

North Irish Sea Array Landfall – Ground Investigation

Client:

Statkraft Limited

Client's Representative: Arup

Report No.:

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Final Report

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Document Control Sheet

| Report No.: | | 21-1619 | | | | | | | | | |
|------------------------|-----------|-----------------------------|--------------|--|------------------|--|--|--|--|--|--|
| Project Title: | | North Irish Sea Array | | | | | | | | | |
| Client: | | Statkraft Limited | | | | | | | | | |
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The works were conducted in accordance with:

British Standards Institute (2015) BS 5930:2015+A1:2020, Code of practice for site investigations.

EN 1997-2: 2007: Eurocode 7 - Geotechnical design - Part 2 Ground investigation and testing.

Geotechnical Society of Ireland (2016), Specification & Related Documents for Ground Investigation in Ireland

Laboratory testing was conducted in accordance with:

British Standards Institute BS 1377:1990 parts 2, 4, 5, 7 and 9





METHODS OF DESCRIBING SOILS AND ROCKS

Soil and rock descriptions are based on the guidance in BS5930:2015+A1:2020, The Code of Practice for Site Investigation.

| U | Nominal 100mm diameter undisturbed open tube sample (thick walled sampler). |
|---------------------------------|---|
| UT | Nominal 100mm diameter undisturbed open tube sample (thin walled sampler). |
| Р | Nominal 100mm diameter undisturbed piston sample. |
| В | Bulk disturbed sample. |
| LB | Large bulk disturbed sample. |
| D | Small disturbed sample. |
| С | Core sub-sample (displayed in the Field Records column on the logs). |
| L | Liner sample from dynamic sampled borehole. |
| W | Water sample. |
| ES / EW | Soil sample for environmental testing / Water sample for environmental testing. |
| SPT (s) | Standard penetration test using a split spoon sampler (small disturbed sample obtained). |
| SPT (c) | Standard penetration test using 60 degree solid cone. |
| (x,x/x,x,x,x) | Blows per increment during the standard penetration test. The initial two values relate to the seating drive (150mm and the remaining four to the 75mm increments of the test length. |
| (Y for Z/Y for Z) | Incomplete standard penetration test where the full test length was not achieved. The blows 'X' represent the total blows for the given seating or test length 'Z' (mm). |
| N=X | SPT blow count 'N' given by the summation of the blows 'X' required to drive the full test length (300mm). |
| HVP / HVR | In situ hand vane test result (HVP) and vane test residual result (HVR). Results presented in kPa. |
| V VR | Shear vane test (borehole). Shear strength stated in kPa.V: undisturbed vane shear strengthVR: remoulded vane shear strength |
| Soil consistency description | In cohesive soils, where samples are disturbed and there are no suitable laboratory tests, N values may be used to indicate consistency on borehole logs – a median relationship of Nx5=Cu is used (as set out in Stroud & Butler 1975). |
| dd-mm-yyyy | Date at the end and start of shifts, shown at the relevant borehole depth. Corresponding casing and water depths shown in the adjacent columns. |
| \bigtriangledown | Water strike: initial depth of strike. |
| ▼ | Water strike: depth water rose to. |
| Abbreviations relatin | g to rock core – reference Clause 36.4.4 of BS 5930: 2015 |
| TCR (%) | Total Core Recovery: Ratio of rock/soil core recovered (both solid and non-intact) to the total length of core run. |
| SCR (%) | Solid Core Recovery: Ratio of solid core to the total length of core run. Solid core has a full diameter, uninterrupted by natural discontinuities, but not necessarily a full circumference and is measured along the core axis between natural fractures. |
| RQD (%) | Rock Quality Designation: Ratio of total length of solid core pieces greater than 100mm to the total length of core run |
| FI | Fracture Index: Number of natural discontinuities per metre over an indicated length of core of similar intensity of fracturing. |
| NI | Non Intact: Used where the rock material was recovered fragmented, for example as fine to coarse gravel size particles |
| AZCL | Assessed zone of core loss: The estimated depth range where core was not recovered. |
| DIF | Drilling induced fracture: A fracture of non-geological origin brought about by the rock coring. |
| (xxx/xxx/xxx) | Spacing between discontinuities (minimum/average/maximum) measured in millimetres. |





North Irish Sea Array

1 AUTHORITY

On the instructions of Arup, ("the Client's Representative"), acting on the behalf of Statkraft Limted ("the Client"), a ground investigation was undertaken at the above location to provide geotechnical and environmental information for input to the design and construction of a proposed onshore cable route.

This report details the work carried out both on site and in the geotechnical and chemical testing laboratories; it contains a description of the site and the works undertaken, the exploratory hole logs and the laboratory test results. A discussion on the recommendations for construction is also provided.

All information given in this report is based upon the ground conditions encountered during the site investigation works, and on the results of the laboratory and field tests performed. However, there may be conditions at the site that have not been taken into account, such as unpredictable soil strata, contaminant concentrations, and water conditions between or below exploratory holes. It should be noted that groundwater levels usually vary due to seasonal and/or other effects and may at times differ to those recorded during the investigation. No responsibility can be taken for conditions not encountered through the scope of work commissioned, for example between exploratory hole points, or beneath the termination depths achieved.

This report was prepared by Causeway Geotech Ltd for the use of the Client and the Client's Representative in response to a particular set of instructions. Any other parties using the information contained in this report do so at their own risk and any duty of care to those parties is excluded.

2 SCOPE

The extent of the investigation, as instructed by the Client's Representative, included boreholes, trial pits, soil and rock core sampling, environmental sampling, groundwater monitoring, in-situ and laboratory testing, downhole geophysics and the preparation of a factual report on the findings.

3 DESCRIPTION OF SITE

As shown on the site location plan in Appendix A, the works were conducted on the site of agricultural lands located north of Balbriggan. The landfall site is bordered to the east by the Irish Sea and to the north, south and west by agricultural lands. The R132 and main railway line connecting Dublin northwards also runs through the site.





4 SITE OPERATIONS

4.1 Summary of site works

Site operations, which were conducted between the 23rd of February and the 26th of April 2022, comprised:

- eleven boreholes:
 - seven boreholes by light cable percussion extended by rotary follow-on.
 - four boreholes by rotary drilling methods.
- a standpipe installation in five boreholes
- ten machine dug trial pits; and
- downhole geophysics

The exploratory holes and in-situ tests were located as instructed by the Client's Representative, as shown on the exploratory hole location plan in Appendix A.

4.2 Boreholes

A total of eleven boreholes were put down in a minimum diameter of 150mm through soils and rock strata to their completion depths by a combination of methods, including light percussion boring using light cable percussion boring by Dando 2000 and 3000 rigs, and rotary drilling by Comacchio 205, Comacchio 405 and Comacchio 601 rotary drilling rigs.

The borehole logs state the methodology and plant used for each location, as well as the appropriate depth ranges.

A summary of the boreholes, subdivided by category in accordance with the methods employed for their completion, is presented in the following sub-sections.

4.2.1 Boreholes by combined percussion boring and rotary follow-on drilling

Seven boreholes (BH03-BH07 and BH15-BH16) were put down by a combination of light cable percussion boring and rotary follow-on drilling techniques with core recovery in overburden and bedrock. Where the cable percussion borehole had not been advanced onto bedrock, rotary percussive methods were employed to advance the borehole to completion/bedrock. Symmetrix cased full-hole drilling was used, with SPTs carried out at standard intervals as required.

Hand dug inspection pits were carried out between ground level and 1.20m depth to ensure boreholes were put down at locations clear of services or subsurface obstructions.





Standard penetration tests were carried out in accordance with BS EN 22476-3:2005+A1:2011 at standard depth intervals throughout the overburden using the split spoon sampler (SPT_(s)) or solid cone attachment (SPT_(c)). The penetrations are stated for those tests for which the full 150mm seating drive or 300mm test drive was not possible. The N-values provided on the borehole logs are uncorrected and no allowance has been made for energy ratio corrections. The SPT hammer energy measurement report is provided in Appendix H.

Where coring was carried out within bedrock strata, Geobor S Coring was used. The core was extracted in up to 1.5m lengths using an SK6L core barrel, which produced core of nominal 102mm diameter, and was placed in single channel wooden core boxes.

The core was subsequently photographed and examined by a qualified and experienced Engineering Geologist, thus enabling the production of an engineering log in accordance with *BS 5930: 2015: Code of practice for ground investigations*.

Appendix B presents the borehole logs, with core photographs presented in Appendix C.

4.2.2 Rotary drilled boreholes

Four boreholes (BH01, BH02, BH17, BH18) were put to their completion by rotary drilling techniques only. The boreholes were completed using tracked Comacchio 405 and Comacchio 601 rotary drilling rigs.

Symmetrix-cased full hole rotary percussive drilling techniques were employed to advance the boreholes to a specified depth, after which rotary coring was employed to recover core samples of the overburden and bedrock. SPTs were carried out at standard intervals throughout the overburden, with small and bulk disturbed samples obtained where possible through the soil strata.

Where coring was carried out within bedrock strata, Geobor S Coring was used. The core was extracted in up to 1.5m lengths using an SK6L core barrel, which produced core of nominal 102mm diameter, and was placed in single channel wooden core boxes.

The core was subsequently photographed and examined by a qualified and experienced Engineering Geologist, thus enabling the production of an engineering log in accordance with *BS 5930: 2015: Code of practice for ground investigations*.

Appendix B presents the borehole logs, with core photographs presented in Appendix C.

4.3 Standpipe installations

A groundwater monitoring standpipe was installed in BH01, BH03, BH06, BH16 and BH17.





Details of the installations, including the depth range of the response zone, are provided in Appendix B on the individual borehole logs.

4.4 Trial Pits

Ten trial pits (TP01–TP05, TP07-TP09 and TP11-TP12) were excavated using a 6t tracked excavator fitted with a 600mm wide bucket, to a maximum depth of 3.0m.

Environmental samples were taken at various depths in each trial pit.

Disturbed (small jar and bulk bag) samples were taken at standard depth intervals and at change of strata.

Any water strikes encountered during excavation were recorded along with any changes in their levels as the excavation proceeded. The stability of the trial pit walls was noted on completion.

Appendix D presents the trial pit logs with photographs of the pits and arising provided in Appendix E.

4.5 Surveying

The as-built exploratory hole positions were surveyed following completion of site operations by a Site Engineer from Causeway Geotech. Surveying was carried out using a Trimble R10 GPS system employing VRS and real time kinetic (RTK) techniques.

The plan coordinates (Irish Transverse Mercator) and ground elevation (mOD Malin) at each location are recorded on the individual exploratory hole logs. The exploratory hole plan presented in Appendix A shows these as-built positions.

4.6 Groundwater monitoring

Following completion of site works, groundwater monitoring was conducted. Ground water monitoring was carried out using a water interface probe.

The monitoring records are presented in Table 2 of Section 6.3.

5 LABORATORY WORK

Upon their receipt in the laboratory, all disturbed samples were carefully examined and accurately described, and their descriptions incorporated into the borehole logs.





5.1 Geotechnical laboratory testing of soils

Laboratory testing of soils comprised:

- **soil classification:** moisture content measurement, Atterberg Limit tests and particle size distribution analysis.
- **shear strength** (total stress): unconsolidated undrained triaxial tests(uu)
- **shear strength (effective stress):** consolidated undrained triaxial tests (cu)
- **compaction related:** dry density/moisture content relationship, Moisture Condition Value (MCV), MCV/moisture content relationship
- **soil chemistry:** BRE Suite B, thermal resistivity

Laboratory testing of soils samples was carried out in accordance with British Standards Institute: *BS 1377, Methods of test for soils for civil engineering purposes; Part 1 (2016), and Parts 2-9 (1990).*

The test results are presented in Appendix F.

5.2 Geotechnical laboratory testing of rock

Laboratory testing of rock sub-samples comprised:

- point load index
- unconfined compressive strength (UCS) tests

| Test | Test carried out in accordance with |
|------------------|--|
| Point load index | ISRM Suggested Methods (1985) Suggested method for determining point-load strength. Int. J. Rock Mech. Min. Sci. Geomech. Abstr. 22, pp. 53–60 |
| | |
| Uniaxial | ISRM Suggested Methods (1981) Suggested method for determining |
| compression | deformability of rock materials in uniaxial compression, Part 2 |
| strength tests | and |
| | ISRM (2007) Ulusay R, Hudson JA (eds) The complete ISRM suggested methods |
| | for rock characterization, testing and monitoring, 2007 |

The test results are presented in Appendix F.





5.3 Environmental laboratory testing of soils

Environmental testing was conducted on selected environmental soil samples by Chemtest at its laboratory in Newmarket, Suffolk.

Testing was carried out according to Arup Soil Suite E, with all testing scheduled by the client's representative.

Results of environmental laboratory testing are presented in Appendix G.

6 GROUND CONDITIONS

6.1 General geology of the area

Published geological mapping indicate the superficial deposits underlying the site comprise Glacial Till and Alluvium. These deposits are underlain by andesite, pillow breccia and tuff of the Belcamp Formation.

6.2 Ground types encountered during investigation of the site

A summary of the ground types encountered in the exploratory holes is listed below, in approximate stratigraphic order:

- **Topsoil:** encountered a maximum thickness of 450mm across the site.
- **Possible Made Ground (fill):** sandy gravelly clay encountered in BH03, BH15 and BH16 extending to a maximum depth of 2.30m in BH16.
- **Fluvioglacial deposits:** typically medium dense sands interspersed with layers of sandy gravelly clay in BH05, BH06 and BH17.
- **Glacial Till:** sandy gravelly clay, frequently with low cobble content, typically firm or stiff in upper horizons, becoming very stiff with increasing depth.
- **Bedrock (Breccia, Andesite, Greywacke, Mudstone, Tuff, Limestone and Siltstone):** Rockhead was encountered at depths ranging from 3.0m in BH01 to 12.60m in BH05.

6.3 Groundwater

Details of the individual groundwater strikes, along with any relative changes in levels as works proceeded, are presented on the exploratory hole logs for each location.





Groundwater was encountered during drilling and trial pit excavations as groundwater strikes as shown in Table 1.

| Location | Depth (mbgl) |
|----------|----------------|
| BH03 | 2.60/7.30 |
| BH04 | 1.30/2.80/3.50 |
| BH05 | 4.30 |
| BH06 | 2.00 |
| BH15 | 5.00 |
| BH16 | 5.00/9.90 |
| TP01 | 1.20 |
| TP03 | 1.30 |
| TP05 | 1.70 |
| TP07 | 2.00 |
| TP08 | 1.40 |
| TP11 | 1.00 |
| TP12 | 1.00 |

Table 1: Groundwater strikes encountered during ground investigation.

Groundwater was not noted during drilling at any of the other borehole locations. However, it should be noted that the casing used in supporting the borehole walls during drilling may have sealed out additional groundwater strikes and the possibility of encountering groundwater during excavation works should not be ruled out.

It should be noted that any groundwater strikes within bedrock may have been masked by the fluid used as the drilling flush medium.

| Location | Round 1 (26/05/2022) | Round 2 (08/06/2022) - | Round 3(15/09/2022) - |
|----------|----------------------|------------------------|-----------------------|
| | - mbgl | mbgl | mbgl |
| BH01 | 1.10 | 10.28 | 2.19 |
| BH06 | 0.80 | 0.86 | 0.72 |
| BH16 | 1.71 | 1.79 | 2.25 |
| BH17 | 3.90 | 3.95 | 4.54 |

Table 2: Groundwater monitoring records.

Continued monitoring of the installations will give an indication of the seasonal variations on groundwater level which should be factored into design considerations.





7 **REFERENCES**

Geotechnical Society of Ireland (2016), Specification & Related Documents for Ground Investigation in Ireland.

IS EN 1997-2: 2007: Eurocode 7 - Geotechnical design - Part 2 Ground investigation and testing. National Standards Authority of Ireland.

BS 5930: 2015+A1:2020: Code of practice for ground investigations. British Standards Institution.

BS EN ISO 14688-1:2018: Geotechnical investigation and testing. Identification and classification of soil. Part 1 Identification and description.

BS EN ISO 14688-2:2018: Geotechnical investigation and testing. Identification and classification of soil. Part 2 Principles for a classification.

BS EN ISO 14689-1:2018: Geotechnical investigation and testing. Identification and classification of rock. Identification and description.

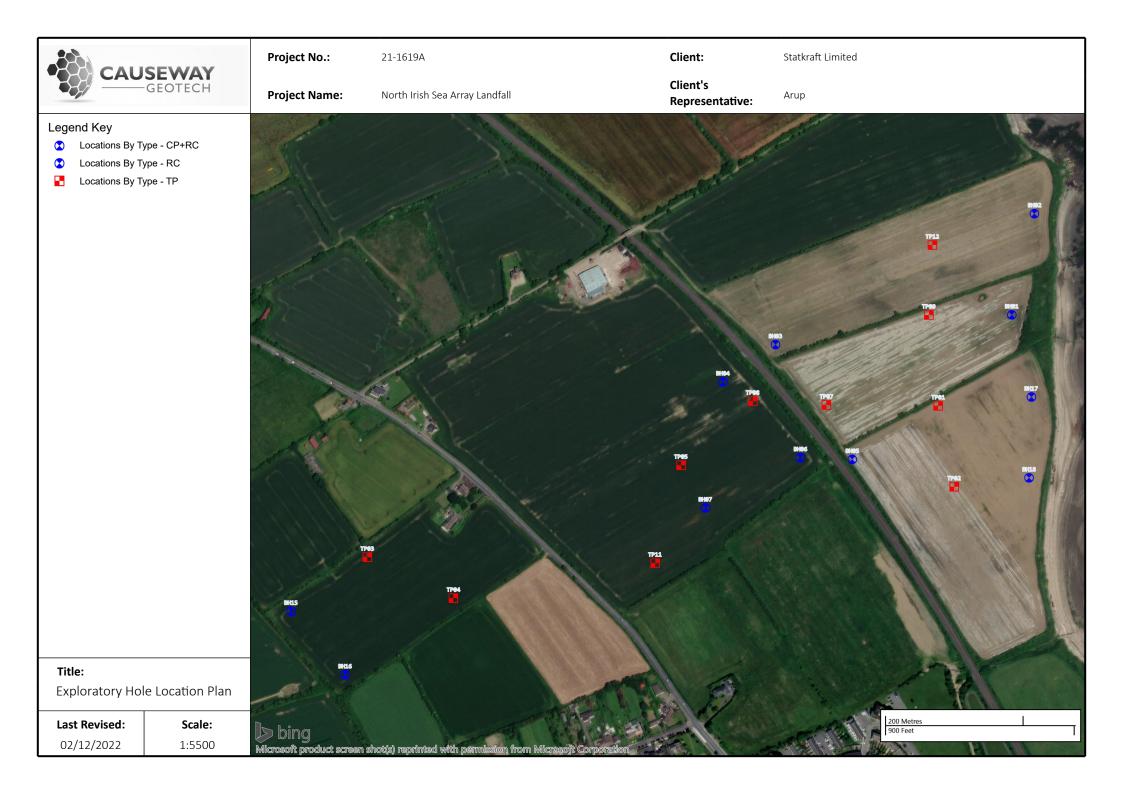
BS EN ISO 22476-3:2005+A1:2011: Geotechnical investigation and testing. Field testing. Standard penetration test.



APPENDIX A SITE AND EXPLORATORY HOLE LOCATION PLANS









APPENDIX B BOREHOLE LOGS

| | C | | E Geo | | | Y | | | - | ct No. 619A | Project Client: Client's | | rish Sea Arra ft Limited | ay Landfall | | | | ehole ID 3 H01 |
|---------------------|---------------------------------------|---------------------|-----------------|-------|----------|---------------------------------|------------------------|-----------------------|--------------|------------------|--------------------------------|--|---|---|--|---|-------|--------------------------|
| Meth | od | Plant U | Jsed | | Тор | (m) | Base | e (m) | Coord | linates | | | | | | | She | et 1 of 5 |
| Rotary D | | Comacch | | | 0. | 00 | 2.7 | 70 | 74075 | | Final De | pth: 30.00 n | Start Date: | 21/04/2022 | Driller: 1 | MW | | ale: 1:40 |
| Rotary C | oring | Comacch | 110 40 | 15 | 2. | 70 | 30. | .00 | | 8.67 E 1.97 N | Elevatio | n: 3.53 mO | D End Date: | 25/04/2022 | Logger: [| DM | F | INAL |
| Depth (m) | Samples , | Field Records | TCR | SCR | RQD | FI | Casing Depth (m) | Water Depth (m) | Level mOD | Depth (m) | Legend | | Des | cription | | | Water | ackfill |
| | | | | | | | | | | - | | TOPSOIL- Brown | andy gravelly C | LAY. | | | | - |
| 1.20 1.20 - 1.65 | D1 SPT(S) N (2,2/2,2, Hammer | | | | | | 1.20 | Dry | 3.33 | - 0.20 | | Firm brown sandy | gravelly CLAY | Driller's descript | ion) | | | |
| | | | | | | | | - | | | | | | | | 2.5 — | | |
| 2.70 2.70 - 3.00 | D2 SPT(S) N | =6 (1,2/6 | | | | | | | 0.83 | - 2.70 | | Firm dark brown | | CLAY. Sand is fine | to coarse. G | ravel is | ¥ | - |
| 2.70 5.00 | for 150n | าm) | | | | | | | 0.53 | - 3.00 | | subangular fine to | | | | | | 3.0 |
| 3.70 | Hammei | - SN = 0643 | 80 | 90 | 60 50 | | | | | | | Medium strong g thick) at various c strength, slightly Discolouration: 1. 10-20 degree ju rough with orang 2. 30-40 degree ju rough with browr 3. 80-90 degree ju undulating, rough surfaces. <u>385-4.10m: Vesicular</u> | rientations. Pa closer fracture bints, medium s sh brown disco bints, widely sp discolouration bints, very wide with yellowish | rtially weathered spacing with disc spaced (40/300/7 louration on join aced (130/1950/v on joint surfaces ly spaced (3200/ brown discolour | : slightly red olouration o 740), undulat t surfaces. 6500), undul s. 6000/10000 | uced n joint ting, lating,), | | |
| 5.20 | | | 100 | 95 | 80 | | | | | - | | | | | | | | 5.0 |
| 6.70 | Watar | Strikes | TCR | SCR | RQD | FI | | | | - | | | | | | | | 6.5 |
| Struck at (m) C | | | Rose | to (r | _ | lema land d | | spect | ion pit ex | cavated to | o 1.20m. | | | | | | | |
| 2.80 Casing D | | Core Sł Flush | Barre | 21 | Te | ocatio elevie ermi | on: La ewer c | ndfall compl | | | | | | | | Last Upo 02/12/2 | | AGS |

| | / - | | GEC | DTI | EC | Н | D - | . () | 21-1 | ject No. Project Name: North Irish Sea Array Landfall 1619A Client: Statkraft Limited Client's Rep Arup rdinates | | | | | | | | |
|--|---------------------------|--------------------------|--------|---------|-----|-----------------|------------------------|-----------------------|--------------|--|----------|--|-------------------|------------------------------|-------------------------------|--|--|--|
| Metho Rotary Dr Rotary Co | illing | Plant Comacch Comacch | nio 40 | 05 | 0. | (m) 00 70 | 2. | e (m) 70 .00 | | 58.67 E | Final De | pth: 30.00 m | Start Date: | 21/04/2022 | 21/04/2022 Driller: MW | | | |
| | | | | | | | | | | 71.97 N | Elevatio | Elevation: 3.53 mOD | | End Date: 25/04/2022 Logger: | | FINAL | | |
| Depth (m) | Samples / | Field Records | TCR | SCR | RQD | FI | Casing Depth (m) | Water Depth (m) | Level mOD | Depth (m) | Legend | Medium strong grey | | cription | |) 문 문 문 문 문 문 문 문 문 문 문 문 문 문 문 문 문 문 문 | | |
| 8.20 | | | 100 | 100 | 90 | - | | | | thick) at various orientations. Partially weathered: slightly reduced strength, slightly closer fracture spacing with discolouration on joint surfaces. Discolouration: 1.0-20 degree joints, medium spaced (40/300/740), undulating, rough with orangish brown discolouration on joint surfaces. 3.0-40 degree joints, widely spaced (130/1950/6500), undulating, rough with brown discolouration on joint surfaces. 3.80-90 degree joints, very widely spaced (3200/6000/10000), | | | | | | | | |
| | | | 100 | 100 | 97 | | | | | - - - - - - - - - - - - - | | 3. 80-90 degree join undulating, rough w surfaces. | | | | | | |
| 9.70 | | | | | | - | | | | | | | | | | 1 | | |
| 11.20 | | | 100 | 100 | 97 | | | | | | | | | | | 1 | | |
| 11.20 | | | 100 | 90 | 87 | | | | | - | | | | | | 1 | | |
| 12.70 | | | 100 | 97 | 87 | - | | | | - | | | | | | 1 | | |
| 14.20 | | | | | | _ | | | | | | 13.80-13.95m: Bed of furt | her weakened gree | enish grey tuff | | 1 | | |
| | | | TCR | SCR | RQD | FI | - | | | - | | | | | | | | |
| | Water | | | | | Rema | rks | | | | | | | | | | | |
| itruck at (m) Ca 2.80 | asing to (m) | Time (min) | Rose | e to (r | L | ocatio | on: La | andfal | | cavated to | o 1.20m. | | | | | | | |
| Casing D To (m) D 2.70 D | etails iam (mm) 200 | Core | Barro | el | | | | | | | | | | | | | | |
| 30.00 | 200 150 | Flush | і Тур | e | T | ermi | natio | on Re | eason | | | | | | Last | Updated | | |
| | | Wa | ater | | Т | ermir | nated | at sc | neduled o | lepth. | | | | | 02, | /12/2022 | | |

| | - | | GEC | DTI | EC | Η | L | | 21-1 | Project No. Project Name: North Irish Sea Array Landfall 21-1619A Client: Statkraft Limited Client's Rep Arup Coordinates Image: Coordinates | | | | | | | Borehole ID BH01 Sheet 3 of 5 | | |
|---------------------------|--------------------|---------------|--------|-------|-----------|-------------------------------------|------------------|---|----------------------------|--|---|---|-----------------------------|---------------------------|---------------------------|--|--|--|--|
| Metho Rotary Dri | lling | Plant Comacch | nio 40 |)5 | 0. | 00 | 2. | e (m) 70 | | | Final De | Final Depth: 30.00 m Start Date: 21/04/2022 Driller: MW | | | | | | | |
| Rotary Co | ring | Comacch | nio 4(|)5 | 2. | 70 | 30.00 | | 719758.67 E 765371.97 N | | Elevation: 3.53 mOD | | End Date: 25/04/2022 Logger | | Logger: DM | | | | |
| Depth (m) | Samples / | Field Records | TCR | SCR | RQD | RQD FI Casing Depth Depth (m) Water | | | Level mOD | Depth (m) | Legend | | | Water | Backfill | | | | |
| 15.70 | | | 100 | 100 | 97 | | | | | - - - - - - - - - - - - | | Medium strong grey thick) at various oris strength, slightly clo surfaces. Discolouration: 1. 10-20 degree join rough with orangish 2. 30-40 degree join rough with brown d 3. 80-90 degree join | l nt | | | | | | |
| | | | 100 | 100 | 97 | | | | | - - - - - - - - - - - | undulating, rough with yellowish brown discolouration on fracture surfaces. | | | | | | | | |
| 17.20 | | | | | | | | | | - - - - - | | | | | | | 17.0 17.0 17.0 17.0 17.0 17.0 17.5 17.5 17.5 | | |
| | | | 100 | 100 | 97 | 4 | | | | - - - - - - - | | | | | | | 18.0 | | |
| 18.70 | | | 100 | 97 | 90 | | | | | - - - - - - - - - - | | | | | | | 19.0 19.5 | | |
| 20.20 | | | | | | | | | | - - - - - - | | | | | | | 20.0 | | |
| | | | 100 | 100 | 87 | | | | | - - - - - - - | | | | | | | 21.0 | | |
| 21.70 | | | | | | | - | | | - - - - | | 21.40-21.70m: Bed of furt | ther weakened gree | enish grey tuff with whit | te calcite mineralisation | | 21.5 | | |
| | Wator | Strikes | TCR | SCR | RQD | | rke | | | | | | | | | | | | |
| Struck at (m) Cas 2.80 | | | Rose | to (n | n) н Ц | ocatio | dug ir on: La | ndfal | | cavated to | o 1.20m. | | | | | | | | |
| 2.70 | am (mm) 200 | Core | Barre | el | | | | | | | | | | | | | | | |
| 30.00 | Flush type Termina | | | | | | | mination Reason Last Updated ninated at scheduled depth. 02/12/2022 | | | | | | | | | | | |

| | / - | | GEC | DTI | EC | Η | | | 21-1 | ect No. .619A | A Client: Statkraft Limited Client's Rep Arup | | | | | | Borehole ID BH01 Sheet 4 of 5 | | |
|--------------------|--------------------|--------------------|--------|-----|-----------|------------------|------------------------|-----------------------|----------------------------|---|--|---|---|------------|---|----------|-------------------------------------|--|--|
| Metho Rotary Dr | | Plant I Comacch | | | | (m) 00 | | e (m) 70 | Coor | dinates | Final De | Final Depth: 30.00 m Start Date: 21/04/2022 Driller: MW | | | | | | | |
| Rotary Co | oring | Comacch | nio 40 | 05 | 2. | 70 | 30.00 | | 719758.67 E 765371.97 N | | Elevatio | n: 3.53 mOD | End Date: | 25/04/2022 | Logger: | DM | Scale: FIN | | |
| Depth (m) | Samples / | Field Records | TCR | SCR | RQD | FI | Casing Depth (m) | Water Depth (m) | Level mOD | Depth (m) | Legend | | | cription | | | Backf | ill | |
| 23.20 | | | 100 | 100 | 93 | | | | | - - - - - - - - - - - - - - - - - - - | | Medium strong grey thick) at various ori strength, slightly clo surfaces. Discolouration: 1. 10-20 degree joir rough with orangish 2. 30-40 degree joir rough with brown d 3. 80-90 degree joir undulating, rough w | duced on joint ting, Ilating, D), | | 22.0 — - - 22.5 — - - - - - - - - - - - - - - - - - - - | | | | |
| | | | 93 | 85 | 70 | | | | | - | | surfaces. | | | | | | 23.5 - 23.5 - 24.0 - 24.5 - 24.5 - | |
| 24.70 | | | 100 | 100 | 97 | | | | | - - - - - - - - - - - - - - - - - - - | | | | | | | | 25.0 — 25.5 — | |
| 26.20 | | | | | | | | | | - | | | | | | | | 26.0 — 26.5 - | |
| | | | 90 | 85 | 80 | | | | | - - - - - - | | | | | | | | 27.0 — 27.5 — | |
| 27.70 | | | 100 | 95 | 90 | | | | | | | | | | | | | 28.0 — 28.5 — | |
| 29.20 | | | TCP | SCP | RQD | FI | | | | - - - - - | | | | | | | | 29.0 — | |
| | Water | Strikes | ICR | JUR | L | ema | irks | <u> </u> | | | 1 | | | | | | | | |
| | etails iam (mm) | Time (min) | | | n) н Ц | land o ocatio | dug ir on: La | andfal | | cavated to | o 1.20m. | | | | | | | | |
| 2.70 30.00 | 200 150 | Flush | | e | | | | | eason neduled c | epth. | | | | | | Last Upd | Updated 1 /12/2022 AGS | | |

| | CA | | E | | | Y | | | - | ct No. 619A | 19A Client: Statkraft Limited | | | | | | | | |
|------------------------|---------------|---------------------|--------|-----|------------|--------|------------------------|-----------------------|-----------------------------|------------------|--------------------------------------|---|---|---|--|--|---------------------|--|--|
| Metho | d | Plant L | lsed | | Top | (m) | Base | (m) | Coord | inates | Client's Rep Arup | | | | | | Sheat E a | of ⊑ | |
| Rotary Dri | illing | Comacch | io 40 | | 0.0 | 00 | 2. | 70 | | | Final De | 1W | Sheet 5 of Scale: 1:4 | | | | | | |
| Rotary Co | oring | Comacch | iio 40 |)5 | 2.1 | 2.70 | | .00 | | 8.67 E 1.97 N | Elevatio | n: 3.53 mOD | End Date: | 25/04/2022 | Logger: D | м | FINAL | | |
| Depth (m) | Samples / Fie | eld Records | TCR | SCR | RQD | FI | Casing Depth (m) | Water Depth (m) | Level mOD | Depth (m) | Legend | | Des | cription | | Water | Backfill | | |
| | Samples / Fie | eld Records | 100 | | | FI | Depth | Depth | | | | Medium strong grey thick) at various orid strength, slightly clo surfaces. Discolouration: 1. 10-20 degree joir rough with orangish 2. 30-40 degree joir undulating, rough w surfaces. | y ANDESITE w entations. Par oser fracture s hts, medium s h brown disco nts, widely spa liscolouration nts, very widel with yellowish | ith white calcite tially weathered spacing with disc paced (40/300/7 louration on join accd (130/1950/ on joint surface ly spaced (3200/ | I: slightly redu colouration on 740), undulatin nt surfaces. (6500), undula s. (6000/10000), | i0mm iced i joint ng, ating, | Backfill | 29.5 - 30.0 - 31.0 - 31.5 - 32.0 - 32.5 - 33.0 - 33.5 - 34.0 - 34.5 - 34.5 - 35.5 - 35.5 - 36.0 - | |
| | | | TCR | SCR | RQD | FI | | | | - | | | | | | | | | |
| Casing De To (m) Di | | ime (min) Core I | Barre | | n) H La | ocatio | dug in on: La | spect ndfall | | cavated to | 1.20m. | | | | | | | | |
| 2.70 30.00 | 200 150 | | 6L | | | | | - | | | | | | | | | | | |
| 50.00 | 130 | Flush Wa | | e | | | | | e ason Neduled de | epth. | | | | | | Last Updat 02/12/202 | Updated 12/2022 AGS | | |

| Vertex Stube Vertex Stube< | Borehole ID | | ay Landfall | sh Sea Arra | Name: North Iri | Project | ct No. | Proje | | | | | | | | | 2 |
|---|-----------------------------------|--|---|---|---|-------------|---|-------|-----------------------|--------------------------|-------------------------|----------------|---------|--------|---------------|-----------|---------------|
| Wethod Plant Uset Top (n) See (n) Plant (n) Plan | BH02 | | | Limited | Statkraft | Client: | 619A | 21-1 | | | Y | A | W | SE | AUS | C | |
| Retary Coning Connection 405 0.00 2.50 30.00 Turns 40 Perial Depth: 30.01 m Start Date: 17.042/027 Definition Perint Sample / Instruction Tot Sample / Instruction 5.41 mC10 nd Date: 17.042/027 ogger: Turn Sample / Instruction 5.41 mC10 nd Date: 17.042/027 ogger: Turn Sample / Instruction 5.41 mC10 nd Date: 17.042/027 ogger: Turn Sample / Instruction 5.41 mC10 nd Date: 17.042/027 ogger: Turn Sample / Instruction Sample / Instr | | | | | Rep Arup | Client's | | | | | Н | EC | DTI | GEC | (| 8 - | |
| Number Test Start Start Elevention: 5.43 mOD End Date: 21/04/2021 Logger: End Star: Comparison of the start Sta | Sheet 1 of 5 Scale: 1:40 | Driller: RS | : 13/04/2022 | Start Date: | pth: 30.00 m | Final De | | | .50 | 2. | .00 | 0. | 05 | nio 40 | Comacch | Drilling | Rotary I |
| Image: Section of the sectio | | Logger: EM | 21/04/2022 | End Date: | n: 5.43 mOD | Elevatio | 0.35 N | | | | .50 | | | 10 10 | connacci | | notary |
| 4.00 4 4 4 4 4 5 | ਸ਼ੇ ਡਿ Backfill | | | | | Legend | | | Water Depth (m) | Casing Depth (m) | FI | RQD | SCR | TCR | Field Records | Samples / | |
| 5.50 90 76 13 NI Weak (bcally very weak) brownish grey GkEYWACKE. Distinctly weak brown and closer fracture spacing with discolouration and clay deposits on fracture surfaces and brown clay deposits in the space of t | 0.5 1.0 1.5 2.0 2.5 | ogies. | se of mixed litholo y CLAY with low co ubangular fine to | r fine to coars | Gravel is subangular Soft brown slightly s Sand is fine to coars are subangular of v | | - 2.50 | 2.93 | | _ | AZCI | | | 63 | | | 4.00 |
| 7.00 100 88 36 12 100 12 100 12 100 12 100 12 100 12 100 12 100 12 100 12 100 12 100 12 100 12 100 12 100 12 100 12 100 12 100 100 12 100 | n ffil. 5.0 50), its 5.5 | re spacing with ces and clay infill. ed (130/357/750), n and orangish wn clay deposits | uch closer fractur on fracture surfac es, medium space ark reddish brown surfaces and brow ure surfaces. | d strength, mu clay deposits o lding fracture ough, with dan nost fracture s n most fractu | weathered: reduced discolouration and d Discontinuities: 1. 20-30 degree bed planar, smooth to re brown staining on n (up to 3mm thick) o | | 4.65 - - - - - - - - - - - - - - - - - - - | 0.78 | | | NI | 13 | 76 | 90 | | | 5.50 |
| Water Strikes Remarks Struck at (m) Casing to (m) Time (min) Rose to (min) Time (min) Rose to (min) <td></td> <td></td> <td>ning and patchy br</td> <td>y brown stain</td> <td>to rough with patch</td> <td></td> <td>- - - - - - - - - - - - - - - -</td> <td></td> <td></td> <td></td> <td>12</td> <td>36</td> <td>88</td> <td>100</td> <td></td> <td></td> <td></td> | | | ning and patchy br | y brown stain | to rough with patch | | - - - - - - - - - - - - - - - - | | | | 12 | 36 | 88 | 100 | | | |
| Water Strikes Remarks Struck at (m) Casing to (m) Time (min) Rose to (m) Location: Landfall Location: Landfall Televiewer completed. No noticeable groundwater strikes- water added during drilling. | 7.0 - | | silty clay infill | wn slightly sandy s | 7.00-7.10m: Soft light bro | | - | | | | | | | | | | 7.00 |
| Water Strikes Remarks Struck at (m) Casing to (m) Time (min) Rose to (m) Location: Landfall Televiewer completed. No noticeable groundwater strikes- water added during drilling. | | | | | | · · · · · · | - | | | - | | Por | 807 | 105 | | | |
| Struck at (m) Casing to (m) Time (min) Rose to (m) Hand dug inspection pit excavated to 1.20m Location: Landfall Televiewer completed. No noticeable groundwater strikes- water added during drilling. | | | | | | | | | | arke | | L | SCR | | Strikes | W/ator | |
| | | | | | d during drilling. | | | eted. | andfall compl | dug ii on: La ewer | land .ocati elevi | n) ⊢ L T | e to (n | Rose | | | Struck at (m) |
| Casing Details Core Barrel | | | | | | | | | | | | | el | Barre | Core | | |
| To (m) Diam (mm) 2.50 200 | | | | | | | | | | | | | | <6L | SI | 200 | 2.50 |
| | ast Updated 02/12/2022 | | | | | | epth | | | | | | e | | | 150 | 30.00 |

| | / - | | GEC | DTI | ECI | Н | | | 21-1 | ct No. 619A | roject Name: North Irish Sea Array Landfall lient: Statkraft Limited lient's Rep Arup | Borehole ID BH02 |
|----------------------------------|-------------|-------------------------------|--------|-----|------------------|------------------|----------------------------|---------------|--------------|---|---|--|
| Metho Rotary Dri Rotary Co | illing | Plant U Comacch Comacch | nio 40 |)5 | 0.0 2.1 | 00 | Base 2.! 30. | 50 | | linates 88.43 E | nal Depth: 30.00 m Start Date: 13/04/2022 Drille | er: RS Sheet 2 of 5 Scale: 1:40 |
| | | | 1 | 1 | | | Casing | Water | | 0.35 N | evation: 5.43 mOD End Date: 21/04/2022 Logg | er: EM FINAL |
| Depth (m) | Samples / | Field Records | TCR | SCR | RQD | FI | Depth (m) | Depth (m) | Level mOD | Depth (m) | egend Description | tinctly |
| 8.50 | | | 98 | 65 | 30 | | | | -2.22 | - 7.65 - - - - - - | weathered: reduced strength, much closer fracture spac discolouration and clay deposits on fracture surfaces and Discontinuities: 1. 20-30 degree bedding fractures, medium spaced (130 planar, smooth to rough, with dark reddish brown and o brown staining on most fracture surfaces and brown clay (up to 3mm thick) on most fracture surfaces. 2. 50-60 degree joints at 5.90-6.00m and 6.10-6.20m, plat to rough with patchy brown staining and patchy brown clay | ng with 7.5 I clay infill. /357/750), rangish 8.0 - deposits 8.0 - |
| | | | 100 | 55 | 13 | >20 | | | | - - - - - - - - - - - | [<1mm thick) on most joint surfaces. | 9.0 - (375/700), dish brown ough with 9.5 |
| 10.00 | | | | | | NI 13 | | | | - | | 10.0 - |
| 11.50 | | | 100 | 60 | 46 | | | | -5.37 | - 10.80 | Medium strong grey ANDESITE with white calcite veins (thick) at various orientations. Partially weathered: slight strength with discolouration and clay deposits on fractur Discontinuities: 1. 5-15 degree joints, medium spaced (150/428/960), sli undulating, rough with orangish brown and brown staini joint surfaces and patchy brown clay deposits (up to 5mm | y reduced 11.0 - e surfaces. |
| | | | 100 | 53 | 46 | NI | | | | - | some joint surfaces 2. 50-60 degree joint at 11.05-11.16m, undulating, rough orangish brown and brown staining, patchy greyish brown deposits (<1mm thick) and white calcite mineralisation of surface 3. 70 degree joint at 13.00-13.30m, undulating, rough with patchy orangish brown staining and white calcite mineralised joint surface <u>12.40-12.80m: recovered as subangular medium to coarse gravel</u> | n vith n clay 12.0 - n joint 12.0 - |
| 13.00 | | | | | | 4 | | | | - | | 13.0 - |
| | | | 100 | 96 | 96 | | | | -7.87 | - 13.30 | Medium strong grey ANDESITE with white calcite veins (thick) at various orientations. Largely unweathered: sligh fracture spacing. Discontinuities: 1. 20-30 degree joints, widely spaced (450/1300/1300), rough, clean | tly closer 13.5 planar, 14.0 - |
| 14.50 | | | | | | | | | | - | 2. 50-60 degree joints at 16.70-16.85m and 17.15-17.30t rough, clean 3. 5 degree joint at 14.33m, planar, rough, clean | n, planar, |
| | | | TCR | SCR | RQD | FI | | | | | | |
| Struck at (m) Ca | sing to (m) | Core | Barre | | n) H La Te | ocatio elevie | dug in on: La ewer o | ndfal comp | eted. | cavated to r strikes- v | 20m er added during drilling. | |
| 2.50 30.00 | 200 150 | Sk Flush | (6L | e | Т | ermi | natio | on Re | ason | | | Last Updated |
| | | Wa | ater | | Te | ermin | nated | at scł | neduled d | epth | | 02/12/2022 AGS |

| 2 | | | | | | | | | Proje | ct No. | Project | Name: North Iri | ish Sea Arra | y Landfall | | В | orehole ID |
|--|---------------|---------------------|--------|-----|----------------------------|--|---|--------------------------|--------------------------|---|----------|---|--|---|--|------------------------|----------------------------|
| | -}} C | AUS | E | M | | Y | | | 21-1 | 619A | Client: | Statkraft | Limited | | | | BH02 |
| | | (| BEC | | EC | | | | | | Client's | Rep Arup | | | | | |
| Met Rotary | | Plant I Comacch | | | - | (m) 00 | Base (| | Coord | dinates | Final De | pth: 30.00 m | Start Date: | 13/04/2022 | Driller: RS | | heet 3 of 5 Scale: 1:40 |
| Rotary | | Comacch | nio 40 | 05 | 2. | 50 | 30.0 |)0 | | 38.43 E 20.35 N | Elevatio | n: 5.43 mOD | End Date: | 21/04/2022 | Logger: EM | | FINAL |
| Depth (m) | Samples | / Field Records | TCR | SCR | RQD | FI | Depth D | Water Depth (m) | Level mOD | Depth (m) | Legend | | Desc | cription | | Water | Backfill |
| (, | | | | | | | (m) | (m) | | - | | Medium strong gre thick) at various ori | | | | | - |
| | | | 100 | 100 | 100 | | | | | - - - - - - - - - - - | | fracture spacing. Discontinuities: 1. 20-30 degree joir rough, clean 2. 50-60 degree joir rough, clean 3. 5 degree joint at | nts, widely spa nts at 16.70-16 | aced (450/1300/ | 1300), planar, | | 15.0 |
| 16.00 | | | 100 | 100 | 100 | 2 | | | | | | | | | | | 16.0 |
| 17.50 | | | 100 | 100 | 100 | - | | | | - | | | | | | | 17.5 |
| | | | 100 | 100 | 100 | | | | -14.17 | - - - - - - - - | | Medium strong gre thick) at various ori fracture spacing Discontinuities: 1. 5-10 degree joint clean | ientations. Larg ts at 24.25m, 2 | gely unweathere 25.15m, and 25.4 | d: slightly closer | _ | |
| 20.50 | | | 100 | 100 | 100 | | | | | - | | 2. 30-40 degree join white calcite miner 3. 60-70 degree join 4. 70-80 degree join orangish brown sta | alisation on joi nt at 19.5-19.8 nt at 24.60-25. | int surfaces, oth 5m, undulating, 00m, undulating | erwise clean rough, clean , rough with | | 21.0 |
| | | | TCR | SCR | RQD | | | | L | [| | | | | | 1 | |
| Struck at (m) Casing To (m) 2.50 30.00 | Casing to (m) | Core S⊧ Flush | Barro | el | <u>т)</u> н ц т N | ocatio elevie lo no ermi | dug ins on: Lan ewer co ticeable inatior | ndfall omple e gro | l leted. oundwater | | | d during drilling. | | | Last U 02/1. | pdate 2/2022 | |

| • | - | | GEC | DT | EC | Η | | | 21-1 | ect No. 1 619A | Project Client: Client's | Name: North Iri Statkraft Rep Arup | | ay Landfall | | | rehole ID BH02 |
|----------------------------------|----------------------------------|--------------------------|--------|-----|------------------|------------------|----------------------------|---------------------------|--------------------|---|--------------------------------|--|--|---|--|-------------|-----------------------------|
| Metho Rotary Dri Rotary Co | lling | Plant Comacch Comacch | nio 40 |)5 | 0. | (m) 00 50 | | e (m) 50 .00 | | dinates 88.43 E | Final De | pth: 30.00 m | Start Date: | 13/04/2022 | Driller: RS | | eet 4 of 5 cale: 1:40 |
| | | | | | | | | | 76552 | 20.35 N | Elevatio | n: 5.43 mOD | End Date: | 21/04/2022 | Logger: EM | | FINAL |
| Depth (m) 22.00 | Samples / | Field Records | TCR | SCR | RQD | FI | Casing Depth (m) | Water Depth (m) | Level mOD | Depth (m) | Legend | Medium strong gre | | cription | | 3 | Backfill |
| 22.00 | | | 100 | 100 | 100 | | | | | | | thick) at various ori fracture spacing Discontinuities: 1. 5-10 degree joint clean 2. 30-40 degree joint white calcite miner: 3. 60-70 degree join 4. 70-80 degree join orangish brown stai | entations. Lar ts at 24.25m, 2 nts at 21.55m alisation on jo nt at 19.5-19.8 nt at 24.60-25 | gely unweathere 25.15m, and 25.4 and 27.35m, pla int surfaces, oth 35m, undulating, .00m, undulating | ed: slightly close 40m, planar, rou nar, rough with erwise clean rough, clean 3, rough with | er ugh, | 22.0 22.5 - 23.0 |
| 23.50 | | | 100 | 100 | 100 | | | | | | | | | | | | 23.5 - 24.0 24.5 - |
| 25.00 | | | | | | 2 | | | | - - - - - - | | | | | | | 25.0 - 25.5 - |
| 26.50 | | | 100 | 100 | 100 | | | | | - - - - - - - - - - - - - - - - - - - | | | | | | | 26.0 — 26.5 - |
| | | | 96 | 96 | 96 | | | | | - - - - - - - - - - - - - - - - - - - | | | | | | | 27.0 — 27.5 - |
| 28.00 | | | 100 | | | | | | | - - - - - | | | | | | | 28.0 — 28.5 - |
| | Water | Strikas | TCR | SCR | RQD | | rks | | | - | | | | | | | 29.0 — |
| | sing to (m) etails am (mm) | Time (min) | | | п) н Ц | ocatio elevie | dug in on: La ewer o | andfal comp | l leted. | cavated to | | d during drilling. | | | | | |
| 2.50 30.00 | 200 150 | Flush | | e | | | | | eason heduled c | lepth | | | | | | ost Updated | AGS |

| | 8 - | | GEC | DT | EC | Η | D | o () | 21-1 | ct No. 619A | Project Client: Client's | Name: North Iri Statkraft Rep Arup | | y Landfall | 1 | | BH02 | 2 |
|----------------------------|------------|-----------------------------|-------|---------|-------------------------|------------------|--------------------------|---------------------|--------------|-------------------------|--------------------------------|---|----------------------------------|------------------|-------------------|----------------|------------------------|--------|
| Metl Rotary I Rotary | Drilling | Plant Comacch Comacch | hio 4 | 05 | 0. | (m) 00 50 | 2. | e (m) .50 .00 | 71978 | inates 8.43 E | Final De | | | 13/04/2022 | Driller: RS | 5 | Sheet 5 o Scale: 1: | 40 |
| | | | - | 1 | | 1 | Casing | Water | | 0.35 N | Elevatio | n: 5.43 mOD | End Date: | 21/04/2022 | Logger: EN | | FINAL | - |
| Depth (m) | Samples | / Field Records | TCR | SCR | RQD | FI | Casing Depth (m) | Depth (m) | Level mOD | Depth (m) | Legend | Medium strong grey | | cription | veins (un to 5 | Mater Mater | Backfill | |
| 9.50 | | | 100 | | | | | | | - | | thick) at various originature spacing Discontinuities: 1. 5-10 degree joint | entations. Lar | gely unweathere | ed: slightly clos | ser | | 29.5 · |
| 0.00 | | | 100 | | | - | | | -24.57 | - | | clean 2. 30-40 degree join white calcite minera | nts at 21.55m | and 27.35m, pla | nar, rough wit | - | | 30.0 |
| | | | | | | | | | | - | | 60-70 degree joir 70-80 degree joir orangish brown stai | nt at 24.60-25 ining on joint | .00m, undulating | g, rough with | | | 30.5 · |
| | | | | | | | | | | - | | | | | | | | |
| | | | | | | | | | | - - - | | | | | | | | 31.0 — |
| | | | | | | | | | | - | | | | | | | | 31.5 - |
| | | | | | | | | | | - | | | | | | | | 32.0 — |
| | | | | | | | | | | - | | | | | | | | 32.5 - |
| | | | | | | | | | | - | | | | | | | | 33.0 |
| | | | | | | | | | | - | | | | | | | | 33.5 - |
| | | | | | | | | | | - | | | | | | | | |
| | | | | | | | | | | - - - | | | | | | | | 34.0 — |
| | | | | | | | | | | - | | | | | | | | 34.5 - |
| | | | | | | | | | | - | | | | | | | | 35.0 — |
| | | | | | | | | | | - | | | | | | | | 35.5 - |
| | | | | | | | | | | - | | | | | | | | 36.0 — |
| | | | | | | | | | | - | | | | | | | | |
| | | | TCR | SCR | | | 1 | | | | | | | | | | | 1 |
| ruck at (m) | | • Strikes) Time (min) | Rose | e to (r | <u>т)</u> н Ца Та | ocatio elevie | dug ir on: La ewer | andfal comp | leted. | | | d during drilling. | | | | | | |
| | Diam (mm) | Core | Barr | el | | | | | | | | | | | | | | |
| 2.50 30.00 | 200 150 | Flush | | e | T | ermi | inati | on Re | eason | | | | | | L | ast Update | ed | |
| | | W | ater | | Т | ermir | nated | at sc | neduled d | epth | | | | | | 02/12/2022 | ² A | GS |

| | | 1 | GEC | DTI | EC | Η | | | 21-1 | ect No. L 619A | Project Name: North Irish Sea Array Landfall Client: Statkraft Limited Client's Rep: Arup | Borehold BH03 | 3 |
|----------------------------|----------------------|-----------------------------|--------|---------|----------|-----------------|------------------------|---------------------------|--------------|-------------------------------|---|------------------|------------------|
| Met Cable Per Rotary | rcussion | Plant U Dando Comacch | 2000 |) | 0. | (m) 00 50 | 5. | e (m) 50 .00 | 7194 | dinates 14.12 E 19.80 N | Final Depth: 20.00 m Start Date: 15/03/2022 Driller: BM+RS Elevation: 8.63 mOD End Date: 12/03/2022 Logger: CH+TH | Scale: 1 | :50 |
| Depth (m) | Sample / Tests | Fie | eld Re | cords | | | Casing Depth (m) | Water Depth (m) | Level mOD | Depth (m) | Legend Description | Backfill | 1 |
| (111) | iests | | | | | | (m) | (m) | mob | (, | MADE GROUND: Soft brown sandy gravelly CLAY. Sand is fine to | | |
| 0.30 - 0.50 0.50 | B1 ES | | | | | | | | 8.33 | 0.30 | coarse. Gravel is subangular to subrounded fine to coarse. | | 0.5 |
| | | | | | | | | | | Ē | coarse. Gravel is subangular to subrounded fine to medium. | | 0.5 |
| 0.80 - 1.00 | | | | | | | | | | Ē | 철상 위험 전 244 년 | | 1.0 |
| 1.00 1.20 | ES D7 | | | | | | | | | Ē | <u>철수가</u> 에 1979년 1월 | | 1.0 |
| 1.20 - 1.65 | | N=15 (2,3/3, | 3,4,5) |) Han | nmer | SN = | 1.00 | Dry | | Ē | | | |
| | | 0199 | | | | | | | 7.13 | 1.50 | Firm brown sandy gravelly CLAY. Sand is fine to coarse. Gravel is | | 1.5 |
| 1.80 - 2.00 | В3 | | | | | | | | | Ē | subangular to subrounded fine to coarse. | | • |
| 2.00 | U13 | Ublow=20 90 | 0% | | | | 1.50 | Dry | 6.63 | 2.00 | 교 생승 실 북자부분 Firm grey slightly sandy slightly gravelly CLAY. Sand is fine to coarse. | | 2.0 |
| | | | | | | | | | | Ē | Gravel is subangular to subrounded fine to medium. | | * |
| | | | | | | | | | | Ē | 고양소 것 같~~~~~~ | | ° 2.5 |
| | | Slow seepage | e at 2 | 2.60m | ו | | | | | Ē | | | * |
| 2.80 - 3.00 | | | | | | | | | | Ē | | | * |
| 3.00 3.00 - 3.45 | D8 SPT (S) | N=13 (2,3/3, | 3,3,4] |) Han | nmer | SN = | 3.00 | Dry | | Ē | | | 3.0 |
| | | 0199 | | | | | | | | Ē | | | |
| | | | | | | | | | | Ē | | | * ^{3.5} |
| 8.80 - 4.00 | В5 | | | | | | | | | Ē | <u>요구 한 것</u> 고양 2월 전 | | • |
| 1.00 | D9 | | | | | | | | | Ē | | | 4.0 |
| 1.00 - 4.45 | SPT (S) | N=15 (3,3/3, 0199 | 3,4,5 |) Han | nmer | SN = | 3.00 | Dry | | Ē | | | * .* |
| | | 0155 | | | | | | | 4.13 | 4.50 | | | ° 4.5 |
| | | | | | | | | | | | Very stiff brown sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse. | | |
| | 111.4 | 11blow-20.10 | 00% | | | | 2 00 | Draw | | Ē | | | 5.0 |
| 5.00 - 5.45 | U14 | Ublow=30 10 | 00% | | | | 3.00 | Dry | | Ē | | | 5.0 |
| | | | | | | | | | | È | 요구수 있 <u>요구요 것</u> | | |
| 5.50 | D10 | | | | | | | | 3.13 | 5.50 | Stiff becoming very stiff brownish grey slightly gravelly sandy CLAY | | 5.5 |
| 5.50 - 6.80 | C1 | | | | | | | | | Ē | with low cobble content. Sand is fine to coarse. Gravel is subrounded fine to medium of various lithologies. | | |
| 5.00 | D11 | | | | | | 3.00 | Dry | | Ē | | | 6.0 |
| 5.00 - 7.00 5.00 - 6.45 | | N=43 | 80 | | | | | | | Ē | | | |
| | (5,7/9,9 | 9,11,14) | | | | | | | | (1.95) | | | 6.5 |
| | Hamme | er SN = 0199 | | | | | | | | Ē | | | |
| 7.00 | | | | | | | | | | Ē | | | 7.0 |
| | | | | 1 | 1 | AZCL | | | | Ē | | | 7.0 |
| 7.30 - 7.52 | SPT(S) ((15,25/ | | | | 1 | | 3.00 | Dry | 1.18 | 7.45 | 、1997年1997年 第二章 (1997年) 第二章 (1997年) | _ | |
| | 75mm) | Hammer SN | | | 1 | | | | 1.10 | - 7.45 | Very stiff greyish brown slightly gravelly sandy CLAY with low cobble | | 7.5 |
| | = 0199 Slow se | epage at | 73 | | | | | | | Ē | mudstone and sandstone. | | |
| | 7.30m | כרימב מו | | | 1 | | | | | (1.05) | | | 8.0 |
| 7.50 | D12 | | | | 1 | | | | | Ē | | | |
| 3.50 | | | | | - | - | | | 0.13 | 8.50 | Very stiff dark grey slightly sandy gravelly SILT. Sand is fine to coarse. | | 8.5 |
| 8.50 - 9.15 | | N-E0 | | | 1 | | | | | Ē | Very stiff dark grey slightly sandy gravelly SILI. Sand is fine to coarse. | | |
| 3.50 - 8.68 | | v=50 0 for 25mm) | 100 | | 1 | | | | | (0.65) | | | 9.0 |
| | Hamme | er SN = 1376 | | | | | | | -0.52 | 9.15 | Dark grey subangular fine to coarse GRAVEL of mudstone and sandstone. | | 2.0 |
| 9.15 - 9.55 | C3 | | TCR | SCR | RQD | FI | 1 | | | F | | | |
| | | r Strikes | | | | | | selling | g Detail | | Remarks | | |
| truck at (m) 2.60 | Casing to (m 2.60 | n) Time (min) | Rose | e to (r | m) F | rom (| m) | To (| m) Tin | ne (hh:mm) | Hand dug inspection pit excavated to 1.20m | | |
| 7.30 | 7.30 | | | | | | | | | | ocation: Landfall. | | |
| - | Details | Water | - | | | | | | | | | | |
| To (m) 3.00 | Diam (mm 200 |) From (m) | To | o (m) | - | | | | | | | | |
| 5.50 | 200 | | | | \vdash | Core | Bar | rel | Fluch | Туре | Fermination Reason | Updated | _ |
| 20.00 | 150 | | | | | | | | | | | | |
| | | | | | | S | K6L | | Wa | ater | Terminated at scheduled depth. 02/1 | 12/2022 | (6 |

| | 97 - | | ίΕC | DTI | EC | Н | De | 2 | roject 1-161 | .9A | Project Client: Client's | Name: North Iri Statkraft Rep: Arup | | y Landfall | | | Boreho BH(| 03 |
|--------------------------------|-----------------------------|---------------------|-------|--------------------|----------|------------------|------------------------|-----------|--------------------|-----------------|---------------------------------------|--|---------------------|--------------------------|----------------------|----------|-------------------|------|
| Meth Cable Pero | | Plant U Dando 2 | | | · · | (m) 00 | Base 5.5 | | oordina | ates | Final De | pth: 20.00 m | Start Date: | 15/03/2022 | Driller: BN | И+RS | Sheet 2 Scale: | |
| Rotary C | oring | Comacch | io 40 |)5 | 5. | 50 | 20.0 | | 19414.1 65319.8 | | Elevatio | n: 8.63 mOD | End Date: | 12/03/2022 | Logger: CH | I+TH | FIN | |
| Depth (m) | Samples | / Field Records | TCR | SCR | RQD | FI | Casing Depth (m) | | vel I OD | Depth (m) | Legend | | Des | cription | | | Backf | ill |
| 9.55 - 10.00 | C4 | | | | | | | -0. | | (0.40) 9.55 | | Dark grey subangula sandstone. | ar fine to coar | se GRAVEL of m | udstone and | | | 9.5 |
| | | | | | | | | | E | (0.45) | | Very stiff brown slig content. Sand is fine | | | | | | |
| 10.00 | | | | | | - | | -1. | | 10.00 | | Very stiff dark brow | | | | | | 10.0 |
| .0.00 - 10.25 .0.00 - 10.16 | | I =50 | | | | | | -1. | | (0.25) 10.25 | | coarse. Gravel is sub | bangular fine t | to coarse. | | | | |
| | (12,13/5 | 50 for Hammer SN | | | | | | | Ē, | | | Grey slightly gravell fine to coarse. | ly clayey fine t | o coarse SAND. | Gravel is suban | guiar | | 10.5 |
| | = 1376 | | 100 | | | | | | = (| (0.80) | | | | | | | | |
| .0.25 - 11.05 .1.05 - 11.50 | | | | | | | | -2. | .42 | 11.05 | | Very stiff dark brow | n slightly sand | ly gravelly CLAV | with low cobbl | | | 11.0 |
| | | | | | | | | | | (0.70) | | content. Sand is fine | 0, | , 0 , | | | | |
| 1.50 | | | | | \vdash | | | | E (| (0.70) | | | | | | | | 11.5 |
| .1.50 - 11.63 | 90mm/! | | | | | | | -3. | .12 1 | 11.75 | <u>a o o e</u> | Weak massive greyi | ish brown MU | DSTONE with m | edium spaced 1 | thin | | |
| | 20mm) = 1376 | Hammer SN | | | | | | | - | | | beds of weak yellow weathered: reduced | | | | | | 12.0 |
| | | | 100 | 55 | 33 | 12 | | | | | | discolouration and | 0, | | 0, | | | |
| | | | | | | | | | - | | | Discontinuities: 1. 20 to 30 degree j | oints, closely | spaced (30/140/ | '370) planar to | | | 12. |
| | | | | | | | | | | | | rough, dark brown s clay infill on most jo | • • | | • • | yk | | |
| 3.00 | | | | | | | | | - | | | 2.~60 degree joint a | at 12.25m to 1 | | | wn | | 13. |
| | | | | | | >20 | | | (| (3.15) | | staining on joint sur 3. 70 to 80 degree j | | m to 11.95m and | d 12.6m to 12.4 | 45m, | | |
| | | | | | | | | | - | | | planar, rough, dark 490 degree joint a | | • • | | ~ | | 13. |
| | | | 33 | 4 | 0 | | | | | | | ornagish brown stai | ining on ioint : | surface. | | | | |
| | | | | | | AZCL | | | - | | | 13.00m to 13.50m: Recov 13.50m to 14.50m: AZCL | due to disturbance | difficulties. | ONNEL | | | 14. |
| | | | | | | | | | | | | | MUDGEO | | | | | |
| 4.50 | | | | | | | | | | | | Weak massive dark reduced strength, c | • • | | - | ly | | 14. |
| | | | | | | 10 | | -6 | .27 1 | 14.90 | | discolouration on fr Discontinuities: | acture surface | es. | | | | |
| | | | | | | | | 0. | Ē | | | 1. 20 to 40 degree j | | | /43/60) planar, | | | 15. |
| | | | 87 | 42 | 27 | >20 | | | (| (0.65) | | rough, orangish bro /Medium strong mas | | | are greyish whi | te | | |
| | | | | | | | | -6 | .92 1 | 15.55 | | calcite veins of vario weathered: slightly | | • | | ark | | 15. |
| | | | | | | | | | | | · · · · · · · · · · · · · · · · · · · | orangish brown disc | | - | | | | |
| .6.00 | | | | | | | | | - | | · · · · · · | Discontinuities: 1. 20 to 40 degree j | oints, closely | spaced (50/180/ | '500) planar, ro | ugh, | | 16. |
| | | | | | | | | | | | · · · · · · | orangish brown stai 2. 50 to 60 degree j | - | • | 0/600) slightly | | | |
| | | | | | | | | | - | | | undulating, rough, o | dark brown sta | aining on joint su | urfaces. | | | 16. |
| | | | 83 | 63 | 41 | 8 | | | (| (2.35) | | Weak thickly lamina mineralisation para | | | | tite | | |
| | | | | | | | | | - | | | weathered: slightly orangish brown disc | | - | | clav | | 17 |
| | | | | | | | | | | | | infill. | | | | | | |
| 7.50 | | | | | | | | | | | | Discontinuities: 1. 10 to 20 degree b | - | | • • • | | | 17 |
| | | | | | | | | ۹_ | .27 [1 | 17.90 | | planar rough, orang dark brown gravelly | | - | | , | | |
| | | | 60 | 37 | 15 | 14 | | | Ē | (0.50) | | 2.~ 50 degree joint | at 18.00m to 2 | | | brown | | 18. |
| | | | | | | | | -9 | Ē | 18.40 | | staining on joint sur 18.10m to 18.16m: Firm of thick. | dark brown gravelly | clay infill- 20 degree b | edding fractures 45n | nm | | |
| | | | TCP | SCP. | RQD | FI | | | | | | No recovery | | | | | | 18. |
| | Water | Strikes | IUR | JUR | 1.00 | - FI | Chise | elling De | tails | | Remarks | | | | | I | | |
| | Casing to (m |) Time (min) | Rose | e to (r | n) F | rom (| | To (m) | Time (hł | | Hand dug | inspection pit excava | ted to 1.20m | | | | | |
| 2.60 7.30 | 2.60 7.30 | | | | | | | | | | Location: | Landtall. | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| Casing D To (m) | Details Diam (mm) | Water | _ | ed o (m) | - | | | | | | | | | | | | | |
| 3.00 | 200 | ,, | | , | | | | | | | | | | | | | | |
| 5.50 20.00 | 200 150 | | | | | Core | Barre | el Fl | lush Typ | pe | Terminat | tion Reason | | | L | ast Upda | ated | |
| | | | | | | S | K6L | | Water | | Terminate | d at scheduled depth | I. | | | 02/12/20 | 022 | ٨G |

| | | | SE Geo | | | Y | | | | ct No. 619A | Project Client: Client's | Name: North Iri Statkraft | | y Landfall | | | Bo | BH03 | |
|-------------------|--------------|-----------------|-----------|---------------------|------|------------------|------------------------|-----------------------|---------------------|------------------|--------------------------------|------------------------------|---------------|----------------|----------|---------|-------|----------|------|
| Meti Cable Per | | Plant Dando | | | | (m) 00 | | e (m) | Coord | inates | Final De | pth: 20.00 m | Start Date: | 15/03/2022 | Driller: | BM+RS | | neet 3 d | |
| Rotary (| | Comacch | | | | 50 | | 50 .00 | 71941 76531 | 4.12 E 9.80 N | Elevatio | | | 12/03/2022 | | | 5 | FINA | |
| Depth (m) | Samples | / Field Records | TCR | SCR | RQD | FI | Casing Depth (m) | Water Depth (m) | Level mOD | Depth (m) | Legend | | Des | cription | | | Water | Backfill | |
| . , | | | | | | AZCL | | ., | | | | No recovery | | | | | | | |
| 9.00 | | | | | | | | | | | | | | | | | | | 19.0 |
| | | | | | | | | | | (1.60) | | | | | | | | | |
| | | | 0 | 0 | 0 | NR | | | | | | | | | | | | | 19.5 |
| 0.00 | | | | | | | | | -11.37 | 20.00 | | | End of Bore | hole at 20.00m | | | | | 20.0 |
| | | | | | | | | | | | | | Lind of Bollo | | | | | | |
| | | | | | | | | | | | | | | | | | | | 20.5 |
| | | | | | | | | | | | | | | | | | | | 21.0 |
| | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | 21.5 |
| | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | 22. |
| | | | | | | | | | | | | | | | | | | | 22. |
| | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | 23. |
| | | | | | | | | | | | | | | | | | | | 23. |
| | | | | | | | | | | | | | | | | | | | 23. |
| | | | | | | | | | | | | | | | | | | | 24.0 |
| | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | 24.5 |
| | | | | | | | | | | | | | | | | | | | 25.0 |
| | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | 25. |
| | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | 26. |
| | | | | | | | | | | | | | | | | | | | 26. |
| | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | 27. |
| | | | | | | | | | | | | | | | | | | | 27. |
| | | | | | | | | | | | | | | | | | | | |
| | | | TCR | SCR | RQD | FI | | | | <u> </u> | | | | | | | | | 1 |
| | Casing to (m | r Strikes | Rose | e to (r | n) F | rom (| | To (| g Details m) Tim | e (hh:mm) | | inspection pit excavat | ted to 1.20m | | | | | | |
| 2.60 7.30 | 2.60 7.30 | | | | | | | | | | Location: | | | | | | | | |
| Casing | Dataila | Water | ار اد ۸ | 04 | | | | | | | | | | | | | | | |
| To (m) | Diam (mm | | | e a 5 (m) | | | | | | | | | | | | | | | |
| 3.00 5.50 | 200 200 | 1 | | | | Core | Barı | rel | Flush | Туре | Terminat | ion Reason | | | | Last Up | date | d | _ |
| 20.00 | 150 | 1 | | | | | K6L | | Wat | | | d at scheduled depth | | | | 02/12/ | | | 0 |

| | | | SEC GEC | | | Y H | | | | ct No. 619A | Project Client: Client's | Name: North Iris Statkraft Rep: Arup | | ıy Landfall | | | | rehole BH04 | |
|------------------------------------|----------------------------|-----------------------------|------------|-------------|-------------------|---------------|------------------------|-----------------------|---------------------|--------------------|---|---|----------------|---------------------|---------------|-----------|-------|--------------------|----------------|
| Meth | | Plant L | | | | | | e (m) | Coord | linates | Final De | pth: 20.00 m | Start Date: | 16/03/2022 | Driller: | RS+BM | Sh | eet 1 of | [:] 3 |
| Cable Pero Rotary D Rotary C | riling | Dando Comacch Comacch | nio 4 | 05 | 0.(3.(4.(| 00 | 4. | 00 00 .00 | | 88.60 E 53.53 N | Elevatio | - | | 25/03/2022 | Logger: | | | cale: 1:5 FINAL | |
| Depth (m) | Sample / Tests | Fie | eld Re | cords | | | Casing Depth (m) | Water Depth (m) | Level mOD | Depth (m) | Legend | | Des | cription | | | Water | Backfill | |
| . , | | | | | | | | | | | | TOPSOIL- Soft brow | n sandy grave | lly CLAY. | | | - | | |
| 0.30 - 0.50 | B1 | | | | | | | | 12.74 | 0.30 | | Firm becoming stiff Gravel is subangular | | | | lly CLAY. | | | 0.5 |
| 0.80 - 1.00 | В2 | | | | | | | | | | X X | Graver is Subariguia | to subround | | | | | | |
| | 52 | | | | | | | | | | X | | | | | | | | 1.0 |
| 1.20 1.20 - 1.65 | D4 SPT (S) | N=9 (1,1/2,2 | .2.3) | Hamr | mer Sl | N = | 1.00 | Drv | | | X X X | | | | | | ▾ | | |
| | | 0199 Slow seepage | | | | | | | | | × ···· | | | | | | | | 1.5 |
| L.80 - 2.00 | B3 | Siow Scepage | | | | | | | | | × | | | | | | | | |
| 2.00 2.00 - 2.45 | D5 SPT (S) | N=26 (3,5/5, | 6,7,8 |) Ham | nmer | SN = | 1.50 | Dry | | | ×> | | | | | | | | 2.0 |
| | | 0199 | | | | | | | 10.74 | 2.30 | | Very stiff brown san | | | o coarse. Gra | avel is | | | 2.5 |
| | | Slow seepage | 0 0+ 7 | 0 00 | | | | | | | | subangular to subro | ounded fine to | coarse. | | | ¥ | | |
| 3.00 - 3.12 | | 1.0 | | | for | | 2 00 | 2.70 | 10.04 | 3.00 | | Brown sandy gravel | | r's description) | | | | | 3.0 |
| 5.00 - 5.12 | 5PT (5) | N=50 (25 for 50mm) Ham | | | | | 3.00 | 2.70 | 10.04 | | | Brown sandy graven | iy clar (Drile | r's description) | | | | | |
| | | Water strike | at 3. | 50m | | | | | | | | | | | | | ▼ | | 3.5 |
| | | | | | | | | | | | | | | | | | | | |
| .00 - 5.00 | C | | | | | | | | 9.04 | 4.00 | | Stiff brown slightly s | | | | | | | 4.0 |
| | | | | | | | | | | | | boulder content. Sa coarse of various lit | | | - | | | | |
| | | | 70 | | | | | | | | | lithologies predomin | nantly limesto | one and mudstor | ne. | | | | 4.5 |
| | | | 73 | | | | | | | | 0-0- | | | | | | | | 5.0 |
| | | | | | | AZCL | | | | | | | | | | | | | |
| 5.50 | | | | | | AZCL | | | | (3.00) | | | | | | | | | 5.5 |
| | | | | | | | | | | | 0-0-0 | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | 6.0 |
| | | | 73 | | | | | | | | 0-0-0- | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | 6.5 |
| 7.00 | | | | | | AZCL | | | 6.04 | 7.00 | | | | | | | | | 7.0 |
| 7.00 7.00 - 8.25 | с | | | | | | | | 0.04 | 7.00 | (* * * * * * * * | Stiff brown slightly s is fine to coarse. Gra | | | | t. Sans | | | 7.0 |
| | | | | | | | | | | | | | - | | | | | | 7.5 |
| | | | 100 | 15 | 6 | | | | | (1.25) | $\underset{\times\times\times\times}{\times\times\times}$ | Maak (Issel) | uppl() +1: 1 1 | minat-d- ov | TETONE | tioll: | | | |
| | | | | | | | | | | | | Weak (locally very w weathered : much c | loser fracture | spacing, further | r weakened v | with | | | 8.0 |
| | | | | | | | | | 4.79 | 8.25 | | clay deposits, clay ir Discontinuities: | | | | | | | |
| 3.50 | | | <u> </u> | | | | | | | 1 | | 1. 35 to 45 degree b planar, smooth with | orangish bro | wn staining and | light brown o | clay | | | 8.5 |
| | | | 100 | 87 | 6 | | | | | - | × × × × × × × × × × × × × × × × × × × | deposits and clay in 2. 70 degree joint at | | | | | | | 9.0 |
| | | | | | | | | | | | × × × × × × × × × × × × × × × × × × × | undulating, rough w surface. | vith brown cla | y infill (up to 90) | nm thick) on | joint | | | 5.0 |
| | 14/ | Strikes | TCR | SCR | RQD | FI | Ch.1 | 0.000 | T Doto!! | <u>[</u> | Domasla | | | | | | | | |
| | Casing to (m | Strikes | Rose | e to (n | n) Fr | | | To (| g Details m) Tim | e (hh:mm) | Remarks Hand dug | inspection pit excavat | ted to 1.20m | | | | | | |
| 1.30 2.80 3.50 | 1.30 2.80 3.50 | | | | | | | | | | Location: L Televiewer | Landfall. r completed. | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| Casing D To (m) | Details Diam (mm | Water | - | ed 5 (m) | _ | | | | | | | | | | | | | | |
| 3.00 4.00 | 200 200 | | | . / | | <u></u> | | | | There | Torrest | ion Deeres | | | I | 10-11 | 4.5.4 | | |
| 20.00 | 150 | | | | | Core | | rel | Flush | | | ion Reason | | | | Last Upc | | | Ī |
| | | | | | | S | K6L | | Wa | ter | Terminate | d at scheduled depth | | | | 02/12/2 | 2022 | AU | 5 |

| | C | | | | | | | | | ct No. 619A | roject Name: North Irish Sea Array Landfall lient: Statkraft Limited lient's Rep: Arup | Borehole ID BH04 |
|--|------------------------------------|----------------------------------|--------|--------------------|------|------------------|------------------------|-----------------------|--------------|----------------|---|---------------------------|
| Meth Cable Per | | Plant U Dando | | | - | (m) 00 | Base 3.0 | · · | Coord | linates | nal Depth: 20.00 m Start Date: 16/03/2022 Driller: RS | Sheet 2 of 3 |
| Rotary I Rotary (| Driling | Comacch Comacch | nio 40 | 05 | 3. | 00 00 | 4.0 20.0 | 00 | | 88.60 E | levation: 13.04 mOD End Date: 25/03/2022 Logger: EN | Scale: 1:50 A+CH FINAL |
| Depth (m) | Samples | / Field Records | TCR | SCR | RQD | FI | Casing Depth (m) | Water Depth (m) | Level mOD | Depth (m) | egend Description | Backfill |
| 9.65 - 9.75 10.00 | с | | | | | | | | | | Weak (locally very weak) thinly laminated grey SILTSTONE. Partial weathered : much closer fracture spacing, further weakened with clay deposits, clay infill and discolouration in fracture surfaces. Discontinuities: 1.35 to 45 degree bedding fractures, closely spaced (10/214/30) | 5.5 9.5 |
| 10.35 - 10.4 | 5 C | | 100 | 26 | 0 | | | | | | planar, smooth with orangish brown staining and light brown claves of the point of the | aces. |
| 11.50 | | | 100 | 10 | 0 | >20 | | | | _ (6.35) | | 11.5 12.0 12.5 |
| 13.00 | | | 100 | 60 | 13 | | | | | | Medium strong indistinctly thinly laminated grey GREYWACKE. Partially weathered: discolouration and clay deposits on fracture surfaces, pyrite speckled throughout. Discontinuities: | 13.0 13.5 14.0 |
| 14.50 | | | 100 | 98 | 90 | 4 | | | -1.56 | 14.60 | 1. 45 degree bedding fractures medium spaced (150/280/800) planar, rough with dark discolouration and patchy grey clay deputer on fracture surfaces. 2. 60 to 70 degree joints at 15.20m to 15.50m, 15.85m to 16.00 with patchy brown staining and patchy grey clay deposits on fracture Weak thinly laminated grey MUDSTONE. Partially weathered: | m 15.0 |
| 15.50 - 15.7 | 0 C | | | | | | | | | | reduced strength, clsoer fracture spacing, with discolouration and clay deposits on fracture surfaces and occasional white mineralisation. | |
| 16.00 16.70 - 16.8 | 0 C | | 100 | 65 | 0 | | | | -2.96 | - 16.00 | Discontinuities: 1. 5 to 15 degree bedding fractures closely spaced (50//210) pla smooth, with orangish brown staining and grey clay deposits on fracture surfaces. 16.00m to 16.20m: Soft greyish brown slightly sandy clay infill Medium strong indistinctly thickly laminated grey GREYWACKE withit quartz veins at 45 degree angles (up to 40mm thick). Part weathered: closer fracture spacing, with clay deposits and discolourship of fracture spacing. | most 16.5 |
| 17.50 18.15 - 18.5 | 0 C | | 100 | 99 | 80 | 5 | | | -4.76 | 17.80 | discolouration on fracture surfaces. Discontinuities: 1. 35 to 45 degree bedding fractures closely spaced (12//600) pl smooth with grey clay deposits (up to 4mm thick) and orangish brown staining on fracture surfaces. 2. 80- to 90 degree joint at 18.00m to 18.60m, slightly undulatin rough with strong dark brown and dark orangish brown staining joint surfaces, otherwise clean. | 1 g , 18 0 |
| | | | | | | | | | | | 3. 60 to 70 degree joint at 19.85m to 20.00m, undulating, rough patchy orangish brown staining on joint surface, otherwise clean | |
| | 147 | Chuilter | TCR | SCR | RQD | FI | | | Date " | <u> </u> | mania | |
| truck at (m) (1.30 2.80 3.50 | | r Strikes) Time (min) | Rose | e to (r | n) F | rom (| | To (m | Details | e (hh:mm) | marks nd dug inspection pit excavated to 1.20m cation: Landfall. eviewer completed. | |
| Casing I To (m) 3.00 4.00 | Details Diam (mm) 200 200 | Water | - | ed o (m) | | <u> </u> | | | | | | |
| 20.00 | 150 | | | | | | Barre K6L | -1 | Flush Wa | | rmination Reason L rminated at scheduled depth | o2/12/2022 |

