	TP03 0.50	SOIL	NAD	none	Barry Kelly
2275379	TP08 0.50	SOIL	NAD	none	Barry Kelly
2275380	BH14 0.50	SOIL	NAD	none	Barry Kelly

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * - not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 23-29162
Client Ref 26500
Contract LT521 FASNAKYLE 400kV SUBSTATION

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2275378	TP03 0.50 SOIL	04/12/23	GJ 250ml, GJ 60ml, PT 1L x2		
2275379	TP08 0.50 SOIL	04/12/23	GJ 250ml, GJ 60ml, PT 1L x2		
2275380	BH14 0.50 SOIL	04/12/23	GJ 250ml, GJ 60ml, PT 1L x2		

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

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 425µm sieve, in accordance with BS1377.

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

End of Report

Certificate of Analysis

Certificate Number	24-00791	*Issued:*	22-Jan-24
Client	Raeburn Drilling East Avenue Blantyre Glasgow G72 0JB		

Our Reference	24-00791
Client Reference	26560
Order No	(not supplied)
Contract Title	LT521 Fasnakyle 400kV Substation
Description	1 Soil sample, 2 Leachate prepared by DETS samples.
Date Received	15-Jan-24
Date Started	15-Jan-24
Date Completed	22-Jan-24
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

Kirk Bridgewood
General Manager

ilac-MRA

UKAS TESTING
2139

Summary of Chemical Analysis
Soil Samples

Our Ref 24-00791
Client Ref 26560
Contract Title LT521 Fasnakyle 400kV Substation

Lab No	2286449
.Sample ID	BH12
Depth	0.50
Other ID	
Sample Type	SOIL
Sampling Date	10/01/2024
Sampling Time	n/s

Test	Method	LOD	Units	
Metals				
Arsenic	DETSC 2301#	0.2	mg/kg	1.3
Boron, Water Soluble (2.5:1)	DETSC 2311#	0.2	mg/kg	0.3
Cadmium	DETSC 2301#	0.1	mg/kg	< 0.1
Chromium	DETSC 2301#	0.15	mg/kg	13
Copper	DETSC 2301#	0.2	mg/kg	7.8
Lead	DETSC 2301#	0.3	mg/kg	4.7
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05
Nickel	DETSC 2301#	1	mg/kg	6.9
Zinc	DETSC 2301#	1	mg/kg	30
Inorganics				
pH	DETSC 2008#		pH	6.5
Cyanide, Total	DETSC 2130#	0.1	mg/kg	< 0.1
Organic matter	DETSC 2002#	0.1	%	1.6
Sulphate Aqueous Extract as SO4 (2:1)	DETSC 2076#	10	mg/l	2500
Petroleum Hydrocarbons				
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg	< 0.01
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg	< 0.01
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01
Aliphatic C10-C12	DETSC 3072#	1.5	mg/kg	< 1.5
Aliphatic C12-C16	DETSC 3072#	1.2	mg/kg	< 1.2
Aliphatic C16-C21	DETSC 3072#	1.5	mg/kg	< 1.5
Aliphatic C21-C35	DETSC 3072#	3.4	mg/kg	< 3.4
Aliphatic C5-C35	DETSC 3072*	10	mg/kg	< 10
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg	< 0.01
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg	< 0.01
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01
Aromatic C10-C12	DETSC 3072#	0.9	mg/kg	< 0.9
Aromatic C12-C16	DETSC 3072#	0.5	mg/kg	< 0.5
Aromatic C16-C21	DETSC 3072#	0.6	mg/kg	< 0.6
Aromatic C21-C35	DETSC 3072#	1.4	mg/kg	< 1.4
Aromatic C5-C35	DETSC 3072*	10	mg/kg	< 10
TPH Ali/Aro Total C5-C35	DETSC 3072*	10	mg/kg	< 10
PAHs				
Naphthalene	DETSC 3301	0.1	mg/kg	< 0.1
Acenaphthylene	DETSC 3301	0.1	mg/kg	< 0.1
Acenaphthene	DETSC 3301	0.1	mg/kg	< 0.1
Fluorene	DETSC 3301	0.1	mg/kg	< 0.1
Phenanthrene	DETSC 3301	0.1	mg/kg	< 0.1
Anthracene	DETSC 3301	0.1	mg/kg	< 0.1
Fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1
Pyrene	DETSC 3301	0.1	mg/kg	< 0.1

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). n/s -not supplied.

