Appendix 5

Soakaway Test Records (to BRE365)

Soakaway Test No.	Easting	Northing	Elevation (m OD)
SA01	686044.553	719690.913	79.582
SA02	686159.275	719597.49	79.558
SA03	686281.269	719515.46	79.22
SA04	686404	719434.018	78.346
SA05	686527.198	719353.119	78.611
SA06	686447.219	719668.69	83.453
SA07	686660.25	719566.88	82.861
SA08	686606.497	719388.773	78.995
SA09	686700.381	719648.213	81.639
SA10	686556.719	719845.828	83.877
SA11	686551.16	719788.98	84.239
SA12	686504.63	719684.437	84.324
SA13	686248.393	719737.264	81.662

## f -value from field tests (F2C) IGSL **Soakaway Design** Contract: Halverstown Contract No. 24330 Test No. SA01 Client **DOBA** Date: 20/10/2022 Summary of ground conditions Description from to Ground water 0.00 0.40 TOPSOIL: Soft brown slightly gravelly sandy CLAY 0.40 1.60 Firm grey mottled orange very sandy gravelly SILT with silty Dry sand horizons Notes: Samples: Test terminated at 30 minutes. No soakage recorded. Field Data Field Test Depth of Pit (D) Depth to 1.60 Elapsed m Width of Pit (B) Water Time 0.40 m Length of Pit (L) 1.60 (m) (min) m 0.59 0.00 Initial depth to Water = 0.59 m 0.59 1.00 Final depth to water = 0.59 0.59 2.00 Elapsed time (mins)= 30.00 3.00 0.59 0.59 4.00 Top of permeable soil m 0.59 5.00 Base of permeable soil 0.59 6.00 0.59 7.00 0.59 8.00 0.59 10.00 0.59 12.00 Base area= 0.64 m2 0.59 14.00 \*Av. side area of permeable stratum over test pe 4.04 m2 0.59 16.00 Total Exposed area = 4.68 m2 0.59 18.00 0.59 20.00 0.59 25.00 Infiltration rate (f) = Volume of water used/unit exposed area / unit time 0.59 30.00 0 m/min f= or 0 m/sec Depth of water vs Elapsed Time (mins) 35.00 **3**0.00 **2**5.00 20.00 15.00 0.00 5.00 0.00 0.00 0.10 0.20 0.30 0.40 0.50 0.60 0.70 Depth to Water (m)

## f -value from field tests (F2C) IGSL **Soakaway Design** Contract: Halverstown Contract No. 24330 Test No. SA02 Client **DOBA** Date: 20/10/2022 Summary of ground conditions from to Description Ground water 0.00 0.30 TOPSOIL: Soft brown slightly gravelly sandy CLAY 0.30 1.50 Firm grey brown very sandy very gravelly CLAY with a low Dry cobble content Notes: Samples: Field Data Field Test Depth of Pit (D) Depth to 1.50 Elapsed m Width of Pit (B) Water Time 0.40 m Length of Pit (L) 1.50 (m) (min) m 0.55 0.00 Initial depth to Water = 0.55 m 0.55 1.00 Final depth to water = 0.61 0.55 2.00 Elapsed time (mins)= 60.00 3.00 0.55 0.56 4.00 Top of permeable soil m 0.56 5.00 Base of permeable soil 0.56 6.00 0.56 7.00 0.57 8.00 0.57 10.00 0.57 12.00 Base area= 0.6 m2 14.00 \*Av. side area of permeable stratum over test pe 3.496 m2 0.58 0.58 16.00 Total Exposed area = 4.096 m2 0.58 18.00 0.58 20.00 0.59 25.00 Infiltration rate (f) = Volume of water used/unit exposed area / unit time 0.59 30.00 f= 0.00015 m/min 2.441E-06 m/sec 0.59 35.00 or 0.60 40.00 0.6 50.00 60.00 0.61 Depth of water vs Elapsed Time (mins) 70.00 **Su** 60.00 50.00 lagsed Time(n **1**0.00 0.00 0.55 0.57 0.54 0.56 0.58 0.59 0.60 0.61 0.62 Depth to Water (m)

## f -value from field tests (F2C) IGSL **Soakaway Design** Contract: Halverstown Contract No. 24330 Test No. SA03 Client **DOBA** Date: 20/10/2022 Summary of ground conditions from to Description Ground water TOPSOIL: Soft brown slightly gravelly sandy CLAY 0.00 0.30 0.30 0.50 Firm brown sandy gravelly SILT Dry 0.50 1.70 Firm grey brown very sandy gravelly silty CLAY with a low cobble content Notes: Samples: Field Data Field Test Depth of Pit (D) Depth to 1.80 Elapsed m Width of Pit (B) Water Time 0.40 m Length of Pit (L) 1.60 (m) (min) m 1.00 0.00 Initial depth to Water = 1.00 m 1.00 1.00 Final depth to water = 1.00 1.00 2.00 Elapsed time (mins)= 30.00 1.00 3.00 1.00 4.00 Top of permeable soil m 1.00 5.00 Base of permeable soil 1.00 6.00 1.00 7.00 1.00 8.00 1.00 10.00 1.00 12.00 Base area= 0.64 m2 1.00 14.00 \*Av. side area of permeable stratum over test pe m2 3.2 1.00 16.00 Total Exposed area = 3.84 m2 1.00 18.00 1.00 20.00 1.00 25.00 Infiltration rate (f) = Volume of water used/unit exposed area / unit time 30.00 1.00 0 m/min f= or 0 m/sec Depth of water vs Elapsed Time (mins) 35.00 **3**0.00 **2**5.00 20.00 15.00 0.00 5.00 0.00 0.00 0.20 1.00 0.40 0.60 0.80 1.20 Depth to Water (m)

## f -value from field tests (F2C) IGSL **Soakaway Design** Contract: Halverstown Contract No. 24330 Test No. SA04 Client **DOBA** Date: 10/10/2022 Summary of ground conditions from to Description Ground water 0.00 0.40 TOPSOIL: Soft brown slightly gravelly sandy CLAY 0.40 0.90 Grey silty gravelly SAND with low cobbles Dry 0.90 2.10 Firm to stiff light grey mottled orange slightly sandy gravelly SILT Notes: Samples: Field Data Field Test Depth of Pit (D) Depth to 2.10 Elapsed m Width of Pit (B) Water Time 0.45 m Length of Pit (L) 1.60 (m) (min) m 1.13 0.00 Initial depth to Water = 1.13 m 1.13 1.00 Final depth to water = 1.15 2.00 Elapsed time (mins)= 60.00 1.13 3.00 1.13 1.13 4.00 Top of permeable soil m 1.13 5.00 Base of permeable soil 1.13 6.00 1.13 7.00 1.13 8.00 1.13 10.00 1.14 12.00 Base area= 0.72 m2 1.14 14.00 \*Av. side area of permeable stratum over test pe 3.936 m2 1.14 16.00 Total Exposed area = 4.656 m2 1.14 18.00 1.14 20.00 1.14 25.00 Infiltration rate (f) = Volume of water used/unit exposed area / unit time 1.14 30.00 f= 5.2E-05 m/min 8.591E-07 m/sec 1.15 35.00 or 1.15 40.00 1.15 50.00 60.00 1.15 Depth of water vs Elapsed Time (mins) 70.00 **Sul**50.00 lapsed Time(n **1**0.00 0.00 1.13 1.13 1.14 1.14 1.15 1.15 1.16 Depth to Water (m)

## **Soakaway Design** f -value from field tests (F2C) IGSI Contract: Halverstown Contract No. 24330 Test No. SA05 A Client DOBA Date: 04/10/2022 Summary of ground conditions from Ground water 0.00 0.50 TOPSOIL: Soft brown slightly gravelly sandy CLAY with a low cobble content and Moderate flow at 1.7 0.50 1.10 (Medium dense) Grey very gravelly SAND with a medium cobble content 1.10 1.70 (Medium dense) Grey sandy GRAVEL with a medium to high cobble content Notes: Samples: AA185472 Side wall collapse throughout test. AA185473 Field Data Field Test Depth of Pit (D) Depth to 1.70 Elapsed m Width of Pit (B) Water Time 0.60 m Length of Pit (L) 2.20 (m) (min) m 1.10 0.00 Initial depth to Water = 1.10 m 1.10 1.00 Final depth to water = 1.20 2.00 Elapsed time (mins)= 60.00 1.11 3.00 1.11 4.00 Top of permeable soil 1.12 m 1.13 5.00 Base of permeable soil 1.14 6.00 1.14 7.00 1.14 8.00 1.15 10.00 1.15 12.00 Base area= 1.32 m2 14.00 3.08 m2 1.16 \*Av. side area of permeable stratum over test perioc 16.00 1.16 Total Exposed area = 4.4 m2 1.16 18.00 1.17 20.00 1.18 25.00 Infiltration rate (f) = Volume of water used/unit exposed area / unit time 30.00 1.19 0.0005 m/min 8.333E-06 m/sec 1.19 35.00 f= or 1.20 40.00 1.2 50.00 1.2 60.00 Depth of water vs Elapsed Time (mins) 70.00 absed Time(mins) 50.00 40.00 30.00 20.00 10.00 0.00 1.10 1.12 1.14 1.08 1.16 1.18 1.20 1.22 Depth to Water (m)

## f -value from field tests (F2C) IGSL Soakaway Design Contract: Halverstown Contract No. 24330 Test No. SA05 B (Cycle 1) Client **DOBA** Date: 04/10/2022 Summary of ground conditions from Description Ground water TOPSOIL: Soft brown slightly gravelly sandy CLAY with a low 0.00 0.50 cobble content and rootlets Dry 0.50 (Medium dense) Grey very gravelly silty SAND with a medium 1.20 cobble content Notes: Samples: Side wall collapse throughout test Field Data Field Test Depth of Pit (D) Depth to 1.20 Elapsed m Width of Pit (B) Water Time 0.60 m Length of Pit (L) 1.50 (m) (min) m 0.60 0.00 Initial depth to Water = 0.60 m 0.61 1.00 Final depth to water = 0.72 0.62 2.00 Elapsed time (mins)= 60.00 3.00 0.62 0.62 4.00 Top of permeable soil m 0.63 5.00 Base of permeable soil 0.63 6.00 0.63 7.00 0.63 8.00 0.64 10.00 0.64 12.00 Base area= 0.9 m2 14.00 \*Av. side area of permeable stratum over test pe 2.268 m2 0.64 16.00 Total Exposed area = 0.65 3.168 m2 0.65 18.00 0.66 20.00 0.67 25.00 Infiltration rate (f) = Volume of water used/unit exposed area / unit time 0.68 30.00 f= 0.00057 m/min 9.47E-06 m/sec 0.69 35.00 or 0.70 40.00 0.71 50.00 0.72 60.00 Depth of water vs Elapsed Time (mins) 70.00 **Su** 60.00 50.00 lagsed Time(n **1**0.00 0.00 0.60 0.62 0.64 0.58 0.66 0.68 0.70 0.72 0.74 Depth to Water (m)

## f -value from field tests (F2C) IGSL Soakaway Design Contract: Halverstown Contract No. 24330 Test No. SA05 B (Cycle 2) Client **DOBA** Date: 04/10/2022 Summary of ground conditions from Description Ground water TOPSOIL: Soft brown slightly gravelly sandy CLAY with a low 0.00 0.50 cobble content and rootlets Dry 0.50 (Medium dense) Grey very gravelly silty SAND with a medium 1.20 cobble content Notes: Samples: Side wall collapse throughout test. Field Data Field Test Depth of Pit (D) Depth to 1.20 Elapsed m Width of Pit (B) Water Time 0.60 m Length of Pit (L) 1.50 (m) (min) m 0.50 0.00 Initial depth to Water = 0.50 m 0.50 1.00 Final depth to water = 0.60 0.51 2.00 Elapsed time (mins)= 60.00 3.00 0.51 0.51 4.00 Top of permeable soil m 0.52 5.00 Base of permeable soil 0.52 6.00 0.52 7.00 0.52 8.00 0.53 10.00 0.53 12.00 Base area= 0.9 m2 14.00 \*Av. side area of permeable stratum over test pe 2.73 m2 0.53 16.00 Total Exposed area = 0.54 3.63 m2 0.54 18.00 0.55 20.00 0.57 25.00 Infiltration rate (f) = Volume of water used/unit exposed area / unit time 0.57 30.00 f= 0.00041 m/min 6.887E-06 m/sec 0.58 35.00 or 0.59 40.00 0.59 50.00 60.00 0.6 Depth of water vs Elapsed Time (mins) 70.00 **Su** 60.00 50.00 lagsed Time(n **1**0.00 0.00 0.50 0.52 0.54 0.48 0.56 0.58 0.60 0.62 Depth to Water (m)

## f -value from field tests (F2C) IGSL Soakaway Design Contract: Halverstown Contract No. 24330 Test No. SA06 (Cycle 1) Client **DOBA** Date: 10/10/2022 Summary of ground conditions from to Description Ground water 0.00 0.40 TOPSOIL: Soft brown sandy CLAY with rootlets 0.30 1.20 Firm brown sandy gravelly CLAY Dry 1.20 2.00 Grey brown gravelly silty SAND with a low cobble content Notes: Samples: AA181953 AA181954 Field Data Field Test Depth of Pit (D) Depth to 2.00 Elapsed m Width of Pit (B) Water Time 0.45 m Length of Pit (L) 1.60 (m) (min) m 1.12 0.00 Initial depth to Water = 1.12 m 1.13 1.00 Final depth to water = 1.22 1.14 2.00 Elapsed time (mins)= 60.00 3.00 1.14 1.15 4.00 Top of permeable soil m 1.15 5.00 Base of permeable soil 1.16 6.00 1.16 7.00 1.17 8.00 1.17 10.00 1.17 12.00 Base area= 0.72 m2 1.18 14.00 \*Av. side area of permeable stratum over test pe 3.403 m2 16.00 Total Exposed area = 4.123 1.18 m2 1.18 18.00 1.19 20.00 1.19 25.00 Infiltration rate (f) = Volume of water used/unit exposed area / unit time 1.19 30.00 f= 0.00029 m/min 4.851E-06 m/sec 1.20 35.00 or 1.20 40.00 1.21 50.00 1.22 60.00 Depth of water vs Elapsed Time (mins) 70.00 **Su** 60.00 50.00 lagsed Time(n **1**0.00 0.00 1.12 1.14 1.16 1.22 1.10 1.18 1.20 1.24 Depth to Water (m)

## f -value from field tests (F2C) IGSL Soakaway Design Contract: Halverstown Contract No. 24330 Test No. SA06 (Cycle 2) Client **DOBA** Date: 10/10/2022 Summary of ground conditions from to Description Ground water 0.00 0.40 TOPSOIL: Soft brown sandy CLAY with rootlets 0.30 1.20 Firm brown sandy gravelly CLAY Dry 1.20 2.00 Grey brown gravelly silty SAND with a low cobble content Notes: Samples: AA181953 AA181954 Field Data Field Test Depth of Pit (D) Depth to 2.00 Elapsed m Width of Pit (B) Water Time 0.45 m Length of Pit (L) 1.60 (m) (min) m 1.01 0.00 Initial depth to Water = 1.01 m 1.02 1.00 Final depth to water = 1.09 1.03 2.00 Elapsed time (mins)= 60.00 1.03 3.00 1.04 4.00 Top of permeable soil m 1.04 5.00 Base of permeable soil 1.04 6.00 1.05 7.00 1.05 8.00 1.05 10.00 1.06 12.00 Base area= 0.72 m2 1.06 14.00 \*Av. side area of permeable stratum over test pe 3.895 m2 1.06 16.00 Total Exposed area = 4.615 m2 1.06 18.00 1.07 20.00 1.07 25.00 Infiltration rate (f) = Volume of water used/unit exposed area / unit time 1.07 30.00 f= 0.00021 m/min 3.467E-06 m/sec 1.07 35.00 or 1.08 40.00 1.08 50.00 60.00 1.09 Depth of water vs Elapsed Time (mins) 70.00 **Su** 60.00 50.00 lapsed Time(n **1**0.00 0.00 1.02 1.04 1.00 1.06 1.08 1.10 Depth to Water (m)

## f -value from field tests (F2C) IGSL Soakaway Design Contract: Halverstown Contract No. 24330 Test No. SA07 Client **DOBA** Date: 11/10/2022 Summary of ground conditions from to Description Ground water 0.00 0.40 TOPSOIL: Soft brown sandy CLAY with rootlets 0.40 1.00 Stiff brown grey sandy slightly gravelly silty CLAY Dry 1.00 2.20 Firm brown sandy gravelly CLAY with a medium cobble content and occassional boulders Notes: Samples: AA185492 AA185493 Field Data Field Test Depth of Pit (D) Depth to 2.20 Elapsed m Width of Pit (B) Water Time 0.45 m Length of Pit (L) 1.40 (m) (min) m 1.17 0.00 Initial depth to Water = 1.17 m 1.17 1.00 Final depth to water = 1.21 2.00 Elapsed time (mins)= 60.00 1.17 3.00 1.17 1.17 4.00 Top of permeable soil m 1.18 5.00 Base of permeable soil 1.18 6.00 1.18 7.00 1.18 8.00 1.18 10.00 1.18 12.00 Base area= 0.63 m2 1.18 14.00 \*Av. side area of permeable stratum over test pe m2 3.737 1.18 16.00 Total Exposed area = 4.367 m2 1.19 18.00 1.19 20.00 1.19 25.00 Infiltration rate (f) = Volume of water used/unit exposed area / unit time 1.19 30.00 f= 9.6E-05 m/min 1.603E-06 m/sec 1.20 35.00 or 1.20 40.00 1.2 50.00 1.21 60.00 Depth of water vs Elapsed Time (mins) 70.00 **S**60.00 50.00 lapsed Time(n **1**0.00 0.00 1.17 1.18 1.16 1.19 1.20 1.21 1.22 Depth to Water (m)

## f -value from field tests (F2C) IGSL **Soakaway Design** Contract: Halverstown Contract No. 24330 Test No. SA08 Client **DOBA** Date: 10/10/2022 Summary of ground conditions from to Description Ground water TOPSOIL: Soft dark brown very sandy slightly gravelly CLAY 0.00 0.30 0.30 0.80 Firm grey very sandy slightly gravelly SILT Dry 0.80 1.80 Firm to stiff light grey mottled orange slightly sandy gravelly SILT with a low cobble content Notes: Samples: AA181951 Terminated after 30 minutes. No soakage recorded AA181952 Field Data Field Test Depth of Pit (D) Depth to 2.10 Elapsed m Width of Pit (B) Water Time 0.45 m Length of Pit (L) 1.60 (m) (min) m 1.20 0.00 Initial depth to Water = 1.20 m 1.20 1.00 Final depth to water = 1.20 1.20 2.00 Elapsed time (mins)= 30.00 1.20 3.00 1.20 4.00 Top of permeable soil m 1.20 5.00 Base of permeable soil 1.20 6.00 1.20 7.00 1.20 8.00 1.20 10.00 1.20 12.00 Base area= 0.72 m2 1.20 14.00 \*Av. side area of permeable stratum over test pe m2 3.69 1.20 16.00 Total Exposed area = 4.41 m2 1.20 18.00 1.20 20.00 1.20 25.00 Infiltration rate (f) = Volume of water used/unit exposed area / unit time 1.20 30.00 0 m/min f= or 0 m/sec Depth of water vs Elapsed Time (mins) 35.00 30.00 25.00 20.00 15.00 0.00 5.00 0.00 0.00 0.20 0.40 0.60 0.80 1.00 1.20 1.40 Depth to Water (m)

## f -value from field tests (F2C) IGSL Soakaway Design Contract: Halverstown Contract No. 24330 Test No. SA09 (Cycle 1) Client **DOBA** Date: 11/10/2022 Summary of ground conditions from to Description Ground water 0.00 0.30 TOPSOIL: Soft brown sandy CLAY with rootlets 0.30 0.80 Stiff grey mottled orange sandy slightly gravelly SILT Dry Grey brown gravelly silty SAND with a low cobble content 0.80 1.80 1.80 2.00 Stiff brown sandy gravelly SILT Notes: Samples: AA185494 AA185495 AA185496 Field Data Field Test Depth of Pit (D) Depth to 2.00 Elapsed m Width of Pit (B) Water Time 0.45 m Length of Pit (L) 1.50 (m) (min) m 1.22 0.00 Initial depth to Water = 1.22 m 1.22 1.00 Final depth to water = 1.30 1.22 2.00 Elapsed time (mins)= 60.00 1.23 3.00 1.23 4.00 Top of permeable soil m 1.23 5.00 Base of permeable soil 1.24 6.00 1.24 7.00 1.24 8.00 1.25 10.00 1.25 12.00 Base area= 0.675 m2 1.25 14.00 \*Av. side area of permeable stratum over test pe 2.886 m2 1.25 16.00 Total Exposed area = 3.561 m2 1.26 18.00 1.26 20.00 1.27 25.00 Infiltration rate (f) = Volume of water used/unit exposed area / unit time 1.27 30.00 f= 0.00025 m/min 4.212E-06 m/sec 1.28 35.00 or 1.29 40.00 1.3 50.00 60.00 1.3 Depth of water vs Elapsed Time (mins) 70.00 **Su** 60.00 50.00 lapsed Time(n **1**0.00 0.00 1.22 1.24 1.20 1.26 1.28 1.30 1.32 Depth to Water (m)

## f -value from field tests (F2C) IGSL Soakaway Design Contract: Halverstown Contract No. 24330 Test No. SA09 (Cycle 2) Client **DOBA** Date: 11/10/2022 Summary of ground conditions from to Description Ground water 0.00 0.30 TOPSOIL: Soft brown sandy CLAY with rootlets 0.30 0.80 Stiff grey mottled orange sandy slightly gravelly SILT Dry Grey brown gravelly silty SAND with a low cobble content 0.80 1.80 1.80 2.00 Stiff brown sandy gravelly SILT Notes: Samples: AA185494 AA185495 AA185496 Field Data Field Test Depth of Pit (D) Depth to 2.00 Elapsed m Width of Pit (B) Water Time 0.45 m Length of Pit (L) 1.50 (m) (min) m 0.90 0.00 Initial depth to Water = 0.90 m 0.90 1.00 Final depth to water = 0.97 0.90 2.00 Elapsed time (mins)= 60.00 3.00 0.91 0.91 4.00 Top of permeable soil m 0.92 5.00 Base of permeable soil 0.92 6.00 0.92 7.00 0.93 8.00 0.93 10.00 0.93 12.00 Base area= 0.675 m2 0.93 14.00 \*Av. side area of permeable stratum over test pe m2 4.1535 0.94 16.00 Total Exposed area = 4.8285 m2 0.94 18.00 0.94 20.00 0.95 25.00 Infiltration rate (f) = Volume of water used/unit exposed area / unit time 0.95 30.00 f= 0.00016 m/min 2.718E-06 m/sec 0.96 35.00 or 0.96 40.00 0.97 50.00 60.00 0.97 Depth of water vs Elapsed Time (mins) 70.00 **Su** 60.00 50.00 lapsed Time(n **1**0.00 0.00 0.88 0.90 0.92 0.94 0.96 0.98 Depth to Water (m)

## f -value from field tests **Soakaway Design** (F2C) IGS Contract: Halverstown Contract No. 24330 Test No. SA10 Client **DOBA** Date: 14/10/2022 Summary of ground conditions from to Description Ground water 0.00 0.30 TOPSOIL: Soft brown slightly gravelly sandy silty CLAY 0.30 0.80 Stiff brown slightly gravelly sandy silty CLAY with a medium cobble content Dry 1.00 1.60 Firm to stiff brown very sandy gravelly CLAY with a medium cobble content Notes: Samples: Field Data Field Test Depth of Pit (D) Depth to 1.60 Elapsed m Width of Pit (B) Water Time 0.40 m Length of Pit (L) 1.80 (m) (min) m 1.08 0.00 Initial depth to Water = 1.08 m 1.08 1.00 Final depth to water = 1.13 1.08 2.00 Elapsed time (mins)= 60.00 1.09 3.00 1.09 4.00 Top of permeable soil m 1.09 5.00 Base of permeable soil 1.09 6.00 1.10 7.00 1.10 8.00 1.10 10.00 1.10 12.00 Base area= 0.72 m2 1.11 14.00 \*Av. side area of permeable stratum over test period= 2.178 m2 16.00 2.898 1.11 Total Exposed area = m2 1.11 18.00 1.11 20.00 1.11 25.00 Infiltration rate (f) = Volume of water used/unit exposed area / unit time 1.12 30.00 0.000207039 m/min 3.451E-06 m/sec 1.12 35.00 f= or 1.12 40.00 1.13 50.00 60.00 1.13 Depth of water vs Elapsed Time (mins) 70.00 Elabsed Time(mins) 0.00 40.00 0.00 50.00 0.00 0.00 0.00 0.00 0.00 0.00 60.00 10.00 0.00 1.08 1.09 1.07 1.10 1.11 1.12 1.13 1.14 Depth to Water (m)

## f -value from field tests **Soakaway Design** (F2C) IGSL Contract: Halverstown Contract No. 24330 Test No. SA11 Client **DOBA** Date: 14/10/2022 Summary of ground conditions from to Description Ground water 0.00 0.40 TOPSOIL: Soft brown sandy gravelly CLAY 0.40 1.20 Firm brown sandy gravelly silty CLAY with a medium cobble content Dry 1.20 1.80 Firm brown very sandy gravelly CLAY with a medium cobble content Notes: Samples: Field Data Field Test Depth of Pit (D) Depth to 1.80 Elapsed m Width of Pit (B) Water Time 0.40 m Length of Pit (L) 1.60 (m) (min) m 1.00 0.00 Initial depth to Water = 1.00 m 1.00 1.00 Final depth to water = 1.03 m 1.00 2.00 Elapsed time (mins)= 60.00 1.00 3.00 1.00 4.00 Top of permeable soil m 1.00 5.00 Base of permeable soil 1.00 6.00 1.00 7.00 1.01 8.00 1.01 10.00 1.01 12.00 Base area= 0.64 m2 1.01 14.00 \*Av. side area of permeable stratum over test period= 3.14 m2 1.01 16.00 Total Exposed area = 3.78 m2 1.01 18.00 1.02 20.00 1.02 25.00 Infiltration rate (f) = Volume of water used/unit exposed area / unit time 1.02 30.00 8.46561E-05 m/min 1.411E-06 m/sec 1.02 35.00 or 1.02 40.00 1.03 50.00 60.00 1.03 Depth of water vs Elapsed Time (mins) 70.00 Elapsed Time(mins) 00.00 00.00 00.00 00.00 10.00 0.00 1.00 1.00 1.01 1.01 1.02 1.02 1.03 1.03 1.04 Depth to Water (m)

## f -value from field tests (F2C) IGSL Soakaway Design Contract: Halverstown Contract No. 24330 Test No. SA12 (Cycle 1) Client **DOBA** Date: 10/10/2022 Summary of ground conditions from to Description Ground water 0.00 0.40 TOPSOIL: Soft brown sandy CLAY with rootlets 0.40 1.20 Firm brown sandy silty CLAY Dry 1.10 2.20 Grey brown gravelly silty SAND with a medium cobble content Notes: Samples: AA181955 AA181956 Field Data Field Test Depth of Pit (D) Depth to 2.20 Elapsed m Width of Pit (B) Water Time 0.45 m Length of Pit (L) 1.70 (m) (min) m 1.34 0.00 Initial depth to Water = 1.34 m 1.35 1.00 Final depth to water = 1.44 1.35 2.00 Elapsed time (mins)= 60.00 1.36 3.00 1.36 4.00 Top of permeable soil m 1.37 5.00 Base of permeable soil 1.37 6.00 1.37 7.00 1.38 8.00 1.38 10.00 1.38 12.00 Base area= 0.765 m2 1.39 14.00 \*Av. side area of permeable stratum over test pe 3.483 m2 1.39 16.00 Total Exposed area = 4.248 m2 1.40 18.00 1.40 20.00 1.40 25.00 Infiltration rate (f) = Volume of water used/unit exposed area / unit time 1.41 30.00 0.0003 m/min 5.002E-06 m/sec 1.41 35.00 f= or 1.42 40.00 1.43 50.00 60.00 1.44 Depth of water vs Elapsed Time (mins) 70.00 **Su** 60.00 50.00 lapsed Time(n **1**0.00 0.00 1.34 1.36 1.38 1.32 1.40 1.42 1.44 1.46 Depth to Water (m)

## f -value from field tests (F2C) IGSL Soakaway Design Contract: Halverstown Contract No. 24330 Test No. SA12 (Cycle 2) Client **DOBA** Date: 10/10/2022 Summary of ground conditions from to Description Ground water 0.00 0.40 TOPSOIL: Soft brown sandy CLAY with rootlets 0.40 1.20 Firm brown sandy silty CLAY Dry Grey brown gravelly silty SAND with a medium cobble content 1.10 2.20 Notes: Samples: AA181955 AA181956 Field Data Field Test Depth of Pit (D) Depth to 2.20 Elapsed m Width of Pit (B) Water Time 0.45 m Length of Pit (L) 1.70 (m) (min) m 1.21 0.00 Initial depth to Water = 1.21 m 1.21 1.00 Final depth to water = 1.30 1.22 2.00 Elapsed time (mins)= 60.00 3.00 1.22 1.22 4.00 Top of permeable soil m 1.23 5.00 Base of permeable soil 1.23 6.00 1.23 7.00 1.24 8.00 1.24 10.00 1.24 12.00 Base area= 0.765 m2 1.25 14.00 \*Av. side area of permeable stratum over test pe 4.0635 m2 1.25 16.00 Total Exposed area = 4.8285 m2 1.26 18.00 1.26 20.00 1.27 25.00 Infiltration rate (f) = Volume of water used/unit exposed area / unit time 1.27 30.00 f= 0.00024 m/min 3.961E-06 m/sec 1.28 35.00 or 1.28 40.00 1.29 50.00 60.00 1.3 Depth of water vs Elapsed Time (mins) 70.00 **Su** 60.00 50.00 lagsed Time(n \$ **1**0.00 0.00 1.22 1.24 1.20 1.26 1.28 1.30 1.32 Depth to Water (m)

## f -value from field tests (F2C) IGSL Soakaway Design Contract: Halverstown Contract No. 24330 Test No. SA13 Client **DOBA** Date: 14/10/2022 Summary of ground conditions from to Description Ground water 0.00 0.30 TOPSOIL: Soft brown slightly gravelly sandy silty CLAY 0.30 0.80 Stiff brown slightly gravelly sandy CLAY Dry 0.80 1.60 Firm to stiff brown very sandy gravelly CLAY with a medium cobble content Notes: Samples: AA181981 AA181982 Field Data Field Test Depth of Pit (D) Depth to 1.60 Elapsed m Width of Pit (B) Water Time 0.40 m Length of Pit (L) 1.70 (m) (min) m 0.85 0.00 Initial depth to Water = 0.85 m 0.85 1.00 Final depth to water = 0.92 0.85 2.00 Elapsed time (mins)= 60.00 3.00 0.85 0.86 4.00 Top of permeable soil m 0.86 5.00 Base of permeable soil 0.86 6.00 0.87 7.00 0.87 8.00 0.87 10.00 0.88 12.00 Base area= 0.68 m2 0.88 14.00 \*Av. side area of permeable stratum over test pe 3.003 m2 0.88 16.00 Total Exposed area = 3.683 m2 0.88 18.00 0.89 20.00 0.89 25.00 Infiltration rate (f) = Volume of water used/unit exposed area / unit time 0.89 30.00 f= 0.00022 m/min 3.59E-06 m/sec 0.90 35.00 or 0.90 40.00 0.91 50.00 0.92 60.00 Depth of water vs Elapsed Time (mins) 70.00 **Su** 60.00 50.00 lagsed Time(n **1**0.00 0.00 0.86 0.84 0.88 0.90 0.92 0.94 Depth to Water (m)



1337	Т	RIAL PIT I	RECO	RD					24	1330	
CONTRACT	Halverstown						TRIAL F	PIT NO.		TP01 eet 1 of 1	
LOGGED BY	MB	CO-ORDINAT			14.55 E 90.91 N		DATE S		20/ <sup>-</sup> <b>TED</b> 20/ <sup>-</sup>	10/2022 10/2022 Hitachi	
ENGINEER	DOBA										
								Sample	s	Pa)	ometei
	Geotechnical Description		Legend	Depth (m)	Elevation	Water Strike	Sample Ref	Туре	Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
Firm gre	oll: Soft brown slightly gravelly sandy of coarse. Gravel is fine to medium state of the coarse. Gravel is fine to coarse. Gravell and horizons. Sand is fine to coarse. Gravell se subrounded.	y SILT with	\(\lambda \lambda \lambd	0.40	79.18						
1.0 			× ° × ° × ° × ° × ° × ° × ° × ° × ° × °	1.60	77.98						
End of 7	Trial Pit at 1.60m			1.00	77.90						
Groundwater	Conditions										
Dry	Conditions										
<b>Stability</b> Good											
General Rema Pit footprint so	arks canned using cable avoidance tool [C	CAT]. Pit backfill	ed with a	arisings.	Soakawa	ay test c	arried out	in pit.			



1331	1	RIAL PIT I	RECO	RD					24	1330	
CONTRACT	Halverstown						TRIAL F	PIT NO.		TP02 eet 1 of 1	
LOGGED BY	MB	CO-ORDINAT			59.28 E 97.49 N		DATE S	TARTED	20/ TED 20/	10/2022 10/2022 Hitachi	
CLIENT ENGINEER	DOBA						METHO		711	ıılacııı	
								Sample	s	a)	neter
	Geotechnical Description		Legend	Depth (m)	Elevation	Water Strike	Sample Ref	Туре	Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
Firm gricobble to coars rounder	DIL: Soft brown slightly gravelly sand to coarse. Gravel is fine to medium so ey brown very sandy very gravelly Cl content. Sand is medium to coarse. See subrounded. Cobbles are subrounded of limestone.  Trial Pit at 1.50m	LAY with a low Gravel is fine		1.50	79.26						
<b>Groundwater</b> Dry	Conditions							•		•	
Stability Good											
General Rema Pit footprint so	arks canned using cable avoidance tool [6	CAT]. Pit backfill	led with a	arisings.	Soakawa	ay test c	arried out	in pit.			



UE	337		INIAL PII	NECO	טחי					24	330	
CONT	TRACT	Halverstown						TRIAL P	PIT NO.		<b>TP03</b> et 1 of 1	
LOGO	GED BY	MB	CO-ORDINA	ΓES		81.27 E 15.46 N		DATE S	TARTED	20/1	0/2022	
CLIE	NT		GROUND LE	VEL (m)	79.22			EXCAV	ATION		itachi	
	NEER	DOBA			1			METHO	D			
									Samples		a)	neter
		Geotechnical Description	on	Legend	Depth (m)	Elevation	Water Strike	Sample Ref	Туре	Depth	Vane Test (KPa)	Hand Penetrometer
0.0	TOPSO is fine to	IL: Soft brown slightly gravelly sa o coarse. Gravel is fine to mediu	andy CLAY. Sand m subrounded.	1/ - 7/-1/- 7/								
	Firm bro	own sandy gravelly SILT. Sand is s fine to coarse subrounded.	s fine to coarse.	× <sub>O</sub> ×	0.30	78.92						
	Firm gre cobble of to coars	ey brown very sandy gravelly silty content. Sand is medium to coars the subrounded. Cobbles are subrounded to filmestone.	/ CLAY with a low se. Gravel is fine	× × × · · · · · · · · · · · · · · · · ·	0.50	78.72						
1.0												
				× ×								
				<del></del>								
				<u> </u>	1.70	77.52						
	End of 7	Trial Pit at 1.80m										
2.0												
3.0												
Groui Ory	ndwater (	Conditions		1	1	1		1				
,												
Stabi Good												
	ral Rema otprint sc	arks canned using cable avoidance to	ol [CAT]. Pit backfi	lled with a	arisings.	Soakawa	ay test c	arried out	in pit.			



03	337		TRIAL PIT	RECO	RD					24	330	
CON	TRACT	Halverstown						TRIAL F	PIT NO.		<b>TP04</b> et 1 of 1	
LOG	GED BY	MB	CO-ORDINAT		719,4	04.00 E 34.02 N		DATE S	TARTED	10/1	0/2022	
CLIE	NT INEER	DOBA	GROUND LE	v⊫∟ (m)	78.35			EXCAV/ METHO		7t H	itachi	
LIVOI	INCLIN	DODA							Sample	s		ier
							O)		Campio		KPa)	tromet
		Geotechnical Description		Legend	Depth (m)	Elevation	Water Strike	Sample Ref	Туре	Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0	TOPSO is fine to	olL: Soft brown slightly gravelly san coarse. Gravel is fine to medium	dy CLAY. Sand subrounded.	1/ 1/2 1/2 1/2 1/ 1/2 1/1								
-	coarse.	ty gravelly SAND with low cobbles Gravel is fine to coarse subrounded aded to rounded of limestone.	Sand is fine to ed. Cobbles are		0.40	77.95						
- - 1.0	Firm to gravelly coarse	stiff light grey mottled orange sligh or SILT. Sand is fine to coarse. Grav subangular to subrounded.	tly sandy rel is fine to	*	0.90	77.45						
- - - - - - - - 2.0	End of	Trial Pit at 2.10m		× × × × × × × × × × × × × × × × × × ×	2.10	76.25						
3.0												
-												
Grou	ındwəter (	Conditions										
Dry	iawalci	Conditions										
Stab Good												
	eral Rema ootprint so	arks canned using cable avoidance tool	[CAT]. Pit backfi	lled with a	arisings.	Soakawa	ay test c	arried out	in pit.			



REPORT NUMBER

24330

CON	TRACT Ha	lverstown						TRIAL PI SHEET	T NO.	SAT Shee	<b>P05</b> t 1 of 1	
LOGO	GED BY ME	3	CO-ORDINA		719,3	27.20 E 53.12 N		DATE ST			)/2022 )/2022	
CLIEI		BA	GROUND LE	VEL (m)	78.61			EXCAVA METHOD		7t Hit	achi	
									Sample	5	(Ра)	rometer
		Geotechnical Descrip	otion	Legend	Depth (m)	Elevation	Water Strike	Sample Ref	Туре	Depth	Vane Test (KPa)	Hand Penetrometer
0.0	Gravel is fine subrounded	oft brown slightly gravelly ontent and rootlets. Sand to medium subrounded to rounded of limestone	Cobbles are	\(\frac{1}{1}\) \(\frac{1}\) \(\frac{1}{1}\) \(\frac{1}\)	0.50	78.11						
1.0	to coarse su rounded of li Side wall col	lapse from 0.70-1.70m	ubrounded to		1.10	77.51		AA185472	В	0.70-0.80		
	high cobble	nse) Grey sandy GRAVEI content. Sand is medium e subrounded.	_ with a medium to to coarse. Gravel is			76.91	Moderate)	AA185473	В	1.40-1.50		
2.0												
3.0												
	ndwater Cond											
	erate flow at 1.	/Um										
<b>Stabi</b> Unsta		collapse from 0.70m										
	eral Remarks otprint scanne	d using cable avoidance	tool [CAT]. Pit backfi	lled with a	arisings.	Soakaw	ay test c	arried out i	n pit.			



REPORT NUMBER

24330

1337								24.	330	
CONTRACT Halverstown						TRIAL P	IT NO.		P06	
LOGGED BY MB	CO-ORDINAT	ES	686,44	17.22 E		DATE ST	TARTED		et 1 of 1 0/2022	
EGGGED B1 WID	GROUND LEV	/EL (m)	83.45	68.69 N		DATE CO			0/2022	
CLIENT Engineer doba		(,				METHOE		7t Hi	acni	
							Sample	S		ter
					Φ				Vane Test (KPa)	Hand Penetrometer (KPa)
Geotechnical Description		p p	_	tion	Water Strike	e			Test	Pene
		Legend	Depth (m)	Elevation	Wate	Sample Ref	Туре	Depth	Vane	Hand (KPa)
TOPSOIL: Soft brown sandy CLAY with roof fine to coarse.	otlets. Sand is	7 1/2 1/2 1/2 1/2 1/2 1/2 1/2 1/2 1/2 1/2								
		\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	0.30	83.15						
Firm brown sandy gravelly CLAY. Sand is Gravel is fine to coarse subrounded.	fine to coarse.									
		<u> </u>				AA181953	В	0.50-0.50		
1.0										
Grev brown gravelly silty SAND with a low	cobble content.	© ^	1.20	82.25						
Grey brown gravelly silty SAND with a low Sand is fine to coarse. Gravel is fine to coat to subrounded. Cobbles are subrounded to	arse subangular o rounded of	. XO								
limestone		\$ 0				AA181954	В	1.50-1.50		
		× ×								
		\$ ×	2.00	81.45						
End of Trial Pit at 2.00m			2.00	01.40						
3.0										
Groundwater Conditions										
Dry										
Stability Good										
Conoral Pamarka										
General Remarks  Pit footprint scanned using cable avoidance tool	[CAT]. Pit backfil	led with a	arisings.	Soakawa	ay test c	arried out i	in pit.			



REPORT NUMBER

03	337	'	RIAL PIT I	RECO	ΚD					243	330	
CON	TRACT	Halverstown						TRIAL PI	T NO.	SAT Shee	<b>P07</b> t 1 of 1	
LOG	GED BY	MB	CO-ORDINATI	ES	686,66 719,56	60.25 E 66.88 N		DATE ST		11/10	)/2022 )/2022	
CLIE	NT INEER	DOBA	GROUND LEV	/EL (m)	82.86			EXCAVA METHOD		7t Hit	achi	
								;	Samples		a)	neter
		Geotechnical Description		Legend	Depth (m)	Elevation	Water Strike	Sample Ref	Туре	Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0	TOPSO	DIL: Soft brown sandy CLAY with roo coarse.	tlets. Sand is	7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7								
- - - -	Firm to Sand is subrou	stiff brown grey sandy slightly grave s fine to coarse. Gravel is fine to coar nded.	lly silty CLAY.	  XO	0.40	82.46		AA18549 <b>2</b>	В	0.50-0.60		
- - - - -	coarse	stiff brown sandy gravelly CLAY with content and low boulder content. Sa . Gravel is fine to coarse subrounded rs are subrounded to rounded of lime	<ol> <li>Cobbles and</li> </ol>		1.00	81.86						
- - - - - 2.0								AA185493	В	1.50-1.60		
- - - -	End of	Trial Pit at 2.20m		<u> </u>	2.20	80.66						
- 3.0 - -												
- - - - -												
<b>Grou</b> Dry	ındwater	Conditions		,				'		,	,	
Stab Good	<b>ility</b>	ity										
	eral Remo	arks canned using cable avoidance tool [(	CAT]. Pit backfill	ed with a	ırisings.	Soakawa	ıy test c	arried out i	n pit.			

IGSL TP LOG 24330.GPJ IGSL.GDT 31/1/23



REPORT NUMBER

24330

03	33L								24.	330	
CON	ITRACT Halverstown						TRIAL PI	T NO.		P08	
		CO-ORDINAT	ES	686,60	06.50 E		DATE ST	ARTED		et 1 of 1 0/2022	
LOG	GED BY MB	000111101151	· ( )		38.77 N			<b>DMPLETED</b> 10/10/2			
CLIE ENG	ENT INEER DOBA	GROUND LE	VEL (M)	79.00			EXCAVATION METHOD		7t Hit	tachi	
							5	Samples	S		eter
	Control mind Description					e)				(КРа	etrom
	Geotechnical Description		Legend	Depth (m)	Elevation	Water Strike	Sample Ref	Type	Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0	TOPSOIL: Soft dark brown very sandy sligh CLAY. Sand is fine to coarse. Gravel is fine	tly gravelly to medium	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1								
	subrounded.  Firm grey very sandy slightly gravelly SILT.	Sand is fine to	1/ 1/ 1/ 1/   1/ 1/ 1/ 1/   × <sub>0</sub> × × × × × × × × × × × × ×	0.30	78.70						
	coarse. Gravel is fine to coarse subrounded	l.	× × ×				AA181951	В	0.50-0.50		
			* × × × × × × × × × × × ×								
	Firm to stiff light grey mottled orange slightly gravelly SILT with a low cobble content. Sar	/ sandy nd is fine to	× Q × ;	0.80	78.20						
.0	coarse. Gravel is fine to coarse subangular subrounded. Cobbles are subrounded to rou	to	× ·× · · · · · · · · · · · · · · · · ·								
	limestone		× × × ×	,							
			× × × -								
			× 0 × 2	2			AA181952	В	1.50-1.50		
	End of Trial Pit at 1.80m		× × ×	1.80	77.20						
2.0											
3.0											
<b>Gro</b> u Ory	undwater Conditions										
Stab	ility d										
300	u										
	eral Remarks potprint scanned using cable avoidance tool [C	CAT]. Pit backfil	led with a	arisings.	Soakawa	ay test o	carried out in	n pit.			



REPORT NUMBER

24330

CON	TRACT Halverstown	1					TRIAL PI	IT NO.	SAT Shee	<b>P09</b> t 1 of 1	
LOG	GED BY MB	CO-ORDINAT		719,64	00.38 E 48.21 N		DATE ST		11/10	)/2022 )/2022	
CLIE	NT NEER DOBA	GROUND LEV	/EL (m)	81.64			EXCAVA METHOD		7t Hit	achi	
								Samples	5	<sup>5</sup> a)	meter
	Geotechnical Description		Legend	Depth (m)	Elevation	Water Strike	Sample Ref	Туре	Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0	TOPSOIL: Soft brown sandy CLAY with root fine to coarse.	lets. Sand is	7 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1								
- -	Stiff grey mottled orange sandy slightly grave Sand is fine to coarse. Gravel is fine to coars subrounded.	elly SILT. se	\(\frac{1}{2}\frac{1}{	0.30	81.34		AA185494	В	0.50-0.60		
1.0	Grey brown gravelly silty SAND with a low or Sand is fine to coarse. Gravel is fine to coars to subrounded. Cobbles are subrounded to limestone	se subangular	×0.00	0.80	80.84						
	O''' have a see the recently O'U.T. O see this first to a see see		\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	1.80	79.84		AA185495	В	1.40-1.50		
- 2.0 - - -	Stiff brown sandy gravelly SILT. Sand is fine Gravel is fine to coarse subangular to subro End of Trial Pit at 2.00m	to coarse. unded	× × × ×	2.00	79.64		AA185496	В	1.90-1.90		
- - - - 3.0 -											
- - - -											
Dry	Indwater Conditions										
Stab Good											
	eral Remarks otprint scanned using cable avoidance tool [C	CAT]. Pit backfil	led with a	arisings.	Soakawa	ay test o	arried out i	n pit.			



(B)	331/	RIAL PIT	RECO	ΚD					24	330	
CON	ITRACT Halverstown						TRIAL P	PIT NO.		<b>TP10</b> et 1 of 1	
LOC	GGED BY MB	CO-ORDINAT	ES	686,55 719,84	56.72 E 45.83 N		DATE S		14/1	0/2022 0/2022	
CLI	ENT DOBA	GROUND LEV	/EL (m)	83.88			EXCAV/ METHO		7t H	itachi	
								Sample	s	<b>'</b> a)	meter
	Geotechnical Description		Legend	Depth (m)	Elevation	Water Strike	Sample Ref	Туре	Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0	TOPSOIL: Soft brown slightly gravelly sandy s Sand is fine to coarse. Gravel is fine to mediu subrounded.	silty CLAY. ım	717 717 7 717 71	0.30	83.58						
-	Stiff brown slightly gravelly sandy silty CLAY v medium cobble content. Sand is fine to coarse fine to coarse subrounded. Cobbles are subrounded of limestone.	with a e. Gravel is ounded to		0.30	63.36						
1.0	Firm to stiff brown very sandy gravelly CLAY we medium cobble content. Sand is fine to coarse fine to coarse subrounded. Cobbles are subrounded of limestone.	with a e. Gravel is ounded to		0.80	83.08						
- - -	End of Trial Pit at 1.60m		\$   \$   C	1.60	82.28						
2.0											
- - - -											
3.0											
- - - -											
	undwater Conditions										
Stat Goo											
	eral Remarks ootprint scanned using cable avoidance tool [CA	AT]. Pit backfil	led with a	risings.							



1837	IRIAL PII	RECO	KD					24	330	
CONTRACT Halverstown						TRIAL F	PIT NO.		<b>ΓΡ11</b> et 1 of 1	
LOGGED BY MB	CO-ORDINAT		686,59 719,78	51.16 E 88.98 N			TARTED OMPLET	14/1	0/2022 0/2022	
CLIENT ENGINEER DOBA	GROUND LE	VEL (m)	84.24			EXCAV/ METHO		7t Hi	tachi	
							Samples		a)	neter
Geotechnical Description	on	Legend	Depth (m)	Elevation	Water Strike	Sample Ref	Туре	Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
TOPSOIL: Soft brown sandy gravelly CL to coarse. Gravel is fine to medium subrest of the coarse. Gravel is fine to medium subrest of the coarse. Gravelly silty CLAY with cobble content. Sand is fine to coarse. Gravelly subrounded. Cobbles are subrounded immestone.	th a medium Gravel is fine to		0.40	83.84						
Firm brown very sandy gravelly CLAY w cobble content. Sand is fine to coarse. C coarse subrounded. Cobbles are subrou of limestone.	vith a medium Gravel is fine to unded to rounded		1.20	83.04						
End of Trial Pit at 1.80m			1.80	82.44						
-3.0										
Groundwater Conditions Dry				l		<u> </u>	<u> </u>		I	
Stability Good										
Stability Good  General Remarks Pit footprint scanned using cable avoidance to	ol [CAT]. Pit backfi	lled with a	arisings.							



REPORT NUMBER

24330

100	937								2 1	500	
CONTRACT Halverstown						TRIAL PIT NO.		SATP12			
LOGGED BY MB		CO-ORDINATES		686,504.63 E 719,684.44 N			DATE STARTED DATE COMPLETE				
CLIE	ENT	GROUND LEVEL (m)		84.32						Hitachi	
	INEER DOBA						METHOD				
				Depth (m)	Elevation	Water Strike	Samples		i	a)	meter
	Geotechnical Description		Legend				Sample Ref	Type	Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0	TOPSOIL: Soft brown sandy CLAY with rootlets. Sand is fine to coarse.  Firm brown sandy silty CLAY. Sand is fine to coarse.			0.40	83.92						
- - - - 1.0				1.20	83.12		AA181955	В	0.70-0.70		
- - - -	Grey brown gravelly silty SAND with a mediu content. Sand is fine to coarse. Gravel is fine subangular to subrounded. Cobbles are subrounded of limestone	e to coarse	0×0×0 ×0 0 0				AA181956	В	1.60-1.70		
2.0 - - -	End of Trial Pit at 2.20m			2.20	82.12						
- - -											
- - 3.0 -											
- - -											
- - -	and the state of t										
Dry	undwater Conditions										
Stah	ility										

Stability Good

IGSL TP LOG 24330.GPJ IGSL.GDT 31/1/23

General Remarks
Pit footprint scanned using cable avoidance tool [CAT]. Pit backfilled with arisings. Soakaway test carried out in pit.