| | / - | | ΞEC | DTI | EC | Н | D - 1 | (| 21-1 | ect No. L619A | Project Client: Client's | Name: North Iri Statkraft Rep: Arup | | ay Landfall | | | | BH04 |
|------------------------|------------------------------------|-----------------------|------|--------------------|------|----------|------------------------|-----------------------|--------------|--------------------|--------------------------------|--|---|--|---|--|-------|--|
| Metho Cable Percu | ussion | Plant L Dando | 2000 |) | 0. | 00 | 3. | | | dinates | Final De | epth: 20.00 m | Start Date: | 16/03/2022 | Driller: | RS+BM | | neet 3 of 3 cale: 1:50 |
| Rotary Dr Rotary Co | | Comacch Comacch | | | | 00 00 | 4.0 20 | 00 .00 | | 38.60 E 63.53 N | Elevatio | n: 13.04 mOD | End Date: | 25/03/2022 | Logger: | EM+CH | | FINAL |
| Depth (m) | Samples | / Field Records | TCR | SCR | RQD | FI | Casing Depth (m) | Water Depth (m) | Level mOD | Depth (m) | Legend | | | cription | | | Water | Backfill |
| | Samples | / Field Records | 100 | | RQD | | | | | | Legend | Medium strong indi white quartz veins a weathered: closer fi discolouration on fr Discontinuities: 1. 35 to 45 degree b smooth with grey cl brown staining on fi 2. 80- to 90 degree i rough with strong d joint surfaces, other 3. 60 to 70 degree ju patchy orangish bro | stinctly thickl at 45 degree a racture spacir acture surface bedding fractu ay deposits (u racture surface joint at 18.00 ark brown an rwise clean. oint at 19.85n wn staining o | y laminated grey ingles (up to 40n ig, with clay dep es. irres closely space up to 4mm thick) ies. m to 18.60m, slių d dark orangish n to 20.00m, uno | nm thick). F osits and ed (12//600 and orang ghtly undul brown stair dulating, ro | Partially D) planar, ish ating, hing on ugh, with | Wat | Backfill , 19.0 , 19.0 , 19.0 , 10.0 , 20.0 , 20 |
| | Matar | Chrilion | TCR | SCR | RQD | | Chie | | a Deteil | | Domorka | | | | | | | |
| 1.30 2.80 3.50 | sing to (m 1.30 2.80 3.50 | Strikes Time (min) | | | n) F | | | To (| g Detail | S ne (hh:mm) | Location: | inspection pit excavat | ted to 1.20m | | | | | |
| Casing De To (m) Di | e tails am (mm) | Water From (m) | | ed o (m) | - | | | | | | | | | | | | | |
| 3.00 4.00 20.00 | 200 200 200 150 | | | , (11) | ┢ | Core | Barr | rel | Flush | Туре | Termina | tion Reason | | | | Last Up | | |
| | | | | | | S | K6L | | Wa | ater | Terminate | d at scheduled depth | | | | 02/12/2 | 2022 | AG |

| | 97 - | | ίΕC | DTI | EC | Н | | | 21-1 | ect No. L 619A | Project Name: North Irish Sea Array Landfall Client: Statkraft Limited Client's Rep: Arup | Boreho BH | 05 |
|--------------------------------|-------------------------------------|---------------------------------------|-------|---------|------|-----------------|------------------------|-----------------------|--------------------|--------------------------|---|-----------------|------------|
| Meth Cable Pero Rotary C | cussion | Plant L Dando 2 Comacch | 2000 |) | 0. | (m) 00 00 | Base 6.0 20. | 00 | | dinates | Final Depth: 20.00 m Start Date: 22/03/2022 Driller: BM+JG | Sheet Scale: | |
| | 8 | | | - | | | 20 | | | 55.28 N | Elevation: 10.24 mOD End Date: 30/03/2022 Logger: CH+RC | FIN | AL |
| Depth (m) | Sample / Tests | Fie | ld Re | cords | | | Casing Depth (m) | Water Depth (m) | Level mOD | Depth (m) | Legend Description | Kater Back | fill |
|).30 - 0.50).50 | B3 ES1 | | | | | | | | | | TOPSOIL-Soft brown sandy gravelly CLAY. | | 0.5 |
|).80 - 1.10 00 | B4 ES2 | | | | | | | | 9.24 | 1.00 | | | 1.0 |
| .20 | D10 | | | | | | | | 512 . | 1.00 | Firm brownish grey slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to medium. | | |
| 20 - 1.65 80 - 2.00 | | N=14 (2,2/3,3 0199 | 3,4,4 |) Han | nmer | SN = | 1.00 | Dry | | | | | 1.5 |
| 2.00 | вэ D11 | | | | | | | | | Ē | | | 2.0 |
| 2.00 - 2.45 | | N=25 (4,4/4, 0199 | 7,7,7 |) Han | nmer | SN = | 1.50 | Dry | 8.04 | 2.20 | Stiff grey slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to medium. | | 2.5 |
| 2.80 - 3.00 | B6 | | | | | | | | | | | | |
| .00 - 3.45 | U14 | Ublow=25 10 | 0% | | | | 3.00 | Dry | 7.24 | 3.00 | Stiff grey slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular fine to medium. | | 3.0 |
| | | | | | | | | | | | | | 3.5 |
| .80 - 4.00 .00 | B7 D12 | | | | | | | | | | | | 4. |
| .00 - 4.45 | SPT (S) | N=22 (4,4/5,5 0199 Slow seepage | | | nmer | SN = | 3.00 | Dry | | | | ▾ | 4. |
| .80 - 5.00 | B8 | | | | | | | | | | | | |
| .00 .00 - 5.45 | D13 | N=24 (4,5/5,5 0199 | 5,6,8 |) Han | nmer | SN = | 3.00 | | | | | | 5.0 |
| | | | | | | | | | | | | | 5.5 |
| 5.00 - 6.45 | U15 Ub | low=25 80% | | | | | 3.00 | Dry | 4.24 | 6.00 | Stiff greyish brown slightly sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of mixed lithologies. | | 6.0 |
| | | | 57 | 0 | 0 | | | | | (1.50) | 6.85m to 7.50m: AZCL | | 7.0 |
| 7.30 - 7.50 | В9 | | | | | AZCL | | | | | | | |
| 7.50 7.50 - 8.50 | C | | | - | - | | 3.00 | Dry | 2.74 | 7.50 | 고 22 전 | | 7.5 |
| 7.50 - 8.50 7.50 - 7.63 | 105mm | I=50 (31 for /50 for Hammer SN | | | | | | | | (1.00) | subangular to subrounded fine to coarse of mixed lithologies. | | 8. |
| | = 0199 | | 100 | 0 | 0 | | | | : | | | | |
| 3.50 - 9.00 3.50 - 8.76 | C9 SPT(C) N (5,11/43 110mm | | | | | | | | 1.74 | 8.50 (0.60) | Stiff dark greyish brown slightly sandy gravelly CLAY. Sand is fine to medium. Gravel is subangular to subrounded of mixed lithologies. | | 8.5 9.0 |
| 9.00 | SN = 02 | | | | | | | | 1.14 | 9.10 | Dark grey slightly sandy slightly clayey subangular fine to coarse GRAVEL of mixed lithologies. Sand is fine to coarse. | | 9.0 |
| | | o | TCR | SCR | RQD | FI | | | | <u> </u> | | | |
| ruck at (m) C | | Strikes | Rose | e to (r | n) F | rom (| | elling To (| g Detail m) Tir | S ne (hh:mm) | Remarks Hand dug inspection pit excavated to 1.20m | | |
| 4.30 | 4.30 | | | | | | | | | | Location: Landfall | | |
| Casing D | | Water | | | | | | | | | | | |
| 6.00 | Diam (mm) 200 |) From (m) | | o (m) | | | | | | | | | |
| 20.00 | 150 | | | | | Core | Barr | rel | Flush | Туре | Termination Reason Last Up | | |
| | | | | | | S | K6L | | Wa | ater | Terminated at scheduled depth. 02/12/ | 2022 | AG |

| | | | | | | | | | oject No. 1619A | Client: | Project Name: North Irish Sea Array Landfall Client: Statkraft Limited Client's Rep: Arup | | | | | | |
|--------------------------|-----------------|----------------------------------|--------|--------------------|------|------------------|----------------------------|-------------------------------|---------------------------|--|---|---|--------------------|-----------|-------------|--------------------------|--|
| Metho Cable Perc | | Plant U Dando | | | | (m) 00 | Base (6.00 | | ordinates | Final De | Final Depth: 20.00 m Start Date: 22/03/2022 Driller: BM+JG | | | | | | |
| Rotary Co | oring | Comacch | nio 60 | 01 | 6. | 00 | 20.0 | | 9530.91 E 5155.28 N | Elevatio | on: 10.24 mOD | End Date: 30/03/2022 Logger: CH4 | | | Scale: 1:50 | | |
| Depth (m) | Samples | / Field Records | TCR | SCR | RQD | FI | Casing V Depth D (m) | Vater Leve lepth (m) mO | | Legend | | Description | | | Water | Backfill | |
| 10.00 - 10.45 | (4,6/9,9 | | 39 | 0 | 0 | AZCL | | | (1.40) | | | ndy slightly clayey suba hologies. Sand is fine to | | barse | | 9.5 10.0 - | |
| 10.50 10.50 - 11.40 | C10 | | | | | | | -0.2 | 6 10.50 | | | gravelly silty fine to coa ar of mixed lithologies. | arse SAND. Grave | el is | | 10.5 | |
| | | | 73 | 0 | 0 | | | | _ (0.90) | $\mathbf{x}^{\mathbf{x}}$ | | | | | | 11.0 • | |
| 11.50 - 11.95 | (4,9/10, | I=50 13,12,15) r SN = 0209 | | | | AZCL | | -1.1 | .6 11.40 (0.60) | | cobble content. San | own slightly sandy sligh d is fine to coarse. Grav «ed lithologies. Cobbles | el is angular to s | ubangular | | 11.5 | |
| 12.00 | | | | | | | | -1.7 | 6 12.00 | | Greyish brown sligh lithologies. Sand is f | tly sandy angular fine to ine to coarse. | o coarse GRAVEL | of mixed | | 12.0 - | |
| | | | 77 | 0 | 0 | >20 | | -2.3 | | | significantly reduce | veak) greyish brown TU strength, much closer f olouration on fracture s | racture spacing f | | | 12.5 13.0 - | |
| 13.50 | | | | | | | | | | | 1. 45 to 55 degree jo | pints closely spaced (10 blackish brown staining | | rough and | | 13.5 | |
| 15.00 | | | 100 | 24 | 0 | | | | (4.50) | | | | | | | 14.0 - | |
| 15.00 | | | 100 | 19 | 0 | 20 | | | | | | stinctly thinly laminated | | | | 15.0 · 15.5 16.0 · | |
| 16.50 | | | | | | - | | | | | frequent heavy blac Discontinuities: | : reduced strength, clos kish brown discolourati pints closely spaced (30 | on on fracture s | urfaces. | | 16.5 | |
| | | | 100 | 36 | 0 | | | -6.8 | 6 17.10 | | deep. 2.0 65 to 75 degree | sh brown staining on joi joint from 17.50m to 18 kish brown staining on | 8.00m, planar, ro | ough and | | 17.0 - | |
| 18.00 | | | | | | 16 | | -7.7 | (0.90) 6 – 18.00 | | weathered: reduced frequent pervasive | ally weak) dark brownis I strength, much closer blackish brown discolou | fracture spacing | and | | 17.5 | |
| | | | | | | | | | | | | pints closely spaced (10 sive blackish brown stai | | | | 18.5 | |
| | | | TCR | SCR | RQD | | | | | | | | | | | | |
| Struck at (m) Ca 4.30 | | Strikes) Time (min) | Rose | e to (r | n) F | | | lling Det To (m) | ails Time (hh:mm) | Remarks Hand dug Location: | inspection pit excavat | ed to 1.20m | | | | | |
| 6.00 | iam (mm) 200 | Water From (m) | - | ed 5 (m) | | | | | | | | | | | | | |
| 20.00 | 150 | | | | | | Barre | | i sh Type Water | Termination Reason Last Up Terminated at scheduled depth. 02/12/ | | | | | | AGS | |

| • | 7 — | | ΪEC | DTE | ECI | Н | | | 21-1 | ect No. .619A | Project Name: North Irish Sea Array Landfall Client: Statkraft Limited Client's Rep: Arup | | | | | | Borehole ID BH05 | | | |
|---|----------------------------|---------------------------|-----|------------------|------|------------------|------------------------|-----------------------|----------------------------|------------------|---|--|---|---|---|--------------------|---------------------|--|--|--|
| Method Cable Percussion Rotary Coring | | Dando 2000 | | | | (m) 00 | | e (m) 00 | Coordinates | | Final De | epth: 20.00 m | Start Date: | 22/03/2022 | Driller: B | N+JG | Sheet 3 Scale: 1 | | | |
| | | | | | 6.00 | | 20.00 | | 719530.91 E 765155.28 N | | Elevation: 10.24 mOD End Date: 30/03/2022 Log | | | Logger: CH | H+RC | FINAL | | | | |
| Depth (m) | Samples / | Field Records | TCR | SCR | RQD | FI | Casing Depth (m) | Water Depth (m) | Level mOD | Depth (m) | Legend | | Des | cription | | Water | Backfil | 1 | | |
| | C12 | Field Records | 93 | SCR 27 100 | 0 | FI >20 | Casing Depth | Water Depth (m) | | | | Medium strong (loc weathered: reduced frequent pervasive l surfaces. Discontinuities: 1. 45 to 55 degree jo and frequent pervas Medium strong light reduced strength an Discontinuities: 1. 25 to 45 degree jo rough, unstained. 2. 10.20m joint at 19 | ally weak) dai d strength, mu blackish brow oints closely s sive blackish t t grey ANDESI d closer fract oints at 19.40 9.70m, planar | rk brownish grey Juch closer fractur n discolouration paced (10/65/10 prown staining of TE. Partially wea ure spacing. m to 19.45m and | re spacing and on fracture 10) planar, rouų n joint surface thered: slightl d 19.60m, plan | / gh s/ У | Backfil | 19.0 19.0 19.5 20.0 21.5 21.0 21.5 22.0 23.5 23.5 24.0 24.5 25.5 25.5 26.5 | | |
| | | | | | | | | | | | | | | | | | | 27.0 - | | |
| | | | TCR | SCR | RQD | FI | | | | | | | | | | | | 27.5 | | |
| | Water | | | | | | | | g Detail | | Remarks | | | | | I | | 1 | | |
| | 4.30 etails fam (mm) | Time (min) Water From (m) | Add | | n) F | <u>rom (</u> | <u>m)</u> | То (| <u>m) Tin</u> | ne (hh:mm) | Hand dug Location: | inspection pit excaval Landfall | ted to 1.20m | | | | | | | |
| 6.00 20.00 | 200 150 | | | | | Core | Barı | rel | Flush | Туре | Terminat | tion Reason | | | L | .ast Upda | ted | | | |
| | | | | | | S | K6L | | | ter | Terminate | d at scheduled depth | | | | 02/12/202 | | GŚ | | |

| | 9 - | | GEC | DTE | CI | - | | | 21 -1 | ect No. | Project Name: North Irish Sea Array Landfall Client: Statkraft Limited Client's Rep: Arup | Borehole BH06 | | | |
|---|-------------------------|-----------------------------|--|------------------------------------|--------------------|------------------------|------------------------|-----------------------|------------------|--|---|------------------|-----------------------|------------|--|
| Metho Cable Perc Rotary Co | ussion | Dando 200 | | Plant Used1Dando 2000Comacchio 205 | | (m) 00 00 | Base 4.(20. | 00 | 719454.92 E | | Final Depth: 20.00 m Start Date: 21/03/2022 Driller: BM+RS | | Sheet 1 o Scale: 1 | | |
| | | | | | | | | | 765155.97 N | | Elevation: 11.95 mOD End Date: 29/03/2022 Logger: CH+EM | FINAL | | | |
| Depth Sample / Field Rec (m) Tests | | | | | | | Casing Depth (m) | Water Depth (m) | Level mOD | Depth (m) | Legend Description TOPSOIL-Soft brown slightly sandy slightly gravelly CLAY. Sand is fine | Water | Backf | fill | |
| 0.30 - 0.50 0.50 0.80 - 1.00 1.00 1.20 1.20 - 1.65 | | N=16 (1,2/3, 0199 | 5,5,3) | Hamı | ammer SN = 1.00 Dr | | | | 10.95 | - 1.00 | Stiff brownish grey sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse. Gravel Stiff brownish grey sandy gravelly CLAY. Sand is fine to coarse. Gravel | _ | · • • • • | 0.5 | |
| 1.80 - 2.00 2.00 - 2.45 | | Ublow=20 90 Slow seepage | 1.50 1.90 t 2.00m | | | | 1.90 | 10.15 | 1.80 | Stiff brownish slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to medium. | • | | 2.0 2.5 | | |
| 2.80 - 3.00 3.00 | B6 D9 | | | | | | | | | | | | | • | |
| 3.00 3.00 - 3.45 | SPT (S) | N=16 (2,3/3, 0199 | =16 (2,3/3,4,4,5) Hammer SN = 3.0 199 | | | 3.00 | Dry | | | | | | 3.5 | | |
| 3.80 - 4.00 | В7 | | | | | | | | | | | | | | |
| 4.00 4.00 - 4.45 | l=21 ,6,6) | | | | AZCL | 3.00 | Dry | 7.95 | 4.00 | Dark greyish brown very clayey fine to medium SAND. 4.00m to 4.93m: AZCL due to disturbance by SPT | | | 4.0 | | |
| | паттте | r SN = 0199 | 37 | | | | | | 6.00 | (1.15) | | | | 5.0 | |
| 5.50 5.50 - 6.13 | с | | | | | | | | 6.80 | 5.15 | Very stiff dark greyish brown slightly sandy gravelly CLAY with high cobble content. Sand is fine to coarse. Gravel is subangular fine to coarse of various lithologies. Cobbles are sub angular of various lithologies. | | | 5.5 | |
| 5.75 - 5.90 | с | | | | | | | | | | ္ ေလး က ေ 5.75m to 5.90m: Bed of clayey sandy gravel | | | | |
| 5.13 - 7.00 | с | | 42 | | | AZCL | | | 5.82 | 6.13 (0.87) | Dark greyish brown very clayey fine to coarse SAND | | | 6.5 | |
| 7.00 7.00 - 7.35 | C12 | | 25 | | | | | | 4.95 | 7.00 | Dark greyish brown sandy clayey sub angular fine to coarse GRAVEL of various lithologies with medium cobble content. Sand is fine to coarse. Cobbles are sub angular of various lithologies. 7.38m to 8.50m. AZCL possibly washed out due to flush | _ | | 7.0 | |
| 8.50 8.50 - 9.50 | с | | 65 | | | AZCL | | | 3.45 | (1.50) 8.50 (1.00) | Very stiff brown slightly sandy gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular fine to coarse of various lithologies | _ | | 8.0 8.0 | |
| | | | 05 | | | | | | | L (1.00) | | | °.°⊢ | • * 9.0 | |
| | | | TCR | SCR | RQD | FI | | | | | | | | | |
| | | Strikes | | | | | | | ; Detail | | Remarks | _ | | | |
| 2.00 Casing D | 2.00 |) Time (min) | | | <u> </u> | <u>rom (</u> | <u>m)</u> | <u> To (</u> 1 | <u>11) Tir</u> | ne (hh:mm) | Hand dug inspection pit excavated to 1.20m Location: Landfall. | | | | |
| | Diam (mm) 200 150 | | | (m) | | | Barr | el | | t ype | Termination Reason Last Up Terminated at scheduled depth. 02/12 | | | Ļ | |

| | — | | GEC | | EC | Н | | 21-1 | ect No. 1 619A | Project Name: North Irish Sea Array Landfall Client: Statkraft Limited Client's Rep: Arup | Borehole ID BH06 |
|---|-----------------------|-----------------------------|------|------------|------|-----------------|---------------------------------|----------------|-------------------------------|--|---------------------|
| Method Cable Percu Rotary Cor | ssion | Plant L Dando Comacch | 2000 | | 0. | (m) 00 00 | Base (1 4.00 20.00 |) 7194 | dinates 54.92 E 55.97 N | Final Depth: 20.00 m Start Date: 21/03/2022 Driller: BM+RS Elevation: 11.95 mOD End Date: 29/03/2022 Logger: CH+EN | Scale: 1:50 |
| Depth | Samples / | Field Records | TCR | SCR | RQD | FI | Casing Wa Depth De (m) (r | | Depth | Legend Description | Backfill |
| (m) | | | - | | | | (m) (r | mOD 2.45 | (m) 9.50 | Very stiff brown slightly sandy gravelly CLAY with low cobble content. | 9.5 |
| 10.00 | | | | | | AZCL | | 2.1.5 | (0.65) | Stiff brown slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is subangular line to coarse. Gravel is subangular fine to coarse. | |
| 10.00 - 10.15 | С | | 73 | | | | | 1.80 | 10.15 | Very stiff brown slightly sandy gravelly CLAY with low cobble and boulder content. Sand is fine to coarse. Gravel is subangular fine to coarse of various lithologies. | |
| 11.50 | | | | | | AZCL | | | | | 11.5 |
| | | | 0 | | | NR | | | (4.35) | | 12.0 - |
| 13.00 | | | | | | | | | | | 13.0 - |
| | | | 0 | | | NR | | | | | 13.5 |
| L4.50 L4.50 - 14.90 | с | | | | | | | -2.55 | 14.50 | Very stiff greyish brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular fine to coarse of various | 14.5 |
| 14.50 - 14.90 14.90 - 15.45 14.90 - 15.45 | С | | 96 | | | | | -2.95 | 14.90 (0.55) | Greyish brown sandy slightly clayey subangular fine to coarse GRAVEI with low cobble content. Sand is fine to coarse. Cobbles are | 15.0 - |
| 15.45 - 15.90 15.45 - 15.90 | | | | | | | | -3.50 | 15.45 | subangular of various lithologies. Very stiff brown slightly sandy gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular fine to coarse of various lithologies. | 15.5 |
| 16.00 | | | | | | | | | | | 16.0 - |
| | | | 73 | | | | | | (2.05) | | 16.5 |
| 17.50 | | | | | | AZCL | | -5.55 -5.80 | 17.50 (0.25) 17.75 | Brown slightly gravelly clayey fine to medium SAND. Gravely is sub angular fine to medium of various lithologies. No recovery. | 17.5 |
| | | | 44 | 005 | DOD | AZCL | | | | 18.17m to 19.00m: AZCL possibly washed out due to flush | 18.0 - |
| | Water S | | TCR | | RQD | | | ing Detail | s | Remarks | |
| truck at (m) Cas 2.00 Casing De | 2.00 tails | Water | Add | ed | n) F | | | | ne (hh:mm) | Hand dug inspection pit excavated to 1.20m .ocation: Landfall. | |
| To (m) Dia 3.00 20.00 | am (mm) 200 150 | From (m) | Тс | <u>(m)</u> | | | Barrel | | Type Iter | | pdated |

| | | | SEC | | | | | | 21-: | ect No. 1619A | Client: | Name: North Iri Statkraft Rep: Arup | | | | | | BH06 | |
|---------------------|-----------------------------|-------------------|------|----------------------|------|------------------|------------------------|----------------------------|--------------------|--------------------|----------------------------------|---|--------------|----------------|----------|---------|-------|-------------------|--------------|
| Met Cable Pe | | Plant U Dando | | | | (m) 00 | Base 4. | e (m) 00 | Coor | dinates | Final De | pth: 20.00 m | Start Date: | 21/03/2022 | Driller: | BM+RS | | neet 3 o | |
| Rotary | | Comacch | | | | 00 | 20 | | | 54.92 E 55.97 N | Elevatio | n: 11.95 mOD | End Date: | 29/03/2022 | Logger | CH+EM | | cale: 1: FINAL | |
| Depth (m) | Samples | / Field Records | TCR | SCR | RQD | FI | Casing Depth (m) | Water Depth (m) | Level mOD | Depth (m) | Legend | | Des | cription | | | Water | Backfill | |
| .9.00 | | | | | | | | | | (2.25) | | No recovery. | | | | | | | 19.0 19.5 |
| 0.00 | | | | | | | | | -8.05 | 20.00 | | | End of Bore | hole at 20.00m | | | | | 20.0 |
| | | | | | | | | | | | | | | | | | | | 20.5 |
| | | | | | | | | | | | | | | | | | | | 21.0 |
| | | | | | | | | | | | | | | | | | | | 22.0 |
| | | | | | | | | | | | | | | | | | | | 22.5 |
| | | | | | | | | | | | | | | | | | | | 23.0 |
| | | | | | | | | | | | | | | | | | | | 23.5 |
| | | | | | | | | | | | | | | | | | | | 24.5 |
| | | | | | | | | | | | | | | | | | | | 25.0 |
| | | | | | | | | | | | | | | | | | | | 25.5 |
| | | | | | | | | | | | | | | | | | | | 26.0 |
| | | | | | | | | | | | | | | | | | | | 26.5 |
| | | | | | | | | | | | | | | | | | | | 27. |
| | | | TCR | SCR | RQD | | | | | - | | | | | | | | | - |
| ruck at (m) 2.00 | | Strikes | Rose | e to (r | n) F | rom (| Chis m) | ellin _i To (| g Detail m) Tir | | Remarks Hand dug Location: | inspection pit excavat | ted to 1.20m | | | | | | |
| - | | | | | | | | | | | Location. | | | | | | | | |
| To (m) 3.00 | Details Diam (mm) 200 | Water From (m) | | l ed o (m) | | | | | | | | | | | | | | | |
| 20.00 | 150 | | | | | Core | Barı | rel | Flush | п Туре | Terminat | ion Reason | | | | Last Up | dated | d I | |

| | 9/ - | | ΕC | DTI | EC | Η | | | 21-1 | ect No. .619A | Project Name: North Irish Sea Array Landfall Client: Statkraft Limited Client's Rep: Arup | Borehole II BH07 |
|--|------------------------------------|---|-------|--------------------|--------------|----------------|------------------------|-----------------------|--|------------------------|--|-----------------------------|
| Methe Cable Perc Rotary C | cussion | Plant L Dando I Comacch | 2000 |) | 0. | 00 00 00 | Base 4.(15. | 00 | | dinates | Final Depth: 15.50 m Start Date: 21/03/2022 Driller: JG+BM | Sheet 1 of 2 Scale: 1:50 |
| - | _ | | | - | | | | | | 79.09 N | Elevation: 19.70 mOD End Date: 28/03/2022 Logger: RC+CH | FINAL |
| Depth (m) | Sample / Tests | Fie | ld Re | cords | | | Casing Depth (m) | Water Depth (m) | Level mOD | Depth (m) | Legend Description | Backfill |
| 0.30 - 0.50 0.50 0.80 - 1.00 1.00 | B3 ES1 B4 ES2 | | | | | | | | 18.80 | 0.90 | MADE GROUND: Soft brown sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse. | 0.9 |
| 1.20 - 1.65 1.80 - 2.00 | | Ublow=15 90 |)% | | | | 1.00 | Dry | | | Sand is fine to coarse. Gravel is subangular to subrounded fine to medium. | 1. |
| 2.00 2.00 - 2.45 | D8 SPT (S) | N=11 (2,2/2, 0199 | 3,3,3 |) Harr | nmer | SN = | 1.50 | Dry | | | | 2.0 |
| 2.80 - 3.00 3.00 3.00 - 3.45 | | N=16 (2,3/3,- 0199 | nmer | SN = | 3.00 | Dry | | | | 3.(| | |
| 3.80 - 4.00 | В7 | | | | | | 16.30 | 3.40 | Very stiff brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse. | 3. | | |
| 1.00 1.00 - 4.45 1.00 - 4.05 | SPT(S) N 25mm/5 | I=50 (25 for 50 for | 0 | | 3.00 3.00 | | 15.70 | - 4.00 (1.70) | Stiff light brownish grey slightly sandy slightly gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is fine to coarse of limestone and mudstone. Cobbles are angular of limestone and mudstone. | 4. | | |
| 5.50 5.50 - 5.95 | (3,4/6,6 | U12 Ublow=50 0% SPT(S) N=50 (25 for 25mm/50 for 25mm) Hammer SN 92 0 6 | | | | | | Dry | 14.00 | 5.70 | Stiff brownish grey slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is angular fine to medium of limestone and mudstone. | 5. |
| .70 | Hamme C | r SN = 0209 | 100 | 0 | 0 | | | | | (1.30) | | 6. |
| 7.00 7.00 7.00 - 7.45 | C SPT(C) N (4,4/7,8 Hamme | | | | | _ | 7.00 | Dry | 12.70 | (0.80) | Stiff light greyish brown slightly sandy gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is angular fine to medium of sandstone, mudstone and limestone. | 7.9 |
| 7.30 - 8.00 | с | | 100 | 0 | 0 | | | | 11.90 | 7.80 | Extremely weak light greyish brown BRECCIA. Destructured: greatly Image: Stress of the stress of | |
| 8.50 | | | 100 | 0 | 0 | | | | | (1.90) | Gravel is angular fine to coarse of breccia. Cobbles are angular of breccia. | 8. |
| | | | TCR | SCR | RQD | FI | | | | | | |
| ruck at (m) C | | Strikes Time (min) | Rose | e to (r | n) F | rom (| | ellin; To (| g Details (m) Tim | 5 ne (hh:mm) | Remarks Hand dug inspection pit excavated to 1.20m Location: Landfall. No groundwater encountered- water added during drilling. | |
| 4.00 | Diam (mm) 200 | Water From (m) | _ | ed o (m) | | | | | | | | |
| 15.50 | 150 | | | | | Core S | Barr | el | | Type Iter | Termination Reason Last Up Terminated at scheduled depth 02/12/ | |

| | 8 - | | GEC | DTI | ECI | Н | | 21 | oject No. L-1619A | Client: Client' | | | ay Landfall | | | BF | iole ID 107 |
|-------------------------|-------------------------|-----------------------|--------|---------|------|------|----------------------------|-------------------------------|------------------------|--|---|---|---|---|--|--------------|-------------------|
| Metl Cable Per | | Plant L Dando | 2000 |) | 0. | 00 | Base (4.00 |) | ordinates | Final D | epth: 15.50 m | Start Date: | 21/03/2022 | Driller: JG | 6+BM | | 2 of 2 e: 1:50 |
| Rotary | Coring | Comacch | nio 60 | 01 | 4. | 00 | 15.5 | | 9317.44 E 5079.09 N | | on: 19.70 mOD | End Date: | 28/03/2022 | Logger: Ro | C+CH | FIN | NAL |
| Depth (m) | Samples | / Field Records | TCR | SCR | RQD | FI | Casing V Depth ((m) | Vater Leve lepth (m) mO | | Legend | | | cription | | | Mater Bac | kfill |
| 10.00 | | | 83 | 0 | 0 | | | 10.0 | | | Extremely weak ligh weakened, matrix v on fracture surface: sandy gravelly CLAY Gravel is angular fin breccia. Extremely weak ligh weakened, matrix v on fracture surface: sandy gravelly CLAY | veakened and s. Recovered a with low cob ne to coarse of nt brown BREC veakened and s Recovered | disturbed with s: (stiff light grey ble content. Sand f breccia. Cobble CCIA. Destructure disturbed with f as: (stiff light gre | frequent clay i yish brown slig d is fine to coa s are angular c ed: greatly frequent clay in yish brown slig | infill ghtly irse. of nfill ghtly | | 9.5 - 10.0 - |
| 11.50 | | | | | | | | | (2.30 | | Gravel is angular fir breccia. | ne to coarse of | f breccia. Cobble | s are angular c | of | | 11.0 |
| | | | 86 | 0 | 0 | >20 | | 7.7 | 0 - 12.0 | | Extremely weak dan reduced strength, n dark orangish brow surfaces. Discontinuities: | nuch closer fra | acture spacing w | ith frequent st | trong | | 12.0 — 12.5 — |
| 13.00 | | | | | | - 20 | | 6.3 | | | 1. 0-20 degree joint frequent heavy ora whole diameter of t | ngish brown s the core | taining on joint s | surface up to t | | | 13.0 — |
| | | | 100 | 0 | 0 | 18 | | | | | Very weak dark bro reduced strength, c orangish brown diso Discontinuities: 1. 0 to 15 degree jo with frequent boom | loser fracture colouration or ints closely sp | spacing with fre fracture surface paced (50/150/40 | quent heavy es. 00) planar, rou | - | | 13.5 - |
| 14.50 | | | 100 | 100 | 0 | 11 | | | (2.15 |)) (1) (2) (2) (2) (2) (2) (2) (2) (2) (2) (2 | with frequent heavent entire diameter of t 2. 55 to 75 degree j 14.10m to 14.20m a frequent heavy darl diameter of core. | the core. oints from 13 and 14.50m to | .50m to 13.70m, o 14.60m, planar, | 13.70m to 13 , rough and | .80m, | | 14.5 - 15.0 - |
| 15.25 | | | | | | | | 4.2 | 0 15.5 | 0 | | End of Bore | hole at 15.50m | | | | 15.5 - |
| | | | | | | | | | | | | | | | | | 16.0 - |
| | | | | | | | | | | | | | | | | | 17.0 - |
| | | | | | | | | | | | | | | | | | 17.5 - |
| | | | | | | | | | | | | | | | | | 18.0 - |
| | 14/ | Chuilter | TCR | SCR | RQD | | CI-11 | | | Den and de | - | | | | | | |
| Struck at (m) | | Strikes Time (min) | Rose | e to (r | n) F | | | lling Det To (m) | ails Time (hh:mm | Location: | inspection pit excava | | during drilling. | | | | |
| Casing | | Water | - | | | | | | | | | | | | | | |
| To (m) 4.00 15.50 | Diam (mm) 200 150 | From (m) | Тс | o (m) | | Core | Barre | сі. | ish Type | Termina | tion Reason | | | I | last Upda | ated | |
| | | | | | | | K6L | | Water | | ed at scheduled depth | | | | 02/12/20 | | AGS |

| | C | G | EW | ECH | | | 21-1 | ct No. 619A | Project Client: Client's | | | y Landfall | | | | ehole ID 8H15 |
|-----------------------|-------------------|-----------------------------|------------|------------------------|------------------------|-----------------------|---------------------|--------------------|--------------------------------|---|------------------------------------|-------------------------------|----------------|-----------|-------------------|------------------|
| Methe Cable Perc | | Plant Us Dando 2 | | Top (m) 0.00 | Base 8.0 | | Coord | dinates | Final De | epth: 14.50 m | Start Date: | 24/03/2022 | Driller: | RS+BM | | et 1 of 2 |
| Rotary Di Rotary C | rilling | Comacchie Comacchie | o 405 | 8.00 8.50 | 8.! 14. | 50 | | L5.01 E L3.01 N | Elevatio | n: 32.12 mOD | End Date: | 28/04/2022 | Logger: 1 | EM+CH | | INAL |
| Depth (m) | Sample / Tests | Field | d Records | | Casing Depth (m) | Water Depth (m) | Level mOD | Depth (m) | Legend | | Desc | ription | - I | | Water | ackfill |
| 0.30 - 0.50 | В3 | | | | | | | | | MADE GROUND: So coarse. Gravel is sub | | | | 0 | | |
| 0.50 - 0.50 0.50 | ES1 | | | | | | 31.72 | 0.40 | | Firm brownish grey | | | | s fine to | | 0.5 |
| 0.80 - 1.00 | В4 | | | | | | | | | medium. Gravel is s | ubangulai to s | ubrounded nne | to coarse. | | | |
| 1.00 1.20 - 1.65 | ES2 U17 | Ublow=15 100 | 0% | | 1.00 | Drv | | | | | | | | | | 1.0 |
| | | | | | | , | | | | | | | | | | 1.5 |
| 1.80 - 2.00 | В5 | | | | | | | | | | | | | | | |
| 2.00 2.00 - 2.45 | D11 | N-10 /2 2 /4 4 | 5 6) பு | mer CN - | 1 50 | Dret | 30.12 | 2.00 | | Stiff brown slightly s | sandy slightly g | gravelly CLAY. Sa | ind is fine to | coarse. | | 2.0 |
| 2.00 - 2.45 | | N=19 (3,3/4,4 0199 | ,ə,o) Ham | mer SN = | 1.50 | Ury | | | | Gravel is subangular | | | | | | |
| | | | | | | | | | | | | | | | | 2.5 |
| 2.80 - 3.00 3.00 | B6 D12 | | | | | | | | | | | | | | | 3.0 |
| 3.00 - 3.45 | SPT (S) | N=24 (5,6/6,6, 0199 | ,5,7) Ham | nmer SN = | 3.00 | Dry | | | | | | | | | | |
| | | | | | | | | | | | | | | | | 3.5 |
| 8.80 - 4.00 | B7 | | | | | | | | | | | | | | | |
| 4.00 4.00 - 4.45 | D13 SPT (S) | N=23 (4,5/5,6 | ,6,6) Ham | nmer SN = | 3.00 | Dry | | | | | | | | | | 4.0 |
| | | 0199 | | | | | | | | | | | | | | 4.5 |
| | DO | | | | | | | | | | | | | | | 4.5 |
| 4.80 - 5.00 5.00 | B8 D14 | | | | | | | | | | | | | (| $\mathbf{\Sigma}$ | 5.0 |
| 5.00 - 5.45 | | N=26 (5,5/6,6) 0199 | ,6,8) Harr | nmer SN = | 3.00 | Dry | | | | | | | | | | |
| | | Slow seepage | at 5.00m | | | | | | | | | | | | | 5.5 |
| 5.80 - 6.00 | В9 | | | | | | | | | | | | | | | |
| 5.00 - 6.45 | U18 | Ublow=30 100 | 0% | | 3.00 | Dry | | | | | | | | | | 6.0 |
| | | | | | | | | | | | | | | | | 6.5 |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | 7.0 |
| 7.30 - 7.50 | B10 | | | | | | | | | | | | | | | |
| 7.50 7.50 - 7.95 | | N=31 (6,6/7,8 | ,8,8) Harr | nmer SN = | 3.00 | Dry | | | | | | | | | | 7.5 |
| | | 0199 | | | | | | | | | | | | | | 8.0 |
| 3.00 3.00 - 8.12 | | N=50 (25 for 2 | | | 3.00 | Dry | | | | | | | | | | |
| | | 100mm) Hami | mer SN = | 0199 | | | 23.62 | 8.50 | | Weathered rock rec | overed as: bro | wn slightly sand | dy very claye | y | | 8.5 |
| | | | 100 73 | 16 | | | 23.22 | (0.40) 8.90 | | angular fine to coars Weak (locally very w | se GRAVEL of s veak) thinly lar | iltstone. ninated grey SII | LTSONE. Disti | inctly | | |
| | | | | | | | | | | weathered: reduced discolouration, clay | d strength, mu | ch closer fractu | re spacing wi | ith | | 9.0 |
| | | | TCR SCR | RQD FI | | | <u> </u> | <u> </u> | | | | | | | | |
| | asing to (m | • Strikes) Time (min) F | | n) From (| | elling To (| g Details m) Tim | ie (hh:mm) | Remarks Hand dug | inspection pit excavat | ted to 1.20m | | | | | |
| 5.00 | 5.00 | 20 | 4.90 | | | | | | Location: | | | | | | | |
| | | | | | | | | | | | | | | | | |
| Casing D | etails | Water A | Added | | | | | | | | | | | | | |
| To (m) D 3.00 | Diam (mm) 200 | From (m) | To (m) | _ | | | | | | | | | | | | |
| 8.50 14.50 | 200 150 | | | Core | Barr | el | Flush | Туре | Terminat | tion Reason | | | | Last Upo | lated | |
| | | | | S | K6L | | Wa | ter | Terminate | d at scheduled depth | | | | 02/12/2 | 022 | AG |

| | / - | | GEC | DTI | EC | Η | | | 21-1 | ct No. 619A | Project Name: North Irish Sea Array Landfall Client: Statkraft Limited Client's Rep: Arup | Borehole ID BH15 |
|------------------------|-------------------|--------------------|------|-------|---------|-------------|------------------------|-----------------------|--------------|--|---|-------------------------------------|
| Metho Cable Perci | ussion | Plant L Dando | 2000 |) | 0. | 00 | 8. | | | linates | Final Depth: 14.50 m Start Date: 24/03/2022 Driller: RS+BM | Sheet 2 of 2 Scale: 1:50 |
| Rotary Dr Rotary Cc | - | Comacch Comacch | | | 1 | 00 50 | 8. 14 | 50 .50 | | .5.01 E .3.01 N | Elevation: 32.12 mOD End Date: 28/04/2022 Logger: EM+CH | FINAL |
| Depth (m) | Samples / | Field Records | TCR | SCR | RQD | FI | Casing Depth (m) | Water Depth (m) | Level mOD | Depth (m) | Legend Description | Backfill |
| 10.00 | | | 100 | 70 | 14 | 16 | | | | (3.20) | Veak (locally very weak) thinly laminated grey SILTSONE. Distinctly weathered: reduced strength, much closer fracture spacing with discolouration, clay deposits and clay infill on fracture surfaces. Discontinuities: 1. 30-40 degree bedding fractures, medium spaced (150/210/210), planar, smooth with strong orangish brown staining on most fracture surfaces and grey clay deposits and infill (up to 100mm thick) on most fracture surfaces. 2. 80-90 degree joint at 10.50-10.60mm, planar, smooth with strong orangish brown staining and grey clay deposits (up to 2mm thick) on joint surface. 3. 70-80 degree joint at 11.10-11.50m, undulating, rough with dark | 9.5 · 10.0 - 10.5 · 11.0 - |
| 11.50 | | | | | | >20 | | | | | <pre>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>></pre> | 11.5 - 12.0 – |
| 13.00 | | | 100 | 78 | 0 | | | | 20.02 | 12.10 | XXXXXX Weak thickly laminated grey SILTSTONE with white quartz veins (up XXXXXX to 10mm thick) at various orientations. Partially weathered: slightly XXXXXX reduced strength, closer fracture spacing with clay deposits, clay infill and discolouration on fracture surfaces. Discontinuities: XXXXXX 1. 20-30 degree bedding fractures, medium spaced (200/266/600), | 12.5 • |
| 13.00 | | | 80 | 60 | 13 | 10 | | | | (2.40) | >>>>>>>>>>>>>>>>>>>>>>>>>>>>>> | 13.0 13.5 - 14.0 - |
| 14.50 | | | | | | | | | 17.62 | 14.50 | Ison receiption of the provided in the provid | 14.5 |
| | | | | | | | | | | | | 15.0 - 15.5 - 16.0 - |
| | | | | | | | | | | | | 16.5 · 17.0 – |
| | | | | | | | | | | | | 17.5 |
| | | | TCR | SCR | RQD | FI | | | | | | 18.5 |
| Struck at (m) Ca | Water | | Rose | to (r | n) F | rom / | | ellin To (| g Details | e (hh:mm) | Remarks | |
| 5.00 Casing D | 5.00 | Water From (m) | Add | 1.90 | <u></u> | .0111 (| | 10 (| | <u>(((((((((((((((((((((((((((((((((((((</u> | Hand dug inspection pit excavated to 1.20m Location: Landfall. | |
| 8.50 14.50 | 200 200 150 | | | | | Core | Barı K6L | rel | Flush Wa | | Termination Reason Last Upc Terminated at scheduled depth. 02/12/2 | |

| | | GE | | AY CH | | | | ect No. .619A | Project Client: Client's | Name: North Iri: Statkraft Rep: Arup | | y Landtall | | | | nole ID 116 |
|--------------------------------|-------------------|--|--------------|---------------------------------|------------------------|-----------------------|--------------|--------------------|--------------------------------|---|----------------|------------------|------------|----------|-----------|---|
| Meth Cable Pero Rotary C | cussion | Plant Used Dando 200 Comacchio 4 | 00 | Top (m) 0.00 10.00 | Base 10. 15. | .00 | | dinates 96.53 E | Final De | pth: 15.00 m | Start Date: | 23/02/2022 | Driller: B | 3M+RS | | : 1 of 2 e: 1:50 |
| KOLATYC | Johng | Comaccino 2 | 405 | 10.00 | 15. | .00 | | 22.39 N | Elevatio | n: 31.97 mOD | End Date: | 26/04/2022 | Logger: (| CH+EM | FIN | IAL |
| Depth (m) | Sample / Tests | Field R | lecords | | Casing Depth (m) | Water Depth (m) | Level mOD | Depth (m) | Legend | | | ription | | | Mater Bac | kfill |
|).30 - 0.50).50 | B3 ES1 | | | | | | | | | MADE GROUND: So CLAY. Sand is fine to to medium. | | | | | | 0.5 |
| 0.80 - 1.00 | B4 | | | | | | 31.27 | 0.70 | | Firm brownish grey | | | | fine to | | |
| 00 | ES2 | | | | | | | | | coarse. Gravel is sub | Jangular to su | | o medium. | | | 1.0 |
| 20 20 - 1.65 | D9 SPT (S) | N=14 (2,3/3,3,4,- 0199 | 4) Hamm | ner SN = | 1.00 | Dry | | | | | | | | | | 1.5 |
| .80 - 2.00 | B5 | | | | | | | | | | | | | | | |
| 2.00 2.00 - 2.45 | D10 SPT (S) | N=20 (4,4/4,5,5, 0199 | 6) Hamm | ner SN = | 1.50 | Dry | 20.67 | - 2.20 | | | | | | | | 2.0 |
| | | 0133 | | | | | 29.67 | 2.30 | | Stiff becoming very Sand is fine to coars medium. | | | | | | 2.5 |
| 2.80 - 3.00 3.00 - 3.45 | B6 U13 | Ublow=25 80% | | | 3.00 | Dry | | | | | | | | | | 3.0 |
| ,45 | 013 | 00/0 | | 3.00 | ыy | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | 3.5 |
| 8.80 - 4.00 | B7 | | | | | | | | | | | | | | | |
| .00 .00 - 4.45 | D11 SPT (S) | N=20 (4,4/5,5,5, | 5) Hamm | ner SN = | 3.00 | Dry | | | | | | | | ļ | • | 4.0 |
| | | 0199 | | | | | | | | | | | | | | 4.5 |
| 100 F | | | | | | | | | | | | | | | | 4.5 |
| 1.80 - 5.00 5.00 | B8 D12 | | | | | | | | | | | | | | ¥ | 5.0 |
| 5.00 - 5.45 | | N=21 (5,7/5,5,5, 0199 | 6) Hamm | ner SN = | 3.00 | Dry | | | | | | | | | | |
| | | Slow seepage at | 5.00m | | | | | | | | | | | | • * _ 1 | ° • 5.5 |
| | | | | | | | | | | | | | | | ° | |
| 5.00 - 6.45 | U14 | Ublow=25 100% | | | 3.00 | Dry | | - | | | | | | | | 6.0 |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | 6.5 |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | 7.0 |
| | | | | | | | | Ē | | | | | | | | |
| 7.50 - 7.95 | SPT (S) | N=36 (5,5/6,7,8, = 0199 | 15) Ham | mer SN | 3.00 | | | | | | | | | | | 7. |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | 8.0 |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| 9.00 - 9.45 | U15 | Ublow=30 90% | | | 3.00 | | 22.97 | 9.00 | | Very stiff brown slig coarse. Gravel is sub | | | | e to | | _ _{9.0} |
| | | | | | | | | Ē | | coarse. Graver is suc | Jangular to SU | orounded fine to | o meaium. | | • • | <u>, , , , , , , , , , , , , , , , , , , </u> |
| ruck at (m) | | r Strikes) Time (min) Ros | se to (m) | From (| | elling To (| g Detail | 5 ne (hh:mm) | Remarks | | tod to 1 20 | | | | | |
| 5.00 9.90 | 5.00 9.90 | 20 | 4.90 4.20 | | , | (| | , () | Hand dug Location: I | inspection pit excavat Landfall | ιευ ιυ 1.20M | | | | | |
| Casing D | Details | Water Add | ded | | | | | | | | | | | | | |
| | Diam (mm | | To (m) | 1 | | | | | | | | | | | | |
| | | | | Core | Barr | el | Flush | Туре | Terminat | tion Reason | | | | Last Upd | ated | |
| | | | | 5 | K6L | | Wa | tor | Terminate | d at scheduled depth | | | | 02/12/2 | 022 | |

| | | CAUS | | W DTE | | | | | | ect No. .619A | Project Client: Client's | Name: North Iri Statkraft | | ay Landfall | | | Boreh BH | ole ID 16 |
|-------------------------------|--|--|-----------------------|-----------------|-----------------------|-------------|------------------------|-----------------------|----------------------------|------------------|---|---|---|---|--|-----------|--|--|
| Meti | hod | Plant U | Jsed | | Тор | (m) | Base | (m) | Coord | dinates | | | | / / | | | Sheet | 2 of 2 |
| Cable Per Rotary (| | Dando Comacch | | | 0.0 10 | 00 .00 | 10. 15. | | 71879 | 96.53 E | Final De | pth: 15.00 m | Start Date: | 23/02/2022 | Driller: BN | VI+RS | Scale | : 1:50 |
| , | 8 | | | | | | | | 76482 | 22.39 N | Elevatio | n: 31.97 mOD | End Date: | 26/04/2022 | Logger: CH | H+EM | FIN | IAL |
| Depth (m) | Sample / Tests | Fie | eld Re | cords | | | Casing Depth (m) | Water Depth (m) | Level mOD | Depth (m) | Legend | | Des | cription | | Water | Bacl | cfill |
| (m) | (m) Tests Heid Ref 00 - 10.45 SPT(S) N=50 (15,18/15,15,9,11) Hammer SN = 0199 100 50 80 80 00 100 100 50 100 100 50 100 100 50 100 100 | | 90m 56 40 80 | 0 13 13 40 | 16 2 AZCL 14 | Caling (m) | | | | | Brown slightly sand various lithologies. 1 Medium strong to v Partially weathered strength with clay d Discontinuities: 1. 30-40 degree bec planar, smooth with on most fracture su (up to 5mm thick) o 2. 80-90 degree joir with dark brown sta 2. 80-90 degree bec planar, smooth to ro deposits (up to 3mm orangish brown stai 2. 70-80 degree joir with localised brow orangish brown stai 3. 60-70 degree joir patchy orangish brown | y very clayey Sand is fine to veak thinly lai : much closer eposits and d dding fracture patchy orang rfaces and br in some fracture patchy orang rfaces and br in some fracture ta t 12.10-12 stinctly thickl : closer fracture suffiction fracture ough with brc in thick) on soo ning on most it at 13.35-13 n clay deposil ning on joint its at 14.00-1 win staining o | subangular fine to o coarse. minated brownis fracture spacing liscolouration on s, closely spaced gish brown and d own slightly grav ure surfaces. .30m, slightly un surface. y laminated grey ire spacing with o es. s, medium space wish grey and g me fracture surface: .90m, undulating ts (up to 4mm thi surface. 4.50m, undulatin | h grey MUDST , slightly reduc fracture surfar (100/159/180 lark brown stai velly clay deposit dulating, smoot SILTSTONE. clay deposits a ed (150/260/28 grey sandy clay aces and dark s. g, smooth to ro cick) and patchy | /EL of ONE. ced ces.)), ining sits oth nd 30), , ' | | dill 9.5 10.0 10.5 11.0 11.5 12.0 13.5 14.0 14.5 15.0 15.5 | |
| 5.00 9.90 Casing | Casing to (m 5.00 9.90 | r Strikes) Time (min) 20 20 Water) From (m) | Rose 4 4 Add | I.90 I.20 | | FI rom (| | elling To (| 3 Details m) Tim | ne (hh:mm) | Remarks Hand dug Location: I | inspection pit excavat | ted to 1.20m | | | | | 16.0 16.5 17.0 17.5 18.0 18.5 |
| | Core Barrel | | | | | | | | Flush | Туре | Terminat | ion Reason | | | L | ast Upda | ted | |
| | | | | | | S | K6L | | Wa | iter | Terminate | d at scheduled depth | | | | 02/12/202 | 22 | AG |

| | C | | GEC | | | Y H | | | - | ct No. 619A | Project Name: North Irish Sea Array Landfall Client: Statkraft Limited Client's Rep Arup | Borehole ID BH17 |
|------------------------------|---------------------------------------|-------------------------------------|--------|-----|------------------------|---------------|------------------|----------------------------|-----------|--|---|-----------------------------|
| Meth Rotary D Rotary C | rilling | Plant Comacch Comacch Comacch | nio 60 | 01 | Top 0. 7. | 00 | | e (m) 00 .50 | 71979 | dinates 00.17 E 52.88 N | Final Depth: 29.50 m Start Date: 01/04/2022 Driller: JG Fluenting: 5.95 m OD Sad Date: 04/04/2022 Description: DG | Sheet 1 of 5 Scale: 1:40 |
| Depth | | | | | | | Casing | Water | Level | Depth | Elevation: 5.85 mOD End Date: 04/04/2022 Logger: RC | FINAL |
| (m) | Samples | / Field Records | TCR | SCR | RQD | FI | Depth (m) | Depth (m) | mOD | (m) | Legend Description TOPSOIL - Brown sandy gravelly CLAY. | Backfill |
| | | | | | | | | | 5.55 | - - 0.30 - | Firm brown sandy CLAY (Driller's description) | - 0.5 |
| 1.00 - 1.45 | SPT(C) N (3,5/5,5 Hamme | | | | | | | | 4.65 | - 1.20 | Stiff dark sandy gravelly CLAY (Driller's description) | 1.0 - |
| 2.50 - 2.95 | | l=50 11,13,15) r SN = 1387 | | | | | | | | | | 2.0 - 2.5 3.0 - |
| 4.00 - 4.45 | SPT(C) N (4,5/7,1 Hamme | | | | | | | | 1.85 | - 4.00 | Dense gravelly SAND (Driller's description) | - 4.0 - 4.5 5.0 - |
| 5.50 - 5.95 | SPT(C) N (4,4/6,5 Hamme | | | | | | | | -0.15 | - - - - - - - - - - - - - - - - - - | Greenish grey angular weathered ROCK (Driller's description) Weak light greenish grey GREYWACKE with occasional randomly oriented 160mm thick veins of greyish white calcite. Partially weathered: reduced strength, much closer fracture spacing and occasional clay infill on fracture surfaces. Discontinuities: 1. 10 to 30 degree joints closely spaced (50/130/350) planar, rough and occasional greyish brown gravelly clay infill on joint surfaces up to 5mm thick. 2. 30 to 45 degree joints medium spaced (100/310/700) planar, rough and occasional greyish brown gravelly clay infill on joint | 5.5 6.0 - 6.5 |
| | | | TCR | SCR | | | - | | -1.15 | - 7.00 | surfaces up to 20mm thick. 3. 55 to 75 degree joints from 7.20m to 7.80m, 8.40m to 8.80m, 8.80m to 9.10m and 10.00m to 10.50m, undulating, rough and frequent light grey gravelly clay infill on joint surfaces up to 50mm thick. | 7.0 - |
| | Casing to (m) Details Diam (mm) | Core | Barre | | <u>n)</u> н | ocatio | dug ir on: La | nspect andfall compl | | cavated to | 1.20m. | |
| 7.00 29.50 | 200 150 | - Sł Flusł | <6L | e | Т | ermi | inatio | on Re | ason | | Last U | odated |
| | | | ater | | Т | ermir | nated | at sch | neduled d | epth. | | /2022 AGS |

| | 9 - | | GEC | | ECI | Η | | 2: | 1-1(| ct No. 619A | Project Client: Client's | Name: North Iris Statkraft | | ıy Landfall | 1 | | Borehole ID BH17 |
|--|---|-------------------------------|--------|-----|--------------------------|-----------------|------------------------|--------------------------|------|---|--------------------------------|---|--|--|---|--|--|
| Metho Rotary Di Rotary Co | rilling | Plant U Comacch Comacch | nio 60 | | Top 0.0 7.0 | 00 | Base (7.00 29.5 |) 0 71 | 1979 | inates 0.17 E 2.88 N | Final De | | | 01/04/2022 | Driller: | | Sheet 2 of 5 Scale: 1:40 FINAL |
| Depth | Garrenter | Field Records | TOD | | RQD | FI | Casing W Depth De | ater Lev | | Depth | Legend | 11. 5.85 IIIOD | | cription | Logger: | NC . | Backfill |
| (m) 8.50 | | | 100 | | 0 | >20 | (m) (| m) m(| DD | (m) | | Weak light greenish oriented 160mm thi weathered: reduced occasional clay infill Discontinuities: 1. 10 to 30 degree jc and occasional greyi to 5mm thick. 2. 30 to 45 degree jc rough and occasiona | grey GREYW. ck veins of gr I strength, mi on fracture s pints closely s ish brown gra pints medium al greyish bro | ACKE with occasi eyish white calci uch closer fractur urfaces. spaced (50/130/3 welly clay infill or spaced (100/31) | te. Partially re spacing a 350) planar, n joint surfa 0/700) plan | rough aces up aar, | ≥ Column 7.5 8.0 8.5 |
| 9.40 - 9.65 | C1 | | 100 | 19 | 0 | 6 | | | | | | surfaces up to 20mn 3. 55 to 75 degree jc 8.80m to 9.10m and frequent light grey g thick. | oints from 7.2 I 10.00m to 1 | 0.50m, undulatir | ng, rough ar | nd | 9.0 9.5 |
| 10.00 | | | 100 | 7 | 0 | >20 | | -4. | 85 | - - - - - - - - - - - - - - - - - - - | | Medium strong indis with occasional ranc calcite veins. Partiall fracture spacing, occ | domly oriente ly weathered | ed 1 to 7mm thicl : slightly reduced | k greyish wi strength, c | hite | |
| 11.50 | | | 100 | 10 | 0 | >20 | | | | - | | discolouration on fra fracture surfaces. Discontinuities: 1. 10 to 25 degree jc clean, unstained. 2. 45 to 65 degree b planar, smooth, occa to 5mm deep and oc surfaces up to 5mm 3. 65 to 75 degree jc and 12.80m to 13.00 dark grey gravelly cla | oints closely s edding fractu asional heavy ccasional dar thick. pints from 10 Om, undulatir | paced (50/150/4 res medium spar r light brownish o k grey gravelly in .70m to 11.30m, ng, rough, unstain | 100) planar, ced (10/250 prange stain fill on fractu 11.90m to ned and occ | rough, 0/500)m ing up ure 12.50m casional | |
| 13.00 | | | | | | | | | | - - - - - | | | | | | | |
| 13.80 - 14.00 | 0 C2 | | 100 | 45 | 15 | 11 | | | | - - - - - | | | | | | | |
| 14.50 | Water | Strikes | TCR | SCR | RQD | FI | rks | | | - | | | | | | | ************************************** |
| truck at (m) C | asing to (m) | | | | <u>n)</u> н Lo | and d ocatio | lug insp on: Lanc | | | cavated to | 1.20m. | | | | | | |
| Casing D To (m) D 7.00 29.50 | Details Diam (mm) 200 150 | Sk Flush | (6L | | | | | Reason schedul | | onth | | | | | | Last Upd | |

| | C | | SE Geo | | | | | | ect No. .619A | Client: | Name: North Irish Sea Array Landfall Statkraft Limited | Borehole ID BH17 |
|---|------------------|-----------------------|--------------------|---------|-------------|--------|--------------------------------------|-----------------------------|---|--|--|-----------------------------|
| | | | | | 1 | | | | | Client's | Rep Arup | |
| Metho Rotary Dr | rilling | Plant I Comacch | nio 60 | 01 | 0. | 00 | Base (m 7.00 | | dinates | Final De | pth: 29.50 m Start Date: 01/04/2022 Driller: JG | Sheet 3 of 5 Scale: 1:40 |
| Rotary Co | oring | Comacch | nio 60 | 01 | 7. | 00 | 29.50 | | 90.17 E 52.88 N | Elevatio | n: 5.85 mOD End Date: 04/04/2022 Logger: RC | FINAL |
| Depth (m) | Samples / | Field Records | TCR | SCR | RQD | FI | Casing Wate Depth Dept (m) (m) | h Level | Depth (m) | Legend | Description | Backfill |
| | | | 100 | 74 | 30 | 8 | | -8.95 | - 14.80 | | Medium strong indistinctly thinly laminated dark grey MUDSTONE with occasional randomly oriented 1 to 7mm thick greyish white calcite veins. Partially weathered: slightly reduced strength, closer fracture spacing, occasional heavy light brownish orange discolouration on fracture surfaces ad occasional clay infill on fracture surfaces. Discontinuities: 1. 10 to 25 degree joints closely spaced (50/150/400) planar, rough, clean, unstained. 2. 45 to 65 degree bedding fractures medium spaced (10/250/500)m planar, smooth, occasional heavy light brownish orange staining up to 5 mediate the statement with the fracture fracture for the | 15.0 – |
| 16.00 16.40 - 16.70 16.95 - 17.05 | | | 100 | 60 | 50 | 0 | | -11.25 | | × × × × × × × × × × × × × × × × × × × | to 5mm deep and occasional dark grey gravelly infill on fracture surfaces up to 5mm thick. 3. 65 to 75 degree joints from 10.70m to 11.30m, 11.90m to 12.50m and 12.80m to 13.00m, undulating, rough, unstained and occasional dark grey gravelly clay infill on joint surfaces up to 8mm thick. Medium strong indistinctly thinly laminated light grey SILTSTONE with randomly oriented 1 to 6mm thick greyish white calcite veins. Partially weathered: reduced strength, closer fracture spacing, occasional heavy brownish orange discolouration on fracture surfaces and occasional clay infill on fracture surfaces. | 16.0 - 16.5 - 17.0 - |
| 17.50 | | | | | | | | -11.25 | - | | Discontinuities: 1. 15 to 25 degree joints medium spaced (50/270/550) planar, rough, occasional heavy brownish orange staining on joint surfaces up to 5mm deep and occasional light grey gravelly lay infill on joint | 17.5 - |
| | | | 100 | 30 | 0 | >20 | | | - - - - - - - - - | | surfaces up to 2mm thick. 2. 55 to 75 degree joints from 14.80m to 15.20m and 1.520m to 15.40m, undulating, rough and occasional heavy brownish orange staining on joint surfaces up to 20mm deep. Medium strong (locally weak) indistinctly thinly laminated dark grey SILTSTONE. Partially weathered: reduced strength, much closer fracture spacing and occasional clay infill on fracture spacing. Discontinuities: 1. 10 to 25 degree joints closely spaced (50/110/300) planar, rough | 18.0 - 18.5 - |
| 18.70 - 18.90 19.00 |) C6 | | | | | | | -13.15 | - - - 19.00 | ***** | and occasional dark grey gravelly clay infill on joint surfaces up to 50mm thick. 2. 35 to 45 degree joints at 18.10m, 18.40m to 18.60m, undulating, | 19.0 - |
| 19.20 - 19.40 | 0 C7 | | 100 | 83 | 67 | 5 | | | - | | rough, unstained, clean. 3. 65 to 75 degree joints from 18.90m to 19.00m, undulating, rough, <u>unstained and clean</u> . Strong indistinctly thinly laminated fine grained well cemented light greenish grey SANDSTONE. partially weathered: slightly reduced strength and closer fracture spacing. Discontinuities: 1. 55 to 65 degree joints at 19.80m to 20.00m, planar, rough, unstained and clean. | 19.5 20.0 - |
| 20.50 | | | | | | | | -14.45 | - 20.30 | | Medium strong (locally weak) indistinctly thinly laminated light greenish grey SILTSTONE. Partially weathered: reduced strength, much closer fracture spacing and occasional clay infill on fracture | 20.5 |
| | | | 100 | 10 | 0 | >20 | | | - | × | surfaces. Discontinuities: 1. 10 to 25 degree joints closely spaced (50/40/300) slightly undulating, rough, unstained and occasional grey gravelly clay infill on joint surfaces up to 2mm thick. 2. 25 to 45 degree joints medium spaced (200/500/1000) undulating, rough and occasional light grey gravelly clay infill on joint surfaces up to 2mm thick. | 21.0 - 21.5 |
| | | | | | | | | | - | × | | |
| | \ <u>\</u> | Chuilter | TCR | SCR | RQD | | | | | | | |
| Struck at (m) Ci | | Strikes Time (min) | Rose | e to (r | <u>п)</u> н | ocatio | | | cavated to | 9 1.20m. | | |
| 7.00 | Diam (mm) 200 | Core | Barre | el | | | | | | | | |
| 29.50 | 150 | Flush Wa | Typ ater | e | | | nation F | Reason cheduled d | epth. | | Last Upd 02/12/2 | |

| | c | | E GEC | | A EC | Y H | | | - | ct No. 619A | Project Client: Client's | Name: North Iri Statkraft | | ay Landfall | | | Borehole BH17 | |
|------------------------|---------------------------|---------------|-----------------|---------|----------|------------------|------------------------|-----------------------|--------------|------------------|---------------------------------------|--|---|---|--|------------------------------|------------------|---|
| Metho | d | Plant l | Jsed | | Тор | (m) | Base | e (m) | Coord | linates | | - | | | | | Sheet 4 c | of 5 |
| Rotary Dri | - | Comacch | | | 0. | 00 | 7. | 00 | | | Final De | pth: 29.50 m | Start Date: | 01/04/2022 | Driller: JG | i | Scale: 1 | |
| Rotary Co | aring | Comacch | 110 60 | J1 | 7. | 00 | | .50 | | 0.17 E 2.88 N | Elevatio | n: 5.85 mOD | End Date: | 04/04/2022 | Logger: RC | | FINA | L |
| Depth (m) | Samples / | Field Records | TCR | SCR | RQD | FI | Casing Depth (m) | Water Depth (m) | Level mOD | Depth (m) | Legend | | | scription | | Water | Backfill | |
| 22.00 | | | 100 | 38 | 0 | 5 | - | | | - | X X X X X X X X X X X X X X X X X X X | Medium strong (loc greenish grey SILTS) much closer fractur surfaces. Discontinuities: 1. 10 to 25 degree j undulating, rough, u on joint surfaces up 2. 25 to 45 degree j rough and occasion to 2mm thick. 22.70m to 23.30m: Stiff lij | TONE. Partiall e spacing and oints closely unstained and to 2mm thic oints medium al light grey g | ly weathered: red d occasional clay spaced (50/40/3) d occasional grey k. n spaced (200/50 rravelly clay infill | duced strength infill on fractur 00) slightly gravelly clay in 0/1000) undul | n, re nfill lating, | | 22.0 — - - - - - - - - - - - - - - - - - - - |
| 23.35 - 23.50 | C9 | | | | | | | | -17.45 | - 23.30 | | Medium strong dar | k grey TUFF. F | Partially weather | ed: slightly red | luced | | |
| 23.50 | | | | | | 1 | | | | - | | strength and closer Discontinuities: | | - | | | | 23.5 - |
| 23.80 - 24.00 | C10 | | | | | | | | | [| | 1. 10 to 25 degree j rough, unstained ar | nd clean. | | | | | |
| | | | | | | | | | | - | | 2. 25 to 45 degree j rough, unstained, cl | | n spaced (100/43 | 0/800)plaanr, | | | 24.0 — · |
| | | | 100 | 68 | 35 | | | | | | | | | | | | | |
| | | | | | | 10 | | | | - | | | | | | | | 24.5 - |
| | | | | | | | | | | - | | | | | | | | |
| 25.00 | C11 | | | | | | | | | | | | | | | | | 25.0 — |
| 25.10 - 25.25 | | | | | | | | | | - | | | | | | | | |
| | | | | | | | | | | - | | | | | | | | 25.5 – |
| | | | 100 | 35 | 7 | | | | | - | | | | | | | | |
| | | | | | | - | | | | | | | | | | | | 26.0 — |
| | | | | | | >20 | | | | - | | | | | | | | |
| 26.50 | | | | | | | | | | - | | | | | | | | |
| 26.50 | | | | | | | | | | | | | | | | | | 26.5 - |
| | | | | | | | | | | - | | | | | | | | |
| | | | | | | | | | | - | | | | | | | | 27.0 — |
| | | | 100 | 64 | 41 | 10 | | | | - | | | | | | | | |
| | | | | | | | | | | - | | | | | | | | 27.5 - |
| | | | | | | | | | | - | | | | | | | | |
| 28.00 | | | | | - | | - | | | _ | | | | | | | | 28.0 — |
| | | | | | | | | | | - | | | | | | | | |
| | | | | | | | | | | - | KAAA | | | | | | | 28.5 – |
| | | | 100 | | | | | | | - | | | | | | | | |
| | | | | | | | | | | _ | | | | | | | | 29.0 — |
| | | | | | <u> </u> | | | | | - | | | | | | | | |
| | Water | Strikes | TCR | SCR | RQD | FI Rema | rks | | | | 1 | | | | | | | |
| Struck at (m) Ca | | | Rose | e to (r | n) ⊦ | land o | dug ir | | tion pit ex | cavated to | 1.20m. | | | | | | | |
| | | | | | | ocatio elevie | | | l leted. | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| Casing De To (m) Di | e tails am (mm) | Core | | el | | | | | | | | | | | | | | |
| 7.00 29.50 | 200 150 | 56 | (6L | | | | | | | | | | | | | | • • • · • | |
| 23.50 | 130 | Flush | | e | | | | | eason | onth | | | | | | ast Upda | | |
| | | Wa | ater | | T | ermir | iated | at sc | heduled d | eptn. | | | | | | 02/12/202 | ~ A | υŊ |

| Method | | GEOTE | СН | | Project No. Project Name: North Irish Sea Array Landfall 21-1619A Client: Statkraft Limited Client's Rep Arup m) Coordinates | | | | | | | BH17 BH17 Sheet 5 of 5 | |
|---|--------------------------------------|-----------------------|--------------|--|--|-------------|--------|--|---|------------------------|-------------------|------------------------------|--|
| Rotary Drillin Rotary Corin | | nio 601 | 0.00 7.00 | Base (m) 7.00 29.50 | 719790.1 | Final De | | pth: 29.50 m Start Date: 01/04/2022 Drille | | Driller: JG | | Scale: 1:40 | |
| Denth | | | | Casing Water | 765252.8 | Conth | evatio | n: 5.85 mOD | | 04/04/2022 | Logger: RC | er | FINAL |
| Depth (m) Si 29.50 - | amples / Field Records | TCR SCR | RQD FI | Casing Water Depth Depth (m) (m) | mOD - - | | rgend | Medium strong dark strength and closer Discontinuities: 1. 10 to 25 degree jc rough, unstained an 2. 25 to 45 degree jc rough, unstained, ch | s grey TUFF. P. fracture spaci bints medium d clean. bints medium ean. | ng. spaced (50/260/ | (700) undulating, | t l | Backfill 29.5 30.0 30.1 30.1 31.0 31.0 32.0 32.0 32.0 32.0 32.0 32.0 32.0 32.0 32.0 32.0 32.0 32.0 32.0 33.0 33.0 33.0 34.0 34.0 34.0 35.5 |
| | Vater Strikes g to (m) Time (min) | TCR SCR Rose to (m | Rem | arks | tion pit excava | ted to 1.20 | 0m. | | | | | | 36.0 |
| 7.00 20 | (mm) 00 Sk | Barrel GL | _ | ewer comp | | | | | | | Last | Updat | ed |

| | | | | | | | | | ct No. | Project Name: North In | | Borehole IE | | |
|------------------------------------|--|--------------------------------------|-----------------|-------|------------------|---------------------------|--|-----------------------------------|---|---|--|--|--|--|
| | | AUS | E GEC | | | Y H | | | | | | | | |
| | | | | | | | | | | Client's Rep Arup | | | | |
| Metho Rotary Dr | rilling | Plant U Comacch | nio 40 | | 0.0 | 00 | Base (m) 2.70 | Coordinates 719790.13 E | | Final Depth: 30.00 m | Start Date: 11/04/2022 Driller: N | MW Scale: 1:4 | | |
| Rotary Co | oring | Comacch | 110 40 | 5 | 2.7 | 70 | 30.00 | | 34.97 N | Elevation: 8.09 mOE | on: 8.09 mOD End Date: 13/04/2022 Logger: TH | | | |
| Depth (m) | Samples | / Field Records | TCR | SCR | RQD | FI | Casing Water Depth Depth (m) (m) | Level mOD | Depth (m) | Legend | Description | S Backfill | | |
| | | | | | | | | 7.89 | 0.20 | TOPSOIL- Brown sa | | | | |
| 20 20 - 1.65 | D1 SPT(S) N (2,3/3,3, Hammer | | | | | | 1.20 Dry | | | Firm brown sandy | gravelly CLAY (Driller's description) | 0. 1. 2. | | |
| 70 70 - 3.15 | D2 SPT(S) N (1,3/4,4, Hammel | | 90 | | | | 2.70 Dry | 5.39 | - 2.70 | | y stiff greyish brown slightly sandy slightly g o coarse. Gravel is subrounded fine to coars | | | |
| 70 70 - 5.20 70 - 4.15 70 | D3 C SPT(S) N (2,4/4,4, Hammel | | 47 | | | AZCL | 3.70 Dry | 4.39 | - - - - - - - - - - - - - - - - - - - | Gravel is subangul | a slightly sandy gravelly CLAY. Sand is fine to ar fine to coarse. Jue to disturbances fro m SPT | coarse. 4. | | |
| .20 - 6.70 .20 - 5.65 .20 | C SPT(S) N (3,6/6,7, Hamme | | 50 | | | AZCL | 5.20 | | - | Medium strong (lo frequent greyish w 30mm thick) and c Partially weathere | tue to disturbances from SPT cally weak) massive grey GREYWACKE with /hite calcite veins of various orientation (up occasional pyrite crystals (1 to 2mm in diame d: slightly reduced strength, closer fracture brown discolouration on some fracture surf | eter. | | |
| .70 - 6.84 .70 | 105mm/ | l=50 (42 for /50 for Hammer SN | TCR | SCR | RQD | FI | | 1.09 | - - - - - 7.00 | 1. 20 to 40 degree rough, orangish br 2. 65 to 70 degree white calcite mine 3. 80 to 90 degree to 8.83m and 8.42 brown staining and | joints, medium spaced (120/360/1000) plan own staining on some joint surfaces. joint, at 7.10m to 7.30m, planar, smooth, gr ralisation on joint surface (up to 2mm thick) joints, at 7.58m to 7.70m, 8.20m to 9.00m, m to 8.60m, planar, rough, patchy dark orar d gravelly clay infill on most joint surfaces (u ish white calcite mineralisation on some joir mm thick). | reyish a. 8.45m igish p to 7.1 | | |
| | Water | Strikes | | | | ema | rks | | 1 | | | | | |
| ruck at (m) Ca | asing to (m) | Time (min) | Rose | to (r | n) H Lo Te | and o ocatio elevie | lug inspec on: Landfa wer comp | l. leted. | | o 1.20m r added during drilling. | | | | |
| | Diam (mm) | Core | Barre | el | | | | | | | | | | |
| 2.70 | 200 150 | Flush | | | | ormi | nation R | ason | | | | Last Updated | | |
| 30.00 | 130 | | | | | | | | | | | | | |

| | C | | | | A EC | | | | ect No. .619A | Project Name: North Irish Sea Array Landfall Client: Statkraft Limited Client's Rep Arup | Borehole ID BH18 | |
|--|---------------------------------------|--------------------|------------|---------|-------------------------|---------------------------|--|---------------------------|--------------------------|--|----------------------|--|
| Metho | | Plant U | | 25 | | | Base (m) | Coordinates | | inal Depth: 30.00 m Start Date: 11/04/2022 Driller: MV | Sheet 2 of 5 | |
| Rotary Dr Rotary Co | 0 | Comacch Comacch | | | 2. | 00 70 | 2.70 30.00 | | 90.13 E 34.97 N | Elevation: 8.09 mOD End Date: 13/04/2022 Logger: TH | Scale: 1:40 | |
| Depth (m) | Samples / | Field Records | TCR | SCR | RQD | FI | Casing Water Depth Depth (m) (m) | Level mOD | Depth (m) | Legend Description | ਸ਼ੇ ਇ Backfill | |
| 8.20 9.00 - 9.15 | с | | 83 | 50 | | 5 | (m) (m) | | | Medium strong (locally weak) massive grey GREYWACKE with frequent greyish white calcite veins of various orientation (up to 30mm thick) and occasional pyrite crystals (1 to 2mm in diamete Partially weathered: slightly reduced strength, closer fracture spacing, orangish brown discolouration on some fracture surface Discontinuities: 1. 20 to 40 degree joints, medium spaced (120/360/1000) planar, rough, orangish brown staining on some joint surfaces. 2. 65 to 70 degree joint, at 7.10m to 7.30m, planar, smooth, grey white calcite mineralisation on joint surface (up to 2mm thick). 3. 80 to 90 degree joints, at 7.58m to 7.70m, 8.20m to 9.00m, 8.4 to 8.83m and 8.42m to 8.60m, planar, rough, patchy dark orangis brown staining and gravelly clay infill on most joint surfaces (up to 10mm thick), surfaces (up to 10mm thick). | 5m 8.5 | |
| 9.15 - 9.40 | С | | | | | | | | - - - | | | |
| 9.45 - 9.55 9.55 9.70 | c | | | | | | | -1.71 | - - - 9.80 | Medium strong massive greyish black MUDSTONE with frequent greyish white calcite veins (up to 20mm thick) occasional pyrite crystals (up to 2mm in diameter). Partially weathered: slightly | 9.5 | |
| | | | 97 | 71 | 60 | 6 | | | - - - - - | reduced strength, slightly closer fracture spacing. Discontinuities: 1. 20 to 30 degree joints at 1.20m and 10.47m, planar, smooth. 2. 40 to 60 degree joints, at 9.80m, 10.00m, 10.35m and 10.55m, steeped, rough, grey calcite mineralisation on most joint surfaces 3. 70 to 90 degree joints, at 9.80m to 10.00m, 10.25m to 10.34m 10.65m to 10.80m, undulating, rough, patchy dark orangish brow | and 10.5 | |
| 11.20 | | | | | | 3 | | -2.71 | - 10.80 - - - | staining on some joint surfaces. Medium strong (locally weak) massive grey calcareous GREYWAC with occasional greyish white calcite veins of predominantly subvertical orientation. Partially weathered: slightly reduced strength, slightly closer fracture spacing, patchy brown discolouration on some fracture surfaces. | KE 11.0 - | |
| | | | 100 | 72 | 63 | | | -3.61 | - - - 11.70 - | Discontinuities: 1. 20 to 30 degree joints, at 11.57m, planar, rough, patchy brown staining on joint surface. 2. 60 to 90 degree joints, at 10.82m to 11.10m, 11.20m to 11.30m and 11.40m to 11.50m, undulating, rough. Weak massive dark grey MUDSTONE with frequent calcite veins of | | |
| 12.70 | | | | | | 3 | | | - | predominantly subvertical orientation (up to 60mm thick). Partia weathered: reduced strength, slightly closer fracture spacing, infi on most fracture surfaces. Discontinuities: 1. 70 to 90 degree joints, at 11.70m to 12.00m, 11.90m to 12.90r 12.10m to 12.45m, 12.60m to 13.25m and 12.30m to 12.40m, | 12.5 | |
| | | | 100 | 82 | 82 | | | -5.16 | - - 13.25 | undulating, rough, grey clayey gravelly infill on most joint surface (up to 35mm thick). /Medium strong massive grey GREYWACKE with occasional greyisl white calcite veins of various orientations (2 to 6mm thick). Partia weathered: slightly reduced strength, slightly closer fracture space patchy calcite mineralisation on some fracture surfaces. | 13.0 - Ily | |
| 14.20 | | | | | | 4 | | | | Discontinuities: 1. 30 to 50 degree joints, medium, spaced (130/355/650) planar, rough, patchy grey calcite mineralisation on some joint surfaces. 2. 60 to 70 degree joints, at 16.365m to 16.75m and 16.75m to 16.80m, planar, rough, grey claicte mineralisation and blackish g staining on joint surfaces. | 14.0 - | |
| 0 | | | | | | | | | - | 3. 70 to 90 degree joints, at 13.70m to 14.04m, 14.00m to 14.20r 14.47 to 14.80m and 15.60m to 16.20m, 16.60m to 16.70m, undulating, rough, grey calcite mineralisation on most joint surfa | 14.5 | |
| | Water | Strikes | | JOCK | RQD | FI ema | rks | | | | | |
| Struck at (m) Ca | | | Rose | e to (r | <u>n)</u> н Ца Те | and c ocatio elevie | lug inspec on: Landfa wer comp | ll. oleted. | cavated to red- water | .20m dded during drilling. | | |
| Casing D To (m) D 2.70 D | etails ^{liam} (mm) 200 | Core I | Barre | el | | | | | | | | |
| 30.00 | 150 | Flush Wa | Typ | e | | | nation R | eason heduled d | epth. | | t Updated | |