Summary of Chemical Analysis
Soil Samples

Our Ref 24-00791
Client Ref 26560
Contract Title LT521 Fasnakyle 400kV Substation

Lab No	2286449
.Sample ID	BH12
Depth	0.50
Other ID	
Sample Type	SOIL
Sampling Date	10/01/2024
Sampling Time	n/s

Test	Method	LOD	Units	
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg	< 0.1
Chrysene	DETSC 3301	0.1	mg/kg	< 0.1
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg	< 0.1
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg	< 0.1
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg	< 0.1
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg	< 0.1
PAH 16 Total	DETSC 3301	1.6	mg/kg	< 1.6
Phenols				
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3
VOCs				
Vinyl Chloride	DETSC 3431	0.01	mg/kg	< 0.01
1,1 Dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01
Trans-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01
1,1-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01
Cis-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01
2,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01
Bromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01
Chloroform	DETSC 3431	0.01	mg/kg	< 0.01
1,1,1-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01
1,1-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01
Carbon tetrachloride	DETSC 3431	0.01	mg/kg	< 0.01
Benzene	DETSC 3431	0.01	mg/kg	< 0.01
1,2-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01
Trichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01
1,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01
Dibromomethane	DETSC 3431	0.01	mg/kg	< 0.01
Bromodichloromethane	DETSC 3431	0.01	mg/kg	< 0.01
cis-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01
Toluene	DETSC 3431	0.01	mg/kg	< 0.01
trans-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01
1,1,2-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01
Tetrachloroethylene	DETSC 3431	0.01	mg/kg	< 0.01
1,3-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01
Dibromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01
1,2-dibromoethane	DETSC 3431	0.01	mg/kg	< 0.01
Chlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
1,1,1,2-tetrachloroethane	DETSC 3431	0.01	mg/kg	< 0.01
Ethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
m+p-Xylene	DETSC 3431	0.01	mg/kg	< 0.01

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). n/s -not supplied.

Summary of Chemical Analysis
Soil Samples

Our Ref 24-00791
Client Ref 26560
Contract Title LT521 Fasnakyle 400kV Substation

Lab No	2286449
.Sample ID	BH12
Depth	0.50
Other ID	
Sample Type	SOIL
Sampling Date	10/01/2024
Sampling Time	n/s

Test	Method	LOD	Units	
o-Xylene	DETSC 3431	0.01	mg/kg	< 0.01
Styrene	DETSC 3431*	0.01	mg/kg	< 0.01
Bromoform	DETSC 3431	0.01	mg/kg	< 0.01
Isopropylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
Bromobenzene	DETSC 3431	0.01	mg/kg	< 0.01
1,2,3-trichloropropane	DETSC 3431	0.01	mg/kg	< 0.01
n-propylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
2-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01
1,3,5-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
4-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01
Tert-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
1,2,4-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
sec-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
p-isopropyltoluene	DETSC 3431	0.01	mg/kg	< 0.01
1,3-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
1,4-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
n-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
1,2-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
1,2-dibromo-3-chloropropane	DETSC 3431	0.01	mg/kg	< 0.01
1,2,4-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
Hexachlorobutadiene	DETSC 3431	0.01	mg/kg	< 0.01
1,2,3-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
MTBE	DETSC 3431*	0.01	mg/kg	< 0.01

Summary of Chemical Analysis
Leachate Samples

Our Ref 24-00791
Client Ref 26560
Contract Title LT521 Fasnakyle 400kV Substation

Lab No	2286450	2286451
.Sample ID	BH12	BH12
Depth	0.50	0.50
Other ID		
Sample Type	LEACHATE	LEACHATE
Sampling Date	10/01/2024	10/01/2024
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
Preparation					
BS EN 12457 2:1 WAC	DETSC 1009*			Y	
BS EN 12457 8:1 WAC	DETSC 1009*				Y

Key: * -not accredited. n/s -not supplied.