REPORT NUMBER

24330

1831								24330				
CONTRACT Halverstown TRIAL PIT NO.									SATP13			
LOCOED DV MD		<b>CO-ORDINATES</b> 686,248.39 E				DATE STARTE		Sheet 1 of 1 14/10/2022				
LOG	GED BY MB	CDOUND LE			719,737.26 N					14/10/2022		
CLIENT ENGINEER DOBA		GROUND LEVEL (m)		81.66			EXCAVATION 7t Hit METHOD			achi		
							Samples		s	<u> </u>	eter	
	Geotechnical Description					ð				(KPa	etrom	
	Geoleciilleai Description		Legend	Depth (m)	Elevation	Water Strike	Sample Ref	Type	Depth	Vane Test (KPa)	Hand Penetrometer (KPa)	
0.0	TOPSOIL: Soft brown slightly gravelly sandy Sand is fine to coarse. Gravel is fine to med subrounded.	y silty CLAY. lium	1/ - 7/ 1/ - 7/ - 7/ 1/ - 7/ 1/									
	Stiff brown slightly gravelly sandy CLAY. Sa coarse. Gravel is fine to coarse subrounded	nd is fine to	\\ \( \lambda \) \\ \(	0.30	81.36							
	coarse. Gravel is tine to coarse subrounded						AA181981	В	0.50-0.60			
				0.80	80.86							
	Firm to stiff brown very sandy gravelly CLAY with a medium cobble content. Sand is fine to coarse. Gravel is fine to coarse subrounded to			0.00	00.00							
.0	rounded of limestone.	rounaea to										
			9 - 0				AA181982	В	1.50-1.60			
	End of Trial Pit at 1.50m			1.60	80.06							
.0												
3.0												
àrou	Indwater Conditions										<u> </u>	
Ory												
Stab Good	ility d											
	eral Remarks potprint scanned using cable avoidance tool [0]	CATI. Pit backfi	lled with :	arisinas	Soakawa	av test c	carried out i	n pit.				
	22 200.00 0.00	. 1	22 2000		2	,		h				

SA01 - 1 of 2



SA01 – 2 of 2



SA02 - 1 of 2



SA02 - 2 of 2



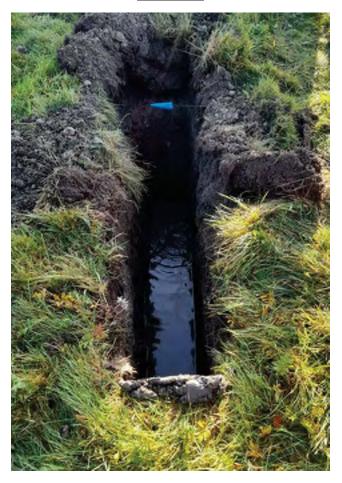
SA03 1 of 2



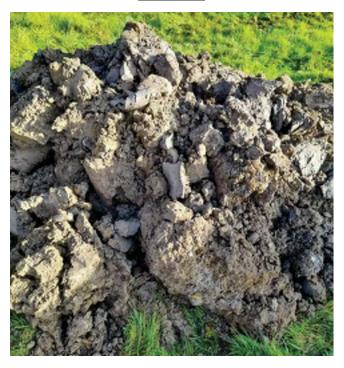
SA03 2 of 2



SA04 1 of 2



SA04 2 of 2



SA05 1 of 2



SA05 2 of 2



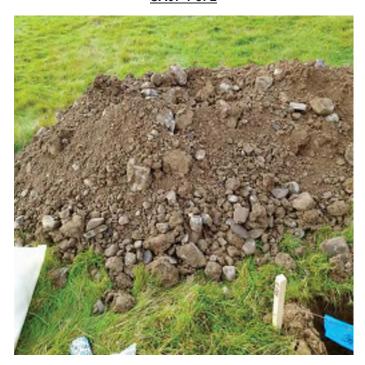
SA06 1 of 2



SA06 2 of 2



SA07 1 of 2



SA07 2 of 2



SA08 1 of 2



SA08 2 of 2



SA09 1 of 2



SA09 2 of 2



SA10 1 of 2



<u>SA10 2 of 2</u>



SA11 1 of 2



SA11 2 of 2



SA12 1 of 2



SA12 2 of 2



SA13 1 of 2



SA13 2 of 2



## Appendix 5A

Soakaway Test Records (BRE SA)

	ay Desig	1 1 46	iluc III	om field	tests		(F2C) <b>IGS</b>
ontract:	Halverstown					Contract No.	24330
est No. lient	BRE SA01 DOBA						
ate:	28/04/202	3					
	round condition						
from	to	7	Description	1			Ground water
0.00	0.15	TOPSOIL: Firm			vith roolets.		
0.15	0.60					casional cobbles.	
0.60	1.00	Soft to firm br					water seepage
1.00	2.00					, occ. boulders.	2.8m
2.00	2.40					bles, some boulders	S.
2.40	2.80	Grey sandy cla			cobbles and so	ome boulders.	
otes:	For full strata	a description ple	ase see TP	Logs.			
eld Data				Field Test			
Depth to	Elapsed	7		Depth of Pi	t (D)	2.80	m
Water	Time			Width of Pi	· /	0.70	m
(m)	(min)			Length of F	<b>\</b>	2.20	m
				-	'		<u> </u>
2.47	0.00			Initial depth	n to Water =	2.47	m
2.47	1.00	_		Final depth		2.49	m
2.47	2.00			Elapsed tim	ie (mins)=	30.00	
2.47	3.00	_					_
2.48	4.00	4		Top of perr			— <sup>m</sup>
2.48	5.00	_		Base of per	meable soil		m
2.48	6.00 7.00	4					
2.48	8.00	-					
2.48	9.00	-					
2.48	10.00	1		Base area=		1.54	m2
2.49	12.00	*Av. side area	of permeal	ble stratum o	ver test period		m2
2.49	14.00		·	Total Expos	sed area =	3.396	m2
2.49	16.00						
2.49	18.00						
2.49	20.00	Infiltration rate	e (f) =	Volume of	water used/ur	it exposed area /	unit time
2.49	25.00		0.000	7 (i		E 020C1E 0	· · · · / · · · ·
2.49	30.00	f=	0.000	3 m/min	or	5.03861E-0	6 m/sec
		Depth of	f water vs E	Elapsed Time (	(mins)		
	35.00						
ins)	30.00					•	
e e	25.00					•	
E E 2	20.00				<b>*</b>		
. <b>B</b> 1	5.00				•		
)Sd					*		
Ea	0.00						
	5.00		-	•			
	0.00						
	2.47	2.47	2.48	2.48	2.49	2.49	2.50
	==			h to Water (n		· <del>-</del>	

### f -value from field tests Soakaway Design (F2C) IGS Contract: Halverstown Contract No. 24330 BRE SA06\_A Test No. Client **DOBA** Date: 26/04/2023 Summary of ground conditions **Ground water** from to Description 0.00 0.10 TOPSOIL: Soft brown sandy clay. 0.10 0.65 Firm brown sandy CLAY. 0.65 1.40 Firm to stiff sandy gravelly CLAY with low cobble content. water seepage at 1.40 2.25 Firm brown sandy gravelly CLAY with some cobbles and rare boulders. 2.5m 2.25 3.10 Stiff grey slightly sandy very gravelly CLAY with some cobbles. 3.10 3.30 Very stiff grey sandy gravelly CALY with some cobbles occ. boulders. Notes: For full strata description please see TP Logs. Due to the instability of the side walls, a new zero was set after six minutes (BRE SA6\_A1). Field Data Field Test Depth to Elapsed Depth of Pit (D) 3.30 Water Time Width of Pit (B) 0.70 m (min) Length of Pit (L) 2.40 (m) m 2.66 0.00 2.66 Initial depth to Water = m 2.64 2.65 1.00 Final depth to water = 2.64 2.00 Elapsed time (mins)= 6.00 2.64 3.00 2.64 4.00 Top of permeable soil m 5.00 Base of permeable soil 2.64 6.00 2.64 Base area= 1.68 m2 m2 \*Av. side area of permeable stratum over test period 4.03 Total Exposed area = 5.71 m2 Infiltration rate (f) = Volume of water used/unit exposed area / unit time -0.001 m/min -1.635E-05 m/sec or Depth of water vs Elapsed Time (mins) 7.00 6.00 Elapsed Time(mins) 5.00 4.00 Ε 3.00 2.00 1.00 0.00 2.64 2.64 2.65 2.65 2.66 2.66 2.67 Depth to Water (m)

OGGRAVI	ay Desigı	n f -value from field tests	(F2C) <b>IGSL</b>
Contract:	Halverstown	Contract No.	24330
est No.	BRE SA06_A1		
Client	DOBA		
Date:	26/04/2023		
	round condition		
from	to	Description	Ground water
0.00	0.10	TOPSOIL: Soft brown sandy clay.	-
0.10	0.65	Firm brown sandy CLAY.	-
0.65	1.40 2.25	Firm to stiff sandy gravelly CLAY with low cobble content.  Firm brown sandy gravelly CLAY with some cobbles and rare boulders	water seepage a 2.5m
1.40			2.3111
2.25 3.10	3.10	Stiff grey slightly sandy very gravelly CLAY with some cobbles.	4
Notes:		Very stiff grey sandy gravelly CALY with some cobbles occ. boulders description please see TP Logs.	· <u> </u>
iotes.		stability of the side walls, a new zero was set after six minutes (BRE SA	۸6 ۸1)
ield Data	Due to the ins	Field Test	40_A1).
		<u></u>	
Depth to	Elapsed	Depth of Pit (D) 3.30	m
Water	Time	Width of Pit (B) 0.70	m
(m)	(min)	Length of Pit (L) 2.40	m
• •			<b>-</b>
2.55	0.00	Initial depth to Water = 2.55	m
2.55	1.00	Final depth to water = 2.53	m
2.55	2.00	Elapsed time (mins)= 18.00	7
2.55	3.00		<del>_</del>
2.55	4.00	Top of permeable soil	m
2.55	5.00	Base of permeable soil	m
2.55	6.00		_
2.55	7.00		
2.54	8.00		
2.54	9.00		_
2.54	10.00	Base area= 1.68	m2
2.53	12.00	*Av. side area of permeable stratum over test period 4.712	m2
2.53	14.00	Total Exposed area = 6.392	m2
2.53	16.00		
2.53	18.00		/
	<del> </del>	Infiltration rate (f) = Volume of water used/unit exposed area	/ unit time
		f= -0.0003 m/min or -4.867E-06	m/sec
	•	Depth of water vs Elapsed Time (mins)	
_ 18	0.00 8.00 6.00	<b>*</b>	
<b>Έ</b> ,1∠	4.00	<b>*</b>	_
$\sim$	2.00	•	
12 12	0.00	<b>*</b>	
E <b>H</b> 10	I		1
E <b>H</b> 12	8.00	•	
ا labsed Time ا labsed Time	8.00	*	
lapsed Time	8.00		
2	8.00 6.00 4.00 2.00		
2	8.00 6.00 4.00	2.53 2.54 2.54 2.55 2.55	2.56



REPORT NUMBER

24330

-													
CON	CONTRACT Halverstown							TRIAL P - SHEET	IT NO.		BRE SA01 Sheet 1 of 1		
LOG	GED BY	IC	CO-ORDINAT	719,888.50 N			DATE ST		28/04/2023 28/04/2023				
	CLIENT ENGINEER DOBA			GROUND LEVEL (m)		84.73			EXCAVATION METHOD				
									Samples		a)	neter	
		Geotechnical Description		Legend	Depth (m)	Elevation	Water Strike	Sample Ref	Туре	Depth	Vane Test (KPa)	Hand Penetrometer (KPa)	
0.0	TOPSOIL: Firm light brown sandy clay with roolets. Sand is fine to coarse.  Firm light brown sandy slightly gravelly CLAY with occasional cobbles. Sand is fine to coarse. Gravel is fine to coarse rounded to subangular. Cobbles are rounded to subangular of limestone.			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0.15	84.58							
- - -								AA198241	В	0.50-0.50	110		
- ·	Soft to firm orangish brown mottled black slight gravelly CLAY with occasional cobbles. Sand coarse. Gravel is fine to coarse rounded to su		d is fine to subangular.	is fine to pangular.	0.60	84.13	,	AA 19024 I	Ь	0.50-0.50	95		
- - - - - - - -	Firm to medium fine to c subang	s are rounded to subangular of limes stiff light brown slightly sandy gravel a cobble content and occasional bou coarse. Gravel is fine to coarse roundular. Cobbles are rounded to subangue. Boulders are subrounded of lime	ravelly CLAY with boulders. Sand is rounded to bangular of		1.00	83.73	,	AA198242	В	1.50-1.50			
2.0 - -	cobble a coarse.	eyish brown sandy very gravelly CLA and medium boulder content. Sand i Gravel is fine to coarse rounded to s s are rounded to subangular of limes s are subrounded of limestone.	s fine to subangular.										
- ·	Brownis and me Gravel i	sh grey sandy clayey GRAVEL with h dium boulder content. Sand is fine to s fine to coarse rounded to subangu	coarse. lar. Cobbles		2.40	82.33		AA198243	В	2.50-2.50			
-	are rounded to subangular of limestone. Boul subrounded of limestone (up to 500mm).  End of Trial Pit at 2.80m		uiders are	206	2.80	81.93	(Seepage)	AA198244	В	2.80-2.80			
	<b>ndwater</b> age at 2.	Conditions 80m											

Groundwater Conditions
Seepage at 2.80m

Stability
Unstable from 2.00m

General Remarks
Pit footprint scanned using cable avoidance tool [CAT]. Shear vanes (set of three) carried out at 0.30m & 0.70m bgl. Soakaway test undertaken in pit (BRE SA01). Pit backfilled with arisings.



REPORT NUMBER

24330

CON	CONTRACT Halverstown							IT NO.	BRE SA02 Sheet 1 of 1		
LOG	GED BY IC	CO-ORDINAT	ES	686,13 719,8	34.44 E 03.48 N		DATE ST	TARTED OMPLET	28/04	1/2023 1/2023	
CLIE	NT NEER DOBA	GROUND LEV	GROUND LEVEL (m) 82.23				EXCAVATION METHOD			13t Tracked Excavator	
							Samples		1	а)	neter
	Geotechnical Description			Depth (m)	Elevation	Water Strike	Sample Ref	Туре	Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0	TOPSOIL: Firm light brown sandy clay with r is fine to coarse.				82.08						
	occasional cobbles. Sand is fine to coarse. On to coarse rounded to subangular. Cobbles a subangular of limestone.  Firm orangish brown sandy gravelly CLAY we subangular of limestone.	pint brown sandy slightly gravelly CLAY with onal cobbles. Sand is fine to coarse. Gravel is fine se rounded to subangular. Cobbles are rounded to pular of limestone.  angish brown sandy gravelly CLAY with occasional se. Sand is fine to coarse. Gravel is fine to coarse d to subangular. Cobbles are rounded to pular of limestone.  stiff light brown slightly sandy very gravelly CLAY edium cobble content and occasional boulders. If the to coarse rounded to pular. Cobbles are rounded to subangular of		0.50	81.73		AA198245	i В	0.50-0.50	90	
	with medium cobble content and occasional			1.30	80.93		AA198246	s В	1.50-1.50		
-	TP terminated due to rapid water flow End of Trial Pit at 2.60m			2.60	79.63	(Rapid)	AA198247	'В	2.30-2.30		
-3.0 - - - - - - -	ndwater Conditions										
Ranie	d water flow at 2.60m (rising 150mm after 14n	nin)									
Stabi Good											
	eral Remarks otprint scanned using cable avoidance tool [C	CAT]. Shear var	es (set c	of three)	carried o	ut at 0.3	80m bgl. Pi	t backfille	ed with aris	sings.	



REPORT NUMBER

24330

	TRACT Halverstown						SHEET		BRE SA03 Sheet 1 of 1		
LOGGED BY IC					686,050.77 E 719,689.75 N			TARTED OMPLET			
CLIE		GROUND LEVEL (m)		79.68			EXCAVATION METHOD		13t Tracked Excavator		
ENG	INEER DOBA										
								Samples	8	oa)	meter
	Geotechnical Description			Depth (m)	Elevation	Water Strike	Sample Ref	Туре	Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0	TOPSOIL: Firm brown sandy clay with roolet fine to coarse.  Firm brown sandy slightly gravelly CLAY with cobbles. Sand is fine to coarse. Gravel is fine rounded to subangular. Cobbles are rounded subangular of limestone.  Brownish grey very sandy GRAVEL with high medium boulder content, occasional pockets Sand is fine to coarse. Gravel is fine to coarse subangular. Cobbles are rounded to subang limestone. Boulders are subrounded of lime Possible gravelly sand).  Firm yellowish grey sandy very gravelly CLA' cobble and medium boulder content, frequer	n occasional e to coarse d to n cobble and of clay. e rounded to ular of stone. (	- 4 B 1 - 4 B 1 B 1 B 1 B 1 B 1 B 1 B 1 B 1 B 1 B	0.15 0.30	79.53 79.38 78.58		AA198249	В	0.50-0.50	87	
2.0	sand. Sand is fine to coarse. Gravel is fine to rounded to subangular. Cobbles are rounded subangular of limestone.  Grey sandy clayey GRAVEL with high cobble boulder content. Sand is fine to coarse. Gravel is fine to coarse.	coarse d to	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	2.00	77.68	(Seepage)	AA198248	В	1.50-1.50		
	coarse rounded to subangular. Cobbles are subangular of limestone. Boulders are subrollimestone.  TP terminated due to rapid water flow End of Trial Pit at 2.50m	rounded to		2.50	77.18	(Rapid)	AA198250	В	2.30-2.30		
3.0											

Seepage at 1.40, rapid water flow at 2.40m (rising 150mm in 4min)

Stability
Unstable, sidewall collapse from 0.40m

General Remarks
Pit footprint scanned using cable avoidance tool [CAT]. Shear vanes (set of three) carried out at 0.30m & 0.70m bgl. Pit backfilled with arisings.



REPORT NUMBER

24330

	CONTRACT Halverstown  CO-ORDINATES 686,270.92  CO-ORDINATES 719,493.31						TRIAL PI SHEET DATE ST	ARTED	Shee 28/04	Sheet 1 of 1 28/04/2023		
CLIE	<del></del>	GROUND LE	VEL (m)	78.31			EXCAVATION METHOD		13t T	13t Tracked Excavator		
ENG	INEER DOBA							Samples	6		ster	
	Geotechnical Descriptio	n	Legend	Depth (m)	Elevation	Water Strike	Sample Ref	Туре	Depth	Vane Test (KPa)	Hand Penetrometer (KPa)	
1.0	TOPSOIL: Firm brown sandy clay with refine to coarse.  Firm brown sandy slightly gravelly CLAY coarse. Gravel is fine to coarse rounded Grey sandy slightly clayey GRAVEL with content, some pockets of clay. Sand is fi Gravel is fine to coarse rounded to suba are rounded to subangular of limestone.	. Sand is fine to to subangular. high cobble ne to coarse. ngular. Cobbles		0.15		(Seepage)	AA198175	В	0.50-0.50	90		
2.0	Soft to firm dark grey slightly sandy very with high cobble content and occasional fine to coarse. Gravel is fine to coarse ro subangular. Cobbles are rounded to sub limestone. Boulders are subrounded of I	asional boulder. Sand is parse rounded to I to subangular of		1.20	77.11	(Seepage)	AA198177	В	1.50-1.50			
-3.0	End of Trial Pit at 3.00m			3.00	75.31		AA198178	В	2.50-2.50			
Stab Unst	table, sidewall collapse from 0.70m  eral Remarks  potprint scanned using cable avoidance to	ol [CAT]. Shear var	nes (set c	of three)	carried o	ut at 0.3	0m & 0.70	m bgl. P	it backfillec	l with		



REPORT NUMBER

24330

CON	TRACT Halverstown		CO-ORDINAT	FS	686,525.81 E			SHEET		Shee	t 1 of 1	<u> </u>
LOG	GED BY IC		CO-ORDINAT	E3		67.00 N		DATE STARTED DATE COMPLET			1/2023 1/2023	
CLIE	INT INEER DOBA		GROUND LE	GROUND LEVEL (m)				EXCAVATION METHOD		13t T Exca	racked vator	
	BOBA								Cample			ē
									Samples		(Ра)	romet
	Geotech	nical Description		Legend	Depth (m)	Elevation	Water Strike	Sample Ref	Туре	Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0	TOPSOIL: Firm brown sa	TOPSOIL: Firm brown sandy clay with roolets. Sand is ine to coarse.		7/1/2	0.15	78.69						
	Firm brown sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is fine to coarse rounded to subangular.			0.10	70.00					00		
	Brownish grey slightly gra occasional cobbles. Sand	ownish grey slightly gravelly slightly clayey SAND with casional cobbles. Sand is fine to coarse. Gravel is fine coarse rounded to subangular. Cobbles are rounded to		000	0.40	78.44		AA193198			68	
1.0	Greyish brown SAND with occasional cobbles. Sand is fine to coarse. Cobbles are rounded to subangular of limestone.			0.80	78.04		A 135130 B	В	0.70-0.70			
				0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1.70	77.14	(Moderate)	AA193199	В	1.40-1.40		
2.0	TP terminated due to ma End of Trial Pit at 1.70m	jor instability					(Moderate)					
3.0												
	Indwater Conditions erate flow at 1.70m											
<b>Stabi</b> Unsta	<b>ility</b> able from 0.60m											
	eral Remarks potprint scanned using cabl	e avoidance tool [0	CAT]. Shear var	nes (set c	of three)	carried c	out at 0.3	B0m bgl. Pit	backfill	ed with aris	ings.	



REPORT NUMBER

24330

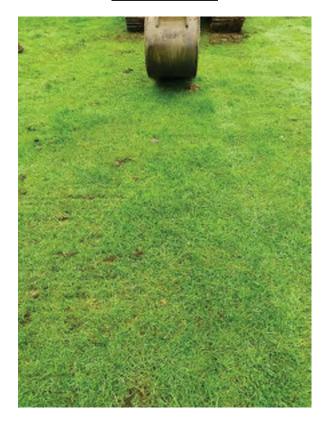
CONTRACT Halverstown							IT NO.	BRE SA06 Sheet 1 of 1		
LOGGED BY IC	CO-ORDINATI	ES		14.85 E 31.07 N			TARTED OMPLETI	26/04	1/2023	
CLIENT ENGINEER DOBA	GROUND LEV	EL (m)	82.55		EXCAVATION METHOD			13t Tracked Excavator		
							Samples		a)	neter
Geotechnical Description	on		Depth (m)	Elevation	Water Strike	Sample Ref	Туре	Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
TOPSOIL: Soft brown sandy clay with roole to coarse.	71/2 ×11/2	0.10	82.45							
Firm brown sandy CLAY. Sand is fine to coa		0.65	81.90		AA198223	в В	0.50-0.50	78 97		
subrounded to subangular.	Sand is fine to medium. Gravel is fine to medium subrounded to subangular.			21 15	,	AA198224	В	0.90-0.90	<b>.</b>	
Soft to firm light brown mottled golden brow sandy gravelly CLAY with occasional pocke medium cobble content and rare boulders. coarse. Gravel is fine to medium subrounde subangular. Cobbles are rounded to subang limestone. Boulders are subrounded of lime 300mm).	ts of sand, Sand is fine to ed to gular of		1.40	81.15		<b>A</b> A198225	i В	1.70-1.70		
Stiff occasionally very stiff grey slightly sand CLAY with medium cobble content. Sand is Gravel is fine to coarse subrounded to suba Cobbles are rounded to subangular of limes mudstone.	fine to coarse. ingular.		2.25	80.30	(Seepage)	AA198226	s В	2.30-2.30		
Very stiff dark grey slightly sandy gravelly C medium cobble content and occasional bou fine to coarse. Gravel is fine to coarse suba angular. Cobbles are subangular of limesto are subrounded of limestone (up to 500mm End of Trial Pit at 3.30m	lders. Sand is ngular to ne. Boulder /		3.10 3.30	79.45 79.25		<b>A</b> A198227	В	3.20-3.20		
Groundwater Conditions										

Groundwater Conditions
Seepage at 2.50m

Stability
Slightly unstable from 1.25m

General Remarks
Pit footprint scanned using cable avoidance tool [CAT]. Shear vanes (set of three) carried out at 0.30m & 0.90m bgl. Soakaway tests (BRE SA01) carried out in pit. Pit backfilled with arisings.

BRE SA01 – 1 of 5



BRE SA01 – 2 of 5



BRE SA01 – 3 of 5



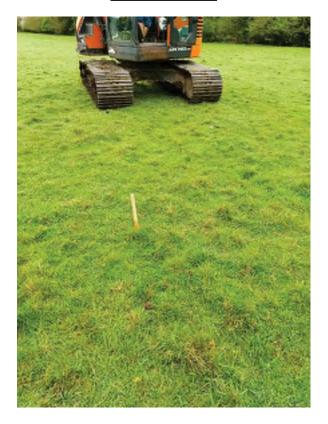
BRE SA01 – 4 of 5



BRE SA01 – 5 of 5



BRE SA02 – 1 of 4



BRE SA02 – 2 of 4



BRE SA02 – 3 of 4



BRE SA02 - 4 of 4



BRE SA03 – 1 of 5



BRE SA03 – 2 of 5



BRE SA03 – 3 of 5



BRE SA03 – 4 of 5



BRE SA03 – 5 of 5



BRE SA04 – 1 of 4



BRE SA04 – 2 of 4



BRE SA04 – 3 of 4



BRE SA04 – 4 of 4



BRE SA05 – 1 of 5



BRE SA05 – 2 of 5



BRE SA05 – 3 of 5



BRE SA05 – 4 of 5



BRE SA05 – 5 of 5



BRE SA06 – 1 of 4



BRE SA06 – 2 of 4



## BRE SA06 – 3 of 4



BRE SA06 – 4 of 4



## Appendix 6

## **Resistivity Survey**

6659d-005-Report

## Halverstown Data Centre Naas, Co. Kildare

# **Electrical Resistivity Testing**

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## **Confidential Report To:**

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## Report submitted by: Minerex Geophysics Limited

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Subsurface Geophysical Investigations

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#### 1. INTRODUCTION

#### 1.1 Background

Minerex Geophysics Ltd. (MGX) carried out Resistivity Testing using the Wenner electrode configuration with two different methods for the Halverstown Data Center in Naas, Co. Kildare. The survey was commissioned by IGSL who are the main ground investigation contractor for the project. Eight deep vertical electrical sounding (VES) and 18 shallow soil resistivity (SR) tests were carried out. The coordinate system used on this site was Irish Transverse Mercator (ITM).

The test sequence was conducted as part of the overall ground investigation programme for the development of the data center. The purpose of the survey was to provide information to be used in the design and construction phases of the project.

These tests are conducted in order to increase the knowledge of the resistivity of the soil and rock and to assist with the design and installation of earthing systems and underground cabling systems. Soil resistivity depends on a number of factors like soil type, mineral content, temperature, moisture, salt content and compaction.

The methodology specified here encompasses onsite in–situ measurements and the presentation of the results, but does not include the design of the earthing or cabling system.

#### 1.2 Objectives

The main objective of the geophysical survey was:

To determine the electrical resistivity at a range of depths for each location

#### 1.3 Site Description

The site is shown on Map 1 and the area consists of unused agricultural land.

#### 1.4 Report

This report includes a location map of the resistivity testing locations and two tables of results. The client provided maps of the site and the digital versions were used as the background map in this report.

The indirect nature and the non-invasive survey methods must be taken into account when considering the results of this survey and Minerex Geophysics Limited, while using appropriate practice to execute the measurements and to present the data, give no guarantees in relation to the existing subsurface.

#### 2. TESTING ON SITE

#### 2.1 Methodology

The methodology consisted of using Vertical Electrical Sounding (VES) and Soil Resistivity (SR) in the Wenner electrode configuration at a range of electrode spacing agreed with the client prior to the fieldwork. The increase in the electrode spacing leads to an increase in the depth.

Two different electrical resistivity tests were used:

#### 1 VES - Vertical Electrical Sounding – Deep

Objective: Determine the resistivity for ground, soil and rock to a depth around 50m below ground level

(bgl) and also as two tests in two directions (check for anisotropy).

Purpose: This test is generally done to deliver values for the design of an earthing or grounding

system

Test Method: Four probe array in Wenner electrode configuration with expanding electrode spacing

Spacings: 1, 2, 3, 4, 5, 7, 10, 15, 20, 30, 40 and 50m

Directions: There are two tests done at each location in two orthogonal directions

Instrument: Tigre Resistivity Meter (high power)

Comment: This test includes the 'Soil Resistivity Test - Shallow' intrinsically

#### 2 SR - Soil Resistivity Test - Shallow

Objective: Determine the shallow soil around 1 – 3m bgl. In one direction

Purpose: This test is generally done to deliver values for the design of the cable system

Test Method: Four probe array in Wenner electrode configuration with three electrode spacings

Spacings: 1, 2 and 3m

Directions: The test is done in one direction

Instrument: Tigre or Megger Resistivity Meter

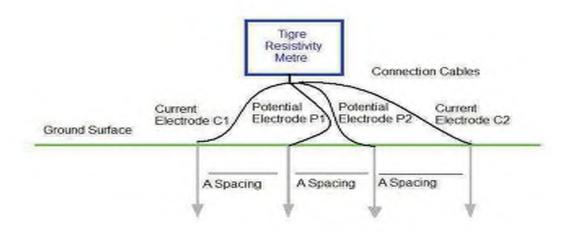
#### 2.2 Measurements

Eight Vertical Electrical Soundings were conducted at four locations on the site.

All measurements were acquired in accordance with Minerex Geophysics Ltd. procedures, protocols, QC procedures and in compliance with appropriate IEEE and British Standards. The relevant IEEE standards are 81-1983 part 1 – Guide to Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of Ground Systems (ANSI/IEEE Std 81-1983) for the resistivity testing (IEEE 1983).

The Vertical Electrical Sounding (VES) and the soil resistivity (SR) was conducted using a Tigre Resistivity Meter with variable current input, a suite of four cables and four stainless steel electrodes. This 'four probe array' is called a Wenner Array as the spacing (A) between the four electrodes was the same for each measurement. At each electrode spacing, the test resistance in Ohms ( $\Omega$ ) was recorded in a detailed field sheet for later office-based computing of ground resistivities.

Figure 1: Resistivity Testing using the Wenner Array.



#### 2.3 Testing Equipment

All equipment used was portable and intrinsically safe. The methods were non-destructive and non-intrusive. Only low voltage power requirements of 12 Volts or less were needed on site and were supplied by batteries. The following equipment was used:

- An ALLIED Tigre Resistivity Meter
- A suite of cables with 4 reels and distance marks for resistivity readings
- Stainless Steel Electrodes
- Measuring tapes
- Handheld GPS

Equipment checks and QC procedures were applied prior to the commencement of data acquisition.

#### 2.4 Site Work

The data acquisition was carried out on the  $9^{th} - 10^{th}$  of November 2022 in good weather conditions. Health and safety standards were adhered to at all times.

#### 3. RESULTS

The recorded test resistance in  $\Omega$  allows for the calculation of the resistivity value in  $\Omega$ m for each individual electrode spacing.

The resistivity at a given electrode spacing was calculated using the following formula:

 $\rho = 2^*\pi * A * R$ 

Where;

 $\rho$  = Resistivity in  $\Omega$ m

 $\pi = Pi = 3.141592$ 

A = electrode spacing in m

R = Measured Resistance value in  $\Omega$ 

The survey results with electrode spacing, resistances and resistivities are displayed in Table 1 for the VES and in Table 2 for the SR.

The resistivity values recorded at given electrode spacing can be allocated to approximate depth values. For the Wenner array the average resistivity taken at a particular A-spacing is equal to the average resistivity for a depth range between the ground surface and the A-spacing. Therefore, the average resistivity value recorded in the last column of Table 1 and 2 corresponds to the depth range between 0m bgl and the value in the first column. The depth mentioned in this report is given for visualisation purpose but may change when using the resistivity values in the design of the earthing system.

#### 4. REFERENCES

1. **IEEE**, 1983. ANSI/IEEE Std. 83-1983. IEEE Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potential of a Ground System. The Institute of Electrical and Electronics Engineers Inc.

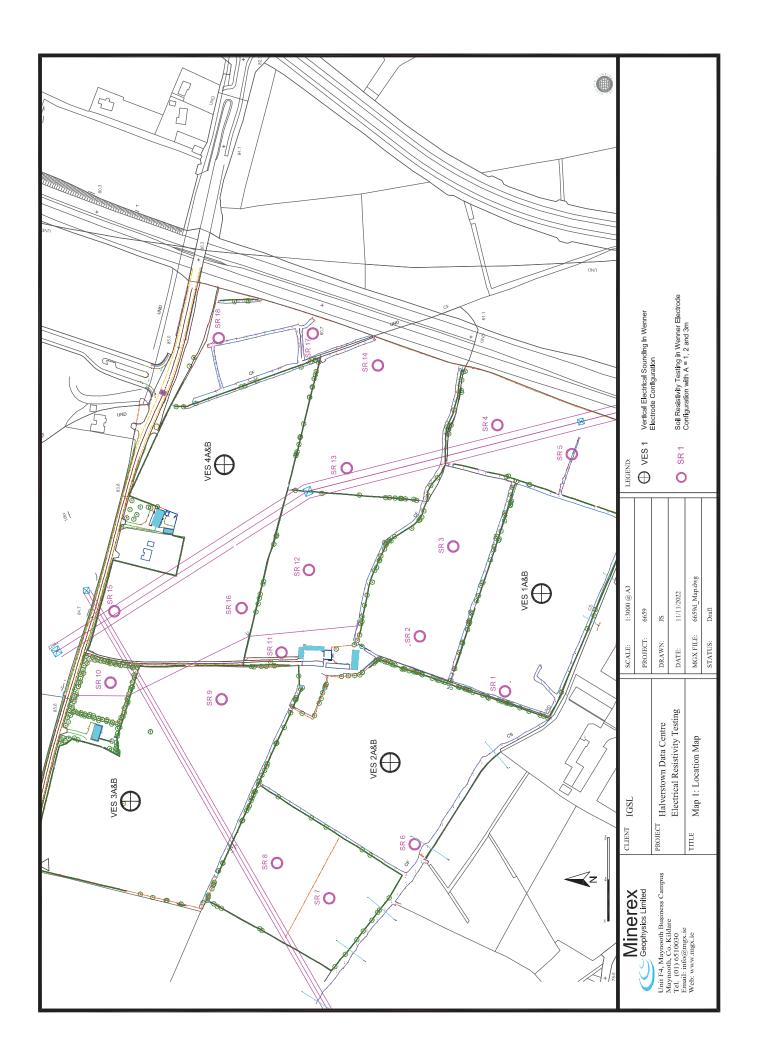


Table 1: VES Ground Resistivity Testing Results

Location:	Direction:	ITM Coordinates East:	ITM Coordinates North:	Elevation:	Date:
VES 1A	SW-NE	686430.5	719396.9	78.3 mOD	09/11/2022
Wenner Electrode Spacing a (m)	Inner Electrode P Distance to Centre (m)	Outer Electrode C Distance to Centre (m)	Total Distance (m)	Measured Resistance (Ω)	Apparent Resistivity (Ωm)
1	0.5	1.5	3	10.38	65
2	1	3	6	5.718	72
3	1.5	4.5	9	4.165	79
4	2	6	12	3.287	83
5	2.5	7.5	15	3.106	98
7	3.5	10.5	21	2.743	121
10	5	15	30	2.339	147
15	7.5	22.5	45	2.057	194
20	10	30	60	1.956	246
30	15	45	90	1.845	348
40	20	60	120	1.583	398
50	25	75	150	1.432	450

Table 1: VES Ground Resistivity Testing Results

Location:	Direction:	ITM Coordinates East:	ITM Coordinates North:	Elevation:	Date:
VES 1B	NW-SE	686430.5	719396.9	78.3 mOD	09/11/2022
Wenner Electrode Spacing a (m)	Inner Electrode P Distance to Centre (m)	Outer Electrode C Distance to Centre (m)	Total Distance (m)	Measured Resistance (Ω)	Apparent Resistivity (Ωm)
1	0.5	1.5	3	11.79	74
2	1	3	6	5.254	66
3	1.5	4.5	9	4.215	79
4	2	6	12	3.66	92
5	2.5	7.5	15	3.106	98
7	3.5	10.5	21	2.622	115
10	5	15	30	2.339	147
15	7.5	22.5	45	2.198	207
20	10	30	60	2.148	270
30	15	45	90	1.95	368
40	20	60	120	1.625	408
50	25	75	150	1.411	443

Table 1: VES Ground Resistivity Testing Results

Location:	Direction:	ITM Coordinates East:	ITM Coordinates North:	Elevation:	Date:
VES 2A	SW-NE	686228.8	719577.5	79.8 mOD	09/11/2022
Wenner Electrode Spacing a (m)	Inner Electrode P Distance to Centre (m)	Outer Electrode C Distance to Centre (m)	Total Distance (m)	Measured Resistance (Ω)	Apparent Resistivity (Ωm)
1	0.5	1.5	3	16.03	101
2	1	3	6	9.308	117
3	1.5	4.5	9	7.14	135
4	2	6	12	5.849	147
5	2.5	7.5	15	5.123	161
7	3.5	10.5	21	4.316	190
10	5	15	30	3.67	231
15	7.5	22.5	45	3.156	297
20	10	30	60	2.833	356
30	15	45	90	2.559	482
40	20	60	120	2.289	575
50	25	75	150	2.017	634

Table 1: VES Ground Resistivity Testing Results

Location:	Direction:	ITM Coordinates East:	ITM Coordinates North:	Elevation:	Date:
VES 2B	NW-SE	686228.8	719577.5	79.8 mOD	09/11/2022
Wenner Electrode Spacing a (m)	Inner Electrode P Distance to Centre (m)	Outer Electrode C Distance to Centre (m)	Total Distance (m)	Measured Resistance (Ω)	Apparent Resistivity (Ωm)
1	0.5	1.5	3	16.74	105
2	1	3	6	9.368	118
3	1.5	4.5	9	7.21	136
4	2	6	12	5.899	148
5	2.5	7.5	15	5.123	161
7	3.5	10.5	21	4.235	186
10	5	15	30	3.66	230
15	7.5	22.5	45	2.874	271
20	10	30	60	2.561	322
30	15	45	90	2.208	416
40	20	60	120	1.919	482
50	25	75	150	1.734	545

Table 1: VES Ground Resistivity Testing Results

Location:	Direction:	ITM Coordinates East:	ITM Coordinates North:	Elevation:	Date:
VES 3A	NW-SE	686182.6	719887.4	84.1 mOD	09/11/2022
Wenner Electrode Spacing a (m)	Inner Electrode P Distance to Centre (m)	Outer Electrode C Distance to Centre (m)	Total Distance (m)	Measured Resistance (Ω)	Apparent Resistivity (Ωm)
1	0.5	1.5	3	26.01	163
2	1	3	6	10.08	127
3	1.5	4.5	9	7.048	133
4	2	6	12	6.192	156
5	2.5	7.5	15	5.375	169
7	3.5	10.5	21	4.175	184
10	5	15	30	3.096	195
15	7.5	22.5	45	2.087	197
20	10	30	60	1.653	208
30	15	45	90	1.28	241
40	20	60	120	1.21	304
50	25	75	150	1.159	364

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Table 1: VES Ground Resistivity Testing Results

Location:	Direction:	ITM Coordinates East:	ITM Coordinates North:	Elevation:	Date:
VES 3B	SW-NE	686182.6	719887.4	84.1 mOD	09/11/2022
Wenner Electrode Spacing a (m)	Inner Electrode P Distance to Centre (m)	Outer Electrode C Distance to Centre (m)	Total Distance (m)	Measured Resistance (Ω)	Apparent Resistivity (Ωm)
1	0.5	1.5	3	25.29	159
2	1	3	6	10.38	130
3	1.5	4.5	9	6.815	128
4	2	6	12	5.546	139
5	2.5	7.5	15	4.921	155
7	3.5	10.5	21	4.134	182
10	5	15	30	3.136	197
15	7.5	22.5	45	2.168	204
20	10	30	60	1.593	200
30	15	45	90	1.23	232
40	20	60	120	1.149	289
50	25	75	150	1.139	358

Table 1: VES Ground Resistivity Testing Results

Location:	Direction:	ITM Coordinates East:	ITM Coordinates North:	Elevation:	Date:
VES 4A	S-N	686584.2	719775.4	83.7 mOD	10/11/2022
Wenner Electrode Spacing a (m)	Inner Electrode P Distance to Centre (m)	Outer Electrode C Distance to Centre (m)	Total Distance (m)	Measured Resistance (Ω)	Apparent Resistivity (Ωm)
1	0.5	1.5	3	16.14	101
2	1	3	6	10.28	129
3	1.5	4.5	9	7.5	141
4	2	6	12	6.373	160
5	2.5	7.5	15	5.38	169
7	3.5	10.5	21	4.397	193
10	5	15	30	3.72	234
15	7.5	22.5	45	3.108	293
20	10	30	60	2.64	332
30	15	45	90	2.117	399
40	20	60	120	1.93	485
50	25	75	150	1.835	576

Table 1: VES Ground Resistivity Testing Results

Location:	Direction:	ITM Coordinates East:	ITM Coordinates North:	Elevation:	Date:
VES 4B	E-W	686584.2	719775.4	83.7 mOD	10/11/2022
Wenner Electrode Spacing a (m)	Inner Electrode P Distance to Centre (m)	Outer Electrode C Distance to Centre (m)	Total Distance (m)	Measured Resistance (Ω)	Apparent Resistivity (Ωm)
1	0.5	1.5	3	17.44	110
2	1	3	6	10.8	136
3	1.5	4.5	9	7.957	150
4	2	6	12	6.55	165
5	2.5	7.5	15	5.677	178
7	3.5	10.5	21	4.42	194
10	5	15	30	3.64	229
15	7.5	22.5	45	3.065	289
20	10	30	60	2.62	329
30	15	45	90	2.218	418
40	20	60	120	1.936	487
50	25	75	150	1.79	562

Table 2: Soil Resistivity Testing Results

Test Name:	Elevation:	ITM Coordinates East:	ITM Coordinates North:	Date:	Instrument:
SR1	77.3	686313.7	719440.5	09/11/2022	Tigre
Wenner Electrode Spacing a (m)	Inner Electrode P Distance to Centre (m)	Outer Electrode C Distance to Centre (m)	Total Distance (m)	Measured Resistance (Ω)	Apparent Resistivity (Ωm)
1	0.5	1.5	3	9.328	59
2	1	3	6	5.506	69
3	1.5	4.5	9	4.044	76
Test Name:	Elevation:	ITM Coordinates East:	ITM Coordinates North:	Date:	Instrument:
SR2	80.2	686379.4	719542.2	09/11/2022	Tigre
Wenner Electrode Spacing a (m)	Inner Electrode P Distance to Centre (m)	Outer Electrode C Distance to Centre (m)	Total Distance (m)	Measured Resistance (Ω)	Apparent Resistivity (Ωm)
1	0.5	1.5	3	17.54	110
2	1	3	6	7.866	99
3	1.5	4.5	9	5.748	108
Test Name:	Elevation:	ITM Coordinates East:	ITM Coordinates North:	Date:	Instrument:
SR3	80.2	686486.7	719502.1	09/11/2022	Tigre
Wenner Electrode Spacing a (m)	Inner Electrode P Distance to Centre (m)	Outer Electrode C Distance to Centre (m)	Total Distance (m)	Measured Resistance (Ω)	Apparent Resistivity (Ωm)
1	0.5	1.5	3	18.35	115
2	1	3	6	9.681	122
3	1.5	4.5	9	6.363	120
Test Name:	Elevation:	ITM Coordinates East:	ITM Coordinates North:	Date:	Instrument:
SR4	80	686631.5	719449.5	09/11/2022	Tigre
Wenner Electrode Spacing a (m)	Inner Electrode P Distance to Centre (m)	Outer Electrode C Distance to Centre (m)	Total Distance (m)	Measured Resistance (Ω)	Apparent Resistivity (Ωm)
1	0.5	1.5	3	15.02	94
2	1	3	6	9.293	117
3	1.5	4.5	9	6.595	124

Table 2: Soil Resistivity Testing Results

Test Name:	Elevation:	ITM Coordinates East:	ITM Coordinates North:	Date:	Instrument:
SR5	79.1	686596.8	719360.7	09/11/2022	Tigre
Wenner Electrode Spacing a (m)	Inner Electrode P Distance to Centre (m)	Outer Electrode C Distance to Centre (m)	Total Distance (m)	Measured Resistance (Ω)	Apparent Resistivity (Ωm)
1	0.5	1.5	3	13.21	83
2	1	3	6	6.686	84
3	1.5	4.5	9	4.366	82
Test Name:	Elevation:	ITM Coordinates East:	ITM Coordinates North:	Date:	Instrument:
SR6	77.8	686131.3	719548.2	09/11/2022	Tigre
Wenner Electrode Spacing a (m)	Inner Electrode P Distance to Centre (m)	Outer Electrode C Distance to Centre (m)	Total Distance (m)	Measured Resistance (Ω)	Apparent Resistivity (Ωm)
1	0.5	1.5	3	20.27	127
2	1	3	6	11.69	147
3	1.5	4.5	9	8.531	161
Test Name:	Elevation:	ITM Coordinates East:	ITM Coordinates North:	Date:	Instrument:
SR7	79.3	686066.8	719650.2	09/11/2022	Tigre
Wenner Electrode Spacing a (m)	Inner Electrode P Distance to Centre (m)	Outer Electrode C Distance to Centre (m)	Total Distance (m)	Measured Resistance (Ω)	Apparent Resistivity (Ωm)
1	0.5	1.5	3	17.74	111
2	1	3	6	11.88	149
3	1.5	4.5	9	8.884	167
Test Name:	Elevation:	ITM Coordinates East:	ITM Coordinates North:	Date:	Instrument:
SR8	81	686108.8	719712.6	09/11/2022	Tigre
Wenner Electrode Spacing a (m)	Inner Electrode P Distance to Centre (m)	Outer Electrode C Distance to Centre (m)	Total Distance (m)	Measured Resistance (Ω)	Apparent Resistivity (Ωm)
1	0.5	1.5	3	15.93	100
2	1	3	6	9.651	121
3	1.5	4.5	9	7.362	139

Table 2: Soil Resistivity Testing Results

Test Name:	Elevation:	ITM Coordinates East:	ITM Coordinates North:	Date:	Instrument:
SR9	83.2	686304.3	719778.6	09/11/2022	Tigre
Wenner Electrode Spacing a (m)	Inner Electrode P Distance to Centre (m)	Outer Electrode C Distance to Centre (m)	Total Distance (m)	Measured Resistance (Ω)	Apparent Resistivity (Ωm)
1	0.5	1.5	3	24.7	155
2	1	3	6	12.2	153
3	1.5	4.5	9	8.632	163
Test Name:	Elevation:	ITM Coordinates East:	ITM Coordinates North:	Date:	Instrument:
SR10	85	686324.1	719911.2	09/11/2022	Tigre
Wenner Electrode Spacing a (m)	Inner Electrode P Distance to Centre (m)	Outer Electrode C Distance to Centre (m)	Total Distance (m)	Measured Resistance (Ω)	Apparent Resistivity (Ωm)
1	0.5	1.5	3	21.73	137
2	1	3	6	11.39	143
3	1.5	4.5	9	9.389	177
Test Name:	Elevation:	ITM Coordinates East:	ITM Coordinates North:	Date:	Instrument:
SR11	82.9	686360.1	719707.1	10/11/2022	Tigre
Wenner Electrode Spacing a (m)	Inner Electrode P Distance to Centre (m)	Outer Electrode C Distance to Centre (m)	Total Distance (m)	Measured Resistance (Ω)	Apparent Resistivity (Ωm)
1	0.5	1.5	3	14.11	89
2	1	3	6	9.681	122
3	1.5	4.5	9	7.311	138
Test Name:	Elevation:	ITM Coordinates East:	ITM Coordinates North:	Date:	Instrument:
SR12	83.7	686458.6	719674.4	10/11/2022	Tigre
Wenner Electrode Spacing a (m)	Inner Electrode P Distance to Centre (m)	Outer Electrode C Distance to Centre (m)	Total Distance (m)	Measured Resistance (Ω)	Apparent Resistivity (Ωm)
1	0.5	1.5	3	18.48	116
2	1	3	6	9.82	123
3	1.5	4.5	9	6.9	130

Table 2: Soil Resistivity Testing Results

Test Name:	Elevation:	ITM Coordinates East:	ITM Coordinates North:	Date:	Instrument:
SR13	83.7	686580.1	719629.3	10/11/2022	Tigre
Wenner Electrode Spacing a (m)	Inner Electrode P Distance to Centre (m)	Outer Electrode C Distance to Centre (m)	Total Distance (m)	Measured Resistance (Ω)	Apparent Resistivity (Ωm)
1	0.5	1.5	3	16.08	101
2	1	3	6	9.03	113
3	1.5	4.5	9	6.04	114
Test Name:	Elevation:	ITM Coordinates East:	ITM Coordinates North:	Date:	Instrument:
SR14	82.2	686702.7	719592.2	10/11/2022	Tigre
Wenner Electrode Spacing a (m)	Inner Electrode P Distance to Centre (m)	Outer Electrode C Distance to Centre (m)	Total Distance (m)	Measured Resistance (Ω)	Apparent Resistivity (Ωm)
1	0.5	1.5	3	13.71	86
2	1	3	6	8.219	103
3	1.5	4.5	9	6.287	119
Test Name:	Elevation:	ITM Coordinates East:	ITM Coordinates North:	Date:	Instrument:
SR15	85.1	686409.3	719906.7	10/11/2022	Tigre
Wenner Electrode Spacing a (m)	Inner Electrode P Distance to Centre (m)	Outer Electrode C Distance to Centre (m)	Total Distance (m)	Measured Resistance (Ω)	Apparent Resistivity (Ωm)
1	0.5	1.5	3	13	82
2	1	3	6	7.64	96
3	1.5	4.5	9	6.353	120
Test Name:	Elevation:	ITM Coordinates East:	ITM Coordinates North:	Date:	Instrument:
SR16	84.8	686413.1	719754.8	10/11/2022	Tigre
Wenner Electrode Spacing a (m)	Inner Electrode P Distance to Centre (m)	Outer Electrode C Distance to Centre (m)	Total Distance (m)	Measured Resistance (Ω)	Apparent Resistivity (Ωm)
1	0.5	1.5	3	26.2	165
2	1	3	6	13.4	168
3	1.5	4.5	9	8.85	167