| | CAUSEWAY GEOTECH | | | | | | | | Proje 21-1 | Borehole ID BH18 | | |
|--------------------------------|---------------------|-----------------------|--------------------|---------|------------------|-------------------|----------------------------|-----------------------|----------------------------|---|---|--------------------------|
| Metho Rotary Dr | | Plant L Comacch | | | | (m) 00 | Base (m) 2.70 | | Coordinates | | inal Depth: 30.00 m Start Date: 11/04/2022 Driller: MV | Sheet 3 of 5 |
| Rotary Co | • | Comacch | | | | 70 | 30. | | | 90.13 E 84.97 N | ilevation: 8.09 mOD End Date: 13/04/2022 Logger: TH | Scale: 1:40 FINAL |
| Depth (m) | Samples / | / Field Records | TCR | SCR | RQD | FI | Casing Depth (m) | Water Depth (m) | Level mOD | Depth (m) | Legend Description | Backfill |
| 14.85 - 14.95 15.40 - 15.50 | | | 100 | 89 | 83 | | | | | - | Medium strong massive grey GREYWACKE with occasional greyis white calcite veins of various orientations (2 to 6mm thick). Parti weathered: slightly reduced strength, slightly closer fracture spar patchy calcite mineralisation on some fracture surfaces. Discontinuities: 1. 30 to 50 degree joints, medium, spaced (130/355/650) planar, rough, patchy grey calcite mineralisation on some joint surfaces. 2. 60 to 70 degree joints, at 16.365m to 16.75m and 16.75m to 16.80m, planar, rough, grey claicte mineralisation and blackish g | ally ing, 15.0 • |
| 15.70 | | | 100 | 77 | 61 | 5 | | | 0.74 | - | Staining on joint surfaces. 3. 70 to 90 degree joints, at 13.70m to 14.04m, 14.00m to 14.20i 14.47 to 14.80m and 15.60m to 16.20m, 16.60m to 16.70m, undulating, rough, grey calcite mineralisation on most joint surfaces | n, |
| 17.20 | | | | | | - | | | -8.71 | - 16.80 | Medium strong light grey TUFF with rare greyish white calcite ve Partially weathered: slightly reduced strength, greyish black stair on most fracture surfaces. Discontinuities: 1. 20 to 35 degree joints, widely spaced (430/975/1200) planar t | ing 17.0 - |
| | | | 100 | 96 | 82 | | | | | - - - - - - - - - - - - - - - - - - - | undulating, rough. 2. 40 to 60 degree joints, medium spaced (110/490/980) planar, rough, patchy grey calcite mineralisation and greyish black stainii on most joint surfaces, greenish grey clayey gravelly infill on som joints (up to 45mm thick). 3. 70 to 80 degree joints at 17.10m to 17.40m, 18.70m to 19.00n 19.25m to 19.40m, 20.55m to 20.75m and 21.30m to 22.00m, undulating, rough, greyish white and greenish grey staining calcit mineralisation on most joint surfaces. | 17.5 e 18.0 |
| 18.70 | | | 100 | 78 | 68 | 4 | | | | - | | 19.0 - 19.5 20.0 - |
| 20.20 | | | 90 | 65 | 42 | - | | | | - | | 20.5 21.0 - |
| 21.70 | | | | | | 9 | | | | - | | 21.5 |
| | | . | TCR | SCR | RQD | | | | | | | |
| struck at (m) Ca | | Strikes Time (min) | Rose | e to (r | n) н Г | ocatio elevie | dug in on: La ewer c | ndfall compl | eted. | cavated to red- water | 20m dded during drilling. | |
| 2.70 | 0iam (mm) 200 | Core SK | Barre | el | | | | | | | | |
| 30.00 | 150 | Flush | Typ ater | e | | | | | e ason Neduled d | enth | | st Updated |

| | C | | SEC GEC | | EC | Y H | | | Project No. Project Name: North Irish Sea Array Landfall 21-1619A Client: Statkraft Limited Client's Rep Arup | | | | | | |
|------------------------------|-------------------------|---------------|----------------------|---------|-----------|----------------------------|-------------------------------|-----------------------|---|---|--|--|--|--|--|
| Meth Rotary D | | Plant U | | | | (m) 00 | Base 2.7 | |) Coordinates | | inal Depth: 30.00 m Start Date: 11/04/2022 Driller: M | Sheet 4 of 5 | | | |
| Rotary (| | Comacch | | | | 70 | 30.0 | | | 90.13 E 34.97 N | levation: 8.09 mOD End Date: 13/04/2022 Logger: TH | Scale: 1:40 | | | |
| Depth (m) | Samples , | Field Records | TCR | SCR | RQD | FI | Depth [| Vater Depth (m) | Level mOD | Depth (m) | Legend Description | 평 Backfill | | | |
| 22.30 - 22.4 22.90 - 23.1 | | | 100 | 77 | 61 | | | | | | Medium strong light grey TUFF with rare greyish white calcite very Partially weathered: slightly reduced strength, greyish black stain on most fracture surfaces. Discontinuities: 20 to 35 degree joints, widely spaced (430/975/1200) planar undulating, rough. 40 to 60 degree joints, medium spaced (110/490/980) planar rough, patchy grey calcite mineralisation and greyish black stain on most joint surfaces, greenish grey clayey gravelly infill on sor joints (up to 45mm thick). | ning 22.5 - ing 23.0 - | | | |
| 23.20 | | | 100 | 64 | 53 | 5 | | | | - - - - - - - - - | 3. 70 to 80 degree joints at 17.10m to 17.40m, 18.70m to 19.00 19.25m to 19.40m, 20.55m to 20.75m and 21.30m to 22.00m, undulating, rough, greyish white and greenish grey staining calc mineralisation on most joint surfaces. | | | | |
| 24.70 | | | | | | | | | -16.51 | - 24.60 - | Medium strong grey TUFF with frequent greyish white calcite ve of various orientations (2 to 25mm thick). Partially weathered: slightly reduced strength, slightly fracture spacing, infill and ora | | | | |
| 26.20 | | | 100 | 72 | 72 | 4 | | | | | brown discolouration on some fracture surfaces. Discontinuities: 1. 20 to 30 degree joints, widely spaced (500/770/1500) planar undulating, rough. 2. 60 to 70 degree joints, at 25.56m to 25.70m, 25.80m to 25.90 25.87m to 26.00m, 28.00m to 28.15m, 28.25m to 28.40m, 28.2 28.45m and 29.20m to 29.40m, planar, rough, greyish white cal mineralisation on most joint surfaces, greenish grey gravelly cla on some joint surfaces 92 to 5mm thick). 3. 80 to 90 degree joints, at 27.10m to 27.80m, 28.20m to 28.60m | to m, 25.5 - Bm to cite infill 26.0 - | | | |
| 26.20 | | | 97 | 64 | 64 | NI | | | | - - - - - - - - - - - | 28.75m to 29.10m, and 29.80m to 30.00m, undulating, rough, greyish white calcite mineralisation and greyish black staining o joint surfaces, clayey gravelly infill on some joint surfaces. | 26.5 | | | |
| 27.70 | | | 100 | 75 | 65 | 5 | | | | | | 27.5 28.0 - 28.5 | | | |
| 29.20 | | | | | | | | | | - - - - | | 29.0 - | | | |
| | Water | Strikes | | BCR | RQD | FI Rema | rke | | | | | | | | |
| itruck at (m) | | Time (min) | Rose | e to (r | n) н Ц | land o ocatio elevie | dug ins on: Lan ewer co | dfall. mplet | ted. | cavated to red- water | 20m dded during drilling. | | | | |
| Casing | | Core | Barr | el | 1 | | | | | | | | | | |
| To (m) 2.70 30.00 | Diam (mm) 200 150 | SK | (6L | | | | | | | | | ···· · · · · · · · · · · · · · · · · · | | | |
| 30.00 | 120 | Flush | i Typ ater | e | | | natio | | son duled de | anth | | 02/12/2022 | | | |

| • | GEOTECH | | | | | | | | - | ct No. 619A | Project Name: North Irish Sea Array Landfall Client: Statkraft Limited Client's Rep Arup | | | | | | Borehole ID BH18 | |
|------------------------|------------------|--------------------|----------------------|-----------|----------------|------------------|--------------------------|-----------------------|----------------------------|------------------|--|--|--|--|--|--|---------------------|--|
| Metho | | Plant I | | | - | | | se (m) 2.70 | Coord | linates | Final De | epth: 30.00 m | Start Date: | 11/04/2022 | Driller: | MM | Sheet 5 o | f 5 |
| Rotary Dr Rotary Co | | Comacch Comacch | | | | 00 70 | | .70).00 | | 0.13 E 4.97 N | Elevation: 8.09 mOD End Date: 13/0 | | | | Logger: | | Scale: 1:4 | |
| Depth (m) | Samples / | Field Records | TCR | SCR | RQD | FI | Casing Depth (m) | Depth | Level mOD | Depth (m) | Legend | | Des | cription | | | Backfill | |
| Depth (m) | | | 100 | SCR 75 | 75 | | Casing United States (m) | Water | | Depth (m) | | Medium strong grey of various orientatic slightly reduced stro brown discolouratic Discontinuities: 1. 20 to 30 degree ju undulating, rough. 2. 60 to 70 degree ji 25.87m to 26.00m, 28.45m and 29.20m mineralisation on m on some joint surface 3. 80 to 90 degree ji 28.75m to 29.10m, greyish white calcite joint surfaces, clayer | y TUFF with fr ons (2 to 25m ength, slightly on on some fr oints, widely : oints, at 25.56 28.00m to 28 n to 29.40m, p nost joint suffices 92 to 5mr oints, at 27.10 and 29.80m t e mineralisati y gravelly infi | requent greyish v m thick). Partiali fracture spacing acture surfaces. spaced (500/770 5m to 25.70m, 2! .15m, 28.25m to olanar, rough, gre aces, greenish gr n thick). Om to 27.80m, 2! o 30.00m, undul on and greyish b | y weathere g, infill and /1500) plan 5.80m to 25 9 28.40m, 2 29 yish white ey gravelly 8.20m to 28 ating, roug lack stainin | d: orangish nar to 5.90m, 8.23m to calcite clay infill 8.60m, h, | Backfill | 29.5 - 30.0 - 31.0 - 31.5 - 32.0 - 32.5 - 33.0 - 33.5 - 33.0 - 33.5 - - 35.5 - - 36.0 - - 37.0 - - 37.0 - - 37.0 - - 37.0 - - - - - - - - - - - - - - |
| | Water | Strikes | | | <u> </u> | Rema | rks | 1 | | | | | | | | | | <u> </u> |
| truck at (m) Ca | | Time (min) | | | n) ⊢ ∟ ⊤ | land o ocatio | dug ii on: La ewer | andfal comp | leted. | | | ring drilling. | | | | | | |
| Casing D | | Core | Barr | el | | | | | | | | | | | | | | |
| 2.70 | 0iam (mm) 200 | 51 | (6L | | | | | | | | | | | | | | | |
| 30.00 | 150 | Flush | i Typ ater | e | | | | | eason heduled de | epth. | _ | | | _ | | Last Upc 02/12/2 | | ן רע |

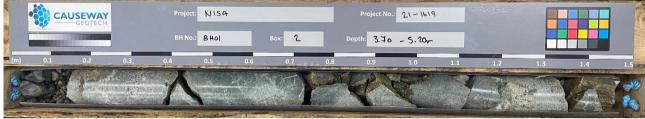


APPENDIX C CORE PHOTOGRAPHS

North Irish Sea Array



BH01 (Box 1) 2.70-3.70m



BH01 (Box 2) 3.70-5.20m



BH01 (Box 3) 5.20-6.70m



BH01 (Box 4) 6.70-8.20m



BH01 (Box 5) 8.20-9.70m



North Irish Sea ArrayRepresentation of the sea Arrayfright registing the sea ArrayImage: Sea Ar

 BH01 (Box 6) 9.70-11.20m

 Project
 N15A
 Project N0.
 21-1619

 m)
 0.3
 0.4
 0.5
 0.6
 0.7
 0.8
 0.9
 1.0
 1.1
 1.2
 1.3
 1.4
 1.3

BH01 (Box 7) 11.20-12.70m



BH01 (Box 8) 12.70-14.20m



BH01 (Box 9) 14.20-15.70m



BH01 (Box 10) 15.70-17.20m



North Irish Sea ArrayReport No.: 21 - 1619 $m \rightarrow 0.1$ $n \rightarrow 0.2$ $n \rightarrow 0.4$ $n \rightarrow 0.6$ $n \rightarrow 0.7$ $n \rightarrow 0.6$ $n \rightarrow 0.7$ $n \rightarrow 0.6$ $n \rightarrow 0.7$ $n \rightarrow 0.6$ $n \rightarrow 0.6$

BH01 (Box 11) 17.20-18.70m



BH01 (Box 12) 18.70-20.20m



BH01 (Box 13) 20.20-21.70m



BH01 (Box 14) 21.70-23.20m



BH01 (Box 15) 23.20-24.70m

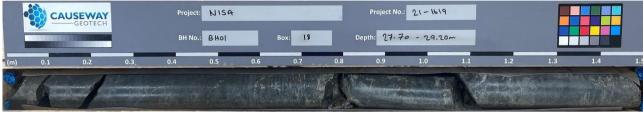


BH01 (Box 16) 24.70-26.20m



North Irish Sea Array Report No.: 21-1619 Image: Contract project No: 21-1659 Image: Contract project Project No: 21-1659 Image: Contract project No: 21-1659 Image: Contract project Project No: 21-1659 Image: Contract project No: 21-1659 Image: Contract project Proje

BH01 (Box 17) 26.20-27.70m

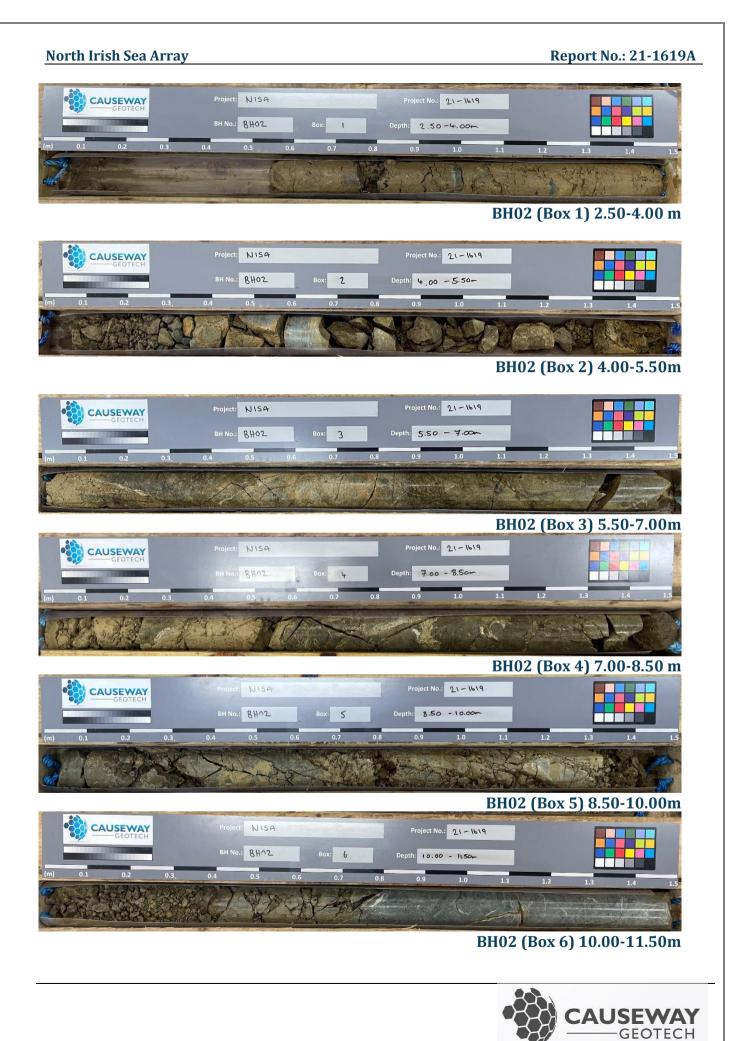


BH01 (Box 18) 27.70-29.20m



BH01 (Box 19) 29.20-30.00m



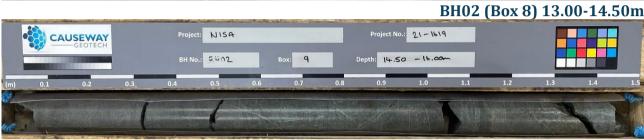


North Irish Sea Array



BH02 (Box 7) 11.50-13.00m

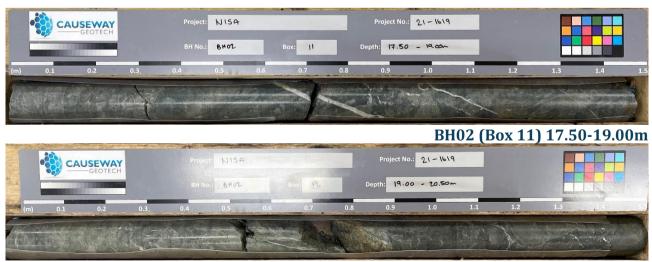




BH02 (Box 9) 14.50-16.00m



BH02 (Box 10) 16.00-17.50m



BH02 (Box 12) 19.00-20.50m



North Irish Sea Array Report No.: 21-1619 Image: Control of the state of the stat

BH02 (Box 13) 20.50-22.00 m



BH02 (Box 14) 22.00-23.50 m



BH02 (Box 15) 23.50-25.00 m



BH02 (Box 16) 25.00-26.50m



BH02 (Box 17) 26.50-28.00m



North Irish Sea Array



BH03 (Box 1) 5.50-7.00m



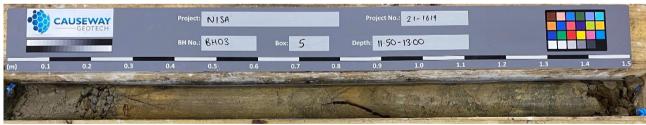
BH03 (Box 2) 7.00-8.50m



BH03 (Box 3) 8.50-10.00m

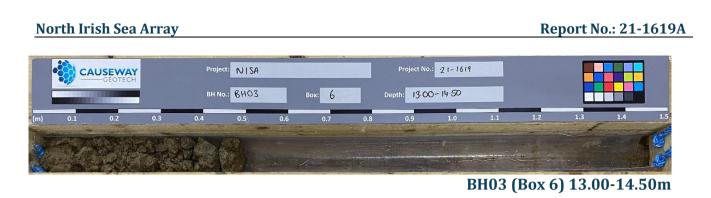


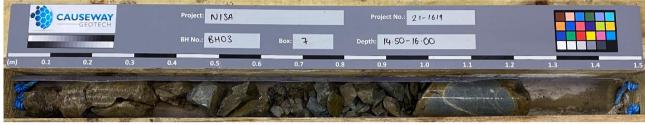
BH03 (Box 4) 10.00-11.50m



BH03 (Box 5) 11.50-13.00m







BH03 (Box 7) 14.50-16.00m

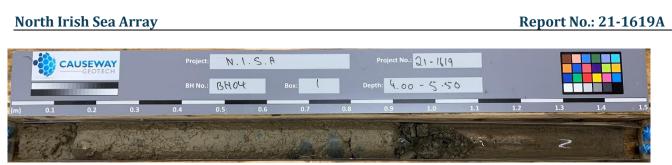


BH03 (Box 8) 16.00-17.50m



BH03 (Box 9) 17.50-19.00m





BH04 (Box 1) 4.00-5.50m



BH04 (Box 2) 5.50-7.00m



BH04 (Box 3) 7.00-8.50m



BH04 (Box 4) 8.50-10.00m



BH04 (Box 5) 10.00-11.50m





BH04 (Box 6) 11.50-13.00m



BH04 (Box 7) 13.00-14.50m



BH04 (Box 8) 14.50-16.00m

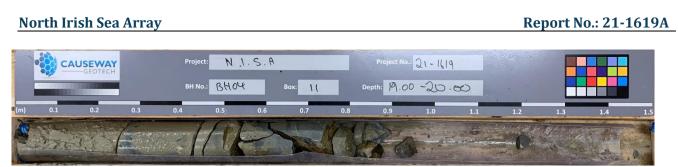


BH04 (Box 9) 16.00-17.50m



BH04 (Box 10) 17.50-19.00m





BH04 (Box 11) 19.00-20.00m



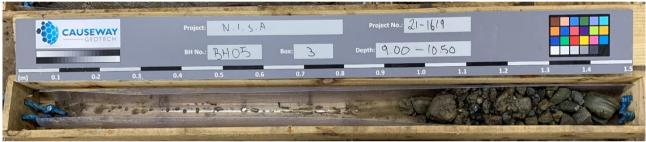
North Irish Sea Array

| CAUSEWAY | Project: N. I. S. A | Project No.: 21 - 1619 | |
|------------------|---|---|---------------------|
| (m) 0.1 0.2 0.3. | BH No.: BH OF Box: 1 0.4 0.5 0.6 0.7 | Depth: <u>6.の</u> -フ. <u>5</u> 0 0.8 0.9 1.0 | 1.1 1.2 1.3 1.4 1.5 |
| Re Made | A Trans | VAR I | and the second |

BH05 (Box 1) 6.00-7.50m



BH05 (Box 2) 7.50-9.00m



BH05 (Box 3) 9.00-10.50m



BH05 (Box 4) 10.50-12.00m



BH05 (Box 5) 12.00-13.50m



North Irish Sea Array



BH05 (Box 6) 13.50-15.00m



BH05 (Box 7) 15.00-16.50 m



BH05 (Box 8) 16.50-18.00m



BH05 (Box 9) 18.00-19.50m



BH05 (Box 10) 19.50-20.00m



North Irish Sea Array



BH06 (Box 1) 4.00-5.50m



BH06 (Box 2) 5.50-7.00m



BH06 (Box 3) 7.00-8.50m



BH06 (Box 4) 8.50-10.00m



BH06 (Box 5) 10.00-11.50m

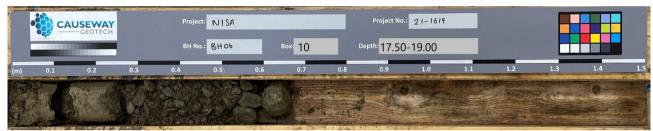




BH06 (Box 8) 14.50-16.00m



BH06 (Box 9) 16.00-17.50m



BH06 (Box 10) 17.50-19.00m





BH07 (Box 4) 8.50-10.00m



BH07 (Box 5) 10.00-11.50m





BH07 (Box 6) 11.50-13.00m



BH07 (Box 7) 13.00-14.50m

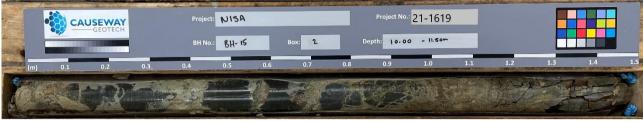


BH07 (Box 8) 14.50-15.25m





BH15 (Box 1) 8.50-10.00m



BH15 (Box 2) 10.00-11.50m



BH15 (Box 3) 11.50-13.00m



BH15 (Box 4) 13.00-14.50m



North Irish Sea Array Report No.: 21-1619 Project N15A Project N15A BH No.: GH-16 Box: 1 Depth: 10.00 - 11.50m 10 0.1 0.1 0.2

BH16 (Box 1) 10.00-11.50m



BH16 (Box 2) 11.50-13.00m



BH16 (Box 3) 13.00-14.50m



BH16 (Box 4) 14.50-15.00m

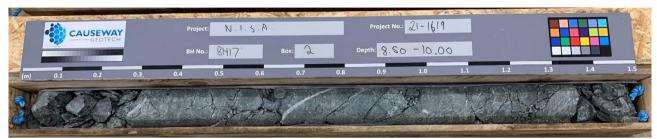


Report No.: 21-1619A

North Irish Sea Array



BH17 (Box 1) 7.00-8.50m



BH17 (Box 2) 8.50-10.00m



BH17 (Box 3) 10.00-11.50m



BH17 (Box 4) 11.50-13.00m



BH17 (Box 5) 13.00-14.50m



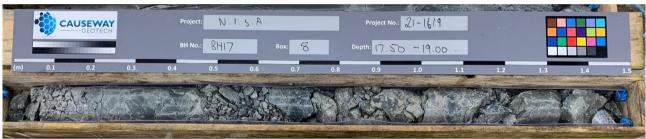
North Irish Sea Array Report No.: 21-1619A



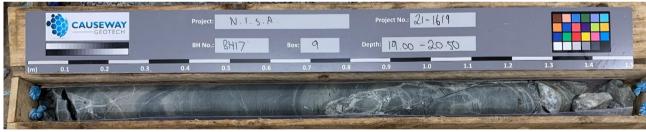
BH17 (Box 6) 14.50-16.00m



BH17 (Box 7) 16.00-17.50m



BH17 (Box 8) 17.50-19.00m



BH17 (Box 9) 19.00-20.50m



BH17 (Box 10) 20.50-22.00m

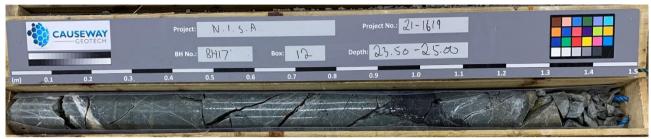


Report No.: 21-1619A

North Irish Sea Array



BH17 (Box 11) 22.00-23.50m



BH17 (Box 12) 23.50-25.00m



BH17 (Box 13) 25.00-26.50m



BH17 (Box 14) 26.50-28.00m

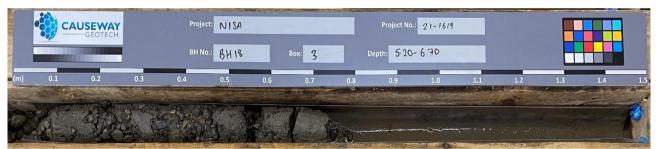


North Irish Sea ArrayReport No.: 21-16/90.10.10.10.10.10.10.20.30.40.50.60.70.80.91.01.11.21.11.2<td cols

BH18 (Box 1) 2.70-3.70m



BH18 (Box 2) 3.70-5.20m



BH18 (Box 3) 5.20-6.70m



BH18 (Box 4) 6.70-8.20m



BH18 (Box 5) 8.20-9.70m



Report No.: 21-1619A

North Irish Sea Array



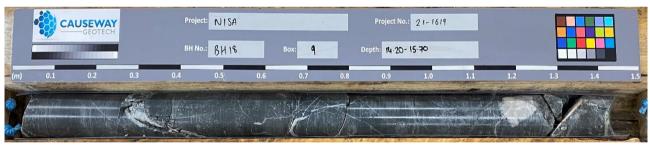
BH18 (Box 6) 9.70-11.20m



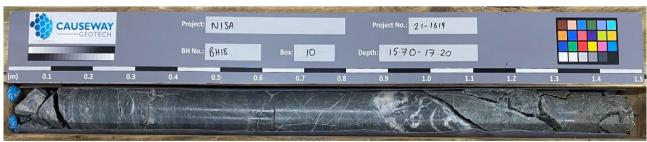
BH18 (Box 7) 11.20-12.70m



BH18 (Box 8) 12.70-14.20m



BH18 (Box 9) 14.20-15.70m



BH18 (Box 10) 15.70-17.20m



Report No.: 21-1619A

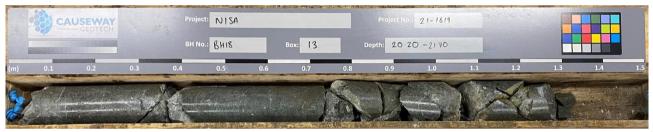
North Irish Sea Array



BH18 (Box 11) 17.20-18.70m



BH18 (Box 12) 18.70-20.20m



BH18 (Box 13) 20.20-21.70m



BH18 (Box 14) 21.70-23.20m



BH18 (Box 15) 23.20-24.70m





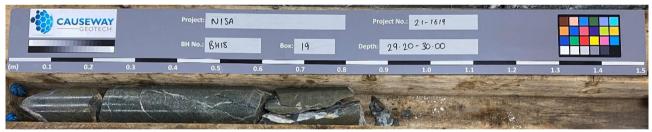
BH18 (Box 16) 24.70-26.20m



BH18 (Box 17) 26.20-27.70m



BH18 (Box 18) 27.70-29.20m



BH18 (Box 19) 29.20-30.00m







APPENDIX D TRIAL PIT LOGS

| | | | Proje | ect No. | Project | Name: | | | Tri | al Pit ID |
|-----------------------|-------------------------|---------------------|----------------|------------------------------|--|---|----------|----------|-------|-----------|
| | | EWAY | 21-1 | 1619A | North I | rish Sea Array Landfall | | | | |
| | | EOTECH | Coor | dinates | Client: | | | | - | TP01 |
| | 0 | LOTLCTI | 7106 | | | ft Limited | | | | |
| Method: | | | | | Client's | Representative: | | | She | et 1 of 1 |
| Trial Pitting | | | | | Arup | | | | Sca | ale: 1:25 |
| Plant: | | | | | Date: | | gger: | | r | INAL |
| 6T Tracked Exca | avator | | 6.28 | 3 mOD | 15/03/2 | 2022 RS | 5 | | | INAL |
| Depth (m) | Sample / Tests | Field Records | Level (mOD) | Depth (m) | Legend | Description | | | Water | |
| (, | | | (| | | TOPSOIL - Brown sandy gravelly CLAY. | | | - | |
| | | | | [| | | | | | _ |
| | | | 5.98 | - 0.30 | | | | | | _ |
| | | | | - } | | Stiff yellowish brown slightly sandy slightly gravelly CLAY. coarse. Gravel is subrounded fine to coarse of mudstone. | | ne to | | _ |
| | ES | | | [| | | | | | 0.5 |
| 0.50 | ES1 | | | Ē | | | | | | _ |
| | | | | ŀ | | | | | | _ |
| | | | | - | | | | | | - |
| 1.00 | B3 | | 5.38 | - 0.90 | 2000 - 100 - | Stiff grey slightly sandy slightly gravelly CLAY with low cob | ble cont | ent. | | 10 |
| | ES | | | | 000 000 00 10 00 0 | Sand is fine to coarse. Gravel is subrounded fine to mediu lithologies predominantly mudstone. Cobbles are of mud | | ed | | 1.0 |
| | ES2 B4 | | 5.08 | - 1.20 | 0.0 0.0 0.0 | | | | ▾ | _ |
| 1.20 | | Slow seepage at 1.2 | | - | | End of trial pit at 1.20m | | | | _ |
| | | | | - E | | | | | | _ |
| | | | | Ē | | | | | | 1.5 |
| | | | | ŀ | | | | | | _ |
| | | | | - | | | | | | _ |
| | | | | | | | | | | |
| | | | | Ē | | | | | | 2.0 |
| | | | | - - | | | | | | _ |
| | | | | ŕ | | | | | | _ |
| | | | | [| | | | | | _ |
| | | | | ŀ | | | | | | - |
| | | | | - t | | | | | | 2.5 |
| | | | | | | | | | | |
| | | | | Ē | | | | | | _ |
| | | | | - - | | | | | | _ |
| | | | | | | | | | | 3.0 |
| | | | | [| | | | | | - |
| | | | | ŀ | | | | | | - |
| | | | | - } | | | | | | - |
| | | | | Ē | | | | | | 3.5 — |
| | | | | [| | | | | | 3.5 |
| | | | | ŀ | | | | | | _ |
| | | | | - } | | | | | | _ |
| | | | | Ē | | | | | | _ |
| | | | | Ē | | | | | | 4.0 |
| | | | | - } | | | | | | - |
| | | | | - | | | | | | _ |
| | | | | [| | | | | | _ |
| | | | | - F | | | | | | 4.5 |
| | | | | ŕ | | | | | | _ |
| | | | | [| | | | | | _ |
| | | | | Ē | | | | | | _ |
| | | | | Ē | | | | | | - |
| | | | | | | | | | | |
| Water | | Depth: 1.20 | | harks: ation: Land | fall. | | | | | |
| Struck at (m) 1.20 | Remarks Slow seepage | at Width: 1.00 | | | | | | | | |
| | 1.2 | Length: 3.00 | | | | | | | | |
| | | Stability: | Tern | nination R | eason | | | Last Upo | lated | |
| | | Stable | Slow | progress du | ue to macł | nine size. | | 02/12/2 | | AGS |

| Method: Trial Pitting | | EWAY BEOTECH | 21-2 Coor 71968 | ect No. 1619A dinates 80.68 E 19.19 N | North I Client: Statkra | Name: rish Sea Array Landfall ft Limited s Representative: | | Sł | rial Pit ID TPO2 neet 1 of 1 cale: 1:25 |
|---------------------------------|----------------------|--|------------------------------|---|--------------------------------------|--|----------------------------------|-------------|--|
| Plant: 6T Tracked Exc | avator | | | vation 3 mOD | Date: 15/03/ | | FINAL | | |
| Depth (m) | Sample / Tests | Field Records | Level (mOD) | Depth (m) | Legend | Description | RS | Water | |
| 0.50 0.50 0.50 | ES ES1 | HVP=155, HVR=23 | 8.78 | 0.30 | | TOPSOIL- Brown sandy gravelly CLAY. Stiff brown slightly sandy slightly gravelly CLAY with I Sand is fine to coarse. Gravel is subrounded fine to n Cobbles are of limestone. | low cobble cor nedium of lime | ntent. | 0.5 |
| 1.00 1.00 1.20 | ES ES2 B4 | | 7.18 | 1.90 | | End of trial pit at 1.90m | | | |
| | | | | | | | | | 2.0 |
| | | | | - - - - - - - - - - - - - - - - - - - | | | | | |
| | | | | - - - - - - - - - - - - - - - - - - - | | | | | |
| | | | | - - - - - - - - - - - - | | | | | 4.5 — |
| Wate Struck at (m) | r Strikes Remarks | Depth: 1.90 Width: 1.00 Length: 2.50 | No g Shea | narks: groundwat ar vane cor ation: Land | mpleted. | ntered. | | | |
| | | Stability: Stable | | nination R progress du | | nine size. | 1 | Last Update | |

| | CALIC | | | ect No. 1619A | | t Name: Irish Sea Array Landfall | | Trial Pit ID |
|---------------------------------|--|--|----------------|---------------------------------|-----------------|--|---|--------------------------|
| | G | EOTECH | Coor | dinates | Client: | | | TP03 |
| Method: | | | | 24.72 E | | s Representative: | | Sheet 1 of 1 |
| Trial Pitting | | | | 94.71 N | Arup | | | Scale: 1:25 |
| Plant: 6T Tracked Exc | covator | | | vation 6 mOD | Date: 14/03/ | 2022 RS | er: | FINAL |
| Depth | Sample / | Field Records | Level | Depth | Legend | Description | active and the second se | |
| (m) 0.50 0.50 | ES ES1 | | (mOD) 32.26 | (m) - 0.30 | | TOPSOIL- Brown sandy gravelly CLAY. Brown very sandy very clayey subrounded to subangular fine GRAVEL of mixed lithologies with high cobble content. Sand coarse. Cobbles are of mixed lithologies. | e to coarse | • 0.5 |
| 1.00 1.00 1.00 1.20 | B3 ES ES2 B4 SI | ow seepage at 1.3 | 31.56 | 1.00 | | Firm brown slightly sandy slightly gravelly CLAY. Sand is fine f Gravel is subangular fine to medium. | to coarse. | _ |
| | | | 30.36 | 2.20 | | End of trial pit at 2.20m | | 1.5 — — — 2.0 — |
| | | | | - - - - - - - | | | | 2.5 — |
| | | | | - - - - - - - | | | | 3.0 |
| | | | | - - - - - | | | | |
| | | | | - | | | | - |
| | | | | - | | | | 4.0 |
| | | | | - | | | | - |
| | | | | - | | | | |
| | | | | - - - - | | | | 4.5 |
| | | | | - - - - | | | | - |
| | | | | - | | | | |
| Wate Struck at (m) 1.30 | er Strikes Remarks Slow seepage a 1.3 | Depth: 2.20 width: 1.00 Length: 2.50 | | n arks: ntion: Lanc | lfall | 1 | | |
| | | Stability: Unstable | | nination R progress d | | hine size. | Last Upda 02/12/20 | |

| | CAUS | SEWAY GEOTECH | | ect No. 1619A | North I | : Name: rish Sea Array Landfall | | Т | rial Pit ID | | |
|--------------------------------|-----------------------|--|----------------|---|--------------------|---|-----------------|--------------------------|--------------------------|--|--|
| | (| GEOTECH | | dinates | Client: Statkra | ft Limited | | | TP04 | | |
| Method: | | | | 52.35 E 38.10 N | | s Representative: | | Sł | neet 1 of 1 | | |
| Trial Pitting | | | | | | Arup | | | | | |
| Plant: 6T Tracked Ex | covator | | | vation 7 mOD | Date: 14/03/ | 2022 | Logger: RS | | FINAL | | |
| Depth | Sample / | Field Records | Level | Depth | Legend | Description | KS | Water | | | |
| <u>(m)</u> | Tests | | (mOD) 30.37 | (m) | | TOPSOIL- Brown sandy gravelly CLAY. Stiff brown slightly sandy slightly gravelly CLAY with | low cobble cont | tent. | - | | |
| 0.50 0.50 0.50 | ES ES1 | HVP=138, HVR=20 | | - - - - - - - - - | | Sand is fine to coarse. Gravel is subrounded fine to Cobbles are of limestone. | medium of limes | stone. | 0.5 — - - - | | |
| 1.00 1.00 1.00 1.20 | B3 ES ES2 B4 | | | | | | | | 1.0 — - - 1.5 — | | |
| | | | | - | | | | | - | | |
| | | | 28.87 | - 1.80 | | End of trial pit at 1.80m | | | - | | |
| | | | | - | | | | | 2.0 | | |
| | | | | - | | | | | - | | |
| | | | | - | | | | | - | | |
| | | | | - | | | | | - 2.5 — | | |
| | | | | - | | | | | | | |
| | | | | - | | | | | - | | |
| | | | | - | | | | | - | | |
| | | | | - | | | | | 3.0 | | |
| | | | | - | | | | | - | | |
| | | | | - - - - - - | | | | | - 3.5 — - | | |
| | | | | - - - - - - | | | | | - - 4.0 | | |
| | | | | - - - - - | | | | | - - 4.5 — | | |
| | | | | - - - - - | | | | | | | |
| Wate Struck at (m) | er Strikes Remarks | Depth: 1.80 Width: 1.00 Length: 3.00 | No g Shea | narks: groundwat ar vane co ation: Lanc | mpleted. | | | I | | | |
| | | Stability: | | nination R progress d | | nine size. | | ast Update 02/12/2022 | | | |

| | GAUSI | EWAY EOTECH | 21-2 | ect No. 1619A dinates | North I Client: | t Name: Irish Sea Array Landfall ft Limited | | Trial Pit ID TP05 |
|---------------------------------|---|-------------------------------|----------------|--------------------------------------|------------------------|--|-------------------------|--|
| Method: Trial Pitting | | | 76514 | 80.25 E 40.50 N | Client' Arup | s Representative: | | Sheet 1 of 1 Scale: 1:25 |
| Plant: 6T Tracked Exc | cavator | | | vation 6 mOD | Date: 14/03/ | 2022 RS | er: | FINAL |
| Depth (m) | Sample / Tests | Field Records | Level (mOD) | Depth (m) | Legend | Description | Water | |
| 0.50 0.50 0.50 | B3 ES ES1 | | 19.44 | 0.30 | | TOPSOIL- Brown sandy gravelly CLAY. Stiff yellowish brown slightly sandy slightly gravelly CLAY with content. Sand is fine to coarse. Gravel is subangular fine to me mixed lithologies. Cobbles are of mudstone. | low cobble | 0.5 — |
| 1.00 1.00 1.00 1.20 | B4 ES ES2 B5 | | | - | | | | 1.0 — — — — — — — — — — |
| 2.00 | B6 | ow seepage at 1.7 | 18.05 | 1.70 | | Brown very gravelly very silty fine to coarse SAND. Gravel is su fine to medium of mixed lithologies. | bangular | 2.0 |
| | | | 17.34 | 2.40 | | End of trial pit at 2.40m | | 2.5 |
| | | | | - - - - - - - - | | | | 3.0 |
| | | | | - | | | | |
| | | | | - - - - - - - - | | | | 4.0 |
| | | | | - | | | | 4.5 |
| Wate Struck at (m) 1.70 | r Strikes Remarks Slow seepage a 1.7 | Length: 3.00 | | i arks: ition: Lanc | lfall. | | | |
| | | Stability: Unstable | | nination R | | hine size. | Last Updat 02/12/202 | |

| Method: Trial Pitting Plant: 6T Tracked Excavato Depth Sam | AUSE GEC | Field Records | 71949 76523 Elev | dinates 00.98 E 33.68 N mOD Depth (m) 0.25 | | ft Limited s Representative: Logg | 9 | TP07 heet 1 of 1 Scale: 1:25 FINAL |
|--|-------------------------|----------------------------|--------------------------------|--|------------------------|--|--------------|--|
| Plant: 6T Tracked Excavato Depth Sam (m) Te 0.50 B3 0.50 ES | mple / | Field Records | Elev 9.22 Level (mOD) | wation mOD Depth (m) | Date: 15/03/ | 2022 RS Description | er: | |
| Depth Sam (m) Te 0.50 B3 0.50 ES | mple / | Field Records | Level (mOD) | Depth (m) | | Description | Water | FINAL |
| (m) Te | | Field Records | (mOD) | (m) | Legend | | Water | |
| 0.50 ES | | | 8.97 | 0.25 | | TOPSOIL- Brown sandy gravelly CLAY. | | + |
| | | | | - - - - - | | Stiff brownish yellow slightly sandy slightly gravelly CLAY with content. Sand is fine to coarse. Gravel is subangular fine to m mixed lithologies predominantly limestone. Cobbles are of lir | edium of | |
| 1.00 B4 1.00 ES 1.00 ES2 1.20 B5 | | | 7.72 | 1.50 | | Stiff dark grey slightly sandy slightly gravelly CLAY. Sand is fine Gravel is subrounded fine to medium of limestone. | e to coarse. | 1.0 — — — — — — — — — — |
| 2.00 Вб | Slow | seepage at 2.00 | 7.22 | - 2.00 | | End of trial pit at 2.00m | T | 2.0 |
| | | | | · · · · | | | | 2.5 — |
| | | | | | | | | |
| | | | | · · · · | | | | 3.5 |
| | | | | · | | | | 4.0 |
| | | | | - - - - - - - | | | | 4.5 — — — — |
| | Remarks v seepage at | Depth: 2.00 Width: 1.00 | | arks: tion: Land | lfall | | | |
| | | Length: 2.50 Stability: | Torm | nination R | eason | | Last Update | |
| | | Stablinty: Stable | | progress di | | hine size. | 02/12/2022 | |

| | CALIC | | | ect No. 1619A | - | t Name: rish Sea Array Landfall | 1 | rial Pit ID |
|-------------------------------|---|---|---|------------------------------|-----------|--|-------------|----------------------|
| | | EVVAT | Coor | dinates | Client: | | | TP08 |
| | 0. | | 7193 | 82.81 E | | ft Limited | | |
| Method: Trial Pitting | | | | 36.56 N | Arup | s Representative: | | heet 1 of 1 |
| Plant: | | | Elev | /ation | Date: | Logger | | Scale: 1:25 |
| 6T Tracked Exc | cavator | | |) mOD | 14/03/ | | | FINAL |
| Depth (m) | Sample / | Field Records | Level (mOD) | Depth (m) | Legend | Description | Nater | |
| Depth (m) | ES ES1 B3 ES ES2 B4 | Field Records | Level (mOD) 11.60 11.30 10.20 | Depth (m) | | Description TOPSOIL- Brown sandy gravelly CLAY. Firm brownish yellow slightly sandy slightly gravelly CLAY. Sand i coarse. Gravel is subangular fine to coarse of mixed lithologies. Stiff grey slightly sandy slightly gravelly SILT with low cobble cor Sand is fine to coarse. Gravel is subrounded fine to coarse of mi lithologies predominantly limestone. End of trial pit at 1.70m | itent. | |
| | | | | - | | | | 4.0 |
| | | | | - | | | | 4.5 — — — — |
| | | | | - | | | | |
| Wate Struck at (m) 1.40 | r Strikes Remarks Slow seepage a 1.4 | Depth: 1.70 at Width: 1.00 Length: 3.00 | | a rks: ition: Land | lfall | 1 | | 1 |
| | | Stability: | Tern | nination R | eason | | Last Update | ed 🔳 🔳 |
| | | Stable | Slow | progress d | ue to mac | hine size. | 02/12/2022 | |

| | CAUS | EWAY EOTECH | 21-2 | ect No. 1619A | North I | : Name: rish Sea Array Landfall | | Trial Pit ID |
|-----------------------|----------------------|--|----------------|---|---------|---|-------------------------|-----------------------------|
| Method: | G | EOTECH | | dinates 37.39 E | | ft Limited 5 Representative: | | TP09 |
| Trial Pitting | | | 7653 | 68.70 N | Arup | o nepresentative. | | Sheet 1 of 1 Scale: 1:25 |
| Plant: | | | Elevation | | Date: | Logg | | |
| 6T Tracked Exc | | | | 5 mOD | 15/03/ | 2022 RS | | FINAL |
| Depth (m) | Sample / Tests | Field Records | Level (mOD) | Depth (m) | Legend | Description | Water | |
| 0.50 | ES | | 3.75 | 0.30 | | TOPSOIL- Brown sandy gravelly CLAY. Stiff grey slightly sandy slightly gravelly CLAY. Sand is fine to c Gravel is subangular fine of mixed lithologies. | oarse. | |
| 0.50 | ES1 | | | - - - - - - | | | | |
| 1.00 1.00 1.20 | ES ES2 B4 | | | | | | | |
| | | | 2.15 | - 1.90 | | End of trial pit at 1.90m | | |
| | | | | - | | | | 2.5 — |
| | | | | - - - - - - - | | | | 3.0 |
| | | | | - | | | | - - 3.5 — |
| | | | | - - - - - - | | | | 4.0 |
| | | | | - - - - - | | | | - - 4.5 — |
| | | | | - - - - - - | | | | |
| Wate Struck at (m) | r Strikes Remarks | Depth: 1.90 Width: 1.00 Length: 2.50 | Nog | a rks: groundwat ation: Land | | ntered . | | |
| | | Stability: Stable | | nination R | | nine size. | Last Updat 02/12/202 | |

| | CALIC | | | ect No. 1619A | | : Name: rish Sea Array Landfall | | T | rial Pit ID |
|--------------------------------|--|---|----------------|---------------------------------|-----------------|---|---------------------------------|--------|-----------------|
| | G | EVVAI | Coord | dinates | Client: | | 1 | TP11 | |
| Method: | | | 71924 | 45.88 E | | ft Limited s Representative: | | c | neet 1 of 1 |
| Trial Pitting | | | | 96.74 N | Arup | | | | icale: 1:25 |
| Plant: 6T Tracked Ex | ovator | | | mOD | Date: 14/03/ | FINAL | | | |
| Depth | Sample / | Field Records | Level | Depth | Legend | Description | S | Water | |
| (m) 0.50 | ES | | (mOD) 22.86 | (m) 0.30 | | TOPSOIL- Brown sandy gravelly CLAY. Stiff brown slightly sandy gravelly CLAY with high cobble fine to coarse. Gravel is subrounded to subangular fine t mixed lithologies. Cobbles are of mixed lithologies. | content. Sand is o coarse of | | |
| 1.00 | ES1 B3 | | | | | | | T | |
| 1.00 1.00 1.20 | ES ES2 B4 SI | low seepage at 1.0 | | · · · · | | | | | |
| 2.00 | 85 | | 21.16 | - 2.00 | | End of trial pit at 2.00m | | | |
| | | | | · · · · · | | | | | - - 2.5 |
| | | | | · · · · · | | | | | 3.0 |
| | | | | | | | | | |
| | | | | · · · · | | | | | 4.0 |
| | | | | · - - - - - - | | | | | 4.5 — - - |
| Wate Struck at (m) 1.00 | er Strikes Remarks Slow seepage a 1.0 | Depth: 2.00 width: 1.00 Length: 3.00 Stability: | Loca | arks: tion: Land | | | Last U | pdate | |
| | | Unstable | | progress di | | hine size. | | 2/2022 | |

| | CALIC | | | ect No. 1619A | | : Name: rish Sea Array Landfall | | Trial Pit ID |
|--|------------------------------|--|----------------|-------------------------|---------------|--|------------------|---|
| | CAUS | EWAY EOTECH | | dinates | Client: | | | TP12 |
| | | JEOTECH | 7196 | 39.96 E | | ft Limited | | |
| Method: | | | | 70.89 N | | s Representative: | | Sheet 1 of 1 |
| Trial Pitting Plant: | | | | vation | Arup Date: | Logger: | | Scale: 1:25 |
| 6T Tracked Ex | cavator | | | mOD | 14/03/ | | | FINAL |
| Depth (m) | Sample / Tests | Field Records | Level (mOD) | Depth (m) | Legend | Description | | Water |
| 0.50 0.50 1.00 1.00 1.00 1.20 | ES ES1 B3 ES ES2 | Seepage at 1. | 5.89 | 0.30 | | TOPSOIL- Brown sandy gravelly CLAY. Firm yellowish brown slightly sandy slightly gravelly CLAY. Sand i coarse. Gravel is subangular fine to medium of mixed lithologies Stiff grey slightly sandy slightly gravelly CLAY. Sand is fine to coar Gravel is subangular fine of mixed lithologies. | is fine to 5. | - - - - - - - - - - - - - - - - - - - |
| | | | 210 | | | | | |
| | | | 3.19 | - 3.00 | <u></u> | End of trial pit at 3.00m | | |
| Wate Struck at (m) | er Strikes Remarks | — Depth: 3.00 | | narks: | lfall | | | |
| 1.00 | Seepage at | Width: 1.00 Length: 3.00 | | | | | | |
| | | Stability: | Tern | nination F | Reason | | Last Upda | ated |
| | | Stable | | inated at s | | lepth | 02/12/20 | |



APPENDIX E TRIAL PIT PHOTOGRAPHS





Report No.: 21-1619







Report No.: 21-1619







Report No.: 21-1619



TP01



May 2022

Report No.: 21-1619







Report No.: 21-1619







Report No.: 21-1619





Report No.: 21-1619



TP02





Report No.: 21-1619













Report No.: 21-1619







Report No.: 21-1619





Report No.: 21-1619





Report No.: 21-1619





Report No.: 21-1619



TP04





Report No.: 21-1619







Report No.: 21-1619





Report No.: 21-1619





Report No.: 21-1619





Report No.: 21-1619





Report No.: 21-1619



TP05





Report No.: 21-1619







Report No.: 21-1619





Report No.: 21-1619



TP05



May 2022

Report No.: 21-1619



TP05



May 2022

Report No.: 21-1619













Report No.: 21-1619







Report No.: 21-1619





Report No.: 21-1619





Report No.: 21-1619



TP08





Report No.: 21-1619







Report No.: 21-1619





Report No.: 21-1619







Report No.: 21-1619







Report No.: 21-1619







Report No.: 21-1619







Report No.: 21-1619



TP09



May 2022

Report No.: 21-1619



TP09



May 2022

Report No.: 21-1619













Report No.: 21-1619



TP11





May 2022

Report No.: 21-1619





Report No.: 21-1619





Report No.: 21-1619







Report No.: 21-1619







Report No.: 21-1619







Report No.: 21-1619



TP12



May 2022



APPENDIX F GEOTECHNICAL LABORATORY TEST RESULTS





HEAD OFFICE Causeway Geotech Ltd 8 Drumahiskey Road Ballymoney Co. Antrim, N. Ireland, BT53 7QL NI: +44 (0)28 276 66640 Registered in Northern Ireland. Company Number: NI610766

REGIONAL OFFICE Causeway Geotech (IRL) Ltd Unit 1 Fingal House Stephenstown Industrial Estate Balbriggan, Co Dublin, Ireland, K32 VR66 ROI: +353 (0)1 526 7465 ROI: +3533 (0)1 526 7465 Company Number 633786

www.causewaygeotech.com

27 April 2022

SOIL AND ROCK SAMPLE ANALYSIS LABORATORY TEST REPORT

| Project Name: | North Irish Sea Array |
|---------------|-----------------------|
| Project No.: | 21-1619 |
| Client: | Statkraft |
| Engineer: | ARUP |

We are pleased to attach the results of laboratory testing carried out for the above project. This memo and its attachments constitute a report of the results of tests as detailed in the Contents page(s). This testing was performed between 18/03/2022 and 11/04/2022.

The attached results complete the testing requested and we would therefore wish to confirm that samples will be retained without charge for a period of 28 days from the above date after which they will be appropriately disposed of unless we receive written instructions to the contrary prior to that date.

We trust our report meets with your approval but if you have any queries or require additional information, please do not hesitate to contact the undersigned.

Han Notin

Stephen Watson Laboratory Manager Signed for and on behalf of Causeway Geotech Ltd



| Project Name: No | orth Irish Sea Array |
|------------------|----------------------|
|------------------|----------------------|

Report Reference: Schedule 4 - FINAL

The table below details the tests carried out, the specifications used, and the number of tests included in this report. The results contained in this report relate to the sample(s) as received

Tests marked with* in this report are not United Kingdom Accreditation Service (UKAS) accredited and are not included in Causeway Geotech Limited's scope of UKAS Accreditation Schedule of Tests. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

| Material tested | Type of test/Properties measured/Range of measurement | Standard specifications | No. of results included in the report |
|-----------------|---|---------------------------------------|---|
| SOIL | Moisture Content of Soil | BS 1377-2: 1990: Cl 3.2 | 13 |
| SOIL | Liquid and Plastic Limits of soil-4 point cone penetrometer method | BS 1377-2: 1990: Cl 4.4, 5.3 & 5.4 | 9 |
| SOIL | Particle size distribution - wet sieving | BS 1377-2: 1990: Cl 9.2 | 7 |
| SOIL | Particle size distribution - sedimentation hydrometer method | BS 1377-2: 1990: Cl 9.5 | 7 |
| SOIL | Moisture Condition Value at natural moisture content | BS 1377-4: 1990: Cl 5.4 | 5 |

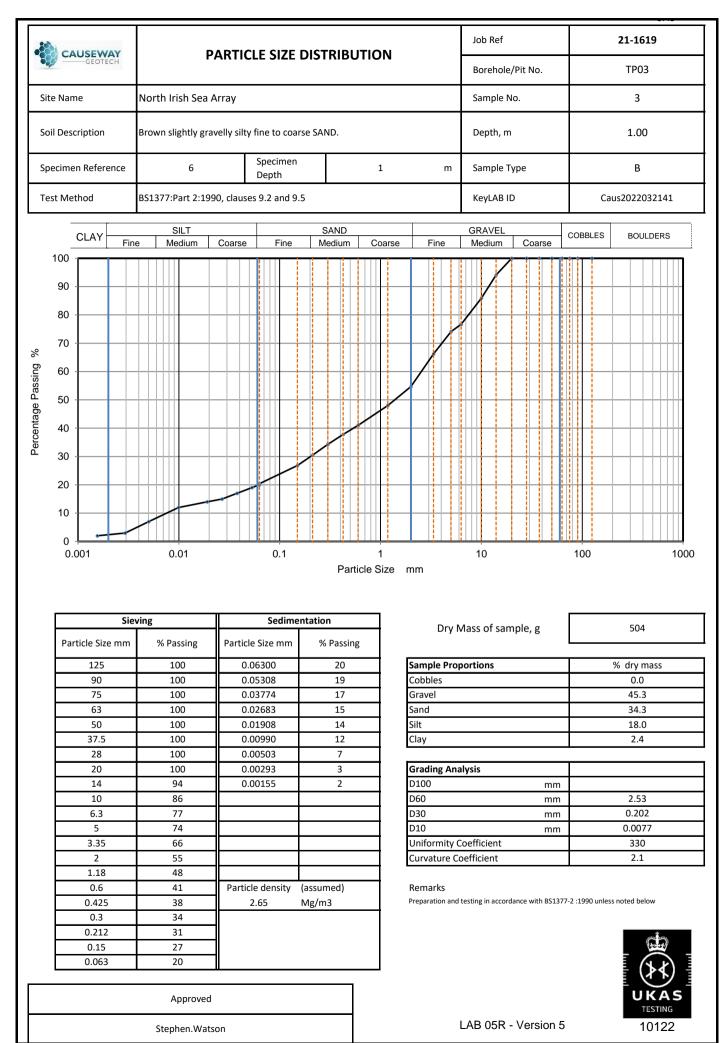
SUB-CONTRACTED TESTS

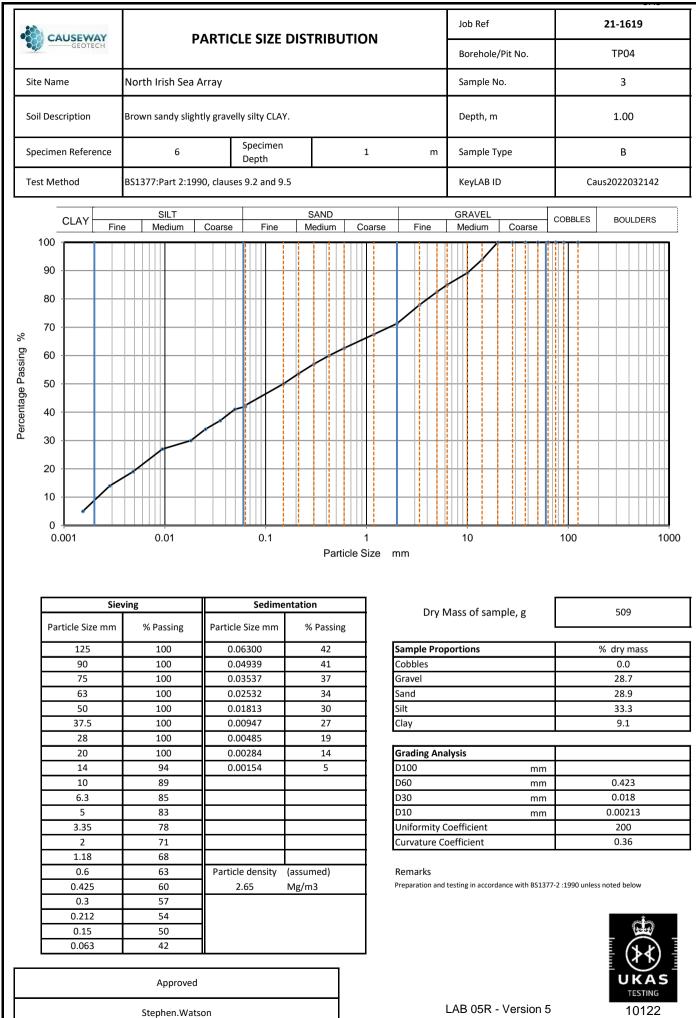
In agreement with Client, the following tests were conducted by an approved sub-contractor. All subcontracting laboratories used are UKAS accredited.

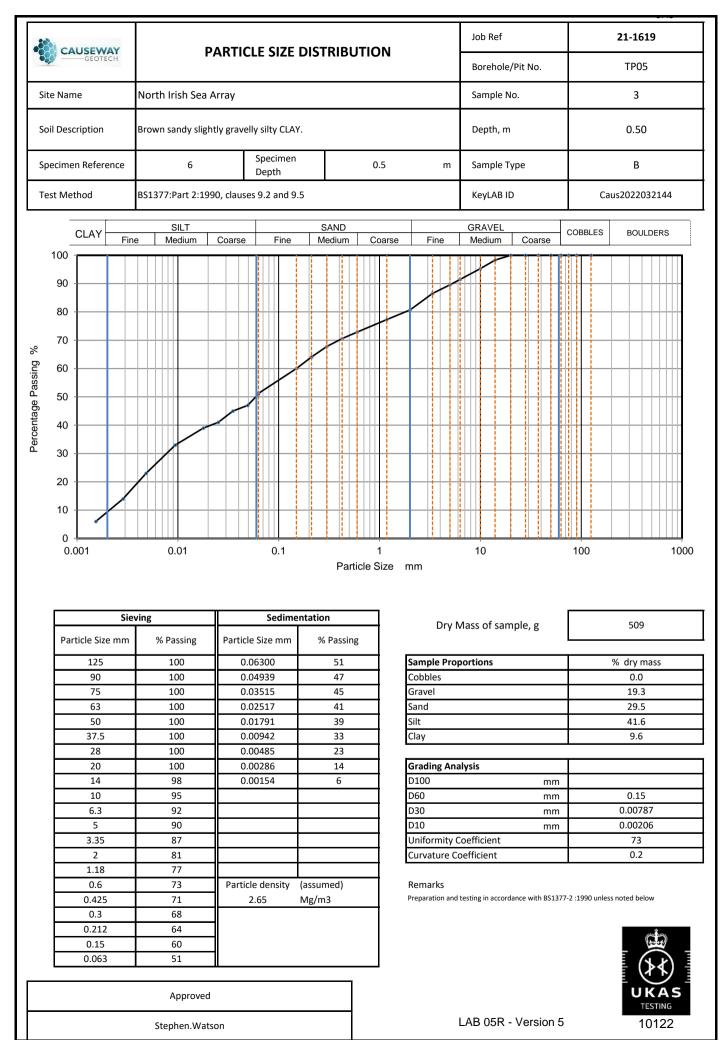
| Material tested | Type of test/Properties measured/Range of measurement | Standard specifications | No. of results included in the report |
|---|---|----------------------------|---|
| SOIL – subcontracted to Pro Soils Limited (UKAS 4043) | Thermal Resistivity | | 6 |
| SOIL – Subcontracted to Eurofins Chemtest Ltd (UKAS 2183) | BRE Test - Suite B | | 3 |

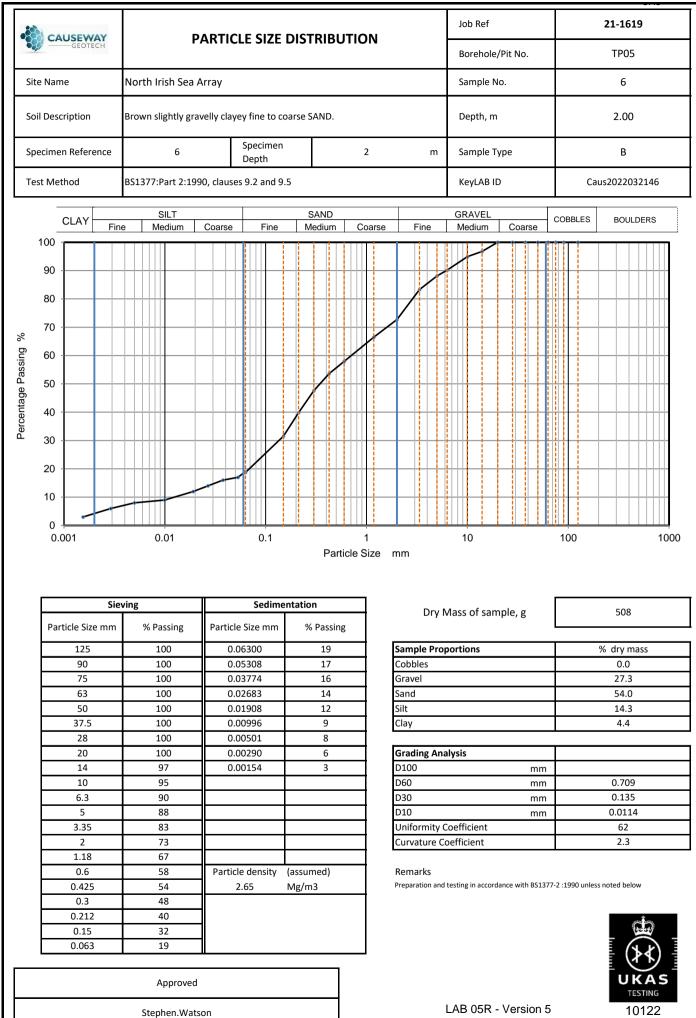
| Summary of Class | | | | | | sific | ation | Test | Res | sult | S | | | |
|--------------------------|----------------------|-----------------------------------|--------------|---------|---|--|---------|----------------|-----------------------|---------|---------|---------|------------------------------|------------------------------|
| Project No. Project Name | | | | | | | | | | | | | | |
| 21-1 | 619 | | | | | Ν | lorth I | rish Se | ea Array | | r — | 1 | | |
| Hole No. | Ref | Sar Top | mple Base | Туре | Soil Description | Dens bulk Mg/m | dry | W % | Passing 425µm % | LL % | PL % | PI % | Particle density Mg/m3 | Casagrande Classification |
| TP03 | 3 | 1.00 | | в | Brown slightly gravelly silty fine to coarse SAND. | | | 14.0 | 51 | 23 | 17 | 6 | | ML/CL |
| TP04 | 3 | 1.00 | | В | Brown sandy slightly gravelly silty CLAY. | | | 14.0 | 65 | 34 | 19 | 15 | | CL |
| TP04 | 4 | 1.20 | | в | Brown sandy slightly gravelly silty CLAY. | | | 13.0 | | | | | | |
| TP05 | 3 | 0.50 | | В | Brown sandy slightly gravelly silty CLAY. | | | 21.0 | 72 | 37 | 18 | 19 | | CI |
| TP05 | 4 | 1.00 | | В | Brown sandy slightly gravelly silty CLAY. | | | 23.0 | 74 | 34 | 17 | 17 | | CL |
| TP05 | 6 | 2.00 | | В | Brown slightly gravelly clayey fine to coarse SAND. | | | 18.0 | 62 | 35 | 20 | 15 | | CL/CI |
| TP08 | 3 | 1.00 | | В | Greyish brown sandy slightly gravelly silty CLAY. | | | 14.0 | 62 | 41 | 20 | 21 | | CI |
| TP08 | 4 | 1.20 | | В | Greyish brown sandy slightly gravelly silty CLAY. | | | 15.0 | | | | | | |
| TP11 | 3 | 1.00 | | В | Greyish brown sandy slightly gravelly silty CLAY. | | | 20.0 | 74 | 36 | 18 | 18 | | CI |
| TP11 | 4 | 1.20 | | В | Greyish brown sandy slightly gravelly silty CLAY. | | | 21.0 | | | | | | |
| TP11 | 5 | 2.00 | | В | Greyish brown sandy slightly gravelly silty CLAY. | | | 14.0 | 60 | 28 | 15 | 13 | | CL |
| TP12 | 3 | 1.00 | | В | Greyish brown silty CLAY. | | | 25.0 | 96 | 31 | 11 | 20 | | CL |
| All tests perfor | med i | n accord | lance wit | h BS1 | 377:1990 unless specified | otherwis | e | | | | | | LAB | 01R Version 5 |
| | neasure ter displ | ment unles acement in water | | cas - C | | e density nall pyknom s jar 4 | leter | Date F 04/1 | Printed | 00:00 | | oved | By Watson | UKAS TESTING 10122 |

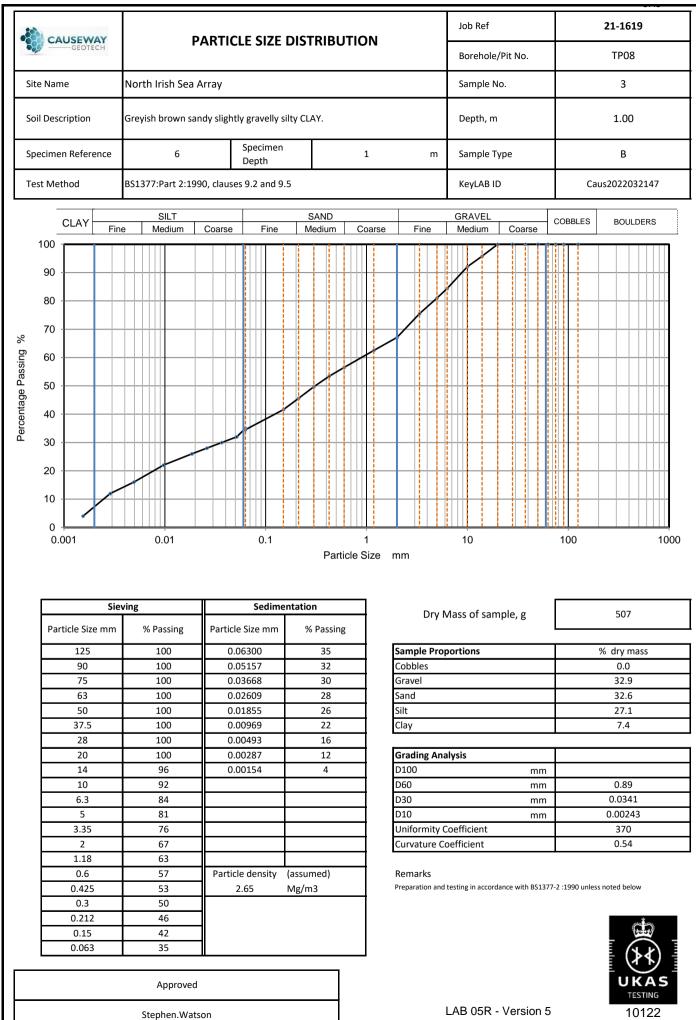
| CAUSEWAY GEOTECH | | Summary of Classification Test Results | | | | | | | | Re | sult | S | | | |
|--|---------|--|---------------------------------------|-----------|--------|--|---------------------------------------|--------|----------------------------|---------|-------|---------|---------|------------------|------------------------------|
| Project No. I 21-1619 | | | Project Name North Irish Sea Array | | | | | | | | | | | | |
| | | | Sar | nple | | | Dens | | r | Passing | LL | PL | PI | Particle | |
| Hole I | No. | Ref | Тор | Base | Туре | Soil Description | bulk Mg/n | dry | W % | 425µm | % | ۲L % | РI % | density Mg/m3 | Casagrande Classification |
| TP1 | 2 | 4 | 1.20 | | в | Greyish brown sandy slightly gravelly silty CLAY. | | | 22.0 | | | | | | |
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| All tests | perforr | ned ii | n accord | lance wit | th BS1 | 377:1990 unless specified | d otherwis | e | | | | | | LAE | 3 01R Version 5 |
| | | easure | ment unles acement | | | ie unless : sp - : | cle density small pyknom as iar | neter | Date F 04/ [,] | Printed | 00:00 | Appr | roved | Ву | |
| wd - water displacement cas - Casagrande method gj - gas jar wi - immersion in water 1pt - single point test | | | | | | Step | ohen. | Watson | 10122 | | | | | | |

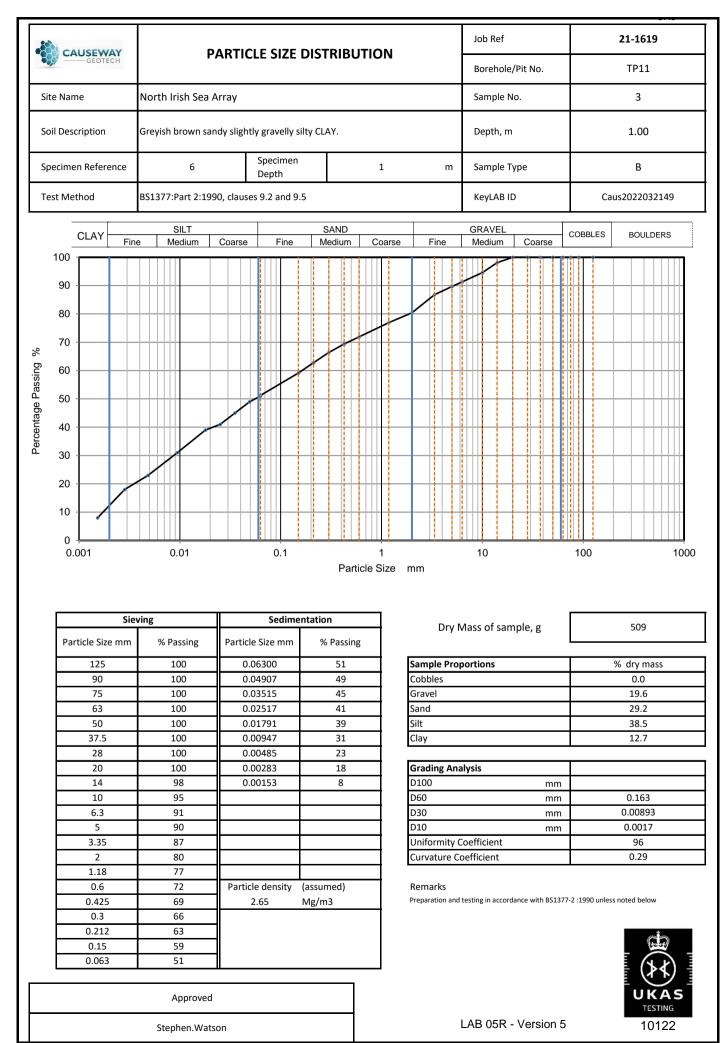


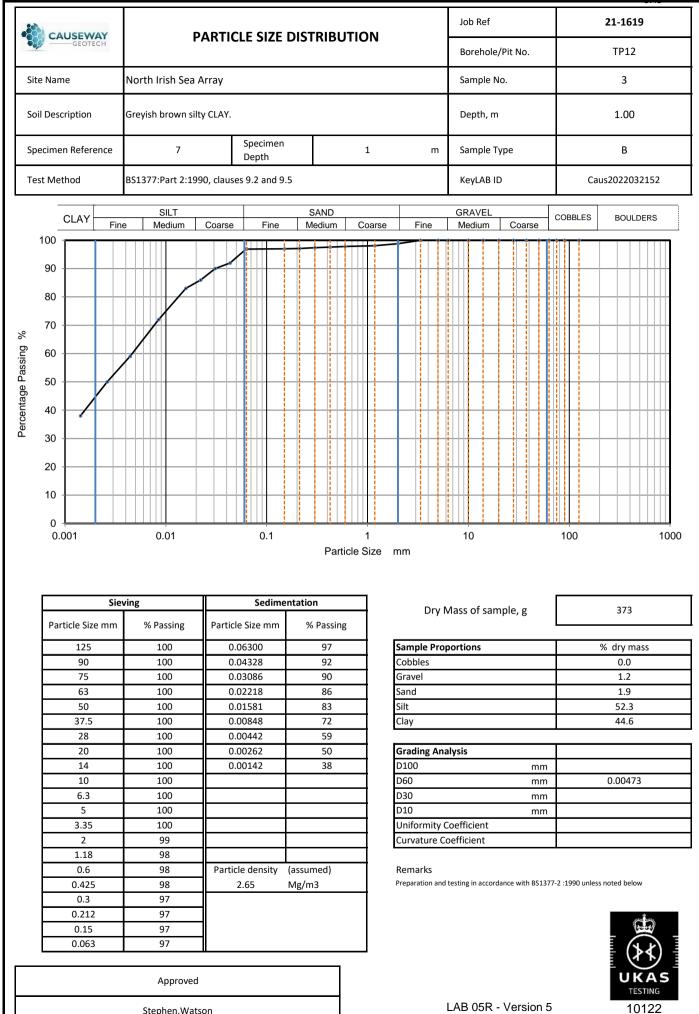












Stephen.Watson

| | JSEN GEOT | AY ECH | Moisture Condition Value at Natural Moisture Content Summary of Results | | | | | | | | | |
|--|--------------|------------|--|--------------------------|---|-----------------------|------------------|------------------------|------------------------------|--------------------------------|--------------------------------|---------|
| Project No. | | | Project Name | | | | | | | | | |
| 21-1619 | | | | lanto | | North I | rish Sea Arra | у | | | | |
| Hole No. | Ref | Sar Top | | | nple | | Soil Description | Retained on 20mm sieve | Moisture Content <20mm | Moisture Condition Value | Method of Interpretation | Remarks |
| | Rei | тор | Base | Туре | | % | % | | | | | |
| TP04 | 4 | 1.20 | | в | Brown sandy slightly gravelly silty CLAY. | 4 | 14 | 10.4 | Best fit line | | | |
| TP05 | 4 | 1.00 | | В | Brown sandy slightly gravelly silty CLAY. | 10 | 22 | 6.5 | Best fit line | | | |
| TP08 | 4 | 1.20 | | В | Greyish brown sandy slightly gravelly silty CLAY. | 15 | 13 | 8.2 | Best fit line | | | |
| TP11 | 4 | 1.20 | | В | Greyish brown sandy slightly gravelly silty CLAY. | 18 | 22 | 6.7 | Best fit line | | | |
| TP12 | 3 | 1.00 | | В | Greyish brown silty CLAY. | 0 | 23 | 13.1 | Best fit line | | | |
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| | | | | | | | | | LA | B 10R - Version 6 | | |
| Key Test performed in accordance with BS1377:Part4:1990, clause 5.4 unless annotated otherwise | | | | Date Printed 04/12/20 | 22 00:00 | Approved By Stephe | n.Watson | | | | | |

🔅 eurofins

Chemtest

Eurofins Chemtest Ltd Depot Road Newmarket CB8 0AL Tel: 01638 606070 Email: info@chemtest.com

| Report No.: | 22-11176-1 | | |
|------------------------|---|------------------|-------------|
| Initial Date of Issue: | 30-Mar-2022 | | |
| Client | Causeway Geotech Ltd | | |
| Client Address: | 8 Drumahiskey Road Balnamore Ballymoney County Antrim BT53 7QL | | |
| Contact(s): | Carin Cornwall Colm Hurley Darren O'Mahony Gabriella Horan Joe Gervin John Cameron Lucy Newland Martin Gardiner Matthew Gilbert Neil Haggan Paul Dunlop Sean Ross Stephen Franey Stephen Watson Stuart Abraham Thomas McAllister | | |
| Project | 21-1619 North Irish Sea Array | | |
| Quotation No.: | | Date Received: | 24-Mar-2022 |
| Order No.: | | Date Instructed: | 24-Mar-2022 |
| No. of Samples: | 3 | | |
| Turnaround (Wkdays): | 7 | Results Due: | 01-Apr-2022 |
| Date Approved: | 30-Mar-2022 | | |
| Approved By: | | | |
| Sont | - | | |

Details:

Stuart Henderson, Technical Manager



🔅 eurofins

Chemtest

Eurofins Chemtest Ltd Depot Road Newmarket CB8 0AL Tel: 01638 606070 Email: info@chemtest.com

<u> Results - Soil</u>

Project: 21-1619 North Irish Sea Array

| Client: Causeway Geotech Ltd | | Cher | ntest J | ob No.: | 22-11176 | 22-11176 | 22-11176 |
|-------------------------------------|----------------|--------|----------|----------|-------------|-------------|-------------|
| Quotation No.: | (| Chemte | st Sam | ple ID.: | 1398031 | 1398032 | 1398033 |
| Order No.: | | Clier | nt Samp | le Ref.: | 4 | 3 | 4 |
| | | Sa | ample Lo | ocation: | TP04 | TP08 | TP12 |
| | | | Sampl | e Type: | SOIL | SOIL | SOIL |
| | | | Top De | oth (m): | 1.2 | 1.0 | 1.2 |
| | | | Date Sa | ampled: | 23-Mar-2022 | 23-Mar-2022 | 23-Mar-2022 |
| Determinand | Accred. | SOP | Units | LOD | | | |
| Moisture | N | 2030 | % | 0.020 | 14 | 15 | 21 |
| рН | U | 2010 | | 4.0 | 8.5 | 8.5 | 8.5 |
| Sulphate (2:1 Water Soluble) as SO4 | U | 2120 | g/l | 0.010 | 0.048 | 0.046 | 0.059 |
| Sulphate (Total) | U 2430 % 0.010 | | | 0.011 | 0.010 | 0.014 | |
| Sulphate (Acid Soluble) | U | 2430 | % | 0.010 | 0.021 | < 0.010 | 0.019 |

Test Methods

| SOP | Title | Parameters included | Method summary |
|------|--|--------------------------------------|--|
| 2010 | pH Value of Soils | рН | pH Meter |
| 2030 | Moisture and Stone Content of Soils(Requirement of MCERTS) | Moisture content | Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C. |
| 2040 | Soil Description(Requirement of MCERTS) | Soil description | As received soil is described based upon BS5930 |
| 2120 | Water Soluble Boron, Sulphate, Magnesium & Chromium | Boron; Sulphate; Magnesium; Chromium | Aqueous extraction / ICP-OES |
| 2430 | Total Sulphate in soils | Total Sulphate | Acid digestion followed by determination of sulphate in extract by ICP-OES. |

Report Information

| Key | |
|-----|---|
| U | UKAS accredited |
| М | MCERTS and UKAS accredited |
| Ν | Unaccredited |
| S | This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis |
| SN | This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis |
| Т | This analysis has been subcontracted to an unaccredited laboratory |
| I/S | Insufficient Sample |
| U/S | Unsuitable Sample |
| N/E | not evaluated |
| < | "less than" |
| > | "greater than" |
| SOP | Standard operating procedure |
| LOD | Limit of detection |
| | Comments or interpretations are beyond the scope of LIKAS appreditation |

Comments or interpretations are beyond the scope of UKAS accreditation The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request None of the results in this report have been recovery corrected All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis All Asbestos testing is performed at the indicated laboratory Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A Date of sampling not supplied
- B Sample age exceeds stability time (sampling to extraction)
- C Sample not received in appropriate containers
- D Broken Container
- E Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt All water samples will be retained for 14 days from the date of receipt Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to: <u>customerservices@chemtest.com</u>



LABORATORY REPORT



4043

Contract Number: PSL22/2277

Report Date: 27 April 2022

Client's Reference: 21-1619

Client Name: Causeway Geotech 8 Drumahiskey Road Ballymoney Co.Antrim BT53 7QL

For the attention of: Stephen Watson

| Contract Title: | North Irish Sea Array |
|-----------------|-----------------------|
| Date Received: | 28/3/2022 |
| Date Commenced: | 28/3/2022 |
| Date Completed: | 27/4/2022 |

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. 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 other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins (Director) R Berriman (Quality Manager) S Royle (Laboratory Manager)

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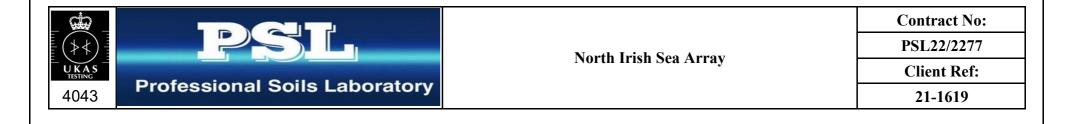
L Knight (Assistant Laboratory Manager) S Eyre (Senior Technician) T Watkins (Senior Technician)

Page 1 of

5 – 7 Hexthorpe Road, Hexthorpe, Doncaster DN4 0AR tel: +44 (0)844 815 6641 fax: +44 (0)844 815 6642 e-mail: rgunson@prosoils.co.uk awatkins@prosoils.co.uk

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

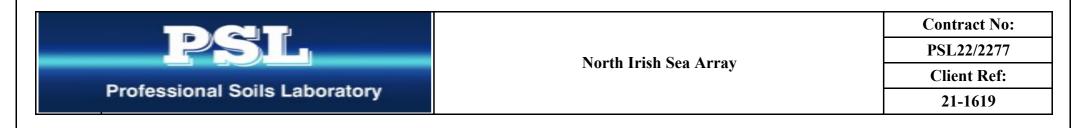
| Hole Number | Sample Number | Sample Type | Top Depth m | Base Depth m | Description of Sample |
|----------------|------------------|----------------|-------------------|--------------------|--------------------------------------|
| TP03 | 3 | В | 1.00 | | Brown very gravelly very sandy CLAY. |
| TP04 | 3 | В | 1.00 | | Brown gravelly sandy CLAY. |
| TP05 | 6 | В | 2.00 | | Brown slightly gravelly sandy CLAY. |
| TP08 | 4 | В | 1.20 | | Brown gravelly sandy CLAY. |
| TP11 | 3 | В | 1.00 | | Brown gravelly sandy CLAY. |
| TP12 | 3 | В | 1.00 | | Brown slightly gravelly CLAY. |
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SUMMARY OF THERMAL PROPERTY TESTS

In accordance with ASTM-D5334

| | | | | | Moisture | Bulk | Dry | Thermal | Thermal | |
|-------------|--------|--------|-------|-------|----------|-------------------|-------------------|--------------|-------------|----------|
| Hole | Sample | Sample | Тор | Base | Content | Density | Density | Conductivity | Resistivity | Remarks |
| Number | Number | Туре | Depth | Depth | % | Mg/m ³ | Mg/m ³ | | | Kemai Ks |
| | | | m | m | | | | W/m K | C.cm/W | |
| TP03 | 3 | В | 1.00 | | 13 | | | 2.177 | 45.9 | |
| TP04 | 3 | В | 1.00 | | 13 | | | 1.957 | 51.1 | |
| TP05 | 6 | В | 2.00 | | 17 | | | 2.169 | 46.1 | |
| TP08 | 4 | В | 1.20 | | 15 | | | 2.231 | 44.8 | |
| TP11 | 3 | В | 1.00 | | 21 | | | 1.894 | 52.8 | |
| TP12 | 3 | В | 1.00 | | 24 | | | 1.507 | 66.3 | |
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REGIONAL OFFICE Causeway Geotech (IRL) Ltd Unit 1 Fingal House Stephenstown Industrial Estate Balbriggan, Co Dublin, Ireland, K32 VR66 ROI: +353 (0)1 526 7465 Registered in Ireland. Company Number: 633786

www.causewaygeotech.com

28 April 2022

SOIL AND ROCK SAMPLE ANALYSIS LABORATORY TEST REPORT

| Project Name: | North Irish Sea Array |
|---------------|-----------------------|
| Project No.: | 21-1619 |
| Client: | Statkraft |
| Engineer: | ARUP |

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We trust our report meets with your approval but if you have any queries or require additional information, please do not hesitate to contact the undersigned.