WASTE ACCEPTANCE CRITERIA TESTING ANALYTICAL REPORT

Our Ref 24-00791
Client Ref 26560
Contract Title LT521 Fasnakyle 400kV Substation
Sample Id BH12 0.50

Sample Numbers 2286449 2286450 2286451
Date Analysed 19/01/2024

Test Results On Waste

Determinand and Method Reference	Units	Result
DETSC 2084# Total Organic Carbon	%	< 0.5
DETSC2003# Loss On Ignition	%	
DETSC 3321# BTEX	mg/kg	< 0.04
DETSC 3401# PCBs (7 congeners)	mg/kg	< 0.01
DETSC 3311# TPH (C10 - C40)	mg/kg	< 10
DETSC 3301 PAHs	mg/kg	< 1.6
DETSC2008# pH	pH Units	
DETS073* Acid Neutralisation Capacity (pH4)	mol/kg	
DETS073* Acid Neutralisation Capacity (pH7)	mol/kg	

WAC Limit Values		
Inert Waste	SNRHW	Hazardous Waste
3	5	6
n/a	n/a	10
6	n/a	n/a
1	n/a	n/a
500	n/a	n/a
100	n/a	n/a
n/a	>6	n/a
n/a	TBE	TBE
n/a	TBE	TBE

Test Results On Leachate

Determinand and Method Reference	Conc in Eluate ug/l		Amount Leached* mg/kg	
	2:1	8:1	LS2	LS10
DETSC 2306 Arsenic as As	0.31	0.19	< 0.002	< 0.01
DETSC 2306 Barium as Ba	3.6	4.5	< 0.02	< 0.1
DETSC 2306 Cadmium as Cd	< 0.030	< 0.030	< 0.004	< 0.02
DETSC 2306 Chromium as Cr	1	< 0.25	< 0.02	< 0.1
DETSC 2306 Copper as Cu	0.74	0.6	< 0.004	< 0.02
DETSC 2306 Mercury as Hg	0.013	< 0.010	< 0.0004	< 0.002
DETSC 2306 Molybdenum as Mo	< 1.1	< 1.1	< 0.02	< 0.1
DETSC 2306 Nickel as Ni	< 0.50	< 0.50	< 0.02	< 0.1
DETSC 2306 Lead as Pb	0.58	0.33	< 0.01	< 0.05
DETSC 2306 Antimony as Sb	< 0.17	< 0.17	< 0.01	< 0.05
DETSC 2306 Selenium as Se	0.28	< 0.25	< 0.006	< 0.03
DETSC 2306 Zinc as Zn	2.2	< 1.3	0.004	< 0.01
DETSC 2055 Chloride as Cl	2600	650	< 20	< 100
DETSC 2055* Fluoride as F	< 100	< 100	< 0.02	< 0.1
DETSC 2055 Sulphate as SO4	3800	2100	< 20	< 100
DETSC 2009* Total Dissolved Solids	16000	9200	32	103.5
DETSC 2130 Phenol Index	< 100	< 100	< 0.2	< 1
DETSC 2085 Dissolved Organic Carbon	160000	8800	320	344.3

WAC Limit Values		
Limit values for LS10 Leachate		
Inert Waste	SNRHW	Hazardous Waste
0.5	2	25
20	100	300
0.04	1	5
0.5	10	70
2	50	100
0.01	0.2	2
0.5	10	30
0.4	10	40
0.5	10	50
0.06	0.7	5
0.1	0.5	7
4	50	200
800	15,000	25,000
10	150	500
1000	20,000	50,000
4000	60,000	100,000
1	n/a	n/a
500	800	1000