Table 2: Soil Resistivity Testing Results

Test Name:	Elevation:	ITM Coordinates East:	ITM Coordinates North:	Date:	Instrument:
SR17	80.6	686740.8	719669.9	10/11/2022	Tigre
Wenner Electrode Spacing a (m)	Inner Electrode P Distance to Centre (m)	Outer Electrode C Distance to Centre (m)	Total Distance (m)	Measured Resistance (Ω)	Apparent Resistivity (Ωm)
1	0.5	1.5	3	15.02	94
2	1	3	6	8.54	107
3	1.5	4.5	9	6.13	116
Test Name:	Elevation:	ITM Coordinates East:	ITM Coordinates North:	Date:	Instrument:
SR18	80.6	686735.2	719782.1	10/11/2022	Tigre
Wenner Electrode Spacing a (m)	Inner Electrode P Distance to Centre (m)	Outer Electrode C Distance to Centre (m)	Total Distance (m)	Measured Resistance (Ω)	Apparent Resistivity (Ωm)
1	0.5	1.5	3	20.77	130
2	1	3	6	8.75	110
3	1.5	4.5	9	6.646	125

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### Appendix 7

**Rotary Drillhole Logs & Photographs** 



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1	-	7																
	NTR			lalve	rstown									ILLHO EET	LE NO	RC(	<b>01</b> et 1 of	3
			TES EVEL	(mO	686,38 719,85 <b>D)</b>				RIG TYPE FLUSH			GEO-20 Air/Mist	_	TE DRI			5/2023 5/2023	
- 1	IENT GINE		D	ОВА					INCLINATION CORE DIA		m)	-90		ILLED GGED			SL -D . O'Sh	
Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Frac Spa Lo (m 0 <sup>250</sup>	cing og m)	Non-intact Zone	Legend			Descripti	on			Depth (m)	Elevation	Standpipe Details	SPT (N Value)
1 2 3 5 6 6								——————————————————————————————————————	as returns boulders	RIX DRILL	NG: No reco	y silty sa	served by	with	5.00	80.33		N = 13 (1, 2, 3, 3, 4, 3) N = 22 (3, 4, 3, 5, 6, 8) N = 49 (4, 6, 8, 11, 14, 16) N = 28 (3, 3, 5, 7, 7, 9)
8								× × × × × × × × × × × × × × × × × × ×	as returns	of damp g	ING: No reci	andy, silt	y clayey G	RAVE	9.60	77.83		N = 16 (2, 3, 3, 3, 4, 6) N = 50 (4, 7, 10, 13, 12, 15)
RE	MAR	KS		<u> </u>	I			<del>×</del> ·:	as returns	or grey/bro	own gravelly	sandy S	ı∟I.		WA	L FER ST	L ΓRIKE	DETAILS
Ho			0.00-	14.80	)m					Water		Sealed	Rise	Tin	ne Co	mmen		
RE   HO    Z4330.GFJ   IGSL.GD    ////23										Strike 14.50	Depth 14.50	At N/S	То	(mi	m)	eepag		
24330															GRO	DUNDV	VATEF	R DETAILS
NS	STAL	LAT	ION D	ETA	ILS					Date	Hole	Casing		to C	omment			
SL RC FI	Date				RZ Top	RZ Base	Э	Тур	ре		Depth	Depth	vvate			-		
<u><u> </u></u>												1						



REPORT NUMBER

1	-																
CONT	rac	Γ	Halve	rstown									ILLHOL EET	E NO	RC(	<b>01</b> et 2 of	3
CO-O		ATES .EVEL		686,38 719,85 <b>D)</b>				RIG TYPE FLUSH			GEO-20	DA	TE DRIL		16/0	5/2023	3
CLIEN			OOBA					INCLINATION CORE DIA		m)	-90		ILLED B GGED B			SSL -D . O'She	
Downhole Depth (m)	Core nuil Deptin (iii)	S.C.R.%	R.Q.D.%	Lo	cing og m)	Non-intact Zone	Legend			Descrip	ition			Depth (m)	Elevation	Standpipe Details	SPT (N Value)
11							× × × 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	as returns	RIX DRILLI	ING: No re own clayey	covery, ob sandy coa	served by irse GRA\	driller /EL.	10.40	74.93		N = 65 (3, 5, 11, 14, 17, 23) N = 20/35 mm (7, 31, 20)
13								Returns of GRAVEL	f brown, sli with occass subangular.	sional cobb	y, clayey, n ole. Sand is	nedium to s fine to co	coarse parse,	14.80	70.53		N = 17/10 mm (33, 17)
117								SYMMETI as returns crystalline	RIX DRILLI s of possible calcite	NG: No re e weathere	covery, ob d / dolomit	served by ised rock	driller /	16.30	69.03		
REM/		0.00	1/ 0	Om.	I.				Water	Casing	Sealed	Rise	Time				DETAILS
Hole	case0	0.00-	۱4.۵۱	UITI					Strike 14.50	Depth 14.50	At N/S	To	(min	) S	ommen Geepag	je	
										Hole	Casina	Donth	to			NATER	RDETAILS
INSTA Da	<b>ALLA</b> ate			RZ Top	RZ Base	9	Ту	ре	Date	Depth	Casing Depth	Depth Wate	cr Co	mment	S		



REPORT NUMBER

1000																
CONTRAC	т н	lalve	rstown								DRILL SHEE	HOLE	NO	RC(	<b>)1</b> et 3 of	3
CO-ORDIN	ATES		686,38 719,85	0.19 E								DRILLE	ED.		5/2023	
GROUND L	EVEL	(mO		85.33			RIG TYPE FLUSH			GEO-205 Air/Mist	DATE	LOGGE	ED		5/2023	
CLIENT ENGINEER	D	OBA					INCLINATI	ON (deg) METER (mn		-90		ED BY			SL -DI O'She	
Core Run Depth (m)	S.C.R.%	R.Q.D.%	Frac Spa Lo (m	cing og m)	Non-intact Zone	Legend	SYMMET	RIX DRILLII	Description		erved by dr	iller	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
-21 -22 -23 -24 -25 -26 -27 -28							as returns crystalline	of Borehole	weathered	/ dolomitis	sed rock /		25.60	59.73		
REMARKS Hole cased		14.80	)m					Water Strike 14.50	Casing Depth 14.50	Sealed At N/S	Rise To	Time (min)	Co	mment <b>eepag</b>	ts e	DETAILS
INSTALLA	ח מסוד	ΕΤΔ	ILS					Date	Hole	Casing	Depth to	Com	ments		VAIEH	DETAILS
Date			RZ Top	RZ Base	9	Тур	oe	17-05-23	Depth 25.60	Depth 14.80	Water 3.50			corded 5	mins afte	er end of
			-									drilling				



REPORT NUMBER

10	33	25/																	
СО	NTR	ACT	Н	alve	rstown									DRII SHE	LLHOLE	NO		<b>01A</b> et 1 of	3
СО	-ORI	DINA	TES		686,38 719,85				DIO TVDE			050.6	·05		E DRILI	.ED		5/2023	
GR	OUN	ID LE	VEL	(mO		85.33			RIG TYPE FLUSH			GEO-2 Air/Mis		DAT	E LOGO	ED		5/2023	
- 1	GINE		D	ОВА	ı				CORE DIA		n)	-90			GED B			SL -D . O'She	
Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Frac Spa Lc (m 0 <sup>250</sup>	cing og m)	Non-intact Zone	Legend			Descrip	tion				Depth (m)	Elevation	Standpipe Details	SPT (N Value)
- 1 - 2 - 3 - 5 - 6 - 6 - 7 - 8 - 8 - 8 - 8 - 8 - 8 - 8 - 8 - 8	MAR		0.00-						SYMMETI as returns boulders	RIX DRILLI Of grey broom RIX DRILLI of grey broom RIX DRILLI of grey broom Water Strike 16.80	NG: No recover, sandy	covery, covery	obse obsessiti	rved by of AY with	driller RAVEL	9.60 WA	75.73 75.73 TER S	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	DETAILS
4330.GP.																GP4	אטוווטי	N∆TF5	RDETAILS
MS INS	STAL	LATI	ON D	ETA	ILS					Date	Hole Depth	Casi	ng	Depth t Water	Cor	nment		VAIE	LIAILO
E 10	Date			$\overline{}$	RZ Top			Typ 50mm			Debiii	Deb		770161					
ISSI IS	-03-2	دع	19.6	,0	5.00	19.60		JUITIO	i or										



REPORT NUMBER

(13	127																
CONT	TRAC	Г	Halve	rstown									LLHOLE	NO		<b>01A</b> et 2 of	3
co-o	RDIN	ATES		686,38 719,85				RIG TYPE			CEO 201	DA	TE DRILL			5/2023	
	JND L	EVEL	. (mO		85.33			FLUSH			GEO-205 Air/Mist	DA	TE LOGO			5/2023	
CLIEN	NT NEER		OOBA					INCLINATI	٠ ٠,	m)	-90		GGED B			SL -D . O'Sh	
Downhole Depth (m)	Core nuri Deptiri (iii)	S.C.R.%	R.Q.D.%	Frac Spa Lo (m	cing og m)	Non-intact Zone	Legend			Descrip	tion			Depth (m)	Elevation	Standpipe Details	SPT (N Value)
11 11 12 13 14								SYMMETI as returns	RIX DRILL s of grey/bro	ING: No re own clayey	covery, obs sandy coa	served by rse GRA\	driller /EL.	10.40	74.93		
115 116 117 118								Returns o GRAVEL. subangula crystalline	RIX DRILL s of grey bro b boulders.  f orange/br Sand is fir ar fine to co calcite. Po	own, slightl Sand is fin	y clayey, sie to coarse  y, gravelly e. Gravel is hly weathe ite-filled fa	CLAY to c angular to a gravel is a gravel in the served by the served by	avelayey o tone /	17.10	0 68.23		N = 28/40 mm (10, 22, 28) N = 23/20 mm (16, 27, 23)
									1								
	ARKS cased	0.00	.17 14	nm .					Water	Casing	Sealed	Rise	Time				DETAILS
TOTE (	oaseu	0.00	-17.1	VIII					Strike 16.80	Depth 16.80	At N/S	To	(min)	- 00	Seepag		
														GR	OUND	VATE	R DETAILS
	ALLA								Date	Hole Depth	Casing Depth	Depth Wate	to r Cor	nment	S		
Da 19-0	ate <b>5-23</b>	Tip [ 19.	_	5.00	19.60		Typ 50mn		_								
									1			1					



REPORT NUMBER

A	99	5																
СО	NTR	ACT	Н	alve	rstown								DRILI SHEE	HOLE	NO	RC(	<b>D1A</b> et 3 of	3
CO	-ORE	DINA.	TES		686,38	1.78 E								DRILL	ED		5/2023	
GR	OUN	D LE	VEL	(mO	719,859 <b>D)</b>	9.74 N 85.33			RIG TYPE FLUSH			GEO-205		LOGG			5/2023	
CLI	ENT			OBA					INCLINATI	ON (deg) METER (mr		Air/Mist -90		LED BY			SL -DI	
		<u>Ln</u>		OBA	· 				CORE DIA	WETEN (IIII	···)		LOGC	3LD D I		D.	O SHE	ta
Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Frac Spa Lc (m	cing og m)	Non-intact Zone	Legend			Descripti				Depth (m)	Elevation	Standpipe Details	SPT (N Value)
222 23 24 24 25 26 27 27 28 29									as returns crystalline	RIX DRILLII of possible of calcite (con		overy, obserock / dolo	erved by dr	ck /		63.33		
	MAR		000	17 11	)m					Water	Casing	Sealed	Rise	Time				DETAILS
HOl	e ca	sed (	).00-	17.1(	m					Strike	Depth	At	To	(min)		mmen		
										16.80	16.80	N/S			S	eepag	e	
												10-:			GRO	DUNDV	VATER	DETAILS
INS	TAL		ON D							Date	Hole Depth	Casing Depth	Depth to Water	Com	ments	S		
	Date -05-2		Гір D 19.6		RZ Top 5.00	RZ Base 19.60		Typ 50mn		19-05-23	22.00	17.10	6.00	Water		corded 5	mins afte	er end of
											1	1						



REPORT NUMBER

-	NTR	_	Н	alve	rstown									ORILLE		NO	RC	02	
СО	-ORI	DINA	TES		686,609 719,800	5.34 E 2.34 N			DIC TYPE			CEO 20	[	SHEET DATE D		ED	11/0	et 1 of 5/2023	3
			VEL	(mO		82.92			RIG TYPE FLUSH			GEO-20 Air/Mist	5 <u>[</u>	DATE L	.OGGI	ED		5/2023	
1	IENT GINE		D	ОВА					INCLINATI		n)	-90 78		ORILLE LOGGE				SSL -D . O'She	
Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Frac Spac Lo (mi	cing og m)	Non-intact Zone	Legend			Descripti	on				Depth (m)	Elevation	Standpipe Details	SPT (N Value)
1 2 3 4 4 5 5 6 7 7 8 9		0	0	0					as returns	RIX DRILLI	NG: No reco	overy, ob	served RAVEL.	by drill	ler				N = 21 (2, 3, 4, 5, 5, 7)
RE	MAR		0.00-	15 10	)m				•	Water	Casing	Sealed	Rise	· ·	Time				DETAILS
INS	ie Gal	seu (	J.UU-	10.10	лп					Strike 11.80	Depth 11.80	At N/S	To		(min)	_	mmen eepag		
																GRO	DUND\	NATER	RDETAILS
INS	TAL	LATI	ON D	ETA	ILS					Date	Hole Depth	Casing Depth		oth to ater	Com	ment	S		
	Date			$\overline{}$	RZ Top			Ту			Борит	Борит	1	.,					
12	-05-2	23	19.7	U	5.00	19.70		50mn	1 25										



REPORT NUMBER

CONTRACT Halverstown  CO-ORDINATES 686,605.34 E 719,802.34 N GROUND LEVEL (mOD) 82.92  CLIENT ENGINEER DOBA  Fracture Spacing Log (mm)  10  10  10  11  12  13  14  15  16  17  18  18  18  18  18  18  19  19  19  19	23 -DH Shea (a) N = 60/125 mm (8, 14, 31, 29)
CO-ORDINATES 686,605.34 E 719,802.34 N 3ROUND LEVEL (mOD) 82.92  CLIENT ENGINEER DOBA  RIG TYPE FLUSH INCLINATION (deg) 9-90 CORE DIAMETER (mm) 78  DATE DRILLED 11/05/20 DATE LOGGED 11/05/20 DATE LOGGED 12/05/20 DATE DRILLED 11/05/20 DATE LOGGED 12/05/20 DATE LOGGED 12/05/20 DATE DRILLED 11/05/20 DATE LOGGED 12/05/20 DATE	23 -DH Shea (angle N = 60/125 mm (8, 14, 31, 29)
CLIENT ENGINEER DOBA  INCLINATION (deg) 990 DRILLED BY LOGGED BY D. O'S  CORE DIAMETER (mm) 78  Description  (i) 4dd of O'O' O'O' O'O'O'O'O'O'O'O'O'O'O'O'O'O'	(enlay N) February N = 60/125 mm (8, 14, 31, 29)
SYMMETRIX DRILLING: No recovery, observed by driller as returns of grey brown sandy, clayey GRAVEL. (continued)	N = 60/125 mm (8, 14, 31, 29)
SYMMETRIX DRILLING: No recovery, observed by driller as returns of grey brown sandy, clayey GRAVEL. (continued)	N = 60/125 mm (8, 14, 31, 29)
	N = 10/25 mm (15, 40, 10)
Strong to very strong, thickly to medium bedded, light blue/grey, sandy, fine grained LIMESTONE (possibly locally slightly dolomitised, stromatactic structure with abundant calcite veining), slightly weathered.  Discontinuities are medium to closely spaced, smooth to very locally rough, planar. Apertures are tight to locally moderately open, locally clay smeared (at 16.36m), calcite veined (1-10mm thick), and slight iron oxide staining. Dips	0
7 100 73 73 are subhorizontal to locally 30°	0
19 100 92 92 599.9999.999999999999999999999999	0
REMARKS WATER STRIK	E DETAILS
Hole cased 0.00-15.10m  Water Strike Depth At To Comments  11.80 11.80 N/S Seepage	
GROUNDWATI  NSTALLATION DETAILS  Date Hole Casing Depth to Comments	ER DETAILS
Date         Date         Depth	after end of



REPORT NUMBER

10	20	5																
	NTR			lalve	rstown									LLHOLI EET	E NO	RC She	<b>03</b> et 1 of	2
		DINA	TES VEL	(mO	686,18 719,57 <b>D)</b>	4.03 E 6.09 N 79.37			RIG TYPE FLUSH			GEO-20 Air/Mist	-	TE DRIL			)5/2023 )5/2023	
	ENT GINE		D	ОВА					INCLINATI	ION (deg) METER (mi	n)	-90 78	I	LLED B			SSL -D . O'She	
Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Frac Spa Lc (m 0 <sup>250</sup>	cing og m)	Non-intact Zone	Legend			Descrip	tion			Depth (m)	Elevation	Standpipe Details	SPT (N Value)
- 1 - 2 - 3 - 4 - 5 - 6	8.80	0	0	0					as reutrns	RIX DRILLI	NG: No recown sandy	covery, ob	served by y GRAVEL	driller	8.80	_ 70.57		N = 7 (1, 0, 1, 2, 2, 2) N = 51/225 mm (1, 2, 3, 3, 45) N = 47 (2, 4, 7, 11, 13, 16) N = 63 (5, 8, 11, 15, 17, 20) N = 69 (4, 9, 13, 14, 20, 22)
	9.60	100	60	60			<i>.</i>											
RE	MAR	KS							1							TER S	TRIKE	DETAILS
Hol	e ca	sed (	0.00-	8.80r	m					Water Strike	Casing Depth	Sealed At	Rise To	Time (min		ommen	its	
										5.90	5.90	6.40		(11111		Seepag	je	
														'	GR	OUND	NATER	R DETAILS
INS	TAL	LATI	ON D	ETA	ILS					Date	Hole Depth	Casing Depth		to Co	mmen	ts		
	Date -05-2		Tip D 14.1		RZ Top 5.00	RZ Base 14.10	9	Typ 50mn			2 3541	2 3 5 61						
											1							



REPORT NUMBER

133	15/														_				
ONTR	ACT	Н	lalve	rstown								DRI SHE	LLHOLE	NO	RC		2		
O-ORE	DINA	TES		686,18 719,57				DIC TYPE					E DRILLI	ED	Sheet 2 of 2 15/05/2023				
ROUN	D LE	VEL	(mO		79.37			RIG TYPE GEO-205 FLUSH Air/Mist				DAT	E LOGGI	ED	16/0	5/2023	3		
NGINE		D	ОВА					INCLINATION CORE DIA	TON (deg)         -90         DRILLED           AMETER (mm)         78         LOGGED						IGSL -DH D. O'Shea				
Lownhole Depth (m) Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Lo	cing og m)	Non-intact Zone	Legend				Depth (m)	Elevation	Standpipe Details	SPT (N Value)					
1 11 00	100 67 59 Weak to fine-gra dolomiti veining)								strong, thicked, LIMESTed, stromataslightly wea	TÓNE (pos actic struct thered.			0 0						
11.30	100	64	62			A := 3 /		very locall moderatel veined (1-	uities are w ly rough, pla ly open, loc 10mm thich rizontal to l	lly alcite									
3 13.40	100	38	38	E		( ; ) X													
14.10	100	60	60				H							14.10	65.27				
15																			
REMAR lole cas		0.00-8	8.80r	m					Water	Casing	Sealed	Rise	Rise Time Comments						
									Strike         Depth         At         To         (min)           5.90         5.90         6.40						Comments Seepage				
										Hole	Casing	Donth	to			VATER	RDETAILS		
Date 16-05-2			epth	RZ Top 5.00	RZ Base 14.10		Ty <sub>l</sub> 50mn		Date     Hole Depth Depth     Casing Depth Water     Comments       16-05-23     14.10     8.80     1.70     Water level recorded 5 mins after end drilling.						er end of				
						14.10 50Mr													



REPORT NUMBER

10	99	3/																			
CONTRACT Halverstown															DRILLHOLE NO			P RC04 Sheet 1 of 2			
СО	-ORI	OINA <sup>*</sup>	TES		686,44 719,39										DATE DRILLED			5/2023			
GR	OUN	D LE	VEL	(mO		78.32			RIG TYPE GEO-205 FLUSH Air/Mist					DATE	LOGG	ED	10/0	5/2023	3		
	GINE		D	ОВА					INCLINATI	ON (deg) METER (mr	1	DRILLED BY LOGGED BY			IGSL -DH D. O'Shea						
Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Frac Spa Lo (m	cing og m)	Non-intact Zone	Legend			Descript	ion				Depth (m)	Elevation	Standpipe Details	SPT (N Value)		
3 4 5 5 6 7 8 9		0	0	0					as returns	RIX DRILLI	NG: No rec	covery, o	bsernyey (	ved by d	riller				N = 9 (1, 1, 2, 2, 2, 3) N = 16 (1, 2, 3, 4, 4, 5) N = 54 (5, 6, 9, 13, 16, 16) N = 52 (7, 13, 11, 11, 14, 16) N = 62 (6, 6, 9, 12, 18, 23)		
_	REMARKS								1	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	0- '	0. /		D:-	т.	WA	TER S	TRIKE	DETAILS		
Hole cased 0.00-11.60m										Water Strike	Casing Depth	Sealed At		Rise To	Time (min)	Co	mmen	its			
										5.40	5.40	6.40				S	Seepag	je			
																	OLIVIE:	A/A TE-	DETAIL		
INIC	TA1		ON: 5							D :	Hole	Casir	ng	Depth to		GROUNDWATER DETAILS					
		LATI				D7 D		т.		Date	Depth	Dept		Water	Com	ment	S				
REMARKS							50mm		1												
1											1										



REPORT NUMBER

130																		
CONT	RAC	ΓΗ	Halve	erstown								DRI SHE	LLHOLE	NO	RC She	<b>04</b> et 2 of	2	
		ATES EVEL	. (mO		6.74 E 8.98 N 78.32	2		RIG TYPE	RIG TYPE GEO-205 FLUSH Air/Mist					ED SED				
CLIEN			OOBA	\				INCLINATI	ON (deg) METER (mi	m)	-90 78		LLED B		IGSL -DH D. O'Shea			
Core Bun Depth (m)	T.C.B.%	S.C.R.%	R.Q.D.%	Spa Lo	cture icing og im)	Non-intact Zone	Legend	Description							Elevation	Standpipe Details	SPT (N Value)	
11							% O O O	as returns (continued SYMMET	RIX DRILLI s of grey/bro d) RIX DRILLI s of possible		67.72		N = 50/90 mm (8, 18, 30, 20)					
11.0	100	0 30	30			(		blue/grey, calcisiltite	very strong, fine-graine and argilla uities are w	11.60	66.72							
3 13.	10		28	E		/ (\)		moderate 15.12-15.	ly rough, pla ly open, loc 26m), clay/ 68m). Dips	ally clay sn gravel-filled	neared, cal d (at 13.29-	cite layere 13.34m a	ed (at nd			0 0		
14. <sup>1</sup>	10	0 59	47			540.000	00000000											
15.0	100	0 58	58	E										16 90	61.42			
16.9 17	90							End	of Borehole	at 16.90 n	n			16.90	61.42			
REMA			4			1		1	\\/	Cooler	Cooled	Diac	T:		TER S	TRIKE	DETAILS	
Hole cased 0.00-11.60m									Water Strike 5.40									
											16:	1 -		GR	OUND	NATER	R DETAILS	
Da 10-05	te	Tip C	epth	RZ Top 5.00	RZ Bas 16.90		Ty <sub>l</sub> 50mn		Date Hole Depth Depth Depth to Water  10-05-23 16.90 11.60 3.50 Water level recorde drilling.							i mins aft	er end of	
10.00   0.00   10.00   5011																		

#### RC01 Box 1 of 1 - 14.80-16.30m



### RC01A Box 1 of 1 - 17.30-18.70m



### RC02 Box 1 of 2 - 15.10-17.35m



#### RC02 Box 2 of 2 - 17.35-19.70m



RC03 Box 1 of 3 - 8.80-11.30m



RC03 Box 2 of 3 - 11.30-13.40m



RC03 Box 3 of 3 - 13.40-14.10m



RC04 Box 1 of 2 - 11.60-14.10m



### RC04 Box 2 of 2 - 14.10-16.90m



**Rotary Openhole Drilling Records** 



REPORT NUMBER

10	33	3/														_	400	U
СО	NTR	ACT	Н	lalve	rstown								DRII SHE	LHOLE	NO		<b>RO-01</b> et 1 of	
СО	-ORI	DINA	TES			46.21 28.64								E DRILL	ED		4/2023	
GR	OUN	D LE	VEL	(mO			.06	-	RIG TYPE	_		GEO-205	DAT	E LOGG	ED	28/0	4/2023	1
1	IENT GINE		Ь	OBA						ΓΙΟΝ (deg) AMETER (mn	a)	-90 -70	DRII	LED BY	′	IG	SL -DI	Н
		EN		UDA					OLE DIA	AWETER (MII	1)	78						
Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Zones (m)	(mm) xev or nim Spacing	( 0	acture pacing Log mm) <sup>250</sup> 500	Legend			cription			Depth (m)	Elevation	Standpipe Details	SPT (N Value)
1	1.50	0	0	0						SYMMETRIX by driller as r CLAY	DRILLING eturns of gr	: No recov ey brown s	ery, obse sandy gra	rved velly				N = 33 (19, 13, 11, 9,
2		0	0	0						SYMMETRIX by driller as r GRAVEL SYMMETRIX	eturns of gr	ey brown o	clayey sar	rved	2.20	81.86		8, 5)
3	3.00	0	0	0						by driller as r CLAY SYMMETRIX by driller as r sandy GRAV	DRILLING	: No recov	ery, obse	rved	3.50	80.56		N = 19 (7, 4, 3, 5, 6, 5)
4	4.50	0	0	0					0-7	SYMMETRIX by driller as r CLAY					4.30	79.76		N = 26 (4, 5, 7, 6, 6, 7)
5	5.00				-				- 0	End of E	Borehole at	5.00 m			5.00	79.06		N = 28 (3, 6, 5, 6, 8, 9)
27/10																		
RE	MAR k and s	soil de	scriptio	ns are	based on	examinat	ion of drill	ing returns. T	hese	Water	Casing	Sealed	Rise	Time				DETAILS
sam fragi poss cond	ples ca ments sible. S dition/s	an be I of 2 to Similarl tructur	neavily 3 mm : y, it is r	disturt are rec	oed and froovered. A	agmented ccurate d	, with a lo	ss of fines. Ty s are not, ther il stratification	rpical refore,	Strike 3.50	Depth 3.50	At N/S	To	(min)	S	eepag	е	
2			or: -							-	Hole	Casing	Depth t	0 -			VATER	DETAILS
INS	<b>Date</b>		<b>ON D</b> Tip D		I <b>LS</b> RZ To	RZ E	Base	Туре		Date 28-04-23	Depth 5.00	Depth 5.00	Water 4.90	Water		S corded 5	mins afte	er end of
28	-04-2		5.0	$\overline{}$	1.00	5.0		50mm S	SP					drilling	g.			



REPORT NUMBER

10	33	3/														_	.400	10
СО	NTR	ACT	F	lalve	rstown								DRII	LHOLE	NO		<b>RO-02</b> et 1 of	
СО	-ORI	DINA	TES			88.11 I								E DRILL	ED		5/2023	
GR	OUN	D LE	VEL	(mO			.52		RIG TYPE			GEO-205	DAT	E LOGG	ED	02/0	5/2023	3
	ENT GINE		Г	OBA						TION (deg) AMETER (mn	n)	-90 78	DRII	LED BY	,	IG	SL -DI	Н
		Ln	П	/OBA					IOLE DIA	AIVIETER (IIIII	···)	70						
Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Zones (m)	(mm) kay big sacing spacing	Sr (	racture pacing Log (mm) <sup>250</sup> 500				cription			Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1.50	0	0	0						SYMMETRIX by driller as r CLAY	CORILLING eturns of gi	a: No recov rey brown :	very, obse sandy gra	rved velly				N = 26 (2, 3, 5, 7, 6,
2 3	3.00	0	0	0						SYMMETRIX by driller as r gravelly CLA	eturns of gr	i: No recov rey brown :	very, obse silty sandy	rved '	2.50	80.02		N = 21 (1, 3, 6, 4, 5,
- 4		0	0	0					0-0	SYMMETRIX by driller as r GRAVEL					3.90	78.62		6)
	4.50	0	0	0					000									N = 31 (2, 3, 6, 7, 9, 9)
5	5.00								0.0	End of E	Borehole at	5.00 m			5.00	77.52		N = 36 (3, 5, 8, 8, 9, 11)
-																		
_	MAR		corintic	ne ara	based on	ovaminat	ion of dril	lling roturns T	'hooo	Water	Casing	Sealed	Rise	Time				DETAILS
fragr poss cond	ples ca ments sible. S lition/s	an be l of 2 to Similar structur	neavily 3 mm ly, it is	disturb are red not pos	oed and fr covered. A	agmented ccurate de	, with a lo escription	lling returns. T oss of fines. Ty ns are not, ther oil stratification	/pical refore,	Strike 4.40	Depth 4.40	At N/S	To	(min)		mmen		
REI Rock sam fragr poss cond Hole										_	Hole	Casing	Depth t	0			VATEF	RDETAILS
	TAL Date		ON E		ILS RZ To	) R7 F	Sasa	Type		Date 02-05-23	Depth 5.00	Depth 5.00	Water 4.80	Con	ment		mine of	er end of
02	-05-2		5.0	$\overline{}$	1.00	5.0		50mm S		02-05-23	3.00	3.00	4.00	drilling		corueu 3	mms all	oi eliu ul



REPORT NUMBER

0	33	3/														_	400	U
СО	NTR	ACT	Н	lalve	rstown	l							DRIL	LHOLE	NO	TPF	RO-03	}
	-ORE	NNA	TES		686	,271.71							SHE	ET		Shee	et 1 of	1
					719	722.30	Ν		RIG TYF	)F		GEO-205	.	E DRILL E LOGG			5/2023 5/2023	
		D LE	VEL	(mO	D)	8.	1.63		-	TION (deg)		-90	DAII	LOGG		02/0	5/2023	)
	ENT GINE	ER	D	OBA	١					IAMETER (mr		78	DRIL	LED BY	,	IG	SL -DI	Н
بر آ	(ر									,	,							
Downhole Depth (m)	Run Depth (m)	%:	%:	%.0	es (m)	ure ing		Fracture									Standpipe Details	(6)
e De	η De	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Zones	Fracture Spacing		Spacing Log			Desc	ription			_	_	e De	SPT (N Value)
nhol	Bul é	_	0)	"	ture	Min		(mm)	pue						Depth (m)	Elevation	didpo	Z
Dov	Core				Frac	Avg Max (mm)	0	250 500	Legend						Dep	Ele	Star	SPT
0						(111111)	1			SYMMETRIX	K DRILLING	: No recov	ery, obser	ved				
										by driller as r CLAY	returns of gr	ey brown	sandy grav	elly/				
									<u> </u>									
		0	0	0														
			ľ															
1																		
	1.50				-												• 🗐 •	N = 16 (1, 3, 3, 4
																	。 <u> </u>	4)
									-0,-									
2															2.20			
		0	0	0					0	SYMMETRIX by driller as i	CDRILLING returns of ar	: No recovery	ery, obser silty sandv	ved		79.43		
									o	gravelly CLA	Υ	.,	,,					
3	3.00								0									N = 16 (1, 1, 3, 2
3																		6)
									<u> </u>	SYMMETRIX	/ DBILLING	· No rocov	vorv. obsor	hod	3.60	78.03	$ \cdot $	
		0	0	0						by driller as r	returns of gr	ey brown	sandy grav	elly		70.03		
4										CLAY							10 - 10	
									<u></u>									
	4.50								0						4.50			N = 31
										SYMMETRIX by driller as i	returns of ar	: No recovey brown	ery, obser silty sandv	ved		77.13		(2, 3, 6, 7 9)
		0	0	0					<u></u>	gravelly CLA	Υ		. ,					
5	5.20														5.20			
	J.2U				1					End of E	Borehole at	5.20 m			0.20	76.43		N = 36 (3, 5, 8, 8
																		11)
_	MAR k and s		ecriptio	ine oro	haced	n evamina	ition of	drilling returns.	These	Water	Casing	Sealed	Rise	Time				DETAILS
am ragi	ples ca nents	an be l of 2 to	neavily 3 mm	distur are re	bed and covered.	fragmente Accurate	d, with a descript	a loss of fines. T tions are not, the	Typical erefore,	Strike	Depth	At	To	(min)	Co	mmen	ts	
oss	sible. S dition/s	imilarl	y, it is i	not po	ssible to	accurately	assess	s soil stratificatio	n or rock						N	lo wate	r strike	erecorde
Hole	cased	0.00	5.20m															
															GRO	OUNDV	VATER	DETAIL
NS	TAL	LATI	ON D	ETA	ILS					Date	Hole Depth	Casing Depth	Depth to Water	Com	ment	s		
	Date			_		op RZ				02-05-23	5.20	5.20	Dry	Water		corded 5	mins afte	er end of
02	-05-2	23	5.2	0	1.00	)   5.	20	50mm	SP					uning	4.			



REPORT NUMBER

0	33	3/														_	.400	00
СО	NTR	ACT	Н	lalve	rstowr	1								LLHOLE	NO		RO-04	
CO	-ORE	DINA	TES		686	.162.93	E							EET			et 1 of	
зR	OUN	D LE	VEL	(mO	719	,657.11		ı	RIG TYP	PE		GEO-205	.	TE DRILL TE LOGG			5/2023 5/2023	
	IENT GINE	- D								TION (deg)	\	-90 -70	DRI	LLED BY	·	IG	SL -D	Н
		EK		OBA					HOLE D	IAMETER (mi	m)	78						
ромплоге рерпл (пл)	Core Run Depth (m)	%	4.%	%.0	Fracture Zones (m)	ure		Fracture									Standpipe Details	<u> </u>
,	n De	T.C.R.%	S.C.R.%	R.Q.D.%	Zon	Fracture Spacing		Spacing Log			De	scription			<u></u>	_	) De	SPT (N Value)
2	Bu Bu		0	"	fure	Min		(mm)	pue						Depth (m)	Elevation	didbi	Ž.
;	Core				Frac	Avg Max	0	250 500							Dep	Elev	Star	SPT
						(mm)	шш	<u>l</u>	<u> </u>	SYMMETRIX	X DRILLIN	G: No recov	ery, obse	erved			N K	
										by driller as CLAY	returns of (	grey brown	sandy gra	avelly				
									<u> </u>									
		0	0	0														
		0	"	"														
																		1
										SYMMETRIX	X DBII I INI	G: No rocci	very obse	rved	1.30	78.98		
	1.50									by driller as	returns of g	grey brown	silty sand	у		70.30		N = 11 (2, 1, 2, 3, 3,
										gravelly CLA	ΑY				1.80			3)
										SYMMETRIX by driller as	X DRILLIN	G: No recov	ery, obse	erved		78.48		
									<u> </u>	CLAY	rotarris or (	gicy biowii	sariay gre	iveny				
		0	0	0											2.40			
									<u> </u>	SYMMETRIX by driller as	returns of o	G: No recov grev brown	ery, obse silty sand	erved V		77.88	ΙĦ	
									- 0	gravelly CLA	λΥ	<b>5</b> - <b>7</b>	. ,	,				
	3.00																	N = 20 (3, 5, 3, 5, 6,
									<u> </u>									(3, 5, 5, 5, 6,
									-0						3.70			
		0	0	0					000	SYMMETRIX	X DRILLIN	G: No recov	ery, obse	erved	0.70	76.58		
									0-0-	by driller as sandy GRA\	/EL	dark grey Si	igrilly clay	rey				
									· · · ·								ΙĦ	
	4.50								10 - Q'									N = 44
									000									(2, 6, 7, 11, 12, 14)
	F 0-	0	0	0					0 0						F 00			
;	5.00				1				. <u>v ~ .</u>	End of	Borehole a	it 5.00 m			5.00	75.28	^ <del>  </del>	N = 39
																		(5, 6, 9, 8, 9, 13)
_	MAR		aarintia		boood	n avamin	ation of	drilling returns	Those	Water	Casing	Sealed	Rise	Time				DETAILS
am	ples ca	an be l	neavily	distur	bed and	fragmente	d, with	drilling returns. a loss of fines. T tions are not, the	ypical	Strike	Depth	At	To	(min)	_	ommen		
SS	sible. S dition/s	imilarl	v. it is r	not po	ssible to	accurately	assess	s soil stratificatio	n or rock	4.50	4.50	N/S			5	Seepag	е	
ole	cased	0.00	5.00m															
															GR	OUNDV	VATER	R DETAILS
IS	TAL	LATI	ON D	ETA	ILS					Date	Hole Depth	Casing Depth	Depth Wate	to Com	nment	ts		
	Date					op RZ				03-05-23	5.00	5.00	4.70	_		ecorded 5	mins aft	er end of
J3	-05-2	23	5.0	U	1.00	)   5 	.00	50mm \$	SP						a.			



REPORT NUMBER

10	ಶಶ	<u>u</u> /														_	. 100	, 0
COI	NTR	ACT	Н	lalve	rstown								DRI SHE	LLHOLI	E NO		RO-05	
			TES	(mO	719,	383.86 788.02 84			RIG TY			GEO-205	DAT	E DRIL		05/0	et 1 of 5/2023 5/2023	3
	ENT		D	OBA						ATION (deg) DIAMETER (mr	n)	-90 78	DRI	LLED B	Υ	IG	SL -D	Н
Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Zones (m)	B X & S B S B S B S B S B S B S B S B S B S	0	Fracture Spacing Log (mm)	ᆈᄀ		Des	scription			Depth (m)	Elevation	Standpipe Details	SPT (N Value)
- 0 	1.50	0	0	0						SYMMETRIX by driller as i gravelly CLA	eturns of g	G: No reco grey brown	very, obse silty sand	erved y	1.60			N = 12
- - - - 2 - - - - - -	3.00	0	0	0						SYMMETRIX by driller as I GRAVEL SYMMETRIX by driller as I CLAY	returns of g	grey brown G: No reco	clayey sa very, obse	ndy	2.00	83.04		N = 12 (1, 2, 3, 2, 4 3) N = 27
3		0	0	0														(2, 4, 5, 7, 8)
- - - -	<ul><li>4.50</li><li>5.10</li></ul>	0	0	0	-					SYMMETRIX by driller as I GRAVEL	C DRILLING returns of g	rey brown	very, obse clayey sa	erved ndy	5.10	80.04		N = 47 (3, 6, 7, 9, 1 17) N = 64 (5, 9, 11, 16
- - - - - - -										Life of I	zoronole a	. 5.10 111				70.04		17, 20)
REN	ΙAR	KS		<u>'</u>					1							TER S	RIKE	DETAILS
samp	oles ca	an be l	heavily	disturb	bed and f	ragmented	l, with a	drilling returns.	Typical	Water Strike	Casing Depth	Sealed At	Rise To	Time (min		mmen	ts	
possi	ible. S ition/s	imilar tructu	ly, it is i	not pos	ssible to a	accurate of accurately	escript assess	tions are not, the soil stratification	erefore, on or rock						N	lo wate	er strike	e recorded
															GR	יחאחס	VATFF	RDETAILS
INS.	TAL	LATI	ON D	ETA	ILS					Date	Hole	Casing	Depth Wate	to Co	mment			
[	Date -05-2	1		epth		p RZ I	Base 10	Typ 50mm		05-05-23	Depth 5.10	Depth 5.10	Dry		er level re		mins aft	er end of



REPORT NUMBER

/113	33	5/														_	400	•
CON	TR/	ACT	Н	alve	rstown								DRIL	LHOLE	NO	TPF	RO-06	;
CO-C	חסר	INIA.	TEC		606	407 FO	_						SHE	ET		Shee	et 1 of	1
CO-C	טחט	MINA	IES			487.53 815.50			RIG TYP	) <b>=</b>		GEO-205		E DRILL			5/2023	
GRO		D LE	VEL	(mO	D)	8	5.03			TION (deg)		-90	DAI	E LOGG	ΕD	04/0	5/2023	-
CLIE ENGI		ED	Ь	OBA							m\		DRIL	LED BY	,	IG	SL -DI	4
		EN		OBA			1		TOLE DI	IAMETER (mr	n)	78						
Downhole Depth (m)	Run Depth (m)	%	%	%	(m) s	g G											ails	
Dep	Dep	T.C.R.%	.C.R.%	R.Q.D.%	Fracture Zones	Fracture Spacing		Fracture Spacing			Desc	cription					Standpipe Details	SPT (N Value)
hole	Run	Ë	S.	α.	re Z			Log (mm)	اع		2000	on paon			Œ	tion	pipe	» Z
OWN	Core				ractı	Min Avg Max	0	250 <sub>500</sub>	Legend						Depth (m)	Elevation	tanc	PT
0	0				ш	(mm)	11111		J	CVMMETDI	/ DDII L INO	. No soos				Ш	S S	<u> </u>
									0	SYMMETRIX by driller as it	eturns of gr	ey brown :	ery, obsei sandy grav	ved velly				
										CLAY								
		0	0	0														
1																		
									0									
1	.50																	N. 41
-   1	.50								-°									N = 15 (1, 2, 2, 4)
																		٦)
2																	lacksquare	
<u> </u>		0	0	0					0	0) 4 4 45 75 1)					2.20			
		U	"	"					-0	SYMMETRIX by driller as it	eturns of ar					82.83		
										gravelly CLA	Y							
3 3	.00								0									N = 19 (2, 3, 3, 4
																		7)
									-0								lacksquare	
															3.70			
		0	0	0					000	SYMMETRIX	( DRILLING	: No recov	ery, obser	ved	5.70	81.33		
4									0-0-	by driller as r sandy GRAV	eturns of gr EL	ey brown	siity clayey	/	4.10			
									000	SYMMETRIX	C DRILLING	: No recov	ery, obser	ved	1.10	80.93	$  \hat{f}  $	
1	.50								0-0-	by driller as r GRAVEL	eturns of gr	ey brown	ciayey san	idy				N = 3
	.50				1				9.0									(2, 2, 5, 7, 10)
		0	0	0					000									. 3)
5	.00								0 7	End of f	Parabala at	5 00 <del>~</del>			5.00	00.00		N = 5
										⊏na of t	Borehole at	5.00 111				80.03		(4, 7, 13, 14, 15
																		., .,
REM	ΔRI	(S													WA	FP S1	BIKE	DETAILS
Rock a	and s	oil des	scriptio	ns are	based o	n examina	ation of o	drilling returns.	These	Water	Casing	Sealed	Rise	Time		mmen		JE I MILO
ragme	ents c	of 2 to	3 mm a	are red	covered.	Accurate	descript	a loss of fines. To ions are not, the soil stratification	erefore,	Strike	Depth	At	То	(min)	+			
conditi	ion/st	ructur	e.	ισι μυξ	JOINIE (U i	accurately	aosess	oon on annication	II OI TOCK						N	o wate	r strike	recorde
Hole C	ased	U.00-	5.00m															
															GRO	DUNDV	VATER	DETAIL
NST	ALL	ATI	ON D	ETA	ILS					Date	Hole Depth	Casing Depth	Depth to Water	Com	ment	s		
	ate					p RZ		Туре		04-05-23	5.00	5.00	Dry	_		corded 5	mins afte	er end of
04-0	)5-2	:3	5.0	υ	1.00	5.	.00	50mm 8	SP					- Juning	9.			



REPORT NUMBER

(B)	53	3/														_	400	U
CON	NTR/	ACT	Н	lalve	rstown	l							DRIL	LHOLE	NO	TPF	RO-07	,
۲۵-	ORE	MΝΔ	TES		686	613.61							SHE			Shee	et 1 of	1
				/ <b>^</b>	719,	733.59	N		RIG TYP	E		GEO-205		E DRILLI E LOGGI			5/2023 5/2023	
	ENT	D LE	VEL	(mO	ט)	8	2.86	I	NCLINA <sup>®</sup>	TION (deg)		-90	27111				0,2020	<u>'</u>
	INE	ER	D	ОВА				ı	HOLE DI	AMETER (mr	n)	78	DRIL	LED BY		IG	SL -DI	1
Downhole Depth (m)	Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Zones (m)	Fracture Spacing		Fracture Spacing Log			Desc	cription			n)	L	Standpipe Details	Value)
	Core Ru				Fracture	Min Avg Max (mm)	0	(mm) 250 500	,						Depth (m)	Elevation	L	SPT (N Value)
1		0	0	0						SYMMETRI) by driller as r CLAY	eturns of gr	ey brown	sandy gra	velly	1.30			
2	1.50	0	0	0						SYMMETRIX by driller as i gravelly CLA	eturns of gr	i: No recov rey brown	very, obsei silty sandy	rved				N = 11 (1, 1, 2, 3, 3)
3	3.00	0	0	0	-					SYMMETRIX by driller as r CLAY	CDRILLING eturns of gr	: No recov	very, obser sandy gra	rved velly	2.70			N = 25 (2, 4, 3, 5 10)
4	4.50	0	0	0	-				0_A:	SYMMETRIX by driller as r sandy GRAV	eturns of gr	i: No recov	very, obsersilty clayey	rved /	4.60			N = 3 (3, 5, 5, 12)
5	5.10								9:A=		Borehole at	5.10 m			5.10	77.76	0 0	N = 56 (6, 7, 10, 16, 17
REN	/IAR	KS	1		1										WAT	TER ST	RIKE I	DETAILS
ragm possi condi	oles ca nents of ible. S ition/s	n be h of 2 to imilarl tructur	heavily 3 mm ly, it is i	disturt are red not pos	bed and to covered.	fragmente Accurate	ed, with descrip	drilling returns. Ta loss of fines. T tions are not, the s soil stratification	ypical erefore,	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	N		er strike	recorde
INS.	ΤΔΙΙ	LΔTI	ON D	EΤΔ	ILS					Date	Hole	Casing	Depth to	O Com	ment		VAIEH	DETAIL
	Date -05-2	1		epth		op RZ	Base .10	Type 50mm S		05-05-23	Depth 5.10	Depth 5.10	Water	Com	level re		mins afte	er end of
		-		•			-											



REPORT NUMBER

	27															400	
CONTR	RACT	Н	lalve	rstown								DRIL	LHOLE	NO	TPF	RO-08	3
CO-ORI	אוח	TES		696	443.99							SHE	ET		She	et 1 of	1
				719,	589.92	N		RIG TYP	F		GEO-205	.	E DRILL E LOGG			5/2023	
GROUN		EVEL	(mO	D)	81	.40			TION (deg)		-90	DAI	E LUGG		08/0	5/2023	
CLIENT ENGINE		D	OBA						AMETER (mr	n)	78	DRIL	LED BY	7	IG	SL -D	Н
Ī	T	Τ							/ · Li · ( · · · ·	,	70						
Downhole Depth (m) Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Zones (m)	(wm) xeb vig Spacing	0	Fracture Spacing Log (mm)			Desc	cription			Depth (m)	Elevation	Standpipe Details	SPT (N Value)
1.50	0	0	0						SYMMETRIX by driller as r CLAY SYMMETRIX by driller as r gravelly CLA	eturns of gr	ey brown	sandy gra	velly	1.20	80.20		N = 13 (1, 1, 2, 3,
2 3.00	0	0	0						SYMMETRIX by driller as r CLAY	CDRILLING eturns of gr	: No recov	very, obsei sandy gra	rved velly	2.40	79.00		5) N = 51
4	0	0	0						SYMMETRIX by driller as r	( DRILLING eturns of gr	: No recov ey black g	very, obsei gravelly CL	rved .AY	3.20	78.20		(2, 4, 7, 15, 16
4.50 5 5.20	0	0	0	_					Fred at 1	Davahala aki	F 00 m			5.20	70.00		N = 59 (3, 7, 10, 18, 19) N = 34/40
									EIIG OI	Borehole at	J.20 III				76.20		(6, 15, 3
REMAR		scrintic	ns arc	hasad o	n examina	tion of	drilling returns.	These	Water	Casing	Sealed	Rise	Time				DETAILS
samples c ragments	can be of 2 to	heavily 3 mm	disturb are red	bed and foovered.	ragmente Accurate d	d, with a descript	a loss of fines. T tions are not, the	Typical erefore,	Strike	Depth	At	To	(min)	Co	mmen	ts	
condition/s	structu	re.		ssible to a	ccurately	assess	soil stratificatio	n or rock						N	o wate	r strike	e recorde
Hole case	ed U.00	-5.20m															
														GRO	DUNDV	VATEF	R DETAIL
NSTAL	LAT	ION D	ETA	ILS					Date	Hole Depth	Casing Depth	Depth to Water	O Com	nments	s		
IIOIAL																	
Date 08-05-		Tip D 5.2		RZ To	p RZ	Base 20	Type 50mm		08-05-23	5.20	5.20	Dry	_		corded 5	mins aft	er end of



REPORT NUMBER

10	33	3/														_	.400	10
СО	NTR	ACT	Н	lalve	rstown								DRII	LLHOLE	NO		<b>RO-09</b> et 1 of	
СО	-ORI	DINA	TES			63.95 I								E DRILL	ED		5/2023	
GR	OUN	D LE	VEL	(mO		77			RIG TYP			GEO-205	DAT	E LOGG	ED	03/0	5/2023	3
1	IENT GINE		D	OBA						TION (deg) IAMETER (mr	n)	-90 78	DRII	LLED BY	1	IG	SL -DI	Н
			Τ	/OB/\						AWETER (IIII	11)	70						
Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Zones (m)	(mm) xeve nim Spacing	0	Fracture Spacing Log (mm)			Des	cription			Depth (m)	Elevation	Standpipe Details	SPT (N Value)
_ 0         	1.50	0	0	0					× × × × × × × × × × × × × × × × × × ×	SYMMETRIX by driller as r SYMMETRIX by driller as r	eturns of b	rown PEA	/ery, obse	rved	1.20	76.11		N = 7 (1, 0, 1, 1, 2,
2	3.00	0	0	0					× × × × × × × × × × × × × × × × × × ×									N = 7 (0, 1, 0, 1, 2,
		0	0	0					×	SYMMETRIX by driller as r (Blowing)	CDRILLING eturns of g	i: No recov ey silty gra	very, obse avelly SAN	rved ND	3.40	73.91	0 0	4)
· · · · · · · · · · · · · · · · · · ·	4.50	0	0	0	_				80x0	SYMMETRIX by driller as r					1.20	73.11		N = 41 (2, 3, 6, 11, 12, 12)
- 5 	5.20				_				ě ox.	End of E	Borehole at	5.20 m			5.20	72.11		N = 39 (5, 6, 9, 8, 9, 13)
- - DE	MAD	V.C.													38/8-	TED OF		DETAILO
Rocl	MAR k and s	soil de	scriptio	ns are	based on	examinat	ion of d	rilling returns. T	These	Water	Casing	Sealed	Rise	Time		mmen		DETAILS
sam fragi poss cond Hole	ples ca ments sible. S dition/s	an be l of 2 to Similar tructu	heavily 3 mm ly, it is i	disturt are red not pos	bed and fr covered. A	agmented ccurate de	, with a escription	loss of fines. Tons are not, the soil stratification	ypical erefore,	Strike 4.00	Depth 4.00	At N/S	То	(min)	S	Seepag	е	
,			0							+	Hole	Casing	Depth t	0 -			VATEF	RDETAILS
INS	Date		ON D		ILS RZ To	o RZ E	Base	Туре	)	Date 03-05-23	Depth 5.20	Depth 5.20	Water 4.80	Water			mins aft	er end of
REI Rock sam fragi poss cond Hole	-05-2		5.2		1.00	5.2		50mm \$						drilling	g.			