Han Notin

Stephen Watson Laboratory Manager Signed for and on behalf of Causeway Geotech Ltd



| Project Name: | North Irish Sea Array |
|---------------|-----------------------|
|---------------|-----------------------|

Report Reference: Schedule 4 - FINAL

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|-----------------|--|---------------------------------------|---|--|--|
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| SOIL | Liquid and Plastic Limits of soil-4 point cone penetrometer method | BS 1377-2: 1990: Cl 4.4, 5.3 & 5.4 | 11 | | |
| SOIL | Particle size distribution - wet sieving | BS 1377-2: 1990: Cl 9.2 | 11 | | |
| SOIL | Particle size distribution - sedimentation hydrometer method | BS 1377-2: 1990: Cl 9.5 | 11 | | |
| SOIL | Dry density/moisture content relationship (2.5 kg rammer) | BS 1377-4: 1990: Cl 3.3 & 3.4 | 1 | | |
| SOIL | Moisture Condition Value at natural moisture content | BS 1377-4: 1990: Cl 5.4 | 5 | | |
| SOIL | Undrained shear strength – triaxial compression without measurement of pore pressure (loads from 0.12 to 24 kN) | BS 1377-7: 1990: Cl 8 | 2 | | |

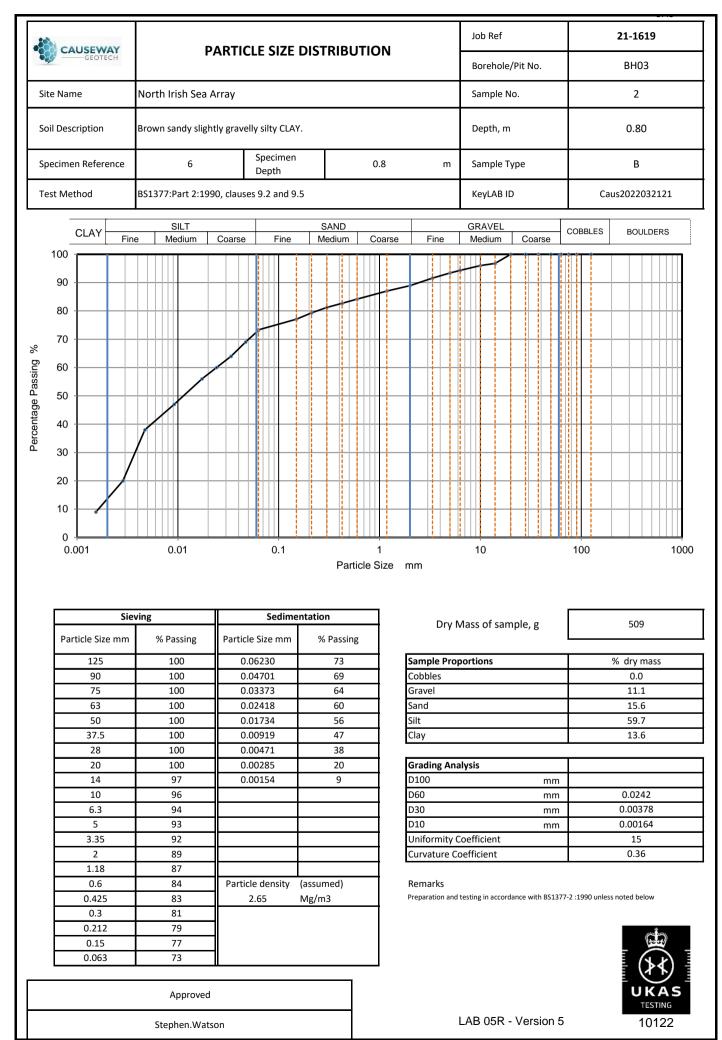
SUB-CONTRACTED TESTS

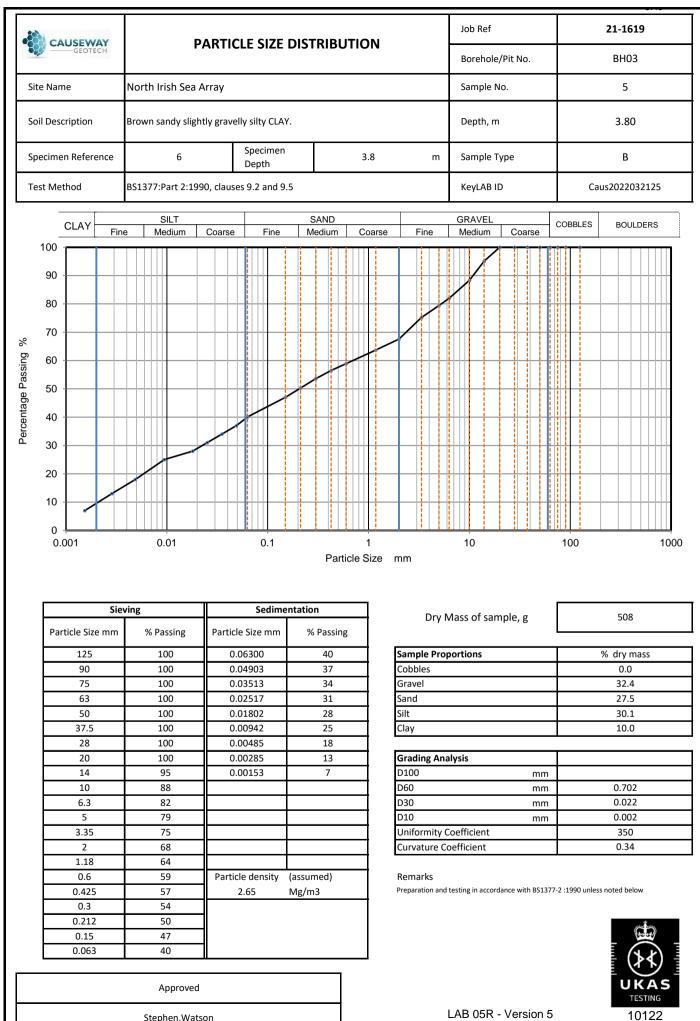
In agreement with Client, the following tests were conducted by an approved sub-contractor. All subcontracting laboratories used are UKAS accredited.

| Material tested | Type of test/Properties measured/Range of measurement | Standard specifications | No. of results included in the report |
|--|---|----------------------------|---|
| SOIL – subcontracted to Pro Soils Limited (UKAS 4043) | Thermal Resistivity | | 6 |

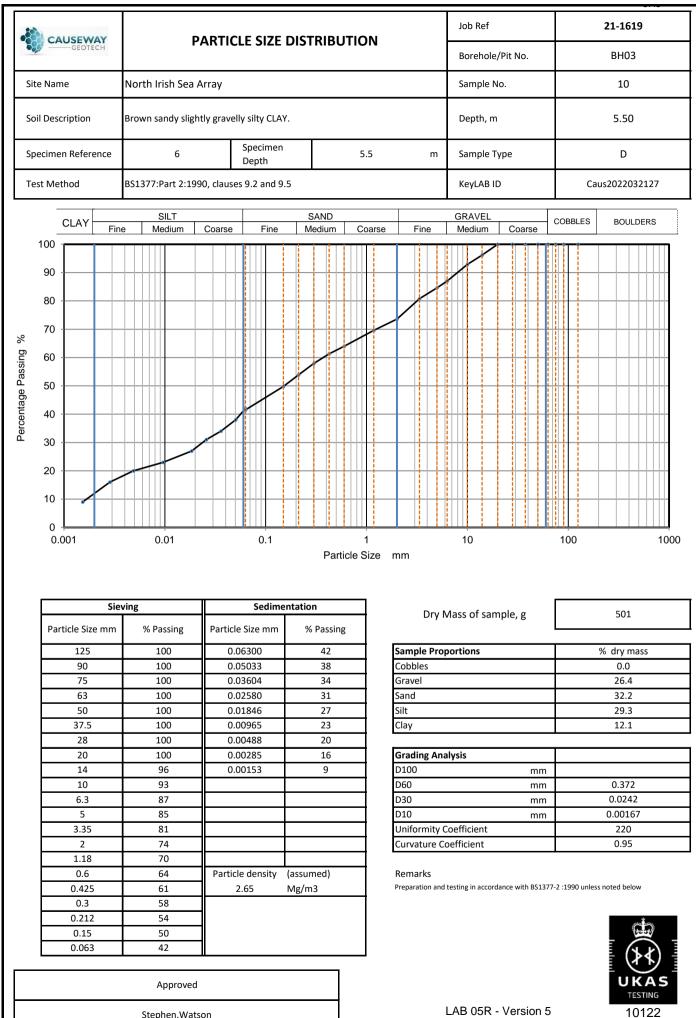
| | VAY TECH | Summary of Classification Test Results | | | | | | | | | | | | | |
|--|--------------------|--|--------------|---------------------------------------|--|-----------------------------------|--|--------|-----------------------|---------|---------|--------------------------|------------------------------|------------------------------|--|
| Project No. | | | Project | Project Name North Irish Sea Array | | | | | | | | | | | |
| 21-1 | 619 | 0 | | | | | | | · · | | 1 | | | | |
| Hole No. | Ref | Top | nple Base | Туре | Soil Description | Dens bulk Mg/m | dry | W % | Passing 425µm % | LL % | PL % | PI % | Particle density Mg/m3 | Casagrande Classification | |
| BH03 | 2 | 0.80 | 1.00 | В | Brown sandy slightly gravelly silty CLAY. | | | 23.0 | 83 | 42 | 21 | 21 | | CI | |
| BH03 | 3 | 1.80 | 2.00 | в | Brown sandy slightly gravelly silty CLAY. | | | 14.0 | | | | | | | |
| BH03 | 4 | 2.80 | 3.00 | в | Brown sandy slightly gravelly silty CLAY. | | | 13.0 | | | | | | | |
| BH03 | 5 | 3.80 | 4.00 | В | Brown sandy slightly gravelly silty CLAY. | | | 13.0 | 65 | 30 | 16 | 14 | | CL | |
| BH03 | 14 | 5.00 | 5.45 | U | Brown sandy slightly gravelly silty CLAY. | | | 13.0 | | | | | | | |
| BH03 | 10 | 5.50 | | D | Brown sandy slightly gravelly silty CLAY. | | | 11.0 | 60 | 25 | 14 | 11 | | CL | |
| BH03 | 12 | 7.50 | | D | Brown sandy slightly gravelly silty CLAY. | | | 22.0 | | | | | | | |
| TP01 | 3 | 1.00 | | В | Greyish brown sandy slightly gravelly silty CLAY. | | | 17.0 | 92 | 45 | 22 | 23 | | CI | |
| TP02 | 3 | 1.00 | | В | Greyish brown sandy slightly gravelly silty CLAY. | | | 14.0 | 67 | 30 | 19 | 11 | | CL | |
| TP07 | 4 | 1.00 | | в | Greyish brown sandy slightly gravelly silty CLAY. | | | 16.0 | 65 | 30 | 19 | 11 | | CL | |
| TP07 | 6 | 2.00 | | в | Greyish brown sandy slightly gravelly silty CLAY. | | | 14.0 | 67 | 40 | 16 | 24 | | CI | |
| TP09 | 4 | 1.20 | | В | Greyish brown silty CLAY. | | | 23.0 | 98 | 41 | 22 | 19 | | CI | |
| All tests perfor | med i | n accord | lance wit | h BS1 | 377:1990 unless specified | otherwis | e | - | | | | | LAE | 01R Version 5 | |
| Linear measurement unless : 4p wd - water displacement ca | | | | | | e density nall pyknom s jar | sity / ^{knometer} 04/11/2022 00:00 | | | Appr | | UKAS TESTING 10122 | | | |

| • | CAL | JSE GEO | VAY TECH | Summary of Classification Test Results | | | | | | | | | | | | |
|-----------|--------|------------|--------------------|--|------------------------------|--|---------------------------------------|-----------------------|----------------------------------|------------------|----|-------------------------------|----|------------------|--------------------------|--|
| Project | | | | Project Name | | | | | | | | | | | | |
| | 21-1 | 619 | | | | | - | North Irish Sea Array | | | | | | | | |
| | No | | Sai | mple | r – | Coll Departmention | Den: bulk | sity dry | w | Passing 425µm | LL | PL | ΡI | Particle density | Casagrande | |
| Hole | INO. | Ref | Тор | Base | Туре | Soil Description | Mg/r | | % | % | % | % | % | Mg/m3 | Classification | |
| TP | 20 | 3 | 1.00 | | в | Greyish brown sandy slightly gravelly silty CLAY. | | - | 32.0 | 89 | 53 | 26 | 27 | | СН | |
| TP | 20 | 4 | 1.20 | | в | Greyish brown clayey fine to coarse SAND. | | | 37.0 | 93 | 40 | 22 | 18 | | CI | |
| TP | 21 | 3 | 1.00 | | в | Greyish brown sandy slightly gravelly clayey SILT with occasional shell fragments. | | | 58.0 | 96 | 53 | 35 | 18 | | МН | |
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| All tests | perfor | med i | n accord | lance wi | th BS1 | 377:1990 unless specified | lotherwis | se | | | | | | LAE | 3 01R Version 5 | |
| Key | | | | | Liquid 4pt cor cas - C | Limit Partic le unless : sp - s | sle density Small pyknor as jar | | Date Printed 04/11/2022 00:00 | | | Approved By Stephen.Watson | | | UKAS TESTING 10122 | |



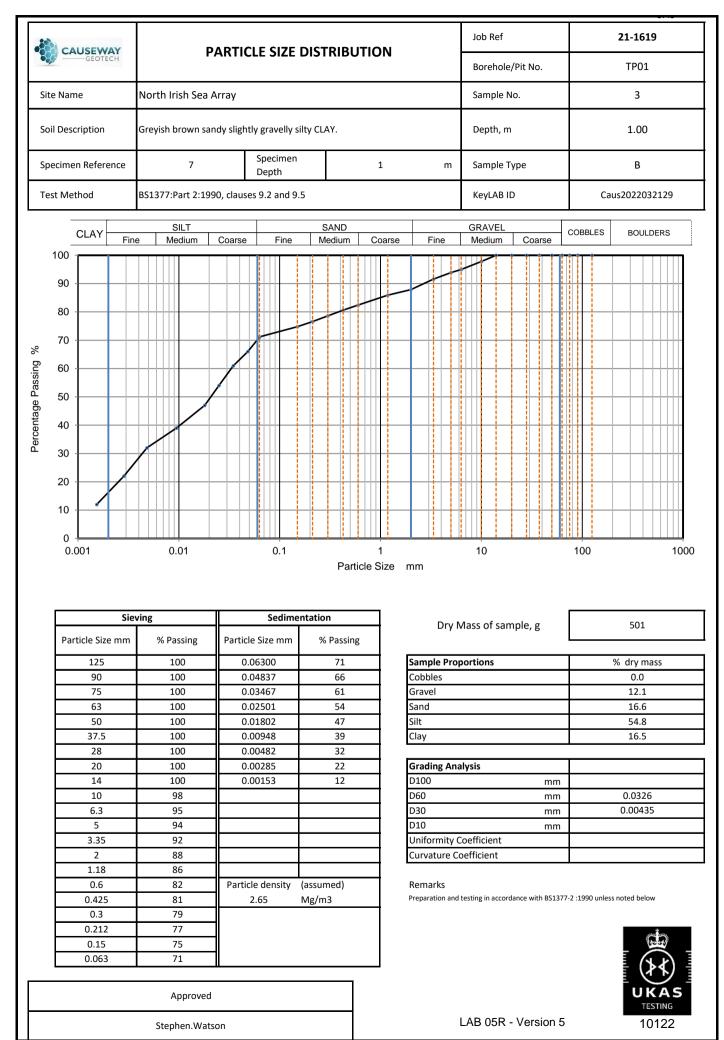


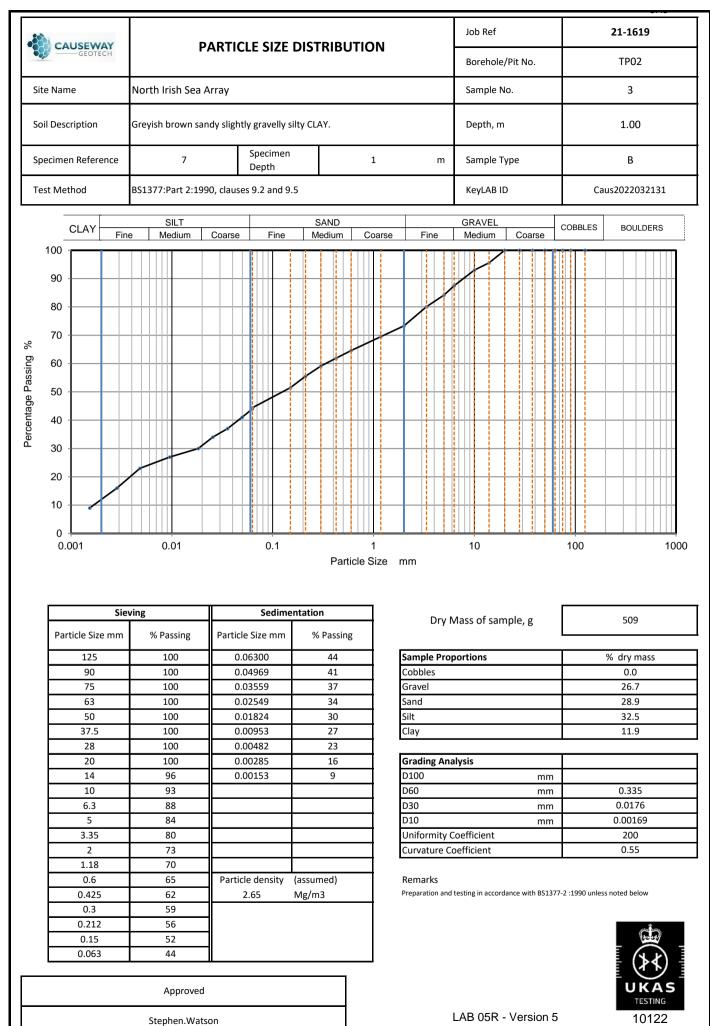
Stephen.Watson

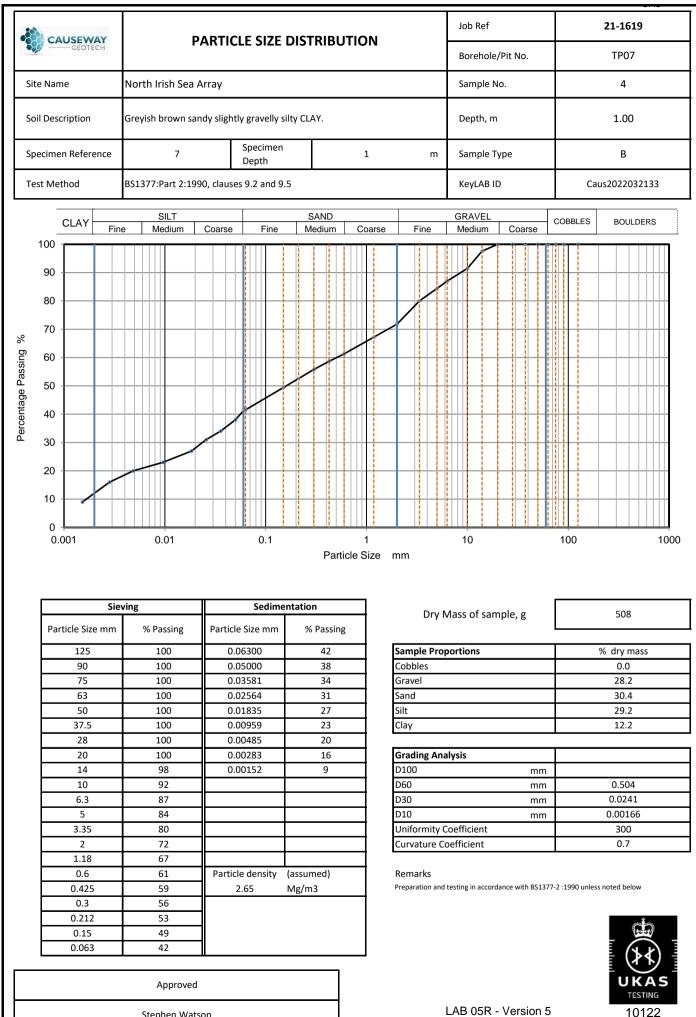


LAB 05R - Version 5

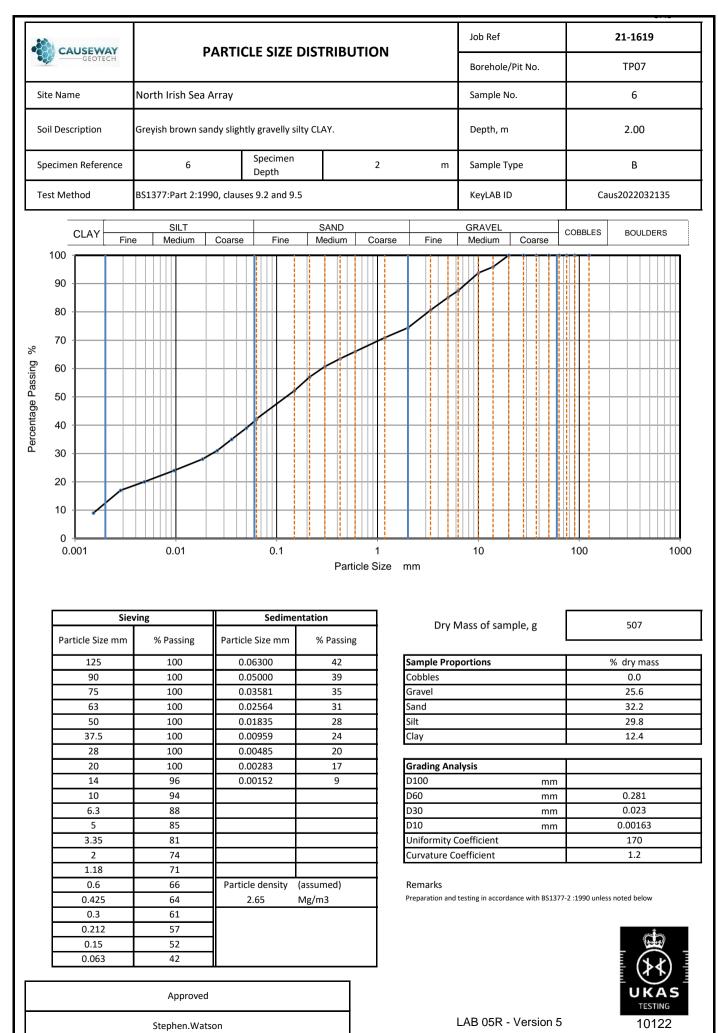
Stephen.Watson

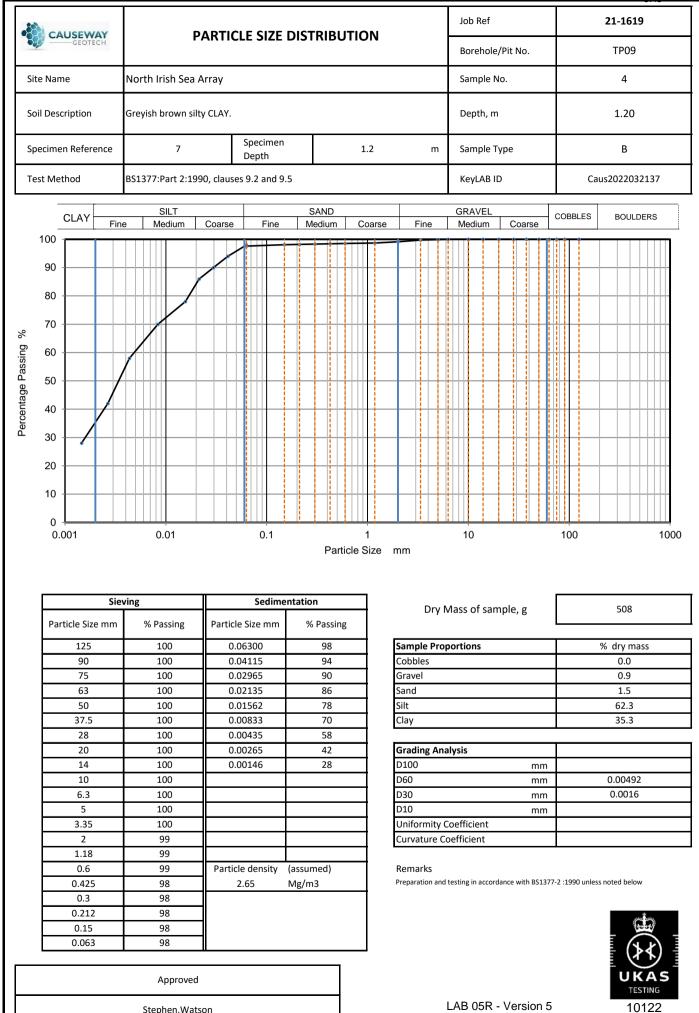




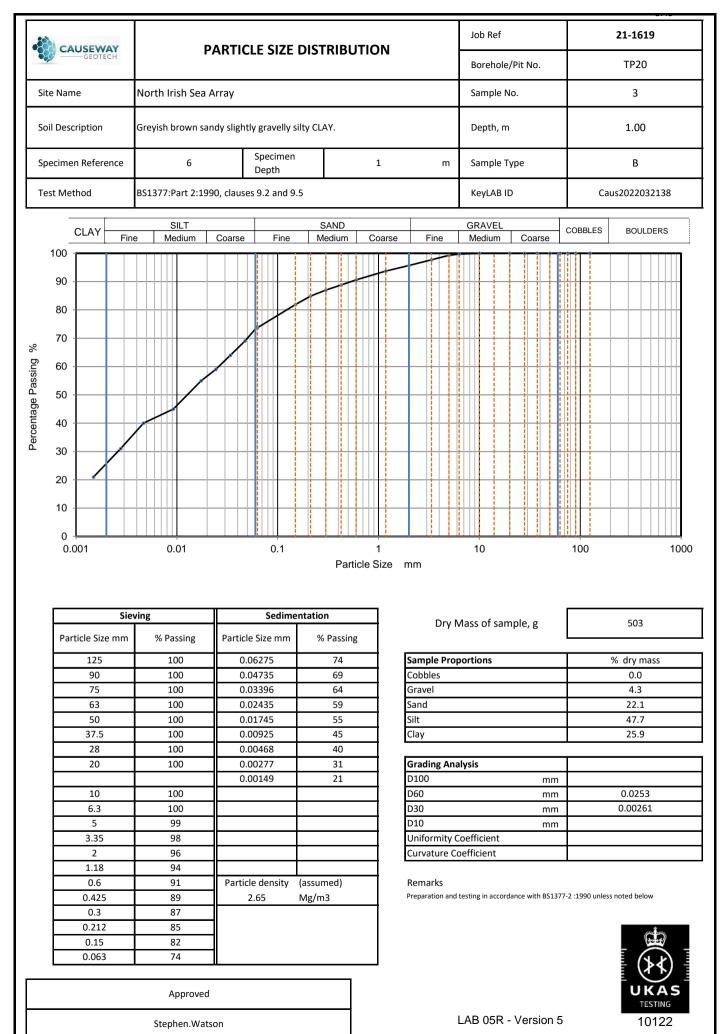


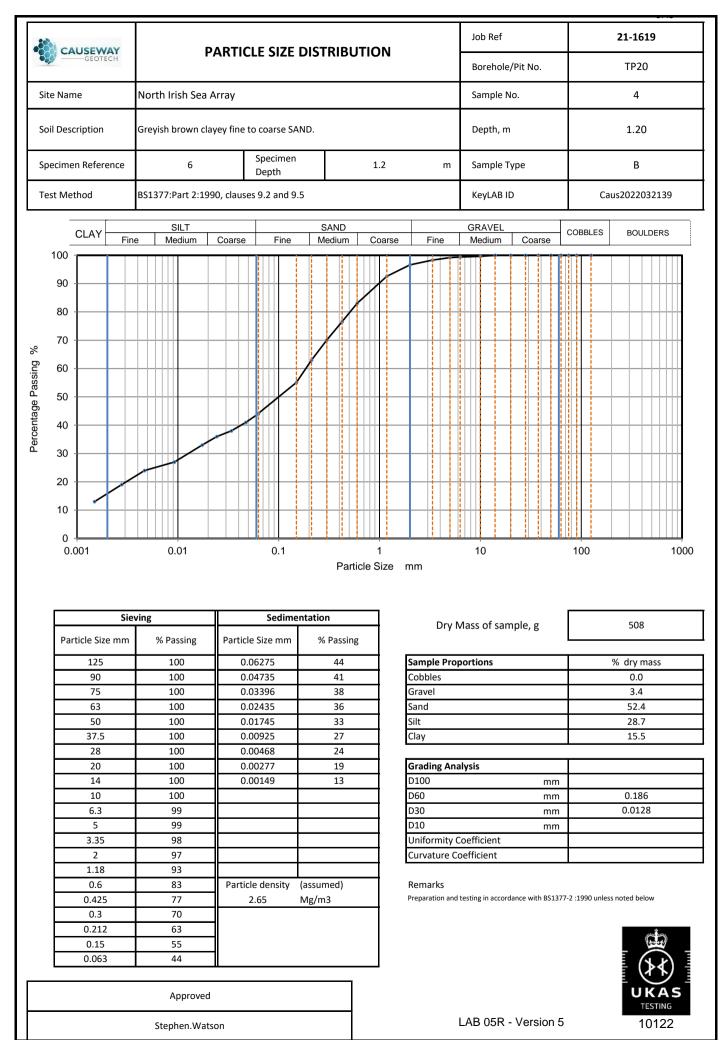
Stephen.Watson

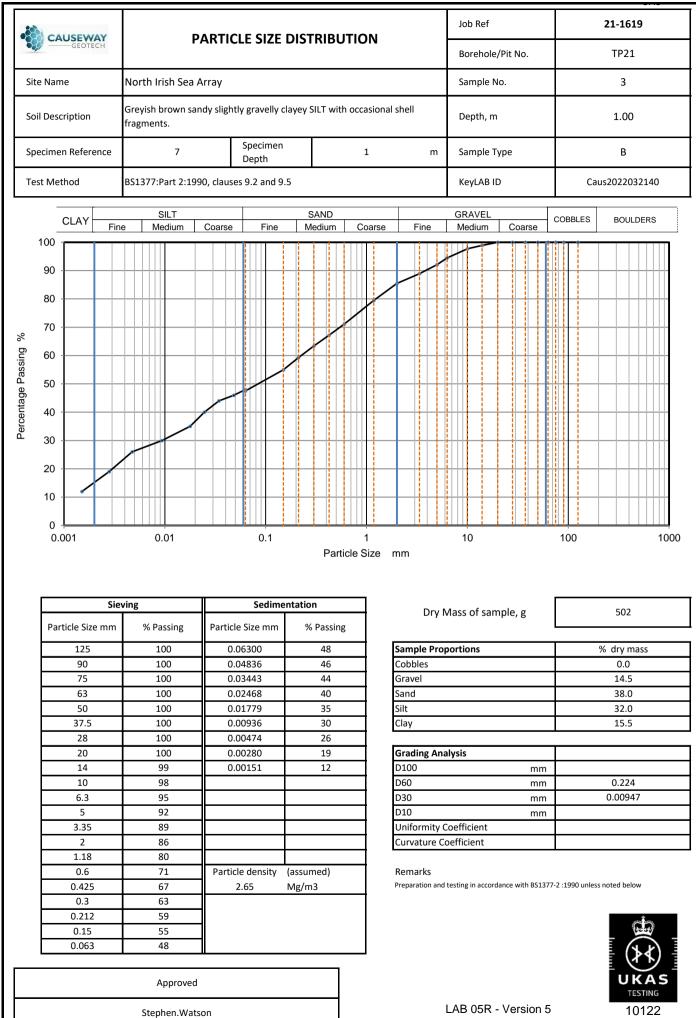




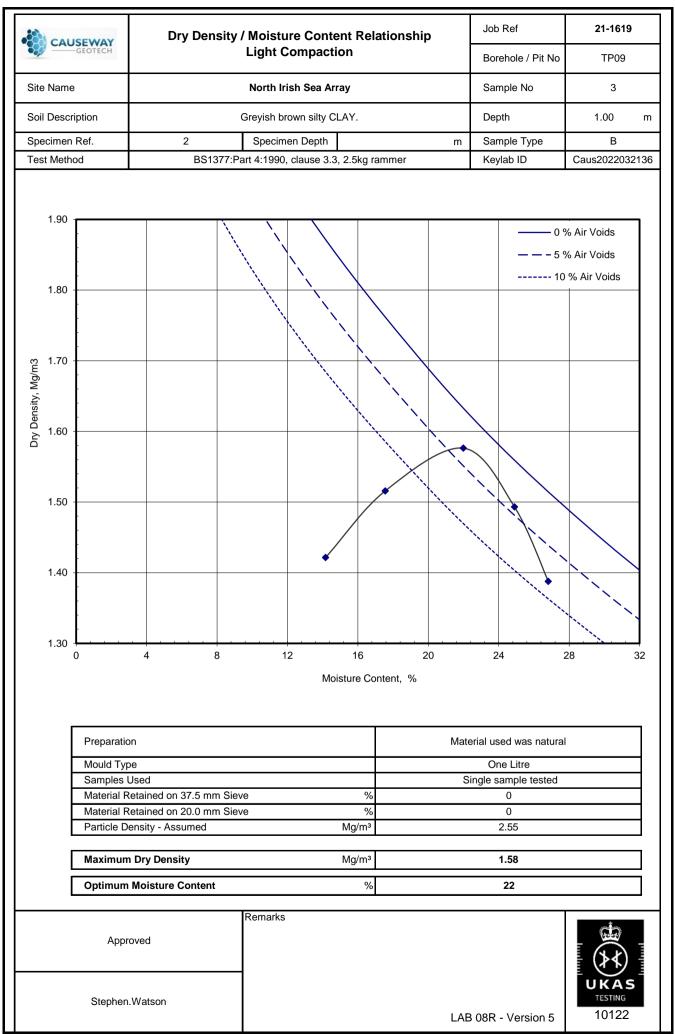
Stephen.Watson

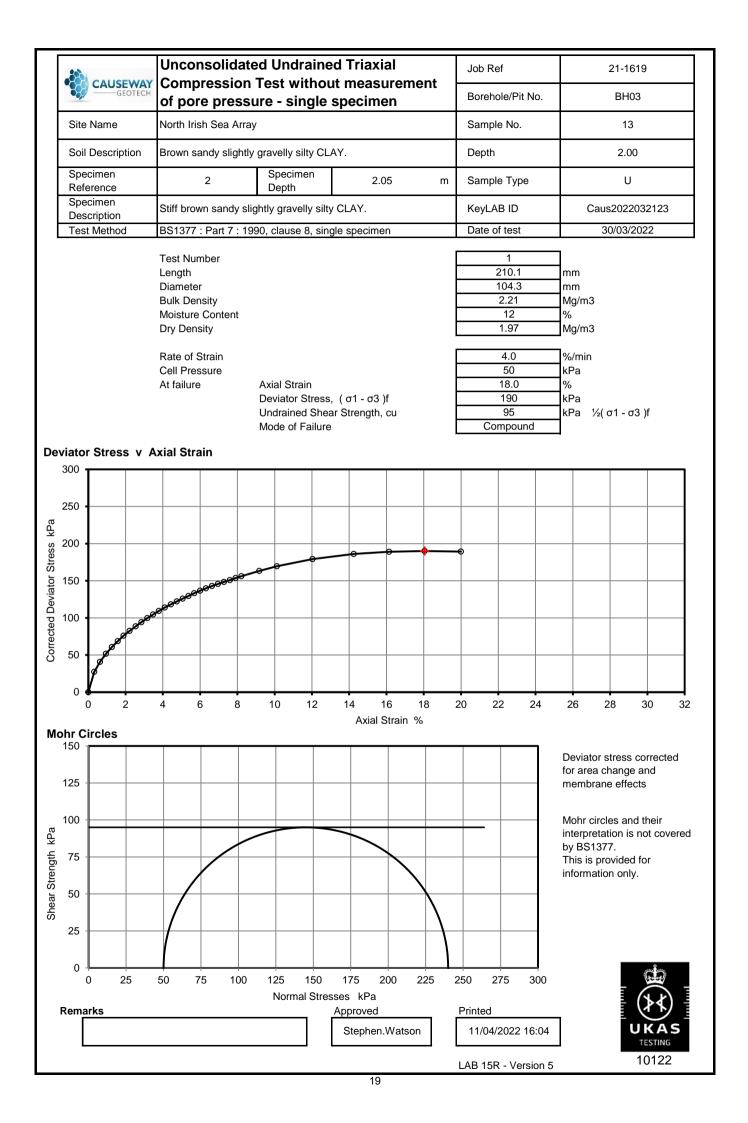


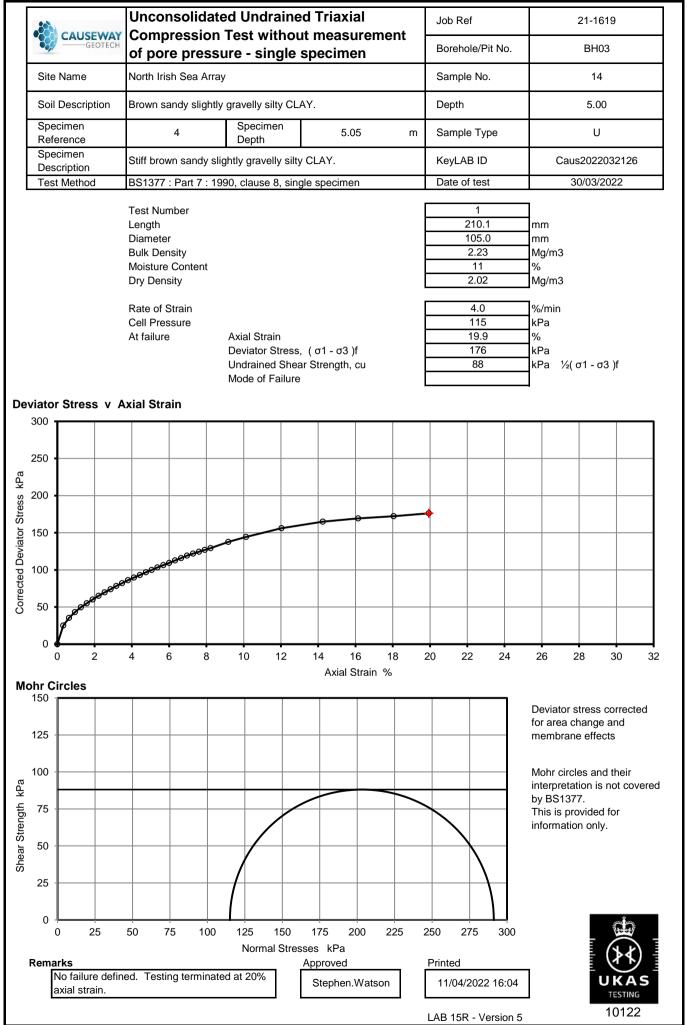




| CAL | ISEW | | | Moisture Condition Value at Natural Moisture Content | | | | | | | | | | |
|--|---------------------|------|-----------|--|---|------------------------|------------------------------|--------------------------------|--------------------------------|---------|--|--|--|--|
| CAC | -GEOT | ECH | | Summary of Results | | | | | | | | | | |
| Project No. | | | Project I | Name | | | | | | | | | | |
| 21- | 1619 | | | North Irish Sea Array | | | | | | | | | | |
| Hole No. | Def | | nple | T | Soil Description | Retained on 20mm sieve | Moisture Content <20mm | Moisture Condition Value | Method of Interpretation | Remarks | | | | |
| | Ref | Тор | Base | Туре | | % | % | | | | | | | |
| TP01 | 3 | 1.00 | | в | Greyish brown sandy slightly gravelly silty CLAY. | 0 | 20 | 13.0 | Best fit line | | | | | |
| TP02 | 3 | 1.00 | | в | Greyish brown sandy slightly gravelly silty CLAY. | 12 | 96 | 8.8 | Best fit line | | | | | |
| TP07 | 4 | 1.00 | | В | Greyish brown sandy slightly gravelly sitty CLAY. | 14 | 16 | 8.7 | Best fit line | | | | | |
| TP09 | 4 | 1.20 | | в | Greyish brown sandy slightly gravelly silty CLAY. | 0 | 23 | 13.9 | Best fit line | | | | | |
| TP21 | 3 | 1.00 | | в | Greyish brown slightly sandy silty CLAY with occasional shell fragments. | 4 | 69 | 7.8 | Best fit line | | | | | |
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| | LAB 10R - Version 6 | | | | | | | | | | | | | |
| Key Test performed in accordance with BS1377:Part4:1990, clause 5.4 unless annotated otherwise | | | | Date Printed 04/11/20 | 22 00:00 | Approved By Stepher | n.Watson | | | | | | | |









LABORATORY REPORT



4043

Contract Number: PSL22/2280

Report Date: 27 April 2022

Client's Reference: 21-1619

Client Name: Causeway Geotech 8 Drumahiskey Road Ballymoney Co.Antrim BT53 7QL

For the attention of: Stephen Watson

Contract Title: North Irish Sea Array

| Date Received: | 28/3/2022 |
|-----------------|-----------|
| Date Commenced: | 28/3/2022 |
| Date Completed: | 27/4/2022 |

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. 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 other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins (Director) R Berriman (Quality Manager)

Ste

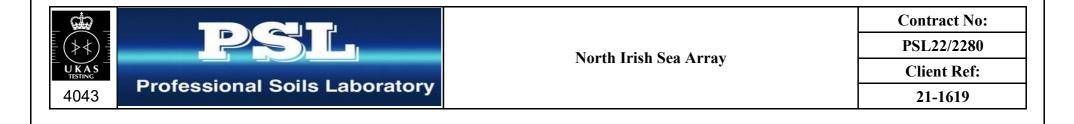
S Royle (Laboratory Manager)

L Knight (Assistant Laboratory Manager) S Eyre (Senior Technician) T Watkins (Senior Technician)

5 – 7 Hexthorpe Road, Hexthorpe, Doncaster DN4 0AR tel: +44 (0)844 815 6641 fax: +44 (0)844 815 6642 e-mail: rberriman@prosoils.co.uk awatkins@prosoils.co.uk Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

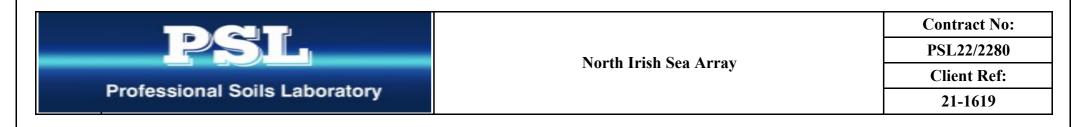
| Hole Number | Sample Number | Sample Type | Top Depth m | Base Depth m | Description of Sample |
|----------------|------------------|----------------|-------------------|--------------------|---|
| TP01 | 4 | В | 1.20 | | Dark brown slightly gravelly sandy CLAY. |
| TP02 | 4 | В | 1.20 | | Brown gravelly sandy CLAY. |
| TP07 | 5 | В | 1.20 | | Brown gravelly sandy CLAY. |
| TP09 | 4 | В | 1.20 | | Dark brown slightly sandy CLAY. |
| TP20 | 3 | В | 1.00 | | Brown slightly gravelly slightly sandy CLAY. |
| TP21 | 3 | В | 1.00 | | Dark brown sandy CLAY with some organic material. |
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SUMMARY OF THERMAL PROPERTY TESTS

In accordance with ASTM-D5334

| Hole | Sample | Sample | Тор | Base | Moisture Content | Bulk Density | Dry Density | Thermal Conductivity | Thermal Resistivity | Remarks |
|-------------|--------|--------|-------|-------|---------------------|-------------------|-------------------|-------------------------|------------------------|----------|
| Number | Number | Туре | Depth | Depth | % | Mg/m ³ | Mg/m ³ | | | Kemai Ks |
| | | | m | m | | | | W/m K | C.cm/W | |
| TP01 | 4 | В | 1.20 | | 19 | 2.01 | 1.68 | 1.893 | 52.8 | |
| TP02 | 4 | В | 1.20 | | 14 | 2.18 | 1.91 | 2.171 | 46.1 | |
| TP07 | 5 | В | 1.20 | | 16 | 2.14 | 1.84 | 2.095 | 47.7 | |
| TP09 | 4 | В | 1.20 | | 21 | 1.99 | 1.65 | 1.662 | 60.2 | |
| TP20 | 3 | В | 1.00 | | 31 | 1.86 | 1.42 | 1.657 | 60.4 | |
| TP21 | 3 | В | 1.00 | | 55 | 1.60 | 1.03 | 1.153 | 86.8 | |
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HEAD OFFICE Causeway Geotech Ltd 8 Drumahiskey Road Ballymoney Co. Antrim, N. Ireland, BT53 7QL NI: +44 (0)28 276 66640 Registered in Northern Ireland. Company Number: NI610766

REGIONAL OFFICE Causeway Geotech (IRL) Ltd Unit 1 Fingal House Stephenstown Industrial Estate Balbriggan, Co Dublin, Ireland, K32 VR66 ROI: +353 (0)1 526 7465 ROI: +3533 (0)1 526 7465 Company Number 633786

www.causewaygeotech.com

SOIL AND ROCK SAMPLE ANALYSIS LABORATORY TEST REPORT

15 April 2022

| Project Name: | North Irish Sea Array |
|---------------|-----------------------|
| Project No.: | 21-1619 |
| Client: | Statkraft |
| Engineer: | ARUP |

We are pleased to attach the results of laboratory testing carried out for the above project. This memo and its attachments constitute a report of the results of tests as detailed in the Contents page(s). This testing was performed between 24/03/2022 and 15/04/2022.

The attached results complete the testing requested and we would therefore wish to confirm that samples will be retained without charge for a period of 28 days from the above date after which they will be appropriately disposed of unless we receive written instructions to the contrary prior to that date.

We trust our report meets with your approval but if you have any queries or require additional information, please do not hesitate to contact the undersigned.

Han Notin

Stephen Watson Laboratory Manager Signed for and on behalf of Causeway Geotech Ltd



Project Name: North Irish Sea Array

Report Reference: Schedule 6

The table below details the tests carried out, the specifications used, and the number of tests included in this report. The results contained in this report relate to the sample(s) as received

Tests marked with* in this report are not United Kingdom Accreditation Service (UKAS) accredited and are not included in Causeway Geotech Limited's scope of UKAS Accreditation Schedule of Tests. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

| Material tested | Type of test/Properties measured/Range of measurement | Standard specifications | No. of results included in the report |
|-----------------|---|---------------------------------------|---|
| SOIL | Moisture Content of Soil | BS 1377-2: 1990: Cl 3.2 | 13 |
| SOIL | Liquid and Plastic Limits of soil-4 point cone penetrometer method | BS 1377-2: 1990: Cl 4.4, 5.3 & 5.4 | 6 |
| SOIL | Particle size distribution - wet sieving | BS 1377-2: 1990: Cl 9.2 | 6 |
| SOIL | Particle size distribution - sedimentation hydrometer method | BS 1377-2: 1990: Cl 9.5 | 6 |

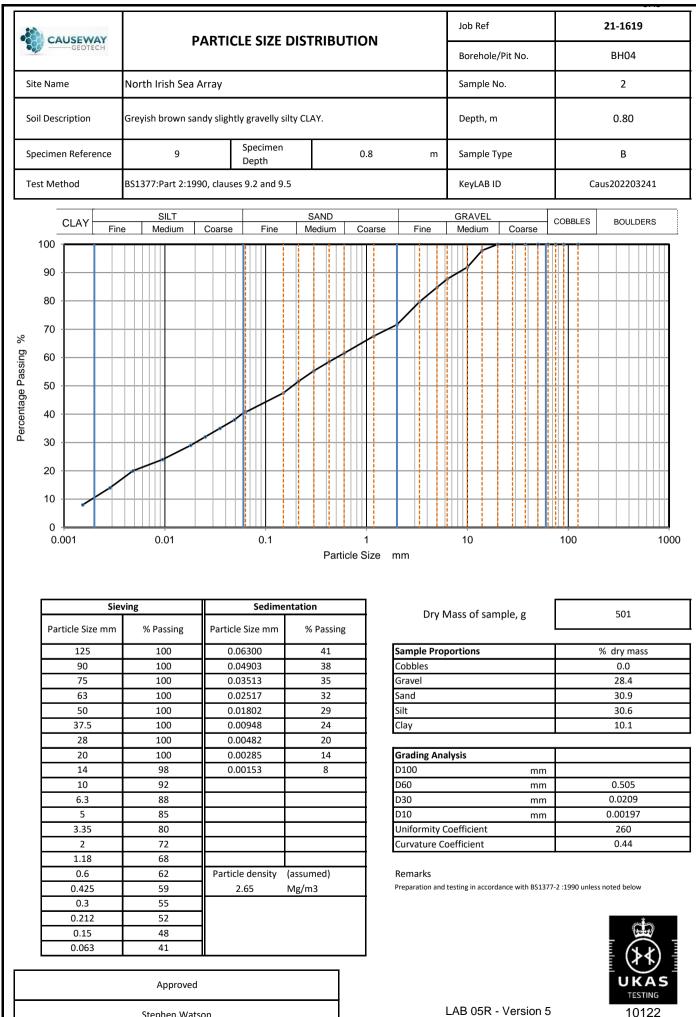
SUB-CONTRACTED TESTS

In agreement with Client, the following tests were conducted by an approved sub-contractor. All subcontracting laboratories used are UKAS accredited.

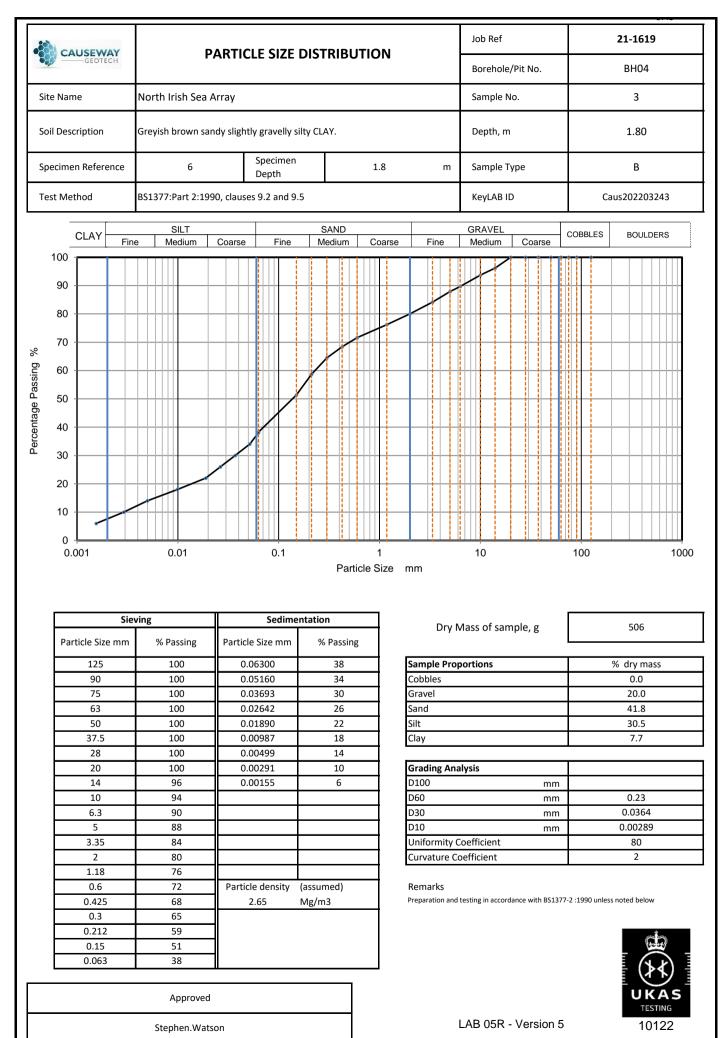
| Material tested | Type of test/Properties measured/Range of measurement | Standard specifications | No. of results included in the report |
|---|---|----------------------------|---|
| SOIL – Subcontracted to Eurofins Chemtest Ltd (UKAS 2183) | BRE Test - Suite B | | 3 |

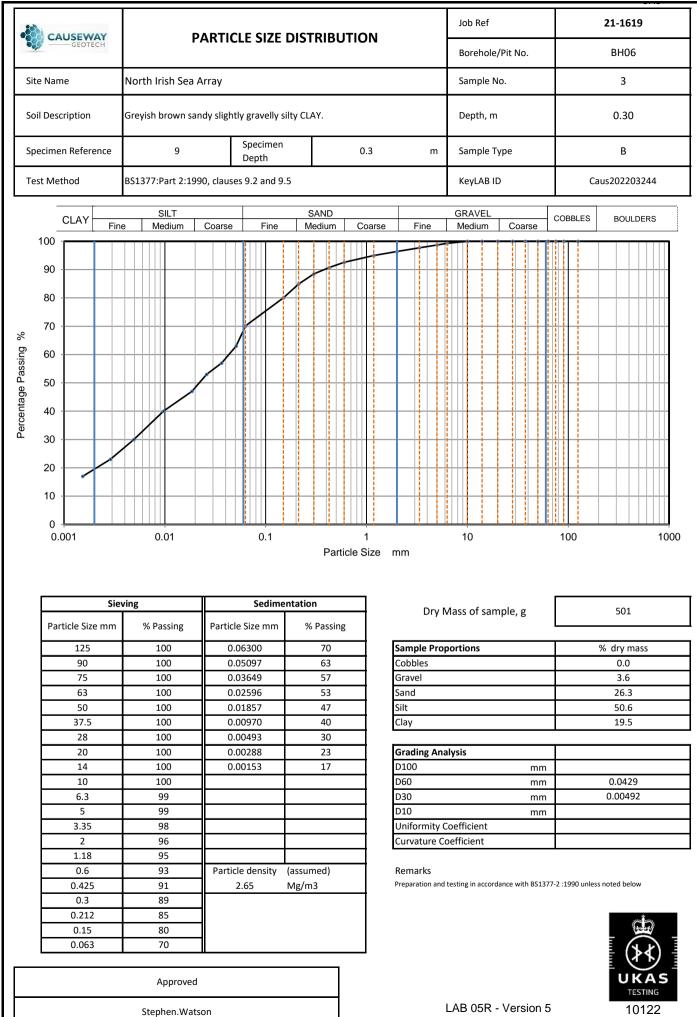
| | JSE GEO | VAY TECH | | | Summar | las | ssification Test Results | | | | | | | |
|---|------------|--------------------|--------------|-------|---|----------------------|--------------------------|--------------|--------------------------|---------|----------|---------|------------------------------|------------------------------|
| Project No. | | | Project | Name | | | | | | | | | | |
| 21-1 | 619 | | | | North Irish Sea Array | | | | | | | | | |
| Hole No. | Ref | Тор | mple Base | Туре | Soil Description | Dens bulk Mg/m | dry | W % | Passing 425µm % | LL % | PL % | PI % | Particle density Mg/m3 | Casagrande Classification |
| BH04 | 1 | 0.30 | 0.50 | В | Greyish brown sandy slightly gravelly silty CLAY. | | | 23.0 | | | | | | |
| BH04 | 2 | 0.80 | 1.00 | в | Greyish brown sandy slightly gravelly silty CLAY. | | | 15.0 | 69 | 32 | 17 | 15 | | CL |
| BH04 | 4 | 1.20 | | D | Greyish brown sandy slightly gravelly silty CLAY. | | | 25.0 | | | | | | |
| BH04 | 3 | 1.80 | 2.00 | в | Greyish brown very sandy slightly gravelly silty CLAY. | | | 19.0 | | | | | | |
| BH06 | 3 | 0.30 | 0.50 | В | Greyish brown sandy slightly gravelly silty CLAY. | | | 44.0 | 90 | 54 | 28 | 26 | | СН |
| BH06 | 8 | 1.20 | | D | Greyish brown sandy slightly gravelly silty CLAY. | | | 14.0 | 70 | 30 | 16 | 14 | | CL |
| BH06 | 6 | 2.80 | 3.00 | в | Greyish brown sandy slightly gravelly silty CLAY. | | | 14.0 | 64 | 26 | 15 | 11 | | CL |
| BH06 | 7 | 3.80 | 4.00 | в | Greyish brown sandy slightly gravelly silty CLAY. | | | 14.0 | | | | | | |
| BH07 | 3 | 0.30 | 0.50 | в | Greyish brown sandy slightly gravelly silty CLAY. | | | 31.0 | | | | | | |
| BH07 | 11 | 1.20 | 1.65 | U | Greyish brown sandy slightly gravelly silty CLAY. | | | 40.0 | | | | | | |
| BH07 | 5 | 1.80 | 2.00 | в | Greyish brown sandy slightly gravelly silty CLAY. | | | 17.0 | 75 | 34 | 18 | 16 | | CL |
| BH07 | 8 | 2.00 | | D | Greyish brown sandy slightly gravelly silty CLAY. | | | 19.0 | | | | | | |
| All tests perfor | med i | n accord | lance wit | h BS1 | 377:1990 unless specified | otherwise | e | | · | | <u> </u> | | LAE | 3 01R Version 5 |
| Key Density test Liquid Limit Particle density Linear measurement unless : 4pt cone unless : sp - small pyknometer wd - water displacement cas - Casagrande method gj - gas jar wi - immersion in water 1pt - single point test | | | 15/04/2022 | | | Appr | | By Watson | UKAS TESTING 10122 | | | | | |

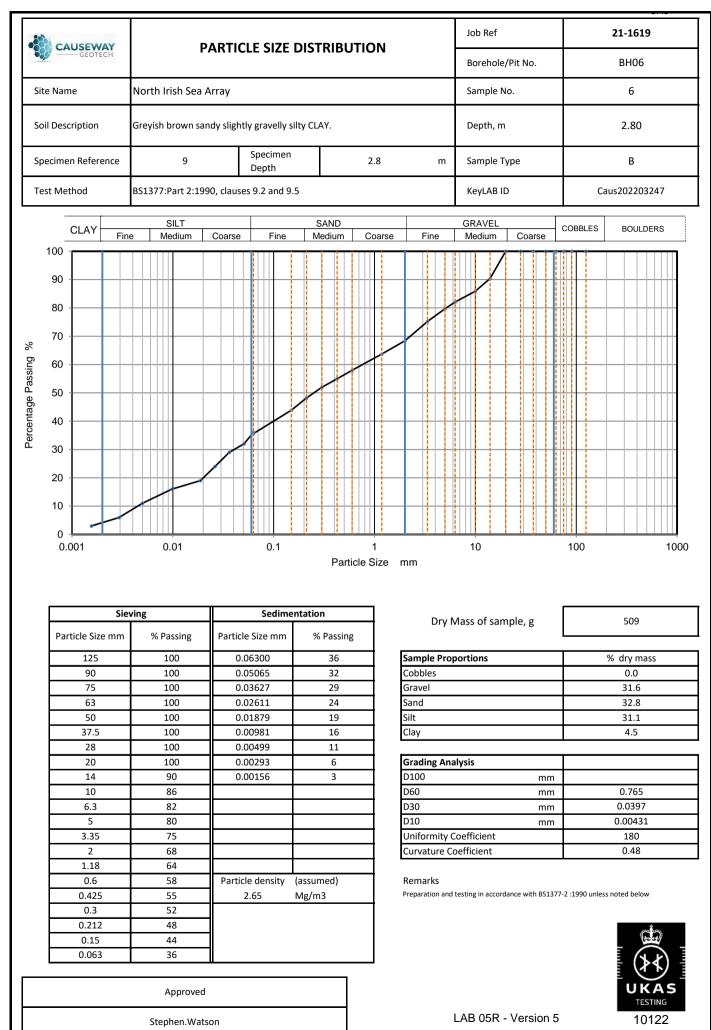
| CAUSEWAY GEOTECH | | | | | Summary of Classification Test Results | | | | | | | | | | |
|--|----------|---------|------------|---|---|--|----------------------|--------|--------|-----------------------|---------|---------|------------------|------------------------------|------------------------------|
| Project | No. | | | Project | roject Name | | | | | | | | | | |
| | 21-1 | 619 | | | | North Irish Sea Array | | | | | | | | | |
| Hole | e No. | Ref | Saı Top | mple Base | Туре | Soil Description | Dens bulk Mg/n | dry | w % | Passing 425µm % | LL % | PL % | PI % | Particle density Mg/m3 | Casagrande Classification |
| В⊦ | 107 | 6 | 2.80 | 3.00 | в | Greyish brown sandy slightly gravelly silty CLAY. | | | 14.0 | | | | | | |
| В⊦ | 107 | 7 | 3.80 | 4.00 | в | Greyish brown sandy gravelly silt CLAY. | y | | 13.0 | 69 | 30 | 15 | 15 | | CL |
| | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | |
| All tests | s perfor | med i | n accord | lance wit | th BS1 | 377:1990 unless specified | d otherwis | е | _ | _ | _ | _ | _ | LAE | 3 01R Version 5 |
| Кеу | | neasure | ment unles | S : | Liquid Limit Particle densit 4pt cone unless : sp - small pyke | | | insity | | | | Appr | Approved By | | |
| wd - water displacement wi - immersion in water | | | | rasagrande method gj - g ngle point test | jas jar | | | | | Step | hen. | Watson | testing 10122 | | |

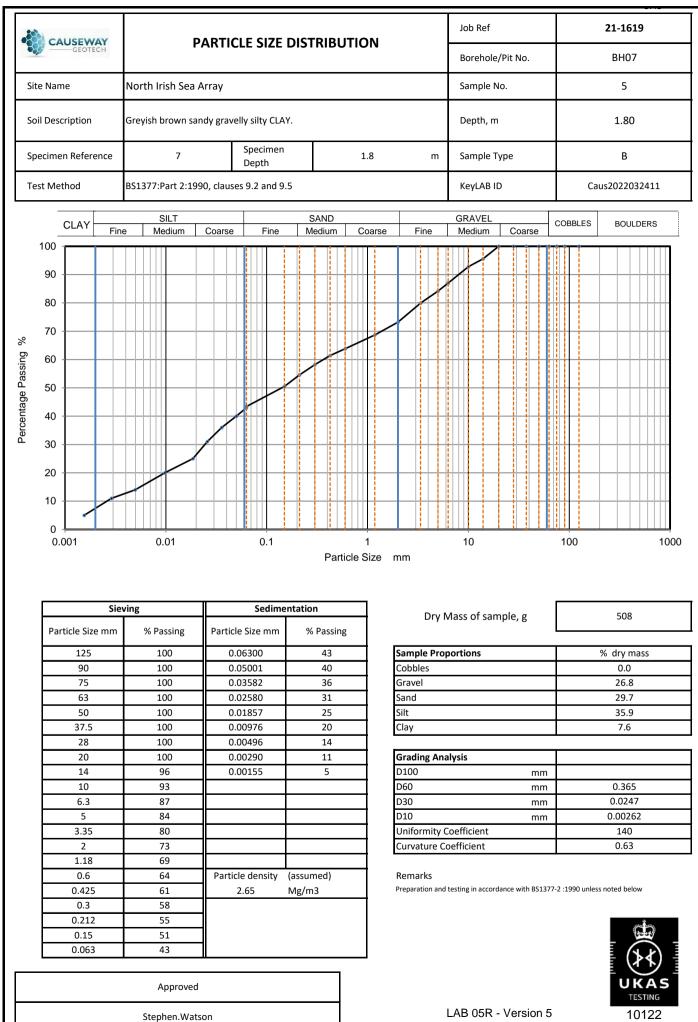


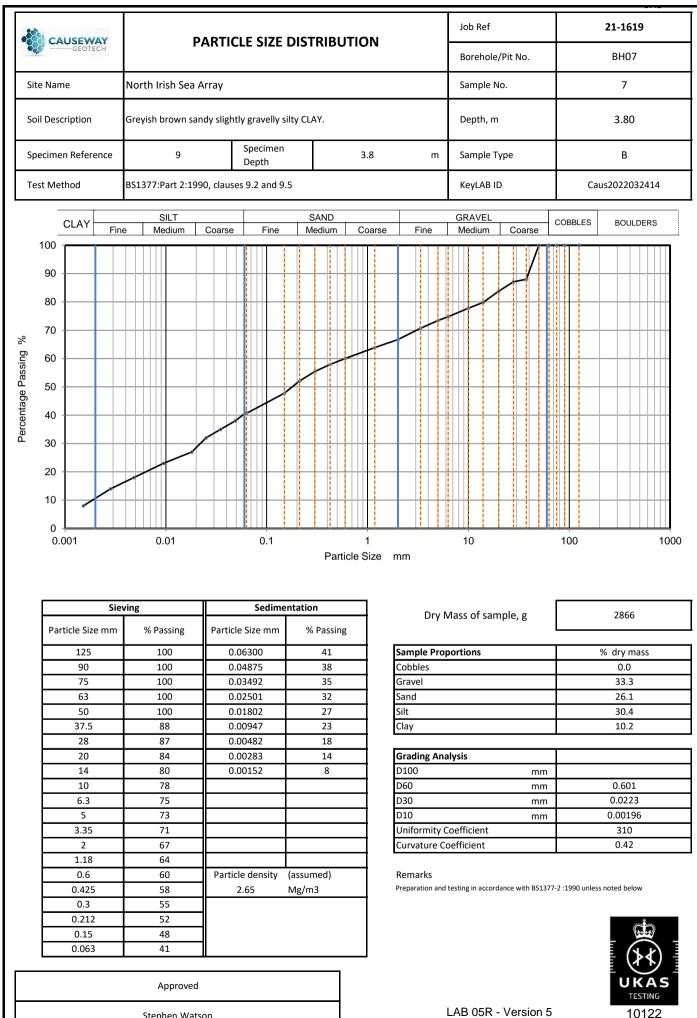
Stephen.Watson











Stephen.Watson

🔅 eurofins

Chemtest

Eurofins Chemtest Ltd Depot Road Newmarket CB8 0AL Tel: 01638 606070 Email: info@chemtest.com

| Report No.: | 22-12440-1 | | |
|------------------------|---|------------------|-------------|
| Initial Date of Issue: | 11-Apr-2022 | | |
| Client | Causeway Geotech Ltd | | |
| Client Address: | 8 Drumahiskey Road Balnamore Ballymoney County Antrim BT53 7QL | | |
| Contact(s): | Carin Cornwall Colm Hurley Darren O'Mahony Gabriella Horan Joe Gervin John Cameron Lucy Newland Martin Gardiner Matthew Gilbert Neil Haggan Paul Dunlop Sean Ross Stephen Franey Stephen Watson Stuart Abraham Thomas McAllister | | |
| Project | 21-1619 North Irish Sea Array | | |
| Quotation No.: | | Date Received: | 01-Apr-2022 |
| Order No.: | | Date Instructed: | 01-Apr-2022 |
| No. of Samples: | 3 | | |
| Turnaround (Wkdays): | 7 | Results Due: | 11-Apr-2022 |
| Date Approved: | 11-Apr-2022 | | |
| Approved By: | | | |
| Soul | - | | |

Details:

Stuart Henderson, Technical Manager



🔅 eurofins

Chemtest

Eurofins Chemtest Ltd Depot Road Newmarket CB8 0AL Tel: 01638 606070 Email: info@chemtest.com

<u> Results - Soil</u>

Project: 21-1619 North Irish Sea Array

| Client: Causeway Geotech Ltd | Chemtest Job No.: | | | 22-12440 | 22-12440 | 22-12440 | |
|-------------------------------------|----------------------|------|----------|----------|-------------|-------------|-------------|
| Quotation No.: | Chemtest Sample ID.: | | | 1403841 | 1403842 | 1403843 | |
| Order No.: | Client Sample Ref.: | | | 2 | 4 | 7 | |
| | | Sa | ample Lo | ocation: | BH04 | BH06 | BH07 |
| | | | Sampl | e Type: | SOIL | SOIL | SOIL |
| | | | Top De | oth (m): | 0.8 | 0.8 | 3.8 |
| | Date Sampled: | | | | 31-Mar-2022 | 31-Mar-2022 | 31-Mar-2022 |
| Determinand | Accred. | SOP | Units | LOD | | | |
| Moisture | N | 2030 | % | 0.020 | 12 | 22 | 11 |
| рН | U | 2010 | | 4.0 | 8.7 | 8.4 | 8.7 |
| Sulphate (2:1 Water Soluble) as SO4 | U 2120 g/l 0.010 | | 0.026 | 0.022 | < 0.010 | | |
| Sulphate (Total) | U 2430 % 0.010 | | | 0.037 | 0.054 | 0.035 | |
| Sulphate (Acid Soluble) | U | 2430 | % | 0.010 | 0.016 | < 0.010 | 0.016 |

Test Methods

| SOP | Title | Parameters included | Method summary | | | | | |
|------|--|--------------------------------------|--|--|--|--|--|--|
| 2010 | pH Value of Soils | рН | pH Meter | | | | | |
| 2030 | Moisture and Stone Content of Soils(Requirement of MCERTS) | Moisture content | Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C. | | | | | |
| 2040 | Soil Description(Requirement of MCERTS) | Soil description | As received soil is described based upon BS5930 | | | | | |
| 2120 | Water Soluble Boron, Sulphate, Magnesium & Chromium | Boron; Sulphate; Magnesium; Chromium | Aqueous extraction / ICP-OES | | | | | |
| 2430 | Total Sulphate in soils | Total Sulphate | Acid digestion followed by determination of sulphate in extract by ICP-OES. | | | | | |

Report Information

| Key | |
|-----|---|
| U | UKAS accredited |
| М | MCERTS and UKAS accredited |
| Ν | Unaccredited |
| S | This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis |
| SN | This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis |
| Т | This analysis has been subcontracted to an unaccredited laboratory |
| I/S | Insufficient Sample |
| U/S | Unsuitable Sample |
| N/E | not evaluated |
| < | "less than" |
| > | "greater than" |
| SOP | Standard operating procedure |
| LOD | Limit of detection |
| | Comments or interpretations are beyond the scope of LIKAS appreditation |

Comments or interpretations are beyond the scope of UKAS accreditation The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request None of the results in this report have been recovery corrected All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis All Asbestos testing is performed at the indicated laboratory Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A Date of sampling not supplied
- B Sample age exceeds stability time (sampling to extraction)
- C Sample not received in appropriate containers
- D Broken Container
- E Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt All water samples will be retained for 14 days from the date of receipt Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to: <u>customerservices@chemtest.com</u>



HEAD OFFICE Causeway Geotech Ltd 8 Drumahiskey Road Ballymoney Co. Antrim, N. Ireland, BT53 7QL NI: +44 (0)28 276 66640 Registered in Northern Ireland. Company Number: NI610766

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www.causewaygeotech.com

SOIL AND ROCK SAMPLE ANALYSIS LABORATORY TEST REPORT

15 April 2022

| Project Name: | North Irish Sea Array |
|---------------|-----------------------|
| Project No.: | 21-1619 |
| Client: | Statkraft |
| Engineer: | ARUP |

We are pleased to attach the results of laboratory testing carried out for the above project. This memo and its attachments constitute a report of the results of tests as detailed in the Contents page(s). This testing was performed between 24/03/2022 and 15/04/2022.

The attached results complete the testing requested and we would therefore wish to confirm that samples will be retained without charge for a period of 28 days from the above date after which they will be appropriately disposed of unless we receive written instructions to the contrary prior to that date.