TBE - To Be Evaluated
SNRHW - Stable Non-Reactive Hazardous Waste

Additional Information

DETSC 2008 pH	7.3	6.9
DETSC 2009 Conductivity uS/cm	23.5	13.1
* Temperature*	17.0	17.0

Mass of Sample Kg*	0.130
Mass of dry Sample Kg*	0.118

Stage 1

Volume of Leachant L2*	0.224
Volume of Eluate VE1*	0.2

Stage 2

Volume of Leachant L8*	0.944
Volume of Eluate VE2*	0.89

Disclaimer: *The WAC limit values are provided for guidance only. DETS does not accept responsibility for errors or omissions. Values are correct at time of issue.*

V.2.06 ** DETS are accredited for the testing of leachates and not the leachate preparation stage which is unaccredited.*

Summary of Asbestos Analysis
Soil Samples

Our Ref 24-00791
Client Ref 26560
Contract Title LT521 Fasnakyle 400kV Substation

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
2286449	BH12 0.50	SOIL	NAD	none	D Wilkinson

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * - not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 24-00791
Client Ref 26560
Contract LT521 Fasnakyle 400kV Substation

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2286449	BH12 0.50 SOIL	10/01/24	GJ 250ml, GJ 60ml, PT 1L x2		
2286450	BH12 0.50 LEACHATE	10/01/24	GJ 250ml, GJ 60ml, PT 1L x2		
2286451	BH12 0.50 LEACHATE	10/01/24	GJ 250ml, GJ 60ml, PT 1L x2		

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

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 425µm sieve, in accordance with BS1377.

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

End of Report

APPENDIX H
CALIBRATION CERTIFICATES

RAEBURN DRILLING & GEOTECHNICAL LTD

SPT Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

Raeburn Drilling & Geotechnical
Whistleberry road
Hamilton
ML3 0HP

SPT Hammer Ref:	RD24 23
Test Date:	20/06/2023
Report Date:	20/06/2023
File Name:	RD24 23.spt
Test Operator:	K STEELE

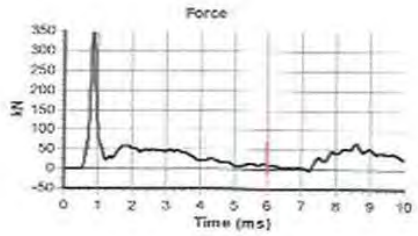
Instrumented Rod Data

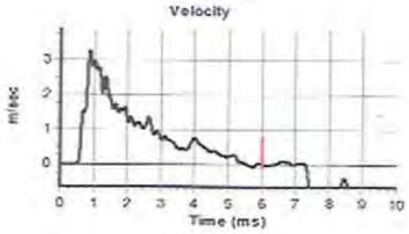
Diameter d_r (mm):	54
Wall Thickness t_r (mm):	6.9
Assumed Modulus E_s (GPa):	208
Accelerometer No.1:	69559
Accelerometer No.2:	69560

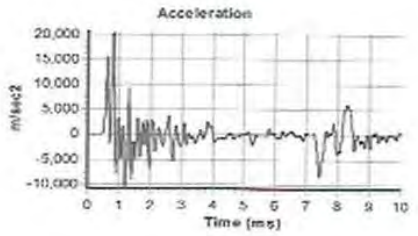
SPT Hammer Information

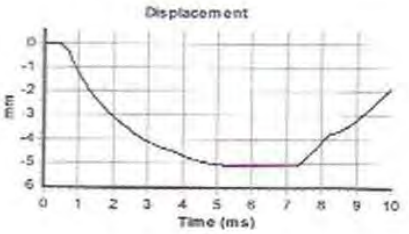
Hammer Mass m (kg):	63.5
Falling Height h (mm):	760
SPT String Length L (m):	14.5

Comments / Location









Calculations

Area of Rod A (mm2):	1021
Theoretical Energy E_{theor} (J):	473
Measured Energy E_{meas} (J):	407