REPORT NUMBER

10	33	27															_	. 100	,0
СО	NTR	ACT	· F	Halve	rstown									DRI SHE	LLHOLI	E NO		<b>RO-1</b> 0	
			TES	. (mO	719,	489.99 460.74 79			RIG T				GEO-20	DAT	E DRILI		08/0	95/2023 95/2023	3
	ENT GINE		[	OOBA							ON (deg) METER (mr	n)	-90 78	DRI	LLED B	Υ	IC	SSL -D	Н
Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Zones (m)	m Fracture spacing Spacing	0	Fracture Spacing Log (mm)	Legend	)		Des	scription			Depth (m)	Elevation	Standpipe Details	SPT (N Value)
1	1.50	0	0	0		()					YMMETRIX y driller as r LAY	CDRILLIN returns of ç	G: No reco grey brown	very, obse sandy gra	rved velly				N = 16 (2, 3, 4, 4, 5
2	3.00	0	0	0						- 	YMMETRIX y driller as r YMMETRIX y driller as r	eturns of o	grey silty sa	very, obse	rved	2.30	77.30		5)
-3 -4		0	0	0															(4, 5, 8, 9, 1 17)
5	4.50 5.10	0	0	0						,	End of E	Borehole a	t 5.10 m			5.10	74.50		N = 50/105 mm (6, 8, 22, 28 N = 25/25 m (12, 25, 25
- - - -																			
	MAR k and s	_	ecrint:	nne oro	hacada	a eyamina	tion of	drilling returns	These		Water	Casing	Sealed	Rise	Time				DETAILS
sam fragi poss	ples ca nents	an be of 2 to Similar	heavily 3 mm ly, it is	distur are re	bed and f covered.	ragmented Accurate d	d, with a descript	a loss of fines. tions are not, the s soil stratificati	Typical herefore,	ck	Strike	Depth	At	To	(min	)   Cc	ommen lo wate		e recorded
			-5.10m	1															
																GR	OUND\	NATER	RDETAILS
INS	TAL	LAT	ION I	DETA	ILS						Date	Hole	Casing	Depth Water	to Co	mment			
	Date -05-2	)		epth		p RZ I	Base 10	Typ 50mm			08-05-23	Depth 5.10	Depth 5.10	Dry		er level re		5 mins aft	er end of
REI Rock sam fragi poss cond Hole																			

### **Groundwater Monitoring**

		Groundwater	<sup>r</sup> Monitoring						
Site Location		Halverstown						15	<b>2</b> /
Project No.		24330						TOG	. )
Engineer		DOBA						/IGS	4
								)	
					Date of	Reading			
		02/12	2/2022	19/12	2/2022	10/0	7/2023		
	Ground Elevation (m OD)	m bgl	m OD	m bgl	m OD	m bgl	m OD	m bgl	m OD
BH03	78.62	1.30	77.32	1.80	76.82	2.05	76.57		
BH10	84.79	Dry	-	Dry	-	Dry	-		
BH12	80.50	0.98	79.52	1.0	79.50	1.54	78.96		
BH13	82.80	2.20	80.6	2.38	80.42	Dry	-		
BH05	77.88	-	-	-	-	0.87	77.01		
RC01A	85.33	-	-	-	-	Dry*	-		
RC02	82.92	-	-	-	-	2.85	80.07		
RC03	79.37	-	-	-	-	3.33	76.04		
RC04	78.32	-	-	-	-	1.12	77.20		
TPRO-01	84.06	-	-	-	-	3.63	80.43		
TPRO-02	82.52	-	-	-	-	3.16	79.36		
TPRO-03	81.63	-	-	-	-	1.49	80.14		
TPRO-04	80.28	-	-	-	-	2.27	78.01		
TPRO-05	84.64	-	-	-	-	3.79	80.85		
TPRO-06	85.03	-	-	-	-	3.76	81.27		
TPRO-07	82.86	-	-		-	2.43	80.43		
TPRO-08	81.40	-	-	-	-	1.22	80.18		
TPRO-09	77.31	-	-	-	-	0.64	76.67		
TPRO-10	79.60	-	-	-	-	1.4	78.20		

**Gas Monitoring** 

Site Location	Halverstown				
Project No.	24330				IGSL
	19-Dec-22				1.10.
Engineer	DOBA				_
Equipment	Geotech GA5000				
	Peak / Steady St	ate Readings			
Location ID			BH10		
Time (sec)	10	30	60	90	Peak
Water Level (mbgl)	Dry				
Gas Flow (I/hr)	0.0	0.1	0.1	0.1	0.1
CH4 (%)	0.0	0.0	0.0	0.0	0
CO2 (%)	2.3	2.3	2.3	2.3	2.3
O2 (%)	15.9	15.5	15.5	15.4	15.9
CO (ppm)	0	0	0	0	0
H2S (ppm)	0	0	0	0	0
Balance (%)	82.1	82.2	82.3	81.8	82.3
Barometric Pressure (mba	978				
Weather/Temp.	Wet, Windy, Rain	n/ 12º			
Location ID			BH12		
Time (sec)	10	30	60	90	Peak
Water Level (mbgl)	1.0m				
Gas Flow (I/hr)	0.0	0.1	0.1	0.1	0.1
CH4 (%)	0.0	0.0	0.0	0.0	0.0
CO2 (%)	1.1	1.1	1.1	1.1	1.1
O2 (%)	15.9	15.4	15.3	15.3	15.9
CO (ppm)	0.0	0.0	0.0	0.0	0.0
H2S (ppm)	0.0	0.0	0.0	0.0	0.0
Balance (%)	83.0	83.5	83.6	83.6	83.6
Barometric Pressure (mba	978				
Weather/Temp.	Wet, Windy, Rain	n/ 12º			
Location ID			BH03		
Time (sec)	10	30	60	90	Peak
Water Level (mbgl)	1.80m				
Gas Flow (I/hr)	0.0	0.1	0.1	0.1	0.1
CH4 (%)	0.0	0.0	0.0	0.0	0.0
CO2 (%)	0.6	0.6	0.6	0.6	0.6
O2 (%)	20.6	15.9	15.6	15.6	20.6
CO (ppm)	0	0	0	0	0
H2S (ppm)	0	0	0	0	0
Balance (%)	78.8	83.4	83.8	83.8	83.8
Barometric Pressure (mbar	978				
Weather/Temp.	Wet, Windy, Rain	n/ 12º			
Comments					

	Gas & (	Groundy	vater Mo	onitoring	1	
Site Location	5	arouna	vater ivit	31111011111	<u> </u>	(3)
Project No.						(IGSL)
	19-Dec-22					Link.
Engineer						
	Geotech GA	5000				
Equipment		ly State Read	linas			
Location ID	- Come / Cooks	.,	_	BH13		
Time (sec)	30	60	90	120	180	Peak
Water Level (mbgl)	2.38m					1 0 0 0 0
Gas Flow (I/hr)	0.1	0.1	0.1	0.1	0.1	0.1
CH4 (%)	0.0	0.0	0.0	0.0	0.0	0.0
CO2 (%)	0.6	0.8	0.8	0.8	0.8	0.8
O2 (%)	16.3	18.8	18.9	18.9	18.9	18.9
CO (ppm)	0.0	0.0	0.0	0.0	0.0	0.0
H2S (ppm)	0.0	0.0	0.0	0.0	0.0	0.0
Balance (%)	83.1	80.4	80.2	80.2	80.2	83.1
Barometric Pressure (mba						5517
Weather/Temp.	Wet, Windy,	Rain/ 12º				
Location ID	, ,,					
Time (sec)	30	60	90	120	180	Peak
Water Level (mbgl)	- 55					- Oun
Gas Flow (I/hr)		I				
CH4 (%)						
CO2 (%)						
O2 (%)						
CO (ppm)						
H2S (ppm)						
Balance (%)						
Barometric Pressure (mba		<u>.                                    </u>	<u> </u>		<u>I</u>	
Weather/Temp.						
Location ID						
Time (sec)	30	60	90	120	180	Peak
Water Level (mbgl)			, ,,	1		. 0411
Gas Flow (I/hr)		I				
CH4 (%)						
CO2 (%)						
O2 (%)						
CO (ppm)						
H2S (ppm)						
Balance (%)		<u> </u>				
Barometric Pressure (mba		1	1	I	<u> </u>	
Weather/Temp.						
Comments						

**Geotechnical Laboratory Results (Soil)** 

IGSL Ltd Materials Laboratory Unit J5, M7 Business Park Newhall, Naas Co. Kildare 045 846176

### **Test Report**

#### Determination of Moisture Content, Liquid & Plastic Limits

Tested in accordance with BS1377:Part 2:1990, clauses 3.2, 4.3, 4.4 & 5.3\*\*



Report No. R142005 Contract No. 24330 Contract Name: Halverstown, Naas - Proposed Data Centres

Customer DOBA

Samples Received: 24/01/23 Date Tested: 24/01/23

BH/TP*	Sample No.	Depth* (m)	Lab. Ref	Sample	Moisture	Liquid	Plastic	Plasticity	%	Preparation	Liquid Limit	Classification (BS5930)	Description
				Type*	Content %	Limit %	Limit %	Index	<425μm		Clause	(=====)	
BH01	AA184687	1.0	A22/7546	В	19	25	15	10	55	WS	4.4	CL	Brown sandy gravelly CLAY
BH01	AA184688	2.0	A22/7547	В	8.6	22	NP	NP	58	WS	4.4		Brown slightly sandy, gravelly, SILT with some cobbles
BH03	AA184690	1.0	A22/7548	В	13	27	NP	NP	69	WS	4.4		Brown sandy gravelly SILT
BH03	AA184692	3.0	A22/7549	В	6.5	19	NP	NP	45	WS	4.4		Brown silty, sandy, GRAVEL with many cobbles
BH04	AA184694	2.0	A22/7550	В	16	28	NP	NP	49	WS	4.4		Brown sandy gravelly SILT
BH05	AA184670	1.0	A22/7551	В	11	23	NP	NP	44	WS	4.4		Brown sandy gravelly SILT
BH05	AA184672	3.0	A22/7552	В	7.0	24	14	10	39	WS	4.4	CL	Grey/brown clayey, sandy, GRAVEL with many cobble
BH07	AA184673	1.0	A22/7553	В	51	36	NP	NP	89	WS	4.4		Brown sandy gravelly SILT
BH07	AA184674	2.0	A22/7554	В	17	37	20	17	70	WS	4.4	СІ	Brown slightly sandy, slightly gravelly, CLAY
BH09	AA184679	1.0	A22/7555	В	14	29	16	13	66	WS	4.4	CL	Brown sandy gravelly CLAY
BH11	AA184677	1.0	A22/7557	В	24	29	14	15	60	WS	4.4	CL	Brown sandy gravelly CLAY
BH11	AA184679	3.0	A22/7558	В	13	25	13	12	64	WS	4.4	CL	Brown slightly sandy, gravelly, CLAY
BH12	AA184675	1.0	A22/7559	В	18	29	16	13	59	WS	4.4	CL	Brown sandy gravelly CLAY
BH13	AA184685	1.0	A22/7560	В	15	27	15	12	55	WS	4.4	CL	Brown sandy gravelly CLAY

Preparation: WS - Wet sieved

AR - As received

NP - Non plastic

2 Cana Panatramatar definitive

Liquid Limit 4.3 Cone Penetrometer definitive method Clause: 4.4 Cone Penetrometer one point method

Sample Type: B - Bulk Disturbed

U - Undisturbed

Remarks:

Results relate only to the specimen tested,in as received condition unless otherwise noted.

NOTE: \*\*These clauses have been superceded by EN 17892-1 and EN17892-12.

Opinions and interpretations are outside the scope of accreditation. \* denotes Customer supplied information.

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IGSL Ltd Materials Laboratory

Persons authorized to approve reports

H Byrne (Laboratory Manager)

Approved by

#Ryen-

Date 20/02/23

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Page

IGSL Ltd Materials Laboratory Unit J5, M7 Business Park Newhall, Naas Co. Kildare 045 846176

### **Test Report**

#### Determination of Moisture Content, Liquid & Plastic Limits





Report No. R142006 Contract No. 24330 Contract Name: Halverstown, Naas - Proposed Data Centres

Customer DOBA

Samples Received: 24/01/23 Date Tested: 24/01/23

BH/TP*	Sample No.	Depth* (m)	Lab. Ref	Sample Type*	Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity Index	% <425μm	Preparation	Liquid Limit Clause	Classification (BS5930)	Description
TP04	AA186982	0.6	A22/7562	В	12	24	14	10	79	WS	4.4	CL	Brown slightly sandy, slightly gravelly, CLAY
TP12	AA185482	0.8	A22/7563	В	13	36	18	18	70	WS	4.4	СІ	Brown slightly sandy, slightly gravelly, CLAY
TP15	AA185479	1.5	A22/7565	В	13	27	16	11	69	WS	4.4	CL	Brown slightly sandy, slightly gravelly, CLAY
TP16	AA185461	1.0	A22/7566	В	19	23	13	10	71	WS	4.4	CL	Mottled brown slightly sandy, slightly gravelly, CLAY
TP19	AA185468	0.5	A22/7568	В	12	22	13	9	73	WS	4.4	CL	Mottled brown slightly sandy, slightly gravelly, CLAY
TP22	AA185497	0.6	A22/7571	В	19	28	NP	NP	70	WS	4.4		Brown sandy gravelly SILT
TP24	AA181961	1.5	A22/7574	В	17	31	17	14	77	WS	4.4	CL	Brown slightly sandy, slightly gravelly, CLAY
TP26	AA181975	0.5	A22/7575	В	18	35	19	16	61	WS	4.4	CL	Brown slightly sandy, slightly gravelly, CLAY
TP28	AA181969	0.6	A22/7576	В	25	35	18	17	78	WS	4.4	CL	Mottled brown slightly sandy, slightly gravelly, CLAY
TP31	AA181992	0.5	A22/7578	В	17	31	17	14	74	WS	4.4	CL	Brown slightly sandy, slightly gravelly, CLAY
TP33	AA181989	0.5	A22/7579	В	20	37	18	19	55	WS	4.4	СІ	Brown slightly sandy, slightly gravelly, CLAY
TP34	AA181986	0.5	A22/7580	В	19	34	18	16	62	WS	4.4	CL	Brown sandy gravelly CLAY
						·							
						·			·		·		
												•	

Preparation: WS - Wet sieved

Liquid Limit

AR - As received

NP - Non plastic

4.3 Cone Penetrometer definitive method

Clause: 4.4 Cone Penetrometer one point method

Sample Type: B - Bulk Disturbed

U - Undisturbed

Remarks:

Results relate only to the specimen tested,in as received condition unless otherwise noted.

NOTE: \*\*These clauses have been superceded by EN 17892-1 and EN17892-12.

Opinions and interpretations are outside the scope of accreditation. \* denotes Customer supplied information.

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IGSL Ltd Materials Laboratory

Persons authorized to approve reports

H Byrne (Laboratory Manager)

Approved by

Date 20/02/23

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Page

### **Determination of Particle Size Distribution**

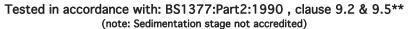
Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5\*\* (note: Sedimentation stage not accredited)



particle	%			Contract No.	24330	Report No.	R142643		•	
size	passing			Contract Name :	Halverstown	, Naas , Prop	osed Data Cen	tre Sites	Results relate only to the specir	men tested in as received
75	100	COBBLES		BH/TP No.	BH01				condition unless otherwise note	d. * denotes Customer
63	82	COBBLES		Sample No.*	AA184688	Lab. Sample	e No.	A22/7547	supplied information. Opinions a	and interpretations are
50	79			Sample Type:	В				outside the scope of accreditate	ion.
37.5	68			Depth* (m)	2.00	Customer:	DOBA		This report shall not be reprodu	ced except in full without
28	63			Date Received	24/01/2023	B Date Testin	g started	26/01/2023	the written approval of the Lab	oratory.
20	61			Description:	Brown slightl	ly sandy, grav	elly, SILT with	some cobbles		
14	58	GRAVEL								
10	55	GRAVEL		Remarks	Note: **Clause 9.2 ar	nd Clause 9.5 of BS13	77:Part 2:1990 have be	en superseded by ISO17892-4:	2 Sample size did not meet the requirements of BS1377	
6.3	51						63	0.3 .425 0.6	3 35	r¿.
5	49		100				0.063	0.3 0.425 0.6 1.18	2 3.3.3 6.3 6.3 7 8 7 8 7 8 7	37. 750 753 753
3.35	46		100 -							
2	42		90 -							
1.18	40		80 -							
0.6	37		<u>§</u> 70 -							
0.425	35	SAND	passing (%)							
0.3	33		<u>8</u> 50 -							
0.15	30		tage +0 -							
0.063	25		Percentage 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.							
0.037	22									
0.027	19		20 -							
0.017	17	SILT/CLAY	10 -							
0.010	14	0.21, 02.11	0 -	201 0.00	\1	0.01	0.1	1	10	100
0.007	12		0.00	0.00		0.01	0.1	1	10	100
0.005	10				CLAY	SILT	Sieve size (mr	n) SAND	GRAVEL	
0.002	6								In .	In
		IGSL I	td Mater	ials Laborator	/		Approved by		Date:	Page no:
		IOOL L		idio Edbordtor	7		A Rejane		15/02/23	1 of 1

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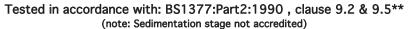
### **Determination of Particle Size Distribution**





particle	%			Contract No.	24330	Report No.	R142644			
size	passing			Contract Name:	Halverstown	, Naas 0 Prop	osed Data Cer	ntre Sites	Results relate only to the speci	men tested in as received
75	77	COBBLES		BH/TP No.	BH03				condition unless otherwise note	ed. * denotes Customer
63	70	CODDLLS		Sample No.*	AA184692	Lab. Sample	No.	A22/7549	supplied information. Opinions a	and interpretations are
50	64			Sample Type:	В				outside the scope of accreditat	ion.
37.5	64			Depth* (m)	3.00	Customer:	DOBA		This report shall not be reprodu	iced except in full without
28	59			Date Received	24/01/2023	B Date Testing	g started	26/01/2023	the written approval of the Lab	oratory.
20	54			Description:	Brown silty,	sandy, GRAVE	L with many c	obbles		
14	51	GRAVEL								
10	48	GIVAVLL		Remarks	Note: **Clause 9.2 ar	nd Clause 9.5 of BS137	77:Part 2:1990 have bee	en superseded by ISO17892-4:	2 Sample size did not meet the requirements of BS1377	
6.3	44						63	3 25 5 18	3 2 2 2	r.
5	42		100				0.063	0.3 0.425 0.6 1.18	2 3.3.3 6.3 6.3 20	37. 0 53.0 55.0 7.0 7.0 7.0 7.0 7.0
3.35	40		100							
2	37		90							
1.18	34		80							
0.6	30		<u>\$</u> 70 ·					<del>                                     </del>		
0.425	29	SAND	iss 60							
0.3	27		<u>8</u> 50 -							
0.15	23		Percentage passing (%) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0							
0.063	18		30 -							
			20							
		SILT/CLAY	10 -							
			0.0	001 0.00	21	0.01	0.1	1	10	100
			0.0	0.00				ı	_	100
					CLAY	SILT	Sieve size (mn	n) <i>SAND</i>	GRAVEL	
		1001 :					Approved by	y:	Date:	Page no:
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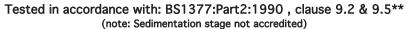
### **Determination of Particle Size Distribution**





particle	%			Contract No.	24330	Report No.	R142645	5			
size	passing		_	Contract Name:	Halverstown ,	Naas , Propo	osed Data C	Centre Sites	Result	ts relate only to the specin	nen tested in as receive
75	78	COBBLES		BH/TP No.	BH05				condi	tion unless otherwise noted	d. * denotes Customer
63	78	CODDLLS		Sample No.*	AA184672	Lab. Sample	e No.	A22/755	2 suppli	ied information. Opinions ar	nd interpretations are
50	78			Sample Type:	В				outsio	de the scope of accreditation	on.
37.5	66			Depth* (m)	3.00	Customer:	DOBA		This r	eport shall not be reproduc	ced except in full withou
28	62			Date Received	24/01/2023		•			ritten approval of the Labo	oratory.
20	51			Description:	Grey/brown c	layey, sandy	, GRAVEL w	ith many cobbles			
14	45	GRAVEL									
10	42	UIVAVLL		Remarks	Note: **Clause 9.2 and	d Clause 9.5 of BS13	77:Part 2:1990 hav	ve been superseded by ISO17	892-4:2 Sample siz	ze did not meet the requirements of BS1377	
6.3	36						63	0.15 0.3 0.425 0.6	1.18	33	ი.
5	34		100				0.063	0.15 0.3 0.425 0.6	. 2	3.3 6.3 10 14 20 20	72 37 3 4 3 4 3 4 3 4 3 4 3 4 3 4 3 4 3 4
3.35	32		100 -								
2	29		90 -								
1.18	26		© 80 -								
0.6	24		<u> </u>						++		
0.425	23	SAND	Percentage passing (%) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0						+		
0.3	21		<u>a</u> 50 -						$\perp \perp \downarrow$		
0.15	19		tage 40 -						$\sqcup \sqcup$		
0.063	16		30 -								
									+		
			20 -								
		SILT/CLAY	10 -								
			0.0	001 0.00		0.01	0.1	1		10	100
			0.0	0.00				'			100
					CLAY	SILT	Sieve size (	(mm) SAND		GRAVEL	
		1001 1		2.1.1.1			Approved	d by:	Date	e:	Page no:
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### **Determination of Particle Size Distribution**





particle	%		С	Contract No.	24330	Report No.	R142646			
size	passing		C	Contract Name :	Halverstown,	Naas , Prop	osed Data Ce	entre Sites	Results relate only to the specin	nen tested in as received
75	100	COBBLES	В	BH/TP No.	BH07				condition unless otherwise note	d. * denotes Customer
63	100	CODDLLS	S	sample No.*	AA184674	Lab. Sample	e No.	A22/7554	supplied information. Opinions a	nd interpretations are
50	100		S	ample Type:	В				outside the scope of accreditati	on.
37.5	94		D	epth* (m)	2.00	Customer:	DOBA		This report shall not be reprodu	ced except in full without
28	90		D		24/01/2023		-		the written approval of the Labo	oratory.
20	85		D	escription:	Brown slightly	/ sandy, sligh	ntly gravelly,	CLAY		
14	81	GRAVEL								
10	79	UIVAVLL	R	lemarks	Note: **Clause 9.2 and	Clause 9.5 of BS13	77:Part 2:1990 have	been superseded by ISO17892-4:2	2016 .	
6.3	75						63	0.15 0.3 0.6 0.6	3 3 2	ι.
5	73		100				0.063	0.15 0.3 0.425 0.6	2 3.33 6.3 10 10 20 20 20 20	37. 750 750 750 750
3.35	71		100							
2	67		90							
1.18	64		€ 80 —							
0.6	60		<u> </u>							
0.425	57	SAND	(%) 70 —							
0.3	53		<u>α</u> 50 —							
0.15	46		90							
0.063	37		30							
0.037	32									
0.027	28		20							
0.017	26	SILT/CLAY	10							
0.010	22		0	1 0.001		0.01	0.1	1	10	100
0.007	19		0.000			0.01	0.1	I	10	100
0.005	17			(	CLAY	SILT	Sieve size (r	mm) SAND	<i>GRAVEL</i>	
0.002	12							I.	In	In
		IGSL I	td Materia	ls Laboratory			Approved		Date:	Page no:
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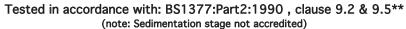
### **Determination of Particle Size Distribution**

Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5\*\* (note: Sedimentation stage not accredited)



particle	%			Contract No.	24330	Report No.	R142647		•	
size	passing		_	Contract Name:	Halverstown	, Naas , Prop	osed Data Centre	e Sites	Results relate only to the specin	men tested in as received
75	100	COBBLES	1	BH/TP No.	BH09				condition unless otherwise note	ed. * denotes Customer
63	100	COBBLES		Sample No.*	AA184681	Lab. Sample	e No.	A22/7556	supplied information. Opinions a	and interpretations are
50	100		1	Sample Type:	В				outside the scope of accreditat	ion.
37.5	95			Depth* (m)	3.00	Customer:	DOBA		This report shall not be reprodu	iced except in full without
28	90			Date Received	24/01/2023	3 Date Testin	g started	24/01/2023	the written approval of the Lab	oratory.
20	84			Description:	Brown slight	ly sandy, grav	elly, SILT/CLAY			
14	75	GRAVEL								
10	70	GIVAVLL		Remarks	Note: **Clause 9.2 ar	nd Clause 9.5 of BS13	77:Part 2:1990 have been s	superseded by ISO17892-4:	2016.	
6.3	64						63	0.3 .425 0.6 1.18		τĊ
5	62		100				0.063	0.3 0.425 0.6 1.18	2 3.33 6.3 6.3 7 7 7 7 8	750 27.0
3.35	58		100 -							
2	54		90 -							
1.18	50		80 -						<del>                                     </del>	
0.6	46		Š 70 -							
0.425	44	SAND	passing (%)							
0.3	42		g 50 -							
0.15	37		Percentage 0.5							
0.063	29		30 -							
0.038	25									
0.027	22		20 -							
0.018	19	SILT/CLAY	10 -		-					
0.010	15	5.E17 5E 11	0 -	201 201	1	0.01			10	100
0.007	14		0.00	0.00	)	0.01	0.1	1	10	100
0.005	12				CLAY	SILT	Sieve size (mm)	SAND	<i>GRAVEL</i>	
0.002	8								To .	In
		IGSI I	td Mater	ials Laborator	,		Approved by:		Date:	Page no:
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### **Determination of Particle Size Distribution**





particle	%		Contract No.	24330 Report No.	R142648		
size	passing		Contract Name :	Halverstown, Naas, Prop	oosed Data Centre Sites	Results relate only to the specin	nen tested in as received
75	100	COBBLES	BH/TP No.	BH11		condition unless otherwise note	d. * denotes Customer
63	100	COBBLES	Sample No.*	AA184673 Lab. Sampl	le No. A22/7558	supplied information. Opinions a	nd interpretations are
50	94		Sample Type:	В		outside the scope of accreditati	on.
37.5	92		Depth* (m)	3.00 Customer:	DOBA	This report shall not be reproduc	ced except in full without
28	88		Date Received	24/01/2023 Date Testin	ng started 26/01/2023	the written approval of the Labo	oratory.
20	81		Description:	Brown slightly sandy, gra	velly, CLAY		
14	76	GRAVEL					
10	72	GRAVEL	Remarks	Note: **Clause 9.2 and Clause 9.5 of BS1:	377:Part 2:1990 have been superseded by ISO17892-4:	2016.	
6.3	69				63 1   5 2   5 1   8	3 22	
5	67				0.063 0.425 0.6	23.3.3.1 6.3 78 78 78 78 78 78	37.5 37.5 53 53
3.35	65		100				
2	63		90			<del>                                     </del>	
1.18	61		80				
0.6	58		× 70				
0.425	56	SAND	ig 60				
0.3	54		70				
0.15	49		40				
0.063	42		ce J.				
0.037	36						
0.027	32		20				
0.017	29	SILT/CLAY	10				
0.010	25	SIL I / CLAI	0				
0.007	20		0.0001 0.0	0.01	0.1 1	10	100
0.005	18			CLAY S/LT	Sieve size (mm) SAND	<i>GRAVEL</i>	
0.002	11						
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### **Determination of Particle Size Distribution**

Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5\*\* (note: Sedimentation stage not accredited)



particle	%		Contr	act No.	24330	Report No.	R142649		•	
size	passing		Contr	act Name :	Halverstown	, Naas , Prop	osed Data Centr	e Sites	Results relate only to the specia	men tested in as received
75	100	COBBLES	BH/T	P No.	BH13				condition unless otherwise note	ed. * denotes Customer
63	100	CODDLES	Samp	le No.*	AA184686	Lab. Sample	e No.	A22/7561	supplied information. Opinions a	and interpretations are
50	100		Samp	le Type:	В				outside the scope of accreditat	ion.
37.5	95		Deptl	n* (m)	2.00	Customer:	DOBA		This report shall not be reprodu	ced except in full without
28	92		Date	Received	24/01/2023	B Date Testin	ig started	26/01/2023	the written approval of the Lab	oratory.
20	92		Descr	iption:	Brown slightl	ly sandy, sligh	ntly gravelly, SIL	T/CLAY		
14	90	GRAVEL								
10	88	GIVAVLL	Rema	rks	Note: **Clause 9.2 ar	nd Clause 9.5 of BS13	77:Part 2:1990 have been	superseded by ISO17892-4:	2016 .	
6.3	85						63	0.3 .425 0.6 1.18	3 22	τ.
5	83		100				0.063	0.3 0.425 0.6 1.18	2 3.33 6.3 6.3 70 70 70 70 70	37. 750 753 753
3.35	81		100							
2	78		90							
1.18	75		© 80							
0.6	72		<u>ම</u> 70							
0.425	70	SAND	(%) 70							
0.3	68		<u>8</u> 50							
0.15	62		40 Itage							
0.063	53		Percentage 30							
0.037	46									
0.027	41		20							
0.017	37	SILT/CLAY	10							
0.010	31	,	0	0.001		0.01	0.1	1	10	100
0.007	27		0.0001	0.001		0.01		I		100
0.005	23			(	CLAY	SILT	Sieve size (mm)	) SAND	<i>GRAVEL</i>	
0.002	16								In	In.
		IGSL I	td Materials L	aboratory			Approved by:		Date:	Page no:
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### **Determination of Particle Size Distribution**

Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5\*\* (note: Sedimentation stage not accredited)



particle	%		Contract	No. 24330	Report No.	R142650			
size	passing		Contract	Name: Halverstown	, Naas , Prop	osed Data Centre	Sites	Results relate only to the specin	nen tested in as received
75	100	COBBLES	BH/TP N	o. TP04				condition unless otherwise note	d. * denotes Customer
63	100	CODDLLS	Sample N	No.* AA186982	Lab. Sample	e No.	A22/7562	supplied information. Opinions a	nd interpretations are
50	100		Sample T	ype: B				outside the scope of accreditati	on.
37.5	100		Depth* (	m) 0.60	Customer:	DOBA		This report shall not be reprodu	ced except in full without
28	100		Date Rec	ceived 24/01/2023	3 Date Testin	g started	24/01/2023	the written approval of the Labo	oratory.
20	94		Descripti	on: Brown slight	ly sandy, sligh	ntly gravelly, CLAY	,		
14	91	GRAVEL							
10	87	UIVAVLL	Remarks	Note: **Clause 9.2 a	nd Clause 9.5 of BS13	77:Part 2:1990 have been su	perseded by ISO17892-4:	2016.	
6.3	83					0.15	0.3 1.425 0.6 1.18	3 22	ī.
5	81		100			0.063	0.3 0.425 0.6 1.18	2 3.3.3 6.3 7 8 7 8 7 8 7 8 7 8 7 8 7 8 7 8 7 8 7	37. 50. 75. 75. 75.
3.35	79		100						
2	76		90						
1.18	73		© 80 <del>       </del>				<del>                </del>		
0.6	70		<u>ී</u> 70						
0.425	68	SAND	Percentage passing (%)  30  30						
0.3	67		<u>ω</u> 50						
0.15	62		1ta go						
0.063	54		30						
0.037	47				111				
0.027	41		20						
0.017	37	SILT/CLAY	10						
0.010	33		0 1	0.001	0.01	0.1	1	10	100
0.007	28		0.0001				ı		100
0.005	25			CLAY	SILT	Sieve size (mm)	SAND	GRAVEL	
0.002	16							In	In.
		IGSL I	td Materials Lab	oratory		Approved by:		Date:	Page no:
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### **Determination of Particle Size Distribution**

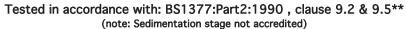
Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5\*\* (note: Sedimentation stage not accredited)



particle	%		С	Contract No.	24330	Report No.	R142651			
size	passing		C	Contract Name :	Halverstown,	Naas , Prop	osed Data Centre	Sites	Results relate only to the specin	nen tested in as received
75	100	COBBLES	В	H/TP No.	TP12				condition unless otherwise note	d. * denotes Customer
63	100	CODDLLS	S	ample No.*	AA185481	Lab. Sample	e No.	A22/7563	supplied information. Opinions a	nd interpretations are
50	100		S	ample Type:	В				outside the scope of accreditati	on.
37.5	100		D	epth* (m)	0.50	Customer:	DOBA		This report shall not be reprodu	ced except in full without
28	98		D	ate Received	24/01/2023		•		the written approval of the Labo	oratory.
20	96		D	escription:	Brown slightly	/ sandy, sligh	ntly gravelly, CLA	Y		
14	94	GRAVEL								
10	92	GIVAVEL	R	emarks	Note: **Clause 9.2 and	d Clause 9.5 of BS13	77:Part 2:1990 have been su	uperseded by ISO17892-4:	2016.	
6.3	89						0.15	0.3 .425 0.6 1.18	332	7. 0.2.0
5	88		100				0.063	0.3 0.425 0.6 1.18	2 3.3.3 6.3 78 78 78 78	37. 530 530 531
3.35	84									
2	80		90 —							
1.18	77		⊚ 80 —							
0.6	74		<u> </u>							
0.425	73	SAND	Percentage passing (%)							
0.3	71		<u>ω</u> 50 —							
0.15	65		40 <del>- 1</del>							
0.063	56		30							
0.037	47		20			111   1				
0.027	42									
0.017	38	SILT/CLAY	10							
0.010	32		0.000	1 0.001		0.01	0.1	1	10	100
0.007	28		0.000					1		100
0.005	23			1	CLAY	SILT	Sieve size (mm)	SAND	GRAVEL	
0.002	14						Approved by		Deter	Daga na
		IGSL L	_td Material	ls Laboratory			Approved by:		Date:	Page no:
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### **Determination of Particle Size Distribution**





particle	%			Contract No.	24330	Report No.	R142652			
size	passing		_	Contract Name:	Halverstown	, Naas , Propo	osed Data Centre	Sites	Results relate only to the speci	men tested in as receive
75	100	COBBLES		AA185479	TP15				condition unless otherwise note	ed. * denotes Customer
63	100	COBBLES		Sample No.*	AA186982	Lab. Sample	No.	A22/7565	supplied information. Opinions	and interpretations are
50	100			Sample Type:	В				outside the scope of accreditat	tion.
37.5	100			Depth* (m)	1.50	Customer:	DOBA		This report shall not be reprodu	uced except in full withou
28	99			Date Received	24/01/2023	B Date Testing	g started	24/01/2023	the written approval of the Lab	oratory.
20	98			Description:	Brown slightl	y sandy, sligh	tly gravelly, CLA	(		
14	96	GRAVEL								
10	94	GRAVEL		Remarks	Note: **Clause 9.2 an	nd Clause 9.5 of BS137	77:Part 2:1990 have been su	perseded by ISO17892-4:	2016.	
6.3	90						63	3 25 18	3 22	r.
5	88		100				0.063	0.3 0.425 0.6 1.18	2 3.35 6.3 10 10 20	22 23 24 28 2
3.35	85		100 -							
2	80		90 -							
1.18	77		© 80 -							
0.6	72		<u> </u>							
0.425	70	SAND	iss 60 -							
0.3	67		<u>ω</u> 50 -							
0.15	61		tage 40 -							
0.063	52		Percentage passing (%) 8 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0							
			20 -							
		SILT/CLAY	10 -							
			0.0	001 0.00	)1	0.01	0.1	1	10	100
					CLAY		Sieve size (mm)	SAND	GRAVEL	
							Approved by:		Date:	Page no:
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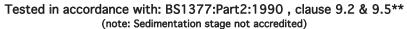
### **Determination of Particle Size Distribution**

Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5\*\* (note: Sedimentation stage not accredited)



particle	%			Contract No.	24330	Report No.	R142653						
size	passing		_	Contract Name:	Halverstown	, Naas , Propo	osed Data C	entre Sites	Results relate only to the specia	men tested in as received			
75	100	COBBLES		AA185479	TP16				condition unless otherwise note	d. * denotes Customer			
63	100	COBBLES		Sample No.*	AA185481	Lab. Sample	No.	A22/7566	supplied information. Opinions a	and interpretations are			
50	100			Sample Type:	В				outside the scope of accreditat	ion.			
37.5	100			Depth* (m)	1.00	Customer:	DOBA		This report shall not be reprodu	ced except in full without			
28	100			Date Received	24/01/2023	Date Testing	g started	24/01/2023	the written approval of the Lab	oratory.			
20	100			Description:	Mottled brow	n slightly san	ndy, slightly	gravelly, CLAY					
14	99	GRAVEL											
10	97	GIVAVEL		Remarks	Note: **Clause 9.2 an	d Clause 9.5 of BS137	77:Part 2:1990 have	e been superseded by ISO17892-4:	2016.				
6.3	95						63	0.15 0.3 0.425 0.6	3 3	ν. Ω			
5	94		100				0.063	0.15 0.425 0.6 1.18	2 3.3 6.3 6.3 7 7 7 7 7 7 7	37. 750.7. 7530.7.			
3.35	93		100										
2	90		90 -										
1.18	88		© 80 <del>-</del>										
0.6	84	SAND	SAND	SAND		<u>ම</u> 70 +					<del>[         </del>		
0.425	82				Percentage passing (%) 40 - 20 - 30 - 30 - 30 - 30 - 30 - 30 - 3								
0.3	80		<u>8</u> 50 +										
0.15	73		14age										
0.063	63		30 <del>-</del>										
			20 -										
		SILT/CLAY	10 -										
			0.00	0.00	\1	0.01	0.1	1	10	100			
			0.00	0.00				ı	_	100			
					CLAY	SILT	Sieve size (	mm) <i>SAND</i>	GRAVEL				
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### **Determination of Particle Size Distribution**





particle	%		Cor	ntract No.	24330	Report No.	R142654		<u> </u>			
size	passing		Cor	ntract Name :	Halverstown	, Naas , Prop	osed Data Centr	re Sites	Results relate only to the specia	men tested in as received		
75	100	COBBLES	AA	185479	TP19				condition unless otherwise note	ed. * denotes Customer		
63	100	CODDLES	San	mple No.*	AA185468	Lab. Sample	e No.	A22/7568	supplied information. Opinions a	and interpretations are		
50	100		San	mple Type:	В				outside the scope of accreditat	ion.		
37.5	100		Dep	pth* (m)	0.50	Customer:	DOBA		This report shall not be reprodu	ced except in full without		
28	97		Dat	te Received	24/01/2023	B Date Testin	g started	24/01/2023	the written approval of the Lab	oratory.		
20	97		Des	scription:	Mottled brow	n slightly sar	ndy, slightly grav	velly, CLAY				
14	95	GRAVEL										
10	93	GRAVEL	Ren	marks	Note: **Clause 9.2 ar	nd Clause 9.5 of BS13	77:Part 2:1990 have been	superseded by ISO17892-4:	2016.			
6.3	90						63	3 25 5 18	3 22	r.		
5	88		100				0.063	0.3 0.425 0.6 1.18	2 3.33 6.3 6.3 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	37. 750 753 753		
3.35	86					100						
2	82		90									
1.18	80		80						<del>                                     </del>			
0.6	77		§ 70 —									
0.425	75	SAND	70									
0.3	73		50									
0.15	64		Percentage 30									
0.063	54		30 -									
0.037	46											
0.027	41		20									
0.017	37	SILT/CLAY	10		1							
0.010	32	SIL1/CLA1	0 -	2 2 2 2		0.01			10	100		
0.007	26		0.0001	0.001		0.01	0.1	T	10	100		
0.005	21				CLAY	SILT	Sieve size (mm	) SAND	<i>GRAVEL</i>			
0.002	11								<u></u>			
		IGSI I	td Materials	Lahoratory			Approved by:		Date:	Page no:		
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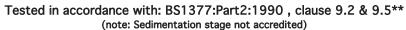
### **Determination of Particle Size Distribution**

Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5\*\* (note: Sedimentation stage not accredited)



particle	%	1		Contract No.	24330	Report No.	R14265			
size	passing	<u> </u>	•	Contract Name :	Halverstown	, Naas , Prop	osed Data (	Centre Sites	Results relate only to the specia	men tested in as received
75	100	COBBLES		AA185479	TP22				condition unless otherwise note	ed. * denotes Customer
63	100	CODDLES		Sample No.*	AA185500	Lab. Sample	e No.	A22/7572	supplied information. Opinions a	and interpretations are
50	96			Sample Type:	В				outside the scope of accreditat	ion.
37.5	94			Depth* (m)	2.40	Customer:	DOBA		This report shall not be reprodu	iced except in full without
28	91			Date Received	24/01/2023	B Date Testin	ng started	24/01/2023	the written approval of the Lab	oratory.
20	82			Description:	Brown slightl	y sandy, grav	velly, SILT/C	CLAY		
14	79	GRAVEL								
10	76	GRAVEL		Remarks	Note: **Clause 9.2 an	nd Clause 9.5 of BS13	377:Part 2:1990 hav	ve been superseded by ISO17892-4:	2016 .	
6.3	71						53	8 22 2		7.
5	68						0.063	0.15 0.3 0.425 0.6	2 3.3.3.5 6.3 10 10 20	37.5 37.5 53 53
3.35	64		100 -							
2	58		90 -						<del>                                     </del>	
1.18	53		80 -							
0.6	47		§ 70 -							
0.425	45	SAND	Percentage passing (%)							
0.3	42		<u>8</u> 50 -						1	
0.15	37		1tage							
0.063	31		cent							
0.037	27									
0.027	24		20 -							
0.017	21	CILT/CLAV	10 -		-					
0.010	18	SILT/CLAY	0 -							
0.007	16		0.0	0.00	)1	0.01	0.1	1	10	100
0.005	14				CLAY	SILT	Sieve size	(mm) SAND	<b>GRAVEL</b>	
0.002	10									
	_	ICCL I	+d Ma+a::	iolo I obovets:-	,		Approve		Date:	Page no:
	IGSL Ltd Materials Laboratory									1 of 1

### **Determination of Particle Size Distribution**

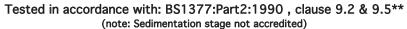




particle	%		Contra	act No.	24330	Report No.	R142656					
size	passing		Contra	act Name :	Halverstown	, Naas , Prop	osed Data Cent	tre Sites	Results relate only to the speci	men tested in as received		
75	100	COBBLES	AA18	5479	TP24				condition unless otherwise not	ed. * denotes Customer		
63	100	COBBLES	Sampl	e No.*	AA181981	Lab. Sample	e No.	A22/7574	supplied information. Opinions	and interpretations are		
50	100		Sampl	е Туре:	В				outside the scope of accreditate	tion.		
37.5	100		Depth	* (m)	1.50	Customer:	DOBA		This report shall not be reprodu	uced except in full without		
28	100		Date F	Received	24/01/2023	B Date Testin	g started	24/01/2023	the written approval of the Lab	oratory.		
20	100		Descri	ption:	Brown slightl	y sandy, sligh	ntly gravelly, Cl	LAY				
14	99	GRAVEL										
10	98	GIVAVEL	Remar	·ks	Note: **Clause 9.2 ar	nd Clause 9.5 of BS13	77:Part 2:1990 have bee	en superseded by ISO17892-4:	2016 .			
6.3	95						0.15	0.3 .425 0.6	3 32	7.		
5	93		100				0.063	0.3 0.425 0.6 1.18	2 3.33 6.3 10 10 20	28 37. 50. 530.		
3.35	91					100						
2	88		90									
1.18	86		© 80 <del>     </del>									
0.6	83		ô 70									
0.425	81	SAND	(%) 70									
0.3	79		<u>α</u> 50									
0.15	72		40 trage									
0.063	64		Percentage									
0.037	56		20			$H \mid \cdot \mid \cdot \mid$						
0.027	48											
0.018	39	SILT/CLAY	10									
0.010	32	SILT/ CLAT	0	0.001		0.01	0.1	1	10	100		
0.007	26		0.0001	0.001		0.01		I	10	100		
0.005	23			(	CLAY	SILT	Sieve size (mn	n) <i>SAND</i>	GRAVEL			
0.002	12						Anne		IData	ID		
		IGSL I	td Materials L	aboratory			Approved by		Date:	Page no:		
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## **Determination of Particle Size Distribution**





particle	%		Contrac	t No. 2	24330	Report No.	R142657			
size	passing		Contrac	t Name : I	Halverstown	, Naas , Propo	osed Data Cer	ntre Sites	Results relate only to the speci	men tested in as received
75	100	COBBLES	AA1854	179	ГР26				condition unless otherwise note	ed. * denotes Customer
63	100	CODDLES	Sample	No.*	AA181975	Lab. Sample	e No.	A22/7575	supplied information. Opinions	and interpretations are
50	100		Sample	Туре: Е	3				outside the scope of accreditat	ion.
37.5	100		Depth*	(m) (	0.50	Customer:	DOBA		This report shall not be reprodu	aced except in full without
28	94		Date Re	ceived 2	24/01/2023	B Date Testing	g started	24/01/2023	the written approval of the Lab	oratory.
20	91		Descript	ion: E	Brown slightl	y sandy, sligh	itly gravelly, C	CLAY		
14	88	GRAVEL								
10	85	GIVAVLL	Remarks	S N	lote: **Clause 9.2 an	nd Clause 9.5 of BS137	77:Part 2:1990 have b	een superseded by ISO17892-4:2	2016.	
6.3	81						63	0.3 .425 0.6	3 32	
5	79		100				0.063	0.3 0.425 0.6 1.18	2 3.33 6.3 10 10 20	7 2 3 3 7 3 4 5 5 6 5 6 5 6 6 6 6 6 6 6 6 6 6 6 6 6
3.35	75		100							
2	72		90							
1.18	69		© 80							
0.6	65		° 70						<del>                                     </del>	
0.425	63	SAND	(%) 70							
0.3	60		g 50					1		
0.15	53		40 tage							
0.063	44		Percentage 40							
0.038	37									
0.027	33		20							
0.017	27	SILT/CLAY	10							
0.010	22		0.0001	0.001		0.01	0.1	1	10	100
0.007	17		0.0001					I		100
0.005	15			C	LAY	SILT	Sieve size (m	m) SAND	GRAVEL	
0.002	10								In	In.
		IGSL I	td Materials Lal	boratory			Approved b		Date:	Page no:
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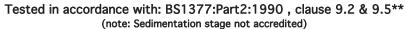
## **Determination of Particle Size Distribution**

Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5\*\* (note: Sedimentation stage not accredited)



particle	%		Contract No.	24330 Report	No. R142658		
size	passing		Contract Name	e: Halverstown , Naas , F	roposed Data Centre Sites	Results relate only to the spec	imen tested in as received
75	100	COBBLES	AA185479	TP28		condition unless otherwise not	ed. * denotes Customer
63	100	COBBLES	Sample No.*	AA181969 Lab. Sa	nple No. A22/75	76 supplied information. Opinions	and interpretations are
50	100		Sample Type:	В		outside the scope of accredita	ition.
37.5	100		Depth* (m)	0.60 Custom	er: DOBA	This report shall not be reprod	uced except in full without
28	97		Date Received	24/01/2023 Date Te	sting started 24/01,	/2023 the written approval of the Lak	poratory.
20	97		Description:	Mottled brown slightly	sandy, slightly gravelly, CLAY		
14	95	GRAVEL					
10	94	GIVAVLL	Remarks	Note: **Clause 9.2 and Clause 9.5 o	BS1377:Part 2:1990 have been superseded by ISO	17892-4:2016 .	
6.3	93				0.15 0.3 0.6	1.18 2 3.35 5.3 6.3 10	75
5	92		100		0.063 0.15 0.3 0.425 0.6	1.18 2.33.35 6.3 10 10	28 37. 50 53 53
3.35	88		100				
2	84		90				
1.18	81		© 80 <del>                                     </del>				<del>                                      </del>
0.6	78		© 70 <del>                                     </del>				<del>                                      </del>
0.425	76	SAND	(%) 70				
0.3	73		δ 50				
0.15	65		tag 40				
0.063	55		Percentage 40				
			20				
		SILT/CLAY	10				
			0.0001	0.001 0.01	0.1	1 10	100
			0.0001				100
				CLAY SIL	7 Sieve size (mm) SAND	GRAVEL	
		1001 :			Approved by:	Date:	Page no:
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## **Determination of Particle Size Distribution**





particle	%		Contract N	No. 24330	Report No.	R142751			
size	passing		Contract N	Name: Halverstown	, Naas , Propo	osed Data Centre	Sites	Results relate only to the speci	men tested in as received
75	100	COBBLES	AA18547	9 TP31				condition unless otherwise note	ed. * denotes Customer
63	100	CODDLES	Sample No	o.* AA181992	Lab. Sample	No.	A22/7578	supplied information. Opinions a	and interpretations are
50	100		Sample Ty	уре: В				outside the scope of accreditat	ion.
37.5	100		Depth* (m	n) 0.50	Customer:	DOBA		This report shall not be reprodu	iced except in full without
28	100		Date Rece	eived 24/01/2023	Date Testing	g started	24/01/2023	the written approval of the Lab	oratory.
20	98		Descriptio	n: Brown slightl	y sandy, sligh	tly gravelly, CLA	<b>(</b>		
14	98	GRAVEL							
10	96	GIVAVLL	Remarks	Note: **Clause 9.2 an	d Clause 9.5 of BS137	77:Part 2:1990 have been su	perseded by ISO17892-4:	2016 .	
6.3	93					63	0.3 .425 0.6 1.18	3 32	ιċ
5	92		100			0.063	0.3 0.425 0.6 1.18	2 3.33 6.3 6.3 7 7 7 7 7 7	37. 0 50 53 7. 0 53 7. 0
3.35	90		100						
2	87		90						
1.18	84		© 80 <del> </del>						
0.6	81		° 70						
0.425	79	SAND	(%) 70						
0.3	76		<u>8</u> 50						
0.15	68		90						
0.063	57		30 - Streen						
0.038	48				111				
0.027	43		20						
0.017	38	SILT/CLAY	10						
0.010	32	,	0 1	0.001	0.01	0.1	1	10	100
0.007	29		0.0001	0.001	0.01	0.1	I	10	100
0.005	26			CLAY	SILT	Sieve size (mm)	SAND	GRAVEL	
0.002	14							In .	In .
		IGSL I	td Materials Lah	oratory		Approved by:		Date: 21/02/23	Page no:
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## **Determination of Particle Size Distribution**

Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5\*\* (note: Sedimentation stage not accredited)



particle	%		Contract No.	24330 Report No.	. R142659		
size	passing		Contract Name	Halverstown, Naas, Pro	posed Data Centre Sites	Results relate only to the specin	men tested in as received
75	100	COBBLES	AA185479	TP33		condition unless otherwise note	d. * denotes Customer
63	100	COBBLES	Sample No.*	AA181989 Lab. Samp	le No. A22/7579	supplied information. Opinions a	nd interpretations are
50	100		Sample Type:	В		outside the scope of accreditati	ion.
37.5	100		Depth* (m)	0.50 Customer:	DOBA	This report shall not be reprodu	ced except in full without
28	100		Date Received	24/01/2023 Date Testi	ng started 24/01/2023	the written approval of the Labo	oratory.
20	99		Description:	Brown slightly sandy, slig	htly gravelly, CLAY		
14	98	GRAVEL					
10	95	UIVAVLL	Remarks	Note: **Clause 9.2 and Clause 9.5 of BS1	377:Part 2:1990 have been superseded by ISO17892-4	2016 .	
6.3	93				0.15 0.15 0.3 0.6 0.6	2 3.35 5.3 10 14 20	7.
5	92		100		0.063 0.15 0.3 0.425 0.6	23.3.3.3.4 6.3 6.3 8.3.3.4 70 10 20 86.3	37.00
3.35	89		100				
2	86		90				
1.18	83		© 80 H				
0.6	80		© 70 <del>                                     </del>				
0.425	78	SAND	iss 60				
0.3	76		<u>a</u> 50				
0.15	69		Percentage passing (%)  30  30				
0.063	60		30				
			20				
		SILT/CLAY	10				
			0.0001 0	.001 0.01	0.1	10	100
			0.0001				100
				CLAY SILT	Sieve size (mm) SAND	GRAVEL	
		1001 1	I d Maria Sala I al		Approved by:	Date:	Page no:
	IGSL Ltd Materials Laboratory					21/02/23	1 of 1

Report No.