We trust our report meets with your approval but if you have any queries or require additional information, please do not hesitate to contact the undersigned.

Han Notin

Stephen Watson Laboratory Manager Signed for and on behalf of Causeway Geotech Ltd



Project Name: North Irish Sea Array

Report Reference: Schedule 7

The table below details the tests carried out, the specifications used, and the number of tests included in this report. The results contained in this report relate to the sample(s) as received

Tests marked with* in this report are not United Kingdom Accreditation Service (UKAS) accredited and are not included in Causeway Geotech Limited's scope of UKAS Accreditation Schedule of Tests. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

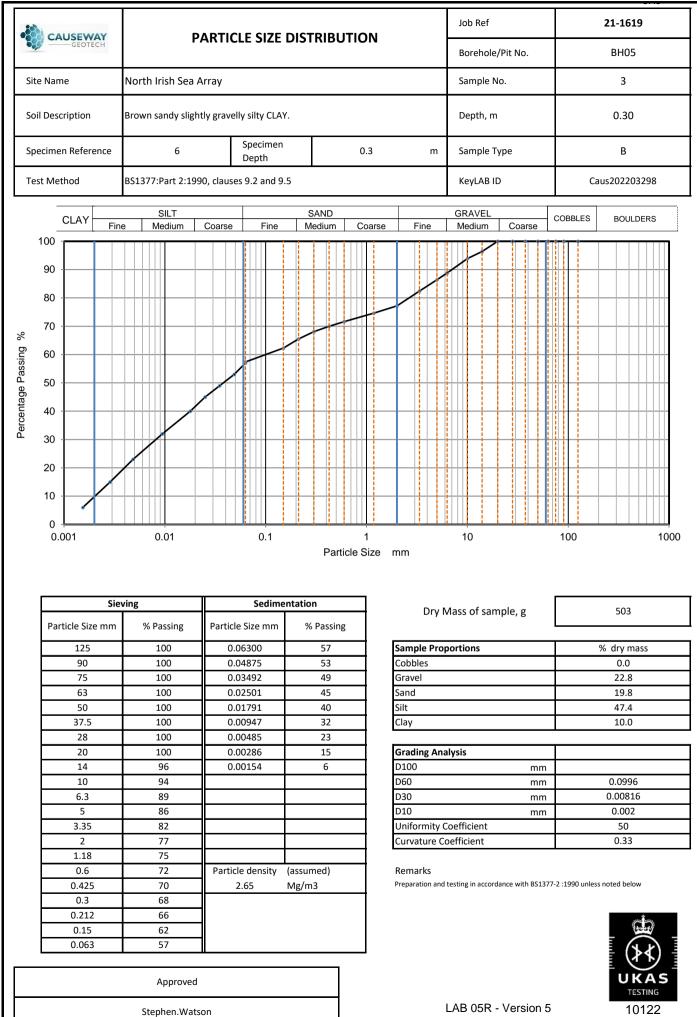
| Material tested | Type of test/Properties measured/Range of measurement | Standard specifications | No. of results included in the report | | |
|-----------------|--|---------------------------------------|---|--|--|
| SOIL | Moisture Content of Soil | BS 1377-2: 1990: Cl 3.2 | 11 | | |
| SOIL | Liquid and Plastic Limits of soil-4 point cone penetrometer method | BS 1377-2: 1990: Cl 4.4, 5.3 & 5.4 | 10 | | |
| SOIL | Particle size distribution - wet sieving | BS 1377-2: 1990: Cl 9.2 | 10 | | |
| SOIL | Particle size distribution - sedimentation hydrometer method | BS 1377-2: 1990: Cl 9.5 | 10 | | |
| SOIL | Undrained shear strength – triaxial compression without measurement of pore pressure (loads from 0.12 to 24 kN) | BS 1377-7: 1990: Cl 8 | 2 | | |

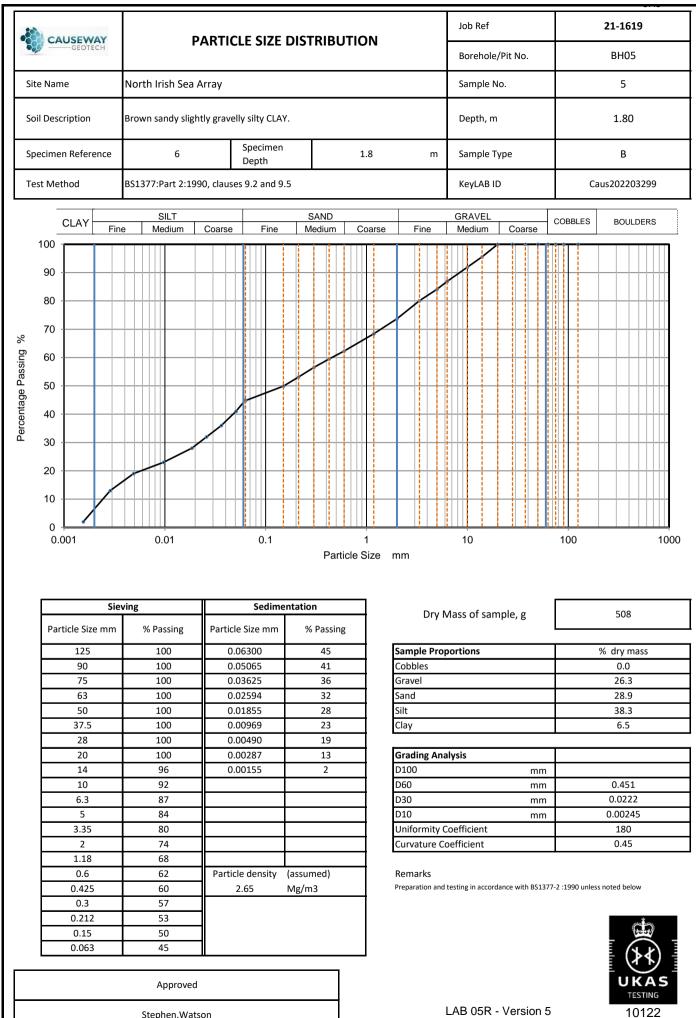
SUB-CONTRACTED TESTS

In agreement with Client, the following tests were conducted by an approved sub-contractor. All subcontracting laboratories used are UKAS accredited.

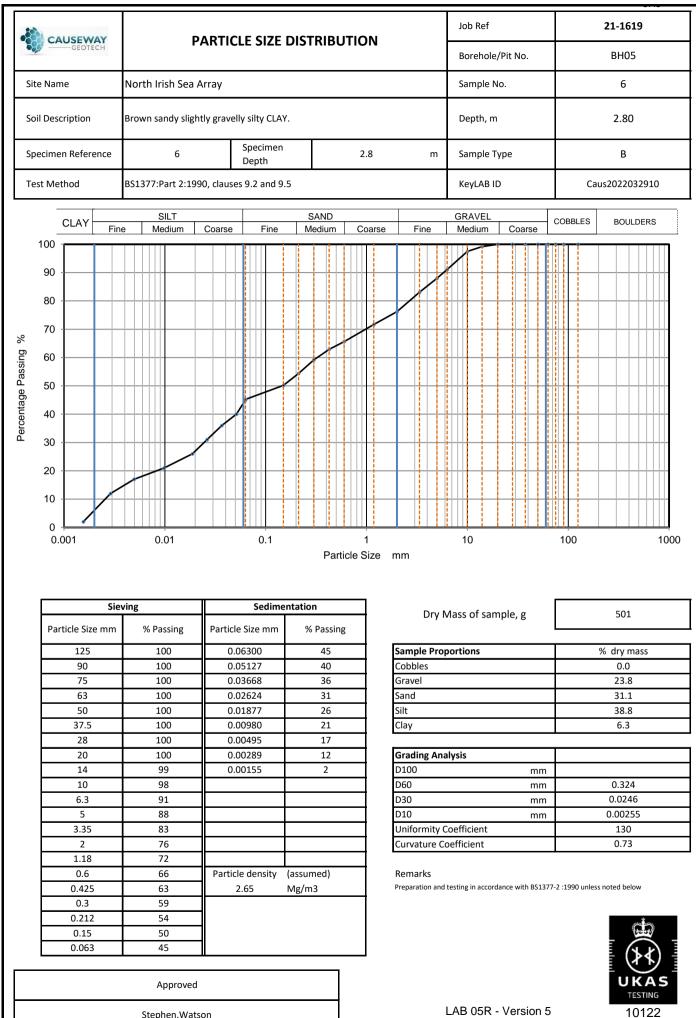
| Material tested | Type of test/Properties measured/Range of measurement | Standard specifications | No. of results included in the report |
|---|---|----------------------------|---|
| SOIL – Subcontracted to Eurofins Chemtest Ltd (UKAS 2183) | BRE Test - Suite B | | 4 |

| CAUSEWAY GEOTECH | | | Summary of Classification Test Results | | | | | | | | | | | |
|---------------------|---|-----------------------------------|--|---------|--|-----------------------------------|------|--------|-----------------------|---------|---------|---------|------------------------------|------------------------------|
| Project No. | | Project Name | | | | | | | | | | | | |
| 21-1619 | | | North Irish Sea Array | | | | | | | | | | | |
| Hole No. | Ref | Saı Top | mple Base | Туре | Soil Description | Dens bulk Mg/m | dry | W % | Passing 425µm % | LL % | PL % | PI % | Particle density Mg/m3 | Casagrande Classification |
| BH05 | 3 | 0.30 | 0.50 | в | Brown sandy slightly gravelly silty CLAY. | | | 23.0 | 72 | 43 | 22 | 21 | | CI |
| BH05 | 5 | 1.80 | 2.00 | В | Brown sandy slightly gravelly silty CLAY. | | | 15.0 | 71 | 31 | 15 | 16 | | CL |
| BH05 | 6 | 2.80 | 3.00 | в | Brown sandy slightly gravelly silty CLAY. | | | 12.0 | 58 | 31 | 16 | 15 | | CL |
| BH05 | 14 | 3.00 | 3.45 | U | Brown slightly sandy gravelly silty CLAY. | | | 13.0 | 60 | 27 | 15 | 12 | | CL |
| BH05 | 8 | 4.80 | 5.00 | В | Brown sandy slightly gravelly silty CLAY. | | | 14.0 | | | | | | |
| BH05 | 15 | 6.00 | 6.45 | U | Brown sandy slightly gravelly silty CLAY. | | | 13.0 | 67 | 29 | 15 | 14 | | CL |
| BH16 | 3 | 0.30 | 0.50 | в | Brown sandy slightly gravelly silty CLAY. | | | 25.0 | 82 | 40 | 22 | 18 | | CI |
| BH16 | 5 | 1.80 | 2.00 | в | Brown sandy slightly gravelly silty CLAY. | | | 15.0 | 74 | 31 | 18 | 13 | | CL |
| BH16 | 7 | 3.80 | 4.00 | В | Greyish brown sandy slightly gravelly silty CLAY. | | | 13.0 | 69 | 28 | 15 | 13 | | CL |
| BH16 | 14 | 6.00 | 6.45 | U | Greyish brown sandy slightly gravelly silty CLAY. | | | 9.8 | 65 | 25 | 14 | 11 | | CL |
| BH16 | 15 | 9.00 | 9.45 | U | Greyish brown sandy slightly gravelly silty CLAY. | | | 10.0 | 63 | 25 | 14 | 11 | | CL |
| | | | | | | | | | | | | | | |
| All tests perfor | All tests performed in accordance with BS1377:1990 unless specified otherwise LAB 01R Version 5 | | | | | | | | | | | | | |
| | neasure ter displ | ment unles acement in water | s : | cas - C | | e density nall pyknom s jar | eter | Date F | Printed | 22 | Appr | | By Watson | UKAS TESTING 10122 |

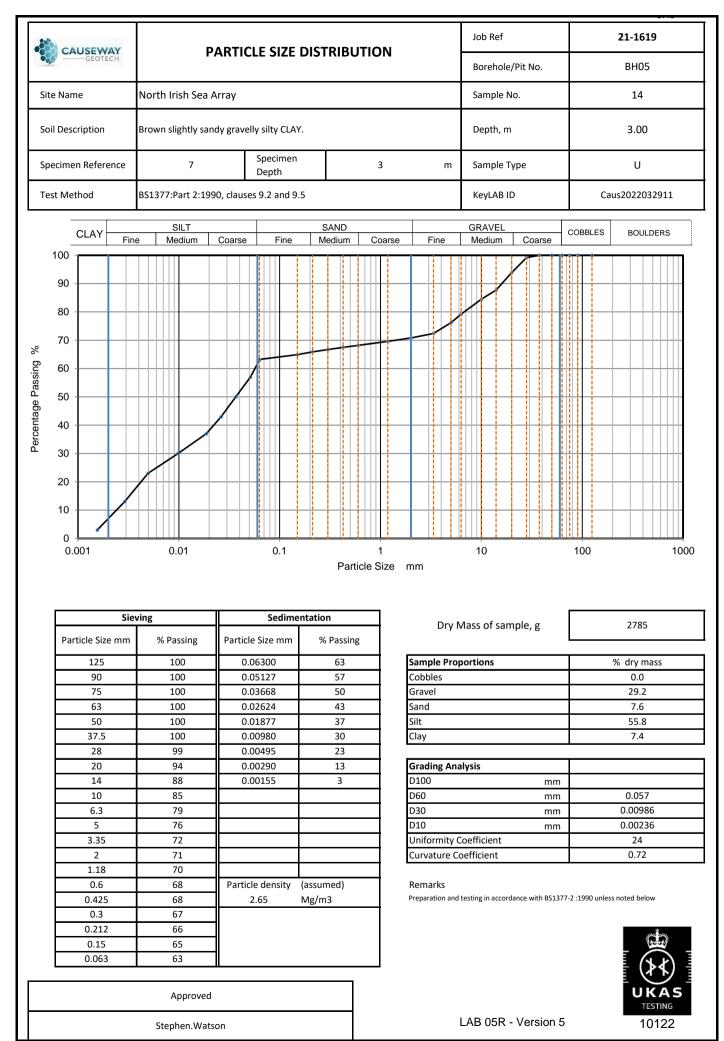


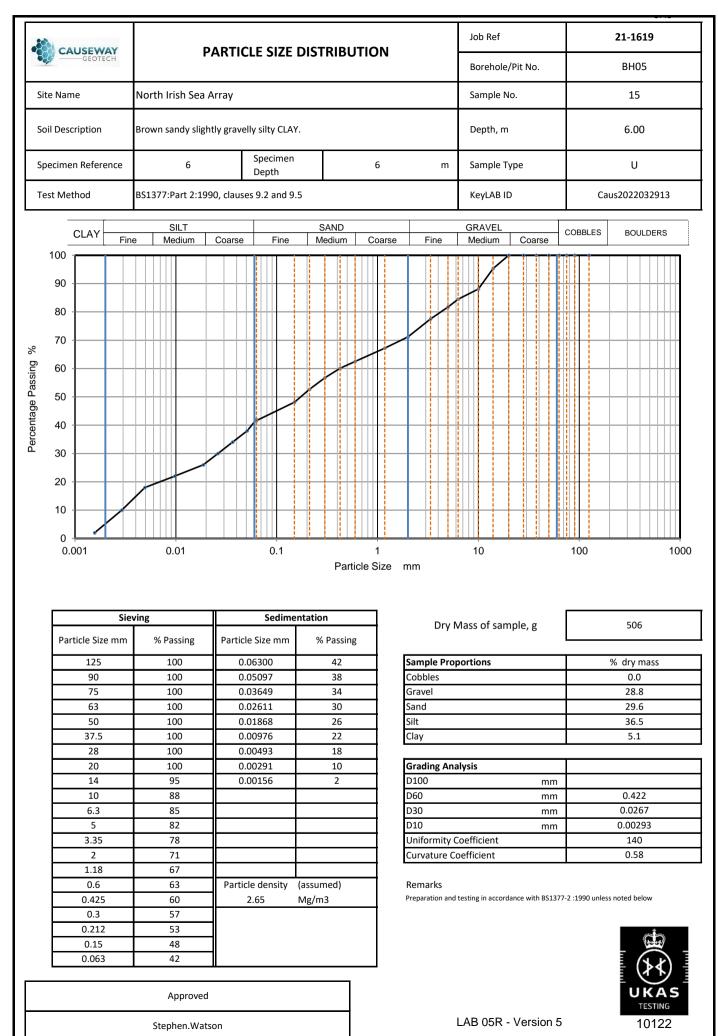


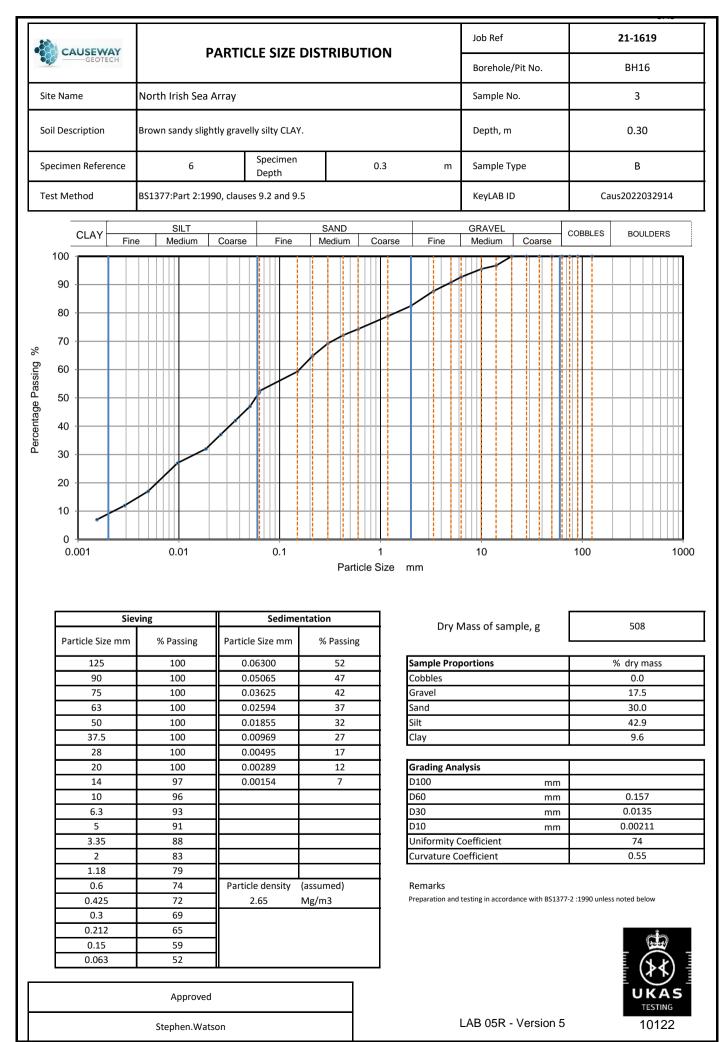
Stephen.Watson

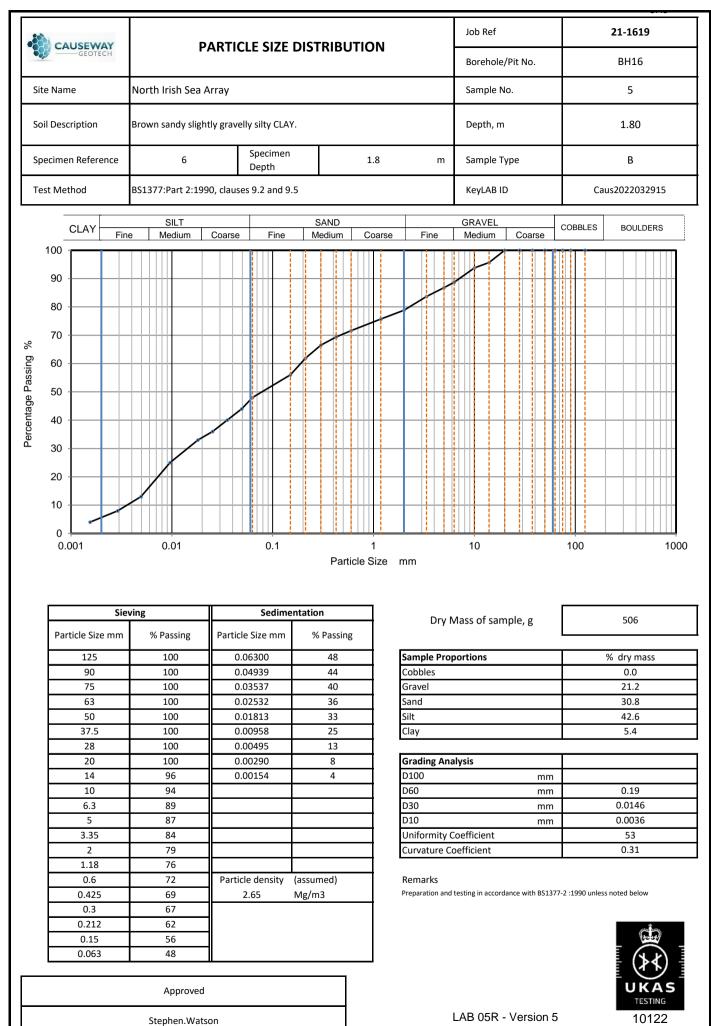


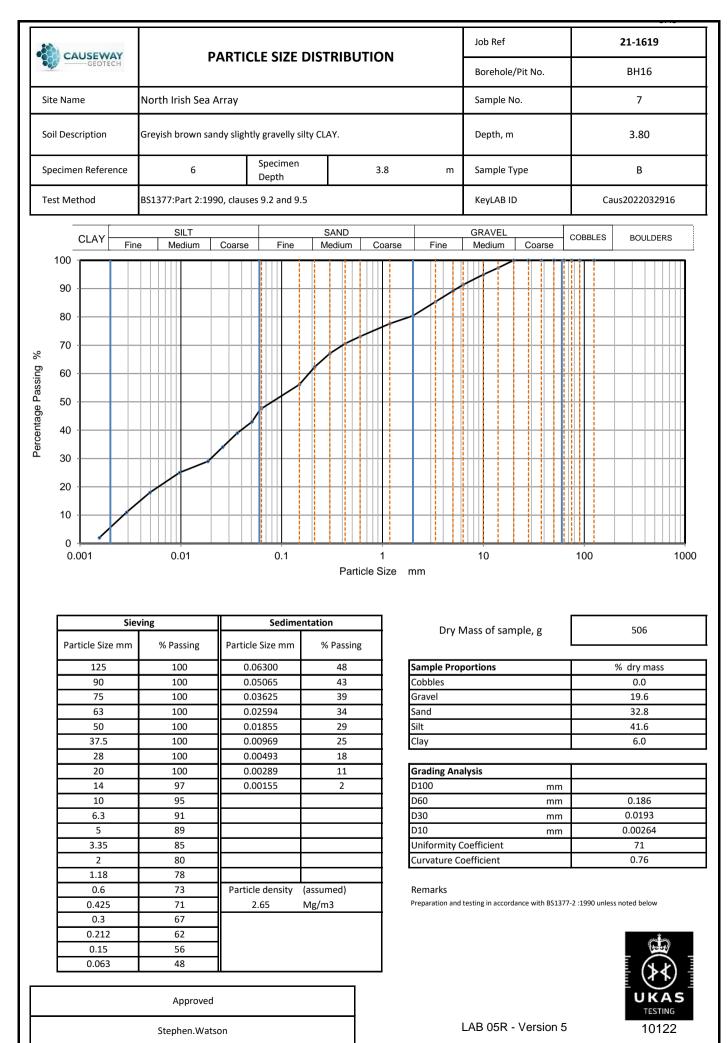
Stephen.Watson

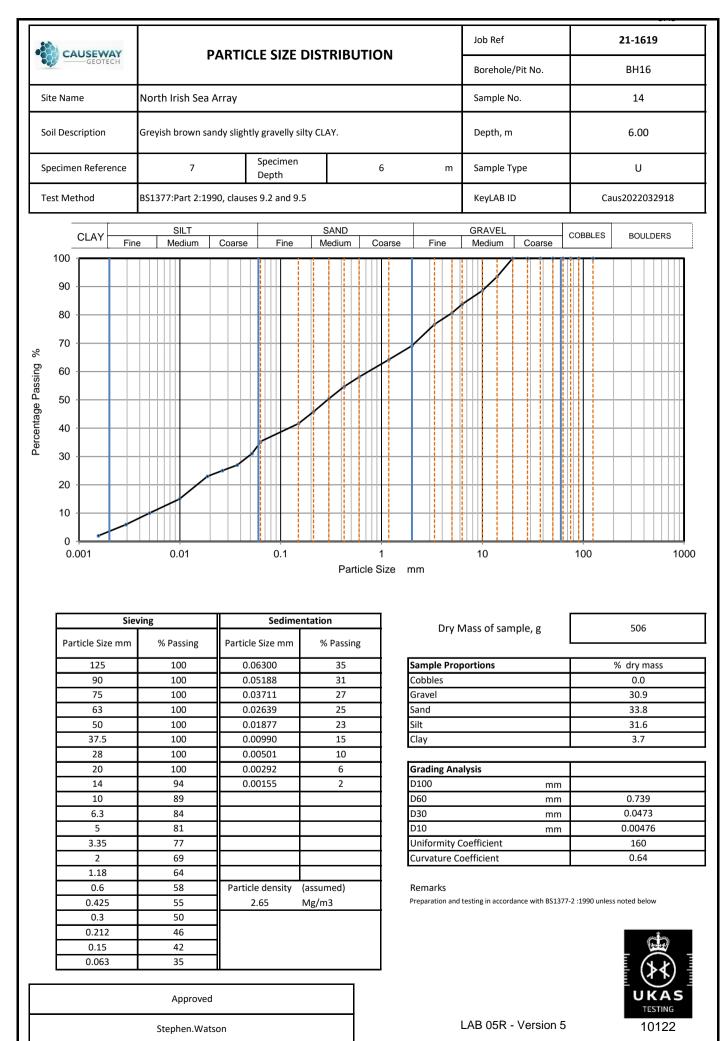


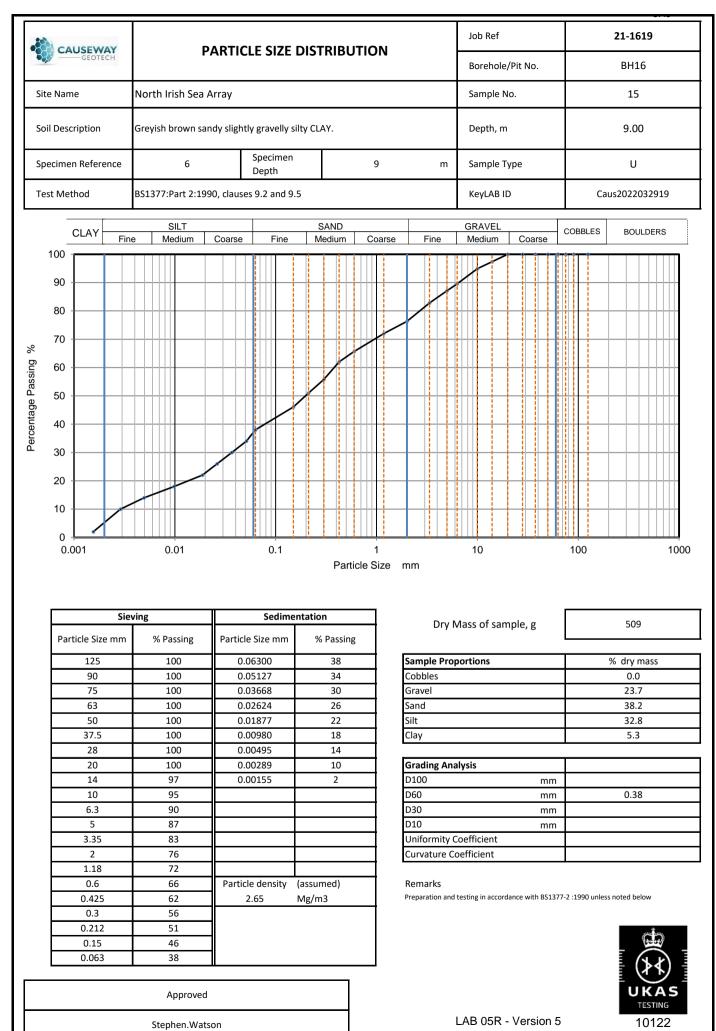


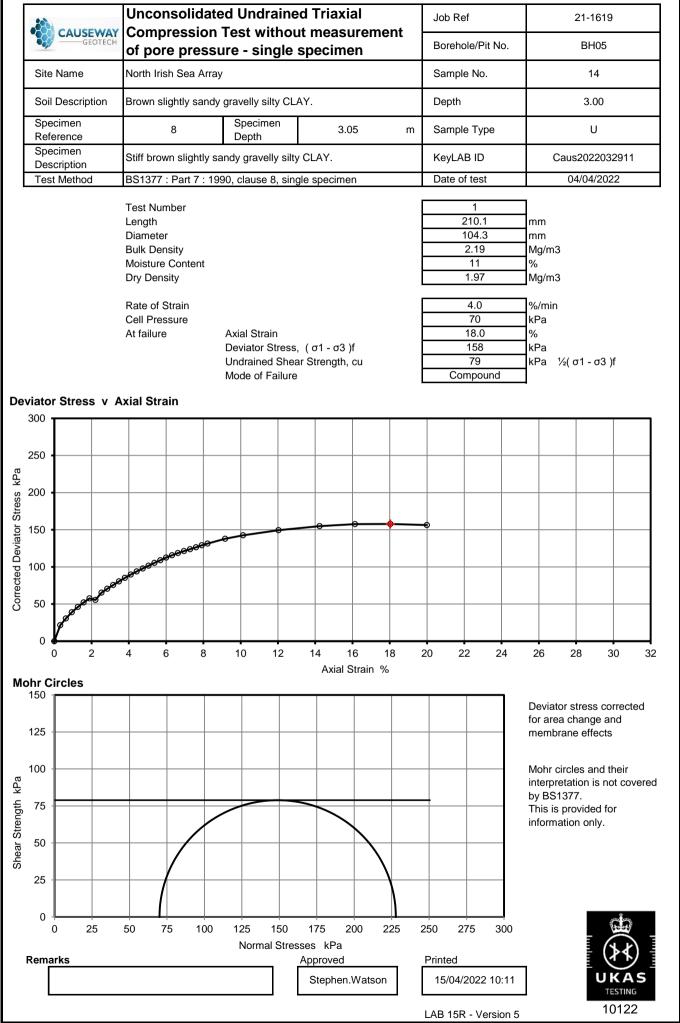


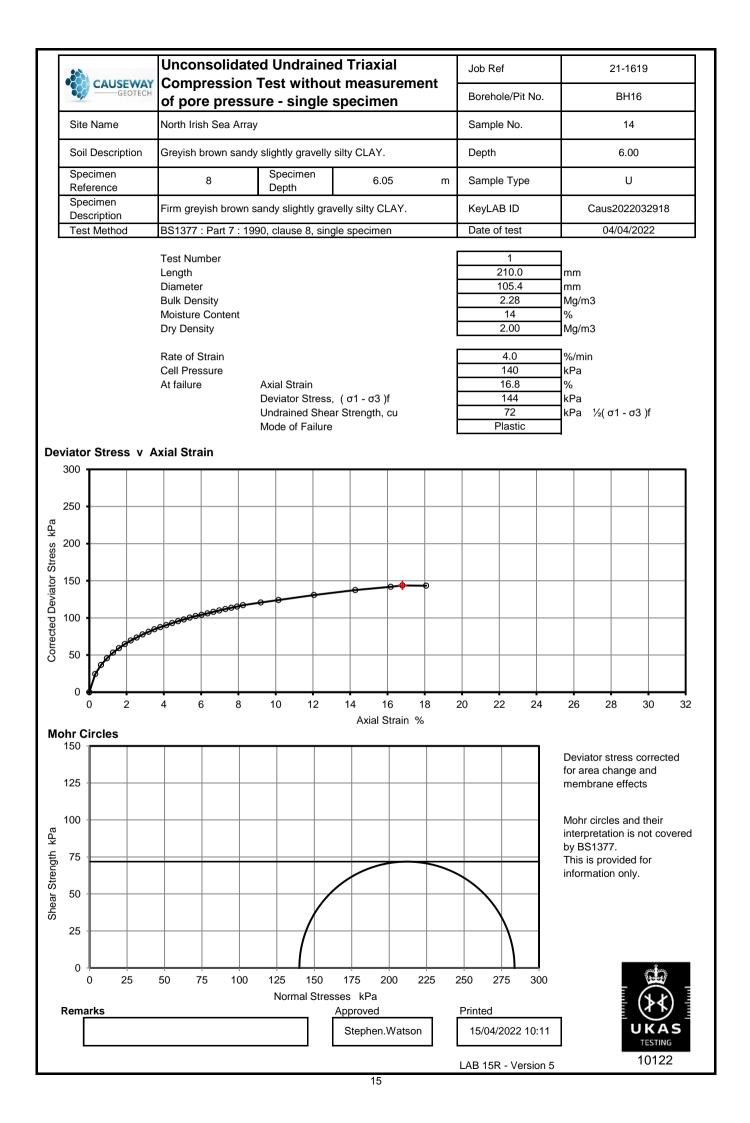












🔅 eurofins

Chemtest

Eurofins Chemtest Ltd Depot Road Newmarket CB8 0AL Tel: 01638 606070 Email: info@chemtest.com

| Report No.: | 22-12442-1 | | |
|------------------------|---|------------------|-------------|
| Initial Date of Issue: | 08-Apr-2022 | | |
| Client | Causeway Geotech Ltd | | |
| Client Address: | 8 Drumahiskey Road Balnamore Ballymoney County Antrim BT53 7QL | | |
| Contact(s): | Carin Cornwall Colm Hurley Darren O'Mahony Gabriella Horan Joe Gervin John Cameron Lucy Newland Martin Gardiner Matthew Gilbert Neil Haggan Paul Dunlop Sean Ross Stephen Franey Stephen Watson Stuart Abraham Thomas McAllister | | |
| Project | 21-1619 North Irish Sea Array | | |
| Quotation No.: | | Date Received: | 01-Apr-2022 |
| Order No.: | | Date Instructed: | 01-Apr-2022 |
| No. of Samples: | 4 | | |
| Turnaround (Wkdays): | 7 | Results Due: | 11-Apr-2022 |
| Date Approved: | 08-Apr-2022 | | |
| Approved By: | | | |
| Soul | | | |

Details:

Stuart Henderson, Technical Manager



🔅 eurofins

Chemtest

Eurofins Chemtest Ltd Depot Road Newmarket CB8 0AL Tel: 01638 606070 Email: info@chemtest.com

<u>Results - Soil</u>

Project: 21-1619 North Irish Sea Array

| Client: Causeway Geotech Ltd | Chemtest Job No.: | | | 22-12442 | 22-12442 | 22-12442 | 22-12442 | |
|-------------------------------------|---------------------|----------------------|-------|-------------|-------------|-------------|-------------|---------|
| Quotation No.: | (| Chemtest Sample ID.: | | | 1403851 | 1403852 | 1403853 | 1403854 |
| Order No.: | Client Sample Ref.: | | | 3 | 5 | 5 | 8 | |
| | | Sample Location: | | | BH05 | BH05 | BH16 | BH16 |
| | | Sample Type: | | | | SOIL | SOIL | SOIL |
| | | Top Depth (m): | | | 0.3 | 1.8 | 1.8 | 4.8 |
| | | Date Sampled: | | 31-Mar-2022 | 31-Mar-2022 | 31-Mar-2022 | 31-Mar-2022 | |
| Determinand | Accred. | SOP | Units | LOD | | | | |
| Moisture | Ν | 2030 | % | 0.020 | 22 | 15 | 16 | 14 |
| рН | U | 2010 | | 4.0 | 8.4 | 8.6 | 8.8 | 8.8 |
| Sulphate (2:1 Water Soluble) as SO4 | U | 2120 | g/l | 0.010 | 0.048 | 0.029 | 0.019 | 0.052 |
| Sulphate (Total) | U | 2430 | % | 0.010 | 0.66 | 1.9 | 0.28 | 0.040 |
| Sulphate (Acid Soluble) | U | 2430 | % | 0.010 | < 0.010 | 0.24 | 0.19 | 0.19 |

Test Methods

| SOP | Title | Parameters included | Method summary |
|------|--|--------------------------------------|--|
| 2010 | pH Value of Soils | рН | pH Meter |
| 2030 | Moisture and Stone Content of Soils(Requirement of MCERTS) | Moisture content | Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C. |
| 2040 | Soil Description(Requirement of MCERTS) | Soil description | As received soil is described based upon BS5930 |
| 2120 | Water Soluble Boron, Sulphate, Magnesium & Chromium | Boron; Sulphate; Magnesium; Chromium | Aqueous extraction / ICP-OES |
| 2430 | Total Sulphate in soils | Total Sulphate | Acid digestion followed by determination of sulphate in extract by ICP-OES. |

Report Information

| Key | |
|-----|---|
| U | UKAS accredited |
| М | MCERTS and UKAS accredited |
| Ν | Unaccredited |
| S | This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis |
| SN | This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis |
| Т | This analysis has been subcontracted to an unaccredited laboratory |
| I/S | Insufficient Sample |
| U/S | Unsuitable Sample |
| N/E | not evaluated |
| < | "less than" |
| > | "greater than" |
| SOP | Standard operating procedure |
| LOD | Limit of detection |
| | Comments or interpretations are beyond the scope of LIKAS appreditation |

Comments or interpretations are beyond the scope of UKAS accreditation The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request None of the results in this report have been recovery corrected All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis All Asbestos testing is performed at the indicated laboratory Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A Date of sampling not supplied
- B Sample age exceeds stability time (sampling to extraction)
- C Sample not received in appropriate containers
- D Broken Container
- E Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt All water samples will be retained for 14 days from the date of receipt Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to: <u>customerservices@chemtest.com</u>



HEAD OFFICE Causeway Geotech Ltd 8 Drumahiskey Road Ballymoney Co. Antrim, N. Ireland, BT53 7QL NI: +44 (0)28 276 66640 Registered in Northern Ireland. Company Number: NI610766

REGIONAL OFFICE Causeway Geotech (IRL) Ltd Unit 1 Fingal House Stephenstown Industrial Estate Balbriggan, Co Dublin, Ireland, K32 VR66 ROI: +353 (0)1 526 7465 ROI: +3533 (0)1 526 7465 Company Number 633786

www.causewaygeotech.com

20 April 2022

SOIL AND ROCK SAMPLE ANALYSIS LABORATORY TEST REPORT

| Project Name: | North Irish Sea Array |
|---------------|-----------------------|
| Project No.: | 21-1619 |
| Client: | Statkraft |
| Engineer: | ARUP |

We are pleased to attach the results of laboratory testing carried out for the above project. This memo and its attachments constitute a report of the results of tests as detailed in the Contents page(s). This testing was performed between 28/03/2022 and 20/04/2022.

The attached results complete the testing requested and we would therefore wish to confirm that samples will be retained without charge for a period of 28 days from the above date after which they will be appropriately disposed of unless we receive written instructions to the contrary prior to that date.

We trust our report meets with your approval but if you have any queries or require additional information, please do not hesitate to contact the undersigned.

Stephen Watson Laboratory Manager Signed for and on behalf of Causeway Geotech Ltd



Project Name: North Irish Sea Array

Report Reference: Schedule 8

The table below details the tests carried out, the specifications used, and the number of tests included in this report. The results contained in this report relate to the sample(s) as received

Tests marked with* in this report are not United Kingdom Accreditation Service (UKAS) accredited and are not included in Causeway Geotech Limited's scope of UKAS Accreditation Schedule of Tests. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

| Material tested | Type of test/Properties measured/Range of measurement | Standard specifications | No. of results included in the report | | |
|-----------------|--|---------------------------------------|---|--|--|
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| SOIL | Liquid and Plastic Limits of soil-4 point cone penetrometer method | BS 1377-2: 1990: Cl 4.4, 5.3 & 5.4 | 8 | | |
| SOIL | Particle size distribution - wet sieving | BS 1377-2: 1990: Cl 9.2 | 6 | | |
| SOIL | Particle size distribution - sedimentation hydrometer method | BS 1377-2: 1990: Cl 9.5 | 5 | | |
| SOIL | Undrained shear strength – triaxial compression without measurement of pore pressure (loads from 0.12 to 24 kN) | BS 1377-7: 1990: Cl 8 | 2 | | |

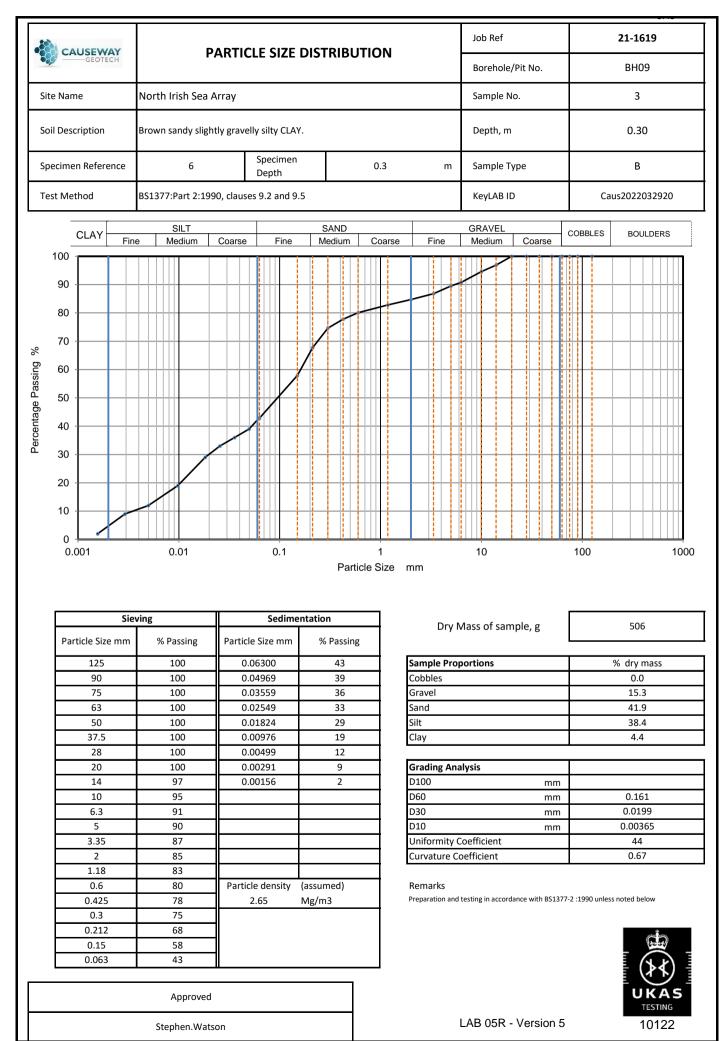
SUB-CONTRACTED TESTS

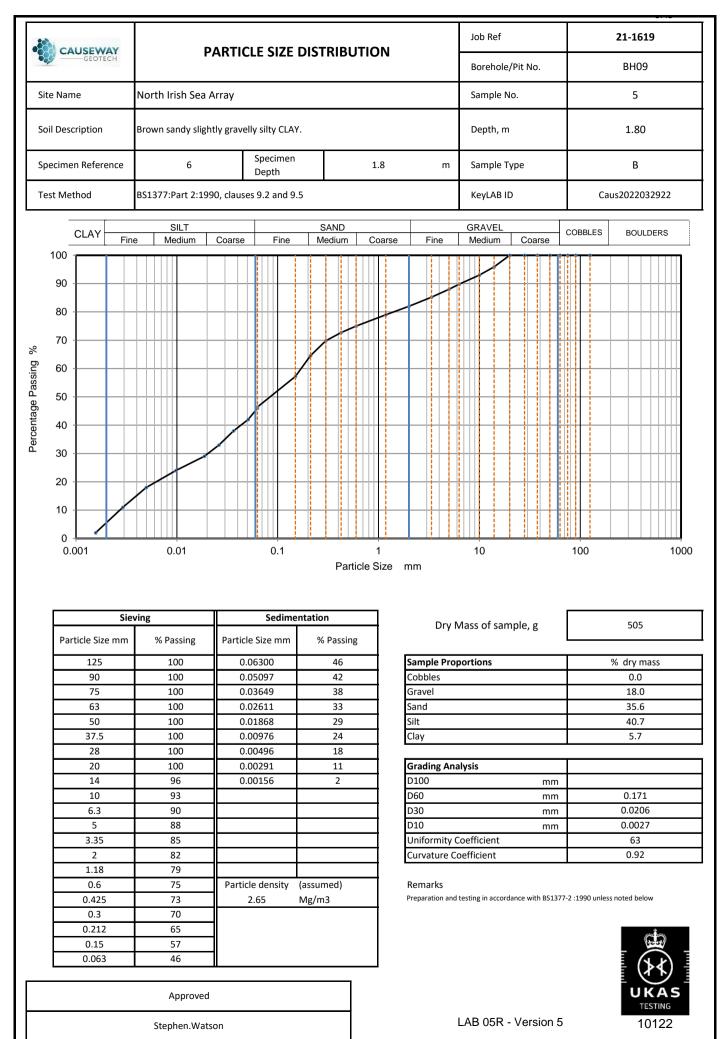
In agreement with Client, the following tests were conducted by an approved sub-contractor. All subcontracting laboratories used are UKAS accredited.

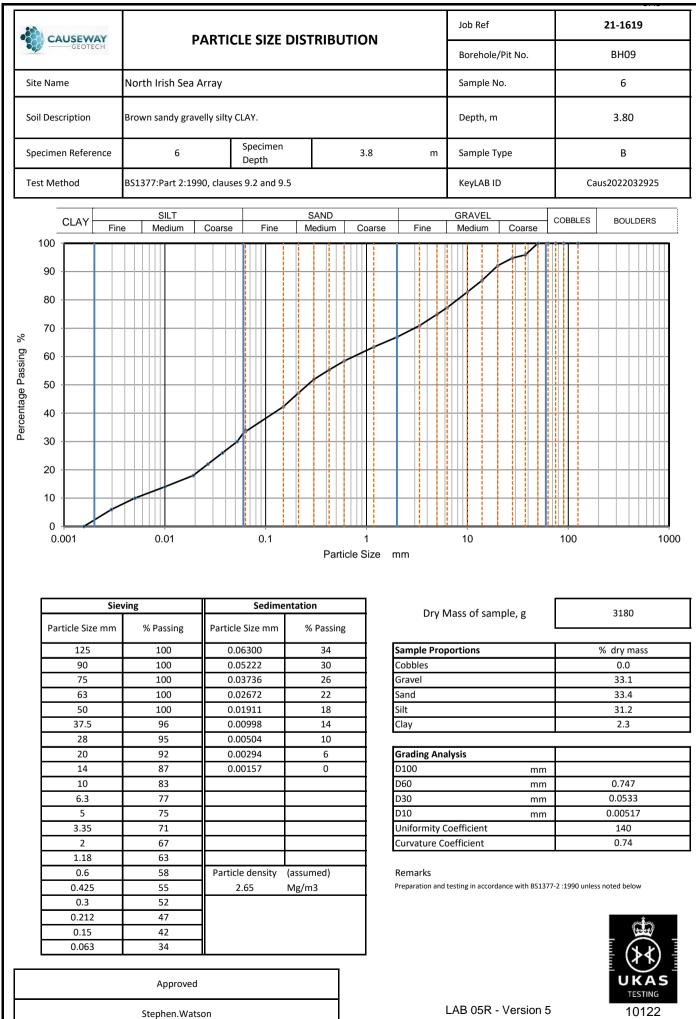
| Material tested | Type of test/Properties measured/Range of measurement | Standard specifications | No. of results included in the report |
|---|---|----------------------------|---|
| SOIL – Subcontracted to Eurofins Chemtest Ltd (UKAS 2183) | BRE Test - Suite B | | 2 |

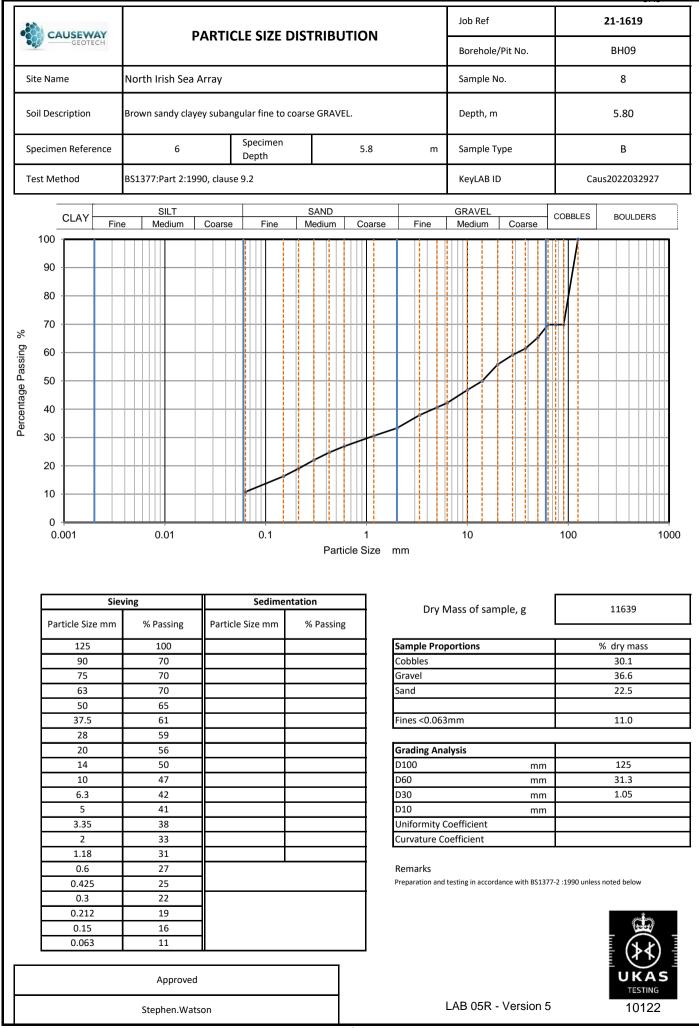
| 5.80 0.80 | Sample op Base .30 0.50 .80 2.00 .80 4.00 .80 5.00 .80 6.00 | t Name Type B B D B B B B B | Soil Description | N Dens bulk Mg/m | ity dry | rish Se w % 22.0 14.0 8.0 11.0 12.0 6.2 | Passing 425µm % 81 77 58 58 | LL % 30 25 25 25 | PL % 18 15 14 | PI % 12 10 11 | Particle density Mg/m3 | Casagrande Classification CL CL CL |
|---|---|---|--|--|--|--|--|--|---|---|--|--|
| f Top 0.30 1.80 3.00 4.80 5.80 | Top Base .30 0.50 .80 2.00 .80 4.00 .80 5.00 .80 6.00 | B D B B B | Brown sandy slightly gravelly silty CLAY. Brown sandy slightly gravelly silty CLAY. Brown sandy slightly gravelly silty CLAY. Brown sandy gravelly silty CLAY. Brown sandy slightly gravelly silty CLAY. | Dens bulk | ity dry | W % 22.0 14.0 8.0 11.0 12.0 | Passing 425µm % 81 77 58 | % 30 25 25 | % 18 15 14 | % 12 10 11 | density | Classification CL CL |
| f Top 0.30 1.80 3.00 4.80 5.80 | Top Base .30 0.50 .80 2.00 .80 4.00 .80 5.00 .80 6.00 | B D B B B | Brown sandy slightly gravelly silty CLAY. Brown sandy slightly gravelly silty CLAY. Brown sandy slightly gravelly silty CLAY. Brown sandy gravelly silty CLAY. Brown sandy slightly gravelly silty CLAY. | bulk | dry | % 22.0 14.0 8.0 11.0 12.0 | 425µm % 81 77 58 | % 30 25 25 | % 18 15 14 | % 12 10 11 | density | Classification CL CL CL |
| 1.80 3.00 3.80 4.80 5.80 | .80 2.00 .00 .00 .80 4.00 .80 5.00 .80 6.00 | B B B | CLAY. Brown sandy slightly gravelly silty CLAY. Brown sandy slightly gravelly silty CLAY. Brown sandy gravelly silty CLAY. Brown sandy slightly gravelly silty CLAY. | | | 22.0 14.0 8.0 11.0 12.0 | 81 77 58 | 30 25 25 | 18 15 14 | 12 10 11 | | CL |
| 3.00 3.80 4.80 5.80 | .00 4.00 .80 5.00 .80 6.00 | D B B | CLAY. Brown sandy slightly gravelly silty CLAY. Brown sandy gravelly silty CLAY. Brown sandy slightly gravelly silty CLAY. Brown sandy clayey subangular | | | 8.0 11.0 12.0 | 58 | 25 | 14 | 11 | | CL |
| 3.80 4.80 5.80 | .80 4.00 .80 5.00 .80 6.00 | в | CLAY. Brown sandy gravelly silty CLAY. Brown sandy slightly gravelly silty CLAY. Brown sandy clayey subangular | | | 11.0 | | | | | | |
| 4.80 | .80 5.00 | в | Brown sandy slightly gravelly silty CLAY. Brown sandy clayey subangular | | | 12.0 | | | | | | |
| 5.80 | .80 6.00 | В | CLAY. Brown sandy clayey subangular | | | | 53 | 24 | 13 | 11 | | CL |
| | _ | | | | | 6.2 | 53 | 24 | 13 | 11 | | CL |
| 0.80 | .80 1.00 | в | | | | | | | | | | |
| | | | Brown sandy slightly gravelly silty CLAY. | | | 16.0 | 69 | 33 | 18 | 15 | | CL |
| 1.80 | .80 2.00 | в | Greyish brown sandy slightly gravelly silty CLAY. | | | 14.0 | | | | | | |
| 2.80 | .80 3.00 | в | Greyish brown sandy slightly gravelly silty CLAY. | | | 14.0 | 70 | 28 | 16 | 12 | | CL |
| 3.80 | .80 4.00 | в | Greyish brown sandy slightly gravelly silty CLAY. | | | 16.0 | | | | | | |
| 4.80 | .80 5.00 | в | Greyish brown sandy slightly gravelly silty CLAY. | | | 15.0 | 70 | 27 | 14 | 13 | | CL |
| 5.80 | .80 6.00 | в | Greyish brown sandy slightly gravelly silty CLAY. | | | 15.0 | | | | | | |
| in acco | ccordance w | ith BS1 | 377:1990 unless specified | otherwise | e | | | | | | LAB | 01R Version 5 |
| rement un | | 4pt con | ne unless : sp - sn | nall pyknom | | | | 22 | Appr | oved | Ву | |
| | 5 n ad | 5.80 6.00 n accordance w ment unless : acement | 5.80 6.00 B n accordance with BS1 Liquid ment unless : 4pt cor acement cas - C | 4.80 5.00 B gravelly silty CLAY. 5.80 6.00 B Greyish brown sandy slightly gravelly silty CLAY. n accordance with BS1377:1990 unless specified Liquid Limit Particle ment unless : 4pt cone unless : sp - sn acement cas - Casagrande method gj - gar | 4.80 5.00 B gravelly silty CLAY. 5.80 6.00 B Greyish brown sandy slightly gravelly silty CLAY. n accordance with BS1377:1990 unless specified otherwise Liquid Limit Particle density ment unless : 4pt cone unless : sp - small pyknom acement cas - Casagrande method gj - gas jar | 4.80 5.00 B gravelly silty CLAY. 5.80 6.00 B Greyish brown sandy slightly gravelly silty CLAY. 5.80 6.00 B Greyish brown sandy slightly gravelly silty CLAY. accordance with BS1377:1990 unless specified otherwise Liquid Limit Particle density ment unless : 4pt cone unless : sp - small pyknometer acement cas - Casagrande method gj - gas jar | 4.80 5.00 B gravelly silty CLAY. 15.0 5.80 6.00 B Greyish brown sandy slightly gravelly silty CLAY. 15.0 5.80 6.00 B Greyish brown sandy slightly gravelly silty CLAY. 15.0 n accordance with BS1377:1990 unless specified otherwise 15.0 15.0 Liquid Limit Particle density Date F acement cas - Casagrande method gj - gas jar | 4.80 5.00 B gravelly silty CLAY. 15.0 70 5.80 6.00 B Greyish brown sandy slightly gravelly silty CLAY. 15.0 15.0 5.80 6.00 B Greyish brown sandy slightly gravelly silty CLAY. 15.0 15.0 n accordance with BS1377:1990 unless specified otherwise Date Printed 20/04/20 ment unless : 4pt cone unless : sp - small pyknometer 20/04/20 acement cas - Casagrande method gj - gas jar 20/04/20 | 4.80 5.00 B gravelly silty CLAY. 15.0 70 27 5.80 6.00 B Greyish brown sandy slightly gravelly silty CLAY. 15.0 15.0 70 27 5.80 6.00 B Greyish brown sandy slightly gravelly silty CLAY. 15.0 15.0 15.0 10 | 4.80 5.00 B gravelly silty CLAY. 15.0 70 27 14 5.80 6.00 B Greyish brown sandy slightly gravelly silty CLAY. 15.0 15.0 14 5.80 6.00 B Greyish brown sandy slightly gravelly silty CLAY. 15.0 15.0 14 n accordance with BS1377:1990 unless specified otherwise 15.0 15.0 14 14 n accordance with BS1377:1990 unless specified otherwise Date Printed Appr ment unless : 4pt cone unless : sp - small pyknometer 20/04/2022 Appr acement cas - Casagrande method gj - gas jar 20/04/2022 Appr | 4.80 5.00 B gravelly silty CLAY. 15.0 70 27 14 13 5.80 6.00 B Greyish brown sandy slightly gravelly silty CLAY. 15.0 15.0 10 1 1 n accordance with BS1377:1990 unless specified otherwise 15.0 Date Printed Approved ment unless : 4pt cone unless : sp - small pyknometer 20/04/2022 Approved | 4.80 5.00 B gravelly silty CLAY. 15.0 70 27 14 13 5.80 6.00 B Greyish brown sandy slightly gravelly silty CLAY. 15.0 15.0 10 1 1 1 5.80 6.00 B Greyish brown sandy slightly gravelly silty CLAY. 15.0 15.0 1 |

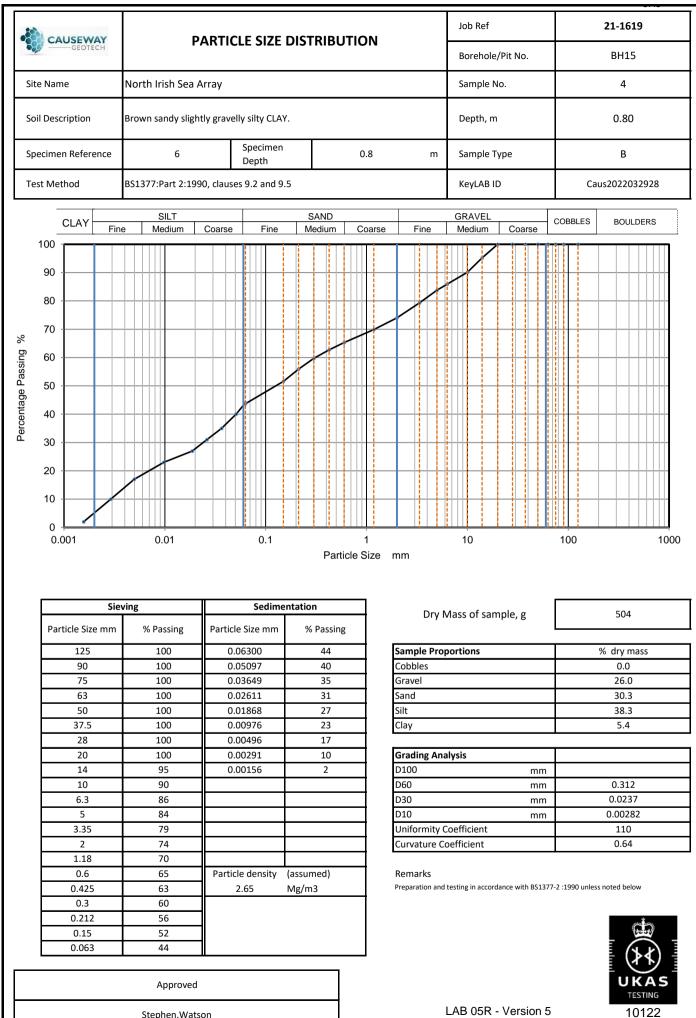
| • | CAL | JSE GEO | VAY TECH | | Summary of Clas | | | | | | ation | Test | Res | sult | S | |
|-----------|----------------------|------------|---------------------|-----------|-----------------|--|----------|--------------------------|------------|---------|---------------------|------|------|------|---------------------|------------------|
| Project | | | | Project | Name | • | | | | | | | | | | |
| | 21-1 | 619 | | | | I | | | | rish Se | ea Array | | 1 | - | | |
| Hole | e No. | | Sai | mple | 1 | Soil Description | | Dens bulk | ity dry | W | Passing 425µm | LL | PL | ΡI | Particle density | Casagrande |
| | | Ref | Тор | Base | Туре | | | Mg/m | | % | % | % | % | % | Mg/m3 | Classification |
| В⊦ | 115 | 18 | 6.00 | 6.45 | U | Greyish brown sandy slightly gravelly silty CLAY. | / | | | 14.0 | 65 | 28 | 14 | 14 | | CL |
| BH | 115 | 16 | 8.00 | | D | Greyish brown sandy slightly gravelly silty CLAY. | / | | | 15.0 | | | | | | |
| | | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | | |
| All tests | s perfor | med i | n accord | lance wit | th BS1 | 377:1990 unless spec | cified | otherwise | е | _ | _ | _ | _ | _ | LAE | 3 01R Version 5 |
| Кеу | | neasure | ment unles | s : | | ne unless : | sp - sn | e density nall pyknom | eter | Date F | Printed 20/04/20 | 22 | Appr | oved | By | |
| | wd - wat wi - imn | | acement in water | | | asagrande method ngle point test | gj - gas | s jar | | | | | Step | hen. | Watson | testing 10122 |



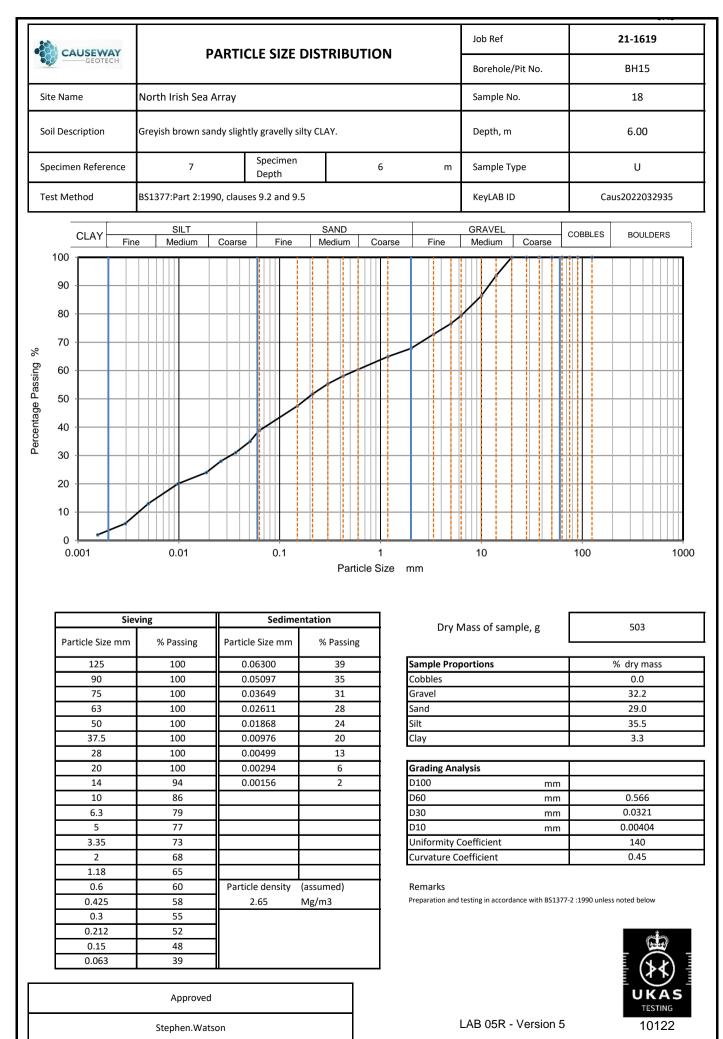


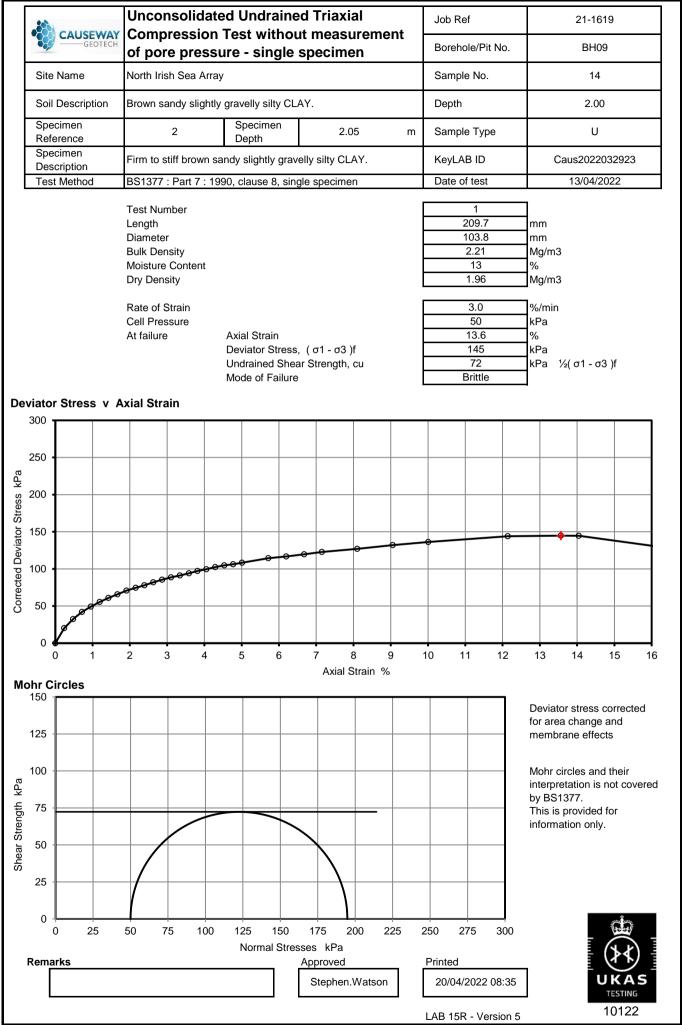


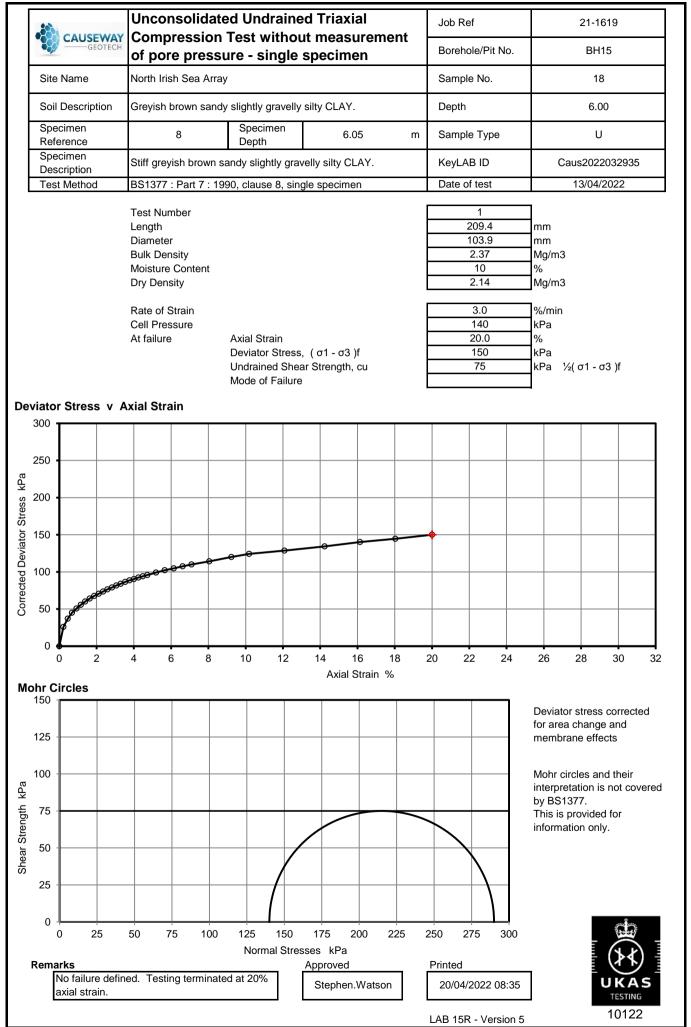




Stephen.Watson







🔅 eurofins

Chemtest

Eurofins Chemtest Ltd Depot Road Newmarket CB8 0AL Tel: 01638 606070 Email: info@chemtest.com

| Report No.: | 22-12437-1 | | |
|------------------------|---|------------------|-------------|
| Initial Date of Issue: | 07-Apr-2022 | | |
| Client | Causeway Geotech Ltd | | |
| Client Address: | 8 Drumahiskey Road Balnamore Ballymoney County Antrim BT53 7QL | | |
| Contact(s): | Carin Cornwall Colm Hurley Darren O'Mahony Gabriella Horan Joe Gervin John Cameron Lucy Newland Martin Gardiner Matthew Gilbert Neil Haggan Paul Dunlop Sean Ross Stephen Franey Stephen Watson Stuart Abraham Thomas McAllister | | |
| Project | 21-1619 North Irish Sea Array | | |
| Quotation No.: | | Date Received: | 01-Apr-2022 |
| Order No.: | | Date Instructed: | 01-Apr-2022 |
| No. of Samples: | 2 | | |
| Turnaround (Wkdays): | 7 | Results Due: | 11-Apr-2022 |
| Date Approved: | 07-Apr-2022 | | |
| Approved By: | | | |
| Sont | - | | |

Details:

Stuart Henderson, Technical Manager



🔅 eurofins

Chemtest

Eurofins Chemtest Ltd Depot Road Newmarket CB8 0AL Tel: 01638 606070 Email: info@chemtest.com

Project: 21-1619 North Irish Sea Array

| Client: Causeway Geotech Ltd | | Che | ntest Jo | 22-12437 | 22-12437 | |
|-------------------------------------|---------------|--------|----------|----------|-------------|-------------|
| Quotation No.: | (| Chemte | st Sam | ple ID.: | 1403832 | 1403833 |
| Order No.: | | Clie | nt Samp | 6 | 17 | |
| | | Sa | ample Lo | ocation: | BH09 | BH15 |
| | | | Sampl | SOIL | SOIL | |
| | | | Top Dep | 3.8 | 1.2 | |
| | Date Sampled: | | | | 31-Mar-2022 | 31-Mar-2022 |
| Determinand | Accred. | SOP | Units | LOD | | |
| Moisture | N | 2030 | % | 0.020 | 13 | 15 |
| рН | U | 2010 | | 4.0 | 8.8 | 8.7 |
| Sulphate (2:1 Water Soluble) as SO4 | U | 2120 | g/l | 0.010 | 0.089 | 0.023 |
| Sulphate (Total) | U | 2430 | % | 0.010 | 0.15 | 0.28 |
| Sulphate (Acid Soluble) | U | 2430 | % | 0.010 | 0.11 | 0.013 |

Test Methods

| SOP | Title | Parameters included | Method summary |
|------|--|--------------------------------------|--|
| 2010 | pH Value of Soils | рН | pH Meter |
| 2030 | Moisture and Stone Content of Soils(Requirement of MCERTS) | Moisture content | Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C. |
| 2040 | Soil Description(Requirement of MCERTS) | Soil description | As received soil is described based upon BS5930 |
| 2120 | Water Soluble Boron, Sulphate, Magnesium & Chromium | Boron; Sulphate; Magnesium; Chromium | Aqueous extraction / ICP-OES |
| 2430 | Total Sulphate in soils | Total Sulphate | Acid digestion followed by determination of sulphate in extract by ICP-OES. |

Report Information

| Key | |
|-----|---|
| U | UKAS accredited |
| М | MCERTS and UKAS accredited |
| Ν | Unaccredited |
| S | This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis |
| SN | This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis |
| Т | This analysis has been subcontracted to an unaccredited laboratory |
| I/S | Insufficient Sample |
| U/S | Unsuitable Sample |
| N/E | not evaluated |
| < | "less than" |
| > | "greater than" |
| SOP | Standard operating procedure |
| LOD | Limit of detection |
| | Comments or interpretations are beyond the scope of LIKAS appreditation |

Comments or interpretations are beyond the scope of UKAS accreditation The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request None of the results in this report have been recovery corrected All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis All Asbestos testing is performed at the indicated laboratory Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A Date of sampling not supplied
- B Sample age exceeds stability time (sampling to extraction)
- C Sample not received in appropriate containers
- D Broken Container
- E Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt All water samples will be retained for 14 days from the date of receipt Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to: <u>customerservices@chemtest.com</u>



HEAD OFFICE Causeway Geotech Ltd 8 Drumahiskey Road Ballymoney Co. Antrim, N. Ireland, BT53 7QL NI: +44 (0)28 276 66640

Registered in Northern Ireland. Company Number: NI610766 REGIONAL OFFICE Causeway Geotech (IRL) Ltd Unit 1 Fingal House Stephenstown Industrial Estate

Balbriggan, Co Dublin, Ireland, K32 VR66 ROI: +353 (0)1 526 7465

Registered in Ireland. Company Number: 633786

www.causewaygeotech.com

SOIL AND ROCK SAMPLE ANALYSIS LABORATORY TEST REPORT

24 May 2022

| Project Name: | North Irish Sea Array |
|---------------|-----------------------|
| Project No.: | 21-1619 |
| Client: | Statkraft |
| Engineer: | ARUP |

We are pleased to attach the results of laboratory testing carried out for the above project. This memo and its attachments constitute a report of the results of tests as detailed in the Contents page(s). This testing was performed between 06/05/2022 and 24/05/2022.

The attached results complete the testing requested and we would therefore wish to confirm that samples will be retained without charge for a period of 28 days from the above date after which they will be appropriately disposed of unless we receive written instructions to the contrary prior to that date.

We trust our report meets with your approval but if you have any queries or require additional information, please do not hesitate to contact the undersigned.