Energy Ratio E_r (%): **86**

Signed: Kevin Steele
Title: Head Storeman

The recommended calibration interval is 12 months

RAEBURN DRILLING & GEOTECHNICAL LTD

SPT Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

Raeburn Drilling & Geotechnical
Whistleberry road
Hamilton
ML3 0HP

SPT Hammer Ref:	RD51 2023
Test Date:	26/06/2023
Report Date:	26/06/2023
File Name:	RD51 2023.spt
Test Operator:	K STEELE

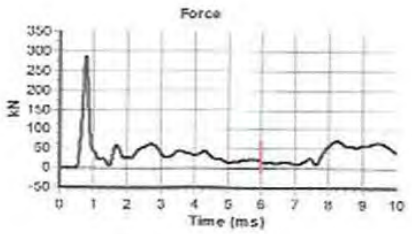
Instrumented Rod Data

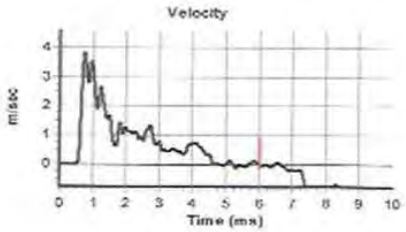
Diameter d_r (mm):	54
Wall Thickness t_r (mm):	6.8
Assumed Modulus E_a (GPa):	208
Accelerometer No.1:	69559
Accelerometer No.2:	69560

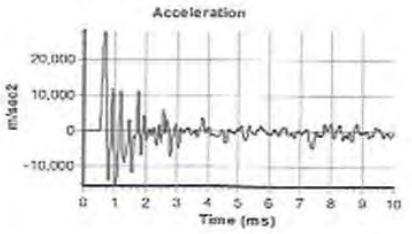
SPT Hammer Information

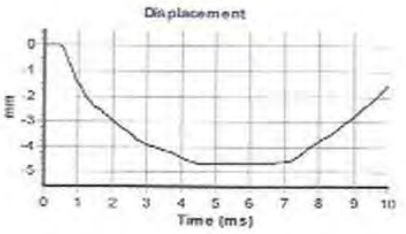
Hammer Mass m (kg):	63.5
Falling Height h (mm):	760
SPT String Length L (m):	14.5

Comments / Location









Calculations

Area of Rod A (mm2):	1008
Theoretical Energy E_{theor} (J):	473
Measured Energy E_{meas} (J):	340

Energy Ratio E_r (%): **72**

Signed: Kevin Steele
Title: Head Storeman

The recommended calibration interval is 12 months

RAEBURN DRILLING & GEOTECHNICAL LTD

SPT Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

Raeburn Drilling & Geotechnical
Whistleberry road
Hamilton
ML3 0HP

SPT Hammer Ref:	RD125 2023
Test Date:	08/03/2023
Report Date:	08/03/2023
File Name:	RD125 2023.spt
Test Operator:	KS

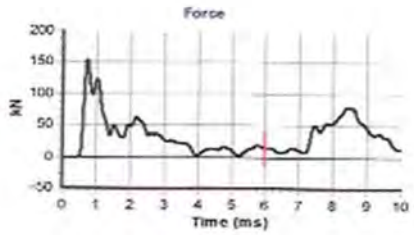
Instrumented Rod Data

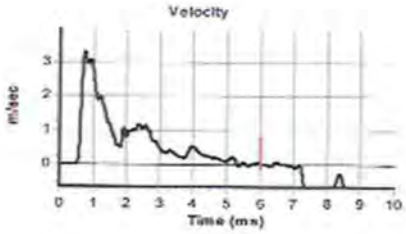
Diameter d_r (mm):	54
Wall Thickness t_r (mm):	6.8
Assumed Modulus E_a (GPa):	208
Accelerometer No.1:	69559
Accelerometer No.2:	69560