Co. Kildare 045 899324

## Test Report

#### Determination of Moisture Condition Value at Natural Moisture Content

R142007



Tested in accordance with BS1377:Part 4:1990, clause 5.4

Contract No.	24330
Contract Name:	Halverstown , Naas - Proposed Data Centres
Customer:	DOBA
BH/TP*	TP04
Sample No.*	AA186982
Depth* (m)	0.60
Sample Type:	В
Lab Sample No.	A22/7562
Source* (if applicable)	N/A
Material Type* (if applicable):	В

24/01/23

25/01/23

Sample Cert: Not Provided

Moisture Content (%): 13

% Particles > 20mm 14

(By dry mass):

Sample Received:

Date Tested:

MCV: 4.6

Interpretation of Plot: Steepest Straight Line

Description of Soil: Brown slightly sandy slightly gravelly CLAY

Results relate only to the specimen tested, in as received condition unless otherwise noted.			Persons authorised to approve reports		
Opinions and interpretations are outside the scope of accreditation.			J Barrett (Quality Manager)		
* denotes Customer supplied information.			H Byrne (Laboratory Manager)		
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IGSL Ltd Materials Laboratory	4 Byone		01/02/23	1 of 1	

\* denotes Customer supplied information.

Co. Kildare

## Test Report

## Determination of Moisture Condition Value at Natural Moisture Content



045 899324		l ested in accordanc	ce with BS1377:Part 4:199	90, clause 5.4	
	Report No		R142008		
	Contract N	0.	24330		
	Contract N	ame:	Halverstown, Naas - F	Proposed Data Centi	res
	Customer:		DOBA		
	BH/TP*		TP04		
	Sample No	).*	AA186982		
	Depth* (m)		0.60		
	Sample Ty	pe:	В		
	Lab Sampl	e No.	A22/7562		
	Source* (if	applicable)	0		
	Material Ty	pe* (if applicable):	В		
	Sample Re	eceived:	24/01/23		
	Date Teste	ed:	25/01/23		
	Sample Ce	ert:	Not Provided		
	Moisture C	ontent (%):	10		
	% Particles (By dry ma		14		
	MCV:		7.2		
	Interpretati	on of Plot:	Steepest Straight Line		
	Description	n of Soil:	Brown slightly sandy sl Added	ightly gravelly CLAY	- 1% Lime
· ·	•	d, in as received condition unless othe the scope of accreditation.	erwise noted.	Persons authorised to a J Barrett (Qu	approve reports

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	Approved by	Date	Page		
IGSL Ltd Materials Laboratory	4 Byens	01/02/23	1 of 1		

H Byrne (Laboratory Manager)

Co. Kildare

045 899324

## Test Report

## Determination of Moisture Condition Value at Natural Moisture Content



Tested in accordance with BS1377:Part 4:1990, clause 5.4

Report No.	R142685
Contract No.	24330
Contract Name:	Halverstown , Naas - Proposed Data Centres
Customer:	DOBA
BH/TP*	TP04
Sample No.*	AA186982
Depth* (m)	0.60
Sample Type:	В
Lab Sample No.	A22/7562
Source* (if applicable)	N/A
Material Type* (if applicable):	В
Sample Received:	24/01/23
Date Tested:	08/02/23
Sample Cert:	Not Provided
Moisture Content (%):	14
% Particles > 20mm (By dry mass):	14

Results relate only to the specimen tested, in as received condition unless otherwise noted.			Persons authorised to approve reports		
Opinions and interpretations are outside the scope of accreditation.			J Barrett (Quality Manager)		
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8.6

Steepest Straight Line

Lime/2% Cement

<b>IGSL</b>	Ltd	Materials	Laboratory
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Interpretation of Plot:

Description of Soil:

MCV:

Approved by	Date	Page
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Brown slightly sandy slightly gravelly CLAY - 1%

Naas Co Kildar

# Test Report

## Determination of Moisture Condition Value at Natural Moisture Content



Co. Kildare 045 899324

040 000024		
	Report No.	R142009
	Contract No.	24330
	Contract Name:	Halverstown , Naas - Proposed Data Centres
	Customer:	DOBA
	BH/TP*	TP04
	Sample No.*	AA186982
	Depth* (m)	0.60
	Sample Type:	В
	Lab Sample No.	A22/7562
	Source* (if applicable)	N/A
	Material Type* (if applicable):	В
	Sample Received:	24/01/23
	Date Tested:	25/01/23
	Sample Cert:	Not Provided
	Moisture Content (%):	11
	% Particles > 20mm (By dry mass):	14
	MCV:	13.6
	Interpretation of Plot:	Steepest Straight Line
	Description of Soil:	Brown slightly sandy slightly gravelly CLAY - 3% Lime Added

esults relate only to the specimen tested, in as received condition unless otherwise noted.		Persons authorised to approve reports		
Opinions and interpretations are outside the scope of accreditation.		J Barrett (Quality Manager)		
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IGSL Ltd Materials Laboratory				

Co. Kildare 045 899324

## Test Report

## Determination of Moisture Condition Value at Natural Moisture Content



Tested in accordance with BS1377:Part 4:1990, clause 5.4

Report No.	R142010
Contract No.	24330
Contract Name:	Halverstown , Naas - Proposed Data Centres
Customer:	DOBA
BH/TP*	TP12
Sample No.*	AA185481
Depth* (m)	0.50
Sample Type:	В
Lab Sample No.	A22/7563
Source* (if applicable)	N/A
Material Type* (if applicable):	В
Sample Received:	24/01/23
Date Tested:	25/01/23
Sample Cert:	Not Provided
Moisture Content (%):	13
% Particles > 20mm (By dry mass):	6.4
MCV:	6.0
Interpretation of Plot:	Steepest Straight Line

Description of Soil:

Results relate only to the specimen tested, in as received condition unless other	rwise noted.	Persons aut	horised to a	approve reports
Opinions and interpretations are outside the scope of accreditation.			J Barrett (Q	uality Manager)
* denotes Customer supplied information.			H Byrne (La	boratory Manager)
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	Approved by	-	Date	Page
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Brown slightly sandy slightly gravelly CLAY

Report No.

Co. Kildare

## **Test Report**

#### Determination of Moisture Condition Value at Natural Moisture Content

R142011



Tested in accordance with BS1377:Part 4:1990, clause 5.4

Contract No. 24330

Contract Name: Halverstown , Naas - Proposed Data Centres

Customer: DOBA

BH/TP\* TP12

Sample No.\* AA185481

Depth\* (m) 0.50

Sample Type: B

Lab Sample No. A22/7563

Source\* (if applicable) N/A

Material Type\* (if applicable):

Sample Received: 24/01/23

Date Tested: 25/01/23

Sample Cert: Not Provided

Moisture Content (%): 13

% Particles > 20mm 6.4

(By dry mass):

MCV: 8.0

Interpretation of Plot: Steepest Straight Line

Description of Soil: Brown slightly sandy slightly gravelly CLAY - 1% Lime

Added

Results relate only to the specimen tested, in as received condition unless otherwise noted.

Opinions and interpretations are outside the scope of accreditation.

\* denotes Customer supplied information.

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Approved by

Persons authorised to approve reports

J Barrett (Quality Manager)

H Byrne (Laboratory Manager)

Date Page

IGSL Ltd Materials Laboratory

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Co. Kildare 045 899324

## Test Report

#### Determination of Moisture Condition Value at Natural Moisture Content



Tested in accordance with BS1377:Part 4:1990, clause 5.4

Report No.	R142686

Contract No. 24330

Contract Name: Halverstown, Naas - Proposed Data Centres

Customer: DOBA

BH/TP\* TP12

Sample No.\* AA185481

Depth\* (m) 0.50

Sample Type: B

Lab Sample No. A22/7563

Source\* (if applicable) N/A

Material Type\* (if applicable):

Sample Received: 24/01/23

Date Tested: 25/01/23

Sample Cert: Not Provided

Moisture Content (%): 14

% Particles > 20mm 6.4

(By dry mass):

MCV: 8.9

Interpretation of Plot: Steepest Straight Line

Description of Soil: Brown slightly sandy slightly gravelly CLAY - 1%Lime /

2% Cement

Results relate only to the specimen tested, in as received condition unless otherw	ise noted.	Persons auth	norised to a	approve reports
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Co. Kildare

# Test Report

## Determination of Moisture Condition Value at Natural Moisture Content



045 899324		Tested in accordance		
	Report No	) <b>.</b>	R142012	
	Contract N	0.	24330	
	Contract N	ame:	Halverstown , Naas - Proposed Data Centr	es
	Customer:		DOBA	
	BH/TP*		TP12	
	Sample No	0.*	AA185481	
	Depth* (m)	)	0.50	
	Sample Ty	pe:	В	
	Lab Sampl	e No.	A22/7563	
	Source* (if	applicable)	N/A	
	Material Ty	/pe* (if applicable):	В	
	Sample Re	eceived:	24/01/23	
	Date Teste	ed:	25/01/23	
	Sample Ce	ert:	Not Provided	
	Moisture C	content (%):	12	
	% Particles (By dry ma		6.4	
	MCV:		11.7	
	Interpretati	on of Plot:	Steepest Straight Line	
	Description	n of Soil:	Brown slightly sandy slightly gravelly CLAY Added	- 3% Lime

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## **Test Report**

#### Determination of Moisture Condition Value at Natural Moisture Content



Tested in accordance with BS1377:Part 4:1990, clause 5.4 045 899324

> Report No. R142013

24330 Contract No.

Contract Name: Halverstown, Naas - Proposed Data Centres

Customer: **DOBA** 

BH/TP\* TP13

Sample No.\* AA185455

Depth\* (m) 1.00

Sample Type: В

Lab Sample No. A22/7560

Source\* (if applicable) N/A

Material Type\* (if applicable):

Sample Received: 24/01/23

Date Tested: 26/01/23

Not Provided Sample Cert:

Moisture Content (%): 12

% Particles > 20mm 9.3

(By dry mass):

MCV: 8.8

Interpretation of Plot: Steepest Straight Line

Grey/brown sandy gravelly SILT/CLAY Description of Soil:

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## Test Report

## Determination of Moisture Condition Value at Natural Moisture Content



045 899324	rested in desordance	e with Botorra dit 4.1000, olduse o.4
	Report No.	R142014
	Contract No.	24330
	Contract Name:	Halverstown , Naas - Proposed Data Centres
	Customer:	DOBA
	BH/TP*	TP15
	Sample No.*	AA185479
	Depth* (m)	1.50
	Sample Type:	В
	Lab Sample No.	A22/7565
	Source* (if applicable)	N/A
	Material Type* (if applicable):	В
	Sample Received:	24/01/23
	Date Tested:	26/01/23
	Sample Cert:	Not Provided
	Moisture Content (%):	13
	% Particles > 20mm (By dry mass):	3.3
	MCV:	7.1
	Interpretation of Plot:	Steepest Straight Line
	Description of Soil:	Brown slightly sandy, slightly gravelly, CLAY

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## **Test Report**

#### Determination of Moisture Condition Value at Natural Moisture Content



Co. Kildare
045 899324

Tested in accordance with BS1377:Part 4:1990, clause 5.4

Report No. R142015

Contract No. 24330

Contract Name: Halverstown, Naas - Proposed Data Centres

Customer: DOBA

BH/TP\* TP16

Sample No.\* AA185461

Depth\* (m) 1.00

Sample Type: B

Lab Sample No. A22/7566

Source\* (if applicable) N/A

Material Type\* (if applicable):

Sample Received: 24/01/23

Date Tested: 24/01/23

Sample Cert: Not Provided

Moisture Content (%): 14

% Particles > 20mm 12

(By dry mass):

MCV: 0.2

Interpretation of Plot: Steepest Straight Line

Description of Soil: Mottled brown slightly sandy, slightly gravelly, CLAY

Results relate only to the specimen tested, in as received condition unless otherwise noted.

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Co. Kildare 045 899324

## Test Report

## Determination of Moisture Condition Value at Natural Moisture Content



Report No.	R142687
Contract No.	24330
Contract Name:	Halverstown , Naas - Proposed Data Centres
Customer:	DOBA
BH/TP*	TP18
Sample No.*	AA185468
Depth* (m)	0.50
Sample Type:	В
Lab Sample No.	A22/7567
Source* (if applicable)	N/A
Material Type* (if applicable):	В
Sample Received:	24/01/23
Date Tested:	25/01/23
Sample Cert:	Not Provided
Moisture Content (%):	9.2
% Particles > 20mm (By dry mass):	14
MCV:	12.3
Interpretation of Plot:	Steepest Straight Line
Description of Soil:	Mottled brown sandy gravelly SILT/CLAY

Results relate only to the specimen tested, in as received condition unless other	wise noted.	Persons auth	norised to a	approve reports
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## **Test Report**

#### Determination of Moisture Condition Value at Natural Moisture Content



Co. Kildare 045 899324

Tested in accordance with BS1377:Part 4:1990, clause 5.4

Report No.	R142016

Contract No. 24330

Contract Name: Halverstown, Naas - Proposed Data Centres

Customer: DOBA

BH/TP\* TP19

Sample No.\* AA185468

Depth\* (m) 0.50

Sample Type: B

Lab Sample No. A22/7568

Source\* (if applicable) N/A

Material Type\* (if applicable):

Sample Received: 24/01/23

Date Tested: 25/01/23

Sample Cert: Not Provided

Moisture Content (%): 13

% Particles > 20mm 8.9

(By dry mass):

MCV: 8.2

Interpretation of Plot: Steepest Straight Line

Description of Soil: Brown sandy gravelly SILT/CLAY

Results relate only to the specimen tested, in as received condition unless otherwise noted.

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## **Test Report**

#### Determination of Moisture Condition Value at Natural Moisture Content



Tested in accordance with BS1377:Part 4:1990, clause 5.4

Report No.	R142017
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Contract No. 24330

Contract Name: Halverstown , Naas - Proposed Data Centres

Customer: DOBA

BH/TP\* TP19

Sample No.\* AA185468

Depth\* (m) 0.50

Sample Type: B

Lab Sample No. A22/7568

Source\* (if applicable) N/A

Material Type\* (if applicable):

Sample Received: 24/01/23

Date Tested: 25/01/23

Sample Cert: Not Provided

Moisture Content (%): 13

% Particles > 20mm 8.9

(By dry mass):

MCV: 11.2

Interpretation of Plot: Steepest Straight Line

Description of Soil: Mottled brown slightly sandy slightly gravelly CLAY -

1% Lime Added

Results relate only to the specimen tested, in as received condition unless otherwise noted.	Persons auth	norised to a	approve reports
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## Test Report

## Determination of Moisture Condition Value at Natural Moisture Content



045 899324	rested in accordance	e Willi B31377.Fait 4.1990, Clause 5.4
	Report No.	R142688
	Contract No.	24330
	Contract Name:	Halverstown , Naas - Proposed Data Centres
	Customer:	DOBA
	BH/TP*	TP19
	Sample No.*	AA185468
	Depth* (m)	0.50
	Sample Type:	В
	Lab Sample No.	A22/7568
	Source* (if applicable)	N/A
	Material Type* (if applicable):	В
	Sample Received:	24/01/23
	Date Tested:	08/02/23
	Sample Cert:	Not Provided
	Moisture Content (%):	12
	% Particles > 20mm (By dry mass):	8.8
	MCV:	11.5
	Interpretation of Plot:	Steepest Straight Line
	Description of Soil:	Mottled brown slightly sandy slightly gravelly CLAY - 1% Lime / 2% Cement

Results relate only to the specimen tested, in as received condition unless otherwise noted.		Persons authorised to approve reports		
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## Test Report

## Determination of Moisture Condition Value at Natural Moisture Content



045 899324	rested in accordance	e Willi B31377.Fait 4.1990, Clause 5.4
	Report No.	R142018
	Contract No.	24330
	Contract Name:	Halverstown , Naas - Proposed Data Centres
	Customer:	DOBA
	BH/TP*	TP19
	Sample No.*	AA185468
	Depth* (m)	0.50
	Sample Type:	В
	Lab Sample No.	A22/7568
	Source* (if applicable)	N/A
	Material Type* (if applicable):	В
	Sample Received:	24/01/23
	Date Tested:	25/01/23
	Sample Cert:	Not Provided
	Moisture Content (%):	12
	% Particles > 20mm (By dry mass):	8.9
	MCV:	12.9
	Interpretation of Plot:	Steepest Straight Line
	Description of Soil:	Mottled brown slightly sandy slightly gravelly CLAY - 3% Lime Added

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Naas

## Test Report

## Determination of Moisture Condition Value at Natural Moisture Content



045 899324		
	Report No.	R142019
	Contract No.	24330
	Contract Name:	Halverstown , Naas - Proposed Data Centres
	Customer:	DOBA
	BH/TP*	TP20
	Sample No.*	AA185488
	Depth* (m)	0.60
	Sample Type:	В
	Lab Sample No.	A22/7569
	Source* (if applicable)	N/A
	Material Type* (if applicable):	В
	Sample Received:	24/01/23
	Date Tested:	26/01/23
	Sample Cert:	Not Provided
	Moisture Content (%):	18
	% Particles > 20mm (By dry mass):	10
	MCV:	2.4
	Interpretation of Plot:	Steepest Straight Line
	Description of Soil:	Grey/brown sandy gravelly SILT/CLAY

Results relate only to the specimen tested, in as received condition unless othe	rwise noted.	Persons auth	norised to a	approve reports
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045 899324

#### Unit J5,M7 Busines Naas

## Test Report

## Determination of Moisture Condition Value at Natural Moisture Content



Tested in accordance with BS1377:Part 4:1990, clause 5.4

Report No.	R142020
Contract No.	24330
Contract Name:	Halverstown , Naas - Proposed Data Centres
Customer:	DOBA
BH/TP*	TP21
Sample No.*	AA181983
Depth* (m)	0.50
Sample Type:	В
Lab Sample No.	A22/7570
Source* (if applicable)	N/A
Material Type* (if applicable):	В
Sample Received:	24/01/23
Date Tested:	26/01/23
Sample Cert:	Not Provided
Moisture Content (%):	20
% Particles > 20mm (By dry mass):	3.5

Results relate only to the specimen tested, in as received condition unless otherwise noted.		Persons auti	norised to a	approve reports
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7.6

Steepest Straight Line

Brown sandy gravelly SILT/CLAY

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Interpretation of Plot:

Description of Soil:

MCV:

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045 899324

## **Test Report**

#### Determination of Moisture Condition Value at Natural Moisture Content



Tested in accordance with BS1377:Part 4:1990, clause 5.4

Report No. F	R142021
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Contract No. 24330

Contract Name: Halverstown, Naas - Proposed Data Centres

Customer: **DOBA** 

BH/TP\* TP22

AA185497 Sample No.\*

Depth\* (m) 0.60

Sample Type: В

Lab Sample No. A22/7571

Source\* (if applicable) N/A

Material Type\* (if applicable):

Sample Received: 24/01/23

Date Tested: 26/01/23

Sample Cert: Not Provided

Moisture Content (%): 20

% Particles > 20mm 7.0

(By dry mass):

MCV: 5.7

Interpretation of Plot: Steepest Straight Line

Brown sandy gravelly SILT/CLAY Description of Soil:

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## Test Report

## Determination of Moisture Condition Value at Natural Moisture Content



045 899324	Toolog iii doorda	ande with Bo 1077.1 dit 4.1000, diddse 5.4
	Report No.	R143243
	Contract No.	24330
	Contract Name:	Halverstown , Naas - Proposed Data Centres
	Customer:	DOBA
	BH/TP*	TP24
	Sample No.*	AA181960
	Depth* (m)	0.60
	Sample Type:	В
	Lab Sample No.	A22/7573
	Source* (if applicable)	N/A
	Material Type* (if applicable):	В
	Sample Received:	24/01/23
	Date Tested:	15/02/23
	Sample Cert:	Not Provided
	Moisture Content (%):	14
	% Particles > 20mm (By dry mass):	8.6
	MCV:	11.2
	Interpretation of Plot:	Steepest Straight Line
	Description of Soil:	Brown sandy gravelly SILT/CLAY

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## Test Report

## Determination of Moisture Condition Value at Natural Moisture Content



045 899324		·
	Report No.	R142022
	Contract No.	24330
	Contract Name:	Halverstown , Naas - Proposed Data Centres
	Customer:	DOBA
	BH/TP*	TP26
	Sample No.*	AA181975
	Depth* (m)	0.50
	Sample Type:	В
	Lab Sample No.	A22/7575
	Source* (if applicable)	N/A
	Material Type* (if applicable):	В
	Sample Received:	24/01/23
	Date Tested:	26/01/23
	Sample Cert:	Not Provided
	Moisture Content (%):	14
	% Particles > 20mm (By dry mass):	7.6
	MCV:	6.4
	Interpretation of Plot:	Steepest Straight Line
	Description of Soil:	Brown slightly sandy, slightly gravelly, CLAY

Results relate only to the specimen tested, in as received condition unless otherwise noted.		Persons authorised to approve reports		
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## Test Report

## Determination of Moisture Condition Value at Natural Moisture Content



045 899324		l ested in accordance	e with BS1377:Part 4:1990, clause 5.4	
	Report No		R142023	
	Contract N	0.	24330	
	Contract N	ame:	Halverstown , Naas - Proposed Data Centr	es
	Customer:		DOBA	
	BH/TP*		TP26	
	Sample No	).*	AA181975	
	Depth* (m)		0.50	
	Sample Ty	pe:	В	
	Lab Sampl	e No.	A22/7575	
	Source* (if	applicable)	N/A	
	Material Ty	rpe* (if applicable):	В	
	Sample Re	eceived:	24/01/23	
	Date Teste	d:	26/01/23	
	Sample Ce	ert:	Not Provided	
	Moisture C	ontent (%):	11	
	% Particles (By dry ma		7.6	
	MCV:		8.4	
	Interpretati	on of Plot:	Steepest Straight Line	
	Description	of Soil:	Brown slightly sandy slightly gravelly CLAY Added	- 1% Lime

Results relate only to the specimen tested, in as received condition unless otherwise noted.		Persons authorised to approve reports			
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Naas Co. Kildare 045 899324

## Test Report

# Determination of Moisture Condition Value at Natural Moisture Content



Tested in accordance with BS1377:Part 4:1990, clause 5.4

Report No.	R142689

Contract No. 24330

Contract Name: Halverstown, Naas - Proposed Data Centres

Customer: DOBA

BH/TP\* TP26

Sample No.\* AA181975

Depth\* (m) 0.50

Sample Type: B

Lab Sample No. A22/7575

Source\* (if applicable) N/A

Material Type\* (if applicable):

Sample Received: 24/01/23

Date Tested: 10/02/23

Sample Cert: Not Provided

Moisture Content (%): 12

% Particles > 20mm 7.6

(By dry mass):

MCV: 9.8

Interpretation of Plot: Steepest Straight Line

Description of Soil: Brown slightly sandy, slightly gravelly CLAY - 1% Lime

/ 2% Cement

Results relate only to the specimen tested, in as received condition unless otherwise noted.		Persons authorised to approve reports		
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## Test Report

## Determination of Moisture Condition Value at Natural Moisture Content



045 899324		rested in accordance	WILLI DO 1377. Fall 4.198	30, clause 5.4	
	Report No.		R142024		
	Contract No	0.	24330		
	Contract Na	ame:	Halverstown , Naas - P	roposed Data Centi	res
	Customer:		DOBA		
	BH/TP*		TP26		
	Sample No	*	AA181975		
	Depth* (m)		0.50		
	Sample Typ	oe:	В		
	Lab Sample	e No.	A22/7575		
	Source* (if	applicable)	N/A		
	Material Ty	pe* (if applicable):	В		
	Sample Re	ceived:	24/01/23		
	Date Teste	d:	26/01/23		
	Sample Ce	rt:	Not Provided		
	Moisture Co	ontent (%):	12		
	% Particles (By dry mas		7.6		
	MCV:		11.9		
	Interpretation	on of Plot:	Steepest Straight Line		
	Description	of Soil:	Brown slightly sandy sli Added	ightly gravelly CLAY	- 3% Lime
Results relate only to the specimen tested, in as received condition unless otherwise noted.  Persons authorised to approve report  J Barrett (Quality Manager)  denotes Customer supplied information.  H Byrne (Laboratory Manager)				uality Manager)	

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## Test Report

## Determination of Moisture Condition Value at Natural Moisture Content



045 899324		Tested in accordance with BS1377:Part 4:1990, clause 5.4		
	Report No		R142025	
	Contract N	0.	24330	
	Contract N	ame:	Halverstown , Naas - Proposed Data Centro	es
	Customer:		DOBA	
	BH/TP*		TP28	
	Sample No	).*	AA181969	
	Depth* (m)		0.70	
	Sample Ty	pe:	В	
	Lab Sampl	e No.	A22/7576	
	Source* (if	applicable)	N/A	
	Material Ty	pe* (if applicable):	В	
	Sample Re	eceived:	24/01/23	
	Date Teste	ed:	26/01/23	
	Sample Ce	ert:	Not Provided	
	Moisture C	ontent (%):	25	
	% Particles (By dry ma		3.4	
	MCV:		2.8	
	Interpretati	on of Plot:	Steepest Straight Line	
	Description	n of Soil:	Mottled brown slightly sandy, slightly gravel	ly, CLAY

		I <sub>5</sub> .		
Results relate only to the specimen tested, in as received condition unless other	rwise noted.	Persons authorised to approve reports		
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Report No.

Naas Co. Kildare

## **Test Report**

#### Determination of Moisture Condition Value at Natural Moisture Content

R142494



Tested in accordance with BS1377:Part 4:1990, clause 5.4

Contract No.	24330
Contract Name:	Halverstown, Naas - Proposed Data Centres

Customer: DOBA

BH/TP\* TP29

Sample No.\* AA181986

Depth\* (m) 0.50

Sample Type: B

Lab Sample No. A22/7577

Source\* (if applicable) N/A

Material Type\* (if applicable):

Sample Received: 24/01/23

Date Tested: 26/01/23

Sample Cert: Not Provided

Moisture Content (%): 9.9

% Particles > 20mm 12

(By dry mass):

MCV: 16

Interpretation of Plot: Steepest Straight Line

Description of Soil: Brown sandy gravelly SILT/CLAY

Results relate only to the specimen tested, in as received condition unless otherwise noted. Opinions and interpretations are outside the scope of accreditation.

Persons authorised to approve reports

J Barrett (Quality Manager)

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## **Test Report**

#### Determination of Moisture Condition Value at Natural Moisture Content



Co. Kildare 045 899324

Tested in accordance with BS1377:Part 4:1990, clause 5.4

Report No.	R142495
leport No.	R142495

24330 Contract No.

Contract Name: Halverstown, Naas - Proposed Data Centres

Customer: **DOBA** 

BH/TP\* TP31

AA181992 Sample No.\*

Depth\* (m) 0.50

Sample Type: В

Lab Sample No. A22/7578

Source\* (if applicable) N/A

Material Type\* (if applicable):

Sample Received: 24/01/23

Date Tested: 26/01/23

Sample Cert: Not Provided

Moisture Content (%): 11

% Particles > 20mm 7.2

(By dry mass):

MCV: 12.7

Interpretation of Plot: Steepest Straight Line

Description of Soil: Brown slightly sandy slightly gravelly CLAY

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Co. Kildare

## Test Report

## Determination of Moisture Condition Value at Natural Moisture Content



045 899324	Tested III accordance	e willi 651577.Fait 4.1990, clause 5.4
	Report No.	R142496
	Contract No.	24330
	Contract Name:	Halverstown , Naas - Proposed Data Centres
	Customer:	DOBA
	BH/TP*	TP31
	Sample No.*	AA181992
	Depth* (m)	0.50
	Sample Type:	В
	Lab Sample No.	A22/7578
	Source* (if applicable)	N/A
	Material Type* (if applicable):	В
	Sample Received:	24/01/23
	Date Tested:	26/01/23
	Sample Cert:	Not Provided
	Moisture Content (%):	9.5
	% Particles > 20mm (By dry mass):	7.2
	MCV:	15.4
	Interpretation of Plot:	Steepest Straight Line
	Description of Soil:	Brown slightly sandy slightly gravelly SILT/CLAY - 1% Lime Added

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Co. Kildare 045 899324

## Test Report

#### Determination of Moisture Condition Value at Natural Moisture Content



Tested in accordance with BS1377:Part 4:1990, clause 5.4

Report No.	R142690

Contract No. 24330

Contract Name: Halverstown , Naas - Proposed Data Centres

Customer: DOBA

BH/TP\* TP31

Sample No.\* AA181992

Depth\* (m) 0.50

Sample Type: B

Lab Sample No. A22/7578

Source\* (if applicable) N/A

Material Type\* (if applicable):

Sample Received: 24/01/23

Date Tested: 08/02/23

Sample Cert: Not Provided

Moisture Content (%): 10

% Particles > 20mm 7.2

(By dry mass):

MCV: 15.4

Interpretation of Plot: Steepest Straight Line

Description of Soil: Brown slightly sandy slightly gravelly SILT/CLAY - 1%

Lime / 2% Cement

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Naas Co Kildar

## Test Report

## Determination of Moisture Condition Value at Natural Moisture Content



045 899324		Tested in accordance with BS1377:Part 4:1990, clause 5.4		
	Report No		R142497	
	Contract N	0.	24330	
	Contract N	ame:	Halverstown , Naas - Proposed Data Centr	es
	Customer:		DOBA	
	BH/TP*		TP31	
	Sample No	).*	AA181992	
	Depth* (m)		0.50	
	Sample Ty	pe:	В	
	Lab Sampl	e No.	A22/7578	
	Source* (if	applicable)	N/A	
	Material Ty	pe* (if applicable):	В	
	Sample Re	eceived:	24/01/23	
	Date Teste	ed:	26/01/23	
	Sample Ce	ert:	Not Provided	
	Moisture C	ontent (%):	9.2	
	% Particles (By dry ma		7.2	
	MCV:		16.1	
	Interpretati	on of Plot:	Steepest Straight Line	
	Description	n of Soil:	Brown slightly sandy slightly gravelly SILT/ Lime Added	CLAY - 3%

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Naas Co. Kildare

## Test Report

#### Determination of Moisture Condition Value at Natural Moisture Content



Tested in accordance with BS1377:Part 4:1990, clause 5.4

Report No.	R142498
Contract No.	24330
Contract Name:	Halverstown , Naas - Proposed Data Centres
Customer:	DOBA
BH/TP*	TP33
Sample No.*	AA181989
Depth* (m)	0.60
Sample Type:	В
Lab Sample No.	A22/7579
Source* (if applicable)	N/A
Material Type* (if applicable):	В
Sample Received:	24/01/23
Date Tested:	24/01/22
Sample Cert:	Not Provided
Moisture Content (%):	21
% Particles > 20mm (By dry mass):	2.7
MCV:	6.9

Interpretation of Plot:

Description of Soil:

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Steepest Straight Line

Brown slightly sandy, slightly gravelly, CLAY

Co. Kildare

## Test Report

#### Determination of Moisture Condition Value at Natural Moisture Content



Co. Kildare
045 899324

Tested in accordance with BS1377:Part 4:1990, clause 5.4

Report No. R142499

Contract No. 24330

Contract Name: Halverstown, Naas - Proposed Data Centres

Customer: DOBA

BH/TP\* TP34

Sample No.\* AA181986

Depth\* (m) 0.60

Sample Type: B

Lab Sample No. A22/7580

Source\* (if applicable) N/A

Material Type\* (if applicable):

Sample Received: 24/01/23

Date Tested: 24/01/22

Sample Cert: Not Provided

Moisture Content (%): 19

% Particles > 20mm 5.0

(By dry mass):

MCV: 6.8

Interpretation of Plot: Steepest Straight Line

Description of Soil: Brown sandy gravelly CLAY

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045 899324

#### TEST REPORT Determination of California Bearing Ratio (CBR)



			Tested in accordance with BS1377:Part 4:1990, clause 7											DETAILED IN SCOP	
	Report	No.	R1425	00		(	Contr	act	На	lversto	wn , N	aas - F	roposed	Data	Centres
	Contra	ct No.	2433	0		(	Customer								
	Date received 24/01/23				ı	Date '	Teste	d (	06/01	/23		DO	ЭΑ		
BH/TP No.* TP04				;	Samp	le No	.* A	A186	982	Туре	:		В		
	Depth'	(m)	0.60			ı	Lab s	ample	e No.			A22/	7562		
	0.6 -							I			I	I			_
rorce (KN)	0.5 -														
															_
	0.4													_	_
										/					
	0.3 -														
														_	_
	0.2 -					/									
					200									_	
	0.1 -		/		,-										_
		1													
	0 -	0.5	1 1	.5 2	2.5	5 3		.5 4	1 4	<i>-</i> /		F (		- 7	
	(	0.5	1 1	.5 2	. 2.:			.ఐ <sup>2</sup> ratior			5 5	.5 6	6.5	5 7	7.5
						•	Onot								
	Key:			— То					Ba						
	Descri	ption:	Mottled	brown	n sligh	ntly s	andy	slight	ly gra	velly	CLA	/			
ł	Initial (	Condition	1:	U	nsoak	ed									
	Moisture Content (%):				15			Densi					.13		
Surcharge (kg): 4 Dry Density (M							/ (Mg/	/m³):		1	.85				

Description. Mottled brown slightly sandy slightly gravelly GLAY									
Initial Condition:	Unsoaked								
Moisture Content (%):	15	Bulk Density (Mg/m <sup>3</sup> ):	2.13						
Surcharge (kg):	4	Dry Density (Mg/m <sup>3</sup> ):	1.85						
% Material >20mm:	14								
Method of compaction:	Static Con	paction Method 2							

Test Result	Тор	Base
CBR %	1.9	1.2
Moisture Content %	15	15

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045 899324

# TEST REPORT Determination of California Bearing Ratio (CBR)



		Tested in accordance with BS1377:Part 4:1990, clause 7									7	00.	IVALLED IN SCO	PE RE			
Report	t No.	R1457	770			Со	ntrac	t	На	lverst	own ,	Naas	- Prop	oosed D	ata Ce	entres	
Contra	ct No.	2433	80			Customer											
Date received 24/01/23				Da	te Te	stec	t	01/02	2/23			DOBA	`				
BH/TP No.* TP12					Sai	mple	No.	* 4	A19	5481	Тур	oe:		E	3		
Depth'	* (m)	0.50				Lak	san	nple	No.			A2:	2/75	63			
0.7																	
0.7																	
0.6																	
						+		$\dashv$							+	$\dashv$	
0.5															+		
04 -															,,,		
0.4									/								
0.3																4	
						1				_					_	$\dashv$	
0.2																-	
01.																	
0.1																	
0 -	6-					_		_								$\Box$	
	0 0.5	1 1	.5 2	2 2							5	5.5	6	6.5	7	7.5	
						Pen	etrat	lion	(mn	1)							
Key:			—т	ор					- Ba	ase							
Descri	ption:	Brown	slightl	y san	dy s	light	ly gra	avel	ly CL	.AY							
Initial Condition: Unsoa																	1
		. ,			•												
					)	Dry	/ Den	sity	(Mg	/m <sup>-</sup> ):			1.8	4			
	Oontra Date ro BH/TP Depth 0.7 0.6 0.5 0.4 0.3 0.2 0.1 0 Cey: Description	Depth* (m)  0.7  0.6  0.5  0.4  0.3  0.2  0.1  0 0.5  Cey:  Description:  Initial Condition Moisture Conte	Report No. R1457 Contract No. 2433 Date received 24/01 BH/TP No.* TP1 Depth* (m) 0.50  0.7  0.6  0.5  0.4  0.3  0.2  0.1  Cey: Description: Brown Initial Condition:	Report No. R145770 Contract No. 24330 Date received 24/01/23 BH/TP No.* TP12 Depth* (m) 0.50  0.7 0.6 0.5 0.4 0.3 0.2 0.1 0 0.5 1 1.5 2  Key: Tescription: Brown slightlenitial Condition: Unitial Conditio	Report No. R145770 Contract No. 24330 Date received 24/01/23 BH/TP No.* TP12 Depth* (m) 0.50  0.7 0.6 0.5 0.4 0.3 0.2 0.1 0 0.5 1 1.5 2 2  Cey: Top Description: Brown slightly san  nitial Condition: Unsoa Moisture Content (%): 17 Surcharge (kg): 4	Report No. R145770 Contract No. 24330 Date received 24/01/23 BH/TP No.* TP12 Depth* (m) 0.50  0.7 0.6 0.5 0.4 0.3 0.2 0.1 0 0.5 1 1.5 2 2.5  Key: Top Description: Brown slightly sandy s  nitial Condition: Unsoaked Moisture Content (%): 17 Surcharge (kg): 4	Report No. R145770 Co Contract No. 24330 Cu Date received 24/01/23 Da BH/TP No.* TP12 Sal Depth* (m) 0.50 Lab  0.7 0.6 0.5 0.4 0.3 0.2 0.1 0.5 0.5 Description: Brown slightly sandy slight  nitial Condition: Unsoaked Moisture Content (%): 17 Bul Surcharge (kg): 4 Dry	Report No. R145770 Contract Contract No. 24330 Custom Date received 24/01/23 Date Te BH/TP No.* TP12 Sample Depth* (m) 0.50 Lab san  0.7 0.6 0.5 0.4 0.3 0.2 0.1 0.0 0.5 1 1.5 2 2.5 3 3.5  Penetral  Key: Top  Description: Brown slightly sandy slightly gramitial Condition: Unsoaked Moisture Content (%): 17 Bulk De Surcharge (kg): 4 Dry Den	Report No. R145770 Contract Contract No. 24330 Customer Date received 24/01/23 Date Tested BH/TP No.* TP12 Sample No. Depth* (m) 0.50 Lab sample  0.7 0.6 0.5 0.4 0.3 0.2 0.1 0 0.5 1 1.5 2 2.5 3 3.5 4  Penetration  Key: Top  Description: Brown slightly sandy slightly gravel  mitial Condition: Unsoaked Moisture Content (%): 17 Bulk Density Surcharge (kg): 4 Dry Density	Report No. R145770 Contract Hard Contract No. 24330 Customer  Date received 24/01/23 Date Tested Sample No.* A Depth* (m) 0.50 Lab sample No.  0.7 0.6 0.5 0.4 0.3 0.2 0.1 0.0 0.5 1 1.5 2 2.5 3 3.5 4 4  Penetration (mn  Key: Top Bard Contract Hard Customer Description: Brown slightly sandy slightly gravelly CL mitial Condition: Unsoaked Moisture Content (%): 17 Bulk Density (Mg Gurcharge (kg): 4 Dry Density (Mg	Report No. R145770 Contract Halverst Contract No. 24330 Customer  Date received 24/01/23 Date Tested 01/03 Sample No.* AA19 Depth* (m) 0.50 Lab sample No.  0.7 0.6 0.5 0.4 0.3 0.2 0.1 0 0.5 1 1.5 2 2.5 3 3.5 4 4.5  Penetration (mm)  Key: Top Base  Description: Brown slightly sandy slightly gravelly CLAY  District Content (%): 17 Bulk Density (Mg/m³) Surcharge (kg): 4 Dry Density (Mg/m³)	Report No. R145770 Contract Halverstown, Contract No. 24330 Customer  Date received 24/01/23 Date Tested 01/02/23  BH/TP No.* TP12 Sample No.* AA195481  Depth* (m) 0.50 Lab sample No.  0.7  0.6  0.5  0.4  0.3  0.2  0.1  0 0 0.5 1 1.5 2 2.5 3 3.5 4 4.5 5  Penetration (mm)  Key: Top Base  Description: Brown slightly sandy slightly gravelly CLAY  nitial Condition: Unsoaked  Moisture Content (%): 17 Bulk Density (Mg/m³): Surcharge (kg): 4 Dry Density (Mg/m³):	Report No. R145770 Contract Halverstown , Naas Contract No. 24330 Customer  Date received 24/01/23 Date Tested 01/02/23  BH/TP No.* TP12 Sample No. A2:  Depth* (m) 0.50 Lab sample No. A2:  0.7  0.6  0.5  0.1  0.0  0.5  0.7  0.6  0.7  0.6  0.7  0.8  Description: Brown slightly sandy slightly gravelly CLAY  Initial Condition: Unsoaked Moisture Content (%): 17 Bulk Density (Mg/m³): Surcharge (kg): 4 Dry Density (Mg/m³): Surcharge (kg): 4 Dry Density (Mg/m³):	Report No. R145770 Contract Halverstown , Naas - Proport No. 24330 Customer  Date received 24/01/23 Date Tested 01/02/23  BH/TP No.* TP12 Sample No.* AA195481 Type:  Depth* (m) 0.50 Lab sample No. A22/75  0.7  0.6  0.5  0.7  0.6  0.7  0.7  0.6  0.7  0.7  0.8  Cey: Top Base  Description: Brown slightly sandy slightly gravelly CLAY  Initial Condition: Unsoaked  Moisture Content (%): 17 Bulk Density (Mg/m³): 2.1:  Surcharge (kg): 4 Dry Density (Mg/m³): 1.8	Report No. R145770 Contract Halverstown , Naas - Proposed Discontract No. 24330 Customer DOBA  Date received 24/01/23 Date Tested 01/02/23  BH/TP No.* TP12 Sample No.* AA195481 Type: Depth* (m) 0.50 Lab sample No. A22/7563  0.7  0.6  0.5  0.7  0.6  0.7  0.7  0.8  Description: Brown slightly sandy slightly gravelly CLAY  Initial Condition: Unsoaked Moisture Content (%): 17 Bulk Density (Mg/m³): 2.15  Burcharge (kg): 4 Dry Density (Mg/m³): 1.84	Tested in accordance with BS13/7:Part 4:1990, clause 7	Tested in accordance with BS137/:Part 4:1990, clause 7

Test Result	Тор	Base
CBR %	2.1	1.7
Moisture Content %	17	17

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Method of compaction:

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#### TEST REPORT Determination of California Bearing Ratio (CBR)



899324										
Re	port No.	R142501		Contr	act	Halvers	town , Na	as - Proposed	Data Centres	
Со	ntract No.	24330		Custo	mer			DOI	D.A.	
Da	te received	24/01/23		Date	Tested	25/0	1/23	DO	3A	
ВН	I/TP No.*	TP13	Samp	le No.*	ype:	В				
De	pth* (m)	1.00			ample N			122/7564		
					-					
0	0.6									
0	0.5									
0	).4									
<u> </u>										
Force (kN)	0.3									
Forc					.7					
0	).2		ئے۔ ۔	=======================================						
			e e							
0	).1									
	fo'									
	0									
	0 0.5	1 1.5	2 2.5		.5 4	4.5	5 5.5	6 6.5	5 7 7.5	
				Penet	ration (	mm)				
Ke	y:		Тор			Base				
De	scription:	Mottled bro	wn sandy	gravelly	/ SILT/C	CLAY				
Init	tial Conditio	n:	Unsoake	d						
Мо	isture Cont	ent (%):	13	Bulk I	Density			2.20		
	rcharge (kg Material >20		4 8.4	Dry Density (Mg/m <sup>3</sup> ): 1.95						
%	ıvıaleriai >20	וווווו.	0.4							

Test Result	Тор	Base
CBR %	1.6	1.5
Moisture Content %	13	13

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#### TEST REPORT Determination of California Bearing Ratio (CBR)



		Test	Tested in accordance with BS1377:Part 4:1990, clause 7										D	ETAILED IN SCO
Report N	Report No. R142502						Contract Halverstown , Naas - Propo							Centres
Contrac	Contract No. 24330				(	Customer DOBA								
Date received 24/01/23				ı	Date <sup>1</sup>	Teste	d 2	26/01	/23		DOI	3A		
BH/TP N	No.*	TP1	5		,	Samp	le No	.* A	A185	479	Туре	:		В
Depth* (		1.50					ample				A22/			
Бериі (	(111)	1.50			,	Lab 3	аттріс	, 140.			<i>NLL</i> /	7000		
0.5 ⊤														$\neg$
0.4														
0.4													10-	
											4	/		
0.3														
									,,					
0.2														
2 0.2														
														-
0.1				•										
0														
	1													
0 🗜	25	4 4									-			<u> </u>
0	0.5	1 1	.5 2	2.5		3 3				5 5	5.5	6 6.5	5 7	7.5
					r	eneu	ratior	ı (mir	1)					
Key:			— То	ор				Ba	ase					
Descript	tion:	Brown	slightly	/ sandy	, sl	ightly	grave	elly, C	LAY					
Initial Condition: Unsoaked														
							Bulk Density (Mg/m³): 2.20							
Surchar	0 ( 0)					Dry Density (Mg/m³): 1.95								
% Material >20mm: 2.9														

Test Result	Тор	Base
CBR %	1.5	1.4
Moisture Content %	13	13

Results relate only to the specimen tested, in as received condition unless otherwise noted

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Method of compaction:

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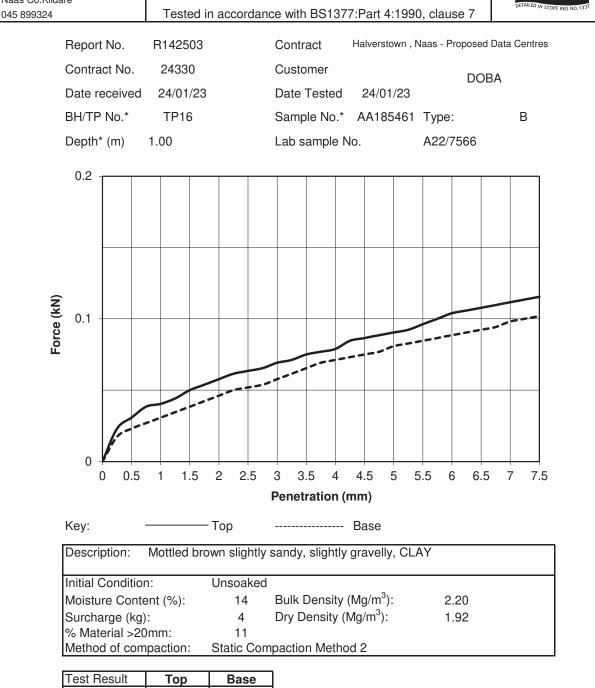
H Byrne (Laboratory Manager)

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## TEST REPORT Determination of California Bearing Ratio (CBR)





Test Result	Тор	Base
CBR %	0.5	0.4
Moisture Content %	14	14

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045 899324

#### TEST REPORT Determination of California Bearing Ratio (CBR)



<i>-</i>			Test	ted in	accor	rdand	ce with	BS1	377:	Part 4	:1990	), claus	se 7		DETAILED IN S	COPE REG
	Report	No.	R142	504			Contr	act	Н	lalverst	own , N	Naas - Pr	oposed	Data	Centres	3
	Contra	ct No.	2433	30			Custo	mer					DOI	- A		
	Date re	eceived	24/0	1/23			Date	Teste	d	24/0	1/23		DOI	3A		
	BH/TP	No.*	TP1	8			Samp	ole No	).*	AA18	5484	Type:			В	
	Depth'	' (m)	0.50				Lab s					A22/7				
		(***)														
	14 -															
	40													<u></u>		
	12 -											,				
	10 -											/				
	. •															
Ē	8 -									1						
LOICE (KIN)					000										_	
	6 -														-	
			.0-0"													
	4 -	.00														
	2 -	/														
	2 -	!/														
	0 -	<i>y</i>														
		0.5	1 1	.5	2 2						5 5	5.5 6	6.5	5 7	7.5	,
							Penet	ratio	n (m	m)						
	Key:			—т	ор				E	Base						
Ī	Descri	ption:	Mottled	d brow	n sar	ndy g	ravelly	/ SILT	/CL	AY						٦
	Initial (	Conditio	٠.	1	Jnsoa	kod										4
- 1		re Conte			10		Bulk I	Densi	ty (N	/lg/m³)	:	2.	10			
- 1		arge (kg)			4					g/m <sup>3</sup> ):			92			
	% Mat	erial >20	)mm:		13	3	•		, , ,	,						
	Metho	d of com	paction	ı: S	Static	Com	pactio	n Met	thod	2						

Test Result	Тор	Base
CBR %	48	54
Moisture Content %	10	9.3

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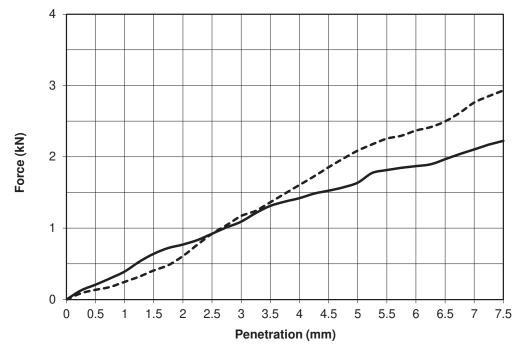
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# TEST REPORT Determination of California Bearing Ratio (CBR)