John Worm

Stephen Watson Laboratory Manager Signed for and on behalf of Causeway Geotech Ltd













Project Name: North Irish Sea Array

Report Reference: Schedule 9 - FINAL

The table below details the tests carried out, the specifications used, and the number of tests included in this report. The results contained in this report relate to the sample(s) as received

Tests marked with* in this report are not United Kingdom Accreditation Service (UKAS) accredited and are not included in Causeway Geotech Limited's scope of UKAS Accreditation Schedule of Tests. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

| Material tested | Type of test/Properties measured/Range of measurement | Standard specifications | No. of results included in the report |
|-----------------|---|---------------------------------------|---|
| SOIL | Moisture Content of Soil | BS 1377-2: 1990: Cl 3.2 | 14 |
| SOIL | Liquid and Plastic Limits of soil-4 point cone penetrometer method | BS 1377-2: 1990: Cl 4.4, 5.3 & 5.4 | 14 |
| SOIL | Particle size distribution - wet sieving | BS 1377-2: 1990: Cl 9.2 | 14 |
| SOIL | Particle size distribution - sedimentation hydrometer method | BS 1377-2: 1990: Cl 9.5 | 12 |

SUB-CONTRACTED TESTS

In agreement with Client, the following tests were conducted by an approved sub-contractor. All subcontracting laboratories used are UKAS accredited.

| Material tested | Type of test/Properties measured/Range of measurement | Standard specifications | No. of results included in the report |
|---|---|----------------------------|---|
| SOIL – subcontracted to Pro Soils Limited <i>(UKAS 4043)</i> | Effective shear strength consolidated-undrained triaxial compression test with measurement of pore pressure (up to 4 days) | BS 1377-8:1990 | 1 |
| | Extra over days (more than initial 4 days) | | 3 |

| | | NAY TECH | | | Summar | y of C | las | sific | ation | Test | Res | sult | S | |
|---------------------|---------------------|-----------------------------------|----------|---------|---|-----------------------------------|-------|----------|------------|------|------|------|------------------|------------------------------|
| Project No. 21-1 | 619 | | Project | Name | | Ν | Jorth | Irish Se | a Array | | | | | |
| 211 | | Sar | nple | | | Dens | | w | Passing | LL | PL | ΡI | Particle | |
| Hole No. | Ref | Тор | Base | Туре | Soil Description | bulk dry Mg/m3 | | % | 425µm % | % | % | % | density Mg/m3 | Casagrande Classification |
| BH04 | | 4.00 | 5.00 | С | Brown sandy gravelly silty CLAY. | | | 10.0 | 62 | 29 | 14 | 15 | | CL |
| BH04 | | 7.00 | 8.25 | с | Brown sandy gravelly clayey SILT. | | | 10.0 | 60 | 21 | 17 | 4 | | ML |
| BH06 | | 5.50 | 6.13 | с | Brown sandy gravelly silty CLAY. | | | 12.0 | 54 | 29 | 14 | 15 | | CL |
| BH06 | | 5.75 | 5.90 | с | Brown gravelly slightly silty fine to coarse SAND. | | | 9.7 | 40 | 25 | 16 | 9 | | CL |
| BH06 | | 6.13 | 7.00 | с | Brown sandy slightly gravelly silty CLAY. | | | 49.0 | 84 | 32 | 18 | 14 | | CL |
| BH06 | | 8.50 | 9.50 | С | Brown sandy gravelly silty CLAY. | | | 9.7 | 46 | 25 | 16 | 9 | | CL |
| BH06 | | 10.00 | 10.15 | с | Brown sandy slightly gravelly silty CLAY. | | | 32.0 | 84 | 30 | 13 | 17 | | CL |
| BH06 | | 14.50 | 14.90 | С | Brown sandy slightly gravelly silty CLAY. | | | 34.0 | 72 | 27 | 19 | 8 | | CL |
| BH06 | | 14.90 | 15.45 | С | Brown slightly sandy slightly clayey subangular fine to coarse GRAVEL with cobbles. | | | 9.7 | 58 | 27 | 21 | 6 | | ML/CL |
| BH06 | | 15.45 | 15.90 | с | Brown sandy gravelly silty CLAY. | | | 12.0 | 58 | 26 | 11 | 15 | | CL |
| BH07 | | 5.70 | | С | Brown sandy slightly gravelly silty CLAY. | | | 11.0 | 74 | 25 | 12 | 13 | | CL |
| BH07 | | 7.30 | 8.00 | с | Brown sandy slightly gravelly silty CLAY. | | | 10.0 | 58 | 25 | 16 | 9 | | CL |
| All tests perfor | med i | n accord | ance wit | h BS1 | 377:1990 unless specified | otherwis | е | | | | | | LAB | 01R Version 5 |
| | neasure er displ | ment unles acement in water | s : | cas - C | | e density nall pyknom s jar | neter | Date F | Printed | 22 | Appr | | By Watson | UKAS TESTING 10122 |

| GEOTECH | | | | Summar | y of C | las | sific | ation | Test | Res | sult | S | | |
|-----------------|-------------------------|-----------------------|----------|---------|--|-----------------------------------|-------|--------|-----------------------|-----|---------|---------|------------------|------------------------------|
| Project No. | | | Project | Name | | | | | | | | | | |
| 21- | 1619 I | Sar | nple | | | 1 | | | a Array | LL | PL | ΡI | Particle | |
| Hole No. | Ref | Тор | Base | Туре | Soil Description | Dens bulk Mg/m | dry | W % | Passing 425µm % | % | PL % | РI % | density Mg/m3 | Casagrande Classification |
| BH18 | | 3.70 | 5.20 | С | Brown sandy gravelly silty CLAY. | | | 8.3 | 60 | 29 | 17 | 12 | | CL |
| BH18 | | 5.20 | 6.70 | С | Brown sandy slightly gravelly silty CLAY. | | | 11.0 | 61 | 28 | 17 | 11 | | CL |
| | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | |
| All tests perfo | rmed i | n accord | ance wit | h BS1 | 377:1990 unless specified | otherwis | e | | | | | | LAE | 01R Version 5 |
| wd - w | measure ater displ | ment unles acement | s : | cas - C | e unless : sp - sr asagrande method gj - ga | e density nall pyknom s jar | eter | Date F | Printed | 22 | Appr | oved | Ву | |
| wi-in | wi - immersion in water | | | | ngle point test | | | | | | Step | hen. | Watson | 10122 |

| •2 | CA | USEWAY | | | | I | PAR | TIC | LE S | SIZE | DI | ST | RIE | SU- | τις | DN | | | | | Job | Ref | | | | | | 2 | 1-16 | 19 | |
|------|--------|----------------|-------|---|----------|--------|-------|-------------------|--------------|--------------|--------------|------|-------------|-------|------|-------|----|-----------|-------------|--------|------------|------------|-------|---------|----------|------------|---------|--------|--------------|------|-----|
| •3 | / | GEOTECH | | | | - | | | | | | | | | | | | | | | Bor | ehole | e/Pit | No. | | | | | BH04 | 4 | |
| Site | e Nan | ne | Ν | lorth | Irisł | h Sea | Arra | у | | | | | | | | | | | | | Sample No. | | | | | | | | | | |
| Soi | l Deso | cription | В | rown | sanc | dy gra | velly | silty C | LAY. | | | | | | | | | | | | Dep | oth, n | n | | | | 4.00 | | | | |
| Spe | ecime | en Reference | | | | 9 | | Specimen Depth | | | 1 | 4 | | | 4 m | | | | Sample Type | | | | с | | | | | | | | |
| Tes | st Me | thod | В | BS1377:Part 2:1990, clauses 9.2 and 9.5 | | | | | | | | | | | | | | | KeyLAB ID | | | | | | (| Caus | 2022 | 0428 | 3 | | |
| | - | CLAY | ine | SILT ne Medium | | | | arse | | Fine | | | AND diun | | С | oarse | • | Fi | ne | | GRA Med | VEL ium | (| Coarse | • | COE | BLES | | BOU | LDER | 6 |
| | 100 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 90 | | | +++ | | | | | | | | _ | | | | | _ | | | | | _ | | | | | | _ | | | |
| | 80 | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | |
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| | 70 | | | | | | | | | | | | | | | | | | / | | | | | | | | | | | | _ |
| 1 | 60 | ┨──┨── | | +++ | | | | | | | | _ | | | | | 4 | | | - | | - | | | | | _ | - | | | |
| • | 50 | | | | | | | | | | | | | - | | | | | | | | | | | | | | | | | |
| | 50 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 40 | | | +++ | | | | | | \checkmark | | _ | | | | | + | - | | + | | | | | | | | - | | ++- | |
| | 30 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 50 | | | | | | _ | | | | | | | | | | | | | | | | | | | | | | | | |
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| | - | 001 | | | 0.0 | 1 | | | | 0.1 | | | _ | | | 1 | | | | | 10 | | | | | 10 | 00 | | | | 100 |
| | | | | | | | | | | | | | Pa | artic | le S | Size | mi | m | | | | | | | | | | | | | |
| | | S | ieviı | ng | | | | | S | edim | enta | tion | 1 | | |] | | | Drv | Ma | | of sar | mnle | σ | | | | | 2414 | 1 | |
| | Par | rticle Size mr | n | % | Pass | ing | P | article | e Size | mm | | % | Pass | ing | | | | | Dry | IVIC | 135 0 | 1 501 | mpic | , 5 | | | | | 241- | r | |
| | | 125 | + | | 100 |) | _ | 0.0 | 6300 |) | | | 33 | | | | Sa | amp | le Pr | opo | rtior | IS | | | | Т | | % | dry n | าลรร | |
| | | 90 | | | 100 | | | | 5065 | | | | 30 | | | 1 | | bbl | | | | | | | | | | | 0.0 | | |
| | | 75 | | | 100 | | | | 3625 | | | | 27 | | | | _ | rave | I | | | | | | | | | | 38.3 | | |
| | | 63 50 | _ | | 100 | | _ | | 2594 1855 | | | | 24 21 | | | | Sa | and | | | | | | | | | | | 28.5 24.8 | | |
| | - | 37.5 | | | 100 | | ╢─ | | 0969 | | | | 17 | | | | | ау | | | | | | | | | | | 8.4 | | |
| | | 28 | | | 91 | | | | 0490 | | | | 14 | | | | L | , | | | | | | | | | | | | | |
| | | 20 | | | 85 | | | | 0286 | | | | 11 | | | | | | ng Ai | naly | sis | | | | | | | | | | |
| | - | 14 10 | _ | | 83 78 | | _ | 0.0 | 0153 | 3 | _ | | 6 | | | - | | 100 60 | | | | | | | nm | _ | | | 1.48 | | |
| | ⊢ | 6.3 | ╉ | | 78 | | ╢─ | | | | - | | | | | | | 60 30 | | | | | | | nm nm | + | | (| 1.48 | | |
| | | 5 | | | 70 | | ╢─ | | _ | | \mathbf{T} | _ | | | _ | 1 | | 10 | | | | _ | | | nm | \uparrow | | | 0.0024 | | |
| | | 3.35 | T | | 67 | | | | | | | | | | |] | | | mity | | | | | | - | Γ | | | 590 | | |
| | ⊢ | 2 | + | | 62 | | _ _ | | | | | | | | | 4 | С | urva | ture | Coe | fficie | nt | | | | | | | 0.69 | | |
| | ⊢ | 1.18 0.6 | ╉ | | 59 55 | | ╢╴ | articl | e der | nsitv | (as | sum | ed) | | | 1 | Re | emai | rks | | | | | | | | | | | | |
| | ╞── | 0.425 | ╈ | | 52 | | ╢ | | 2.65 | 1 | | /m3 | | | | | | | | nd tes | ting ir | n accor | dance | with BS | 51377 | 7-2 :1 | 990 unl | ess no | ted bel | ow | |
| | | 0.3 | | | 50 | | | | | | | | | | | 1 | | | | | | | | | | | | | | | |
| | | | | | 46 | | | | | | | | | | | | | | | | | | | | | | | | | | |



Approved

43

33

0.15

0.063

| | | | | | | | |
|----------|--------------------|---------------------|------------------------|--|---------------------|---|-------------------|
| i c | CAUSEWAY | F | PARTICLE SIZE | | | Job Ref | 21-1619 |
| | GEOTECH | | ANTICLE SILL . | DISTRICC. | | Borehole/Pit No. | BH04 |
| Site Na | ame | North Irish Sea A | Array | | | Sample No. | |
| Soil De | escription | Brown sandy grav | velly clayey SILT. | | | Depth, m | 7.00 |
| specim | nen Reference | 9 | Specimen Depth | | 7 m | m Sample Type | С |
| Гest М | Nethod | BS1377:Part 2:19 | 90, clauses 9.2 and 9. | .5 | | KeyLAB ID | Caus202204289 |
| | | SILT | | SAND | | GRAVEL | <u> </u> |
| | CLAY | SILT Fine Medium | Coarse Fine | SAND Medium | Coarse Fine | | COBBLES BOULDERS |
| 100 | | | | | | | ······ |
| 90 | | | | | | | |
| 80 | | | | | | | |
| 70 | | | | | | | |
| | | | | | | | |
| 60 | , | | | | | 1 | |
| 50 | , | | | | | +++++++++++++++++++++++++++++++++++++++ | |
| 40 | | | | | | | |
| 30 | | | | | | | |
| | | | | | | | |
| 20 | ' | | | | | | |
| 10 | , | | | | | | |
| 0 | | | | | | | |
| U | 0.001 | 0.01 | 0.1 | Particle | 1 e Size mm | 10 | 100 100 |
| F | S | ieving | Sedime | ntation | _ Dr | ry Mass of sample, g | 2834 |
| Pa | Particle Size mm | <u> </u> | Particle Size mm | % Passing | | | |
| \vdash | 125 90 | 100 100 | 0.06300 0.04875 | 27 25 | Sample P Cobbles | Proportions | % dry mass 0.0 |
| F | 90 75 | 100 | 0.03492 | 25 | Gravel | | 47.2 |
| F | 63 | 100 | 0.02532 | 19 | Sand | | 26.3 |
| \vdash | 50 37.5 | 100 | 0.01823 0.00958 | 16 13 | Silt Clay | | <u> </u> |
| \vdash | 28 | 92 | 0.00958 | 13 | Ciay | | 0.0 |
| | 20 | 85 | 0.00283 | 9 | Grading A | Analvsis | 1 |
| | 14 | 75 | 0.00152 | 5 | D100 | mm | 1 |
| | 10 | 68 | 1 | í The second sec | D60 | mm | |
| | 6.3 | 62 | 1 | í | D30 | mm | |
| | 5 | 59 | 1 г | í | D10 | mm | |
| | 3.35 | 56 | 1 | í | | ty Coefficient | 1400 |
| | - | 50 | | 4 | | | 0.35 |

Remarks

Curvature Coefficient

Preparation and testing in accordance with BS1377-2 :1990 unless noted below



0.35

Approved

53

51

47

45

43

40

36

27

Particle density

2.65

(assumed)

Mg/m3

2

1.18

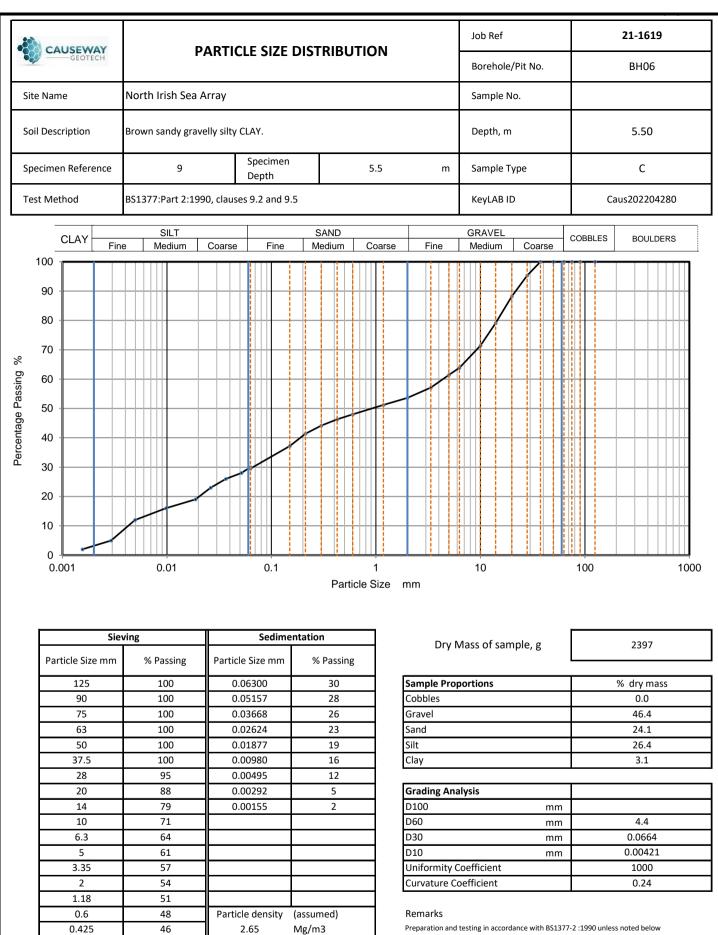
0.6

0.425

0.3

0.212 0.15

0.063



Preparation and testing in accordance with BS1377-2 :1990 unless noted below



Approved

44

41

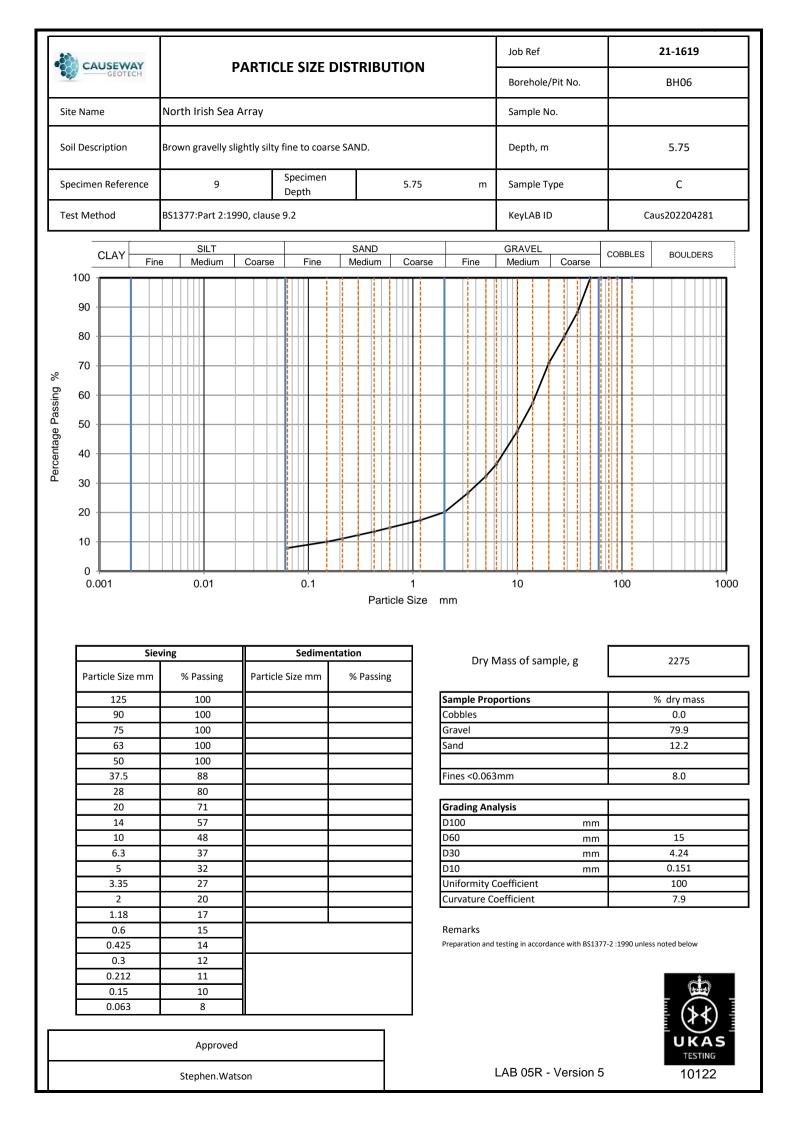
37

30

0.3 0.212

0.15

0.063



| Ster Name North Irish Sea Array Sample No. Sold Description Brown sandy slightly gravely silty CLAY. Depth, m 6.13 Specimen Reference 9 Specimen Specimen Supple Type C Test Method B1377/Part 2:1390, clauses 9.2 and 9.5 KeyLAB ID Caus202204/282 CLAV Fine Modum Coarse Fine Modum Coarse Communication Bioucos 00 Output Fine Modum Coarse Fine Modum Coarse Communication Bioucos Coarse Communication Bioucos Coarse < | • | GEOTECH | Р | ARTICLE SIZE | DISTRIBUTION | | Job Ref Borehole/Pit No. | | 1-1619 BH06 |
|--|------|--|--|-------------------------|---------------|------------------------|-----------------------------|----------------------|-----------------------|
| Specimen P Specimen C.13 n Sample Type C Test Method IB1377.Part 2:1990, (auses 9.2 and 9.5 Key AB ID Caus20220222 CLAV Fine Medum Coarse Fine Medum Fine Medum Fine Medum Fine Medum Medum Fine | Site | e Name | North Irish Sea / | Array | | | | | |
| Specimen neterence 9 Depth 0.13 m Sample type C Test Method B1377.Part 2:1990, clusses 9.2 and 9.5 Kry A8 ID Caus202204282 CLAY Fine Medum Coarse Coarse Fine Medum Coarse Coarse Coarse Fine Medum Coarse Fine Medum Coarse Coarse Coarse Coarse Coarse Coarse Coarse Fine Medum Coarse Fine Medum Coarse | Soi | l Description | Brown sandy sligh | tly gravelly silty CLAY | | | Depth, m | | 6.13 |
| Test Method B1377/Part 2:1990, dauses 9.2 and 9.5 KeyLAB ID Caus20202282 CLAY Fine Medium Coarse Coerse Coerse Coerse Coerse Coerse Fine Medium Coarse Fine Medium | Spe | ecimen Reference | 9 | | 6.13 | m | Sample Type | | С |
| LLV Fine Medium Coarse Fine Medium Coarse Units BOUDERS 100 | Tes | st Method | BS1377:Part 2:199 | | 5 | | KeyLAB ID | Caus | 202204282 |
| No Sectimentation 0 | | CLAY | | Coorea Fina | | Fine | | COBBLES | BOULDERS |
| Second Second< | | FI | ne Medium | Coarse Fine | Medium Coarse | Fine | Medium Coarse | | |
| No Sectimentation 125 100 0.03939 44 75 100 0.03939 44 75 100 0.03939 44 75 100 0.03939 44 75 100 0.02832 37 50 100 0.0149 17 10 94 10 10.25 11.8 81 10 1.18 81 10 0.6 78 Particle density (asumed) 1.18 81 1 0.212 70 0.0149 0.15 64 10 | | | | | | | | | |
| Seving Sedimentation Particle Size mm N Particle Size mm N Particle Size mm | | 80 | | | | - | | | |
| Serving Sedimentation Particle Size mm 0 10 0.01 90 100 0.001 0.03337 90 100 0.04339 113 0.00252 17 10 0.00477 29 28 100 0.00477 28 100 0.00477 10 94 10 11.18 81 2.13 76 0.425 76 0.215 64 | | 70 | | | | | | | |
| Sieving Sedimentation Particle Size mm 0.0 0.0 0.0 0.0 0.0 Variable Size mm % Passing Particle Size mm 0.0 0.0 0.0 125 100 0.06300 48 0.0 | | 60 | | / | | | | | |
| Sieving Sedimentation Particle Size mm 0.0 0.0 0.0 0.0 0.0 Variable Size mm % Passing Particle Size mm 0.0 0.0 0.0 125 100 0.06300 48 0.0 | > | 50 | | | | | | | |
| Sieving Sedimentation Particle Size mm 0.0 0.0 0.0 0.0 0.0 Variable Size mm % Passing Particle Size mm 0.0 0.0 0.0 125 100 0.06300 48 0.0 | | 40 | | | | | | | |
| Image: second | | 30 | | | | | | | |
| 0 0.01 0.1 0.1 1 10 10 10 10 Particle Size mm 125 100 0.06300 48 0 0.0 0.0 508 125 100 0.06330 48 0 0.0 508 0 0 125 100 0.06330 48 0 0.0 0.0 | | 20 | | | | | | | |
| 0.01 0.1 1 1 10 100 100 100 Particle Size mm Particle Size mm % Passing Particle Size mm % Passing 125 100 0.06300 48 90 1000 0.04939 44 75 100 0.03537 40 63 100 0.02532 37 50 100 0.00947 29 28 100 0.00479 25 20 1000 0.00280 21 14 97 0.00149 17 10 94 | | 10 | | | | | | | |
| Sieving Sedimentation Particle Size mm % Passing 125 100 0.06300 48 90 100 0.04939 44 75 100 0.03537 40 63 100 0.02532 37 50 100 0.00479 25 20 100 0.00479 25 20 100 0.00280 21 14 97 0.00149 17 100 94 100 19.2 3.35 88 100 0.00280 21 1.14 97 0.00149 17 100 mm 0.6 78 Particle density (assumed) 100 mm 0.014 1.18 81 100 100 mm 1010 mm 0.6 78 Particle density (assumed) 0.3 74 0.25 76 2.65 Mg/m3 0.15 64 0.15 54 10 | | | 0.01 | 0.1 | <u> </u> | | 10 | 100 | 100 |
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| 125 100 0.06300 48 90 100 0.04939 44 75 100 0.03537 40 63 100 0.02532 37 50 100 0.01813 33 37.5 100 0.00947 29 28 100 0.00479 25 20 100 0.00280 21 14 97 0.00149 17 10 94 100 119 6.3 92 100 0.0149 1.18 81 100 119 0.6 78 Particle density (assumed) 0.425 0.425 76 2.65 Mg/m3 0.15 64 1 1 | | Si | eving | Sedime | ntation | Dry I | Vass of sample, g | | 508 |
| 90 100 0.04939 44 75 100 0.03537 40 63 100 0.02532 37 50 100 0.01813 33 37.5 100 0.00947 29 28 100 0.00280 21 14 97 0.00149 17 6.3 92 100 0.0149 6.3 92 100 0.0149 5 91 100 0.0149 6.3 92 100 0.0149 1.18 81 100 0.0149 1.18 81 100 0.0114 0.6 78 Particle density (assumed) 2.65 Mg/m3 0.3 74 0.212 70 0.15 64 | | Particle Size mm | % Passing | Particle Size mm | % Passing | | | | |
| 75 100 0.03537 40 63 100 0.02532 37 50 100 0.01813 33 37.5 100 0.00947 29 28 100 0.00479 25 20 100 0.00280 21 14 97 0.00149 17 10 94 | | | | | | | portions | % | |
| 50 100 0.01813 33 37.5 100 0.00947 29 28 100 0.00479 25 20 100 0.00280 21 14 97 0.00149 17 10 94 0.0119 17 6.3 92 0.0114 5 91 0.0114 3.35 88 0.0114 2 83 0.0114 1.18 81 0.0114 0.6 78 Particle density (assumed) 2.65 0.3 74 2.65 Mg/m3 | | | | | | | | | |
| 37.5 100 0.00947 29 28 100 0.00479 25 20 100 0.00280 21 14 97 0.00149 17 10 94 10 10 6.3 92 10 100 5 91 10 100 3.35 88 100 0.0114 1.18 81 100 100 100 0.6 78 Particle density (assumed) 2.65 Mg/m3 0.3 74 2.65 Mg/m3 Preparation and testing in accordance with BS1377-2 :1990 unless noted below | | 63 | | | | | | | |
| 28 100 0.00479 25 20 100 0.00280 21 14 97 0.00149 17 10 94 17 6.3 92 100 5 91 100 3.35 88 100 1.18 81 100 0.6 78 Particle density (assumed) 0.3 74 2.65 0.15 64 Kemarks | | | | | | | | | |
| 20 100 0.00280 21 14 97 0.00149 17 10 94 10 10 6.3 92 10 10 5 91 10 0.0149 3.35 88 10 10 1.18 81 10 0.6 78 Particle density (assumed) 0.425 76 2.65 0.3 74 70 0.15 64 Kemarks | | | | | | Clay | | | 19.2 |
| 14 97 0.00149 17 10 94 6.3 92 6.3 92 5 91 3.35 88 2 83 1.18 81 0.6 78 Particle density (assumed) 0.3 74 2.65 Mg/m3 0.15 64 | | | | | | Grading An | alvsis | | |
| 10 94 Image: mark set of the start set of the s | | | | | | | | | |
| 5 91 Image: model with the second secon | | 10 | 94 | | | D60 | | | 0.119 |
| 3.35 88 Image: Mark Solution of the state of the | | | 92 | | | | mm | | 0.0114 |
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| 1.18 81 Particle density (assumed) 0.6 78 Particle density (assumed) 0.425 76 2.65 Mg/m3 0.3 74 Preparation and testing in accordance with BS1377-2:1990 unless noted below 0.212 70 Image: Construct of the second seco | | 5 | | 1 | | I Initormity (| Loefficient | 1 | |
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| 0.3 74 0.212 70 0.15 64 | | 5 3.35 2 1.18 | 88 83 81 | Particle density | (assumed) | Curvature C | | | |
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| | | 5 3.35 2 1.18 0.6 0.425 | 88 83 81 78 76 | | | Curvature C Remarks | oefficient | 77-2 :1990 unless no | ted below |
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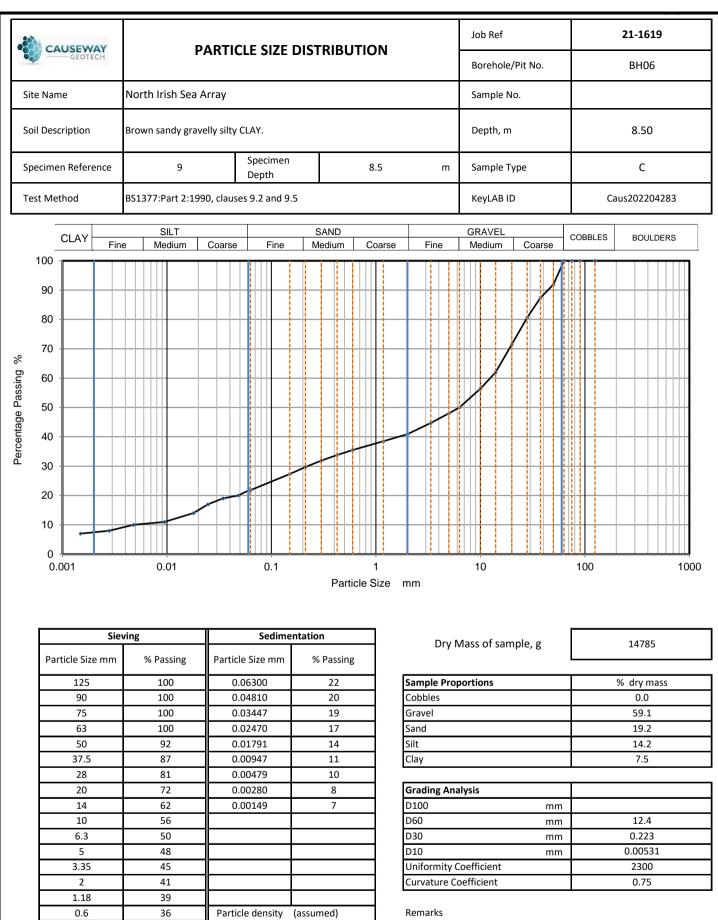
LAB 05R - Version 5

UKAS

TESTING

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Approved



Remarks

Preparation and testing in accordance with BS1377-2 :1990 unless noted below



Approved

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27

22

2.65

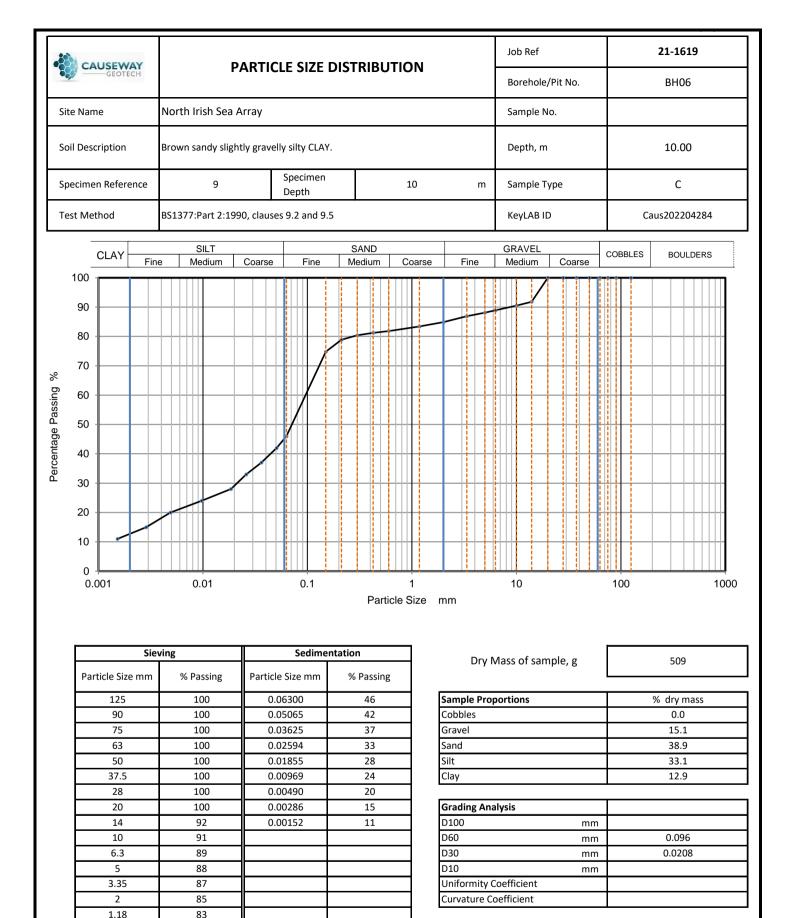
Mg/m3

0.425

0.3 0.212

0.15

0.063



Remarks

Preparation and testing in accordance with BS1377-2 :1990 unless noted below



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82

81

80

79

75

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Particle density

2.65

(assumed)

Mg/m3

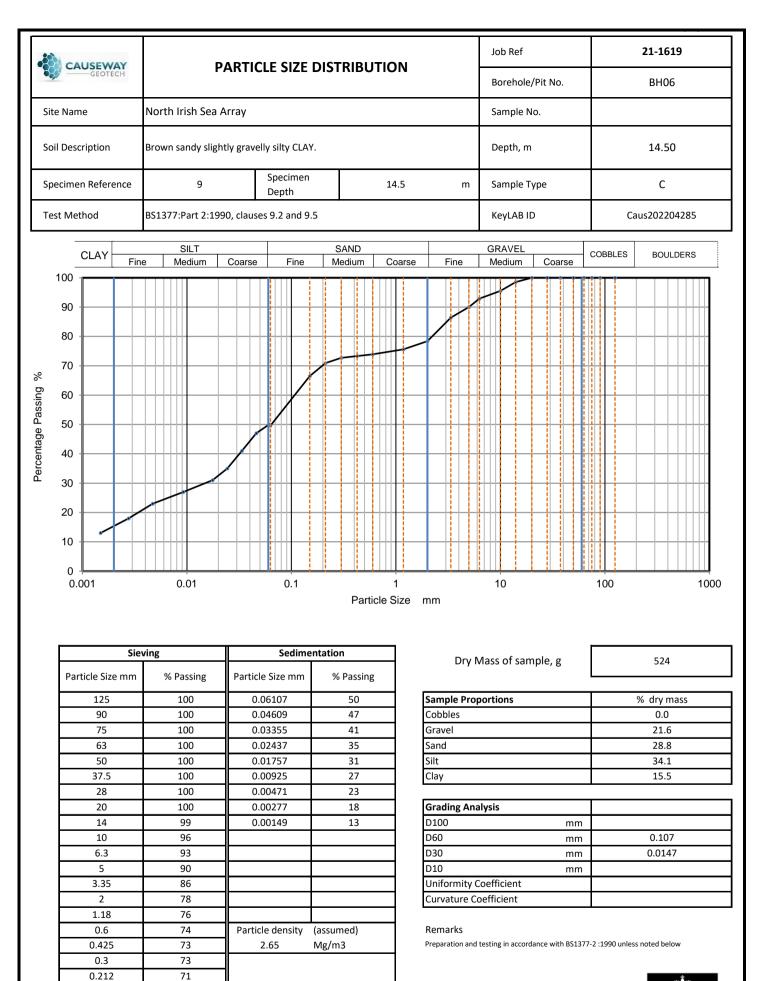
0.6

0.425

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Stephen.Watson

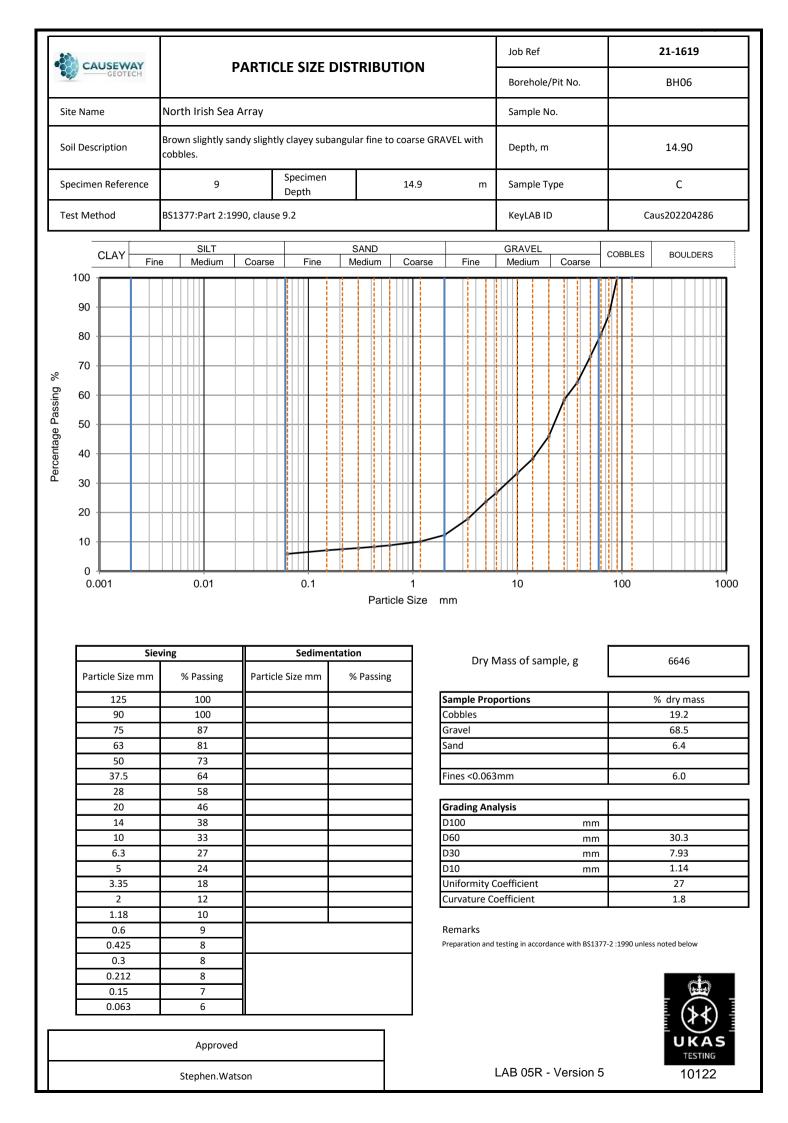
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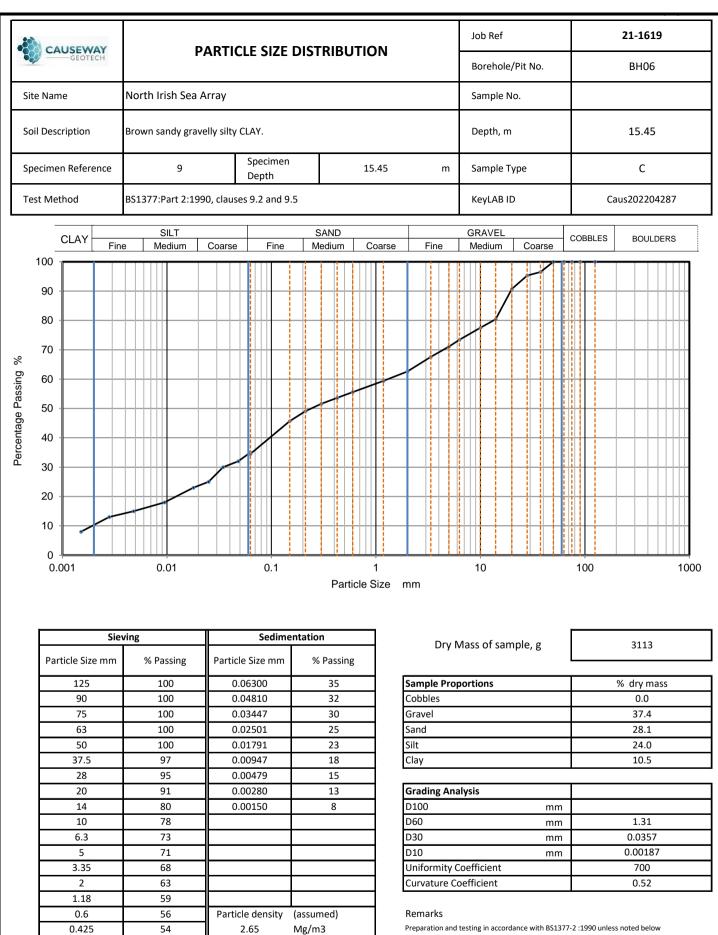
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0.15

0.063





Preparation and testing in accordance with BS1377-2 :1990 unless noted below



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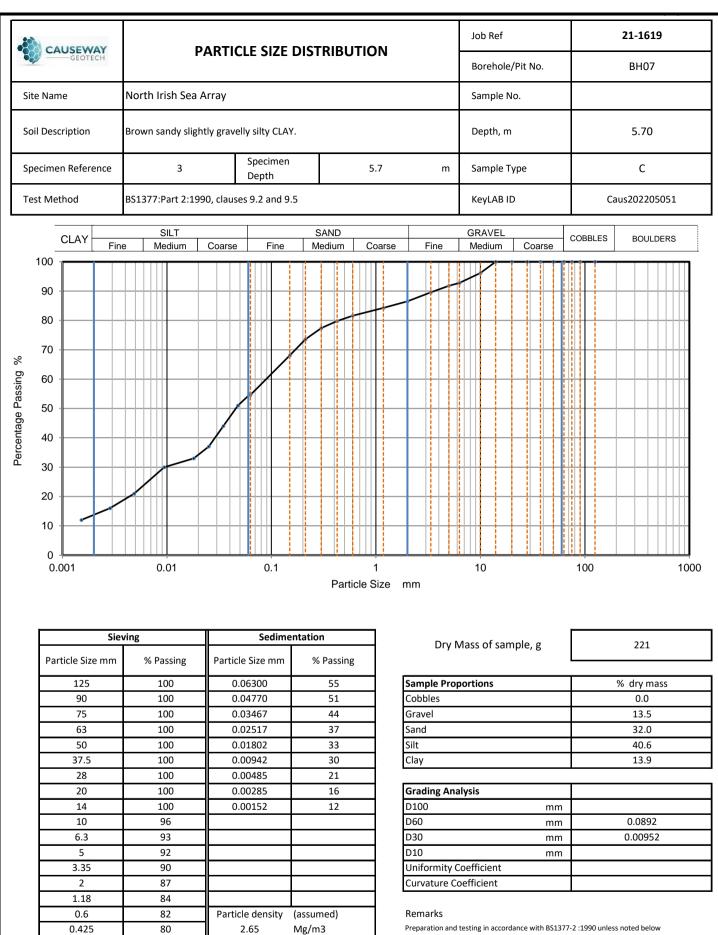
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0.3

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Stephen.Watson



Preparation and testing in accordance with BS1377-2 :1990 unless noted below



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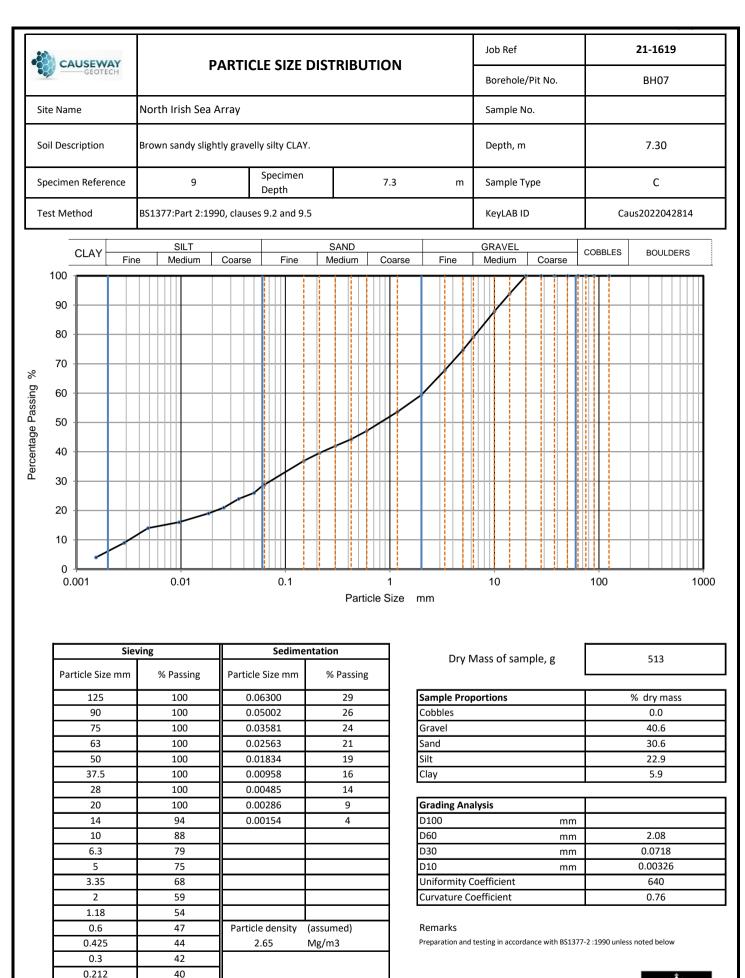
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0.3

0.212 0.15

0.063

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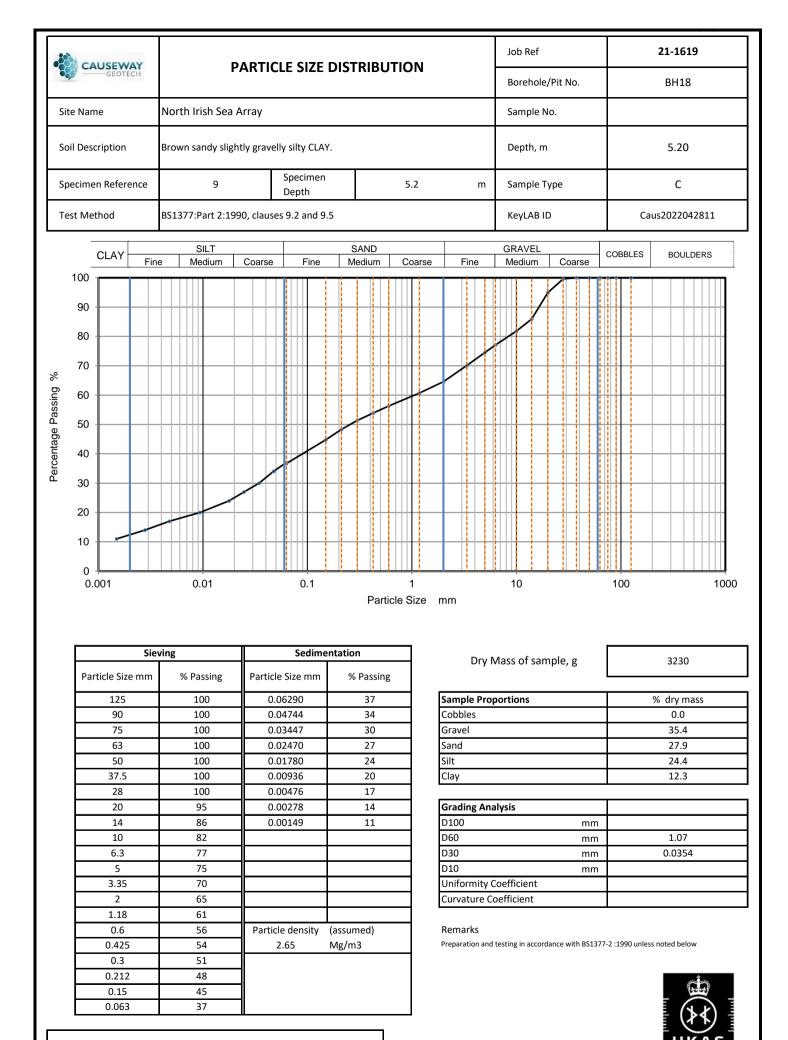
0.212

0.063

| Exercision PARTICLE SIZE DISTRIBUTION Burchol/PR No. BH18 Site Name North Irish Sea Array Sample No. Depth, m 3.70 Specimen Brown sandy gravely sitty CuV. Depth, m 3.70 Sample Type C Test Method RS1377.Part 2:1990, clauses 9.2 and 9.5 KeyLAB ID Caus202024281D Vulner Test Method RS1377.Part 2:1990, clauses 9.2 and 9.5 KeyLAB ID Caus202024281D Vulner Test Method RS1377.Part 2:1990, clauses 9.2 and 9.5 KeyLAB ID Caus20204281D Vulner Test Method RS1377.Part 2:1990, clauses 9.2 and 9.5 KeyLAB ID Caus20204281D Vulner Test Method Cause Test Method Cause Counce 00 Out Out Test Method Cause Counce Counce Counce 00 Out Out Test Method Cause Counce | -23 | CAL | USEWA | Y | | | | דו ופוסדסוח | | | Job Ref | | | 21-1619 |
|---|------|----------|--|-----|--|--|--|--|----------|--|--------------|----------------|---------|---|
| Soil Description Brown sandy gravelly silty CLY. Depth 3.7 Depth, m 3.70 Specimen Reference 9 Specimen 3.7 m Sample Type C Test Method B1377/Part 2:1990, cluuces 9.2 and 9.5 KeyLAB ID Cuus2022042810 Image: Specimen Reference 9 Specimen Reference Course Course Fire Medium Course Course C | 18 | | | -1 | | ANTIC | | | | | Borehole/ | Pit No. | | BH18 |
| Spectmen Reference 9 Specimen Depth 3.7 Sample Type C Test Method B31377.Part 2:1990, clauses 9.2 and 9.5 KeyLAB ID Cause2022042810 CLAV Fine Medium Coarse Fine Medium Coarse Coarse Coarse Coarse Fine Medium Coarse Fine Medium Coarse Coarse Coarse Coarse Fine Medium Coarse Coarse Coarse Coarse Fine Medium Coarse Coarse Coarse Fine Medium Coarse Coarse Coarse Coarse Fine Medium Coarse Fine Medium Coarse | Sit | e Nam | е | | North Irish Sea | Array | | | Sample N | 0. | | | | |
| Specimen network 9 Depth 3.7 m Sample Type C Test Method 851377.Part 21990, clauses 9.2 and 9.5 KeyLAB ID Caus202202310 CLAV Fine Medium Coarse Fine Medium Coarse Coar | So | il Descr | ription | | Brown sandy gra | velly silty C | CLAY. | | | | Depth, m | | | 3.70 |
| Test Method B1377-Part 2:1980, dauses 9.2 and 9.5 KeyLAB ID Cuu20202810 CLAV File Medium Coarse Coarse File Medium Coarse Coarse File Medium Coarse File Medium <t< td=""><td>Sp</td><td>ecimer</td><td>n Referen</td><td>се</td><td>9</td><td></td><td></td><td>n</td><td>3.7</td><td>m</td><td>Sample Ty</td><td>/pe</td><td></td><td>С</td></t<> | Sp | ecimer | n Referen | се | 9 | | | n | 3.7 | m | Sample Ty | /pe | | С |
| LLAT Fine Medium Coarse Fine Medium Coarse Umails BOUDES 100 | Te | st Metl | hod | | BS1377:Part 2:19 | 990, clause | | 9.5 | | | KeyLAB ID |) | Ca | aus2022042810 |
| Image Medium Coarse Image Medium Coarse 100 0 <t< td=""><td></td><td>(</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>COBBLES</td><td>BOULDERS</td></t<> | | (| | | | | | | | | | | COBBLES | BOULDERS |
| Sieving Sedimentation 125 100 0.0300 19 90 100 0.0530 19 90 100 0.05327 17 125 100 0.03547 16 125 100 0.03547 16 125 100 0.03547 16 125 100 0.03547 16 125 100 0.03547 16 125 100 0.02534 13 20 75 0.00253 13 20 75 0.00253 13 20 75 0.00233 9 10 53 12.0 12.5 118 30 12.5 100 0.425 2.65 Mg/m3 100 10.5 118 30 1.25 100 100 100 118 30 1.25 100 100 100 118 30 1.25 <t< td=""><td></td><td>_</td><td></td><td>Fin</td><td>e Medium</td><td>Coarse</td><td>Fine</td><td>Medium</td><td>Coarse</td><td>Fine</td><td>Medium</td><td>Coarse</td><td></td><td></td></t<> | | _ | | Fin | e Medium | Coarse | Fine | Medium | Coarse | Fine | Medium | Coarse | | |
| Sieving Sedimentation 0 | | 90 - | | | | | | | | | | | | |
| No Set/ing Set/inc Set/inc <thset inc<="" th=""> <thset inc<="" th=""> <thset in<="" td=""><td></td><td>80 -</td><td></td><td>_</td><td></td><td></td><td></td><td>+ i + i +</td><td></td><td></td><td></td><td></td><td></td><td></td></thset></thset></thset> | | 80 - | | _ | | | | + i + i + | | | | | | |
| Sieving Sedimentation Particle Size mm % Passing 90 0 90 0 90 0 00 0.01 0.01 0.01 0.02 0.01 0.001 0.02 0.002 0.000 0.001 0.0000 0.001 0.00000 0.001 0.000000 | ź | 70 - | | | | | | | | | / | | | |
| 30 | | 60 - | 0 | | | | | | | | | | | |
| 30 | | 50 - | | _ | | | | | | | | | | |
| 30 | | 40 - | | _ | | | | | | | / | | | |
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| 0 0.01 0.1 1 1 10 100 100 Particle Size mm 125 100 0.06300 19 90 100 0.05127 17 75 100 0.03647 16 63 100 0.02594 15 50 92 0.01845 14 20 75 0.00238 9 14 63 0.00152 5 10 53 10 12.5 10 53 10 12.5 10 53 11 14 63 0.00152 5 40 11 118 30 11 0.6 28 Particle density (assumed) 0.425 27 2.5 Mg/m3 0.3 22 12.5 Mg/m3 | | 20 - | | _ | | | | | | | | | | |
| Sieving Sedimentation Particle Size mm Particle Size mm Sieving Particle Size mm 125 100 0.05300 19 90 100 0.05127 17 75 100 0.03647 16 63 1000 0.02594 15 50 92 0.01845 14 37.5 92 0.00958 13 20 75 0.00239 9 14 63 0.00152 5 100 53 10 12.8 5.5 40 10 1.18 30 10 0.425 27 2.65 0.3 25 10.1 3300 0.425 27 2.65 Mg/m3 0.212 24 0.15 22 0.212 24 0.15 22 | | 10 - | | | | | | | | | | | | |
| Sieving Sedimentation Particle Size mm % Passing Particle Size mm % Passing 90 100 0.05127 90 100 0.05127 75 100 0.03647 63 100 0.02594 50 92 0.01845 0.37.5 92 0.00958 14 63 0.00152 6.3 42 | | | | - | | | | | | | | | | |
| Particle Size mm % Passing Particle Size mm % Passing 125 100 0.06300 19 125 100 0.05127 17 63 100 0.03647 16 63 100 0.02594 15 50 92 0.01845 14 63 0.00 13.9 50 92 0.00958 13 20 75 0.00283 9 14 63 0.00152 5 10 53 1 060 5 40 10 53 6.3 42 10 1.18 30 10 0.6 28 Particle density (assumed) 0.425 27 2.65 Mg/m3 0.3 25 0.212 24 0.15 22 1 1 | | | 001 | | 0.01 | | 0.1 | | - | mm | 10 | | 100 | 10 |
| 90 100 0.05127 17 75 100 0.03647 16 63 100 0.02594 15 50 92 0.01845 14 37.5 92 0.00958 13 28 84 0.00485 11 20 75 0.00283 9 14 63 0.00152 5 10 53 0 100 5 40 0 10 5 40 0 10 2 33 0 100 1.18 30 0 100 0.6 28 Particle density (assumed) 2.65 0.212 24 0.15 22 | | | 001 | Sie | | | | Partic | - | | | | 100 | |
| 75 100 0.03647 16 63 100 0.02594 15 50 92 0.01845 14 37.5 92 0.00958 13 28 84 0.00485 11 20 75 0.00283 9 14 63 0.00152 5 10 53 | | 0.0 | | | ving | Particle | Sedim | Partic | - | | | iple, g | 100 | |
| 63 100 0.02594 15 50 92 0.01845 14 37.5 92 0.00958 13 28 84 0.00485 11 20 75 0.00283 9 14 63 0.00152 5 10 53 | | 0.0 | ticle Size r | | ving % Passing | | Sedim e Size mm | Partic entation % Passing | - | Dry I | Mass of sam | iple, g | | 4533 |
| 50 92 0.01845 14 37.5 92 0.00958 13 28 84 0.00485 11 20 75 0.00283 9 14 63 0.00152 5 10 53 0 10 5 40 0 105 3.35 36 0 105 1.18 30 0 0.00387 0.6 28 Particle density (assumed) 2.65 0.212 24 0.15 22 | | 0.0 | ticle Size r 125 90 | | ving % Passing 100 100 | 0.0 | Sedim e Size mm 06300 05127 | entation % Passing 19 17 | - | Dry N Sample Pro Cobbles | Mass of sam | iple, g | | 4533 % dry mass 0.0 |
| 37.5 92 0.00958 13 28 84 0.00485 11 20 75 0.00283 9 14 63 0.00152 5 10 53 1 100 53 6.3 42 1 100 1.05 5 40 1 1.05 100 1.05 1.18 30 1 1.18 300 1 0.6 28 Particle density (assumed) 2.65 Mg/m3 1 0.3 25 27 2.65 Mg/m3 Preparation and testing in accordance with B51377-2:1990 unless noted below | | 0.0 | ticle Size r 125 90 75 | | ving % Passing 100 100 100 | 0.0 | Sedim e Size mm 06300 05127 03647 | entation % Passing 19 17 16 | - | Dry N Sample Prop Cobbles Gravel | Mass of sam | iple, g | | 4533 % dry mass 0.0 67.4 |
| 20 75 0.00283 9 14 63 0.00152 5 10 53 | | 0.0 | ticle Size r 125 90 75 63 | | ving % Passing 100 100 100 100 | 0.0 | Sedim e Size mm 06300 05127 03647 02594 | entation % Passing 19 17 16 15 | - | Dry N Sample Prop Cobbles Gravel Sand | Mass of sam | iple, g | | 4533 % dry mass 0.0 67.4 13.9 |
| 14 63 0.00152 5 10 53 1 1 6.3 42 1 10 5 40 1 10 3.35 36 1 10 2 33 1 10 1.18 30 1 10 0.6 28 Particle density (assumed) 2.65 0.3 25 27 2.65 Mg/m3 0.15 22 24 1 1 | | 0.0 | ticle Size r 125 90 75 63 50 37.5 | | ving % Passing 100 100 100 100 92 92 92 | 0.0 0.0 0.0 0.0 0.0 0.0 | Sedim e Size mm 06300 05127 03647 02594 01845 00958 | Partic Partic % Passing 19 17 16 15 14 13 | - | Dry N Sample Prop Cobbles Gravel Sand Silt | Mass of sam | iple, g | | 4533 % dry mass 0.0 67.4 13.9 12.0 |
| 10 53 Image: mark stress of the stress | | 0.0 | ticle Size r 125 90 75 63 50 37.5 28 | | ving % Passing 100 100 100 100 92 92 92 84 | 0.0 0.0 0.0 0.0 0.0 0.0 0.0 | Sedim e Size mm 06300 05127 03647 02594 01845 00958 00485 | Partice Par | - | Dry N Sample Prop Cobbles Gravel Sand Silt Clay | Mass of sam | iple, g | | 4533 % dry mass 0.0 67.4 13.9 12.0 |
| 6.3 42 Image: mark stress of the stress | | 0.0 | ticle Size r 125 90 75 63 50 37.5 28 20 | | ving % Passing 100 100 100 92 92 92 84 75 | | Sedim e Size mm 06300 05127 03647 02594 01845 00958 00485 00485 | entation % Passing 19 17 16 15 14 13 11 9 | - | Dry N Sample Prop Cobbles Gravel Sand Silt Clay Grading Ana | Mass of sam | | | 4533 % dry mass 0.0 67.4 13.9 12.0 |
| 5 40 Image: model of the system of the | | 0.0 | ticle Size r 125 90 75 63 50 37.5 28 20 14 | | ving % Passing 100 100 100 100 92 92 84 84 75 63 | | Sedim e Size mm 06300 05127 03647 02594 01845 00958 00485 00485 | entation % Passing 19 17 16 15 14 13 11 9 | - | Dry N Sample Prop Cobbles Gravel Sand Silt Clay Grading Ana D100 | Mass of sam | mm | | 4533 % dry mass 0.0 67.4 13.9 12.0 6.7 |
| 2 33 Image: Curvature Coefficient 22 1.18 30 Image: Curvature Coefficient 22 0.6 28 Particle density (assumed) Remarks 0.425 27 2.65 Mg/m3 0.3 25 Image: Curvature Coefficient 22 0.212 24 Image: Curvature Coefficient 22 | | 0.0 | ticle Size r 125 90 75 63 50 37.5 28 20 14 10 | | ving % Passing 100 100 100 92 92 92 84 75 63 53 | | Sedim e Size mm 06300 05127 03647 02594 01845 00958 00485 00485 | entation % Passing 19 17 16 15 14 13 11 9 | - | Dry N Sample Prop Cobbles Gravel Sand Silt Clay D100 D60 | Mass of sam | mm | | 4533 % dry mass 0.0 67.4 13.9 12.0 6.7 12.8 |
| 1.18 30 Remarks 0.6 28 Particle density (assumed) Particle density (assumed) 0.425 27 2.65 Mg/m3 0.3 25 Preparation and testing in accordance with BS1377-2 :1990 unless noted below 0.15 22 Preparation and testing in accordance with BS1377-2 :1990 unless noted below | | 0.0 | ticle Size r 125 90 75 63 50 37.5 28 20 14 10 6.3 5 | | ving % Passing 100 100 100 92 92 92 84 75 63 53 53 42 40 | | Sedim e Size mm 06300 05127 03647 02594 01845 00958 00485 00485 | entation % Passing 19 17 16 15 14 13 11 9 | - | Dry N Sample Proj Cobbles Gravel Sand Silt Clay D100 D60 D30 D10 | Vlass of sam | mm mm | | 4533 % dry mass 0.0 67.4 13.9 12.0 6.7 12.8 1.05 0.00387 |
| 0.628Particle density 2.65(assumed) Mg/m3Remarks Preparation and testing in accordance with BS1377-2:1990 unless noted below0.3250.212240.1522 | | 0.0 | ticle Size r 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 | | ving % Passing 100 100 100 92 92 92 84 75 63 53 42 40 36 | | Sedim e Size mm 06300 05127 03647 02594 01845 00958 00485 00485 | entation % Passing 19 17 16 15 14 13 11 9 | - | Dry N Sample Proj Cobbles Gravel Sand Silt Clay D100 D60 D30 D10 Uniformity (| Vlass of sam | mm mm | | 4533 % dry mass 0.0 67.4 13.9 12.0 6.7 12.8 1.05 0.00387 3300 |
| 0.425 27 2.65 Mg/m3 Preparation and testing in accordance with BS1377-2 :1990 unless noted below 0.3 25 0.212 24 0.15 22 0 <td></td> <td>0.0</td> <td>ticle Size r 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2</td> <td></td> <td>ving % Passing 100 100 100 92 92 92 84 75 63 53 42 40 40 36 33</td> <td></td> <td>Sedim e Size mm 06300 05127 03647 02594 01845 00958 00485 00485</td> <td>entation % Passing 19 17 16 15 14 13 11 9</td> <td>-</td> <td>Dry N Sample Proj Cobbles Gravel Sand Silt Clay D100 D60 D30 D10 Uniformity (</td> <td>Vlass of sam</td> <td>mm mm</td> <td></td> <td>4533 % dry mass 0.0 67.4 13.9 12.0 6.7 12.8 1.05 0.00387 3300</td> | | 0.0 | ticle Size r 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 | | ving % Passing 100 100 100 92 92 92 84 75 63 53 42 40 40 36 33 | | Sedim e Size mm 06300 05127 03647 02594 01845 00958 00485 00485 | entation % Passing 19 17 16 15 14 13 11 9 | - | Dry N Sample Proj Cobbles Gravel Sand Silt Clay D100 D60 D30 D10 Uniformity (| Vlass of sam | mm mm | | 4533 % dry mass 0.0 67.4 13.9 12.0 6.7 12.8 1.05 0.00387 3300 |
| 0.3 25 0.212 24 0.15 22 | | 0.0 | ticle Size r 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 2 1.18 | | ving % Passing 100 100 100 92 92 84 75 63 53 42 40 36 33 33 30 | | Sedim e Size mm 06300 05127 03647 02594 01845 00958 00485 00958 00485 00283 00152 | Particle entation % Passing 19 17 16 15 14 13 11 9 5 | - | Dry N Sample Prop Cobbles Gravel Sand Silt Clay Grading Ana D100 D60 D30 D10 Uniformity C Curvature C | Vlass of sam | mm mm | | 4533 % dry mass 0.0 67.4 13.9 12.0 6.7 12.8 1.05 0.00387 3300 |
| 0.15 22 | | 0.0 | ticle Size r 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 3.35 2 1.18 0.6 | | ving % Passing 100 100 100 92 92 84 75 63 53 42 40 36 33 30 28 | 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 | Sedim e Size mm 06300 05127 03647 02594 01845 00958 00958 00485 00958 00152 00152 00152 | Particle entation % Passing 19 17 16 15 14 13 11 9 5 5 10 10 10 10 10 10 10 10 10 10 | - | Dry N Sample Prop Cobbles Gravel Sand Silt Clay Grading Ana D100 D60 D30 D10 Uniformity C Curvature C | Mass of sam | mm mm mm | | 4533 % dry mass 0.0 67.4 13.9 12.0 6.7 12.8 1.05 0.00387 3300 22 |
| | | 0.0 | ticle Size r 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 1.18 0.6 0.425 | | ving % Passing 100 100 100 92 92 84 75 63 53 42 40 36 33 30 28 28 27 | 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 | Sedim e Size mm 06300 05127 03647 02594 01845 00958 00958 00485 00958 00152 00152 00152 | Particle entation % Passing 19 17 16 15 14 13 11 9 5 5 10 10 10 10 10 10 10 10 10 10 | - | Dry N Sample Prop Cobbles Gravel Sand Silt Clay Grading Ana D100 D60 D30 D10 Uniformity C Curvature C | Mass of sam | mm mm mm | | 4533 % dry mass 0.0 67.4 13.9 12.0 6.7 12.8 1.05 0.00387 3300 22 |
| 0.063 19 | | 0.0 | ticle Size r 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 1.18 0.6 0.425 0.3 | | ving % Passing 100 100 100 92 92 92 84 75 63 53 63 53 63 53 42 40 36 33 30 28 27 25 | 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 | Sedim e Size mm 06300 05127 03647 02594 01845 00958 00958 00485 00958 00152 00152 00152 | Particle entation % Passing 19 17 16 15 14 13 11 9 5 | - | Dry N Sample Prop Cobbles Gravel Sand Silt Clay Grading Ana D100 D60 D30 D10 Uniformity C Curvature C | Mass of sam | mm mm mm | | 4533 % dry mass 0.0 67.4 13.9 12.0 6.7 12.8 1.05 0.00387 3300 22 |
| | | 0.0 | ticle Size r 125 90 75 63 50 37.5 28 20 14 10 6.3 5 3.35 2 1.18 0.6 0.425 0.3 0.212 0.15 | | ving % Passing 100 100 100 92 92 92 84 75 63 53 63 53 63 53 42 42 40 36 33 30 28 27 25 24 24 22 | 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 | Sedim e Size mm 06300 05127 03647 02594 01845 00958 00958 00485 00958 00152 00152 00152 | Particle entation % Passing 19 17 16 15 14 13 11 9 5 | - | Dry N Sample Prop Cobbles Gravel Sand Silt Clay Grading Ana D100 D60 D30 D10 Uniformity C Curvature C | Mass of sam | mm mm mm | | 4533 % dry mass 0.0 67.4 13.9 12.0 6.7 12.8 1.05 0.00387 3300 22 |

Stephen.Watson

LAB 05R - Version 5



LAB 05R - Version 5

10122

Approved

Stephen.Watson



LABORATORY REPORT



4043

Contract Number: PSL22/3162

Report Date: 24 May 2022

Client's Reference: 21-1619

Client Name: Causeway Geotech 8 Drumahiskey Road Ballymoney Co.Antrim BT53 7QL

For the attention of: Stephen Watson

Contract Title: North Irish Sea Array (NISA)

Date Received:4/5/2022Date Commenced:4/5/2022Date Completed:24/5/2022

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. 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 other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins (Director) R Berriman (Quality Manager) S Royle (Laboratory Manager)

D Burton (Advanced Testing Manager)

L Knight (Senior Technician) S Eyre (Senior Technician)

Page 1 of

5 – 7 Hexthorpe Road, Hexthorpe, Doncaster DN4 0AR tel: +44 (0)844 815 6641 fax: +44 (0)844 815 6642 e-mail: rberriman@prosoils.co.uk awatkins@prosoils.co.uk

Summary Report

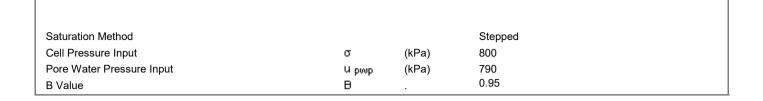
| Sample Details | Depth Description Type | 7.00-7.30m Brown gravelly sandy CLAY. Undisturbed, vertical orientation. | | | | | | | | |
|--|---|--|--|---|----------------|----------------|---|--|--|--|
| sketch showing specimen location in original sample | Initial Sample Length Initial Sample Diameter Initial Sample Weight Initial Bulk Density Particle Density | Lo Do Wo Po Ps | (mm) (mm) (gr) (Mg/m3) (Mg/m3) | 140.0 70.1 1115.0 2.06 2.66 | | | | | | |
| Initial Conditions | | | | Stage 1 | 2 | 3 | 4 | | | |
| Initial Cell Pressure | | σ3i | (kPa) | 850 | 900 | 1000 | | | | |
| Initial Back Pressure | | υы | (kPa) | 800 | 800 | 800 | | | | |
| Membrane Thickness | | ть | (mm) | 0.600 | | | | | | |
| Displacement Input | | LIP | (mm) | CH 2 | | | | | | |
| Load Input | | N IP | (N) | CH 1 | | | | | | |
| Pore Water Pressure Input | | Ա բաթ | (kPa) | CH 3 | | | | | | |
| Sample Volume | | v | (cc) | CH 2 | | | | | | |
| Initial Moisture | | ωi | (%) | 11 | | | | | | |
| Initial Dry Density | | ρdi | (Mg/m3) | 1.86 | | | | | | |
| Initial Voids Ratio | | ei | | 0.432 | | | | | | |
| Initial Degree of Saturation | | Si | (%) | 68 | | | | | | |
| B Value | | В | - | 0.95 | | | | | | |
| Final Conditions | | | | | | | | | | |
| Final Moisture | | ωf | (%) | 15 | | | | | | |
| Final Dry Density | | ρdf | (Mg/m3) | 1.95 | | | | | | |
| Final Voids Ratio | | ef | | 0.367 | | | | | | |
| Final Degree of Saturation | | Sf | (%) | 100.0 | | | | | | |
| | | | | Stage 1 Max. Dev. | 2 Max. Dev. | 3 Max. Dev. | 4 | | | |
| Failure Criteria | | | • | Stress | Stress | Stress | | | | |
| Strain At Failure | | δf / | (%) (/-D) | 0.93 | 8.01 | 19.85 | | | | |
| Stress At Failure | | (σ1-σ3) σο' | . , | 54.7 | 110.3 | 336.6 | | | | |
| Minor Stress At Failure | | σ3' σ.' | (kPa) | 13.3 | 36.2 | 127.0 | | | | |
| Major Stress At Failure | | σ1' σ1'/σ3' | (kPa) | 68.0 5.111 | 146.5 4.048 | 463.6 3.650 | | | | |
| Principal Stress Ratio At Failure | | | | | | | | | | |

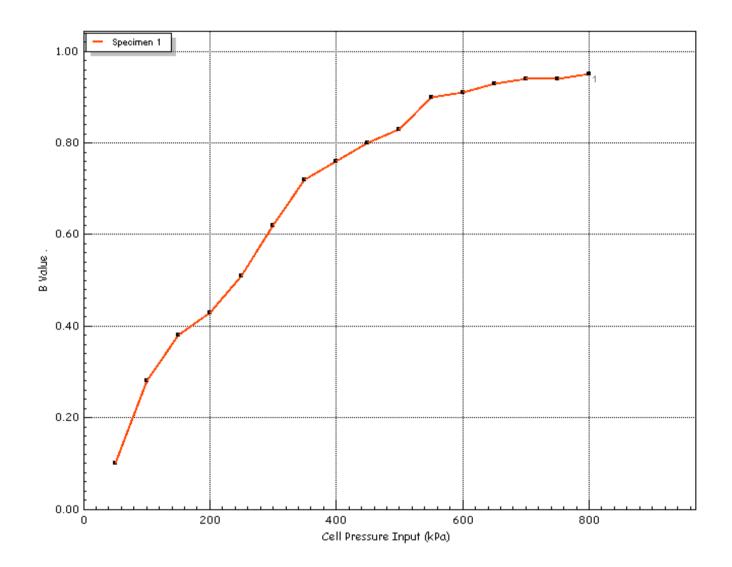


| - (H) | Test Method | BS1377-8 : 1990 : Clause 7 | Test Name Test Date | BH07 7.00-7.30m C 12/05/2022 | |
|--------------------|-------------|----------------------------|------------------------|---------------------------------|--|
| ·(><)= | | | Borehole | BH07 | |
| | Jobfile | North Irish Sea Array NISA | Sample | 7.00-7.30m C | |
| U K A S TESTING | Client | Causeway | Depth | 7.00-7.30m | |
| 4043 | | | i | | |



Saturation Plots



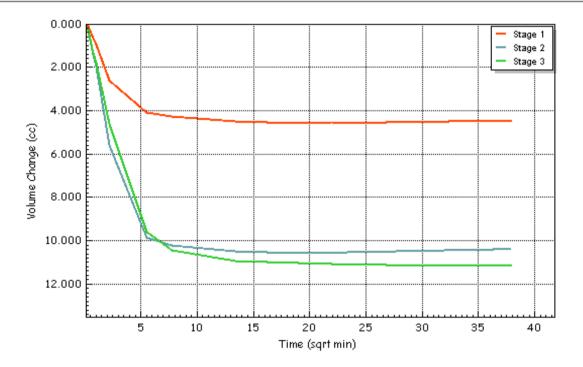


| - (H) | Test Method | BS1377-8 : 1990 : | Clause 7 | Test Name Test Date | BH07 7.00-7.30m C 12/05/2022 |
|-------|-------------|--------------------|----------|------------------------|---------------------------------|
| | Jobfile | North Irish Sea Ar | ray NISA | Borehole Sample | BH07 7.00-7.30m C |
| 4043 | Client | Causeway | | Depth | 7.00-7.30m |



Consolidation Plots

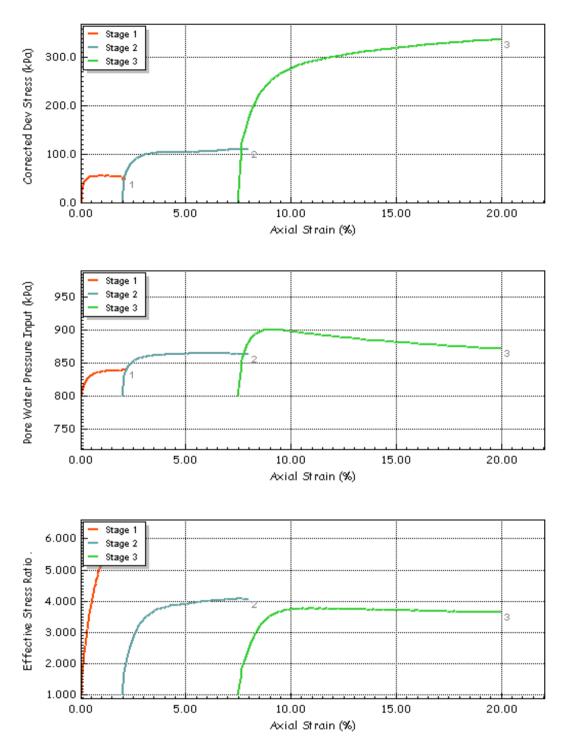
| Initial Back Pressureubi(kPa)800800800Pore Water Pressure Inputu μ_{WVP} (kPa)837893979Drainage Methodu μ_{WVP} (kPa)837893979Final ConditionsStage 123PWP Dissipation %U%(%)100.00100.00100.00Volumetric Strain $\epsilon_v \%$ (%)0.821.932.07Corrected LengthL c(mm)139.6135.7126.6Corrected AreaA c(cm2)38.3838.7340.63Corrected VolumeV c(cc)535.883525.463514.301t100t 100(min)13.6714.8926.02Consolidationc v(m2/year)7.4406.8313.909Compressibilitym v(m2/MN)0.2200.2080.116Test Timet F(h:m:s)02:00:0002:00:0022:00:00Estimated Strain to Failuret F(%)5.05.05.0 | Initial Conditions | | | Stage 1 | 2 | 3 |
|---|-----------------------------|-------|-----------|-----------|----------|----------|
| Pore Water Pressure Input Drainage Method u μ μ kPa 837 893 979 Badial+One End Radial+One End Radial+One End Final Conditions Stage 1 2 3 PWP Dissipation % U% (%) 100.00 100.00 100.00 Volumetric Strain ε v % (%) 0.82 1.93 2.07 Corrected Length L c (mm) 139.6 135.7 126.6 Corrected Area A c (cm2) 38.38 38.73 40.63 Corrected Volume V c (cc) 535.883 525.463 514.301 t100 t100 (min) 13.67 14.89 26.02 Consolidation c v (m2/year) 7.440 6.831 3.909 Compressibility m v (m2/MN) 0.220 0.208 0.116 Test Time t F (h:ms) 5.0 5.0 5.0 | Initial Cell Pressure | σз | (kPa) | 850 | 900 | 1000 |
| Drainage Method Radial+One End Final Conditions Stage 1 2 3 PWP Dissipation % U% (%) 100.00 100.00 100.00 Volumetric Strain $\epsilon_v \%$ (%) 0.82 1.93 2.07 Corrected Length L C (mm) 139.6 135.7 126.6 Corrected Area A C (cm2) 38.38 38.73 40.63 Corrected Volume V C (cc) 535.883 525.463 514.301 t100 t 100 (min) 13.67 14.89 26.02 Consolidation c v (m2/WN) 0.220 0.208 0.116 Test Time t F (h:m:s) 02:00:00 02:00:00 02:00:00 Estimated Strain to Failure t F (h:m:s) 02:00:00 5.0 5.0 | Initial Back Pressure | и Бі | (kPa) | 800 | 800 | 800 |
| Final Conditions Stage 1 2 3 PWP Dissipation % U% (%) 100.00 100.00 100.00 Volumetric Strain ε v % (%) 0.82 1.93 2.07 Corrected Length L c (mm) 139.6 135.7 126.6 Corrected Area A c (cm2) 38.38 38.73 40.63 Corrected Volume V c (cc) 535.883 525.463 514.301 t100 t 100 (min) 13.67 14.89 26.02 Consolidation c v (m2/year) 7.440 6.831 3.909 Compressibility m v (m2/MN) 0.220 0.208 0.116 Test Time t F (h:m:s) 02:00:00 02:00:00 02:00:00 Estimated Strain to Failure 5 % (%) 5.0 5.0 5.0 | Pore Water Pressure Input | И рмр | (kPa) | 837 | 893 | 979 |
| Stage 1 2 3 PWP Dissipation % U% (%) 100.00 100.00 100.00 Volumetric Strain ε v % (%) 0.82 1.93 2.07 Corrected Length L c (mm) 139.6 135.7 126.6 Corrected Area A c (cm2) 38.38 38.73 40.63 Corrected Volume V c (cc) 535.883 525.463 514.301 t100 t 100 (min) 13.67 14.89 26.02 Consolidation c v (m2/year) 7.440 6.831 3.909 Compressibility m v (m2/MN) 0.220 0.208 0.116 Test Time £ % (%) 5.0 5.0 5.0 5.0 | Drainage Method | | | Radial+On | e End | |
| PWP Dissipation %U%(%)100.00100.00100.00Volumetric Strainεν%(%)0.821.932.07Corrected LengthL c(mm)139.6135.7126.6Corrected AreaA c(cm2)38.3838.7340.63Corrected VolumeV c(cc)535.883525.463514.301t100t 100(min)13.6714.8926.02Consolidationc v(m2/year)7.4406.8313.909Compressibilitym v(m2/MN)0.2200.2080.116Test Timet F Estimated Strain to Failuret F ε %(%)5.05.05.0 | Final Conditions | | | | | |
| Volumetric Strain $\epsilon_v \%$ $(\%)$ 0.82 1.93 2.07 Corrected LengthL c(mm) 139.6 135.7 126.6 Corrected AreaA c(cm2) 38.38 38.73 40.63 Corrected VolumeV c(cc) 535.883 525.463 514.301 t100t 100(min) 13.67 14.89 26.02 Consolidationc v(m2/year) 7.440 6.831 3.909 Compressibilitym v(m2/MN) 0.220 0.208 0.116 Test Timet F(h:m:s) $02:00:00$ 5.0 5.0 | | | | - | | |
| Corrected LengthL c(mm)139.6135.7126.6Corrected AreaA c(cm2)38.3838.7340.63Corrected VolumeV c(cc)535.883525.463514.301t100t 100(min)13.6714.8926.02Consolidationc v(m2/year)7.4406.8313.909Compressibilitym v(m2/MN)0.2200.2080.116Test Timet F(h:m:s)02:00:005.05.05.0 | PWP Dissipation % | | () | 100.00 | | 100.00 |
| Corrected Area A c (cm2) 38.38 38.73 40.63 Corrected Volume V c (cc) 535.833 525.463 514.301 t100 t 100 (min) 13.67 14.89 26.02 Consolidation c v (m2/year) 7.440 6.831 3.909 Compressibility m v (m2/MN) 0.220 0.208 0.116 Test Time t F (h:m:s) 02:00:00 5.0 5.0 5.0 | Volumetric Strain | εν% | (%) | 0.82 | 1.93 | 2.07 |
| Corrected VolumeV c(ma)535.883525.463514.301t100t 100(min)13.6714.8926.02Consolidationc v(m2/year)7.4406.8313.909Compressibilitym v(m2/MN)0.2200.2080.116Test Timet F(h:m:s)02:00:005.05.05.0 | Corrected Length | Lc | (mm) | 139.6 | 135.7 | 126.6 |
| t100 t 100 (min) 13.67 14.89 26.02 Consolidation c v (m2/year) 7.440 6.831 3.909 Compressibility m v (m2/MN) 0.220 0.208 0.116 Test Time t F (h:m:s) 02:00:00 5.0 5.0 5.0 | Corrected Area | Ac | (cm2) | 38.38 | 38.73 | 40.63 |
| Consolidation c v (m2/year) 7.440 6.831 3.909 Compressibility m v (m2/MN) 0.220 0.208 0.116 Test Time t F (h:m:s) 02:00:00 02:00:00 02:00:00 Estimated Strain to Failure ε % (%) 5.0 5.0 5.0 | Corrected Volume | Vс | (cc) | 535.883 | 525.463 | 514.301 |
| Compressibility m v (m2/MN) 0.220 0.208 0.116 Test Time t F (h:m:s) 02:00:00 02:00:00 02:00:00 Estimated Strain to Failure ε % (%) 5.0 5.0 5.0 | t100 | t 100 | (min) | 13.67 | 14.89 | 26.02 |
| Test Time t F (h:m:s) 02:00:00 02:00:00 02:00:00 Estimated Strain to Failure ε % (%) 5.0 5.0 5.0 | Consolidation | сv | (m2/year) | 7.440 | 6.831 | 3.909 |
| Estimated Strain to Failure ε% (%) 5.0 5.0 5.0 | Compressibility | m v | (m2/MN) | 0.220 | 0.208 | 0.116 |
| | Test Time | t F | (h:m:s) | 02:00:00 | 02:00:00 | 02:00:00 |
| Shear Machine Speed d r (mm/min) 0.05817 0.05817 0.05817 | Estimated Strain to Failure | ε% | (%) | 5.0 | 5.0 | 5.0 |
| | Shear Machine Speed | dr | (mm/min) | 0.05817 | 0.05817 | 0.05817 |



| do | Test Method | BS1377-8 : 1990 : Clause 7 | Test Name | BH07 7.00-7.30m C |
|--------------------|-------------|----------------------------|-----------|-------------------|
| - 🖼 - | | | Test Date | 12/05/2022 |
| · (>4) = | | | Borehole | BH07 |
| | Jobfile | North Irish Sea Array NISA | Sample | 7.00-7.30m C |
| U K A S TESTING | Client | Causeway | Depth | 7.00-7.30m |
| 4043 | | | - | |



Shear Stage Plots



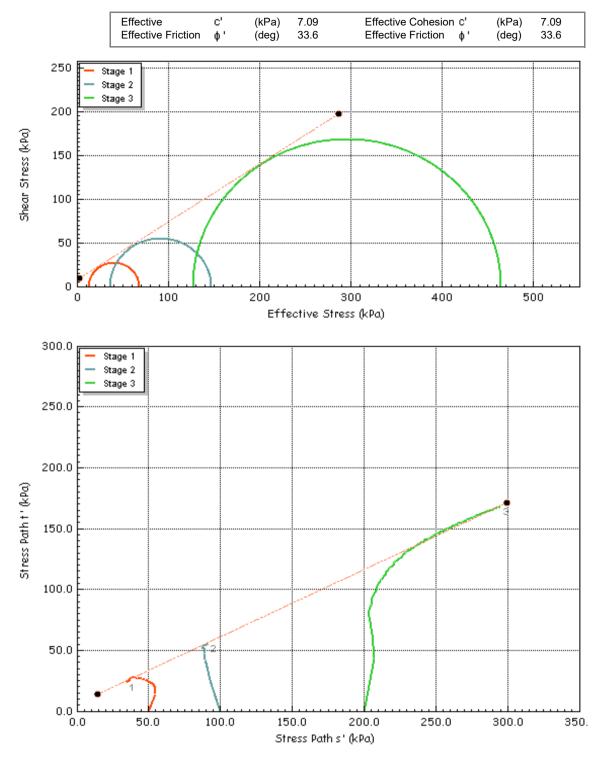
| da | Test Method | BS1377-8 : 1990 : | Clause 7 | Test Name | BH07 7.00-7.30m C |
|----------|-------------|--------------------|----------|-----------|-------------------|
| - 👾 - | | | | Test Date | 12/05/2022 |
| · (}\$)] | | | | Borehole | BH07 |
| | Jobfile | North Irish Sea Ar | ray NISA | Sample | 7.00-7.30m C |
| UKAS | Client | Causeway | | Depth | 7.00-7.30m |
| 4043 | | | | | |



Effective Stress Triaxial Compression

Consolidated Undrained

Shear Stage Plots



| do | Test Method | BS1377-8 : 1990 : Clause 7 | Test Name | BH07 7.00-7.30m C |
|--------------------|-------------|----------------------------|-----------|-------------------|
| - 👾 _ | | | Test Date | 12/05/2022 |
| · (}4) = | | | Borehole | BH07 |
| | Jobfile | North Irish Sea Array NISA | Sample | 7.00-7.30m C |
| U K A S TESTING | Client | Causeway | Depth | 7.00-7.30m |
| 4043 | | | | |





HEAD OFFICE Causeway Geotech Ltd 8 Drumahiskey Road Ballymoney Co. Antrim, N. Ireland, BT53 7QL NI: +44 (0)28 276 66640 Registered in Northern Ireland. Company Number: NI610766

REGIONAL OFFICE Causeway Geotech (IRL) Ltd Unit 1 Fingal House Stephenstown Industrial Estate Balbriggan, Co Dublin, Ireland, K32 VR66 ROI: +353 (0)1 526 7465 Registered in Ireland. Company Number. 633786

www.causewaygeotech.com

SOIL AND ROCK SAMPLE ANALYSIS LABORATORY TEST REPORT

16 May 2022

| Project Name: | North Irish Sea Array |
|---------------|-----------------------|
| Project No.: | 21-1619 |
| Client: | Statkraft |
| Engineer: | ARUP |

We are pleased to attach the results of laboratory testing carried out for the above project. This memo and its attachments constitute a report of the results of tests as detailed in the Contents page(s). This testing was performed between 29/04/2022 and 16/05/2022.