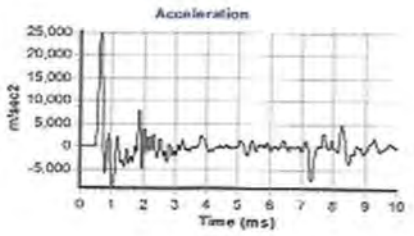
SPT Hammer Information

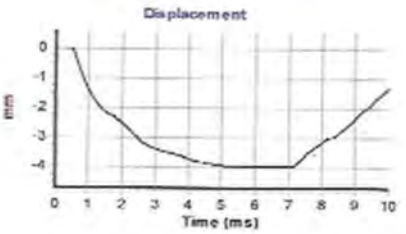
Hammer Mass m (kg):	63.5
Falling Height h (mm):	760
SPT String Length L (m):	14.5

Comments / Location









Calculations

Area of Rod A (mm2):	1008
Theoretical Energy E_{theor} (J):	473
Measured Energy E_{meas} (J):	284

Energy Ratio E_r (%): 60

Signed: Kevin Steele
Title: Head Storeman

The recommended calibration interval is 12 months

Certificate of calibration

Certificate number CRU02-0120-20220906 Page 4 of 4

Calibration results zero-scale measurement					AFTER ADJUSTMENT		
Reference zero scale value	Measured zero scale value	Uncertainty of calibration	Allowed minimum	Allowed maximum	Range	PASS (P) FAIL (F)	
909.1	909.1	0.2	908.7	909.5	R (Ohm)	P	
96.59	96.57	0.00015	96.09	97.09	I (mA)	P	
1.00	1.00	7µV	0.99	1.01	U (V)	P	

Calibration results full-scale measurement					AFTER ADJUSTMENT		
Reference full scale value	Measured full scale value	Uncertainty of calibration	Allowed minimum	Allowed maximum	Range	PASS (P) FAIL (F)	
1299.8	1299.8	0.46	1298.8	1300.8	R (Ohm)	P	
386.12	386.08	1	385.12	387.12	I (mA)	P	
4.00	4.00	0.34mV	3.96	4.04	U (V)	P	
1.0000	1.0000	0.00014	0.9994	1.0006	F (Hz)	P	

Serial number 0120

Date of calibration 06/09/2022

Certificate of calibration

Certificate number CRU02-0120-20220906 Page 1 of 4

Manufacturer Leiderdorp Instruments

Location of calibration Achthovenerweg 19
2351AX Leiderdorp
The Netherlands

Model CRU02

Serial number 0120

Date of calibration 06/09/2022

Temperature (°C) 23+/-5°C

Humidity (% RH) 60+/-30%

Performed by (calibration technician) Peter Chung

Signature

Certificate of calibration

Certificate number CRU02-0120-20220906 Page 2 of 4

Calibration procedure

The environmental conditions of all equipment including the device are stable for at least 4 hours before use. Laboratory calibration procedure is based on direct measurement of output voltage, output current, and timebase signal of the device, using a reference instrument. The Pt-1000 input is calibrated by connecting fixed resistors to the device, which are measured immediately before use, using a reference instrument. Voltage, current and resistance are measured at two points, one at the low end of the range and one at the high end of the range. The timebase is measured at the nominal value. If the output of the device, plus the uncertainty in the reference instrument, is within the specified uncertainty of the device, the result is Pass, otherwise the result is Fail.

Traceability

The reference instrument is traceable to SI units and is calibrated every year by Keysight Technologies, Germany. Supporting documentation relative to traceability is available for review by appointment.

Calibration uncertainty

Reported expanded uncertainty of measurement is stated as the combined standard uncertainty of measurement multiplied by the coverage factor of 2, which for a normal distribution corresponds to a coverage probability of approximately 95%. Where applicable the standard uncertainty of measurement has been determined in accordance with Publication EA-4/02. The combined uncertainty of the result of calibration is the positive root sum square of uncertainty of calibration of the reference instrument, uncertainty of long time stability of the reference instrument, and uncertainty of the reference instrument.

Certificate of calibration

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Calibration equipment used

Model	Serial nr.	Calibration certificate
34410A	MY49000325	1-1558659505/0-1