045 899324 Tested in accordance with BS1377:Part 4:1990, clause 7

Report No.	R145760	Contract	Halverstown,	Naas - Proposed Data	Centres
Contract No.	24330	Customer		DOBA	
Date received	24/01/23	Date Tested	18/02/23	505/1	
BH/TP No.*	TP19	Sample No.*	AA185468	Type:	В
Depth* (m)	0.50	Lab sample N	No.	A22/7568	



Key: ----- Base

Description: Brown sandy gravelly SILT/CLAY				
Initial Condition:	Unsoaked			
Moisture Content (%):	13	Bulk Density (Mg/m <sup>3</sup> ):	2.17	
Surcharge (kg):	4	Dry Density (Mg/m <sup>3</sup> ):	1.92	
% Material >20mm:	6.4			
Method of compaction:	Static Con	npaction Method 2		

Test Result	Тор	Base
CBR %	8	10
Moisture Content %	13	13

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# TEST REPORT Determination of California Bearing Ratio (CBR)



Jai	16	Tested in a	accordance with BS1377	7:Part 4:1990	), clause 7	DETAILED IN SCOPE REG N
	Report No.	R142505	Contract	Halverstown, N	Naas - Proposed	Data Centres
	Contract No.	24330	Customer		DOE	ΣΛ
	Date received	24/01/23	Date Tested	26/01/23	DOE	OA .
	BH/TP No.*	TP20	Sample No.*	AA185488	Type:	В
	Depth* (m)	1.00	Lab sample N	0.	A22/7569	
	0.2					
					,	,
2						
rorce (KN)	0.1					
5						
		1				
	0					
	0 0.5	1 1.5 2			5.5 6 6.5	7 7.5
			Penetration (n	nm)		
	Key:	——— То	op	Base		
Γ	Description:	Mottled brown	n sandy slightly gravelly	SILT/CLAY		
ŀ	Initial Conditio	ın· II	nsoaked			
	Moisture Cont		19 Bulk Density (	Mg/m³):	2.08	
- 1		` '	• `			

Dry Density (Mg/m<sup>3</sup>):

Static Compaction Method 2

4

12

Test Result	Тор	Base
CBR %	0.6	0.6
Moisture Content %	19	18

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Surcharge (kg):

% Material >20mm:

Method of compaction:

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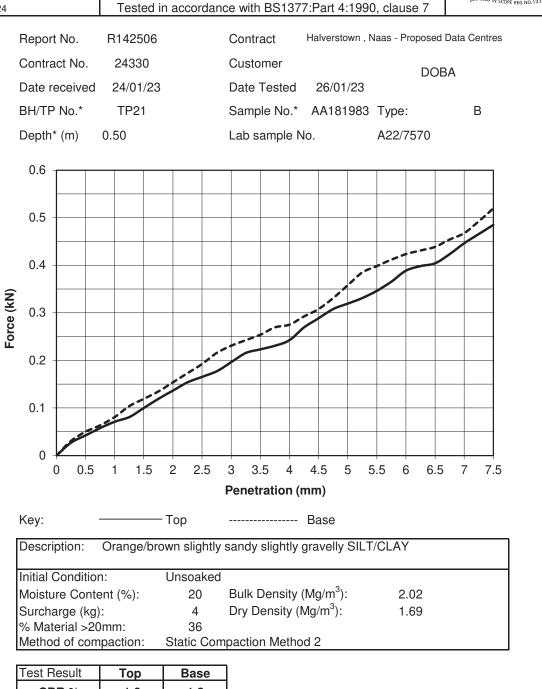
1.75

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# TEST REPORT Determination of California Bearing Ratio (CBR)





Test Result	Тор	Base
CBR %	1.6	1.8
Moisture Content %	20	20

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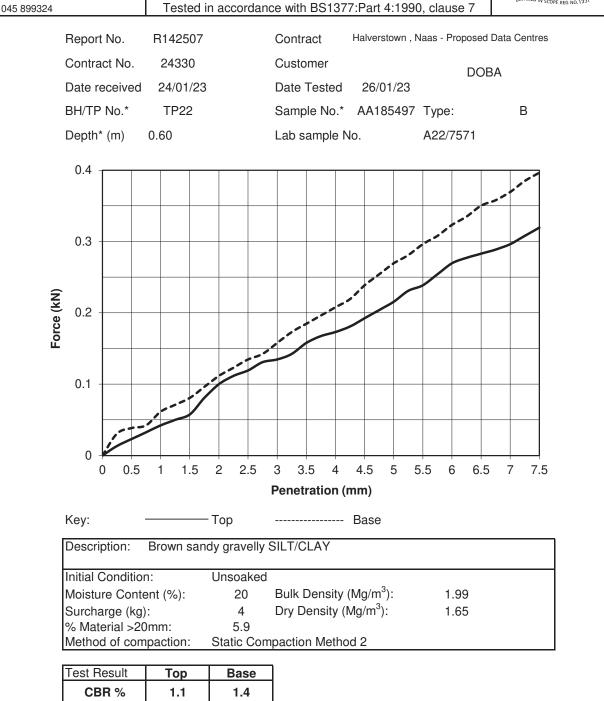
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#### TEST REPORT **Determination of California Bearing** Ratio (CBR)





Test Result	Тор	Base
CBR %	1.1	1.4
Moisture Content %	20	20

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#### TEST REPORT Determination of California Bearing Ratio (CBR)



			Test	ed in a	ccordan	ce with	BS13	77:Pa	art 4:19	90, claus	se 7	DEI	AILED IN SCOPE I
	Report	t No.	R1431	88		Contr	act	Halv	verstown	, Naas - Pr	oposed I	Data Ce	entres
	Contra	ct No.	2433	0		Custo	omer				DOB	۸	
	Date r	eceived	24/01	/23		Date	Tested	1	5/02/23	}	DOB	А	
	BH/TP	No.*	TP2	1		Samp	ole No.	* A/	A18196	0 Type:		Е	3
	Depth'	* (m)	0.60			Lab s	ample	No.		A22/7	573		
	14 -												
	12 -											/	
	10 -												_
	8 -								1000				
	0							,,,					
OICE (NIN)	6 -												
_													-
	4 -				100								
	2 -												
	2		/										
	0 -	1											
	(	0 0.5	1 1	.5 2	2.5		.5 4			5.5 6	6.5	7	7.5
						Penet	ration	(mm)	)				
	Key:	,		— То	p			- Ba	se				
	Descri	ption:	Brown	sandy (	gravelly	SILT/C	CLAY						
ŀ	Initial (	Condition	1:	Ur	soaked								
- 1		re Conte			13		Densit			2.5			
		arge (kg) erial >20			4 7.6	Dry D	ensity	(Mg/r	ກ³):	1.9	95		
П	10 ivial	511a1 /20			7.0								

Test Result	Тор	Base
CBR %	47	43
Moisture Content %	13	13

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Method of compaction:

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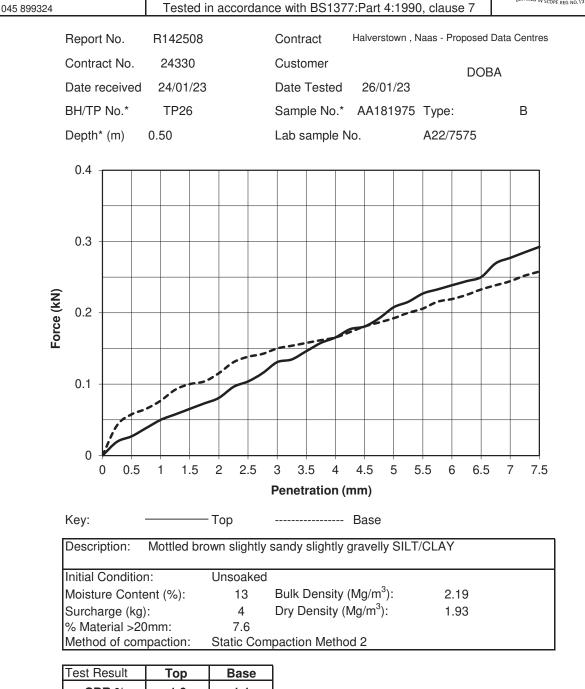
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# TEST REPORT Determination of California Bearing Ratio (CBR)





Test Result	Тор	Base
CBR %	1.0	1.1
Moisture Content %	13	13

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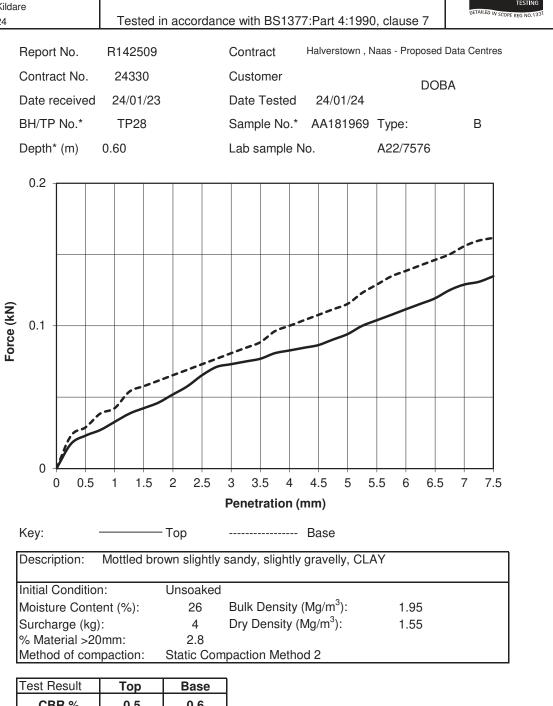
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# TEST REPORT Determination of California Bearing Ratio (CBR)





Test Result	Тор	Base
CBR %	0.5	0.6
Moisture Content %	26	26

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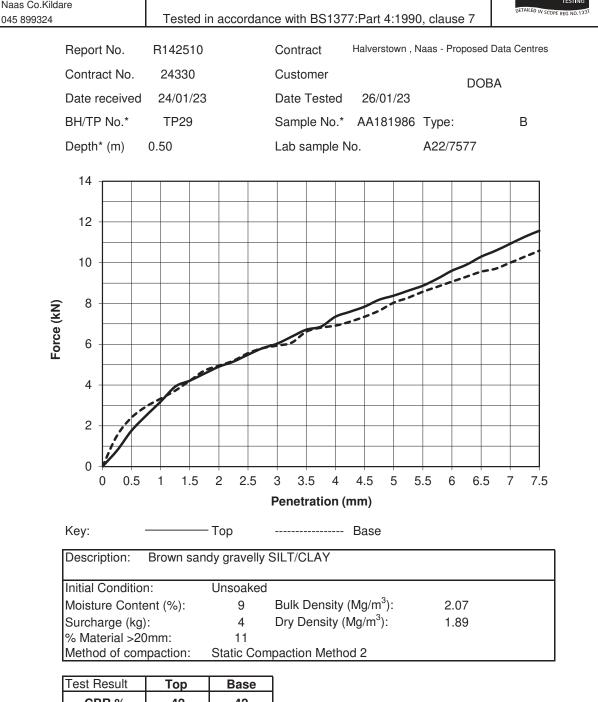
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# TEST REPORT Determination of California Bearing Ratio (CBR)





Test Result	Тор	Base
CBR %	42	42
Moisture Content %	9.2	9.3

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#### TEST REPORT Determination of California Bearing Ratio (CBR)



		Tested in	accordance with BS1377:Part 4:1990, clause 7	GETTALED IN SCOPE
	Report No.	R145766	Contract Halverstown , Naas - Proposed Da	ata Centres
	Contract No.	24330	Customer	
	Date received	24/01/23	DOBA  Date Tested 18/02/23	
	BH/TP No.*	TP31	Sample No.* AA181992 Type:	В
	Depth* (m)	0.50	Lab sample No. A22/7578	
	2.4			
	2.2			
	2			
	1.8			+
	1.6			
Ē	1.4			
e ( <u>F</u>	1.2			
rorce (KN)	1			
_	0.8			•
	0.6			
	0.4			
	0.2			
	0			
	0 0.5	1 1.5	2 2.5 3 3.5 4 4.5 5 5.5 6 6.5	7 7.5
			Penetration (mm)	
	Key:	7	Гор Base	
	Description:	Brown slight	ly sandy, slightly gravelly, CLAY	
	Initial Condition	n: l	Jnsoaked	
- 1	Moisture Conte		13 Bulk Density (Mg/m³): 2.17	
	Surcharge (kg)	): >	4 Dry Density (Mg/m³): 1.92	

Test Result	Тор	Base
CBR %	7.4	3.5
Moisture Content %	13	13

6.9

Static Compaction Method 2

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% Material >20mm:

Method of compaction:

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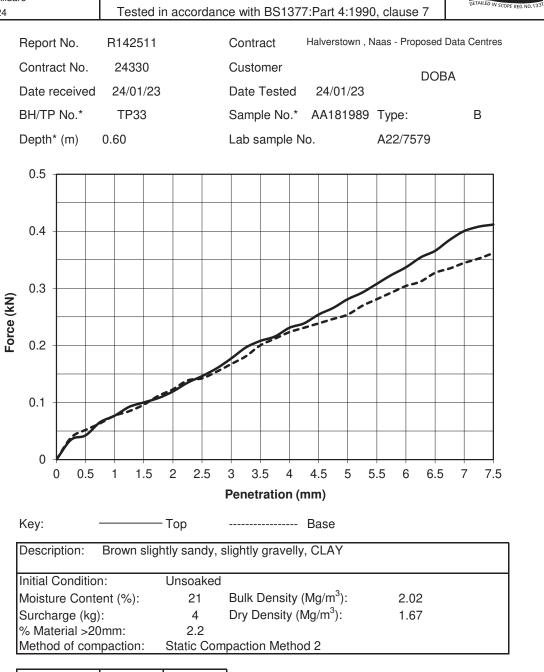
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# TEST REPORT Determination of California Bearing Ratio (CBR)





Test Result	Тор	Base
CBR %	1.4	1.3
Moisture Content %	21	21

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#### TEST REPORT Determination of California Bearing Ratio (CBR)



iai o	Tested in a	accordanc	e with BS	1377:Part	4:1990, c	lause 7	DETAILED IN SCOPE REG N
Report No.	R142512		Contract	Halvers	stown , Naas	- Proposed	Data Centres
Contract No.	24330		Customer			DOE	ο Λ
Date received	24/01/23		Date Test	ed 24/0	01/23	DOE	)A
BH/TP No.*	TP34		Sample N	o.* AA18	81986 Ty	pe:	В
Depth* (m)	0.60		Lab samp	le No.	A2	22/7580	
0.4							
0.3							
					2700		
0.2							
			100				
		1.					
0.1							
المي الم							
0							
0 0.5	1 1.5 2	2.5	3 3.5	4 4.5	5 5.5	6 6.5	7 7.5
			Penetratio	n (mm)			
Key:	———То	ор		Base			
Description:	Brown sandy	slightly g	ravelly SIL	T/CLAY			
Initial Conditio	n· II	nsoaked					
Moisture Cont		20	Bulk Dens	sity (Mg/m <sup>3</sup>	<sup>3</sup> ):	2.04	
Surcharge (kg	):	4	Dry Densi			1.70	
IU/ N/Otoriol - O/	I ma ma i	7 ()					

Initial Condition:	Unsoaked			
		D 11 D 11 (14 ( 3)		
Moisture Content (%):	20	Bulk Density (Mg/m <sup>3</sup> ):	2.04	
Surcharge (kg):	4	Dry Density (Mg/m <sup>3</sup> ):	1.70	
% Material >20mm:	4.2			
Method of compaction:	Static Com	paction Method 2		

Test Result	Тор	Base
CBR %	1.2	1.3
Moisture Content %	20	20

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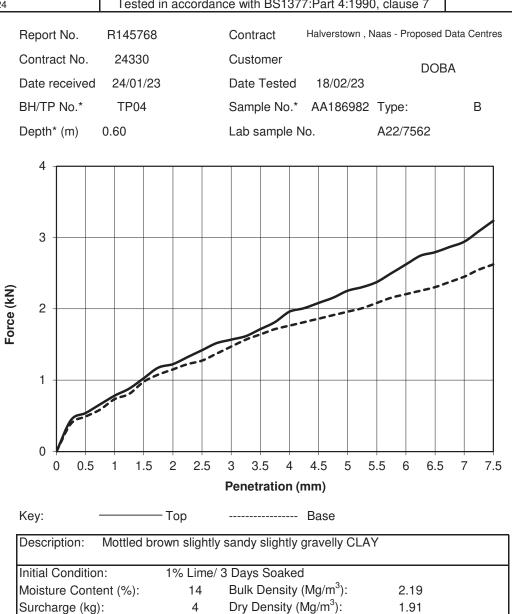
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#### TEST REPORT **Determination of California Bearing** Ratio (CBR)



Tested in accordance with BS1377:Part 4:1990, clause 7



Test Result	Тор	Base
CBR %	11	10
Moisture Content %	14	15

14

Static Compaction Method 2

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% Material >20mm:

Method of compaction:

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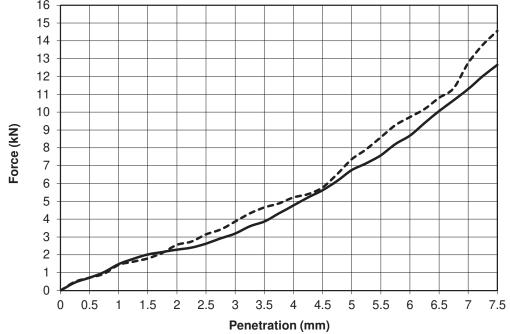
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# TEST REPORT Determination of California Bearing Ratio (CBR)



Tested in accordance with BS1377:Part 4:1990, clause 7

Report No.	R145769	Contract	Halverstown,	Naas - Propos	sed Data (	Centres
Contract No.	24330	Customer		D	OBA	
Date received	24/01/23	Date Tested	18/02/23	2	05/1	
BH/TP No.*	TP04	Sample No.*	AA186982	Type:		В
Depth* (m)	0.60	Lab sample N	No.	A22/7562	2	
16 -						



Key: ----- Base

Description: Mottled brown slightly sandy slightly gravelly CLAY					
Initial Condition:	1% Lime/	5 Days Soaked			
Moisture Content (%):	12	Bulk Density (Mg/m <sup>3</sup> ):	2.16		
Surcharge (kg):	4	Dry Density (Mg/m <sup>3</sup> ):	1.93		
% Material >20mm:	14				
Method of compaction:	Static Co	mpaction Method 2			

Test Result	Тор	Base
CBR %	34	37
Moisture Content %	12	12

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#### TEST REPORT Determination of California Bearing Ratio (CBR)



	Tested in ac	ccordance with BS1377:Part 4:1990, clause 7		
Report No.	R143174 Contract Halverstown , Naas - Proposed Da			
Contract No.	24330	Customer		
Date received	d 24/01/23	Date Tested 18/02/23		
BH/TP No.*	TP04	Sample No.* AA186982 Type: B		
Depth* (m)	0.60	Lab sample No. A22/7562		
14				
17				
12				
10				
10				
8				
6				
4	/			
2				
1				
0 0.5	5 1 1.5 2	2.5 3 3.5 4 4.5 5 5.5 6 6.5 7 7.5		
0 0.0	1 1.0 2	Penetration (mm)		
Key:	———Тор			
Description:	Mottlea brown	slightly sandy slightly gravelly CLAY		
Initial Condition		Lime/ 7 Days Soaked		
Moisture Conf		12 Bulk Density (Mg/m <sup>3</sup> ): 2.17		
Surcharge (kg	J):	4 Dry Density (Mg/m <sup>3</sup> ): 1.94		

Test Result	Тор	Base
CBR %	49	38
Moisture Content %	12	12

14

Static Compaction Method 2

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% Material >20mm:

Method of compaction:

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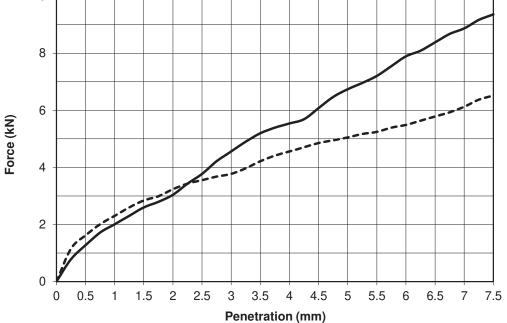
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# TEST REPORT Determination of California Bearing Ratio (CBR)



Tested in accordance with BS1377:Part 4:1990, clause 7

Report No.	R142662	Contract Halverstown , Naas - Proposed Data Centres
Contract No.	24330	Customer
Date received	24/01/23	Date Tested 01/02/23
BH/TP No.*	TP04	Sample No.* AA186982 Type: B
Depth* (m)	0.60	Lab sample No. A22/7562
10		
8 📗		



Key: ----- Base

Description: Mottled brown slightly sandy slightly gravelly CLAY					
Initial Condition:	2% Lime	'3 Days Soaked			
Moisture Content (%):	13	Bulk Density (Mg/m <sup>3</sup> ):	2.16		
Surcharge (kg):	4	Dry Density (Mg/m <sup>3</sup> ):	1.92		
% Material >20mm:	14				
Method of compaction:	of compaction: Static Compaction Method 2				

Test Result	Тор	Base
CBR %	34	27
Moisture	13	13

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# TEST REPORT Determination of California Bearing Ratio (CBR)



Tested in accordance with BS1377:Part 4:1990, clause 7

			1631	eu iii a	CCOIG	arice	WILLI D	31377	.ı aıı <del>4</del>	.1330	, ciau	3C 1			
	Report	No.	R1427	'52		Co	ontract	: 1	Halverst	own , N	aas - P	ropose	d Data	Centres	
	Contra	ct No.	2433	0		Cı	ustome	er				DC	ВА		
	Date re	eceived	24/01	/23		Da	ate Te	sted	16/02	2/23					
	BH/TP	No.*	TP0	4		Sa	ample	No.*	AA186	6982	Type:	:		В	
	Depth'	(m)	0.60			La	ab sam	ple No	).		A22/7	7562			
	12 -													$\neg$	
	10 -														
	8 -													,	
rorce (KN)	6 -														
ĭ	4 -			//											
	2 -	.;;	<i>;</i> /												
	0 -	0 0.5	1 1	.5 2	2.5	3	3.5	4	4.5	5 5	.5 6	6 6.	5 7	7.5	

Penetration (mm)

Key: ----- Base

Description: Mottled brown slightly sandy slightly gravelly CLAY

14

Initial Condition: 2% Lime/5 Day Soaked

Moisture Content (%): 13 Bulk Density (Mg/m³): 2.16 Surcharge (kg): 4 Dry Density (Mg/m³): 1.90

% Material >20mm:

Method of compaction: Static Compaction Method 2

Test Result	Тор	Base
CBR %	41	39
Moisture Content %	13	14

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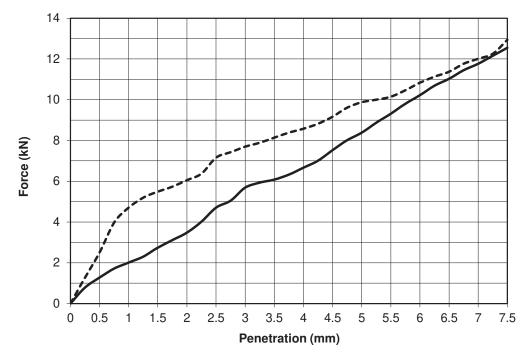
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# TEST REPORT Determination of California Bearing Ratio (CBR)



Tested in accordance with BS1377:Part 4:1990, clause 7

Report No.	R142661	Contract	Halverstown, I	Naas - Proposed Data	Centres
Contract No.	24330	Customer		DOBA	
Date received	24/01/23	Date Tested	13/02/23	20271	
BH/TP No.*	TP04	Sample No.*	AA186982	Type:	В
Depth* (m)	0.60	Lab sample I	No.	A22/7562	



Key: ----- Base

Initial Condition:	2% Lime/	Soaked 7 Days	
Moisture Content (%):	14	Bulk Density (Mg/m <sup>3</sup> ):	2.15
Surcharge (kg):	4	Dry Density (Mg/m <sup>3</sup> ):	1.89
% Material >20mm:	14		
Method of compaction:	Static Co	mpaction Method 2	

Test Result	Тор	Base
CBR %	42	54
Moisture	14	14

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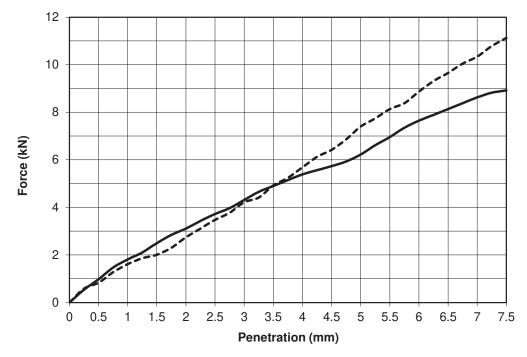
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# TEST REPORT Determination of California Bearing Ratio (CBR)



Tested in accordance with BS1377:Part 4:1990, clause 7

Report No.	R142663	Contract	Halverstown,	Naas - Proposed Data	Centres
Contract No.	24330	Customer		DOBA	
Date received	24/01/23	Date Tested	01/02/23	2027.	
BH/TP No.*	TP04	Sample No.*	AA186982	Type:	В
Depth* (m)	0.60	Lab sample I	No.	A22/7562	



Key: ----- Base

Initial Condition:	3% Lime/	3 Days Soaked		
Moisture Content (%):	13	Bulk Density (Mg/m <sup>3</sup> ):	2.20	
Surcharge (kg):	4	Dry Density (Mg/m <sup>3</sup> ):	1.94	
% Material >20mm:	14			
Method of compaction:	Static Co	mpaction Method 2		

Test Result	Тор	Base
CBR %	31	37
Moisture	14	13

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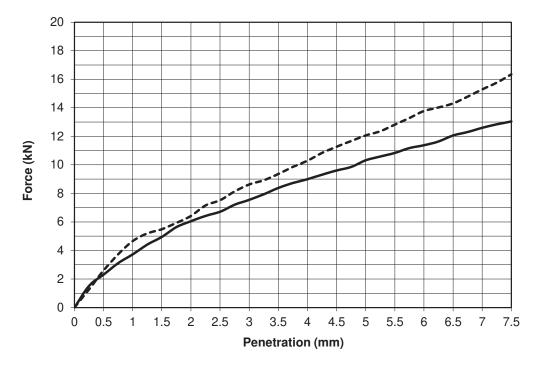
045 899324

# TEST REPORT Determination of California Bearing Ratio (CBR)



Tested in accordance with BS1377:Part 4:1990, clause 7

Report No.	R143176	Contract	Halverstown,	Naas - Proposed Data	Centres
Contract No.	24330	Customer		DOBA	
Date received	24/01/23	Date Tested	13/02/23	505/	
BH/TP No.*	TP04	Sample No.*	AA186982	Type:	В
Depth* (m)	0.60	Lab sample N	No.	A22/7562	



Key: ----- Base

Description: Mottled brown slightly sandy slightly gravelly CLAY					
Initial Condition:	Unsoaked				
Moisture Content (%):	14	Bulk Density (Mg/m <sup>3</sup> ):	2.16		
Surcharge (kg):	4	Dry Density (Mg/m <sup>3</sup> ):	1.90		
% Material >20mm:	14				
Method of compaction:	Static Com	naction Method 2			

Test Result	Тор	Base
CBR %	52	60
Moisture	14	14

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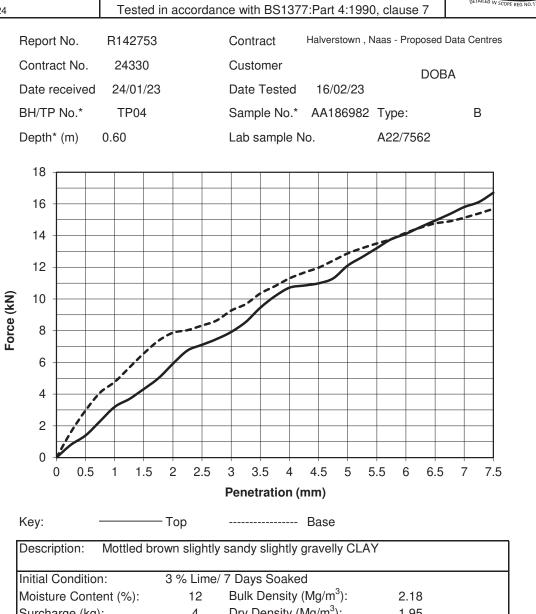
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045 899324

#### TEST REPORT Determination of California Bearing Ratio (CBR)





Initial Condition:	3 % Lime	/ 7 Days Soaked		
Moisture Content (%):	12	Bulk Density (Mg/m <sup>3</sup> ):	2.18	
Surcharge (kg):	4	Dry Density (Mg/m <sup>3</sup> ):	1.95	
% Material >20mm:	14			
Method of compaction:	Static Co	mpaction Method 2		

Test Result	Тор	Base
CBR %	61	65
Moisture Content %	12	12

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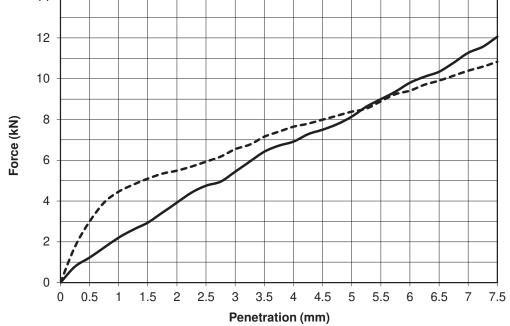
045 899324

## TEST REPORT Determination of California Bearing Ratio (CBR)



Tested in accordance with BS1377:Part 4:1990, clause 7

Report No.	R142660	Contract Halverstown,	, Naas - Proposed Data Centres
Contract No.	24330	Customer	DOBA
Date received	24/01/23	Date Tested 13/02/23	_
BH/TP No.*	TP04	Sample No.* AA186982	2 Type: B
Depth* (m)	0.60	Lab sample No.	A22/7562
14			



Key: ----- Base

Description: Brown slightly sandy slightly gravelly CLAY

Initial Condition: 1% Lime 2% Cement/ 3 Days Soaked

Moisture Content (%): 14 Bulk Density (Mg/m³): 2.16

Surcharge (kg): 4 Dry Density (Mg/m³): 1.90

% Material >20mm: 14

Method of compaction: Static Compaction Method 2

Test Result	Тор	Base
CBR %	41	45
Moisture Content %	14	14

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#### TEST REPORT Determination of California Bearing Ratio (CBR)



Tested in acc	cordance with BS1377:Part 4:1990, clause 7
R142664	Contract Halverstown , Naas - Proposed Data Centres
24330	Customer
24/01/23	Date Tested 01/02/23
TP04	Sample No.* AA186982 Type: B
0.60	Lab sample No. A22/7562
11/1	
1 1.5 2	2.5 3 3.5 4 4.5 5 5.5 6 6.5 7 7.5  Penetration (mm)
Ton	
Mottled brown s	slightly sandy slightly gravelly CLAY
	Lime 2% Cement/ 5 Days Soaked
( /	13 Bulk Density (Mg/m³): 2.23 4 Dry Density (Mg/m³): 1.98
	R142664 24330 24/01/23 TP04 0.60  1 1.5 2  Top  Mottled brown s ent (%):

Initial Condition:	1% Lime	2% Cement/ 5 Days Soake	d	
Moisture Content (%):	13	Bulk Density (Mg/m <sup>3</sup> ):	2.23	
Surcharge (kg):	4	Dry Density (Mg/m <sup>3</sup> ):	1.98	
% Material >20mm:	14			
Method of compaction:	Static Co	mpaction Method 2		

Test Result	Тор	Base
CBR %	67	63
Moisture Content %	13	13

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BH/TP No.\*

### TEST REPORT **Determination of California Bearing** Ratio (CBR)

TP04



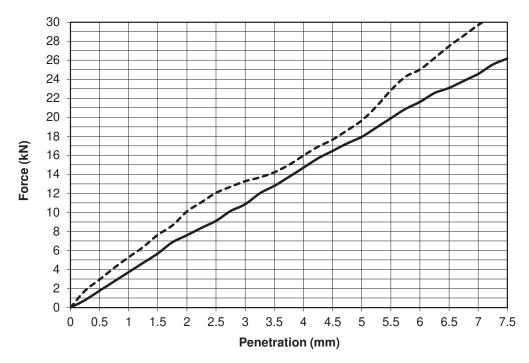
В

045 899324 Tested in accordance with BS1377:Part 4:1990, clause 7

> Report No. R143175 Contract Halverstown, Naas - Proposed Data Centres Contract No. 24330 Customer **DOBA** Date received 24/01/23 Date Tested 16/02/23

> > Sample No.\* AA186982 Type:

Depth\* (m) 0.60 Lab sample No. A22/7562



Key: - Top ----- Base

Description: Mottled brown slightly sandy slightly gravelly CLAY 1% Lime 2% Cement/7 Days Soaked Initial Condition:

Bulk Density (Mg/m<sup>3</sup>): Moisture Content (%): 12 2.14 4 Dry Density (Mg/m<sup>3</sup>): 1.91 Surcharge (kg):

% Material >20mm: 14

Static Compaction Method 2 Method of compaction:

Test Result	Тор	Base
CBR %	90	99
Moisture Content %	12	12

Results relate only to the specimen tested, in as received condition unless otherwise noted

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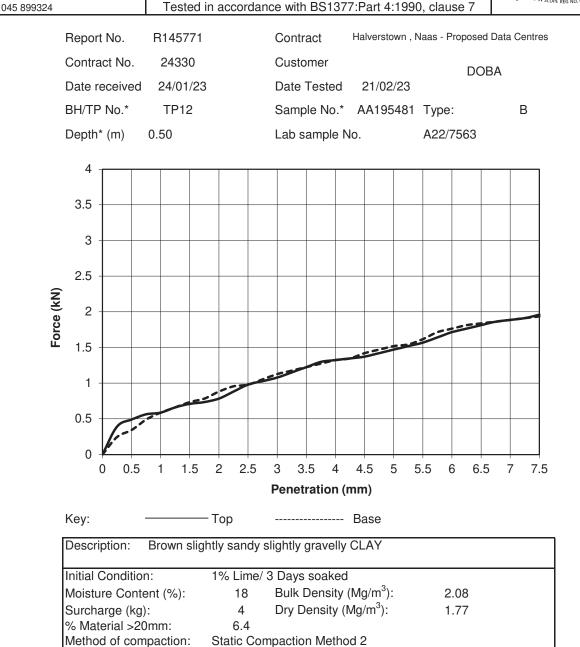
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#### TEST REPORT **Determination of California Bearing** Ratio (CBR)



Tested in accordance with BS1377:Part 4:1990, clause 7



Test Result	Тор	Base
CBR %	7.4	7.6
Moisture Content %	18	18

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# TEST REPORT Determination of California Bearing Ratio (CBR)



Tested in accordance with BS1377:Part 4:1990, clause 7

	Report	No.	R	1457	72		Contr	act	Ha	alversto	wn , N	aas - P	ropose	ed Data	Centres
	Contra	ct No.		2433	0		Custo	mer					DC	)BA	
	Date re	eceive	d 2	24/01	/23		Date <sup>1</sup>	Teste	d	21/02	/23			, , , ,	
	BH/TP	No.*		TP12	2		Samp	le No	.* <i>F</i>	AA195	481	Туре	:		В
	Depth*	(m)	0.	50			Lab s	ample	No.			A22/7	7563		
	0														
	6 7														
	5.5 -														
	5 -														1
	4.5 -														
	4 -														
ŝ	3.5 -														
Force (kN)	3 -						,	-							
For	2.5 -					."									



2

2.5

1.5

Description: Brown slightly sandy slightly gravelly CLAY

Initial Condition: 1% Lime/ 5 Days soaked

Moisture Content (%): 17 Bulk Density (Mg/m³): 2.11

Surcharge (kg): 4 Dry Density (Mg/m³): 1.81

3.5

Penetration (mm)

4.5

5

5.5

6

6.5

7

3

% Material >20mm: 6.4

Method of compaction: Static Compaction Method 2

Test Result	Тор	Base
CBR %	14.6	18.8
Moisture Content %	17	17

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2.5 2 1.5 1 0.5 0

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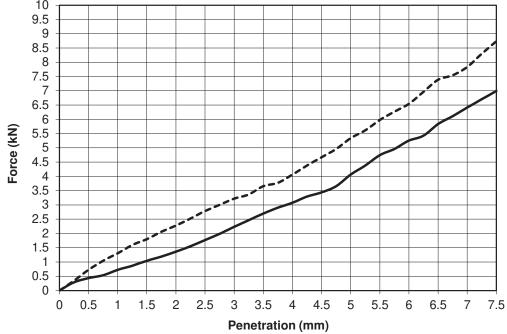
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### TEST REPORT Determination of California Bearing Ratio (CBR)



Tested in accordance with BS1377:Part 4:1990, clause 7

Report No. R145773	Contract Halverstown , Naas - Proposed Data Centr
Contract No. 24330	Customer DOBA
Date received 24/01/23	Date Tested 21/02/23
BH/TP No.* TP12	Sample No.* AA195481 Type: B
Depth* (m) 0.50	Lab sample No. A22/7563
10	



Key: ----- Base

Description: Brown slightly sandy slightly gravelly CLAY Initial Condition: 1% Lime/ 7 Days soaked Bulk Density (Mg/m<sup>3</sup>): Moisture Content (%): 14 2.13 4 Dry Density (Mg/m<sup>3</sup>): 1.86 Surcharge (kg): % Material >20mm: 6.4 Static Compaction Method 2 Method of compaction:

Test Result	Тор	Base
CBR %	20.4	26.7
Moisture Content %	14	14

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#### TEST REPORT Determination of California Bearing Ratio (CBR)



		Tested in accorda	ano	ce with BS1377:	Part 4:199	0, clause 7	GEN MED IN SCOPE R
	Report No.	R142668		Contract F	łalverstown , I	Naas - Proposed	Data Centres
	Contract No.	24330		Customer		DOE	ΣΛ
	Date received	24/01/23		Date Tested	21/02/23	DOE	DA .
	BH/TP No.*	TP12		Sample No.*	AA195481	Type:	В
	Depth* (m)	0.50		Lab sample No	).	A22/7563	
	4		_				
	3.5						
	3						
	2.5						
(KN)	2			,,,,			
LOCCE (KIN)	1.5		1				
	1	/,/	_				
	0.5						
	0						
	0 0.5	1 1.5 2 2.5				5.5 6 6.5	7 7.5
				Penetration (m	m)		
	Key:	——— Тор		E	Base		
	Description: Brown slightly sandy slightly gravelly CLAY						
	Initial Condition	n: 2% Lime	e/ 3	3 Days soaked			
	Moisture Conte	ent (%): 18		Bulk Density (M	/lg/m <sup>3</sup> ):	2.07	

Dry Density (Mg/m<sup>3</sup>):

Static Compaction Method 2

4

6.4

Test Result	Тор	Base
CBR %	12	14
Moisture Content %	19	16

Results relate only to the specimen tested, in as received condition unless otherwise noted

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Surcharge (kg):

% Material >20mm:

Method of compaction:

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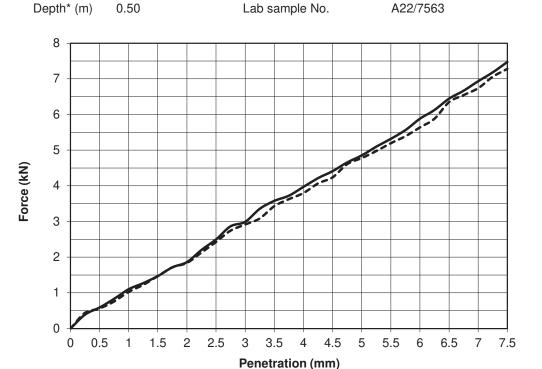
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# TEST REPORT Determination of California Bearing Ratio (CBR)



Tested in accordance with BS1377:Part 4:1990, clause 7

Report No.	R142666	Contract	Halverstown , Naas - Pr	oposed Data Centres
Contract No.	24330	Customer		DOBA
Date received	24/01/23	Date Tested	13/02/23	2027.
BH/TP No.*	TP12	Sample No.*	AA195481 Type:	В



Key: ----- Base

Description: Brown slightly sandy slightly gravelly CLAY						
Initial Condition:	2% Lime	/5 Days Soaked				
Moisture Content (%):	15	Bulk Density (Mg/m <sup>3</sup> ):	2.40			
Surcharge (kg):	4	Dry Density (Mg/m <sup>3</sup> ):	0.80			
% Material >20mm:	6.4					
Method of compaction:	Static Co	Static Compaction Method 2				

Test Result	Тор	Base
CBR %	24	24
Moisture	15	15

Results relate only to the specimen tested, in as received condition unless otherwise noted

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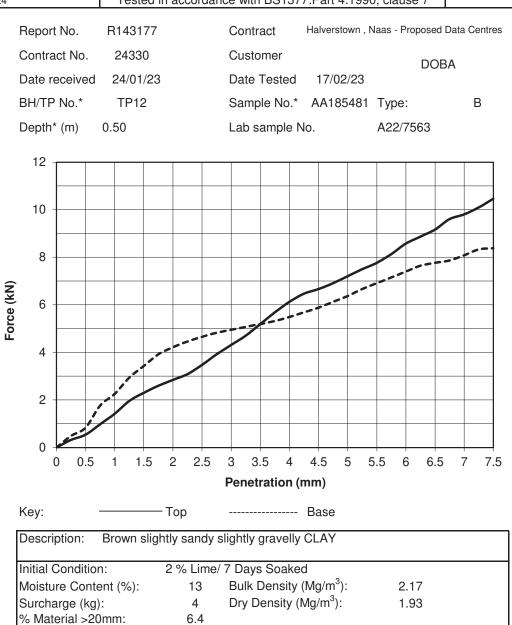
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# TEST REPORT Determination of California Bearing Ratio (CBR)



Tested in accordance with BS1377:Part 4:1990, clause 7



Test Result	Тор	Base
CBR %	36	35
Moisture Content %	13	12

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Method of compaction:

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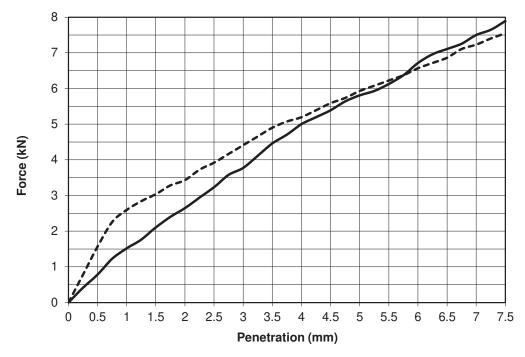
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# TEST REPORT Determination of California Bearing Ratio (CBR)



Tested in accordance with BS1377:Part 4:1990, clause 7

Report No.	R142665	Contract	Halverstown, I	Naas - Proposed Data	Centre
Contract No.	24330	Customer		DOBA	
Date received	24/01/23	Date Tested	13/02/23	БОБЛ	
BH/TP No.*	TP12	Sample No.*	AA195481	Type:	В
Depth* (m)	0.50	Lab sample N	No.	A22/7563	



Key: ----- Base

Description: Brown slightly sandy slightly gravelly CLAY					
Initial Condition: 2% Lime/Soaked 3 Days					
Moisture Content (%):	14	Bulk Density (Mg/m <sup>3</sup> ):	2.17		
Surcharge (kg):	4	Dry Density (Mg/m <sup>3</sup> ):	1.89		
% Material >20mm:	6.4				
Method of compaction:	Static Co	Static Compaction Method 2			

Test Result	Тор	Base
CBR %	29	30
Moisture Content %	15	15

Results relate only to the specimen tested, in as received condition unless otherwise noted

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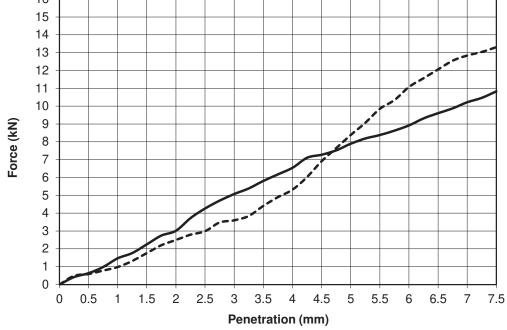
Naas Co.Kildare 045 899324

## TEST REPORT Determination of California Bearing Ratio (CBR)



Tested in accordance with BS1377:Part 4:1990, clause 7

Report No. R142670 Contract Halverstown, Naas - Proposed Data Centres Contract No. 24330 Customer DOBA Date received 24/01/23 **Date Tested** 01/02/23 BH/TP No.\* TP12 Sample No.\* AA195481 Type: В Depth\* (m) 0.50 Lab sample No. A22/7563 16 15 14 13



Key: ----- Base

Description: Brown slightly sandy slightly gravelly CLAY

Initial Condition: 2% Lime /5 Days Soaked

Moisture Content (%): 16 Bulk Density (Mg/m³): 2.15 Surcharge (kg): 4 Dry Density (Mg/m³): 1.86

% Material >20mm: 6.4

Method of compaction: Static Compaction Method 2

Test Result	Тор	Base
CBR %	40	42
Moisture Content %	16	16

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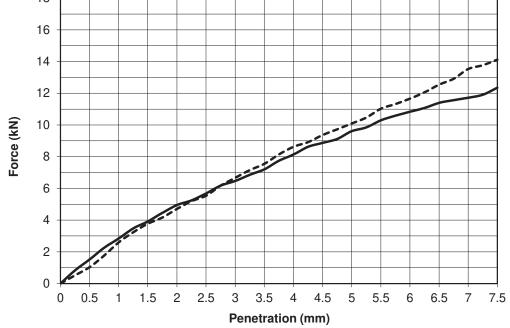
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# TEST REPORT Determination of California Bearing Ratio (CBR)



Tested in accordance with BS1377:Part 4:1990, clause 7

Report No. R143178	Contract Halverstown , Naas - Proposed Data Centres
Contract No. 24330	Customer
Date received 24/01/23	Date Tested 17/02/23
BH/TP No.* TP12	Sample No.* AA185481 Type: B
Depth* (m) 0.50	Lab sample No. A22/7563
18	
16	



Key: ----- Base

Description: Brown slightly sandy slightly gravelly CLAY Initial Condition: 3% Lime/ 7 Days Soaked Bulk Density (Mg/m<sup>3</sup>): Moisture Content (%): 15 2.17 4 Dry Density (Mg/m<sup>3</sup>): 1.90 Surcharge (kg): % Material >20mm: 14 Method of compaction: Static Compaction Method 2

Test Result	Тор	Base
CBR %	48	51
Moisture	15	14

Results relate only to the specimen tested, in as received condition unless otherwise noted

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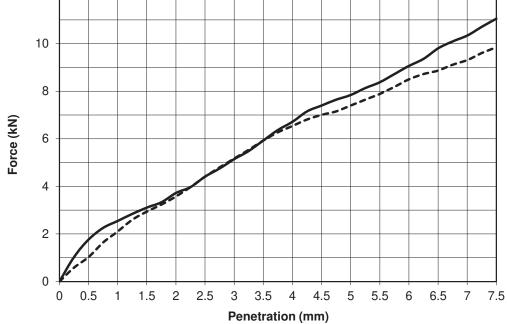
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# TEST REPORT Determination of California Bearing Ratio (CBR)



Tested in accordance with BS1377:Part 4:1990, clause 7

Report No.	R142667	Contract	Ha	alverstown , l	Naas - P	ropose	d Data	Centres
Contract No.	24330	Custome	r			DO	ВА	
Date received	24/01/23	Date Tes	ted	13/02/23		50		
BH/TP No.*	TP12	Sample N	No.* A	A195481	Туре	:		В
Depth* (m)	0.50	Lab sam	ole No.		A22/7	7563		
12								
12								
10								



Key: ----- Base

Description: Brown slightly sandy slightly gravelly CLAY

Initial Condition: 1% Lime 2% Cement 3 Days Soaked

Moisture Content (%): 14 Bulk Density (Mg/m³): 2.16

Surcharge (kg): 4 Dry Density (Mg/m³): 1.89

% Material >20mm: 6.4

Method of compaction: Static Compaction Method 2

Test Result	Тор	Base
CBR %	39	37
Moisture Content %	14	15

Results relate only to the specimen tested, in as received condition unless otherwise noted

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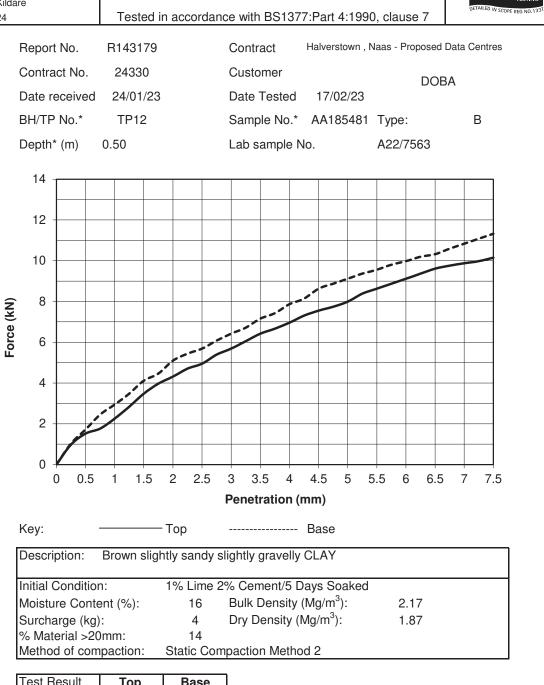
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# TEST REPORT Determination of California Bearing Ratio (CBR)





Test Result	Тор	Base
CBR %	40	46
Moisture Content %	16	16

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### TEST REPORT **Determination of California Bearing** Ratio (CBR)



		Tested i	Tested in accordance with BS1377:Part 4:1990, clause 7					ause 7	DEL	AILED IN SCOPE RI
	Report No.	R142669	142669 Contract Halverstown , Naas - Proposed					- Proposed	Data Ce	entres
	Contract No.	24330		Custo	mer			DOI	٦.٨	
	Date receive	d 24/01/23		Date	Tested	01/02/	23	DOE	5A	
	BH/TP No.*	TP12		Samp	le No.*	AA1954	481 Typ	oe:	Е	3
	Depth* (m)	0.50			ample N			2/7563		
	1 ( /				'					
	14									
	12						2-0			
	10									
	10									
Ē	8			.//						_
6 E			11/							_
rorce (KN)	6	1								
	4	j								
	2									
	0									
	0 0.5	5 1 1.5	2 2.5	3 3	.5 4	4.5 5	5.5	6 6.5	7	7.5
				Penet	ration (n	nm)				
	Key:		Тор			Base				
Description: Brown slightly sandy slightly gravelly CLAY										
	Initial Conditi	on:	1% Lime 2	2% Cen	nent/7 D	ays Soal	ked			
	Moisture Cor		15	Bulk I	Density (	Mg/m <sup>3</sup> ):		2.17		
Surcharge (kg): 4 Dry Density (Mg/m³): 1.89 % Material >20mm: 6.4										

Test Result	Тор	Base
CBR %	53	58
Moisture Content %	16	15

Results relate only to the specimen tested, in as received condition unless otherwise noted

Opinions and interpretations are outside the scope of accreditation.