The attached results complete the testing requested and we would therefore wish to confirm that samples will be retained without charge for a period of 28 days from the above date after which they will be appropriately disposed of unless we receive written instructions to the contrary prior to that date.

We trust our report meets with your approval but if you have any queries or require additional information, please do not hesitate to contact the undersigned.

Stephen Watson Laboratory Manager Signed for and on behalf of Causeway Geotech Ltd



Project Name: North Irish Sea Array

Report Reference: Schedule 10

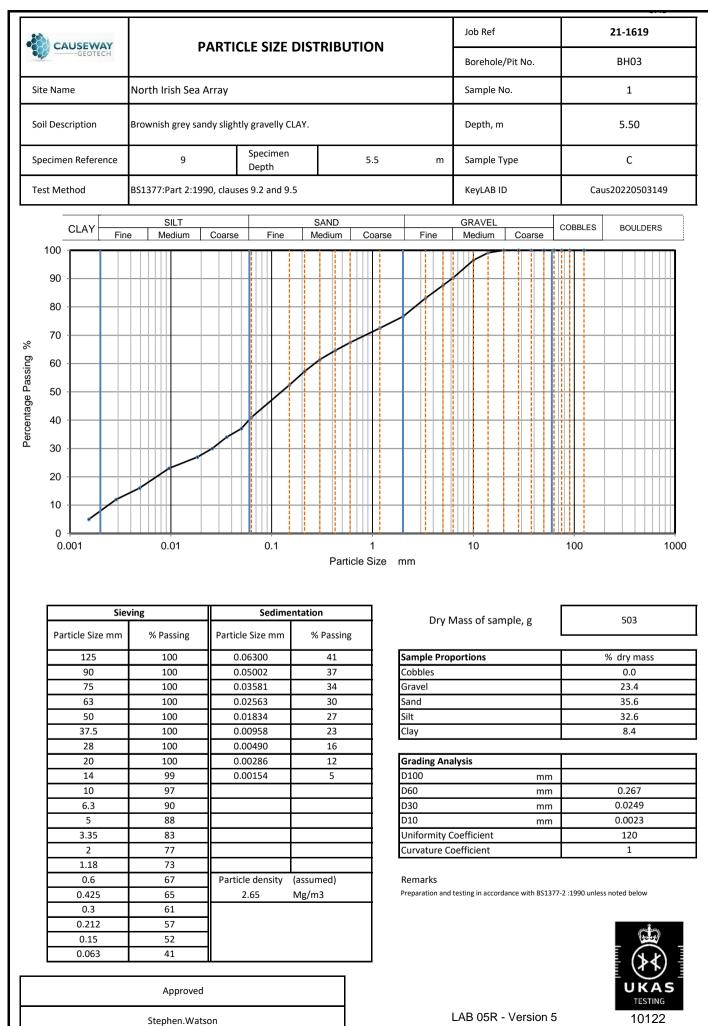
The table below details the tests carried out, the specifications used, and the number of tests included in this report. The results contained in this report relate to the sample(s) as received

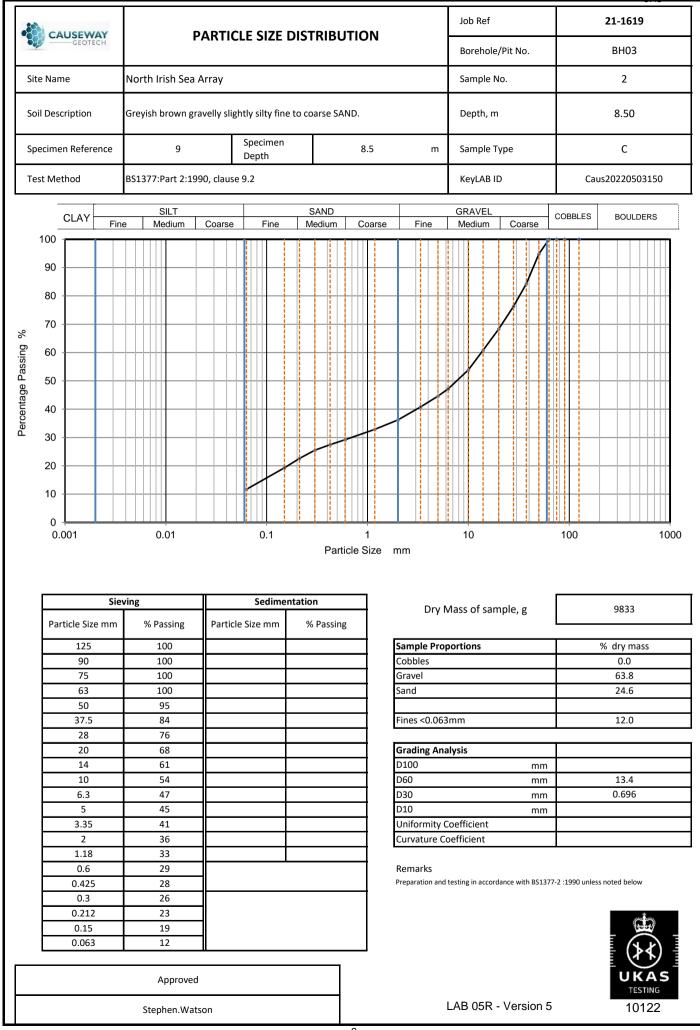
Tests marked with* in this report are not United Kingdom Accreditation Service (UKAS) accredited and are not included in Causeway Geotech Limited's scope of UKAS Accreditation Schedule of Tests. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

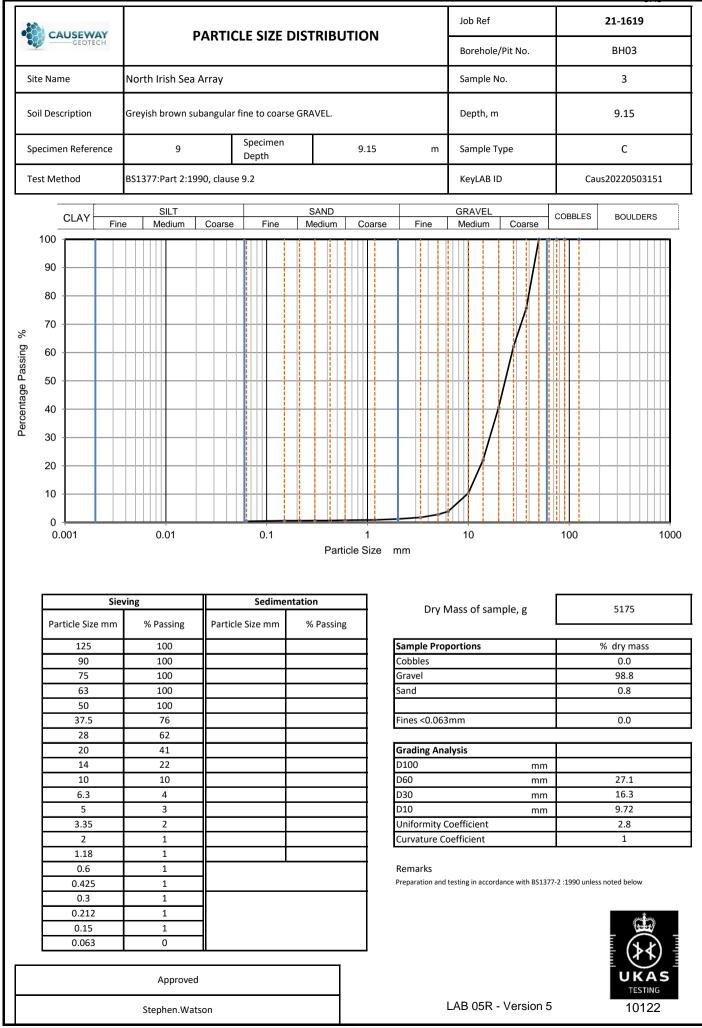
| Material tested | Type of test/Properties measured/Range of measurement | Standard specifications | No. of results included in the report |
|-----------------|---|---------------------------------------|---|
| SOIL | Moisture Content of Soil | BS 1377-2: 1990: Cl 3.2 | 15 |
| SOIL | Liquid and Plastic Limits of soil-1 point cone penetrometer method | BS 1377-2: 1990: Cl 4.4, 5.3 & 5.4 | 2 |
| SOIL | Liquid and Plastic Limits of soil-4 point cone penetrometer method | BS 1377-2: 1990: Cl 4.4, 5.3 & 5.4 | 12 |
| SOIL | Particle size distribution - wet sieving | BS 1377-2: 1990: Cl 9.2 | 15 |
| SOIL | Particle size distribution - sedimentation hydrometer method | BS 1377-2: 1990: Cl 9.5 | 10 |

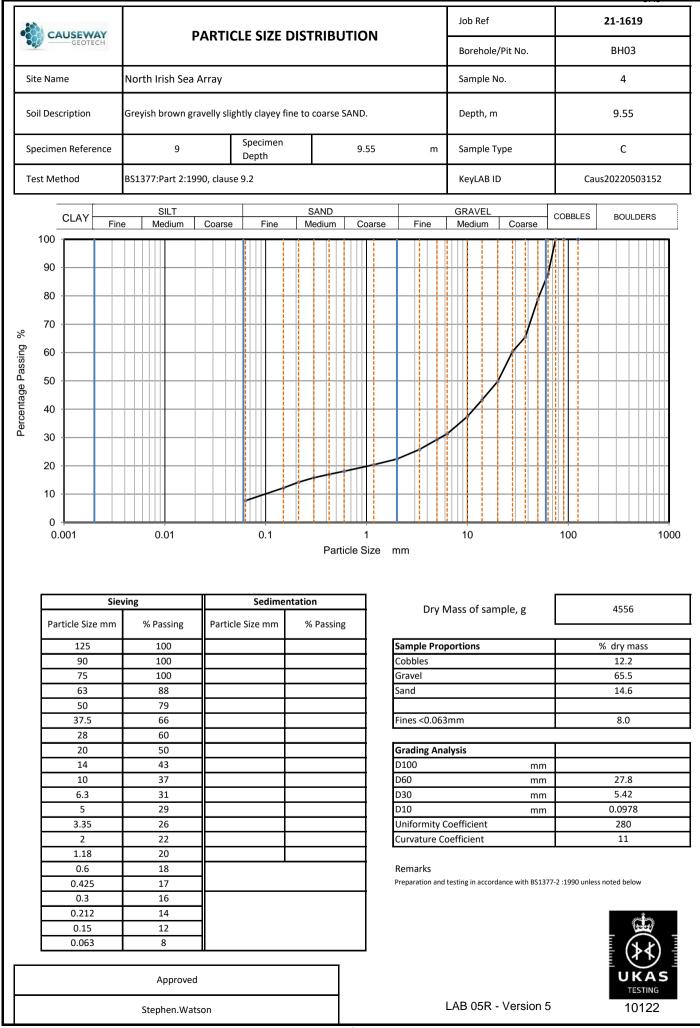
| | JSE GEO | VAY TECH | | | Summar | y of C | las | sific | ation | Test | Res | sult | S | |
|---------------------|---------------------|-----------------------------------|-------------------------------|---------------------------------------|--|----------------------|--------|--------------------|-----------------------|---------|---------|--------------|------------------------------|------------------------------|
| Project No. 21-1 | 619 | | Project | Project Name North Irish Sea Array | | | | | | | | | | |
| Hole No. | Ref | Sar Top | nple Base | Туре | Soil Description | Dens bulk Mg/m | dry | W % | Passing 425µm % | LL % | PL % | PI % | Particle density Mg/m3 | Casagrande Classification |
| BH03 | 1 | 5.50 | 6.80 | с | Brownish grey sandy slightly gravelly CLAY. | | | 18.0 | 63 | 28 | 13 | 15 | | CL |
| BH03 | вноз 2 8.50 | | 9.15 | с | Greyish brown gravelly slightly silty fine to coarse SAND. | | | 7.9 | 40 | 23 | 18 | 5 | | ML |
| BH03 | 3 | 9.15 | 9.55 | с | Greyish brown subangular fine to coarse GRAVEL. | | | 1.8 | | | | | | |
| BH03 | 4 | 9.55 | 10.00 | С | Greyish brown gravelly slightly clayey fine to coarse SAND. | | | 5.6 | 31 | 20 -1pt | 13 | 7 | | CL |
| BH03 | 5 | 10.00 | 10.25 | С | Greyish brown gravelly slightly clayey fine to coarse SAND. | | | 8.4 | 38 | 26 | 16 | 10 | | CL |
| BH03 | 6 | 10.25 | 11.05 | с | Greyish brown gravelly clayey fine to coarse SAND. | | | 13.0 | 44 | 27 | 16 | 11 | | CL |
| BH03 | 7 | 11.05 | 11.50 | с | Greyish brown gravelly clayey fine to coarse SAND with cobbles. | | | 5.2 | 61 | 24 | 15 | 9 | | CL |
| BH05 | 8 | 7.50 | 8.50 | С | Greyish brown clayey fine to coarse SAND. | | | 19.0 | 43 | 27 | 14 | 13 | | CL |
| BH05 | 9 | 8.50 | 9.00 | с | Greyish brown sandy slightly gravelly silty CLAY. | | | 12.0 | 58 | 29 | 15 | 14 | | CL |
| BH05 | 10 | 10.50 | 11.40 | с | Greyish brown slightly gravelly clayey fine to coarse SAND. | | | 39.0 | 79 | 26 | 18 | 8 | | CL |
| BH05 | 11 | 11.40 | 12.50 | с | Dark greyish brown very gravelly silty fine to coarse SAND with cobbles. | | | 6.6 | 34 | 25 -1pt | 16 | 9 | | CL |
| BH06 | 12 | 7.00 | 7.35 | С | Brown sandy gravelly silty CLAY. | | | 17.0 | 69 | 23 | 15 | 8 | | CL |
| All tests perfor | med i | n accord | lance wit | h BS1 | 377:1990 unless specified | otherwise | e | | | | | | LAB | 01R Version 5 |
| | neasure er displ | ment unles acement in water | Liquid Limit Particle density | | | | Date F | Printed 6/05/20 | 22 | Appr | | By Watson | UKAS TESTING 10122 | |

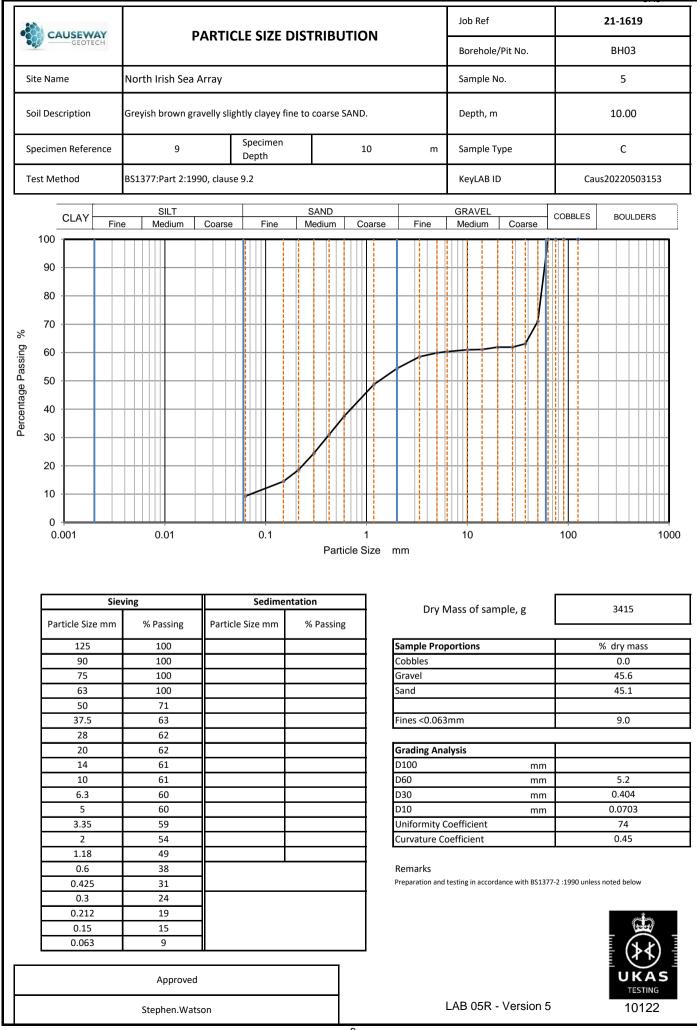
| | VAY TECH | | Summary of Classification Test Results | | | | | | | | | | | | |
|------------------|----------------------|-----------------------------------|---|--|--|----------------------|-----|----------|-----------------------|---------|---------|-------------------|------------------------------|------------------------------|--|
| Project No. | 040 | | Project Name North Irish Sea Array | | | | | | | | | | | | |
| 21-1 | 619 I | Sor | nple | | [| | | | | | | | | | |
| Hole No. | | | - | Туре | Soil Description | Dens bulk Mg/m | dry | W % | Passing 425µm % | LL % | PL % | PI % | Particle density Mg/m3 | Casagrande Classification | |
| BH06 | 13 | 14.50 | 14.90 | с | Brown sandy slightly gravelly silty CLAY. | | | 32.0 | 91 | 28 | 20 | 8 | | CL | |
| BH06 | 14 | 14.90 | 15.45 | с | Brown sandy gravelly silty CLAY. | | | 23.0 | 68 | 22 | 15 | 7 | | CL | |
| BH06 | 15 | 15.45 | 15.90 | с | Brown slightly sandy clayey subangular fine to coarse GRAVEL with cobbles. | | | 7.2 | 60 | 22 | 15 | 7 | | CL | |
| | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | |
| All tests perfor | med i | n accord | ance wit | ith BS1377:1990 unless specified otherwise | | | | <u> </u> | | | | LAB 01R Version 5 | | | |
| | neasure ter displ | ment unles acement in water | Liquid Limit Particle d ss : 4pt cone unless : sp - smal cas - Casagrande method gj - gas ja 1pt - single point test | | | | | Date F | Printed 16/05/20 | 22 | Appro | | By Watson | | |

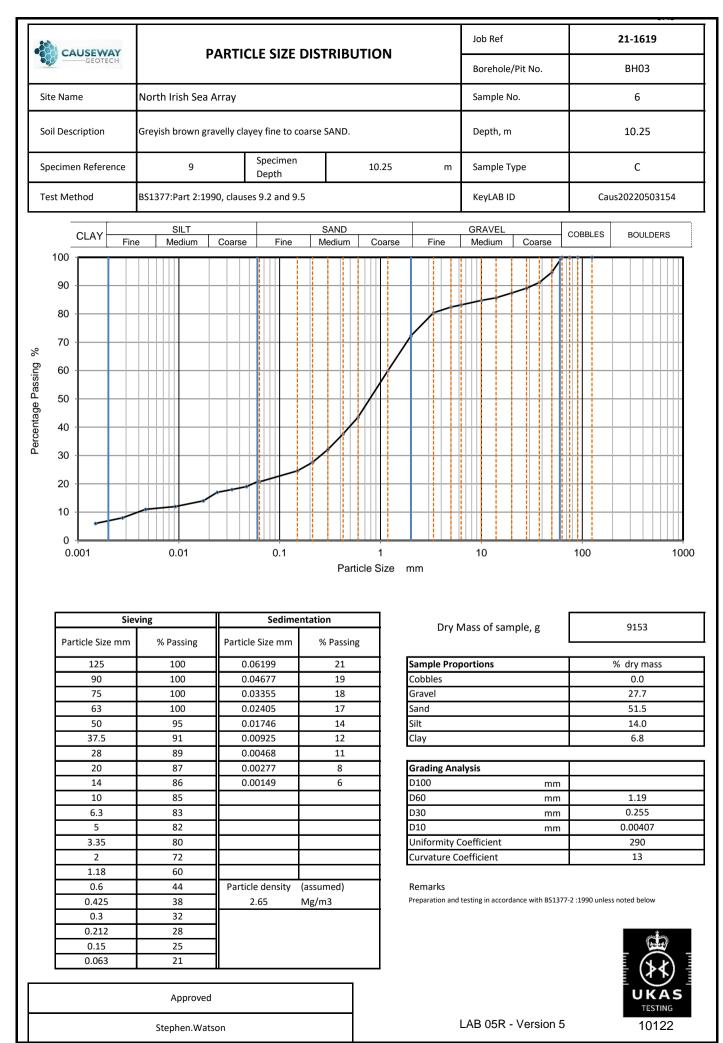


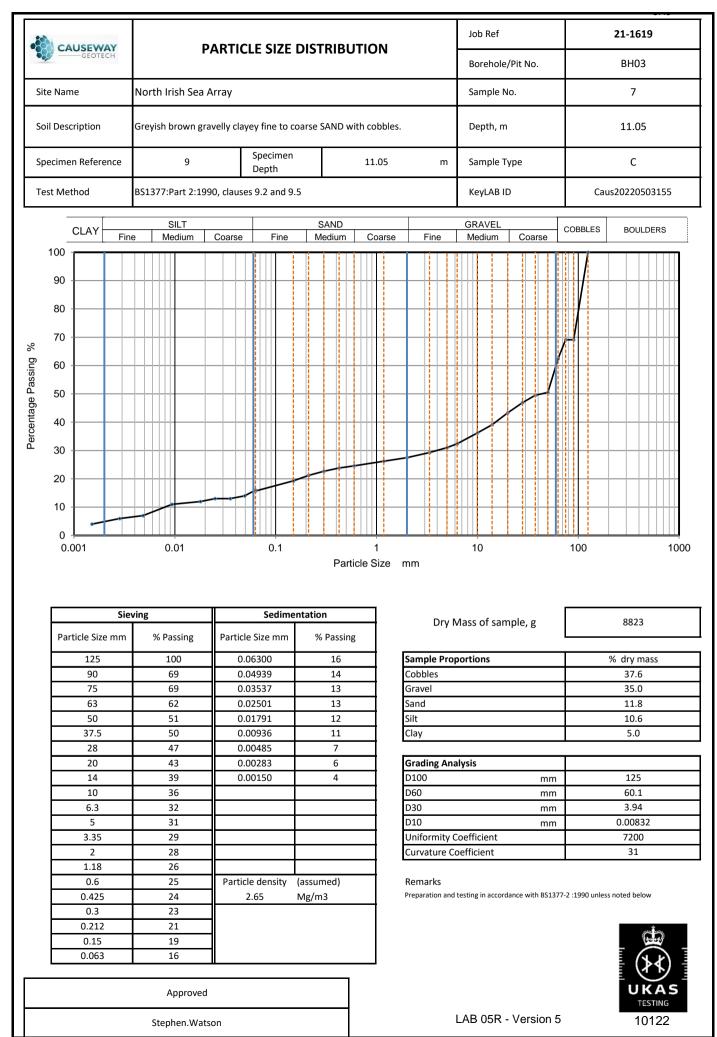


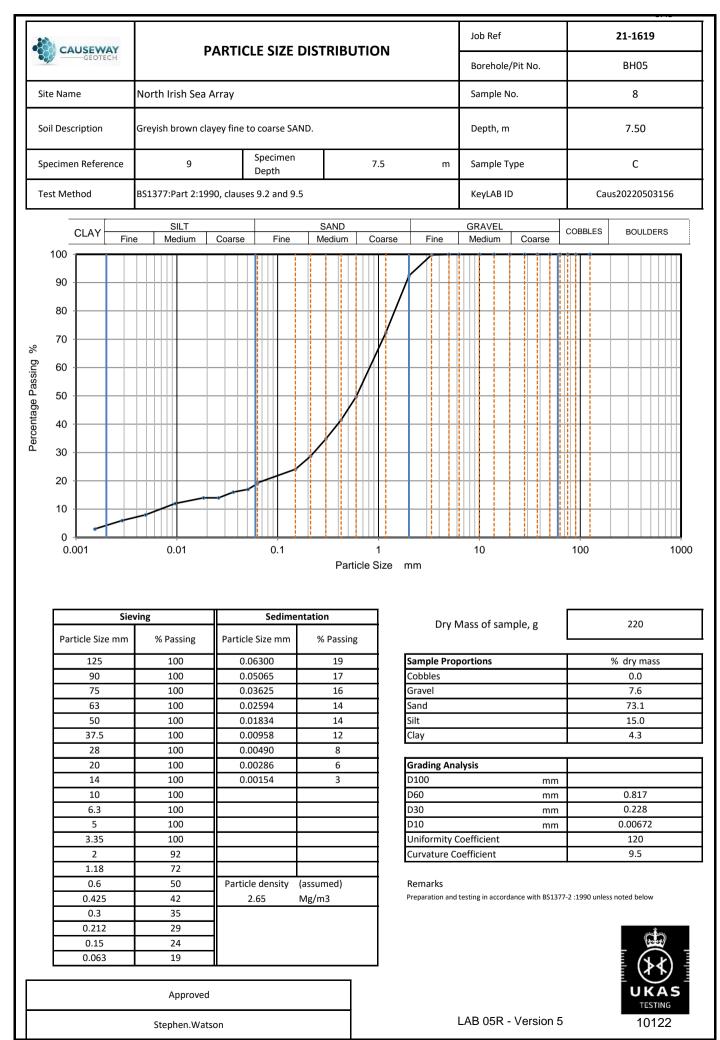


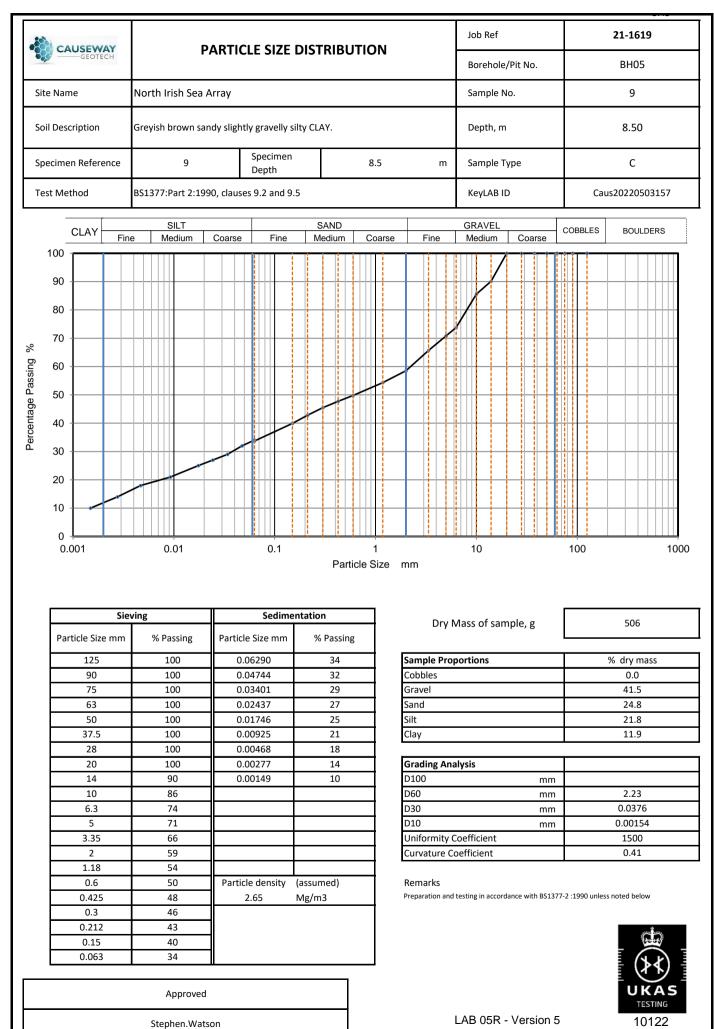


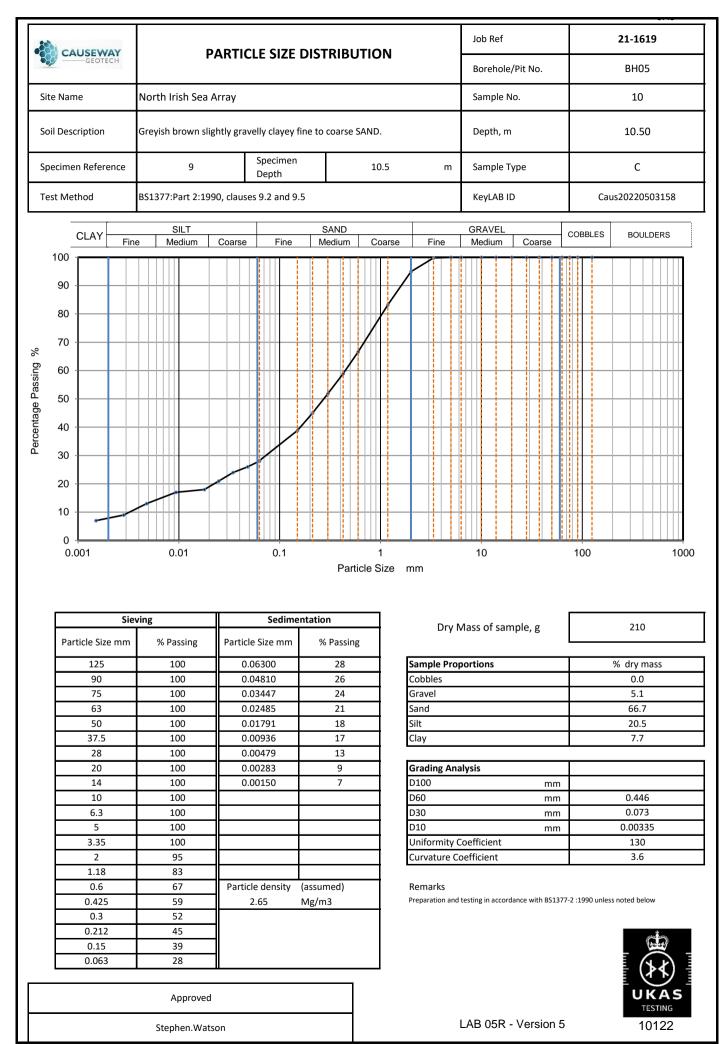


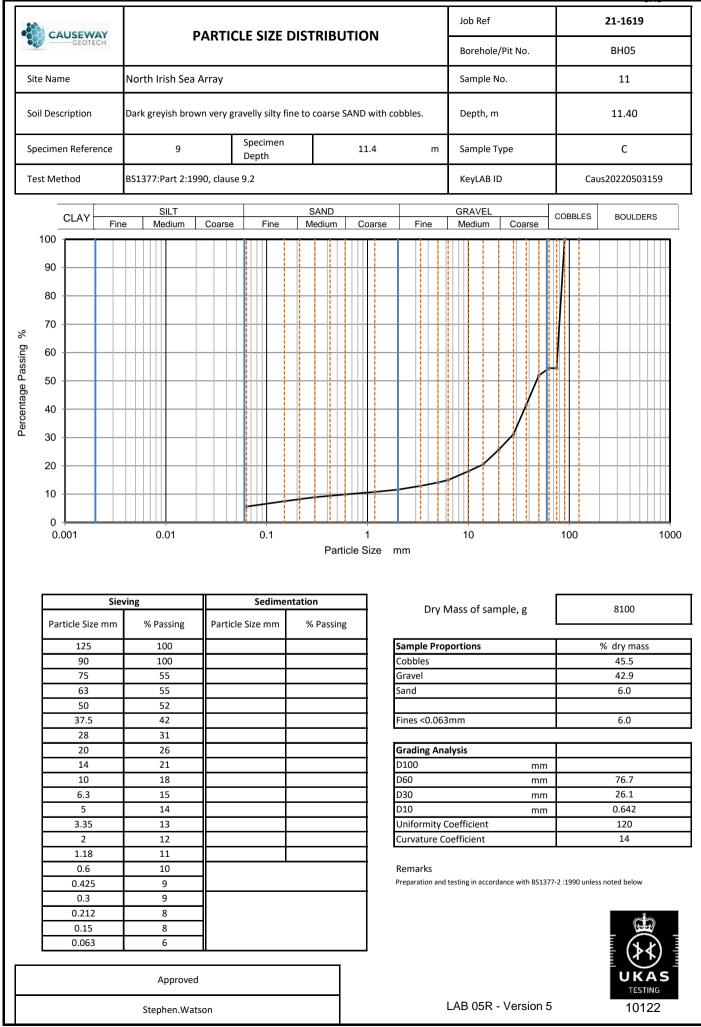


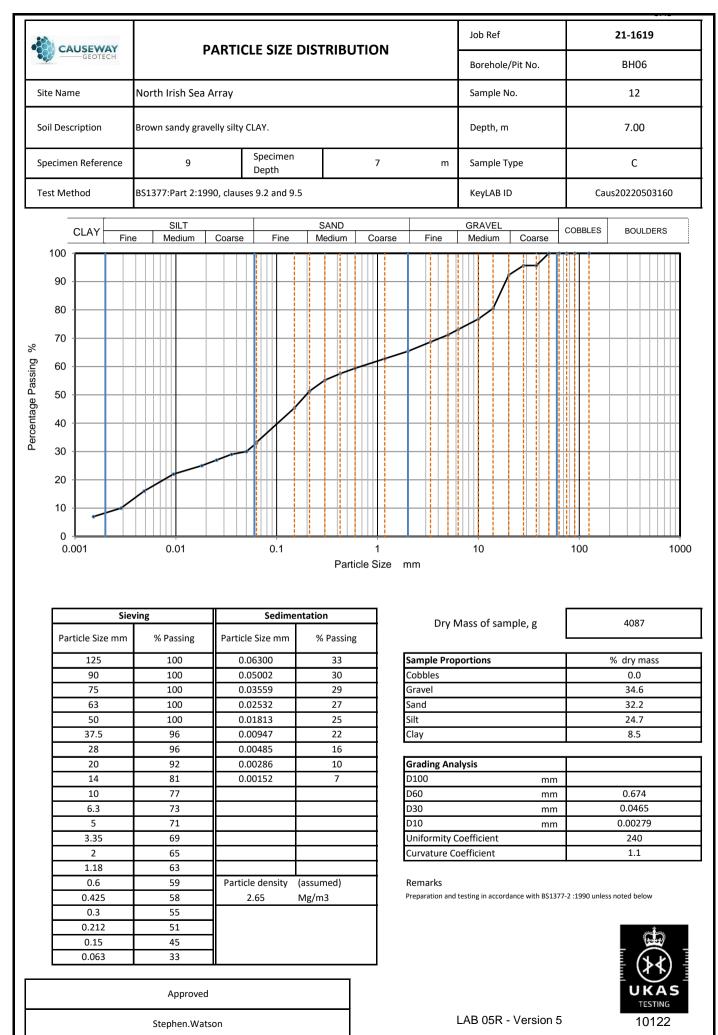


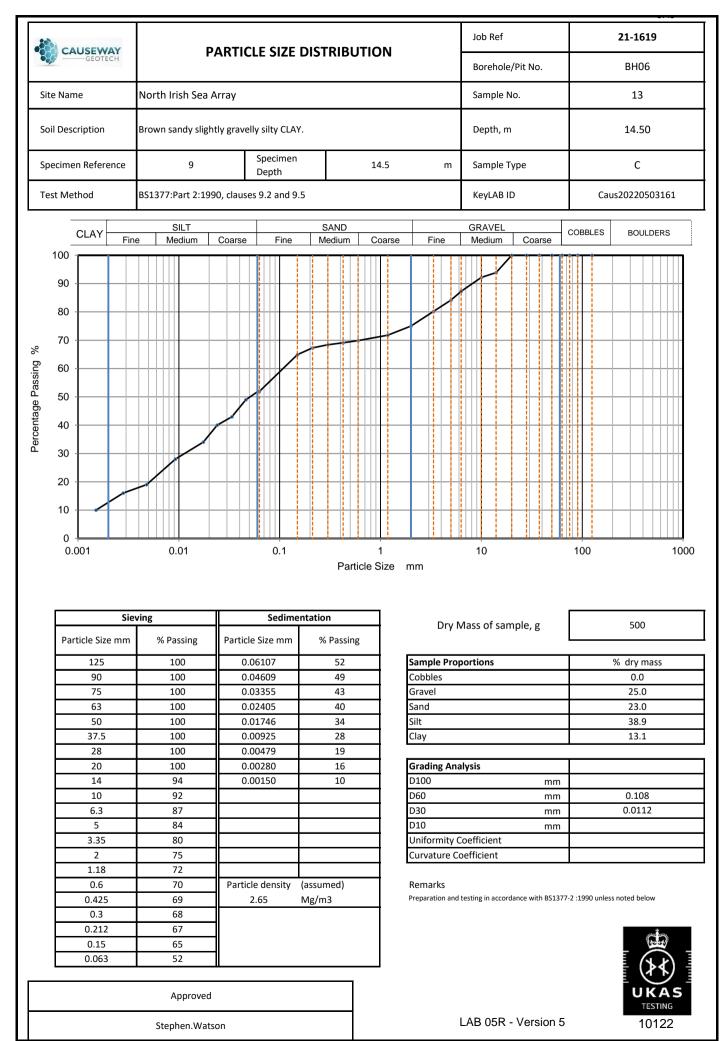


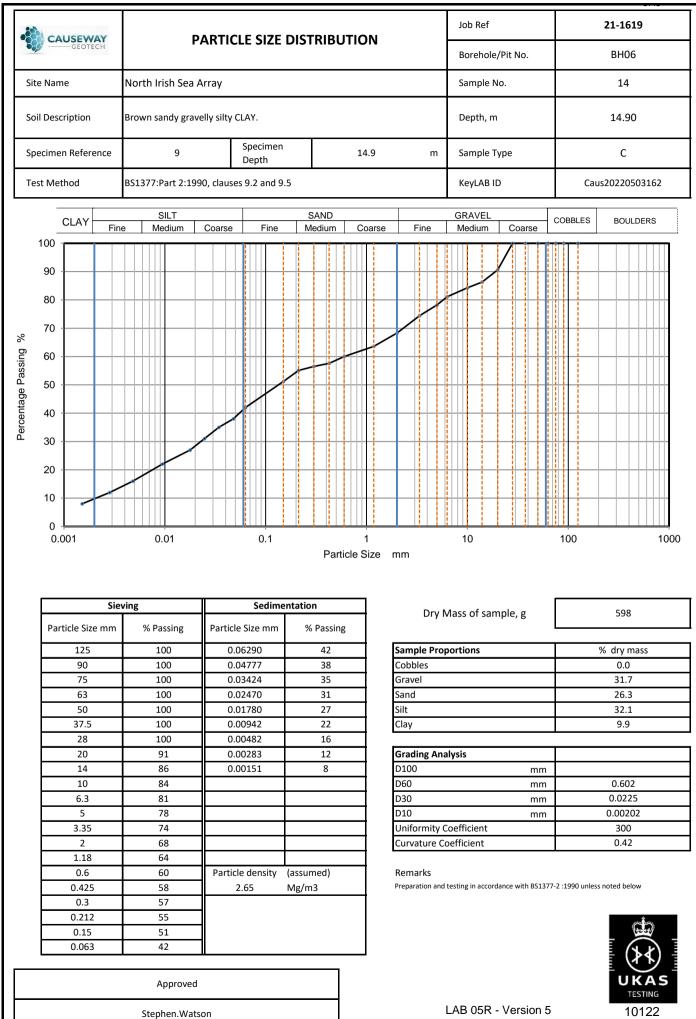


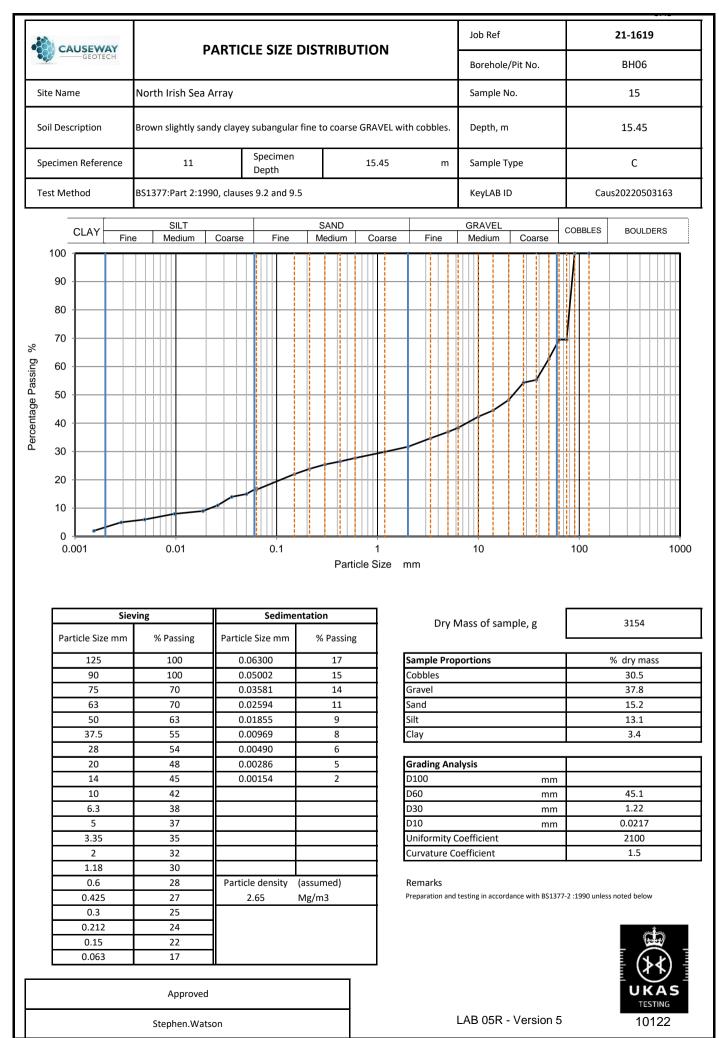














HEAD OFFICE Causeway Geotech Ltd 8 Drumahiskey Road Ballymoney Co. Antrim, N. Ireland, BT53 7QL NI: +44 (0)28 276 66640

Registered in Northern Ireland. Company Number: NI610766 REGIONAL OFFICE Causeway Geotech (IRL) Ltd Unit 1 Fingal House tephenstown Industrial Estate

Stephenstown Industrial Estate Balbriggan, Co Dublin, Ireland, K32 VR66 **ROI:** +353 (0)1 526 7465

> Registered in Ireland. Company Number: 633786

www.causewaygeotech.com

SOIL AND ROCK SAMPLE ANALYSIS LABORATORY TEST REPORT

2 June 2022

| Project Name: | North Irish Sea Array |
|---------------|-----------------------|
| Project No.: | 21-1619 |
| Client: | Statkraft |
| Engineer: | ARUP |

We are pleased to attach the results of laboratory testing carried out for the above project. This memo and its attachments constitute a report of the results of tests as detailed in the Contents page(s). This testing was performed between 19/05/2022 and 02/05/2022.

The attached results complete the testing requested and we would therefore wish to confirm that samples will be retained without charge for a period of 28 days from the above date after which they will be appropriately disposed of unless we receive written instructions to the contrary prior to that date.

We trust our report meets with your approval but if you have any queries or require additional information, please do not hesitate to contact the undersigned.

John Worm

Stephen Watson Laboratory Manager Signed for and on behalf of Causeway Geotech Ltd











BRITISH

DRILLING ASSOCIATION Project Name: North Irish Sea Array

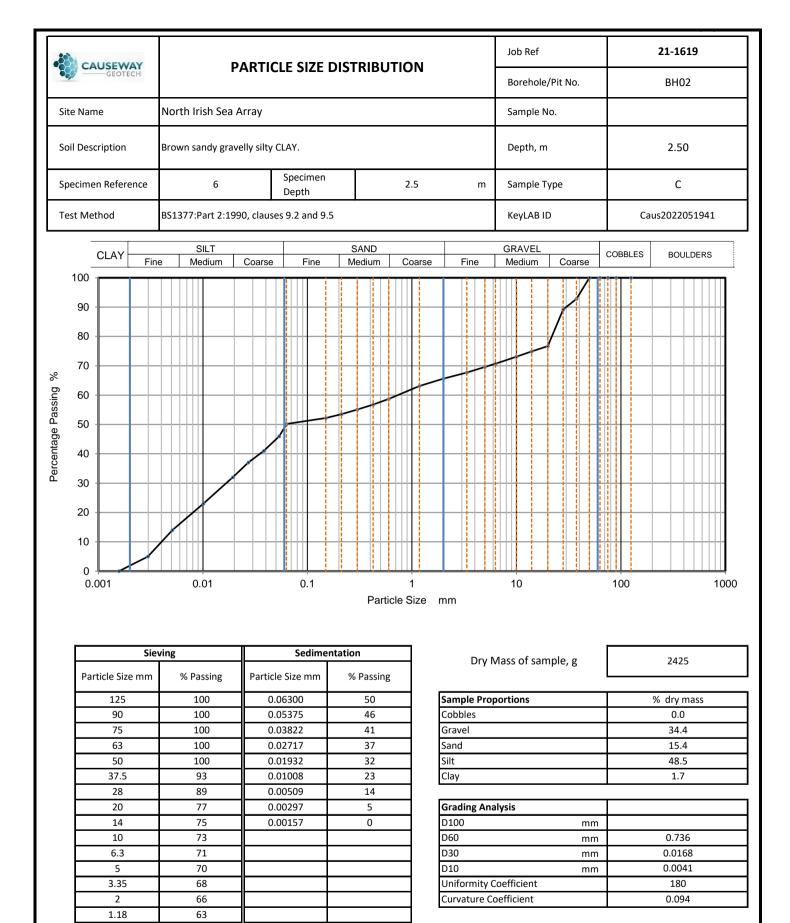
Report Reference: Schedule 11

The table below details the tests carried out, the specifications used, and the number of tests included in this report. The results contained in this report relate to the sample(s) as received

Tests marked with* in this report are not United Kingdom Accreditation Service (UKAS) accredited and are not included in Causeway Geotech Limited's scope of UKAS Accreditation Schedule of Tests. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

| Material tested | Type of test/Properties measured/Range of measurement | Standard specifications | No. of results included in the report |
|-----------------|---|---------------------------------------|---|
| SOIL | Moisture Content of Soil | BS 1377-2: 1990: Cl 3.2 | 2 |
| SOIL | Liquid and Plastic Limits of soil-4 point cone penetrometer method | BS 1377-2: 1990: Cl 4.4, 5.3 & 5.4 | 2 |
| SOIL | Particle size distribution - wet sieving | BS 1377-2: 1990: Cl 9.2 | 3 |
| SOIL | Particle size distribution - sedimentation hydrometer method | BS 1377-2: 1990: Cl 9.5 | 1 |

| GEOTECH | | Y H | Summary of Classification Test Results | | | | | | | | | | | | |
|-----------------------------|---------|---------------|--|-----------------------|--------------------|---|----------------------|----------------------------------|--------|-----------------------|---------|---------|--------|------------------------------|------------------------------|
| Project No. | | Pro | Project Name | | | | | | | | | | | | |
| 21-1619 | | | | North Irish Sea Array | | | | | | | | | | | |
| Hole No | o. R | ef To | Sample | | Гуре | Soil Description | Dens bulk Mg/m | dry | W % | Passing 425µm % | LL % | PL % | PI % | Particle density Mg/m3 | Casagrande Classification |
| BH02 | | 2.5 | 50 4. | .00 | с | Brown sandy gravelly silty CLAY. | | | 13.0 | 54 | 30 | 17 | 13 | | CL |
| BH16 | | 10. | .00 11 | .50 | С | Brown sandy slightly clayey subangular fine to coarse GRAVEL. | | | 9.5 | 48 | 26 | 15 | 11 | | CL |
| | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | |
| All tests p | erforme | d in acc | cordance | e with | BS1 | 377:1990 unless specified | otherwise | e | | | | | | LAB | 01R Version 5 |
| Linear measurement unless : | | | 4ŗ | | e unless : sp - sr | Particle density sp - small pyknometer gj - gas jar | | Date Printed 06/02/2022 00:00 | | Approved By | | | | | |
| wi - immersion in water | | | 1p | pt - sir | ngle point test | | | | | | Step | hen.' | Watson | 10122 | |



Remarks

Preparation and testing in accordance with BS1377-2 :1990 unless noted below



Approved

59

57

55

54

52

50

Particle density

2.65

(assumed)

Mg/m3

0.6

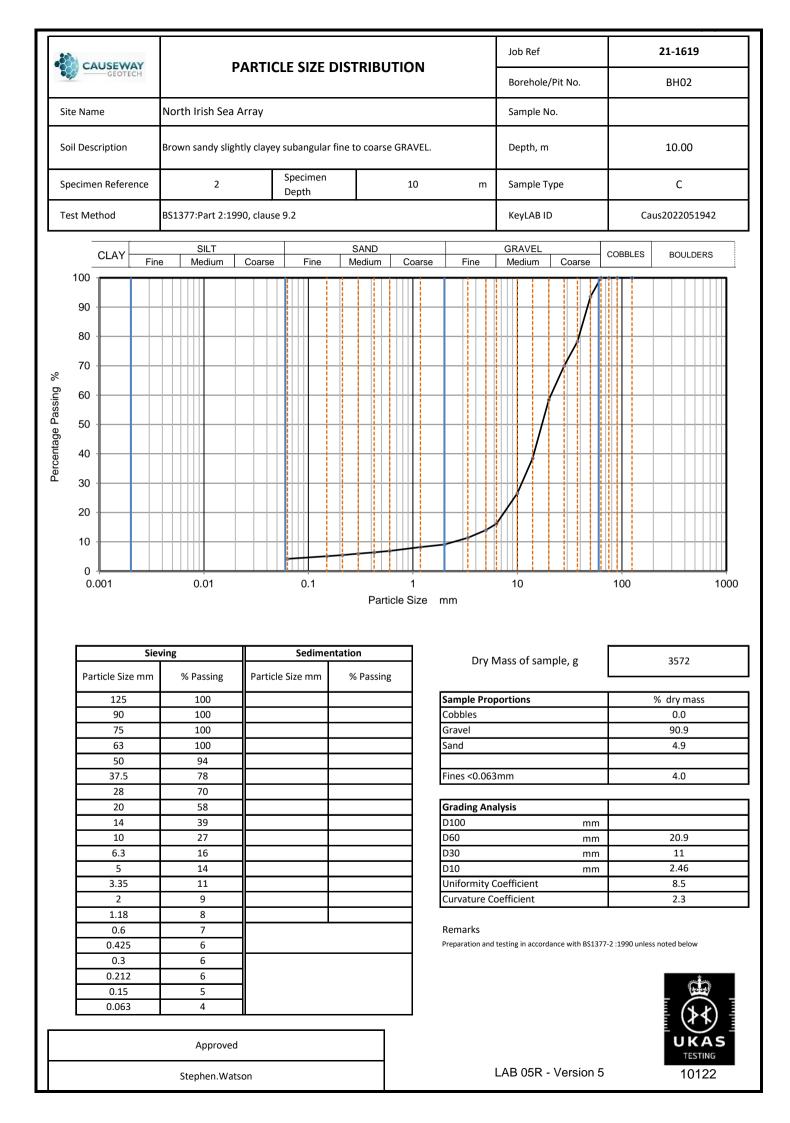
0.425

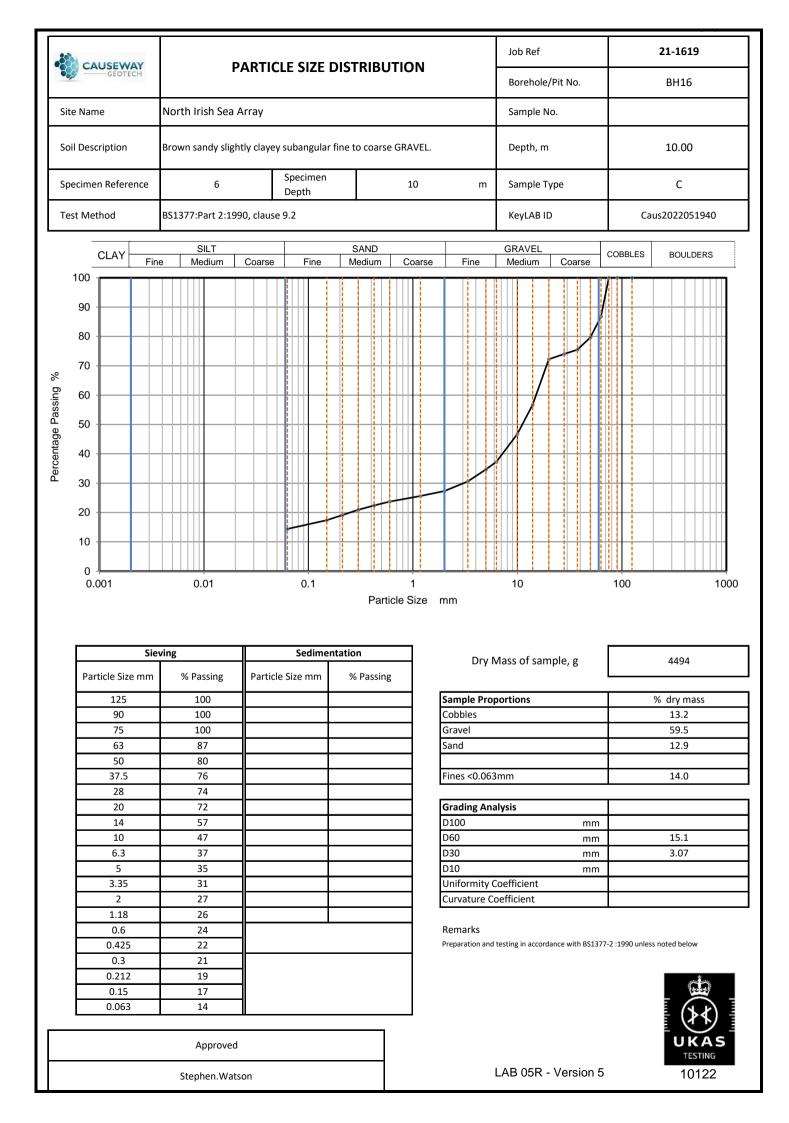
0.3

0.15

0.063

Stephen.Watson







LABORATORY RESTRICTION REPORT

| Project Reference | 21-1619 | | То | Colm Hurley |
|-------------------|----------------------|-----|----------|--------------------|
| Project Name | Nort Irish Sea Array | | Position | Project Manager |
| | | | From | Stephen Watson |
| TR reference | 21-1619 / | G11 | Position | Laboratory Manager |

The following sample(s) and test(s) are restricted as detailed below. Could you please complete the "Required Action" column and return the completed form to the laboratory.

| Hole | Numerica | Sample | Turn | Test | Reason for Restriction | Required Action | | |
|-----------|------------|-----------------|----------------|------|--|--|--|--|
| Number | Number | Depth (m) | Туре | Туре | | | | |
| BH02 | | 11.50- 13.00 | с | PSD | No suitbale sample - rockhead | CANCEL | | |
| | | | | | | | | |
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| or electi | onic repor | ting a forn | n of d name | e is | Laboratory Signature Stephen Watson | Project Manager Signature Colm Hurley | | |
| cceptab | | | | | Date 31 May 2022 | Date 31 May 2022 | | |



APPENDIX G ENVIRONMENTAL LABORATORY TEST RESULTS



🔅 eurofins

Chemtest

Eurofins Chemtest Ltd Depot Road Newmarket CB8 0AL Tel: 01638 606070 Email: info@chemtest.com

| Report No.: | 22-10214-1 | | |
|------------------------|---|------------------|-------------|
| Initial Date of Issue: | 25-Mar-2022 | | |
| Client | Causeway Geotech Ltd | | |
| Client Address: | 8 Drumahiskey Road Balnamore Ballymoney County Antrim BT53 7QL | | |
| Contact(s): | Colm Hurley Stephen Watson Carin Cornwall Darren O'Mahony Gabriella Horan Joe Gervin John Cameron Lucy Newland Martin Gardiner Matthew Gilbert Michelle Gaffney Neil Haggan Paul Dunlop Paul McNamara Sean Ross Stephen Franey Stuart Abraham | | |
| Project | 21-1619 North Irish Sea Array | | |
| Quotation No.: | Q21-26199 | Date Received: | 17-Mar-2022 |
| Order No.: | | Date Instructed: | 17-Mar-2022 |
| No. of Samples: | 20 | | |
| Turnaround (Wkdays): | 7 | Results Due: | 25-Mar-2022 |
| Date Approved: | 25-Mar-2022 | | |
| Approved By: | | | |
| and | | | |

Details:

Stuart Henderson, Technical Manager



eurofins 👬

Chemtest

Eurofins Chemtest Ltd Depot Road Newmarket CB8 0AL Tel: 01638 606070 Email: info@chemtest.com

| Client: Causeway Geotech Ltd | | | C | hemtest | Job No.: | 22-10214 | 22-10214 | 22-10214 | 22-10214 | 22-10214 | 22-10214 | 22-10214 | 22-10214 |
|------------------------------|---------|------|------|----------|------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Quotation No.: Q21-26199 | | | Chen | ntest Sa | mple ID.: | 1393655 | 1393656 | 1393657 | 1393658 | 1393659 | 1393660 | 1393661 | 1393662 |
| | | | | Sample | Location: | TP01 | TP01 | TP02 | TP02 | TP07 | TP07 | TP09 | TP09 |
| | | | | San | nple Type: | SOIL |
| | | | | | Depth (m): | 0.5 | 1.0 | 0.5 | 1.0 | 0.5 | 1.0 | 0.5 | 1.0 |
| | | | | Date | Sampled: | 15-Mar-2022 |
| Determinand | Accred. | SOP | Туре | Units | LOD | | | | | | | | |
| Total Dissolved Solids | N | 1020 | 10:1 | mg/l | 1.0 | 100 | 85 | 98 | 78 | 120 | 59 | 78 | 91 |
| Chloride | U | 1220 | 10:1 | mg/l | 1.0 | 3.8 | 1.9 | 2.4 | 1.8 | 1.7 | < 1.0 | 1.7 | 2.4 |
| Fluoride | U | 1220 | 10:1 | mg/l | 0.050 | 0.51 | 0.54 | 0.39 | 0.31 | 0.37 | 0.24 | 0.44 | 0.82 |
| Sulphate | U | 1220 | 10:1 | mg/l | 1.0 | 15 | 14 | 9.3 | 6.3 | 18 | 4.1 | 12 | 13 |
| Arsenic (Dissolved) | U | 1455 | 10:1 | mg/l | 0.0002 | < 0.0002 | < 0.0002 | < 0.0002 | < 0.0002 | < 0.0002 | < 0.0002 | 0.0007 | < 0.0002 |
| Barium (Dissolved) | U | 1455 | 10:1 | mg/l | 0.005 | 0.006 | 0.006 | 0.006 | < 0.005 | 0.006 | < 0.005 | < 0.005 | < 0.005 |
| Cadmium (Dissolved) | U | 1455 | 10:1 | mg/l | 0.00011 | < 0.00011 | < 0.00011 | < 0.00011 | < 0.00011 | < 0.00011 | < 0.00011 | < 0.00011 | < 0.00011 |
| Chromium (Dissolved) | U | 1455 | 10:1 | mg/l | 0.0005 | 0.0007 | 0.0005 | 0.0009 | 0.0008 | 0.0006 | 0.0005 | 0.0009 | < 0.0005 |
| Copper (Dissolved) | U | 1455 | 10:1 | mg/l | 0.0005 | 0.0006 | < 0.0005 | < 0.0005 | < 0.0005 | < 0.0005 | < 0.0005 | 0.0024 | < 0.0005 |
| Mercury (Dissolved) | U | 1455 | 10:1 | mg/l | 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Molybdenum (Dissolved) | U | 1455 | 10:1 | mg/l | 0.0002 | 0.0020 | 0.0078 | 0.0033 | 0.0080 | 0.0030 | 0.0066 | 0.0013 | 0.0044 |
| Nickel (Dissolved) | U | 1455 | 10:1 | mg/l | 0.0005 | < 0.0005 | < 0.0005 | < 0.0005 | < 0.0005 | < 0.0005 | < 0.0005 | 0.0009 | < 0.0005 |
| Lead (Dissolved) | U | 1455 | 10:1 | mg/l | 0.0005 | < 0.0005 | < 0.0005 | < 0.0005 | < 0.0005 | < 0.0005 | < 0.0005 | < 0.0005 | < 0.0005 |
| Antimony (Dissolved) | U | 1455 | 10:1 | mg/l | 0.0005 | < 0.0005 | < 0.0005 | < 0.0005 | < 0.0005 | < 0.0005 | < 0.0005 | < 0.0005 | < 0.0005 |
| Selenium (Dissolved) | U | 1455 | 10:1 | mg/l | 0.0005 | < 0.0005 | < 0.0005 | < 0.0005 | < 0.0005 | < 0.0005 | < 0.0005 | 0.0011 | 0.0056 |
| Zinc (Dissolved) | U | 1455 | 10:1 | mg/l | 0.002 | < 0.003 | < 0.003 | < 0.003 | < 0.003 | < 0.003 | < 0.003 | < 0.003 | < 0.003 |
| Dissolved Organic Carbon | U | 1610 | 10:1 | mg/l | 2.0 | 16 | 12 | 14 | 12 | 16 | 11 | 18 | 14 |
| Total Phenols | U | 1920 | 10:1 | mg/l | 0.030 | < 0.030 | < 0.030 | < 0.030 | < 0.030 | < 0.030 | < 0.030 | < 0.030 | < 0.030 |

| Client: Causeway Geotech Ltd | | | CI | hemtest | Job No.: | 22-10214 | 22-10214 | 22-10214 | 22-10214 | 22-10214 | 22-10214 | 22-10214 | 22-10214 |
|------------------------------|---------|------|------|----------|------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Quotation No.: Q21-26199 | | | Chen | ntest Sa | mple ID.: | 1393663 | 1393664 | 1393665 | 1393666 | 1393667 | 1393668 | 1393669 | 1393670 |
| | | | | Sample | Location: | TP08 | TP08 | TP12 | TP12 | TP05 | TP05 | TP04 | TP04 |
| | | | | San | nple Type: | SOIL |
| | | | | Тор [| Depth (m): | 0.5 | 1.0 | 0.5 | 1.0 | 0.5 | 1.0 | 0.5 | 1.0 |
| | | | | Date | Sampled: | 14-Mar-2022 |
| Determinand | Accred. | SOP | Туре | Units | LOD | | | | | | | | |
| Total Dissolved Solids | N | 1020 | 10:1 | mg/l | 1.0 | 65 | 72 | 85 | 78 | 33 | 65 | 52 | 59 |
| Chloride | U | 1220 | 10:1 | mg/l | 1.0 | 1.1 | 1.4 | 1.5 | 1.2 | 1.0 | 1.5 | 3.2 | 1.2 |
| Fluoride | U | 1220 | 10:1 | mg/l | 0.050 | 0.33 | 0.29 | 0.40 | 0.76 | 0.20 | 0.24 | 0.25 | 0.34 |
| Sulphate | U | 1220 | 10:1 | mg/l | 1.0 | 7.0 | 6.3 | 3.9 | 7.0 | 8.5 | 10 | 18 | 4.7 |
| Arsenic (Dissolved) | U | 1455 | 10:1 | mg/l | 0.0002 | 0.0003 | < 0.0002 | 0.0011 | < 0.0002 | 0.0020 | < 0.0002 | 0.0006 | < 0.0002 |
| Barium (Dissolved) | U | 1455 | 10:1 | mg/l | 0.005 | 0.005 | 0.007 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Cadmium (Dissolved) | U | 1455 | 10:1 | mg/l | 0.00011 | < 0.00011 | < 0.00011 | < 0.00011 | < 0.00011 | < 0.00011 | < 0.00011 | < 0.00011 | < 0.00011 |
| Chromium (Dissolved) | U | 1455 | 10:1 | mg/l | 0.0005 | 0.0011 | 0.0013 | 0.0010 | 0.0006 | 0.0022 | 0.0005 | 0.0009 | < 0.0005 |
| Copper (Dissolved) | U | 1455 | 10:1 | mg/l | 0.0005 | 0.0013 | < 0.0005 | 0.0024 | < 0.0005 | 0.0035 | < 0.0005 | 0.0014 | < 0.0005 |
| Mercury (Dissolved) | U | 1455 | 10:1 | mg/l | 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Molybdenum (Dissolved) | U | 1455 | 10:1 | mg/l | 0.0002 | 0.0007 | 0.0059 | 0.0021 | 0.0088 | 0.0006 | 0.0006 | 0.0003 | 0.0048 |
| Nickel (Dissolved) | U | 1455 | 10:1 | mg/l | 0.0005 | < 0.0005 | < 0.0005 | 0.0015 | < 0.0005 | 0.0035 | < 0.0005 | 0.0010 | < 0.0005 |
| Lead (Dissolved) | U | 1455 | 10:1 | mg/l | 0.0005 | < 0.0005 | < 0.0005 | 0.0006 | < 0.0005 | 0.0017 | < 0.0005 | < 0.0005 | < 0.0005 |
| Antimony (Dissolved) | U | 1455 | 10:1 | mg/l | 0.0005 | < 0.0005 | < 0.0005 | < 0.0005 | < 0.0005 | < 0.0005 | < 0.0005 | < 0.0005 | < 0.0005 |
| Selenium (Dissolved) | U | 1455 | 10:1 | mg/l | 0.0005 | < 0.0005 | 0.0019 | 0.0006 | 0.0007 | < 0.0005 | < 0.0005 | < 0.0005 | < 0.0005 |
| Zinc (Dissolved) | U | 1455 | 10:1 | mg/l | 0.002 | < 0.003 | < 0.003 | 0.003 | < 0.003 | 0.006 | < 0.003 | < 0.003 | < 0.003 |
| Dissolved Organic Carbon | U | 1610 | 10:1 | mg/l | 2.0 | 24 | 13 | 23 | 13 | 16 | 9.2 | 11 | 8.7 |
| Total Phenols | U | 1920 | 10:1 | mg/l | 0.030 | < 0.030 | < 0.030 | < 0.030 | < 0.030 | < 0.030 | < 0.030 | < 0.030 | < 0.030 |

| Client: Causeway Geotech Ltd | | | C | hemtest | t Job No.: | 22-10214 | 22-10214 | 22-10214 | 22-10214 |
|------------------------------|---------|------|------|----------|------------|-------------|-------------|-------------|-------------|
| Quotation No.: Q21-26199 | | | Chen | ntest Sa | ample ID.: | 1393671 | 1393672 | 1393673 | 1393674 |
| | | | | Sample | Location: | TP11 | TP11 | TP03 | TP03 |
| | | | | San | nple Type: | SOIL | SOIL | SOIL | SOIL |
| | | | | Тор [| Depth (m): | 0.5 | 1.0 | 0.5 | 1.0 |
| | | | | Date | Sampled: | 14-Mar-2022 | 14-Mar-2022 | 14-Mar-2022 | 14-Mar-2022 |
| Determinand | Accred. | SOP | Туре | Units | LOD | | | | |
| Total Dissolved Solids | N | 1020 | 10:1 | mg/l | 1.0 | 26 | 59 | 33 | 26 |
| Chloride | U | 1220 | 10:1 | mg/l | 1.0 | 5.7 | 2.0 | 1.2 | < 1.0 |
| Fluoride | U | 1220 | 10:1 | mg/l | 0.050 | 0.16 | 0.27 | 0.55 | 0.40 |
| Sulphate | U | 1220 | 10:1 | mg/l | 1.0 | 9.3 | 7.3 | 11 | 3.1 |
| Arsenic (Dissolved) | U | 1455 | 10:1 | mg/l | 0.0002 | 0.0021 | < 0.0002 | 0.0017 | < 0.0002 |
| Barium (Dissolved) | U | 1455 | 10:1 | mg/l | 0.005 | < 0.005 | < 0.005 | 0.005 | < 0.005 |
| Cadmium (Dissolved) | U | 1455 | 10:1 | mg/l | 0.00011 | < 0.00011 | < 0.00011 | < 0.00011 | < 0.00011 |
| Chromium (Dissolved) | U | 1455 | 10:1 | mg/l | 0.0005 | 0.0019 | 0.0006 | 0.0021 | 0.0006 |
| Copper (Dissolved) | U | 1455 | 10:1 | mg/l | 0.0005 | 0.0034 | < 0.0005 | 0.0037 | 0.0006 |
| Mercury (Dissolved) | U | 1455 | 10:1 | mg/l | 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Molybdenum (Dissolved) | U | 1455 | 10:1 | mg/l | 0.0002 | 0.0004 | 0.0003 | 0.0008 | 0.0012 |
| Nickel (Dissolved) | U | 1455 | 10:1 | mg/l | 0.0005 | 0.0037 | < 0.0005 | 0.0028 | < 0.0005 |
| Lead (Dissolved) | U | 1455 | 10:1 | mg/l | 0.0005 | 0.0008 | < 0.0005 | 0.0010 | < 0.0005 |
| Antimony (Dissolved) | U | 1455 | 10:1 | mg/l | 0.0005 | < 0.0005 | < 0.0005 | < 0.0005 | < 0.0005 |
| Selenium (Dissolved) | U | 1455 | 10:1 | mg/l | 0.0005 | < 0.0005 | < 0.0005 | < 0.0005 | < 0.0005 |
| Zinc (Dissolved) | U | 1455 | 10:1 | mg/l | 0.002 | 0.005 | < 0.003 | 0.007 | < 0.003 |
| Dissolved Organic Carbon | U | 1610 | 10:1 | mg/l | 2.0 | 13 | 8.8 | 18 | 5.5 |
| Total Phenols | U | 1920 | 10:1 | mg/l | 0.030 | < 0.030 | < 0.030 | < 0.030 | < 0.030 |

| Client: Causeway Geotech Ltd | | Ch | emtest | Job No.: | 22-10214 | 22-10214 | 22-10214 | 22-10214 | 22-10214 | 22-10214 | 22-10214 | 22-10214 | 22-10214 |
|------------------------------|---------|------|----------|-----------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Quotation No.: Q21-26199 | | Chem | test Sar | nple ID.: | 1393655 | 1393656 | 1393657 | 1393658 | 1393659 | 1393660 | 1393661 | 1393662 | 1393663 |
| | | | | Location: | TP01 | TP01 | TP02 | TP02 | TP07 | TP07 | TP09 | TP09 | TP08 |
| | | | | ole Type: | SOIL |
| | | | | epth (m): | 0.5 | 1.0 | 0.5 | 1.0 | 0.5 | 1.0 | 0.5 | 1.0 | 0.5 |
| | | | | Sampled: | | 15-Mar-2022 | 14-Mar-2022 |
| | | | | stos Lab: | COVENTRY |
| Determinand | Accred. | SOP | Units | LOD | | | | | | | | | |
| ACM Type | U | 2192 | | N/A | - | - | - | - | - | - | - | - | - |
| | | | | | No Asbestos |
| Asbestos Identification | U | 2192 | | N/A | Detected |
| Moisture | N | 2030 | % | 0.020 | 18 | 16 | 16 | 11 | 16 | 16 | 27 | 18 | 18 |
| рН | U | 2010 | | 4.0 | 8.5 | 8.5 | 8.5 | 8.7 | 8.6 | 8.7 | 8.2 | 8.5 | 8.5 |
| Arsenic | U | 2450 | mg/kg | 1.0 | 11 | 12 | 13 | 12 | 9.9 | 14 | 6.9 | 15 | 1.9 |
| Barium | U | 2450 | mg/kg | 10 | 54 | 58 | 68 | 50 | 57 | 66 | 60 | 83 | 62 |
| Cadmium | U | 2450 | mg/kg | 0.10 | 0.85 | 1.1 | 1.2 | 0.82 | 0.89 | 0.96 | 0.88 | 1.5 | 0.66 |
| Mercury Low Level | U | 2450 | mg/kg | 0.05 | 0.06 | 0.08 | 0.09 | < 0.05 | 0.08 | 0.08 | 0.06 | 0.09 | < 0.05 |
| Molybdenum | U | 2450 | mg/kg | 2.0 | 2.4 | 2.5 | 2.3 | < 2.0 | < 2.0 | 2.8 | < 2.0 | 3.0 | < 2.0 |
| Antimony | N | 2450 | mg/kg | 2.0 | 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 |
| Copper | U | 2450 | mg/kg | 0.50 | 22 | 29 | 31 | 20 | 26 | 24 | 18 | 34 | 15 |
| Nickel | U | 2450 | mg/kg | 0.50 | 33 | 44 | 54 | 34 | 39 | 38 | 25 | 62 | 25 |
| Lead | U | 2450 | mg/kg | 0.50 | 19 | 15 | 18 | 10 | 12 | 13 | 15 | 20 | 6.8 |
| Selenium | U | 2450 | mg/kg | 0.20 | 0.61 | 0.57 | 0.43 | 0.29 | 0.24 | 0.21 | 0.91 | 2.0 | < 0.20 |
| Zinc | U | 2450 | mg/kg | 0.50 | 50 | 56 | 59 | 37 | 44 | 49 | 48 | 67 | 32 |
| Chromium (Trivalent) | N | 2490 | mg/kg | 1.0 | 18 | 19 | 22 | 18 | 17 | 21 | 18 | 24 | 20 |
| Chromium (Hexavalent) | N | 2490 | mg/kg | 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| LOI | U | 2610 | % | 0.10 | 4.8 | 3.4 | 4.0 | 2.6 | 4.2 | 2.4 | 10 | 5.0 | 3.6 |
| Total Organic Carbon | U | 2625 | % | 0.20 | 1.8 | 1.1 | 1.1 | 0.57 | 1.3 | 0.66 | 3.3 | 1.2 | 0.94 |
| Mineral Oil | N | 2670 | mg/kg | 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 |
| Aliphatic TPH >C5-C6 | N | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aliphatic TPH >C6-C8 | N | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aliphatic TPH >C8-C10 | U | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aliphatic TPH >C10-C12 | U | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aliphatic TPH >C12-C16 | U | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aliphatic TPH >C16-C21 | U | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aliphatic TPH >C21-C35 | U | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aliphatic TPH >C35-C44 | N | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Total Aliphatic Hydrocarbons | N | 2680 | mg/kg | 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 |
| Aromatic TPH >C5-C7 | N | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aromatic TPH >C7-C8 | Ν | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aromatic TPH >C8-C10 | U | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aromatic TPH >C10-C12 | U | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aromatic TPH >C12-C16 | U | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aromatic TPH >C16-C21 | U | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aromatic TPH >C21-C35 | U | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aromatic TPH >C35-C44 | N | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Total Aromatic Hydrocarbons | N | 2680 | mg/kg | 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 |