Method of compaction:

\* denotes Customer supplied information

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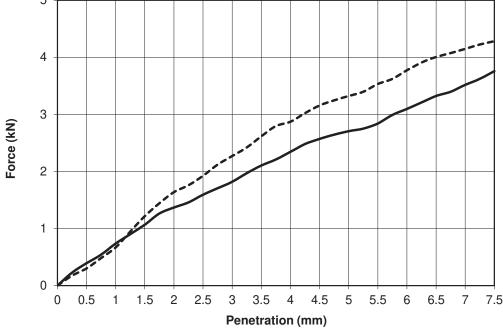
Static Compaction Method 2

# TEST REPORT Determination of California Bearing Ratio (CBR)



Tested in accordance with BS1377:Part 4:1990, clause 7

Report No.	R145763	Naas - Proposed Data Centres				
Contract No.	24330	Customer	DOBA			
Date received	24/01/23	Date Tested 18/02/23	505/1			
BH/TP No.*	TP19	Sample No.* AA185468	Type: B			
Depth* (m)	0.50	Lab sample No. A22/7568				
5						



Key: ----- Base

Description: Mottled b	rown slightly	y sandy slightly gravelly CLA	Y	
Initial Condition:	1 % Lime	/ 3 Days Soaked		
Moisture Content (%):	16	Bulk Density (Mg/m <sup>3</sup> ):	2.16	
Surcharge (kg):	4	Dry Density (Mg/m <sup>3</sup> ):	1.86	
% Material >20mm:	9			
Method of compaction:	Static Co	mpaction Method 2		

Test Result	Тор	Base
CBR %	14	17
Moisture	16	16

Results relate only to the specimen tested, in as received condition unless otherwise noted

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045 899324

### TEST REPORT Determination of California Bearing Ratio (CBR)



		Tested in acco	rdance with BS1377:Part 4:1990, clause 7
	Report No.	R143180	Contract Halverstown , Naas - Proposed Data Centres
	Contract No.	24330	Customer
	Date received	24/01/23	Date Tested 18/02/23
	BH/TP No.*	TP19	Sample No.* AA185468 Type: B
	Depth* (m)	0.50	Lab sample No. A22/7568
	0		
	8		
	6		
Z	` ,		
Force (KN)	4		
2			
		,,,	
	2	, /	
	0 0.5	1 1.5 2 2	2.5 3 3.5 4 4.5 5 5.5 6 6.5 7 7.5
			Penetration (mm)
	Key:	———Тор	Base
	Description:	·	htly sandy slightly gravelly CLAY
	·		
	Initial Conditio Moisture Cont		ime/ 5 Days Soaked 6 Bulk Density (Mg/m³): 2.18
	IVIOISIUIE OUIII	Citt (70).	2.10

Dry Density (Mg/m<sup>3</sup>):

Static Compaction Method 2

4

Test Result	Тор	Base		
CBR %	24	30		
Moisture Content %	16	16		

Results relate only to the specimen tested, in as received condition unless otherwise noted

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Surcharge (kg):

% Material >20mm: Method of compaction:

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### TEST REPORT Determination of California Bearing Ratio (CBR)



			Test	ed in a	accord	land	ce with	BS1	377:F	art 4:	1990	, clau	se 7	, or	IN SCOPE
	Report	l No.	R1457	'64			Contr	act	На	alversto	wn , N	aas - P	roposed	Data C	entres
	·					Customer									
	Date re	eceived	24/01	/23			Date	Teste	d :	24/02	/23		DOE	А	
	BH/TP	No.*	TP1	9			Samp	ole No	.* A	A185	468	Type:			В
	Depth'	' (m)	0.50				Lab s	ample	e No.			A22/7	7568		
	·	` '						·							
	10 -														
	9 -														
	8 -														
	7 -														
	6 -														
LOICE (NIN)	5 -														
5	4 -				1		`								
	3 -														
	2 -		-												
		1													
	1 -	!/													
	0 -	0.5	1 1	.5 2			2 2	-	1 1	F /		F (	` C F	7	
	,	0 0.5	1 1	.5 2	2 2.5		3 3 <b>Penet</b>				5 5	.5 6	6.5	7	7.5
							renet	iatioi	-						
	Key:			—т	ор				Ba	ase					
	Descri	ption:	Mottled	brow	n sligh	tly :	sandy	slight	ly gra	velly	CLAY	/			
ŀ	Initial (	Conditio	n:	1	% Lin	ne/ i	7 Days	s Soa	ked						
- 1		re Conte			12		Bulk						.18		
		arge (kg) erial >20			4 9		Dry D	ensity	/ (Mg	/m³):		1.	.94		
- [	, o ivial	J. (		_	~					_					

Test Result	Тор	Base
CBR %	37	30
Moisture Content %	12	13

Results relate only to the specimen tested, in as received condition unless otherwise noted

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Method of compaction:

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Static Compaction Method 2

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### TEST REPORT Determination of California Bearing Ratio (CBR)



			Test	ted in	accor	rdanc	e with	BS1	377:1	Part 4	1:199	0, cla	use	7	DE	TAILED IN SCOPE RE
	Repor	t No.	R1426	672			Contr	act	Н	alverst	own ,	Naas -	Propo	sed [	Data C	entres
	Contra	act No.	2433	30			Custo	mer					_			
	Date r	eceived	24/0 <sup>-</sup>	1/23			Date	Teste	ed	01/02	2/23		L	OOB	A	
	BH/TP	) No *	TP1	9			Samp			4A18	5498	R Typ	е.			В
	Depth <sup>3</sup>		0.50	Ü			Lab s				0.00		2/756	Ω		
	Берш	(111)	0.50				Lab s	ampi	e INO.			722	.// 30	O		
	14										Т	<u> </u>				$\neg$
	12															
	10															
	•												_			
Z	8															
Force (kN)	6															
ē	0															
	4															
	7			-	~											
	2			1												
	_	1.														
	0	6														
		0 0.5	1 1	.5	2 2	.5	3 3	.5	4 4	1.5	5	5.5	6	6.5	7	7.5
						ı	Penet	ratio	n (mr	n)						
	Key:			— т	ор				В	ase						
	Descri	ntion:	Mottled	d brow	n slig	ıhtlv s	sandv	sliaht	lv ara	avellv	CLA	Υ				
						_				avony	<u> </u>	• •				
		Condition					Days			3\			0.00			
		ire Conte arge (kg)			14 4		Bulk I Dry D		• •	•			2.20 1.93			
		arge (kg) erial >20			9		ыу Б	CHOIL	y (ινι <u>ς</u>	y/111 ).			1.33			
		d of com		ı: S	•	Com	pactio	n Me	thod	2						

Test Result	Тор	Base
CBR %	39	29
Moisture	14	15

Results relate only to the specimen tested, in as received condition unless otherwise noted

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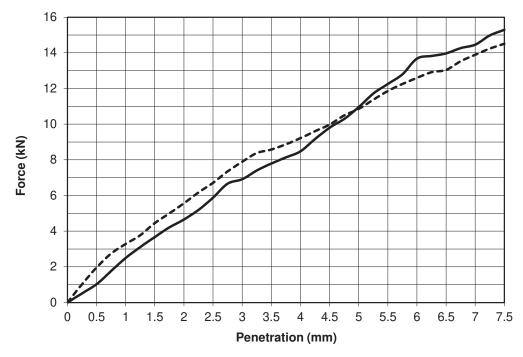
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# TEST REPORT Determination of California Bearing Ratio (CBR)



Tested in accordance with BS1377:Part 4:1990, clause 7

Report No.	R142671	Contract	Halverstown, N	Naas - Proposed Data	Centres
Contract No.	24330	Customer		DOBA	
Date received	24/01/23	Date Tested	13/02/23	ВОВЛ	
BH/TP No.*	TP19	Sample No.*	AA185498	Type:	В
Depth* (m)	0.50	Lab sample N	No.	A22/7568	



Key: ----- Base

Description: Mottled b	rown slightl	y sandy slightly gravelly CLA	Y	
Initial Condition:	2% Lime	added 5 Days Soaked		
Moisture Content (%):	13	Bulk Density (Mg/m <sup>3</sup> ):	2.17	
Surcharge (kg):	4	Dry Density (Mg/m <sup>3</sup> ):	1.92	
% Material >20mm:	9			
Method of compaction:	Static Co	mnaction Method 2		

Test Result	Тор	Base
CBR %	55	54
Moisture	13	13

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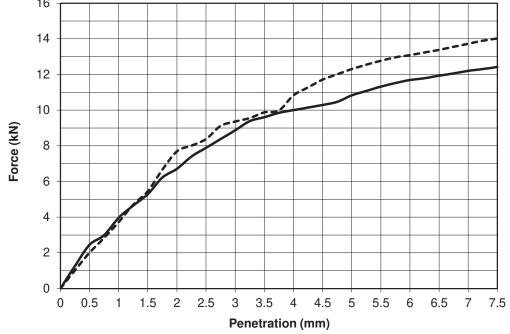
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#### TEST REPORT Determination of California Bearing Ratio (CBR)



Tested in accordance with BS1377:Part 4:1990, clause 7

Report No. R143181	Contract	Halverstown , Naas - Proposed Data Centr	'e
Contract No. 24330	Customer	DOBA	
Date received 24/01/23	Date Tested	16/02/23	
BH/TP No.* TP19	Sample No.*	AA185468 Type: B	
Depth* (m) 0.50	Lab sample N	o. A22/7568	
16			1
			ı



Key: - Top ----- Base

Description: Mottled brown slightly sandy slightly gravelly CLAY Initial Condition: 2 % Lime/ 7 Days Soaked Bulk Density (Mg/m<sup>3</sup>): Moisture Content (%): 12 2.17 Surcharge (kg): 4 Dry Density (Mg/m<sup>3</sup>): 1.93 % Material >20mm: Method of compaction: Static Compaction Method 2

Test Result	Тор	Base
CBR %	60	63
Moisture Content %	12	12

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### TEST REPORT Determination of California Bearing Ratio (CBR)



<i>_</i>			Teste	ed in a	accor	danc	e with	BS13	377:F	art 4	:1990	), clau	use 7	7	DE	TAILED IN SCOPE RI
	Report	No.	R1431	86			Contr	act	На	alversto	own , N	Naas - I	Propo	sed D	ata C	entres
	Contract No. 24330 Customer					_										
	Date re	eceived	24/01	/23			Date <sup>1</sup>	Teste	d	03/02	2/23		L	OBA	4	
	BH/TP		TP19				Samp					Туре	٠.			3
			0.50	,							, 100	A22/		0		-
	Depth'	(111)	0.50				Lab s	атріє	ino.			A22/	7500	0		
	10 -												1			$\neg$
	_													_		
	8 -										_					
													l			
	6 -															
						/										
2	4 -															
			J.													
	2 -															
	2 -	.//														
	0 -															
	(	0.5	1 1.	.5 2	2 2.		3 3.			_	5 5	5.5	6	6.5	7	7.5
						F	Penet	ration	ı (mr	n)						
	Key:			— т	ор				B	ase						
ſ	Descri	ption:	Mottled	brow	n slig	htly s	andy	slightl	y gra	avelly	CLA	Y				
- 1		Condition		3	% Lin 13		Days : Bulk [			a/m <sup>3</sup> \		,	2.09			
		re Conte arge (kg)	. ,		4		Dry D			- ,	•		1.84			
		erial >20			9					,		,				
- 1	B 4 11			_	1 - 12 - 3	<b>^</b>				^						

Test Result	Тор	Base
CBR %	39	32
Moisture Content %	14	13

Results relate only to the specimen tested, in as received condition unless otherwise noted

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Method of compaction:

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Static Compaction Method 2

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# TEST REPORT Determination of California Bearing Ratio (CBR)



Tested in accordance with BS1377:Part 4:1990, clause 7

			Tes	ted in	accor	danc	e with	BS1	377:F	Part 4	1:199	0, cla	use	7		
	Report	t No.	R143	184			Contr	act	Н	alverst	own ,	Naas -	Propo	osed Da	ata Cer	ntres
	Contra	ct No.	2433	30	Customer											
	Date re	eceived	24/0	1/23	DOBA  Date Tested 17/02/23							JUBA				
	BH/TP	No.*	TP1	9	Sample No.* AA185468 Type:								В			
	Depth'	Depth* (m) 0.50					Lab s	ampl	e No.			A22	756	8		
	18 -															
	10 -														/.	3
	16 -															
	14 -							'		/					_	-
	12 -						,"	/								
_						10									+	-
Z Y (1)	10 -				11											
rorce (KN)	8 -			7											+	+
_	6 -		.//													
	4 -	1	/												#	
	2 -														+	+
	2 -	/														
	0 -	0 0.5	1 1	1.5	2 2	.5	3 3	.5	4 4	↓ I.5	5	<del></del> 5.5	<del> </del> 6	6.5	7	 7.5
	·	0 0.0	•				Penet				0	0.0	Ü	0.0	,	7.0
	Key:			— т	ор					ase						
Description. Mottled by our alightly conductionable gravelly CLAV																

Description: Mottled brown slightly sandy slightly gravelly CLAY

Initial Condition: 3 % Lime /5 Days soaked

Moisture Content (%): 13 Bulk Density (Mg/m³): 2.20 Surcharge (kg): 4 Dry Density (Mg/m³): 1.95

% Material >20mm: 9

Method of compaction: Static Compaction Method 2

Test Result	Тор	Base			
CBR %	77	79			
Moisture Content %	14	13			

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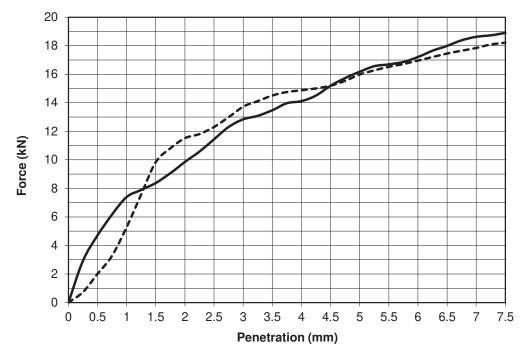
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# TEST REPORT Determination of California Bearing Ratio (CBR)



Tested in accordance with BS1377:Part 4:1990, clause 7

Report No.		R142673	Contract	Halverstown , Naas - Proposed Data Co					
	Contract No.	24330	Customer		DOBA				
	Date received	24/01/23	Date Tested	01/02/23	505/1				
	BH/TP No.*	TP19	Sample No.*	AA185498	Type:	В			
	Depth* (m)	0.50	Lab sample N	No.	A22/7568				



Key: ----- Base

Description: Mottled brown slightly sandy slightly gravelly CLAY										
Initial Condition:	3 % Lime	/7 Days soaked								
Moisture Content (%):	14 Bulk Density (Mg/m <sup>3</sup> ):		2.20							
Surcharge (kg):	4	Dry Density (Mg/m <sup>3</sup> ):	1.93							
% Material >20mm:	9									
Method of compaction: Static Compaction Method 2										

Test Result	Тор	Base		
CBR %	86	93		
Moisture	15	14		

Results relate only to the specimen tested, in as received condition unless otherwise noted

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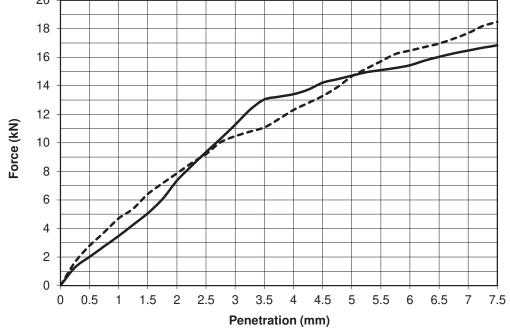
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# TEST REPORT Determination of California Bearing Ratio (CBR)



Tested in accordance with BS1377:Part 4:1990, clause 7

Report No.	Contract Halverstown, N					Naas - Proposed Data Centres				
Contract No.		Customer				DOBA				
Date received	24/01/23		Date	Tested	01/02	2/23	235/1			
BH/TP No.*		Sample No.* AA185498				Туре	:		В	
Depth* (m)		Lab s	ample N	No.		A22/7	7568			
20										



Key: ----- Base

Description: Mottle brown slightly sandy slightly gravelly CLAY											
Initial Condition:	1% Lime	/2% Cement 3 Days Soaked	d								
Moisture Content (%):	14	Bulk Density (Mg/m <sup>3</sup> ):	2.15								
Surcharge (kg):	4	Dry Density (Mg/m <sup>3</sup> ):	1.89								
% Material >20mm:	9										
Method of compaction:	Static Co	mpaction Method 2									

Test Result	Тор	Base		
CBR %	74	73		
Moisture	14	14		

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### TEST REPORT Determination of California Bearing Ratio (CBR)



			Test	ed in	accor	dand	ce with	BS1	377:F	art 4:	1990	, clau	se 7		gen and y	W SCOPE
	Report	No.	R1431	85			Conti	act	На	alversto	wn , N	aas - F	ropose	d Data	Centre	es
	Contra	ct No.	2433	0			Customer									
	Date received 24/01/23					DOBA Date Tested 17/02/23										
	BH/TP	No.*	TP1	9			Sample No.* AA185468 Type:						В			
Depth* (m) 0.50			Lab s	ample	No.			A22/	7568							
	·	` ,						·								
	22 -															
	20 -															
	18 -										_	2723				
	16 -									120						
	14 -								;;							
	12 -						,,,	/								
(111)	10 -					,,,										
5	8 -			,·												
			.000													
	6 -		00													
	4 -	,														
	2 -	,,,														
	0 -	0.5	1 1	.5 2	2 2	.5	3 3	.5 4	1 4	.5 5	5 5		6. 6.	5 7	7 7	_
	(	0.5	1 1	.5 4	2 2		೦ Penet				) 5	.5 (	6.	5 <i>i</i>	7 7.	.5
				_			. 0		-	-						
	Key:				ор					ase						
	Descri	otion:	Mottled	brow	n slig	htly	sandy	slight	ly gra	velly	CLA	<i>-</i>				
-		Conditio					Ceme		-							$\dashv$
	Ma:a+	40 Cant	+ (O/ \.		40	,	Dulle	Danaid	h. / N //	a/m <sup>3</sup> \.		0	10			- 1

Description. Wottled br	own siignii)	Sariay Siightiy graveliy OL	VI	
Initial Condition:	1% Lime/	2 Cement 5 Days Soaked		
Moisture Content (%):	13	Bulk Density (Mg/m <sup>3</sup> ):	2.18	
Surcharge (kg):	4	Dry Density (Mg/m <sup>3</sup> ):	1.94	
% Material >20mm:	9			
Method of compaction:	Static Co	mpaction Method 2		

Test Result	Тор	Base
CBR %	82	83
Moisture Content %	13	12

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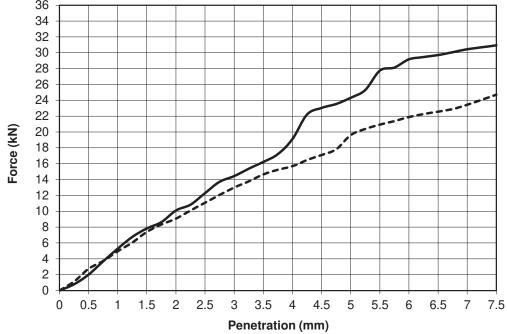
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### TEST REPORT Determination of California Bearing Ratio (CBR)



Tested in accordance with BS1377:Part 4:1990, clause 7

Report No.	R143187	Contract	Halverstown, I	Naas - Proposed D	ata Centres
Contract No.	24330	Customer		DOBA	7
Date received	24/01/23	Date Tested	03/02/23	505/	•
BH/TP No.*	TP19	Sample No.*	AA185468	Type:	В
Depth* (m)	0.50	Lab sample N	No.	A22/7568	
36					



Key: - Top ----- Base

Description: Mottled b	rown slightl	y sandy slightly gravelly CLA	ΑY
Initial Condition:	1% Lime	/2% Cement /7 Days soaked	t
Moisture Content (%):	13	Bulk Density (Mg/m <sup>3</sup> ):	2.18
Surcharge (kg):	4	Dry Density (Mg/m <sup>3</sup> ):	1.93
% Material >20mm:	9		
Method of compaction:	Static Co	mpaction Method 2	

CBR % 122 98	Test Result	Тор	Base
	CBR %	122	98

Test Result	Тор	Base
CBR %	122	98
Moisture Content %	13	13

Results relate only to the specimen tested, in as received condition unless otherwise noted

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# TEST REPORT Determination of California Bearing Ratio (CBR)



Tested in accordance with BS1377:Part 4:1990, clause 7

	l ested in acco	ordance with BS1377:Part 4:1990, clause 7	
Report No.	R145765	Contract Halverstown , Naas - Proposed Da	ıta Centres
Contract No.	24330	Customer	
Date received	24/01/23	Date Tested 18/02/23	
BH/TP No.*	TP26	Sample No.* AA181975 Type:	В
Depth* (m)	0.50	Lab sample No. A22/7575	
4			
4			
			1
3			
2			
2			
1	100		
'			
6			
0			
0 0.5	1 1.5 2 2	2.5 3 3.5 4 4.5 5 5.5 6 6.5	7 7.5
		Penetration (mm)	
Key:	——Тор	Base	
Description:	Mottled brown slig	ghtly sandy slightly gravelly CLAY	
Initial Conditio		me /3 Days Soaked	
Moisture Cont		2	
la			

Dry Density (Mg/m<sup>3</sup>):

Static Compaction Method 2

Test Result	Тор	Base
CBR %	13	12
Moisture Content %	16	16

4

7.6

Results relate only to the specimen tested, in as received condition unless otherwise noted

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Surcharge (kg):

% Material >20mm: Method of compaction:

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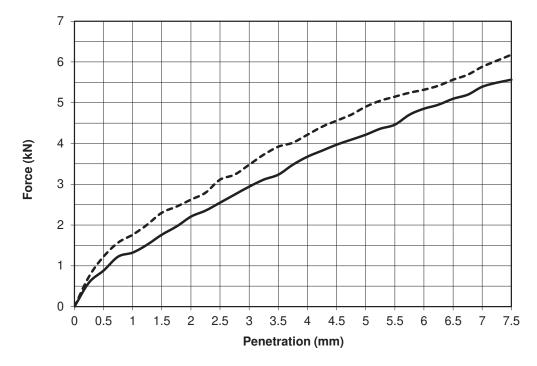
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# TEST REPORT Determination of California Bearing Ratio (CBR)



Tested in accordance with BS1377:Part 4:1990, clause 7

Report No.	R143182	Contract	Halverstown, I	Naas - Proposed Data	Centres
Contract No.	24330	Customer		DOBA	
Date received	24/01/23	Date Tested	18/02/23	505/1	
BH/TP No.*	TP26	Sample No.*	AA181975	Type:	В
Depth* (m)	0.50	Lab sample i	No.	A22/7575	



Key: ——— Top ------ Base

Description: Mottled brown slightly sandy slightly gravelly CLAY					
Initial Condition:	1% Lime	/5 Days Soaked			
Moisture Content (%):	17	Bulk Density (Mg/m <sup>3</sup> ):	2.17		
Surcharge (kg):	4	Dry Density (Mg/m <sup>3</sup> ):	1.86		
% Material >20mm:	7.6				
Method of compaction:	Static Co	mpaction Method 2			

Test Result	Тор	Base
CBR %	21	25
Moisture	16	17

Results relate only to the specimen tested, in as received condition unless otherwise noted

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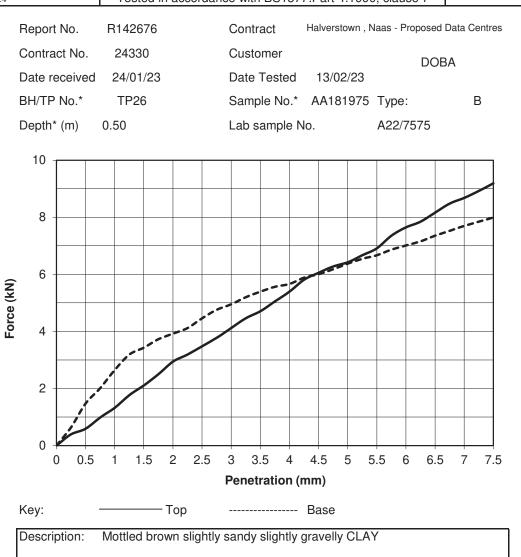
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045 899324

# TEST REPORT Determination of California Bearing Ratio (CBR)



Tested in accordance with BS1377:Part 4:1990, clause 7



Description: Mottled brown slightly sandy slightly gravelly CLAY

Initial Condition: 1 % Lime /7 Day Soaked

Moisture Content (%): 12 Bulk Density (Mg/m³): 2.17

Surcharge (kg): 4 Dry Density (Mg/m³): 1.93

% Material >20mm: 7.6

Method of compaction: Static Compaction Method 2

Test Result	Тор	Base
CBR %	32	34
Moisture Content %	13	12

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045 899324

# TEST REPORT Determination of California Bearing Ratio (CBR)



Tested in accordance with BS1377:Part 4:1990, clause 7

			Test	ed in	accor	danc	ce with	BS13	377:F	Part 4:	1990	), claus	se 7			OCOFE REG
	Repor	t No.	R1431	83			Contr	act	Ha	alversto	wn , N	laas - P	roposed	d Data	Centre	s
	Contra	act No.	2433	0			Custo	mer					DO	DΛ		
	Date r	eceived	24/01	/23			Date	Teste	d	18/02/	/23		ЪО	DA		
	BH/TP	No.*	TP2	6			Samp	le No	.* <i>F</i>	AA181	975	Type:			В	
	Depth <sup>3</sup>	* (m)	0.50				Lab s	ample	No.			A22/7	'575			
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	10															
	8 -															
_	6 -													$\rightarrow$		
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Force (KN)																
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	0 -	<i>y</i>														
		0.5	1 1	.5 2	2 2	.5	3 3	.5 4	1 4	.5 5	5 5	5.5 6	6.	5 7	7.5	5
							Penet	ration	ı (mn	n)						
	Key:			— т	ор				B	ase						
	Descri	ption:	Mottled	brow	n slig	htly	sandy	slightl	ly gra	avelly (	CLA'	Y				٦
	Initial (	Condition	า:	2	% Lir	ne/ 3	B Days	Soak	ed							$\dashv$
	l							٠		, 3,		_				- 1

Description: Mottled br	own slightly	sandy slightly gravelly CL	AY	
Initial Condition:	2% Lime/	3 Days Soaked		
Moisture Content (%):	13	Bulk Density (Mg/m <sup>3</sup> ):	2.18	
Surcharge (kg):	4	Dry Density (Mg/m <sup>3</sup> ):	1.94	
% Material >20mm:	7.6			
Method of compaction:	Static Cor	mpaction Method 2		

R143183.TP26@0.50m.CBR 2 3D

Test Result	Тор	Base
CBR %	35	28
Moisture	12	13

Results relate only to the specimen tested, in as received condition unless otherwise noted

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045 899324

# TEST REPORT Determination of California Bearing Ratio (CBR)



da	ire	Tested in	accordance	ce with BS137	7:Part 4:1990	0, clause 7	DETAILED IN SCOPE REG NO.13
	Report No.	R142678		Contract	Halverstown, N	Naas - Proposed	Data Centres
	Contract No.	24330		Customer		DOE	
	Date received	24/01/23		Date Tested	01/02/23	DOE	ЗА
	BH/TP No.*	TP26		Sample No.*		Type:	В
	Depth* (m)	0.50		Lab sample N		A22/7575	_
	Deptii (iii)	0.50		Lab sample i	<b>10.</b>	ALLITOTO	
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	12						
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	4						
	2						
	2	-1					
	0 0.5	1 1.5	2 2.5	3 3.5 4	4.5 5 5	5.5 6 6.5	7 7.5
				Penetration (	mm)		
	Key:		Тор		Base		
			•			· · · · · · · · · · · · · · · · · · ·	
	Description:	Mottled brov	vn sligntly	sandy slightly	gravelly CLA	Y	
	Initial Condition			Day Soaked	2		
	Moisture Conte		14	Bulk Density	, ,	2.24	
	Surcharge (kg) % Material >20		4 7.6	Dry Density (	ivig/m <sup>-</sup> ):	1.97	
	Method of com		_	paction Metho	od 2		

Test Result	Тор	Base
CBR %	46	49
Moisture Content %	13	14

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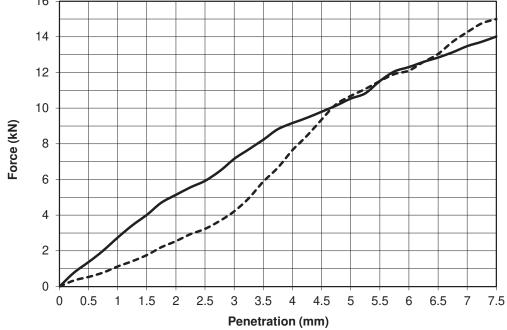
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# TEST REPORT Determination of California Bearing Ratio (CBR)



Tested in accordance with BS1377:Part 4:1990, clause 7

Report No.	R142679	Contract Halverstown , Naas - Proposed Data Centre
Contract No.	24330	Customer
Date received	24/01/23	Date Tested 01/02/23
BH/TP No.*	TP26	Sample No.* AA181975 Type: B
Depth* (m)	0.50	Lab sample No. A22/7575
16		
14		



Key: ----- Base

Description: Mottled brown slightly sandy slightly gravelly CLAY Initial Condition: 2% Lime/7 Days Soaked Bulk Density (Mg/m<sup>3</sup>): Moisture Content (%): 13 2.16 4 Dry Density (Mg/m<sup>3</sup>): 1.91 Surcharge (kg): 7.6 % Material >20mm: Method of compaction: Static Compaction Method 2

Test Result	Тор	Base
CBR %	53	54
Moisture	13	14

Results relate only to the specimen tested, in as received condition unless otherwise noted

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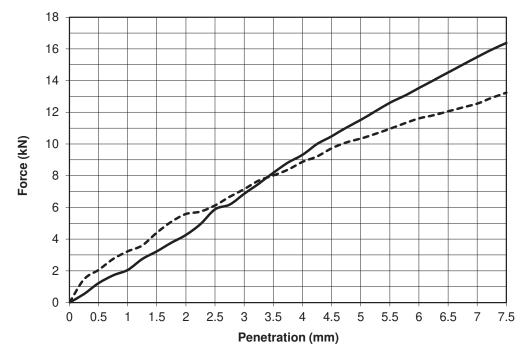
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### TEST REPORT **Determination of California Bearing** Ratio (CBR)



Tested in accordance with BS1377:Part 4:1990, clause 7

Report No.	R142677	Contract	Halverstown, I	Naas - Proposed Data	Centres
Contract No.	24330	Customer		DOBA	
Date received	24/01/23	Date Tested	13/02/23	БОВК	
BH/TP No.*	TP26	Sample No.*	AA181975	Type:	В
Depth* (m)	0.50	Lab sample N	No.	A22/7575	



Key: - Top ----- Base

Description: Mottled brown slightly sandy slightly gravelly CLAY Initial Condition: 3 % Lime /3 Day Soaked Bulk Density (Mg/m<sup>3</sup>): Moisture Content (%): 13 2.17 4 Dry Density (Mg/m<sup>3</sup>): 1.90 Surcharge (kg): 7.6 % Material >20mm: Static Compaction Method 2 Method of compaction:

Test Result	Тор	Base
CBR %	58	52
Moisture Content %	13	12

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Depth\* (m)

0.50

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# TEST REPORT Determination of California Bearing Ratio (CBR)

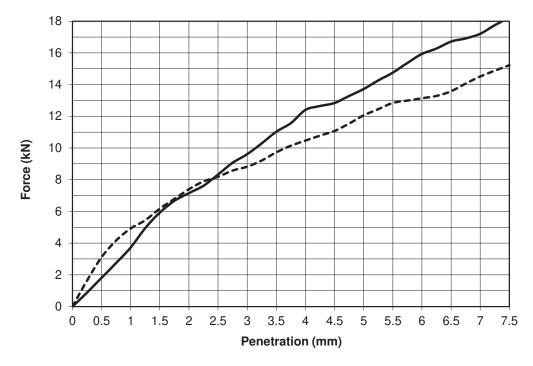


Tested in accordance with BS1377:Part 4:1990, clause 7

Report No.	R143189	Contract	Halverstown , Naas - Prop	oosed Data Centres
Contract No.	24330	Customer		DOBA
Date received	24/01/23	Date Tested	17/02/23	
BH/TP No.*	TP26	Sample No.*	AA181975 Type:	В

Lab sample No.

A22/7575



Key: — Top ----- Base

Description: Mottled brown slightly sandy slightly gravelly CLAY				
Initial Condition:	3 % Lime	/ 5 Days soaked		
Moisture Content (%): 12 Bulk Density (Mg/m³): 2.18				
Surcharge (kg):	4	Dry Density (Mg/m <sup>3</sup> ):	1.95	
% Material >20mm: 7.6				
Method of compaction: Static Compaction Method 2				

Test Result	Тор	Base
CBR %	69	62
Moisture Content %	12	12

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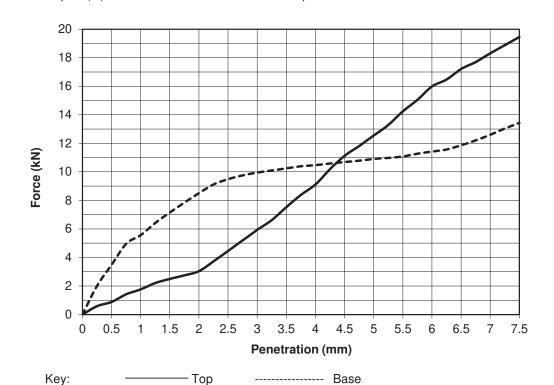
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### TEST REPORT Determination of California Bearing Ratio (CBR)



Tested in accordance with BS1377:Part 4:1990, clause 7

Report No.	R143191	Contract	Halverstown, I	Naas - Proposed Data	Centres
Contract No.	24330	Customer		DOBA	
Date received	24/01/23	Date Tested	17/02/23	202.	
BH/TP No.*	TP26	Sample No.*	AA181975	Type:	В
Depth* (m)	0.50	Lab sample N	No.	A22/7575	



Description: Mottled brown slightly sandy slightly gravelly CLAY

Initial Condition: 3% Lime/7 Days Soaked

Moisture Content (%): 12 Bulk Density (Mg/m³): 2.17

Surcharge (kg): 4 Dry Density (Mg/m³): 1.93

% Material >20mm: 7.6

Method of compaction: Static Compaction Method 2

Ľ	Test Result	Тор	Base
	CBR %	63	72
	Moisture Content %	12	12

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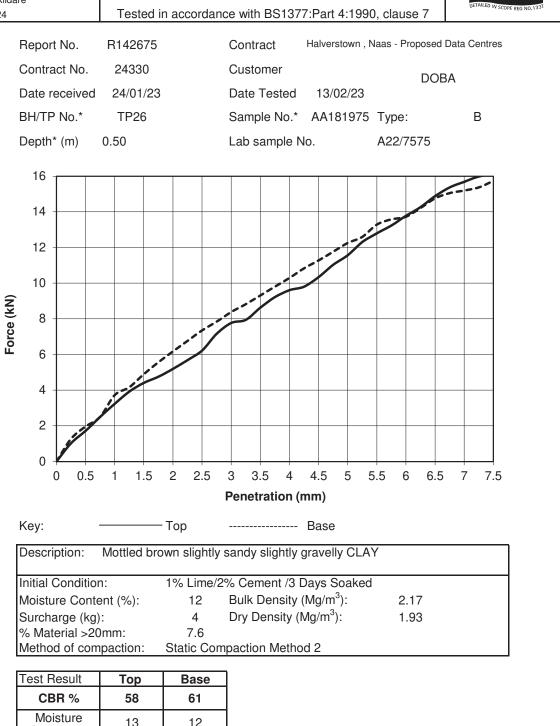
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### TEST REPORT **Determination of California Bearing** Ratio (CBR)





Test Result	Тор	Base
CBR %	58	61
Moisture Content %	13	12

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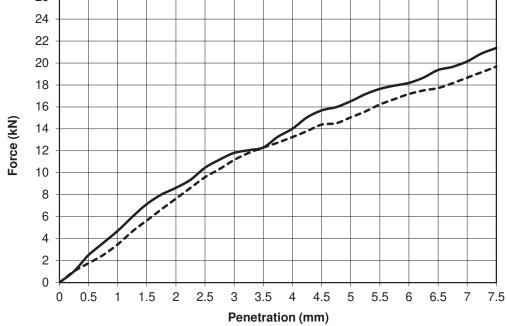
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#### TEST REPORT **Determination of California Bearing** Ratio (CBR)



Tested in accordance with BS1377:Part 4:1990, clause 7

Report No. R142680 Contract Halverstown, Naas - Proposed Data Centres Contract No. 24330 Customer DOBA Date received 24/01/23 **Date Tested** 01/02/23 BH/TP No.\* **TP26** Sample No.\* AA181975 Type: В Depth\* (m) 0.50 Lab sample No. A22/7575 26 24



Key: - Top ----- Base

Description: Mottled brown slightly sandy slightly gravelly CLAY 1% Lime/2% Cement/ 5 Days Soaked Initial Condition:

Bulk Density (Mg/m<sup>3</sup>): Moisture Content (%): 13 2.16 4 Dry Density (Mg/m<sup>3</sup>): 1.90 Surcharge (kg): 7.6

% Material >20mm:

Static Compaction Method 2 Method of compaction:

Test Result	Тор	Base
CBR %	83	75
Moisture Content %	13	14

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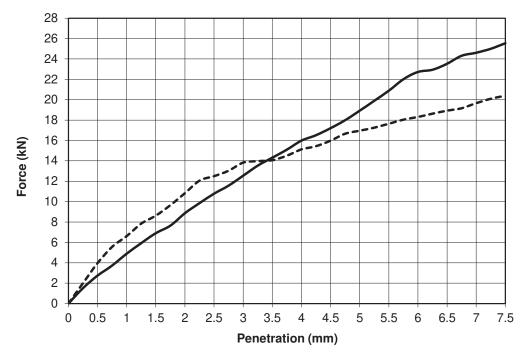
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# TEST REPORT Determination of California Bearing Ratio (CBR)



Tested in accordance with BS1377:Part 4:1990, clause 7

Report No.	R143190	Contract	Halverstown,	Naas - Proposed Data	Centre
Contract No.	24330	Customer		DOBA	
Date received	24/01/23	Date Tested	17/02/23	БОВЛ	
BH/TP No.*	TP26	Sample No.*	AA181975	Type:	В
Depth* (m)	0.50	Lab sample I	No.	A22/7575	



Key: ----- Base

Description: Mottled brown slightly sandy slightly gravelly SILT/CLAY					
Initial Condition:	1% Lime/	2% Cement 7 Days Soaked			
Moisture Content (%):	12	Bulk Density (Mg/m <sup>3</sup> ):	2.18		
Surcharge (kg):	4	Dry Density (Mg/m <sup>3</sup> ):	1.94		
% Material >20mm:	7.6				
Method of compaction:	Static Co	mpaction Method 2			

Test Result	Тор	Base
CBR %	95	94
Moisture Content %	12	12

Results relate only to the specimen tested, in as received condition unless otherwise noted

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# TEST REPORT Determination of California Bearing Ratio (CBR)



ua	re	Tested in	n accordan	ce with BS1	377:Parl	t 4:1990	), clause	7	DETAILED	N SCOPE REG NO. 133T
	Report No.	R145766		Contract	Halver	rstown , N	laas - Propo	osed D	ata Centr	es
	Contract No.	24330		Customer				DOBA	١	
	Date received	24/01/23		Date Test	ed 18/	02/23		DOB	1	
	BH/TP No.*	TP31		Sample No	o.* AA1	81992	Type:		В	
	Depth* (m)	0.50		Lab sampl			A22/757	8		
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	/,/									
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	0 0.5	1 1.5		Penetratio		5 5	0.5 6	0.5	1 1	.5
	Key:		Тор		Base	)				
	Description:	Brown sligh	tly sandy s	lightly grave	elly CLAY	1				
	Initial Conditio	n·	1% Lime /3	B Days soak	red					
	Moisture Cont		13	Bulk Dens		າ <sup>3</sup> ):	2.25			
	Surcharge (kg		4	Dry Densit		,	1.99			
	% Material >20		6.9							
L	Method of con	npaction:	Static Con	paction Me	thod 2					

Test Result	Тор	Base
CBR %	7.6	8.3
Moisture Content %	13	13

Results relate only to the specimen tested, in as received condition unless otherwise noted

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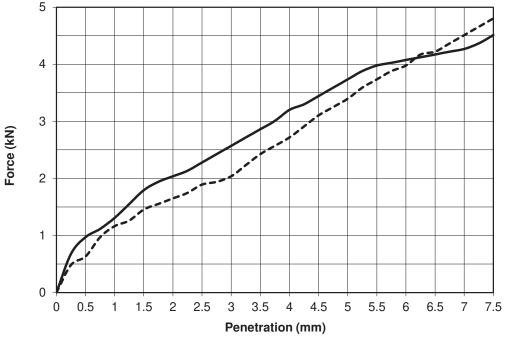
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# TEST REPORT Determination of California Bearing Ratio (CBR)



Tested in accordance with BS1377:Part 4:1990, clause 7

Report No.	R145767	Contract	Halverstown, I	Naas - Proposed Data	a Centres
Contract No.	24330	Customer		DOBA	
Date received	24/01/23	Date Tested	18/02/23	202/	
BH/TP No.*	TP31	Sample No.*	AA181992	Type:	В
Depth* (m)	0.50	Lab sample N	No.	A22/7578	
_					



Key: ----- Base

Description: Brown slightly sandy slightly gravelly CLAY						
Initial Condition:	1% Lime	/5 Days soaked				
Moisture Content (%):	13	Bulk Density (Mg/m <sup>3</sup> ):	2.18			
Surcharge (kg):	4	Dry Density (Mg/m <sup>3</sup> ):	1.93			
% Material >20mm:	6.9					
Method of compaction:	Static Co	mpaction Method 2				

Test Result	Тор	Base
CBR %	19	17
Moisture Content %	13	13

Results relate only to the specimen tested, in as received condition unless otherwise noted

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# TEST REPORT Determination of California Bearing Ratio (CBR)



Tested in accordance with BS1377:Part 4:1990, clause 7

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	Report	t No.	R143	19		(	Contra	act	На	lversto	wn , N	aas - F	ropose	ed Data	. Centre	es
Contract No. 24330				Customer				DC	OBA							
	Date re	eceived	24/01	1/23		[	Date 1	Teste	d <sup>1</sup>	18/02	/23		D(			
	BH/TP	No.*	TP3	1		5	Sampl	le No	.* A	A181	992	Туре	:		В	
	Depth'	* (m)	0.50			L	_ab sa	ample	No.			A22/	7578			
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	12															
	10 -															
														1		
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						Р	enetr	ation	(mm	1)						

Key: ----- Base

Description: Brown slightly sandy slightly gravelly CLAY

Initial Condition: 1% Lime /7 Days soaked

Moisture Content (%): 14 Bulk Density (Mg/m³): 2.17 Surcharge (kg): 4 Dry Density (Mg/m³): 1.90

% Material >20mm: 6.9

Method of compaction: Static Compaction Method 2

Test Result	Тор	Base
CBR %	37	37
Moisture Content %	14	14

Results relate only to the specimen tested, in as received condition unless otherwise noted

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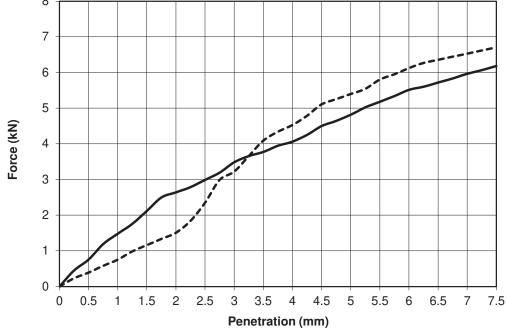
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## TEST REPORT Determination of California Bearing Ratio (CBR)



Tested in accordance with BS1377:Part 4:1990, clause 7

Report No.	R142682	Contract Halverstown	Naas - Proposed Data Centres
Contract No.	24330	Customer	DOBA
Date received	24/01/23	Date Tested 01/02/23	
BH/TP No.*	TP31	Sample No.* AA181992	2 Type: B
Depth* (m)	0.50	Lab sample No.	A22/7578
8			



Key: ——Top ------ Base

Description: Brown slightly sandy slightly gravelly CLAY Initial Condition: 2% Lime /3 Days Soaked Bulk Density (Mg/m<sup>3</sup>): Moisture Content (%): 13 2.16 Surcharge (kg): 4 Dry Density (Mg/m<sup>3</sup>): 1.92 6.9 % Material >20mm: Method of compaction: Static Compaction Method 2

Took Dooult

L	Test Result	Тор	Base
ſ	CBR %	41	46
	Moisture Content %	13	12

Results relate only to the specimen tested, in as received condition unless otherwise noted

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### TEST REPORT Determination of California Bearing Ratio (CBR)



			Test	ed in	accor	danc	e with	BS1	377:F	Part 4	:1990	, clau	se 7		OE HELD	N SCOPE R
	Report No. R142681 Contract Halverstown , Naas - Prop							ropose	d Data	Centre	es					
Contract No. 24330				Custo	mer					DO	νD Λ					
	Date re	eceived	24/0	1/23			Date	Teste	d	13/02	2/23		DO	BA		
	BH/TP	No.*	TP3	1			Samp	le No	.* A	AA181	992	Туре	:		В	
	Depth*	' (m)	0.50				Lab s	ample	e No.			A22/7	7578			
		,														
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						I	Penet	ratior	n (mn	n)						
	Key:			—т	go				Ba	ase						
ı	Descri	ntion:	Brown			dv el	iahtly	aravo	lly CI	ΔV						_
					-	-			-	-/ 1						
Initial Condition: 2% Lime /5 Days Soaked  Moisture Content (%): 12 Bulk Density (Mg/m³):							0	.22								
	เงเบเรเน	IR COUL	:וונ (%):		12		DUIK I	וטווטע	ιν (Ινί(	y/111 ):		2	.८८			

Initial Condition:	2% Lime /5 Days Soaked						
Moisture Content (%):	12	Bulk Density (Mg/m <sup>3</sup> ):	2.22				
Surcharge (kg):	4	Dry Density (Mg/m <sup>3</sup> ):	1.97				
% Material >20mm:	6.9						
Method of compaction:	Static Compaction Method 2						

Ľ	Test Result	Тор	Base
	CBR %	41	57
	Moisture Content %	12	13

Results relate only to the specimen tested, in as received condition unless otherwise noted

Opinions and interpretations are outside the scope of accreditation.