| Client: Causeway Geotech Ltd Chemtest Job No | | | Job No.: | 22-10214 | 22-10214 | 22-10214 | 22-10214 | 22-10214 | 22-10214 | 22-10214 | 22-10214 | 22-10214 | |
|--|---------|------|----------|-----------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Quotation No.: Q21-26199 | | | | nple ID.: | 1393655 | 1393656 | 1393657 | 1393658 | 1393659 | 1393660 | 1393661 | 1393662 | 1393663 |
| | | | | Location: | TP01 | TP01 | TP02 | TP02 | TP07 | TP07 | TP09 | TP09 | TP08 |
| | | | | ple Type: | SOIL |
| | | | | epth (m): | 0.5 | 1.0 | 0.5 | 1.0 | 0.5 | 1.0 | 0.5 | 1.0 | 0.5 |
| | | | Date \$ | Sampled: | 15-Mar-2022 | 14-Mar-2022 |
| | | | Asbe | stos Lab: | COVENTRY |
| Determinand | Accred. | SOP | Units | LOD | | | | | | | | | |
| Total Petroleum Hydrocarbons | Ν | 2680 | mg/kg | 10.0 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 |
| Benzene | U | 2760 | mg/kg | 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 |
| Toluene | U | 2760 | mg/kg | 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 |
| Ethylbenzene | U | 2760 | mg/kg | 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 |
| m & p-Xylene | U | 2760 | mg/kg | 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 |
| o-Xylene | U | 2760 | mg/kg | 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 |
| Methyl Tert-Butyl Ether | U | | mg/kg | 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 |
| Naphthalene | N | 2800 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| Acenaphthylene | Ν | 2800 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| Acenaphthene | N | 2800 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| Fluorene | Ν | 2800 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| Phenanthrene | Ν | 2800 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| Anthracene | Ν | 2800 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| Fluoranthene | Ν | 2800 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | 0.17 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| Pyrene | Ν | 2800 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | 0.15 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| Benzo[a]anthracene | Ν | | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| Chrysene | Ν | 2800 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| Benzo[b]fluoranthene | N | 2800 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| Benzo[k]fluoranthene | Ν | 2800 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| Benzo[a]pyrene | Ν | 2800 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| Indeno(1,2,3-c,d)Pyrene | N | | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| Dibenz(a,h)Anthracene | Ν | | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| Benzo[g,h,i]perylene | Ν | 2800 | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| Coronene | Ν | | mg/kg | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| Total Of 17 PAH's | Ν | 2800 | mg/kg | 0.20 | < 0.20 | < 0.20 | < 0.20 | < 0.20 | 0.32 | < 0.20 | < 0.20 | < 0.20 | < 0.20 |
| PCB 28 | Ν | | mg/kg | 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 |
| PCB 52 | Ν | | mg/kg | 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 |
| PCB 90+101 | Ν | 2815 | mg/kg | 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 |
| PCB 118 | Ν | | mg/kg | 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 |
| PCB 153 | Ν | | mg/kg | | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 |
| PCB 138 | Ν | 2815 | mg/kg | 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 |
| PCB 180 | Ν | 2815 | mg/kg | 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 |
| Total PCBs (7 congeners) | Ν | 2815 | mg/kg | 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 |

| Client: Causeway Geotech Ltd | | Ch | emtest | Job No.: | 22-10214 | 22-10214 | 22-10214 | 22-10214 | 22-10214 | 22-10214 | 22-10214 | 22-10214 | 22-10214 |
|------------------------------|---------|------|--------|-----------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Quotation No.: Q21-26199 | | | | nple ID.: | 1393664 | 1393665 | 1393666 | 1393667 | 1393668 | 1393669 | 1393670 | 1393671 | 1393672 |
| | | | | Location: | TP08 | TP12 | TP12 | TP05 | TP05 | TP04 | TP04 | TP11 | TP11 |
| | | | | ole Type: | SOIL |
| | | | | epth (m): | 1.0 | 0.5 | 1.0 | 0.5 | 1.0 | 0.5 | 1.0 | 0.5 | 1.0 |
| | | | | Sampled: | | 14-Mar-2022 |
| | | | | stos Lab: | COVENTRY |
| Determinand | Accred. | SOP | Units | LOD | | | | | | | | | |
| ACM Type | U | 2192 | | N/A | - | - | - | - | - | - | - | - | - |
| | | 1 | | | No Asbestos |
| Asbestos Identification | U | 2192 | | N/A | Detected |
| Moisture | Ν | 2030 | % | 0.020 | 14 | 20 | 20 | 17 | 17 | 17 | 9.5 | 15 | 16 |
| рН | U | 2010 | | 4.0 | 8.5 | 8.5 | 8.5 | 7.8 | 8.2 | 8.1 | 8.5 | 8.0 | 8.2 |
| Arsenic | U | 2450 | mg/kg | 1.0 | 7.7 | 12 | 11 | 9.8 | 12 | 15 | 15 | 16 | 16 |
| Barium | U | 2450 | mg/kg | 10 | 42 | 62 | 46 | 65 | 32 | 53 | 60 | 63 | 50 |
| Cadmium | U | 2450 | mg/kg | 0.10 | 0.58 | 1.2 | 0.94 | 0.70 | 0.61 | 0.87 | 0.90 | 0.92 | 0.70 |
| Mercury Low Level | U | 2450 | mg/kg | 0.05 | 0.06 | 0.06 | 0.07 | < 0.05 | 0.05 | 0.09 | 0.05 | 0.08 | 0.05 |
| Molybdenum | U | 2450 | mg/kg | 2.0 | < 2.0 | 2.3 | 2.7 | < 2.0 | < 2.0 | 2.3 | 2.5 | 2.1 | < 2.0 |
| Antimony | N | 2450 | mg/kg | 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 |
| Copper | U | 2450 | mg/kg | 0.50 | 19 | 28 | 28 | 17 | 19 | 31 | 23 | 27 | 28 |
| Nickel | U | 2450 | mg/kg | 0.50 | 32 | 49 | 51 | 28 | 30 | 48 | 38 | 52 | 44 |
| Lead | U | 2450 | mg/kg | 0.50 | 11 | 20 | 16 | 16 | 9.0 | 12 | 11 | 14 | 13 |
| Selenium | U | 2450 | mg/kg | 0.20 | 0.84 | 0.80 | 0.62 | 0.38 | 0.26 | 0.37 | < 0.20 | 0.34 | 0.32 |
| Zinc | U | 2450 | mg/kg | 0.50 | 44 | 66 | 57 | 59 | 36 | 61 | 41 | 62 | 54 |
| Chromium (Trivalent) | N | 2490 | mg/kg | 1.0 | 22 | 23 | 17 | 22 | 15 | 31 | 23 | 31 | 27 |
| Chromium (Hexavalent) | N | 2490 | mg/kg | 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| LOI | U | 2610 | % | 0.10 | 3.1 | 5.0 | 4.3 | 3.2 | 3.6 | 3.8 | 2.6 | 3.7 | 3.3 |
| Total Organic Carbon | U | 2625 | % | 0.20 | 0.90 | 1.4 | 1.1 | 1.1 | 0.90 | 0.99 | 0.55 | 0.99 | 0.70 |
| Mineral Oil | N | 2670 | mg/kg | 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 |
| Aliphatic TPH >C5-C6 | N | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aliphatic TPH >C6-C8 | N | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aliphatic TPH >C8-C10 | U | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aliphatic TPH >C10-C12 | U | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aliphatic TPH >C12-C16 | U | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aliphatic TPH >C16-C21 | U | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aliphatic TPH >C21-C35 | U | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aliphatic TPH >C35-C44 | N | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Total Aliphatic Hydrocarbons | N | 2680 | mg/kg | 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 |
| Aromatic TPH >C5-C7 | N | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aromatic TPH >C7-C8 | N | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aromatic TPH >C8-C10 | U | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aromatic TPH >C10-C12 | U | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aromatic TPH >C12-C16 | U | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aromatic TPH >C16-C21 | U | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aromatic TPH >C21-C35 | U | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aromatic TPH >C35-C44 | N | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Total Aromatic Hydrocarbons | N | 2680 | mg/kg | 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 |

| Client: Causeway Geotech Ltd | | Chem | est Job No | .: 22-10214 | 22-10214 | 22-10214 | 22-10214 | 22-10214 | 22-10214 | 22-10214 | 22-10214 | 22-10214 |
|------------------------------|---------|---------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Quotation No.: Q21-26199 | | Chemtes | Sample ID | .: 1393664 | 1393665 | 1393666 | 1393667 | 1393668 | 1393669 | 1393670 | 1393671 | 1393672 |
| | | San | ple Locatio | n: TP08 | TP12 | TP12 | TP05 | TP05 | TP04 | TP04 | TP11 | TP11 |
| | | | Sample Typ | | SOIL |
| | | Т | op Depth (m |): 1.0 | 0.5 | 1.0 | 0.5 | 1.0 | 0.5 | 1.0 | 0.5 | 1.0 |
| | | | ate Sample | | 14-Mar-2022 |
| | | 1 | sbestos La | COVENTRY |
| Determinand | Accred. | SOP U | nits LOD | | | | | | | | | |
| Total Petroleum Hydrocarbons | Ν | 2680 m | g/kg 10.0 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 |
| Benzene | U | 2760 m | g/kg 0.001 | 0 < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 |
| Toluene | U | 2760 m | g/kg 0.001 | 0 < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 |
| Ethylbenzene | U | 2760 m | g/kg 0.001 | 0 < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 |
| m & p-Xylene | U | 2760 m | g/kg 0.001 | 0 < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 |
| o-Xylene | U | 2760 m | g/kg 0.001 | 0 < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 |
| Methyl Tert-Butyl Ether | U | | g/kg 0.001 | 0 < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 |
| Naphthalene | Ν | 2800 m | g/kg 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| Acenaphthylene | Ν | 2800 m | g/kg 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| Acenaphthene | Ν | 2800 m | g/kg 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| Fluorene | Ν | 2800 m | g/kg 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| Phenanthrene | Ν | 2800 m | g/kg 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| Anthracene | Ν | 2800 m | g/kg 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| Fluoranthene | Ν | 2800 m | g/kg 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| Pyrene | Ν | 2800 m | g/kg 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| Benzo[a]anthracene | Ν | 2800 m | g/kg 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| Chrysene | Ν | 2800 m | g/kg 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| Benzo[b]fluoranthene | Ν | 2800 m | g/kg 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| Benzo[k]fluoranthene | Ν | 2800 m | g/kg 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| Benzo[a]pyrene | Ν | 2800 m | g/kg 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| Indeno(1,2,3-c,d)Pyrene | Ν | 2800 m | g/kg 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| Dibenz(a,h)Anthracene | Ν | 2800 m | g/kg 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| Benzo[g,h,i]perylene | Ν | | g/kg 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| Coronene | Ν | | g/kg 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| Total Of 17 PAH's | Ν | | g/kg 0.20 | < 0.20 | < 0.20 | < 0.20 | < 0.20 | < 0.20 | < 0.20 | < 0.20 | < 0.20 | < 0.20 |
| PCB 28 | Ν | | g/kg 0.001 | | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 |
| PCB 52 | Ν | | g/kg 0.001 | 0 < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 |
| PCB 90+101 | Ν | 2815 m | g/kg 0.001 | 0 < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 |
| PCB 118 | Ν | 2815 m | g/kg 0.001 | 0 < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 |
| PCB 153 | Ν | | g/kg 0.001 | 0 < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 |
| PCB 138 | Ν | 2815 m | g/kg 0.001 | 0 < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 |
| PCB 180 | Ν | | g/kg 0.001 | 0 < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 |
| Total PCBs (7 congeners) | Ν | 2815 m | g/kg 0.001 | 0 < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 | < 0.0010 |

| Client: Causeway Geotech Ltd | | Ch | emtest . | Job No.: | 22-10214 | 22-10214 |
|------------------------------|---------|--------------|-----------------|--------------|-------------------------|-------------------------|
| Quotation No.: Q21-26199 | | Chem | test San | nple ID.: | 1393673 | 1393674 |
| | | 9 | | _ocation: | TP03 | TP03 |
| | | | | ole Type: | SOIL | SOIL |
| | | | | epth (m): | 0.5 | 1.0 |
| | | | | Sampled: | 14-Mar-2022 | 14-Mar-2022 |
| | | - | | stos Lab: | COVENTRY | COVENTRY |
| Determinand | Accred. | SOP | Units | LOD | | |
| АСМ Туре | U | 2192 | | N/A | - | - |
| Asbestos Identification | U | 2192 | | N/A | No Asbestos Detected | No Asbestos Detected |
| Moisture | N | 2030 | % | 0.020 | 16 | 11 |
| рН | U | 2010 | | 4.0 | 7.6 | 8.1 |
| Arsenic | U | 2450 | 0 0 | 1.0 | 12 | 13 |
| Barium | U | 2450 | | 10 | 47 | 56 |
| Cadmium | U | 2450 | mg/kg | 0.10 | 0.81 | 0.31 |
| Mercury Low Level | U | 2450 | 3 3 | 0.05 | 0.06 | < 0.05 |
| Molybdenum | U | 2450 | 00 | 2.0 | < 2.0 | < 2.0 |
| Antimony | N | 2450 | 0 0 | 2.0 | < 2.0 | < 2.0 |
| Copper | U | - | mg/kg | 0.50 | 22 | 32 |
| Nickel | U | 2450 | 0 0 | 0.50 | 32 | 39 |
| Lead | U | 2450 | | 0.50 | 17 | 7.0 |
| Selenium | U | 2450 | | 0.20 | 0.29 | < 0.20 |
| Zinc | U | 2450 | 00 | 0.50 | 53 | 48 |
| Chromium (Trivalent) | N N | 2490 2490 | 0 0 | 1.0 | 24 | 35 |
| Chromium (Hexavalent) | U | 2490 | тт <u>д</u> /кд | 0.50 0.10 | < 0.50 4.2 | < 0.50 2.4 |
| Total Organic Carbon | U | 2625 | % | 0.10 | 4.2 | 0.40 |
| Mineral Oil | N | 2670 | | 10 | < 10 | < 10 |
| Aliphatic TPH >C5-C6 | N | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 |
| Aliphatic TPH >C6-C8 | N | 2680 | | 1.0 | < 1.0 | < 1.0 |
| Aliphatic TPH >C8-C10 | U | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 |
| Aliphatic TPH >C10-C12 | U | 2680 | | 1.0 | < 1.0 | < 1.0 |
| Aliphatic TPH >C12-C16 | U | 2680 | 0 0 | 1.0 | < 1.0 | < 1.0 |
| Aliphatic TPH >C16-C21 | U | 2680 | | 1.0 | < 1.0 | < 1.0 |
| Aliphatic TPH >C21-C35 | U | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 |
| Aliphatic TPH >C35-C44 | N | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 |
| Total Aliphatic Hydrocarbons | N | 2680 | mg/kg | 5.0 | < 5.0 | < 5.0 |
| Aromatic TPH >C5-C7 | N | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 |
| Aromatic TPH >C7-C8 | N | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 |
| Aromatic TPH >C8-C10 | U | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 |
| Aromatic TPH >C10-C12 | U | 2680 | 00 | 1.0 | < 1.0 | < 1.0 |
| Aromatic TPH >C12-C16 | U | 2680 | 00 | 1.0 | < 1.0 | < 1.0 |
| Aromatic TPH >C16-C21 | U | 2680 | 0 0 | 1.0 | < 1.0 | < 1.0 |
| Aromatic TPH >C21-C35 | U | 2680 | 0 0 | 1.0 | < 1.0 | < 1.0 |
| Aromatic TPH >C35-C44 | Ν | 2680 | mg/kg | 1.0 | < 1.0 | < 1.0 |
| Total Aromatic Hydrocarbons | N | 2680 | mg/kg | 5.0 | < 5.0 | < 5.0 |

| Client: Causeway Geotech Ltd | | Ch | emtest . | Job No.: | 22-10214 | 22-10214 |
|------------------------------|---------|------|----------|-----------|-------------|-------------|
| Quotation No.: Q21-26199 | | | | nple ID.: | 1393673 | 1393674 |
| | | 2 | Sample I | _ocation: | TP03 | TP03 |
| | | | | ole Type: | SOIL | SOIL |
| | | | | epth (m): | 0.5 | 1.0 |
| | | | Date S | Sampled: | 14-Mar-2022 | 14-Mar-2022 |
| | | | | stos Lab: | COVENTRY | COVENTRY |
| Determinand | Accred. | SOP | Units | LOD | | |
| Total Petroleum Hydrocarbons | Ν | 2680 | mg/kg | 10.0 | < 10 | < 10 |
| Benzene | U | 2760 | mg/kg | 0.0010 | < 0.0010 | < 0.0010 |
| Toluene | U | 2760 | mg/kg | 0.0010 | < 0.0010 | < 0.0010 |
| Ethylbenzene | U | 2760 | mg/kg | 0.0010 | < 0.0010 | < 0.0010 |
| m & p-Xylene | U | 2760 | mg/kg | 0.0010 | < 0.0010 | < 0.0010 |
| o-Xylene | U | 2760 | mg/kg | | < 0.0010 | < 0.0010 |
| Methyl Tert-Butyl Ether | U | 2760 | mg/kg | 0.0010 | < 0.0010 | < 0.0010 |
| Naphthalene | Ν | 2800 | mg/kg | 0.010 | < 0.010 | < 0.010 |
| Acenaphthylene | Ν | 2800 | mg/kg | 0.010 | < 0.010 | < 0.010 |
| Acenaphthene | Ν | 2800 | mg/kg | 0.010 | < 0.010 | < 0.010 |
| Fluorene | Ν | 2800 | mg/kg | 0.010 | < 0.010 | < 0.010 |
| Phenanthrene | Ν | 2800 | mg/kg | 0.010 | < 0.010 | < 0.010 |
| Anthracene | Ν | 2800 | mg/kg | 0.010 | < 0.010 | < 0.010 |
| Fluoranthene | Ν | 2800 | mg/kg | 0.010 | < 0.010 | < 0.010 |
| Pyrene | Ν | 2800 | mg/kg | 0.010 | < 0.010 | < 0.010 |
| Benzo[a]anthracene | Ν | 2800 | mg/kg | 0.010 | < 0.010 | < 0.010 |
| Chrysene | Ν | 2800 | mg/kg | 0.010 | < 0.010 | < 0.010 |
| Benzo[b]fluoranthene | Ν | 2800 | mg/kg | 0.010 | < 0.010 | < 0.010 |
| Benzo[k]fluoranthene | Ν | 2800 | mg/kg | 0.010 | < 0.010 | < 0.010 |
| Benzo[a]pyrene | Ν | 2800 | mg/kg | 0.010 | < 0.010 | < 0.010 |
| Indeno(1,2,3-c,d)Pyrene | Ν | 2800 | mg/kg | 0.010 | < 0.010 | < 0.010 |
| Dibenz(a,h)Anthracene | Ν | 2800 | mg/kg | 0.010 | < 0.010 | < 0.010 |
| Benzo[g,h,i]perylene | Ν | 2800 | mg/kg | 0.010 | < 0.010 | < 0.010 |
| Coronene | Ν | 2800 | mg/kg | 0.010 | < 0.010 | < 0.010 |
| Total Of 17 PAH's | Ν | 2800 | mg/kg | 0.20 | < 0.20 | < 0.20 |
| PCB 28 | Ν | 2815 | mg/kg | 0.0010 | < 0.0010 | < 0.0010 |
| PCB 52 | Ν | 2815 | mg/kg | | < 0.0010 | < 0.0010 |
| PCB 90+101 | Ν | 2815 | mg/kg | 0.0010 | < 0.0010 | < 0.0010 |
| PCB 118 | Ν | 2815 | mg/kg | 0.0010 | < 0.0010 | < 0.0010 |
| PCB 153 | Ν | 2815 | mg/kg | 0.0010 | < 0.0010 | < 0.0010 |
| PCB 138 | Ν | 2815 | mg/kg | 0.0010 | < 0.0010 | < 0.0010 |
| PCB 180 | Ν | 2815 | mg/kg | 0.0010 | < 0.0010 | < 0.0010 |
| Total PCBs (7 congeners) | Ν | 2815 | mg/kg | 0.0010 | < 0.0010 | < 0.0010 |

Test Methods

| SOP | Title | Parameters included | Method summary |
|------|--|---|---|
| 1020 | Electrical Conductivity and Total Dissolved Solids (TDS) in Waters | Electrical Conductivity and Total Dissolved Solids (TDS) in Waters | Conductivity Meter |
| 1220 | Anions, Alkalinity & Ammonium in Waters | Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium | Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser. |
| 1455 | Metals in Waters by ICP-MS | Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc | Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS). |
| 1610 | Total/Dissolved Organic Carbon in Waters | Organic Carbon | TOC Analyser using Catalytic Oxidation |
| 1920 | Phenols in Waters by HPLC | Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded. | Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection. |
| 2010 | pH Value of Soils | рН | pH Meter |
| 2030 | Moisture and Stone Content of Soils(Requirement of MCERTS) | Moisture content | Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C. |
| 2040 | Soil Description(Requirement of MCERTS) | Soil description | As received soil is described based upon BS5930 |
| 2120 | Water Soluble Boron, Sulphate, Magnesium & Chromium | Boron; Sulphate; Magnesium; Chromium | Aqueous extraction / ICP-OES |
| 2192 | Asbestos | Asbestos | Polarised light microscopy / Gravimetry |
| 2450 | Acid Soluble Metals in Soils | Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc | Acid digestion followed by determination of metals in extract by ICP-MS. |
| 2490 | Hexavalent Chromium in Soils | Chromium [VI] | Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide. |
| 2610 | Loss on Ignition | loss on ignition (LOI) | Determination of the proportion by mass that is lost from a soil by ignition at 550°C. |
| 2625 | Total Organic Carbon in Soils | Total organic Carbon (TOC) | Determined by high temperature combustion under oxygen, using an Eltra elemental analyser. |
| 2670 | Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID | TPH (C6–C40); optional carbon banding, e.g. 3- band – GRO, DRO & LRO*TPH C8–C40 | Dichloromethane extraction / GC-FID |
| 2680 | TPH A/A Split | Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21– C35, >C35–C44Aromatics: >C5–C7, >C7–C8, >C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35–C44 | Dichloromethane extraction / GCxGC FID detection |
| 2760 | Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS | Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule | Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds. |
| 2800 | Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS | Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene* | Dichloromethane extraction / GC-MS |

Test Methods

| SOP | Title | Parameters included | Method summary |
|------|--|---------------------|--|
| 2815 | Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS | ICES7 PCB congeners | Acetone/Hexane extraction / GC-MS |
| 640 | | 3 . 3 | ComplianceTest for Leaching of Granular Waste Material and Sludge |

Report Information

| Key | |
|-----|---|
| U | UKAS accredited |
| Μ | MCERTS and UKAS accredited |
| Ν | Unaccredited |
| S | This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis |
| SN | This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis |
| Т | This analysis has been subcontracted to an unaccredited laboratory |
| I/S | Insufficient Sample |
| U/S | Unsuitable Sample |
| N/E | not evaluated |
| < | "less than" |
| > | "greater than" |
| SOP | Standard operating procedure |
| LOD | Limit of detection |
| | Comments or interpretations are beyond the scope of LIKAS appreditation |

Comments or interpretations are beyond the scope of UKAS accreditation The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request None of the results in this report have been recovery corrected All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently

corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis All Asbestos testing is performed at the indicated laboratory Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A Date of sampling not supplied
- B Sample age exceeds stability time (sampling to extraction)
- C Sample not received in appropriate containers
- D Broken Container
- E Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt All water samples will be retained for 14 days from the date of receipt Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to: <u>customerservices@chemtest.com</u>

🔅 eurofins



Eurofins Chemtest Ltd Depot Road Newmarket CB8 0AL Tel: 01638 606070 Email: info@chemtest.com

| Report No.: | 22-10615-1 | | |
|------------------------|---|------------------|-------------|
| Initial Date of Issue: | 04-Apr-2022 | | |
| Client | Causeway Geotech Ltd | | |
| Client Address: | 8 Drumahiskey Road Balnamore Ballymoney County Antrim BT53 7QL | | |
| Contact(s): | Carin Cornwall Colm Hurley Darren O'Mahony Gabriella Horan Joe Gervin John Cameron Lucy Newland Martin Gardiner Matthew Gilbert Neil Haggan Paul Dunlop Sean Ross Stephen Franey Stephen Watson Stuart Abraham Thomas McAllister | | |
| Project | 21-1619 North Irish Sea Array | | |
| Quotation No.: | Q21-26199 | Date Received: | 21-Mar-2022 |
| Order No.: | | Date Instructed: | 22-Mar-2022 |
| No. of Samples: | 6 | | |
| Turnaround (Wkdays): | 7 | Results Due: | 30-Mar-2022 |
| Date Approved: | 04-Apr-2022 | | |
| Approved By: | | | |
| sant | - | | |

Details:

201.

Stuart Henderson, Technical Manager



🔅 eurofins

Chemtest

Eurofins Chemtest Ltd Depot Road Newmarket CB8 0AL Tel: 01638 606070 Email: info@chemtest.com

| Client: Causeway Geotech Ltd | | | CI | nemtest | t Job No.: | 22-10615 | 22-10615 | 22-10615 | 22-10615 | 22-10615 | 22-10615 |
|------------------------------|---------|------|------|----------|------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Quotation No.: Q21-26199 | | | Chen | ntest Sa | mple ID.: | 1395603 | 1395604 | 1395605 | 1395606 | 1395607 | 1395608 |
| | | | | | Location: | BH03 | BH03 | TP20 | TP20 | TP21 | TP21 |
| | | | | San | nple Type: | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| | | | | Тор [| Depth (m): | 0.50 | 1.00 | 0.50 | 1.00 | 0.50 | 1.00 |
| | | | | Date | Sampled: | 15-Feb-2022 | 15-Feb-2022 | 15-Feb-2022 | 15-Feb-2022 | 15-Feb-2022 | 15-Feb-2022 |
| Determinand | Accred. | SOP | Туре | Units | LOD | | | | | | |
| Total Dissolved Solids | Ν | 1020 | 10:1 | mg/l | 1.0 | 33 | 33 | 13 | 26 | 91 | 52 |
| Chloride | U | 1220 | 10:1 | mg/l | 1.0 | 18 | 1.5 | < 1.0 | < 1.0 | 7.0 | 3.7 |
| Fluoride | U | 1220 | 10:1 | mg/l | 0.050 | 0.11 | 0.11 | 0.12 | 0.21 | 0.13 | 0.11 |
| Sulphate | U | 1220 | 10:1 | mg/l | 1.0 | 1.4 | 1.9 | < 1.0 | 2.1 | 13 | < 1.0 |
| Arsenic (Dissolved) | U | 1455 | 10:1 | mg/l | 0.0002 | 0.0006 | < 0.0002 | < 0.0002 | < 0.0002 | 0.0012 | 0.0012 |
| Barium (Dissolved) | U | 1455 | 10:1 | mg/l | 0.005 | 0.014 | < 0.005 | < 0.005 | < 0.005 | 0.015 | 0.011 |
| Cadmium (Dissolved) | U | 1455 | 10:1 | mg/l | 0.00011 | < 0.00011 | < 0.00011 | < 0.00011 | < 0.00011 | < 0.00011 | < 0.00011 |
| Chromium (Dissolved) | U | 1455 | 10:1 | mg/l | 0.0005 | 0.0013 | 0.0015 | 0.0008 | 0.0016 | 0.0013 | 0.0005 |
| Copper (Dissolved) | U | 1455 | 10:1 | mg/l | 0.0005 | 0.0009 | 0.0008 | < 0.0005 | 0.0009 | 0.0010 | 0.0012 |
| Mercury (Dissolved) | U | 1455 | 10:1 | mg/l | 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Molybdenum (Dissolved) | U | 1455 | 10:1 | mg/l | 0.0002 | 0.0006 | 0.0006 | 0.0002 | 0.0003 | 0.0019 | 0.0015 |
| Nickel (Dissolved) | U | 1455 | 10:1 | mg/l | 0.0005 | < 0.0005 | < 0.0005 | < 0.0005 | < 0.0005 | 0.0008 | 0.0005 |
| Lead (Dissolved) | U | 1455 | 10:1 | mg/l | 0.0005 | < 0.0005 | < 0.0005 | < 0.0005 | < 0.0005 | 0.0016 | 0.0010 |
| Antimony (Dissolved) | U | 1455 | 10:1 | mg/l | 0.0005 | < 0.0005 | < 0.0005 | < 0.0005 | < 0.0005 | 0.0010 | 0.0005 |
| Selenium (Dissolved) | U | 1455 | 10:1 | mg/l | 0.0005 | < 0.0005 | < 0.0005 | < 0.0005 | < 0.0005 | < 0.0005 | < 0.0005 |
| Zinc (Dissolved) | U | 1455 | 10:1 | mg/l | 0.002 | 0.030 | 0.006 | 0.003 | 0.013 | 0.012 | 0.005 |
| Dissolved Organic Carbon | U | 1610 | 10:1 | mg/l | 2.0 | 8.0 | 8.4 | 5.7 | 6.3 | 14 | 12 |
| Total Phenols | U | 1920 | 10:1 | mg/l | 0.030 | < 0.030 | < 0.030 | < 0.030 | < 0.030 | < 0.030 | < 0.030 |

| Client: Causeway Geotech Ltd | | Ch | emtest . | Job No.: | 22-10615 | 22-10615 | 22-10615 | 22-10615 | 22-10615 | 22-10615 |
|------------------------------|---------|------|----------|-----------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Quotation No.: Q21-26199 | | Chem | test San | nple ID.: | 1395603 | 1395604 | 1395605 | 1395606 | 1395607 | 1395608 |
| | | ŝ | Sample I | _ocation: | BH03 | BH03 | TP20 | TP20 | TP21 | TP21 |
| | | | Samp | ole Type: | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| | | | Top De | epth (m): | 0.50 | 1.00 | 0.50 | 1.00 | 0.50 | 1.00 |
| | | | Date S | Sampled: | 15-Feb-2022 | 15-Feb-2022 | 15-Feb-2022 | 15-Feb-2022 | 15-Feb-2022 | 15-Feb-2022 |
| | | | Asbes | stos Lab: | COVENTRY | COVENTRY | COVENTRY | COVENTRY | COVENTRY | COVENTRY |
| Determinand | Accred. | SOP | Units | LOD | | | | | | |
| АСМ Туре | U | 2192 | | N/A | - | - | - | - | - | - |
| Asbestos Identification | U | 2192 | | N/A | No Asbestos Detected |
| Moisture | N | 2030 | % | 0.020 | 18 | 11 | 30 | 25 | 24 | 36 |
| рН | U | 2010 | | 4.0 | [B] 8.3 | [B] 8.6 | [B] 8.2 | [B] 8.2 | [B] 8.2 | [B] 8.1 |
| Arsenic | U | 2450 | mg/kg | 1.0 | 12 | 11 | 6.0 | 4.8 | 13 | 10 |
| Barium | U | 2450 | mg/kg | 10 | 91 | 56 | 91 | 82 | 190 | 97 |
| Cadmium | U | 2450 | mg/kg | 0.10 | 1.3 | 0.78 | 0.75 | 0.89 | 1.9 | 1.2 |
| Mercury Low Level | U | 2450 | mg/kg | 0.05 | 0.05 | < 0.05 | < 0.05 | < 0.05 | 0.07 | 0.09 |
| Molybdenum | U | 2450 | mg/kg | 2.0 | 2.0 | < 2.0 | < 2.0 | < 2.0 | 3.1 | < 2.0 |
| Antimony | N | 2450 | mg/kg | 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 | 2.0 | < 2.0 |
| Copper | U | 2450 | mg/kg | 0.50 | 20 | 21 | 16 | 14 | 30 | 27 |
| Nickel | U | 2450 | mg/kg | 0.50 | 47 | 29 | 22 | 18 | 38 | 25 |
| Lead | U | 2450 | mg/kg | 0.50 | 16 | 9.2 | 12 | 11 | 24 | 24 |
| Selenium | U | 2450 | mg/kg | 0.20 | 0.30 | < 0.20 | 0.72 | 0.59 | 1.2 | 1.3 |
| Zinc | U | 2450 | mg/kg | 0.50 | 56 | 43 | 47 | 45 | 93 | 110 |
| Chromium (Trivalent) | N | 2490 | mg/kg | 1.0 | 20 | 17 | 18 | 15 | 34 | 16 |
| Chromium (Hexavalent) | N | 2490 | mg/kg | 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| LOI | U | 2610 | % | 0.10 | 4.1 | 1.9 | 9.0 | 5.1 | 13 | 7.6 |
| Total Organic Carbon | U | 2625 | % | 0.20 | [B] 1.0 | [B] 0.30 | [B] 2.4 | [B] 1.1 | [B] 4.4 | [B] 2.4 |
| Mineral Oil | N | 2670 | mg/kg | 10 | [B] < 10 | [B] < 10 | [B] < 10 | [B] < 10 | [B] < 10 | [B] 110 |
| Aliphatic TPH >C5-C6 | N | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 |
| Aliphatic TPH >C6-C8 | N | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 |
| Aliphatic TPH >C8-C10 | U | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 |
| Aliphatic TPH >C10-C12 | U | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 |
| Aliphatic TPH >C12-C16 | U | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 |
| Aliphatic TPH >C16-C21 | U | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 |
| Aliphatic TPH >C21-C35 | U | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] 110 |
| Aliphatic TPH >C35-C44 | N | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 |
| Total Aliphatic Hydrocarbons | N | 2680 | mg/kg | 5.0 | [B] < 5.0 | [B] < 5.0 | [B] < 5.0 | [B] < 5.0 | [B] < 5.0 | [B] 110 |
| Aromatic TPH >C5-C7 | N | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 |
| Aromatic TPH >C7-C8 | N | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 |
| Aromatic TPH >C8-C10 | U | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 |
| Aromatic TPH >C10-C12 | U | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 |
| Aromatic TPH >C12-C16 | U | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 |
| Aromatic TPH >C16-C21 | U | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] 19 |
| Aromatic TPH >C21-C35 | U | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] 460 |
| Aromatic TPH >C35-C44 | N | 2680 | mg/kg | 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 | [B] < 1.0 |
| Total Aromatic Hydrocarbons | N | 2680 | mg/kg | 5.0 | [B] < 5.0 | [B] < 5.0 | [B] < 5.0 | [B] < 5.0 | [B] < 5.0 | [B] 480 |

| Client: Causeway Geotech Ltd | | | | Job No.: | 22-10615 | 22-10615 | 22-10615 | 22-10615 | 22-10615 | 22-10615 |
|------------------------------|---------|------|----------|-----------|--------------|--------------|--------------|--------------|--------------|--------------|
| Quotation No.: Q21-26199 | | Chem | test Sar | nple ID.: | 1395603 | 1395604 | 1395605 | 1395606 | 1395607 | 1395608 |
| | | 5 | Sample I | _ocation: | BH03 | BH03 | TP20 | TP20 | TP21 | TP21 |
| | | | Samp | ole Type: | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| | | | | epth (m): | 0.50 | 1.00 | 0.50 | 1.00 | 0.50 | 1.00 |
| | | | Date S | Sampled: | 15-Feb-2022 | 15-Feb-2022 | 15-Feb-2022 | 15-Feb-2022 | 15-Feb-2022 | 15-Feb-2022 |
| | | | Asbes | stos Lab: | COVENTRY | COVENTRY | COVENTRY | COVENTRY | COVENTRY | COVENTRY |
| Determinand | Accred. | SOP | Units | LOD | | | | | | |
| Total Petroleum Hydrocarbons | N | 2680 | mg/kg | 10.0 | [B] < 10 | [B] 590 |
| Benzene | U | 2760 | mg/kg | 0.0010 | [B] < 0.0010 | [B] < 0.0010 | [B] < 0.0010 | [B] < 0.0010 | [B] < 0.0010 | [B] < 0.0010 |
| Toluene | U | 2760 | mg/kg | 0.0010 | [B] < 0.0010 | [B] < 0.0010 | [B] < 0.0010 | [B] < 0.0010 | [B] < 0.0010 | [B] < 0.0010 |
| Ethylbenzene | U | 2760 | mg/kg | 0.0010 | [B] < 0.0010 | [B] < 0.0010 | [B] < 0.0010 | [B] < 0.0010 | [B] < 0.0010 | [B] < 0.0010 |
| m & p-Xylene | U | 2760 | mg/kg | 0.0010 | [B] < 0.0010 | [B] < 0.0010 | [B] < 0.0010 | [B] < 0.0010 | [B] < 0.0010 | [B] < 0.0010 |
| o-Xylene | U | 2760 | mg/kg | 0.0010 | [B] < 0.0010 | [B] < 0.0010 | [B] < 0.0010 | [B] < 0.0010 | [B] < 0.0010 | [B] < 0.0010 |
| Methyl Tert-Butyl Ether | U | 2760 | mg/kg | 0.0010 | [B] < 0.0010 | [B] < 0.0010 | [B] < 0.0010 | [B] < 0.0010 | [B] < 0.0010 | [B] < 0.0010 |
| Naphthalene | N | 2800 | mg/kg | 0.010 | [B] < 0.010 | [B] < 0.010 | [B] < 0.010 | [B] < 0.010 | [B] 0.12 | [B] 0.22 |
| Acenaphthylene | N | 2800 | mg/kg | 0.010 | [B] < 0.010 | [B] < 0.010 | [B] < 0.010 | [B] < 0.010 | [B] 0.11 | [B] 0.44 |
| Acenaphthene | N | 2800 | mg/kg | 0.010 | [B] < 0.010 | [B] < 0.010 | [B] < 0.010 | [B] < 0.010 | [B] 0.099 | [B] 0.11 |
| Fluorene | N | 2800 | mg/kg | 0.010 | [B] < 0.010 | [B] < 0.010 | [B] < 0.010 | [B] < 0.010 | [B] 0.081 | [B] 0.16 |
| Phenanthrene | N | 2800 | mg/kg | 0.010 | [B] < 0.010 | [B] < 0.010 | [B] 0.13 | [B] < 0.010 | [B] 0.56 | [B] 1.4 |
| Anthracene | N | 2800 | mg/kg | 0.010 | [B] < 0.010 | [B] < 0.010 | [B] 0.068 | [B] < 0.010 | [B] 0.18 | [B] 0.56 |
| Fluoranthene | N | 2800 | mg/kg | 0.010 | [B] < 0.010 | [B] < 0.010 | [B] 0.14 | [B] 0.070 | [B] 2.3 | [B] 8.3 |
| Pyrene | N | 2800 | mg/kg | 0.010 | [B] < 0.010 | [B] < 0.010 | [B] 0.16 | [B] 0.088 | [B] 2.3 | [B] 8.5 |
| Benzo[a]anthracene | N | 2800 | mg/kg | 0.010 | [B] < 0.010 | [B] < 0.010 | [B] 0.14 | [B] < 0.010 | [B] 1.6 | [B] 5.5 |
| Chrysene | N | 2800 | mg/kg | 0.010 | [B] < 0.010 | [B] < 0.010 | [B] 0.085 | [B] < 0.010 | [B] 1.7 | [B] 6.2 |
| Benzo[b]fluoranthene | N | 2800 | mg/kg | 0.010 | [B] < 0.010 | [B] < 0.010 | [B] < 0.010 | [B] < 0.010 | [B] 3.4 | [B] 12 |
| Benzo[k]fluoranthene | N | 2800 | mg/kg | 0.010 | [B] < 0.010 | [B] < 0.010 | [B] < 0.010 | [B] < 0.010 | [B] 1.2 | [B] 4.2 |
| Benzo[a]pyrene | N | 2800 | mg/kg | 0.010 | [B] < 0.010 | [B] < 0.010 | [B] < 0.010 | [B] < 0.010 | [B] 3.4 | [B] 11 |
| Indeno(1,2,3-c,d)Pyrene | N | 2800 | mg/kg | 0.010 | [B] < 0.010 | [B] < 0.010 | [B] < 0.010 | [B] < 0.010 | [B] 2.9 | [B] 11 |
| Dibenz(a,h)Anthracene | N | 2800 | mg/kg | 0.010 | [B] < 0.010 | [B] < 0.010 | [B] < 0.010 | [B] < 0.010 | [B] 0.48 | [B] 1.4 |
| Benzo[g,h,i]perylene | N | 2800 | mg/kg | 0.010 | [B] < 0.010 | [B] < 0.010 | [B] < 0.010 | [B] < 0.010 | [B] 2.7 | [B] 9.1 |
| Coronene | N | 2800 | mg/kg | 0.010 | [B] < 0.010 | [B] < 0.010 | [B] < 0.010 | [B] < 0.010 | [B] < 0.010 | [B] < 0.010 |
| Total Of 17 PAH's | N | 2800 | mg/kg | 0.20 | [B] < 0.20 | [B] < 0.20 | [B] 0.72 | [B] < 0.20 | [B] 23 | [B] 80 |
| PCB 28 | N | 2815 | mg/kg | 0.0010 | [B] < 0.0010 | [B] < 0.0010 | [B] < 0.0010 | [B] < 0.0010 | [B] < 0.0010 | [B] < 0.0010 |
| PCB 52 | N | 2815 | mg/kg | 0.0010 | [B] < 0.0010 | [B] < 0.0010 | [B] < 0.0010 | [B] < 0.0010 | [B] < 0.0010 | [B] < 0.0010 |
| PCB 90+101 | Ν | 2815 | mg/kg | 0.0010 | [B] < 0.0010 | [B] < 0.0010 | [B] < 0.0010 | [B] < 0.0010 | [B] < 0.0010 | [B] < 0.0010 |
| PCB 118 | N | 2815 | mg/kg | 0.0010 | [B] < 0.0010 | [B] < 0.0010 | [B] < 0.0010 | [B] < 0.0010 | [B] < 0.0010 | [B] < 0.0010 |
| PCB 153 | N | 2815 | mg/kg | 0.0010 | [B] < 0.0010 | [B] < 0.0010 | [B] < 0.0010 | [B] < 0.0010 | [B] < 0.0010 | [B] < 0.0010 |
| PCB 138 | N | 2815 | mg/kg | 0.0010 | [B] < 0.0010 | [B] < 0.0010 | [B] < 0.0010 | [B] < 0.0010 | [B] < 0.0010 | [B] < 0.0010 |
| PCB 180 | N | 2815 | mg/kg | 0.0010 | [B] < 0.0010 | [B] < 0.0010 | [B] < 0.0010 | [B] < 0.0010 | [B] < 0.0010 | [B] < 0.0010 |
| Total PCBs (7 congeners) | Ν | 2815 | mg/kg | 0.0010 | [B] < 0.0010 | [B] < 0.0010 | [B] < 0.0010 | [B] < 0.0010 | [B] < 0.0010 | [B] < 0.0010 |

Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63. Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request. The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

| Sample: | Sample Ref: | Sample ID: | Sample Location: | Sampled Date: | Deviation Code(s): | Containers Received: |
|---------|-------------|------------|---------------------|------------------|--------------------|-------------------------|
| 1395603 | | | BH03 | 15-Feb-2022 | В | Amber Glass 250ml |
| 1395603 | | | BH03 | 15-Feb-2022 | В | Amber Glass 60ml |
| 1395603 | | | BH03 | 15-Feb-2022 | В | Plastic Tub 500g |
| 1395604 | | | BH03 | 15-Feb-2022 | В | Amber Glass 250ml |
| 1395604 | | | BH03 | 15-Feb-2022 | В | Amber Glass 60ml |
| 1395604 | | | BH03 | 15-Feb-2022 | В | Plastic Tub 500g |
| 1395605 | | | TP20 | 15-Feb-2022 | В | Amber Glass 250ml |
| 1395605 | | | TP20 | 15-Feb-2022 | В | Amber Glass 60ml |
| 1395605 | | | TP20 | 15-Feb-2022 | В | Plastic Tub 500g |
| 1395606 | | | TP20 | 15-Feb-2022 | В | Amber Glass 250ml |
| 1395606 | | | TP20 | 15-Feb-2022 | В | Amber Glass 60ml |
| 1395606 | | | TP20 | 15-Feb-2022 | В | Plastic Tub 500g |
| 1395607 | | | TP21 | 15-Feb-2022 | В | Amber Glass 250ml |
| 1395607 | | | TP21 | 15-Feb-2022 | В | Amber Glass 60ml |
| 1395607 | | | TP21 | 15-Feb-2022 | В | Plastic Tub 500g |
| 1395608 | | | TP21 | 15-Feb-2022 | В | Amber Glass 250ml |
| 1395608 | | | TP21 | 15-Feb-2022 | В | Amber Glass 60ml |
| 1395608 | | | TP21 | 15-Feb-2022 | В | Plastic Tub 500g |

Test Methods

| SOP | Title | Parameters included | Method summary |
|------|--|---|---|
| 1020 | Electrical Conductivity and Total Dissolved Solids (TDS) in Waters | Electrical Conductivity and Total Dissolved Solids (TDS) in Waters | Conductivity Meter |
| 1220 | Anions, Alkalinity & Ammonium in Waters | Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium | Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser. |
| 1455 | Metals in Waters by ICP-MS | Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc | Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS). |
| 1610 | Total/Dissolved Organic Carbon in Waters | Organic Carbon | TOC Analyser using Catalytic Oxidation |
| 1920 | Phenols in Waters by HPLC | Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded. | Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection. |
| 2010 | pH Value of Soils | рН | pH Meter |
| 2030 | Moisture and Stone Content of Soils(Requirement of MCERTS) | Moisture content | Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C. |
| 2040 | Soil Description(Requirement of MCERTS) | Soil description | As received soil is described based upon BS5930 |
| 2120 | Water Soluble Boron, Sulphate, Magnesium & Chromium | Boron; Sulphate; Magnesium; Chromium | Aqueous extraction / ICP-OES |
| 2192 | Asbestos | Asbestos | Polarised light microscopy / Gravimetry |
| 2450 | Acid Soluble Metals in Soils | Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc | Acid digestion followed by determination of metals in extract by ICP-MS. |
| 2490 | Hexavalent Chromium in Soils | Chromium [VI] | Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide. |
| 2610 | Loss on Ignition | loss on ignition (LOI) | Determination of the proportion by mass that is lost from a soil by ignition at 550°C. |
| 2625 | Total Organic Carbon in Soils | Total organic Carbon (TOC) | Determined by high temperature combustion under oxygen, using an Eltra elemental analyser. |
| 2670 | Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID | TPH (C6–C40); optional carbon banding, e.g. 3- band – GRO, DRO & LRO*TPH C8–C40 | Dichloromethane extraction / GC-FID |
| 2680 | TPH A/A Split | Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21– C35, >C35–C44Aromatics: >C5–C7, >C7–C8, >C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35–C44 | Dichloromethane extraction / GCxGC FID detection |
| 2760 | Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS | Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule | Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds. |
| 2800 | Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS | Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene* | Dichloromethane extraction / GC-MS |

Test Methods

| SOP | Title | Parameters included | Method summary |
|------|--|---------------------|--|
| 2815 | Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS | ICES7 PCB congeners | Acetone/Hexane extraction / GC-MS |
| 640 | Characterisation of Waste (Leaching C10) | 3 1 3 | ComplianceTest for Leaching of Granular Waste Material and Sludge |

Report Information

| Key | |
|-----|---|
| U | UKAS accredited |
| Μ | MCERTS and UKAS accredited |
| Ν | Unaccredited |
| S | This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis |
| SN | This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis |
| Т | This analysis has been subcontracted to an unaccredited laboratory |
| I/S | Insufficient Sample |
| U/S | Unsuitable Sample |
| N/E | not evaluated |
| < | "less than" |
| > | "greater than" |
| SOP | Standard operating procedure |
| LOD | Limit of detection |
| | Comments or interpretations are beyond the scope of LIKAS appreditation |

Comments or interpretations are beyond the scope of UKAS accreditation The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request None of the results in this report have been recovery corrected All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently

corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis All Asbestos testing is performed at the indicated laboratory Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A Date of sampling not supplied
- B Sample age exceeds stability time (sampling to extraction)
- C Sample not received in appropriate containers
- D Broken Container
- E Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt All water samples will be retained for 14 days from the date of receipt Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to: <u>customerservices@chemtest.com</u>



APPENDIX H SPT HAMMER ENERGY MEASUREMENT REPORT





in accordance with BSEN ISO 22476-3:2005

| Southern Testing |
|------------------|
| Unit 11 |
| Charlwoods Road |
| East Grinstead |
| West Sussex |
| RH19 2HU |

Instrumented Rod Data

| Diameter d _r (mm): | 54 |
|---------------------------------------|-------|
| Wall Thickness tr (mm): | 6.0 |
| Assumed Modulus E _a (GPa): | 200 |
| Accelerometer No.1: | 64786 |
| Accelerometer No.2: | 64789 |

| SPT Hammer Ref: | 0208 |
|-----------------|------------|
| Test Date: | 12/02/2022 |
| Report Date: | 14/02/2022 |
| File Name: | 0208.spt |
| Test Operator: | NPB |
| | |

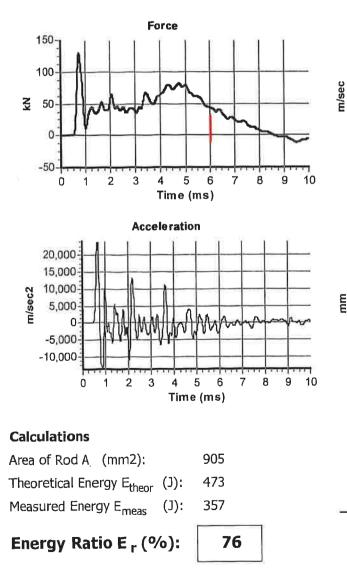
SPT Hammer Information

| Hammer Mass | m (kg): | 63.0 |
|-----------------|------------|------|
| Falling Height | h (mm): | 760 |
| SPT String Leng | gth L (m): | 12.0 |

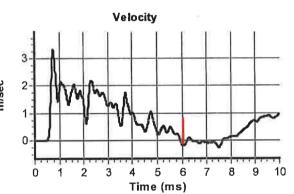
Comments / Location

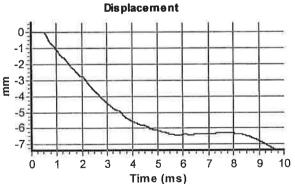
CAUSEWAY

26



The recommended calibration interval is 12 months





Signed: N Burrows Title: FOC Manager



in accordance with BSEN ISO 22476-3:2005

| Southern Testing |
|------------------|
| Unit 11 |
| Charlwoods Road |
| East Grinstead |
| West Sussex |
| RH19 2HU |

Instrumented Rod Data

| Diameter d _r (mm): | 54 |
|-------------------------------------|-------|
| Wall Thickness t _r (mm): | 6.0 |
| Assumed Modulus E_a (GPa): | 200 |
| Accelerometer No.1: | 64786 |
| Accelerometer No.2: | 64789 |

| SPT Hammer Ref: | 0643 |
|-----------------|------------|
| Test Date: | 12/02/2022 |
| Report Date: | 14/02/2022 |
| File Name: | 0643.spt |
| Test Operator: | NPB |
| | |

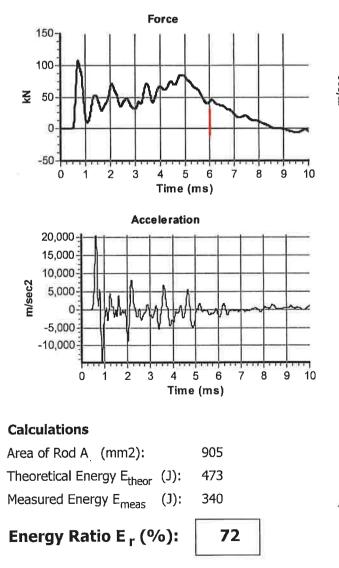
SPT Hammer Information

| Hammer Mass | m (kg): | 63.0 |
|----------------|------------|------|
| Falling Height | h (mm): | 760 |
| SPT String Len | gth L (m): | 12.0 |

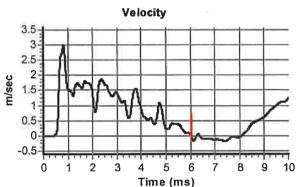
Comments / Location

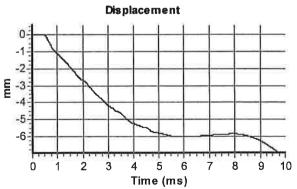
CAUSEWAY

*:



The recommended calibration interval is 12 months





Signed: N Burrows Title: FOC Manager



in accordance with BSEN ISO 22476-3:2005

| Southern Testing |
|------------------|
| Unit 11 |
| Charlwoods Road |
| East Grinstead |
| West Sussex |
| RH19 2HU |

Instrumented Rod Data

| Diameter d _r (mm): | 54 |
|---------------------------------------|-------|
| Wall Thickness tr (mm): | 6.0 |
| Assumed Modulus E _a (GPa): | 200 |
| Accelerometer No.1: | 64786 |
| Accelerometer No.2: | 64789 |

| SPT Hammer Ref: | 1387 |
|-----------------|------------|
| Test Date: | 12/02/2022 |
| Report Date: | 14/02/2022 |
| File Name: | 1387.spt |
| Test Operator: | NPB |
| | |

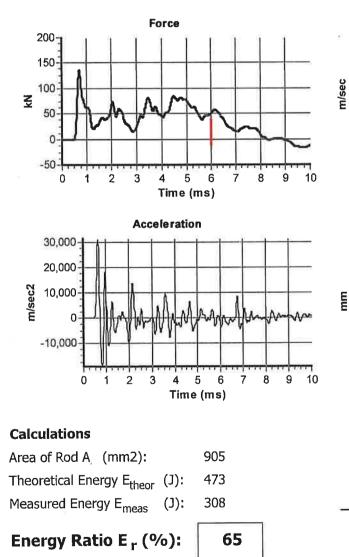
SPT Hammer Information

| Hammer Mass | m (kg): | 63.0 |
|-----------------|------------|------|
| Falling Height | h (mm): | 760 |
| SPT String Leng | gth L (m): | 12.0 |

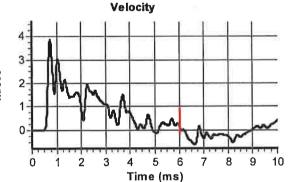
Comments / Location

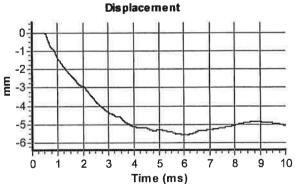
CAUSEWAY

i



The recommended calibration interval is 12 months





NPBuracens

Signed: N Burrows Title: FOC Manager



in accordance with BSEN ISO 22476-3:2005

| Southern Testing |
|------------------|
| Unit 11 |
| Charlwoods Road |
| East Grinstead |
| West Sussex |
| RH19 2HU |

Instrumented Rod Data

| Diameter d _r (mm): | 54 | |
|-------------------------------|-------|--|
| Wall Thickness tr (mm): | 6.0 | |
| Assumed Modulus E_a (GPa): | 200 | |
| Accelerometer No.1: | 64786 | |
| Accelerometer No.2: | 64789 | |

| SPT Hammer Ref: | 1376 |
|-----------------|------------|
| Test Date: | 14/02/2022 |
| Report Date: | 14/02/2022 |
| File Name: | 1376.spt |
| Test Operator: | NPB |
| | |

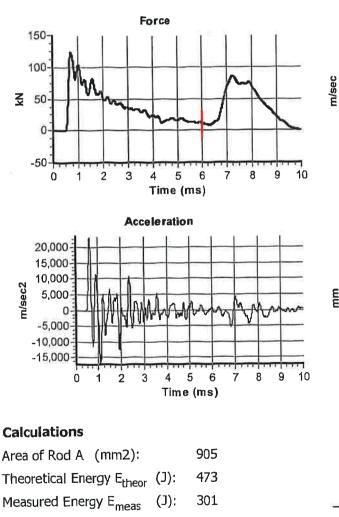
SPT Hammer Information

| Hammer Mass | m (kg): | 63.0 |
|-----------------|------------|------|
| Falling Height | h (mm): | 760 |
| SPT String Leng | gth L (m): | 12.0 |

Comments / Location

CAUSEWAY

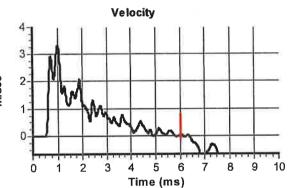
#2

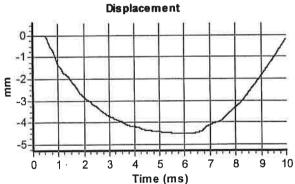


Energy Ratio E_r (%):

The recommended calibration interval is 12 months

64





Signed: N Burrows Title: FOC Manager



APPENDIX I DOWNHOLE GEOPHYSICS



REPORT ON THE

GEOPHYSICAL LOGGING

OF

SIX BOREHOLES

FOR THE

NORTH IRISH SEA ARRAY

NEAR BALBRIGGAN, NORTHERN IRELAND



8 DRUMAHISKEY ROAD BALLYMONEY CO. ANTRIM BT53 7QL

MAY2022/CAUSE2022_NISA_Report

| | Name | Date |
|-------------|-------------|--------------------------|
| Logged by: | M. Hand | 04.05.2022 06.05.2022 |
| Report by: | M. Hand | 07.06.2022 |
| Checked by: | M. Kynaston | 17.06.2022 |

EUROPEAN GEOPHYSICAL SERVICES LTD

22 The Stables, Sansaw Business Park, Hadnall, Shrewsbury, Shropshire. SY4 4AS T: 01939210710 / office@europeangeophysical.com www.europeangeophysical.com

Registered in England & Wales No. 2962962 VAT No. GB648 4148 18

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1.0 INTRODUCTION

At the request of Causeway Geotech geophysical logging was carried out in the following boreholes.

The work was carried out by European Geophysical Services on the 4^{th} May 2022 and the 6^{th} May 2022.

The following logs were run:

| BH | Logs | From (m) | To (m) |
|----|--|-------------|-----------|
| 1 | Natural Gamma (GV NGRS) 3-Arm Caliper (GV CAL3) Focused Resistivity (GV DLL3) Sonic Velocity (GV ASNC) Fluid Temperature & Conductivity (GV TCIS) Fluid Velocity (GV IFM) | 0.6 | 22.2 |
| 2 | | 0.9 | 28 |
| 4 | | 0.6 | 17.7 |
| 9 | | 1 | 19.6 |
| 17 | | 1 | 25 |
| 18 | | 1 | 27 |

2.0 THE GEOPHYSICAL LOGGING METHODS

The Equipment and Field Procedure

A fully digital logging system with a 600m capacity motorised winch mounted in a 4x4 van was used.

All logging data was recorded digitally for reprocessing and archiving purposes.

With the exception of the fluid logs, all logs were run from the bottom of the boreholes upward.

Caliper (Cal)

This tool measures the mean diameter of the borehole. It is used to check the integrity of the borehole lining, and where the borehole is unlined to identify zones of washout, breakout or fissures.

Natural Gamma (Gam)

The tool measures the naturally occurring gamma radiation found in rocks and sediments. It is mainly used to detect the clays that contain potassium K^{40} , though the U^{238} series of elements and the Th^{232} series of elements also emit gamma radiation.

The higher the concentration of these clay minerals the greater the responses on the natural gamma log.

Focused Resistivity Log (Res Deep and Res Shallow)

The Focused Resistivity tool uses Guard Electrodes to focus the current into the formation. This gives excellent vertical resolution and good penetration, especially in highly conductive borehole fluids where a Normal Resistivity Sonde would not be as effective.

The tool has two electrode spacing's to allow a deep and shallow depth of investigation.

The response of this log is a function of porosity, type of formation / mineralogy and its pore water quality. These logs aid in the identification of strata and quality of the pore water.

2.0 THE GEOPHYSICAL LOGGING METHODS

Full Wave Sonic (FWS)

This tool has been specially designed to provide a full wave form recording of sonic signals and uses fixed spaced transmitter – receivers.

The received signals are digitised at a fast sampling rate with high resolution. Data may be sampled at typically 5cm or 10cm intervals dependent upon resolution required.

The data is processed for P wave velocity (or transit time) and amplitude. This tool can only be used in fluid filled unlined boreholes.

Fluid Temperature (T)

There is a natural geothermal gradient of increasing temperature with depth. This gradient varies with the thermal conductivity of the geological formation and is modified by water flowing in, out or vertically though the borehole.

This log is used to determine any flow pattern within the borehole and to identify flow zones.

Differential logs are produced over a one metre spacing, these are an interpretative aid to detect gradient changes.

Fluid Conductivity (EC or EC25)

The electrical conductivity (EC) of the water is related to its salinity and dissolved solids and is therefore a measure of the quality of the borehole water. The shape of the log trace can indicate zones of inflow.

Using data from the temperature log the electrical conductivity is corrected to 25°C (EC25).

This log is used to identify different zones of water quality.

Differential logs are produced over a one metre spacing, these are an interpretative aid to detect gradient changes.

Impeller Flowmeter (FV)

This log is used to determine any flow pattern within the borehole and identify flow zones. The tool uses an impeller and is normally run at a constant logging speed against the anticipated flow for the best response. The data is corrected for logging speed and a fluid velocity (FV) log is produced. Flow (Q) in I/s may then be derived from the fluid velocity (FV) and caliper (Cal) data.Optional paragraph

Where practicable the log may be run in conjunction with a temporary and easily removable pumping system.

2.0 THE GEOPHYSICAL LOGGING METHODS

P Wave Velocity (Vp) - unlined

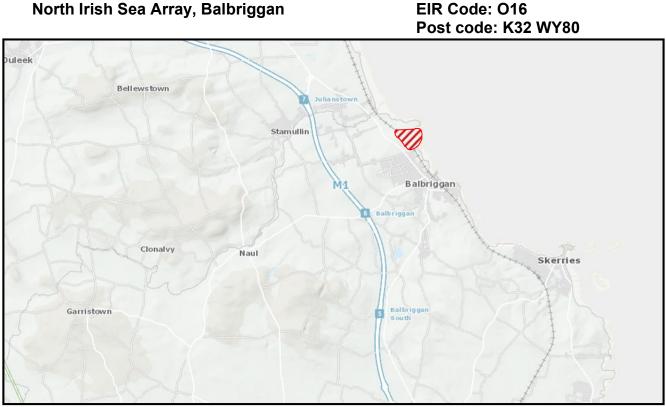
Within the unlined section the full wave form is recorded and analysed for the first arrival i.e. P Wave. The time of this arrival is corrected for tool stand off and inverted to produce the P Wave velocity of the formation.

The P Wave velocity log may be used for identifying variations in hardness and porosity.

Estimates of S wave velocity *may only be obtained under suitable conditions*. These waves are normally identified by higher amplitudes and phase changes after the P wave arrivals.

Shear wave arrivals occur after the P-wave. They are waves that have travelled across the borehole fluid to the rock as P-waves and have undergone P to S conversion. Shear waves which refract at the fluid/rock boundary at the S-wave critical angle travel through the rock at V_s and if modal conversion back to P wave occurs the waves can be received by the tool.

Results can be affected by the competency of the rock material, low velocity zones, irregular boundary conditions and complex interactions of non-direct P-waves and other fast waves. This last factor can be the main limiter on Shear wave identification in wireline logging.



3.0 SITE DETAILS North Irish Sea Array, Balbriggan

Figure 3.1 Location map showing the main area of investigation highlighted by the red striped area © Ordnance Survey Ireland 2022.

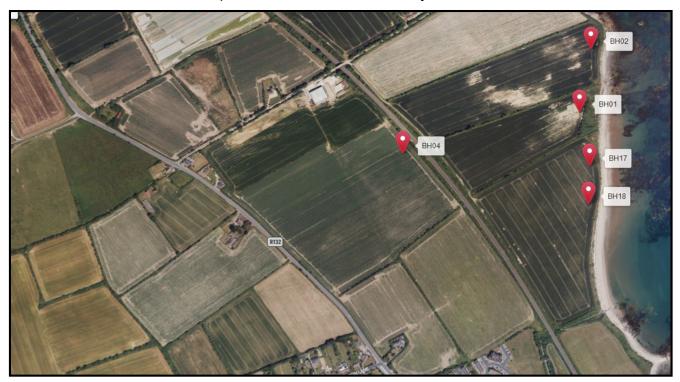


Figure 3.2 Aerial image showing the location of five of the six boreholes, just north of Balbriggan © Applemaps 2022.

3.0 SITE DETAILS North Irish Sea Array

EIR Code: O19 Post Code: K67 R2K0



Figure 3.3 Location map showing the location of borehole 9, just north of Swords (highlighted by the red striped circle) © Ordnance Survey Ireland 2022.

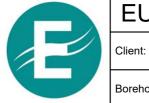


Figure 3.4 Aerial map showing borehole 9's location © Applemaps 2022.

5.0 BOREHOLE LOGGING CONSTRAINTS

- Vehicle access restrictions Offroad
- Tool access restrictions None
- **Borehole conditions** Most of the boreholes had either collapsed or silted up slightly from their drilled depths.
- Lack of fluid filled column
 None
- Time constraint None

Appendix 1 Geophysical Logs



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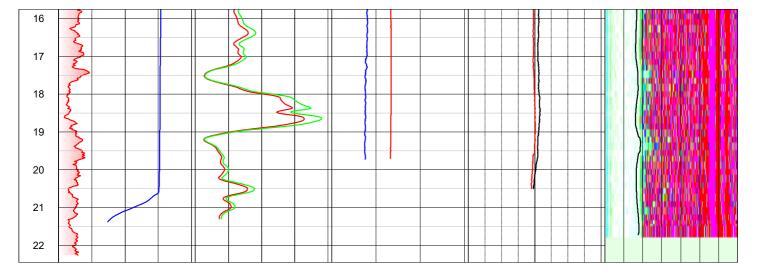
Causeway Geotech

Log Type:

Borehole: BH01

Composite Final

| Locatio | on: Bal l | briggan | l | | | Area: | Count | y Dubl | in | | Grid R | ef: | 719758 | 8.67E 7 | 6537 | 1.97N | Ele | evatio | on: 3. { | 53 | |
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| Drilled | Depth: | (m) | | | 30 | | | | | Date: | | | | | 0 | 4.05.2 | 022 | | | | |
| Logged | d Depth | : (m) | | | 22.2 | | | | | Record | ed By: | | | | N | I. Han | d | | | | |
| Loggin | g Datur | n: | | | | nd lev | el | | | Remark | s: Th | e bo | orehole h some too | as colla | psed | to arou | nd 21 | 1.5m | (dipped | on the | e |
| Logged | l Interv | al: (m) | | | 0.6 - | 22.2 | | | | | ter | mina | ated at a | round 2 | 0.5m | to prev | ent th | natery ne imp | peller fr | om co | ming |
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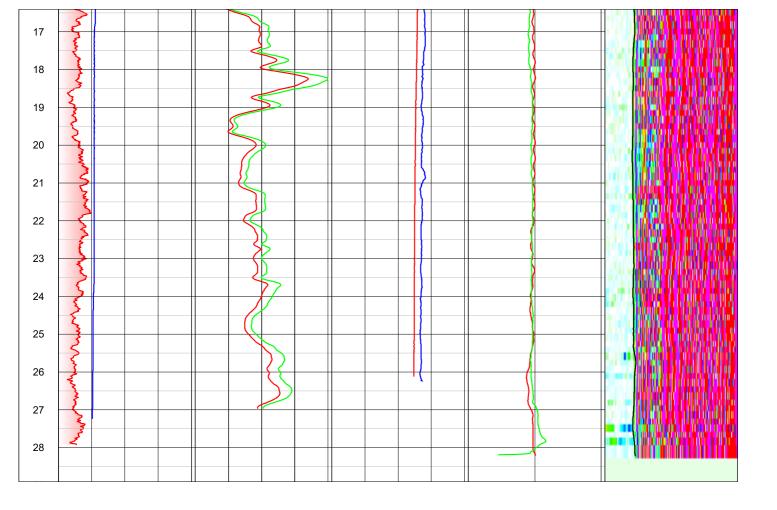


| EURO | PEAN GEC | PHYSICAL SERVIC | CES LTD |
|---------|----------|-----------------|-----------|
| Client: | Causeway | / Geotech | Log Type: |

Borehole: BH02

Composite Final

| Locatio | on: Bal | briggan | l | | ļ | Area: | Count | y Dubl | in | | G | Frid Re | ef: | 719788.43E 76 | 5520.35N | Elevati | on: 5.4 : | 3 |
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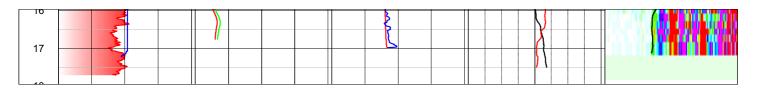
 EUROPEAN GEOPHYSICAL SERVICES LTD

 Client:
 Causeway Geotech

Borehole: BH04

Composite Final

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| EUROPEAN GEOPHYSICAL SEF | RVICESLID |
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| Client: Causeway Geotech | Log Type: |

Borehole:

Composite Final

BH09

| Caliper Resistivity Deep EC25 Fluid Velocity - Repeat Variable Density Log | Locatio | n: S | words | | | ŀ | rea: | Count | y Dubli | in | | G | rid Re | ef: | 71 | 8991 | E 749 | 337 | 'N | Elevat | ion: 10.54 | |
|--|---------|---|--|------|-------|--|-------------------|--------|---------|------|---------------|------------|------------------|-----|--------|--------|---------------|-----|-------------|-------------|---------------------------------------|-----------|
| Logging Datum: Ground level Remarks: Heavy mud below 15.5m. Fluid weldy by gaterminated at 15m. Logging Datum: 0.9 - 18.6 Pluid Level: Pluid Evel: Pluid Evel | Drilled | Dept | h: (m) | | | 20 | | | | | | Date: | | | | | | | 06.05.20 |)22 | | |
| Legged Interval: (m) Leg Det Structure Function From: (m) Fro | Logged | l Dep | oth: (m) | | | 19.6 | | | | | F | Recorded | By: | | | | | | M. Hand | 1 | | |
| Logged Interval: (m) 4.5 BOREHOLE RECORD Bit: (mm) From: (m) To: (m) To: (m) Type Size: (mm) From: (m) To: (m) 154 7.2 20 PLASTIC 115 4.36 7.2 Depth Netward Gamma Resistivity Shallow Fluid Temporature Fluid Volocity Transit Time 1:00 ARI 200 0 Ohm.m 5000 400 μScm 700 -100 mm/s 100 100 υScc 80 Resistivity Deep 1 EC25 Fluid Volocity - Transit Time 1:00 0 mm 300 0 Ohm.m 5000 400 μScm 700 -100 mm/s 100 100 υScc 80 1 0 mm 300 0 Ohm.m 5000 400 μScm 700 -100 mm/s 100 100 υScc 80 1 0 mm 300 0 Ohm.m 5000 400 μScm 700 -100 mm/s 100 100 υScc 80 1 0 mm 300 0 Ohm.m 5000 400 μScm 700 -100 mm/s 100 100 υScc 80 1 0 mm 300 0 Ohm.m 5000 400 μScm 700 -100 mm/s 100 100 υScc 80 1 0 mm 300 0 Ohm.m 5000 400 μScm 700 -100 mm/s 100 100 υScc 80 1 0 mm 300 0 Ohm.m 5000 400 μScm 700 -100 mm/s 100 100 υScc 80 1 0 mm 300 0 Ohm.m 5000 400 μScm 700 -100 mm/s 100 100 υScc 80 1 0 mm 300 0 Ohm.m 5000 400 μScm 700 -100 mm/s 100 100 υScc 80 1 0 mm 300 0 Ohm.m 5000 400 μScm 700 -100 mm/s 100 100 υScc 80 1 0 mm 300 0 Ohm.m 5000 400 μScm 700 -100 mm/s 100 100 υScc 80 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | Loggin | g Da | tum: | | | Grour | d lev | vel | | | F | Remarks: | Hea | av | y mi | ud bel | ow 15. | 5m. | Fluid veloc | city logs | terminated at 1 | 5m |
| BOREHOLE RECORD CASING RECORD Bit: (mm) From: (m) To: (m) Type Size: (mm) From: (m) To: (m) 184 7.2 20 PLASTIC 115 0.36 7.2 Depth Natural Gamma Resistivity Shallow Fluid Temperature Fluid Velocity Transit Time 1:00 API 200 Omm 5000 11 rc 12 100 mode status Variable Density Log 0 mm 300 O Omm 5000 11 rc 12 100 mode status Variable Density Log 1 0 mm 300 O Omm 5000 100 mm/s 100 100 BEC 3 4 0 0 Omm 5000 100 Imm/s 100 100 BEC 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 <td>Logged</td> <td>l Inte</td> <td>rval: (m)</td> <td></td> <td></td> <td>0.9 - 1</td> <td>9.6</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>bel</td> <td>ow</td> <td>/ this</td> <td>s dept</td> <td>ner bei n.</td> <td>com</td> <td>ing comple</td> <td>etery bloc</td> <td>ked when pass</td> <td>ang</td> | Logged | l Inte | rval: (m) | | | 0.9 - 1 | 9.6 | | | | | | bel | ow | / this | s dept | ner bei n. | com | ing comple | etery bloc | ked when pass | ang |
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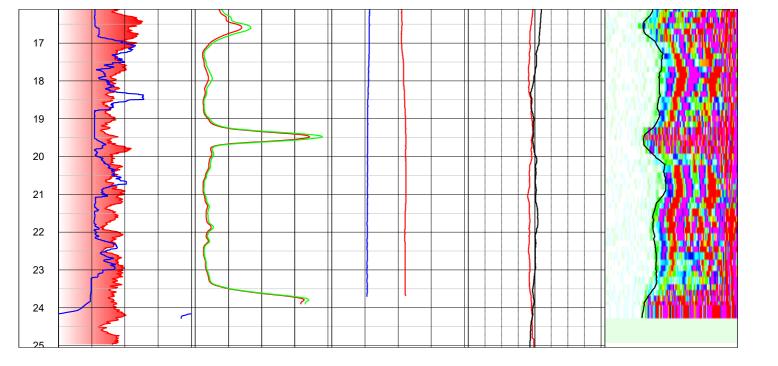
| EUROPEAN GEOPH | YSICAL SERVIC | CES LTD |
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| Client: Causeway Ge | otech | Log Type: |

Causeway Geotech

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Composite Final

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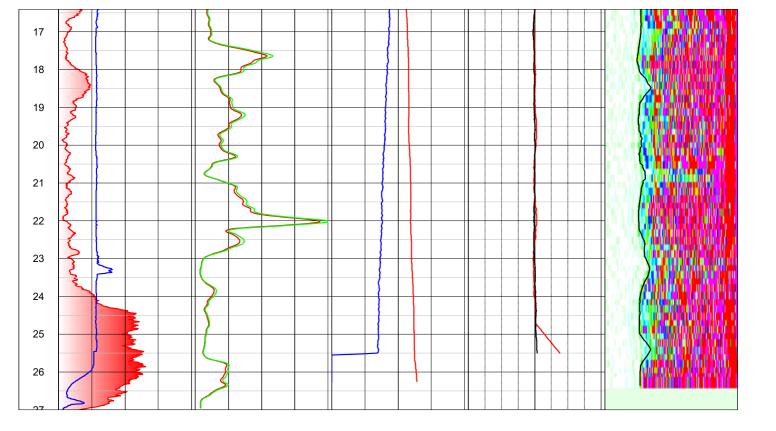
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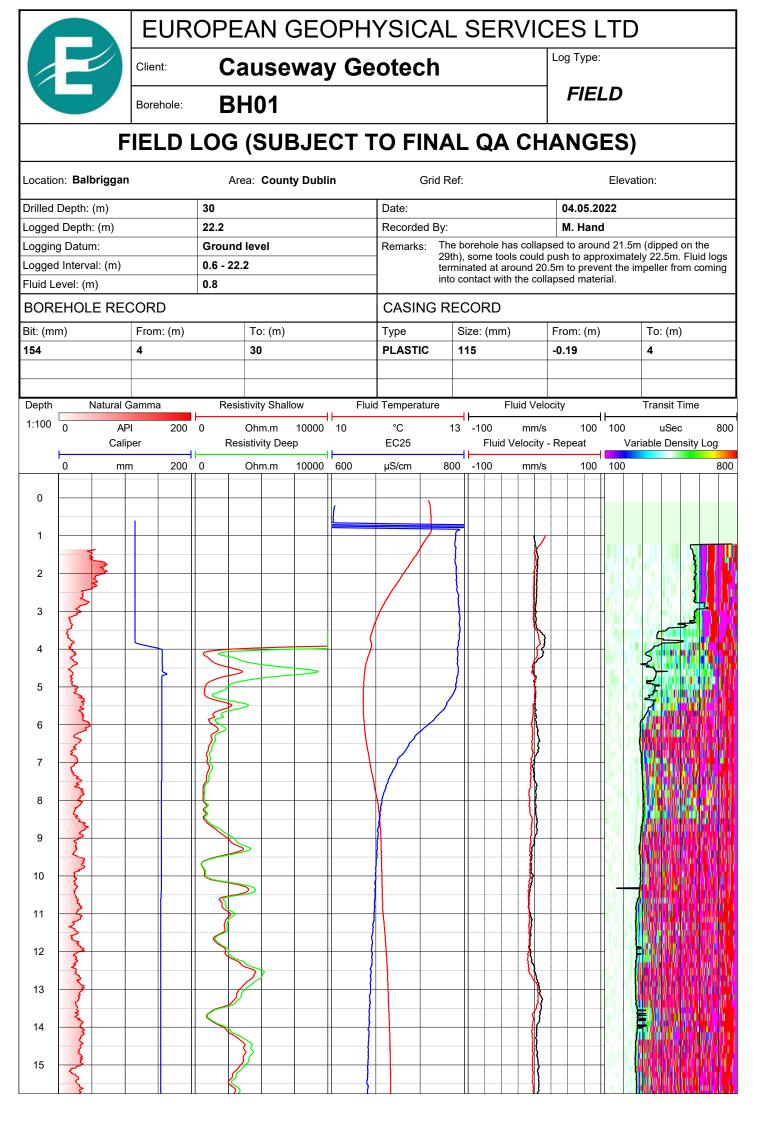
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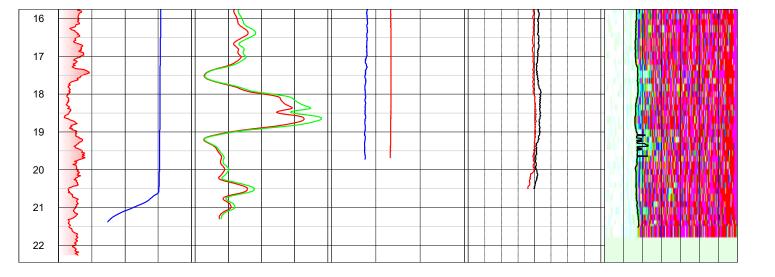
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Composite Final

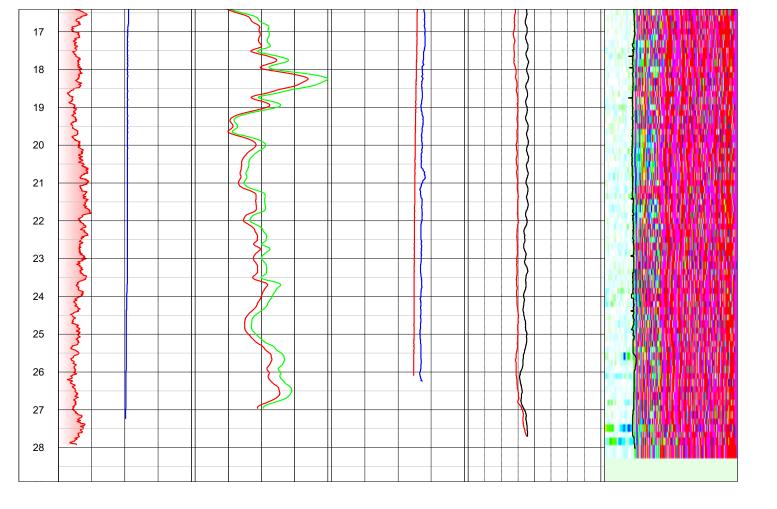
| Caliper Resistivity Deep EC25 Fluid Velocity - Repeat Variable Density Log | Locatio | on: Balbriggan | | A | rea: Co | ounty Dubli | n | | Grid | Re | f: 719790 . | .13E 76 | 65252 | 2.97N | Elevat | tion: 8.09 | |
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