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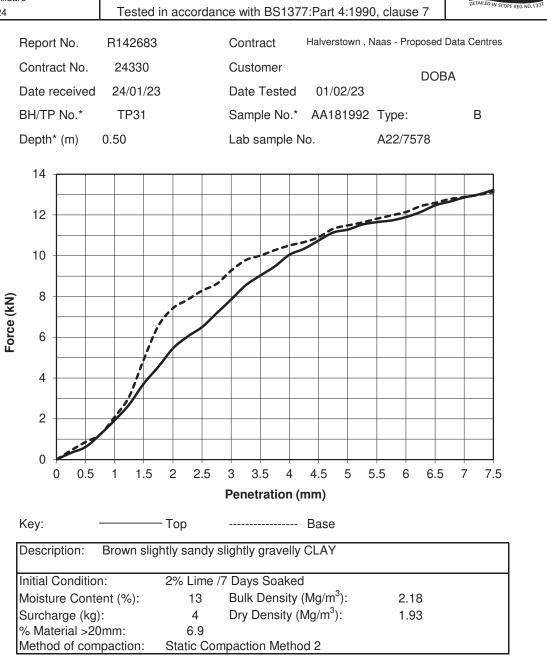
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H Byrne (Laboratory Manager)

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# TEST REPORT Determination of California Bearing Ratio (CBR)





Test Result	Тор	Base
CBR %	63	57
Moisture Content %	13	13

Results relate only to the specimen tested, in as received condition unless otherwise noted

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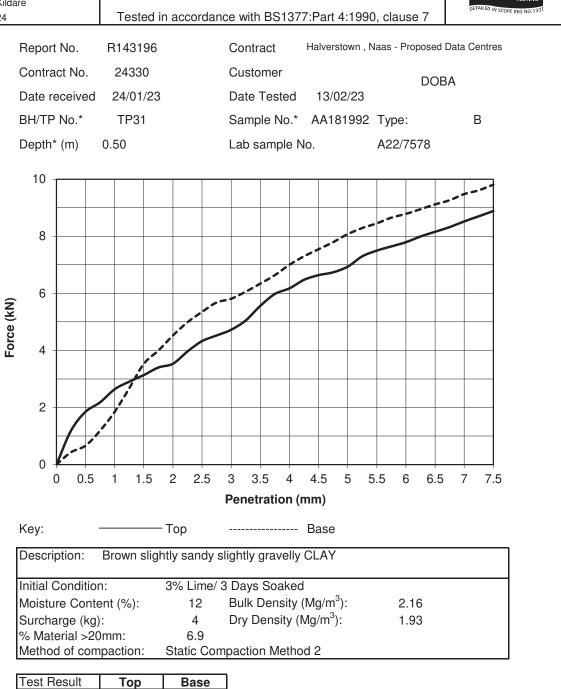
H Byrne (Laboratory Manager)

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045 899324

# TEST REPORT Determination of California Bearing Ratio (CBR)





Test Result	Тор	Base
CBR %	35	40
Moisture Content %	12	12

Results relate only to the specimen tested, in as received condition unless otherwise noted

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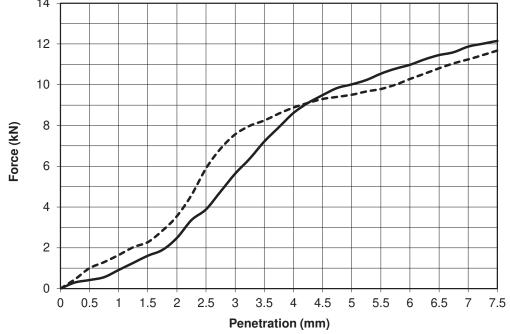
045 899324

# TEST REPORT Determination of California Bearing Ratio (CBR)



Tested in accordance with BS1377:Part 4:1990, clause 7

Report No.	R142684	Contract	Halverstown, I	Naas - Proposed Dat	ta Centres
Contract No.	24330	Customer		DOBA	
Date received	24/01/23	Date Tested	01/02/23	DOBIN	
BH/TP No.*	TP31	Sample No.*	AA181992	Type:	В
Depth* (m)	0.50	Lab sample N	No.	A22/7578	
14					



Key: ——Top ----- Base

Initial Condition:	3% Lime/	5 Day Soaked		
Moisture Content (%):	13	Bulk Density (Mg/m <sup>3</sup> ):	2.11	
Surcharge (kg):	4	Dry Density (Mg/m <sup>3</sup> ):	1.86	
% Material >20mm:	6.9			
Method of compaction: Static Compaction Method 2				

Test Result	Тор	Base
CBR %	50	48
Moisture Content %	13	13

Results relate only to the specimen tested, in as received condition unless otherwise noted

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# TEST REPORT Determination of California Bearing Ratio (CBR)



Tested in accordance with BS1377:Part 4:1990, clause 7 Report No. R143195 Contract Halverstown, Naas - Proposed Data Centres Contract No. 24330 Customer DOBA Date received 24/01/23 **Date Tested** 16/02/23 BH/TP No.\* TP31 Sample No.\* AA181992 Type: В Depth\* (m) 0.50 Lab sample No. A22/7578 16 14 12 10 Force (kN) 8 6 4 2 1.5 2 2.5 3 3.5 4.5 5 5.5 6 6.5 7 Penetration (mm) Key: - Top ----- Base Description: Brown slightly sandy slightly gravelly CLAY Initial Condition: 3% Lime/ 7 Days Soaked Bulk Density (Mg/m<sup>3</sup>): Moisture Content (%): 12 2.24 4 Dry Density (Mg/m<sup>3</sup>): 2.00 Surcharge (kg):

Test Result	Тор	Base
CBR %	62	60
Moisture Content %	11	13

6.9

Static Compaction Method 2

Results relate only to the specimen tested, in as received condition unless otherwise noted

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% Material >20mm:

Method of compaction:

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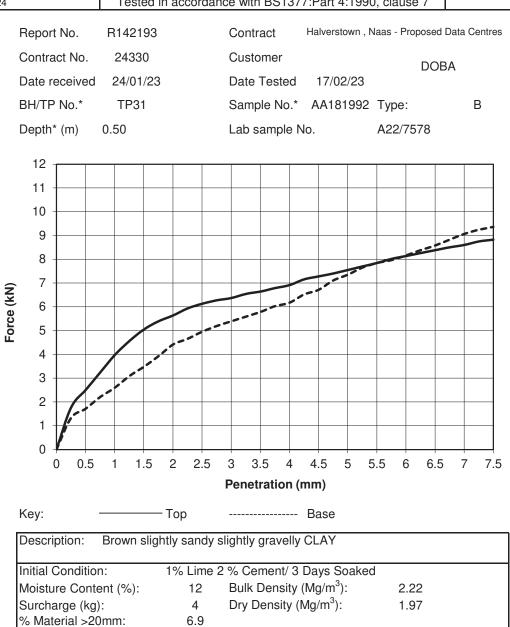
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### TEST REPORT **Determination of California Bearing** Ratio (CBR)



Tested in accordance with BS1377:Part 4:1990, clause 7



Test Result	Тор	Base
CBR %	46	37
Moisture Content %	12	12

Results relate only to the specimen tested, in as received condition unless otherwise noted

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Method of compaction:

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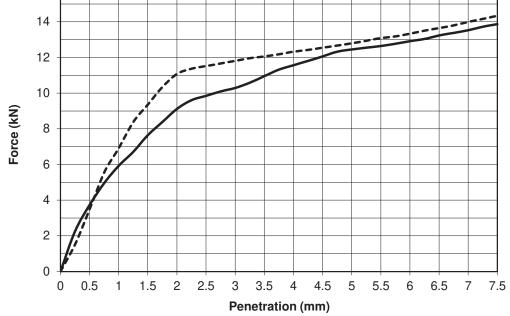
Static Compaction Method 2

# TEST REPORT Determination of California Bearing Ratio (CBR)



Tested in accordance with BS1377:Part 4:1990, clause 7

Report No. R143194 Contract Halverstown, Naas - Proposed Data Centres Contract No. 24330 Customer DOBA Date received 24/01/23 Date Tested 17/02/23 BH/TP No.\* TP31 Sample No.\* AA181992 Type: В Depth\* (m) 0.50 Lab sample No. A22/7578 16 14 12 10



Key: ----- Base

Description: Brown slightly sandy slightly gravelly CLAY

Initial Condition: 1% Lime 2% Cement/ 5 Day Soaked

6.9

Moisture Content (%): 12 Bulk Density (Mg/m³): 2.24 Surcharge (kg): 4 Dry Density (Mg/m³): 2.00

% Material >20mm:

Method of compaction: Static Compaction Method 2

Test Result	Тор	Base
CBR %	74	87
Moisture Content %	12	12

Results relate only to the specimen tested, in as received condition unless otherwise noted

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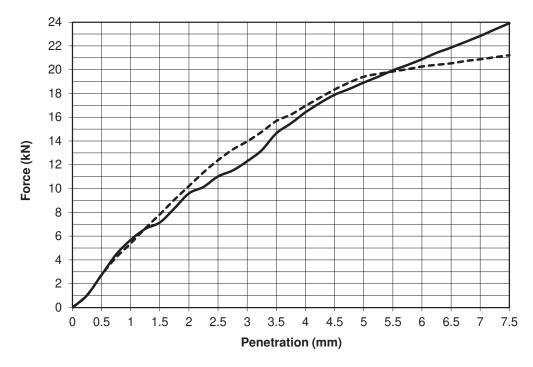
# TEST REPORT Determination of California Bearing Ratio (CBR)



Tested in accordance with BS1377:Part 4:1990, clause 7

Report No.	R143197	Contract	Halverstown , Naas - Pro	posed Data Centres
Contract No.	24330	Customer		DOBA
Date received	24/01/23	Date Tested	13/02/23	DOBA
BH/TP No.*	TP31	Sample No.*	AA181992 Type:	В

Depth\* (m) 0.50 Lab sample No. A22/7578



Key: ----- Base

Description: Brown slightly sandy slightly gravelly CLAY

Initial Condition: 1% Lime 2% Cement /7 Day Soaked

Moisture Content (%): 12 Bulk Density (Mg/m³): 2.20 Surcharge (kg): 4 Dry Density (Mg/m³): 1.97

% Material >20mm: 6.9

Method of compaction: Static Compaction Method 2

Test Result	Тор	Base
CBR %	95	97
Moisture Content %	12	12

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### **Test Report**

### Dry Density/Moisture Content Relationship



Tested in accordance with BS1377:Part 4:1990

Report No. R142691 Contract No. 24330

Contract Name: Halverstown, Naas. - Proposed Data Centres

Location\*: TP04

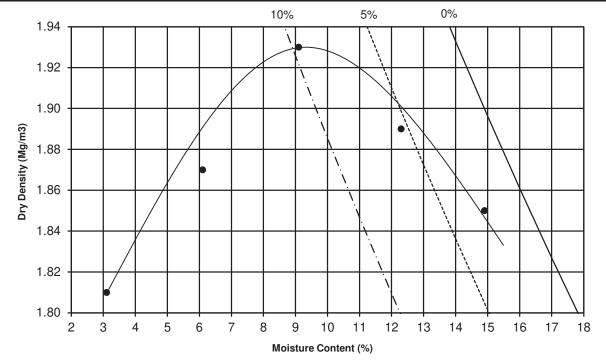
Sample No\*. AA186982 Depth\* (m) 0.6 Material Type

Lab sample no. A22/7562 Customer: DOBA

Date Received: 24/01/2023 Test Method: 2.5 Kg Rammer

Date Tested: 26/01/2023 BS1377:Part 4:1990 3.3

Dry Density (Mg/m <sup>3</sup> )	1.85	1.87	1.93	1.89	1.81		
Moisture Content (%)	15	6.1	9.1	12	3.1	0	



Maximum Dry Density (Mg/m³): 1.93 Optimum Moisture Content (%): 9

Description: Mottled brown sandy gravelly SILT/CLAY

Sample Preparation: Material passing 20mm Single / Separate samples used

Particle Density (Mg/m<sup>3</sup>): 2.65 Particle Density: Assumed

% retained on 20/37.5mm sieve: 1.5

Results relate only to the specimen tested, in as received condition unless otherwise noted.

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### **Test Report**

### Dry Density/Moisture Content Relationship



Tested in accordance with BS1377:Part 4:1990

Report No. R145759 Contract No. 24330

Contract Name: Halverstown, Naas. - Proposed Data Centres

Location\*: TP12

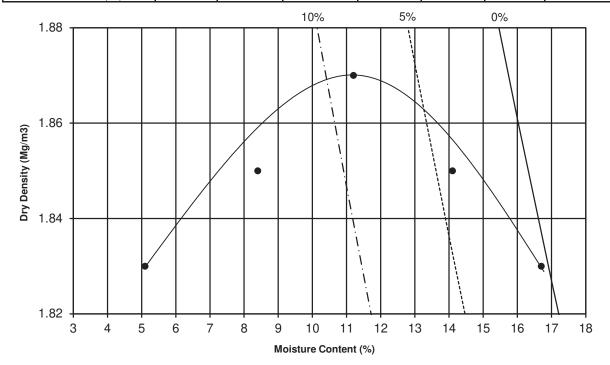
Sample No\*. AA185481 Depth\* (m) 0.5 Material Type

Lab sample no. A22/7563 Customer: DOBA

Date Received: 24/01/2023 Test Method: 2.5 Kg Rammer

Date Tested: 26/01/2023 BS1377:Part 4:1990 3.3

Dry Density (Mg/m <sup>3</sup> )	1.83	1.85	1.87	1.85	1.83		
Moisture Content (%)	17	8.4	11	14	5.1	0.0	



Maximum Dry Density (Mg/m³): 1.87 Optimum Moisture Content (%): 11

Description: Brown slightly sandy, slightly gravelly, CLAY

Sample Preparation: Material passing 20mm Single / Separate samples used

Particle Density (Mg/m<sup>3</sup>): 2.65 Particle Density: Assumed

% retained on 20/37.5mm sieve: 3.9

Results relate only to the specimen tested, in as received condition unless otherwise noted.

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### **Test Report**

### Dry Density/Moisture Content Relationship



Tested in accordance with BS1377:Part 4:1990

Report No. R142692 Contract No. 24330

Contract Name: Halverstown, Naas. - Proposed Data Centres

Location\*: TP15

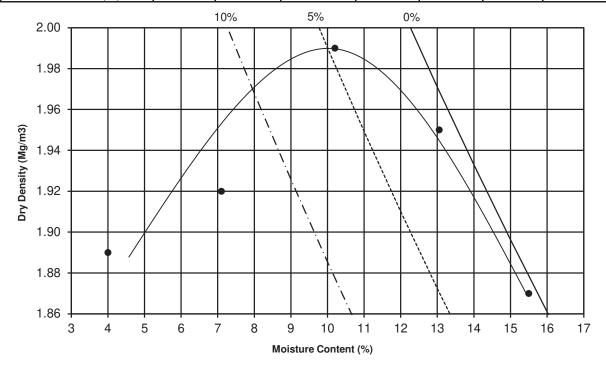
Sample No\*. AA185479 Depth\* (m) 1.5 Material Type

Lab sample no. A22/7565 Customer: DOBA

Date Received: 24/01/2023 Test Method: 2.5 Kg Rammer

Date Tested: 26/01/2023 BS1377:Part 4:1990 3.3

Dry Density (Mg/m <sup>3</sup> )	1.95	1.89	1.92	1.99	1.87		
Moisture Content (%)	13	4.0	7.1	10	16	0	



Maximum Dry Density (Mg/m³): 1.99 Optimum Moisture Content (%): 10

Description: Brown slightly sandy, slightly gravelly, CLAY

Sample Preparation: Material passing 20mm Single / Separate samples used

Particle Density (Mg/m<sup>3</sup>): 2.65 Particle Density: Assumed

% retained on 20/37.5mm sieve: 2.9

Results relate only to the specimen tested, in as received condition unless otherwise noted.

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### **Test Report**

### Dry Density/Moisture Content Relationship



Tested in accordance with BS1377:Part 4:1990

R142693 Report No. Contract No. 24330

Contract Name: Halverstown, Naas. - Proposed Data Centres

TP16 Location\*:

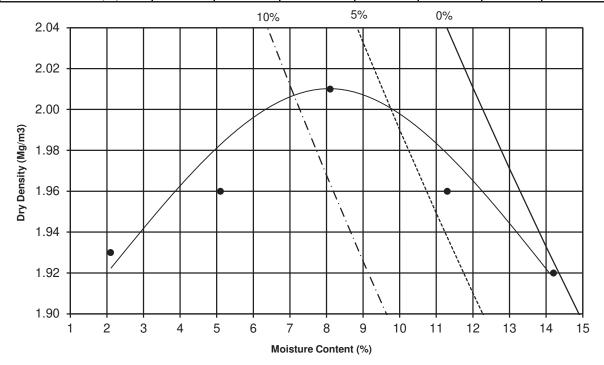
Sample No\*. AA185481 Depth\* (m) Material Type

Lab sample no. A22/7566 Customer: DOBA

Date Received: 24/01/2023 Test Method: 2.5 Kg Rammer

Date Tested: 24/01/2023 BS1377:Part 4:1990 3.3

Dry Density (Mg/m <sup>3</sup> )	1.92	1.96	2.01	1.96	1.93		
Moisture Content (%)	14	5.1	8.1	11	2.1	0	



Maximum Dry Density (Mg/m<sup>3</sup>): 2.01 Optimum Moisture Content (%):

Description: Mottled brown slightly sandy, slightly gravelly, CLAY

Single / Separate samples used Sample Preparation: Material passing 20mm

Particle Density (Mg/m<sup>3</sup>): 2.65 Particle Density: Assumed

% retained on 20/37.5mm sieve: 11

Results relate only to the specimen tested, in as received condition unless otherwise noted.

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### **Test Report**

#### Dry Density/Moisture Content Relationship



Tested in accordance with BS1377:Part 4:1990

R145756 Report No. Contract No. 24330

Contract Name: Halverstown, Naas. - Proposed Data Centres

TP19 Location\*:

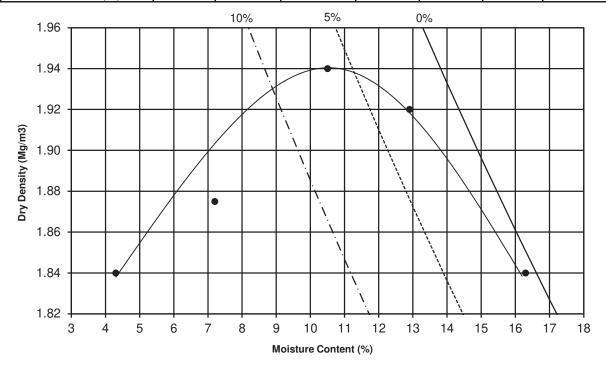
Depth\* (m) Sample No\*. AA185468 Material Type 0.5

Lab sample no. A22/7568 Customer: DOBA

Date Received: 24/01/2023 Test Method: 2.5 Kg Rammer

Date Tested: 26/01/2023 BS1377:Part 4:1990 3.3

Dry Density (Mg/m <sup>3</sup> )	1.92	1.88	1.94	1.84	1.84		
Moisture Content (%)	13	7.2	11	16	4.3	0.0	



Maximum Dry Density (Mg/m<sup>3</sup>): 1.94 Optimum Moisture Content (%):

Description: Mottled brown slightly sandy, slightly gravelly, CLAY

Single / Separate samples used Sample Preparation: Material passing 20mm

Particle Density (Mg/m<sup>3</sup>): 2.65 Particle Density: Assumed

% retained on 20/37.5mm sieve: 5.1

Results relate only to the specimen tested, in as received condition unless otherwise noted. Opinions and interpretations are outside the scope of accreditation.

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### **Test Report**

### Dry Density/Moisture Content Relationship



Tested in accordance with BS1377:Part 4:1990

R142694 Report No. Contract No. 24330

Contract Name: Halverstown, Naas. - Proposed Data Centres

TP22 Location\*:

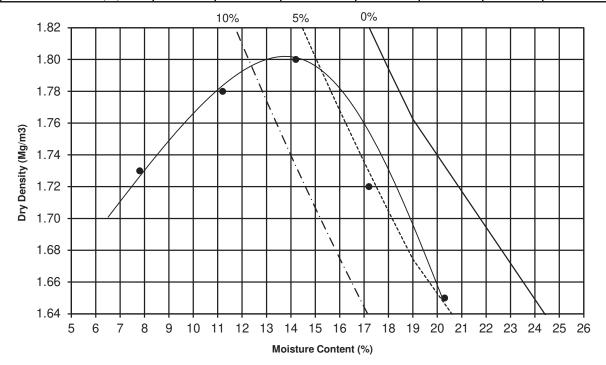
Sample No\*. AA185497 Depth\* (m) Material Type 0.6

Lab sample no. A22/7571 Customer: DOBA

Date Received: 24/01/2023 Test Method: 2.5 Kg Rammer

Date Tested: 26/01/2023 BS1377:Part 4:1990 3.3

Dry Density (Mg/m <sup>3</sup> )	1.65	1.73	1.78	1.80	1.72		
Moisture Content (%)	20	7.8	11	14	17	0.0	



Maximum Dry Density (Mg/m<sup>3</sup>): 1.80 Optimum Moisture Content (%):

Description: Mottled brown slightly sandy, slightly gravelly, CLAY

Single / Separate samples used Sample Preparation: Material passing 20mm

Particle Density (Mg/m<sup>3</sup>): 2.65 Particle Density: Assumed

% retained on 20/37.5mm sieve: 5.9

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### **Test Report**

### Dry Density/Moisture Content Relationship



Tested in accordance with BS1377:Part 4:1990

R145758 Report No. Contract No. 24330

Contract Name: Halverstown, Naas. - Proposed Data Centres

TP26 Location\*:

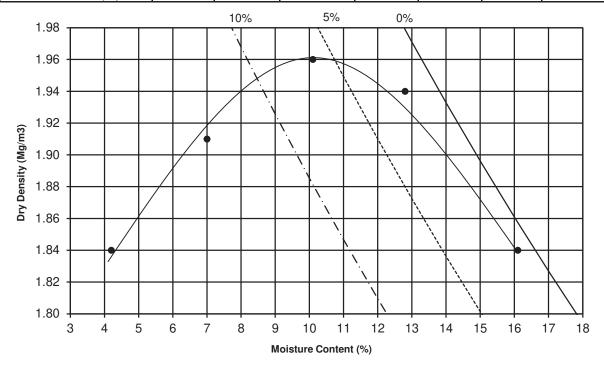
Depth\* (m) Sample No\*. AA181975 Material Type 0.5

Lab sample no. A22/7575 Customer: DOBA

Date Received: 24/01/2023 Test Method: 2.5 Kg Rammer

Date Tested: 26/01/2023 BS1377:Part 4:1990 3.3

Dry Density (Mg/m <sup>3</sup> )	1.94	1.84	1.91	1.96	1.84		
Moisture Content (%)	13	4.2	7.0	10	16	0.0	



Maximum Dry Density (Mg/m<sup>3</sup>): 1.96 Optimum Moisture Content (%): 10

Description: Brown slightly sandy, slightly gravelly, CLAY

Single / Separate samples used Sample Preparation: Material passing 20mm

Particle Density (Mg/m<sup>3</sup>): 2.65 Particle Density: Assumed

% retained on 20/37.5mm sieve: 7.6

Results relate only to the specimen tested, in as received condition unless otherwise noted.

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### **Test Report**

### Dry Density/Moisture Content Relationship



Tested in accordance with BS1377:Part 4:1990

R145755 Report No. Contract No. 24330

Contract Name: Halverstown, Naas. - Proposed Data Centres

TP28 Location\*:

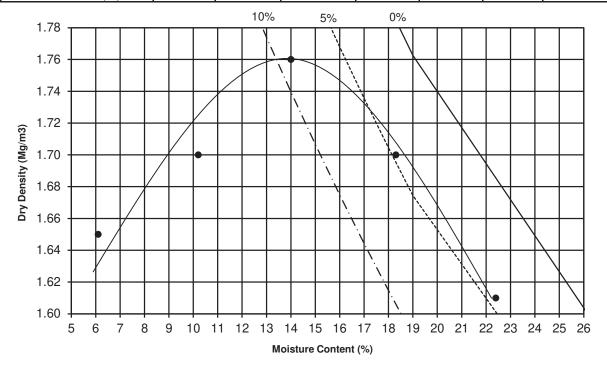
Depth\* (m) Sample No\*. AA181969 Material Type 0.6

Lab sample no. A22/7576 Customer: DOBA

Date Received: 24/01/2023 Test Method: 2.5 Kg Rammer

Date Tested: 26/01/2023 BS1377:Part 4:1990 3.3

Dry Density (Mg/m <sup>3</sup> )	1.55	1.61	1.70	1.76	1.70	1.65	
Moisture Content (%)	26	22	18	14	10	6.1	



Maximum Dry Density (Mg/m<sup>3</sup>): 1.76 Optimum Moisture Content (%):

Description: Mottled brown slightly sandy, slightly gravelly, CLAY

Single / Separate samples used Sample Preparation: Material passing 20mm

Particle Density (Mg/m<sup>3</sup>): 2.65 Particle Density: Assumed

% retained on 20/37.5mm sieve: 2.8

Results relate only to the specimen tested, in as received condition unless otherwise noted.

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### **Test Report**

### Dry Density/Moisture Content Relationship



Tested in accordance with BS1377:Part 4:1990

Report No. R145757 Contract No. 24330

Contract Name: Halverstown, Naas. - Proposed Data Centres

Location\*: TP31

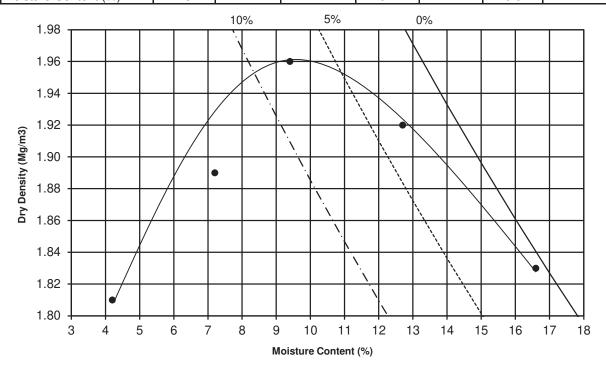
Sample No\*. AA181992 Depth\* (m) 0.5 Material Type

Lab sample no. A22/7578 Customer: DOBA

Date Received: 24/01/2023 Test Method: 2.5 Kg Rammer

Date Tested: 26/01/2023 BS1377:Part 4:1990 3.3

Dry Density (Mg/m <sup>3</sup> )	1.92	1.81	1.89	1.96	1.83		
Moisture Content (%)	13	4.2	7.2	9.4	17	0.0	



Maximum Dry Density (Mg/m³): 1.96 Optimum Moisture Content (%): 9

Description: Brown slightly sandy, slightly gravelly, CLAY

Sample Preparation: Material passing 20mm Single / Separate samples used

Particle Density (Mg/m<sup>3</sup>): 2.65 Particle Density: Assumed

% retained on 20/37.5mm sieve: 6.9

Results relate only to the specimen tested, in as received condition unless otherwise noted. Opinions and interpretations are outside the scope of accreditation.

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### Appendix 12

### Chemical / Environmental Laboratory Results (Soil)

Report\_22-48580 Report\_22-48622

Report\_ L23-00718-IGS - 23-32082



eurofins Chemtest

Eurofins Chemtest Ltd Depot Road Newmarket CB8 0AL Tel: 01638 606070

Email: info@chemtest.com

# **Final Report**

**Report No.:** 22-48580-1

Initial Date of Issue: 18-Jan-2023

Client IGSL

Client Address: M7 Business Park

Naas

County Kildare

Ireland

Contact(s): Darren Keogh

Project 24330 Halversown Naas Proposed

Data Centre Sites (DOBA)

Quotation No.: Q22-28896 Date Received: 20-Dec-2022

Order No.: Date Instructed: 20-Dec-2022

No. of Samples: 36

Turnaround (Wkdays): 7 Results Due: 04-Jan-2023

Date Approved: 18-Jan-2023

Approved By:

**Details:** Stuart Henderson, Technical

Manager

Project: 24330 Halversown Naas Prop	osed Data C												
Client: IGSL				Job No.:	22-48580	22-48580	22-48580	22-48580	22-48580	22-48580	22-48580	22-48580	22-48580
Quotation No.: Q22-28896		Chem	test Sar	nple ID.:	1567070	1567071	1567072	1567073	1567074	1567075	1567076	1567077	1567079
Order No.:		Cli	ent Sam	ple Ref.:	AA184690	AA184693	AA184669	AA184668	AA174678	AA184675	AA186957	AA181997	AA186960
		5	Sample I		BH03	BH04	BH06	BH08	BH10	BH12	TP01	TP02	TP05
			Samp	ole Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top De	epth (m):	1.00	1.00	1.00	1.00	1.00	1.00	0.50	0.50	0.50
			Asbes	stos Lab:		DURHAM	DURHAM		DURHAM		DURHAM		
Determinand	Accred.	SOP	Units	LOD									
ACM Type	U	2192		N/A		-	-		-		-		
Asbestos Identification	U	2192		N/A		No Asbestos Detected	No Asbestos Detected		No Asbestos Detected		No Asbestos Detected		
Moisture	N	2030	%	0.020	14	16	11	12	13	14	9.8	13	18
pH	M	2010	7.0	4.0		[A] 8.2	[A] 8.4		[A] 8.4		[A] 8.4		
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40		[A] < 0.40	[A] < 0.40		[A] < 0.40		[A] < 0.40		
Sulphate (2:1 Water Soluble) as SO4	M	2120	q/l	0.010		[A] < 0.010	[A] < 0.010		[A] < 0.010		[A] < 0.010		
Total Sulphur	M	2175	%	0.010		[A] < 0.010	[A] 0.025		[A] < 0.010		[A] < 0.010		
Sulphur (Elemental)	M	2180	mg/kg	1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0		[A] < 1.0		
Cyanide (Free)	M	2300	mg/kg	0.50		[A] < 0.50	[A] < 0.50		[A] < 0.50		[A] < 0.50		
Cyanide (Total)	M	2300	mg/kg	0.50		[A] 0.50	[A] < 0.50		[A] < 0.50		[A] < 0.50		
Thiocyanate	M	2300	mg/kg	5.0		[A] < 5.0	[A] < 5.0		[A] < 5.0		[A] < 5.0		
Aluminium (Total)	N	2430	mg/kg	100		[A] 5200	[A] 1200		[A] 5000		[A] 3100		
Iron (Total)	N	2430	mg/kg	100		[A] 11000	[A] 5800		[A] 10000		[A] 8100		
Arsenic	M	2455	mg/kg	0.5		7.0	6.6		8.9		4.7		
Barium	M	2455	mg/kg	0		52	33		42		27		
Beryllium	U	2455	mg/kg	0.5		0.6	< 0.5		0.5		< 0.5		
Cadmium	M	2455	mg/kg	0.10		1.3	0.96		1.5		0.81		
Chromium	М	2455	mg/kg	0.5		18	6.2		15		14		
Manganese	М	2455	mg/kg	1.0		680	550		750		490		
Copper	М	2455	mg/kg	0.50		13	10		17		6.9		
Mercury	М	2455	mg/kg	0.05		0.06	< 0.05		0.06		< 0.05		
Nickel	М	2455	mg/kg	0.50		33	17		34		21		
Lead	М	2455	mg/kg	0.50		22	12		26		13		
Selenium	М	2455	mg/kg	0.25		0.79	0.54		0.72		0.46		
Vanadium	U	2455	mg/kg	0.5		17	7.0		15		11		
Zinc	М	2455	mg/kg	0.50		88	57		100		53		
Chromium (Hexavalent)	N	2490	mg/kg	0.50		< 0.50	< 0.50		< 0.50		< 0.50		
Organic Matter	М	2625	%	0.40		[A] 1.3	[A] 1.2		[A] 0.55		[A] < 0.40		
Total Organic Carbon	М	2625	%	0.20		[A] 0.77	[A] 0.67		[A] 0.32		[A] < 0.20		
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0		[A] < 1.0		
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0		[A] < 1.0		
Aliphatic TPH >C8-C10	N	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0		[A] < 1.0		
Aliphatic TPH >C10-C12	N	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0		[A] < 1.0		
Aliphatic TPH >C12-C16	N	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0		[A] < 1.0		
Aliphatic TPH >C16-C21	N	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0		[A] < 1.0		
Aliphatic TPH >C21-C35	N	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0		[A] < 1.0		
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0		[A] < 1.0		

Client: IGSL		Ch	emtest	Job No.:	22-48580	22-48580	22-48580	22-48580	22-48580	22-48580	22-48580	22-48580	22-48580
Quotation No.: Q22-28896				nple ID.:	1567070	1567071	1567072	1567073	1567074	1567075	1567076	1567077	1567079
Order No.:				ple Ref.:	AA184690	AA184693	AA184669	AA184668	AA174678	AA184675	AA186957	AA181997	AA186960
0.40				Location:	BH03	BH04	BH06	BH08	BH10	BH12	TP01	TP02	TP05
				ole Type:	SOIL	SOIL							
				epth (m):	1.00	1.00	1.00	1.00	1.00	1.00	0.50	0.50	0.50
				stos Lab:		DURHAM	DURHAM		DURHAM		DURHAM		
Determinand	Accred.	SOP	Units	LOD									
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0		[A] < 5.0	[A] < 5.0		[A] < 5.0		[A] < 5.0		
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0		[A] < 1.0		
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0		[A] < 1.0		
Aromatic TPH >C8-C10	N	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0		[A] < 1.0		
Aromatic TPH >C10-C12	N	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0		[A] < 1.0		
Aromatic TPH >C12-C16	N	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0		[A] < 1.0		
Aromatic TPH >C16-C21	N	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0		[A] < 1.0		
Aromatic TPH >C21-C35	N	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0		[A] < 1.0		
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0		[A] < 1.0	[A] < 1.0		[A] < 1.0		[A] < 1.0		
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0		[A] < 5.0	[A] < 5.0		[A] < 5.0		[A] < 5.0		
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0		[A] < 10	[A] < 10		[A] < 10		[A] < 10		
Dichlorodifluoromethane	U	2760	mg/kg	0.0010	[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		[A] < 0.0010	
Chloromethane	M	2760	mg/kg		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		[A] < 0.0010	
Vinyl Chloride	М	2760	mg/kg	0.0010				[A] < 0.0010		[A] < 0.0010		[A] < 0.0010	
Bromomethane	М	2760	mg/kg	0.020	[A] < 0.020			[A] < 0.020		[A] < 0.020		[A] < 0.020	
Chloroethane	U	2760	mg/kg	0.0020				[A] < 0.0020		[A] < 0.0020		[A] < 0.0020	
Trichlorofluoromethane	М	2760	mg/kg		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		[A] < 0.0010	
1,1-Dichloroethene	М	2760	mg/kg	0.0010	[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		[A] < 0.0010	
Trans 1,2-Dichloroethene	М	2760	mg/kg					[A] < 0.0010		[A] < 0.0010		[A] < 0.0010	ĺ
1,1-Dichloroethane	М	2760	mg/kg		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		[A] < 0.0010	ĺ
cis 1,2-Dichloroethene	М	2760	mg/kg	0.0010	[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		[A] < 0.0010	ĺ
Bromochloromethane	U	2760	mg/kg	0.0050	[A] < 0.0050			[A] < 0.0050		[A] < 0.0050		[A] < 0.0050	
Trichloromethane	M	2760	mg/kg	0.0010	[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		[A] < 0.0010	
1,1,1-Trichloroethane	M	2760	mg/kg	0.0010	[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		[A] < 0.0010	
Tetrachloromethane	M	2760	mg/kg	0.0010	[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		[A] < 0.0010	
1,1-Dichloropropene	U	2760	mg/kg	0.0010	[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		[A] < 0.0010	
Benzene	M	2760	mg/kg		[A] < 0.0010								
1,2-Dichloroethane	M	2760	mg/kg	0.0020	[A] < 0.0020			[A] < 0.0020		[A] < 0.0020		[A] < 0.0020	
Trichloroethene	N	2760	mg/kg	0.0010	[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		[A] < 0.0010	
1,2-Dichloropropane	M	2760	mg/kg	0.0010	[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		[A] < 0.0010	
Dibromomethane	М	2760	mg/kg	0.0010	[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		[A] < 0.0010	
Bromodichloromethane	M	2760	mg/kg	0.0050	[A] < 0.0050			[A] < 0.0050		[A] < 0.0050		[A] < 0.0050	
cis-1,3-Dichloropropene	N	2760	mg/kg	0.010	[A] < 0.010			[A] < 0.010		[A] < 0.010		[A] < 0.010	
Toluene	М	2760	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	
Trans-1,3-Dichloropropene	N	2760	mg/kg	0.010	[A] < 0.010			[A] < 0.010		[A] < 0.010		[A] < 0.010	
1,1,2-Trichloroethane	М	2760	mg/kg	0.010	[A] < 0.010			[A] < 0.010		[A] < 0.010		[A] < 0.010	
Tetrachloroethene	М	2760	mg/kg	0.0010				[A] < 0.0010		[A] < 0.0010		[A] < 0.0010	
1,3-Dichloropropane	U	2760	mg/kg	0.0020	[A] < 0.0020			[A] < 0.0020		[A] < 0.0020		[A] < 0.0020	

Client: IGSL		Ch	emtest .	Job No.:	22-48580	22-48580	22-48580	22-48580	22-48580	22-48580	22-48580	22-48580	22-48580
Quotation No.: Q22-28896		Chem	test Sar	nple ID.:	1567070	1567071	1567072	1567073	1567074	1567075	1567076	1567077	1567079
Order No.:		Cli	ent Sam	ple Ref.:	AA184690	AA184693	AA184669	AA184668	AA174678	AA184675	AA186957	AA181997	AA186960
			Sample I	Location:	BH03	BH04	BH06	BH08	BH10	BH12	TP01	TP02	TP05
			Samı	ole Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top D	epth (m):	1.00	1.00	1.00	1.00	1.00	1.00	0.50	0.50	0.50
			Asbes	stos Lab:		DURHAM	DURHAM		DURHAM		DURHAM		
Determinand	Accred.	SOP	Units	LOD									
Dibromochloromethane	U	2760	mg/kg	0.010	[A] < 0.010			[A] < 0.010		[A] < 0.010		[A] < 0.010	
1,2-Dibromoethane	М	2760	mg/kg	0.0050	[A] < 0.0050			[A] < 0.0050		[A] < 0.0050		[A] < 0.0050	1
Chlorobenzene	М	2760	mg/kg	0.0010	[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		[A] < 0.0010	
1,1,1,2-Tetrachloroethane	М	2760	mg/kg	0.0020	[A] < 0.0020			[A] < 0.0020		[A] < 0.0020		[A] < 0.0020	
Ethylbenzene	М	2760	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	1
m & p-Xylene	М	2760	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010		[A] < 0.0010	1
o-Xylene	M	2760	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010		[A] < 0.0010	
Styrene	M	2760	mg/kg	0.0010				[A] < 0.0010		[A] < 0.0010		[A] < 0.0010	
Tribromomethane	U	2760	mg/kg	0.0010	[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		[A] < 0.0010	
Isopropylbenzene	M	2760	mg/kg	0.0010				[A] < 0.0010		[A] < 0.0010		[A] < 0.0010	<u> </u>
Bromobenzene	M	2760	mg/kg		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		[A] < 0.0010	1
1,2,3-Trichloropropane	N	2760	mg/kg	0.050	[A] < 0.050			[A] < 0.050		[A] < 0.050		[A] < 0.050	1
N-Propylbenzene	U	2760	mg/kg	0.0010	[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		[A] < 0.0010	
2-Chlorotoluene	M	2760	mg/kg	0.0010	[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		[A] < 0.0010	
1,3,5-Trimethylbenzene	M	2760	mg/kg		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		[A] < 0.0010	
4-Chlorotoluene	U	2760	mg/kg		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		[A] < 0.0010	t
Tert-Butylbenzene	Ü	2760	mg/kg		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		[A] < 0.0010	t
1,2,4-Trimethylbenzene	M	2760	mg/kg	0.0010	[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		[A] < 0.0010	1
Sec-Butylbenzene	U	2760	mg/kg	0.0010	[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		[A] < 0.0010	
1,3-Dichlorobenzene	M	2760	mg/kg	0.0010				[A] < 0.0010		[A] < 0.0010		[A] < 0.0010	
4-Isopropyltoluene	N	2760	mg/kg	0.0010	[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		[A] < 0.0010	
1,4-Dichlorobenzene	M	2760	mg/kg		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		[A] < 0.0010	
N-Butylbenzene	U	2760	mg/kg	0.0010	[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		[A] < 0.0010	
1.2-Dichlorobenzene	M	2760	mg/kg	0.0010	[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		[A] < 0.0010	
1,2-Dibromo-3-Chloropropane	U	2760	mg/kg	0.050	[A] < 0.050			[A] < 0.050		[A] < 0.050		[A] < 0.050	
1,2,4-Trichlorobenzene	M	2760	mg/kg	0.0010	[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		[A] < 0.0010	
Hexachlorobutadiene	U	2760	mg/kg	0.0010	[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		[A] < 0.0010	
1,2,3-Trichlorobenzene	Ü	2760	mg/kg	0.0020	[A] < 0.0020			[A] < 0.0020		[A] < 0.0020		[A] < 0.0020	
Methyl Tert-Butyl Ether	M	2760	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	
N-Nitrosodimethylamine	M	2790	mg/kg	0.50	[A] < 0.50	[/1] - 0.0010	[/1] - 0.0010	[A] < 0.50	[/1] - 0.0010	[A] < 0.50	[/1] - 0.0010	[A] < 0.50	
Phenol	M	2790	mg/kg	0.50	[A] < 0.50			[A] < 0.50		[A] < 0.50		[A] < 0.50	
2-Chlorophenol	M	2790	mg/kg	0.50	[A] < 0.50			[A] < 0.50		[A] < 0.50		[A] < 0.50	
Bis-(2-Chloroethyl)Ether	M	2790	mg/kg	0.50	[A] < 0.50			[A] < 0.50		[A] < 0.50		[A] < 0.50	<del>                                     </del>
1.3-Dichlorobenzene	M	2790	mg/kg	0.50	[A] < 0.50			[A] < 0.50		[A] < 0.50		[A] < 0.50	<del>                                     </del>
1,4-Dichlorobenzene	N	2790	mg/kg	0.50	[A] < 0.50			[A] < 0.50		[A] < 0.50		[A] < 0.50	<del> </del>
1,2-Dichlorobenzene	M	2790	mg/kg	0.50	[A] < 0.50			[A] < 0.50		[A] < 0.50		[A] < 0.50	<del>                                     </del>
2-Methylphenol	M	2790	mg/kg	0.50	[A] < 0.50			[A] < 0.50		[A] < 0.50		[A] < 0.50	
Bis(2-Chloroisopropyl)Ether	M	2790		0.50	[A] < 0.50			[A] < 0.50		[A] < 0.50		[A] < 0.50	<del>                                     </del>

Client: ICSI	Tou Date C		emtest .		22-48580	22-48580	22 40500	22 49590	22 40500	22 40500	22 40500	22 49590	22 40500
Client: IGSL Quotation No.: Q22-28896							22-48580	22-48580	22-48580	22-48580	22-48580	22-48580	22-48580
Quotation No.: Q22-28896  Order No.:			test San ent Sam		1567070	1567071	1567072	1567073	1567074	1567075	1567076	1567077	1567079
Order No.:	+			•	AA184690	AA184693	AA184669	AA184668	AA174678	AA184675	AA186957	AA181997	AA186960
		•	Sample L		BH03	BH04 SOIL	BH06 SOIL	BH08	BH10 SOIL	BH12	TP01 SOIL	TP02	TP05 SOIL
				ole Type:	SOIL	1.00		SOIL	1.00	SOIL	0.50	SOIL	
	-			epth (m): stos Lab:	1.00	DURHAM	1.00 DURHAM	1.00	DURHAM	1.00	DURHAM	0.50	0.50
D ( )		1000				DURHAM	DURHAM		DURHAM		DURHAM		
Determinand	Accred.	<b>SOP</b> 2790	Units	<b>LOD</b> 0.50	[4] +0.50			[A] + 0 FO		[4] +0.50		[A] + 0 F0	
Hexachloroethane	N M		mg/kg		[A] < 0.50			[A] < 0.50		[A] < 0.50		[A] < 0.50	
N-Nitrosodi-n-propylamine	M	2790	mg/kg	0.50	[A] < 0.50			[A] < 0.50		[A] < 0.50		[A] < 0.50	
4-Methylphenol	M	2790	mg/kg	0.50	[A] < 0.50			[A] < 0.50		[A] < 0.50		[A] < 0.50	
Nitrobenzene	M	2790	mg/kg	0.50	[A] < 0.50			[A] < 0.50		[A] < 0.50		[A] < 0.50	
Isophorone	М	2790	mg/kg	0.50	[A] < 0.50			[A] < 0.50		[A] < 0.50		[A] < 0.50	
2-Nitrophenol	N	2790	mg/kg	0.50	[A] < 0.50			[A] < 0.50		[A] < 0.50		[A] < 0.50	<b></b>
2,4-Dimethylphenol	N	2790	mg/kg	0.50	[A] < 0.50			[A] < 0.50		[A] < 0.50		[A] < 0.50	<b></b>
Bis(2-Chloroethoxy)Methane	М	2790	mg/kg	0.50	[A] < 0.50			[A] < 0.50		[A] < 0.50		[A] < 0.50	<b></b>
2,4-Dichlorophenol	М	2790	mg/kg	0.50	[A] < 0.50			[A] < 0.50		[A] < 0.50		[A] < 0.50	
1,2,4-Trichlorobenzene	М	2790	mg/kg	0.50	[A] < 0.50			[A] < 0.50		[A] < 0.50		[A] < 0.50	
4-Chloroaniline	N	2790	mg/kg	0.50	[A] < 0.50			[A] < 0.50		[A] < 0.50		[A] < 0.50	
Hexachlorobutadiene	М	2790	mg/kg	0.50	[A] < 0.50			[A] < 0.50		[A] < 0.50		[A] < 0.50	
4-Chloro-3-Methylphenol	М	2790	mg/kg	0.50	[A] < 0.50			[A] < 0.50		[A] < 0.50		[A] < 0.50	
2-Methylnaphthalene	М	2790	mg/kg	0.50	[A] < 0.50			[A] < 0.50		[A] < 0.50		[A] < 0.50	
4-Nitrophenol	N	2790	mg/kg	0.50	[A] < 0.50			[A] < 0.50		[A] < 0.50		[A] < 0.50	
Hexachlorocyclopentadiene	N	2790	mg/kg	0.50	[A] < 0.50			[A] < 0.50		[A] < 0.50		[A] < 0.50	
2,4,6-Trichlorophenol	М	2790	mg/kg	0.50	[A] < 0.50			[A] < 0.50		[A] < 0.50		[A] < 0.50	
2,4,5-Trichlorophenol	М	2790	mg/kg	0.50	[A] < 0.50			[A] < 0.50		[A] < 0.50		[A] < 0.50	
2-Chloronaphthalene	М	2790	mg/kg	0.50	[A] < 0.50			[A] < 0.50		[A] < 0.50		[A] < 0.50	
2-Nitroaniline	М	2790	mg/kg	0.50	[A] < 0.50			[A] < 0.50		[A] < 0.50		[A] < 0.50	
Dimethylphthalate	М	2790	mg/kg	0.50	[A] < 0.50			[A] < 0.50		[A] < 0.50		[A] < 0.50	
2,6-Dinitrotoluene	М	2790	mg/kg	0.50	[A] < 0.50			[A] < 0.50		[A] < 0.50		[A] < 0.50	
3-Nitroaniline	N	2790	mg/kg	0.50	[A] < 0.50			[A] < 0.50		[A] < 0.50		[A] < 0.50	
Dibenzofuran	М	2790	mg/kg	0.50	[A] < 0.50			[A] < 0.50		[A] < 0.50		[A] < 0.50	İ
4-Chlorophenylphenylether	М	2790	mg/kg	0.50	[A] < 0.50			[A] < 0.50		[A] < 0.50		[A] < 0.50	
2,4-Dinitrotoluene	M	2790	mg/kg	0.50	[A] < 0.50			[A] < 0.50		[A] < 0.50		[A] < 0.50	i i
Diethyl Phthalate	M	2790	mg/kg	0.50	[A] < 0.50			[A] < 0.50		[A] < 0.50		[A] < 0.50	<del>i</del>
4-Nitroaniline	M	2790	mg/kg	0.50	[A] < 0.50			[A] < 0.50		[A] < 0.50		[A] < 0.50	<del> </del>
2-Methyl-4,6-Dinitrophenol	N	2790	mg/kg	0.50	[A] < 0.50			[A] < 0.50		[A] < 0.50		[A] < 0.50	
Azobenzene	M	2790	mg/kg	0.50	[A] < 0.50			[A] < 0.50		[A] < 0.50		[A] < 0.50	<del>                                     </del>
4-Bromophenylphenyl Ether	M	2790	mg/kg	0.50	[A] < 0.50			[A] < 0.50		[A] < 0.50		[A] < 0.50	<del>                                     </del>
Hexachlorobenzene	M	2790	mg/kg	0.50	[A] < 0.50			[A] < 0.50		[A] < 0.50		[A] < 0.50	<del>                                     </del>
Pentachlorophenol	N	2790	mg/kg	0.50	[A] < 0.50			[A] < 0.50		[A] < 0.50		[A] < 0.50	<del>                                     </del>
Carbazole	M	2790	mg/kg	0.50	[A] < 0.50			[A] < 0.50		[A] < 0.50		[A] < 0.50	<del>                                     </del>
Di-N-Butyl Phthalate	M	2790	mg/kg	0.50	[A] < 0.50			[A] < 0.50		[A] < 0.50		[A] < 0.50	<del>                                     </del>
Butylbenzyl Phthalate	M	2790		0.50	[A] < 0.50 [A] < 0.50			[A] < 0.50 [A] < 0.50	<b></b>	[A] < 0.50 [A] < 0.50	<b></b>	[A] < 0.50 [A] < 0.50	<del>                                     </del>
	N N	2790	mg/kg	0.50						[A] < 0.50 [A] < 0.50			<del></del>
Bis(2-Ethylhexyl)Phthalate		+	mg/kg		[A] < 0.50			[A] < 0.50				[A] < 0.50	
Di-N-Octyl Phthalate	М	2790	mg/kg	0.50	[A] < 0.50			[A] < 0.50		[A] < 0.50		[A] < 0.50	

Project: 24330 Halversown Naas P	roposed Data												
Client: IGSL				Job No.:	22-48580	22-48580	22-48580	22-48580	22-48580	22-48580	22-48580	22-48580	22-48580
Quotation No.: Q22-28896			test Sar	-	1567070	1567071	1567072	1567073	1567074	1567075	1567076	1567077	1567079
Order No.:			ent Sam		AA184690	AA184693	AA184669	AA184668	AA174678	AA184675	AA186957	AA181997	AA186960
				Location:	BH03	BH04	BH06	BH08	BH10	BH12	TP01	TP02	TP05
			Sam	ole Type:	SOIL								
			Top D	epth (m):	1.00	1.00	1.00	1.00	1.00	1.00	0.50	0.50	0.50
			Asbes	stos Lab:		DURHAM	DURHAM		DURHAM		DURHAM		
Determinand	Accred.	SOP	Units	LOD									
Naphthalene	М	2800	mg/kg	0.10		< 0.10	0.26		< 0.10		< 0.10		
Acenaphthylene	N	2800	mg/kg	0.10		< 0.10	< 0.10		< 0.10		< 0.10		
Acenaphthene	М	2800	mg/kg	0.10		< 0.10	< 0.10		< 0.10		< 0.10		
Fluorene	М	2800	mg/kg	0.10		< 0.10	< 0.10		< 0.10		< 0.10		
Phenanthrene	М	2800	mg/kg	0.10		< 0.10	< 0.10		< 0.10		< 0.10		
Anthracene	М	2800	mg/kg	0.10		< 0.10	< 0.10		< 0.10		< 0.10		
Fluoranthene	М	2800	mg/kg	0.10		< 0.10	< 0.10		< 0.10		< 0.10		
Pyrene	М	2800	mg/kg	0.10		< 0.10	< 0.10		< 0.10		< 0.10		
Benzo[a]anthracene	М	2800	mg/kg	0.10		< 0.10	< 0.10		< 0.10		< 0.10		
Chrysene	М	2800	mg/kg	0.10		< 0.10	< 0.10		< 0.10		< 0.10		
Benzo[b]fluoranthene	М	2800	mg/kg	0.10		< 0.10	< 0.10		< 0.10		< 0.10		
Benzo[k]fluoranthene	М	2800	mg/kg	0.10		< 0.10	< 0.10		< 0.10		< 0.10		
Benzo[a]pyrene	М	2800	mg/kg	0.10		< 0.10	< 0.10		< 0.10		< 0.10		
Indeno(1,2,3-c,d)Pyrene	М	2800	mg/kg	0.10		< 0.10	< 0.10		< 0.10		< 0.10		
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10		< 0.10	< 0.10		< 0.10		< 0.10		
Benzo[g,h,i]perylene	М	2800	mg/kg	0.10		< 0.10	< 0.10		< 0.10		< 0.10		
Total Of 16 PAH's	N	2800	mg/kg	2.0		< 2.0	< 2.0	İ	< 2.0		< 2.0		
PCB 81	N	2815	mg/kg	0.010		-							< 0.010
PCB 77	U	2815	mg/kg	0.010									< 0.010
PCB 105	N	2815		0.010									< 0.010
PCB 114	N	2815	mg/kg	0.010									< 0.010
PCB 118	N	2815		0.010									< 0.010
PCB 123	N	2815		0.010									< 0.010
PCB 126	N	2815	mg/kg	0.010									< 0.010
PCB 156	N	2815		0.010				İ	i e				< 0.010
PCB 157	N	2815		0.010			i	i	i e	İ			< 0.010
PCB 167	N	2815	mg/kg	0.010									< 0.010
PCB 169	N	2815	mg/kg	0.010					1				< 0.010
PCB 189	N	2815	mg/kg	0.010									< 0.010
Total PCBs (12 Congeners)	N	2815	mg/kg	0.12									< 0.12
Resorcinol	M	2920	mg/kg	0.020		< 0.020	< 0.020		< 0.020		< 0.020		1
Phenol	M	2920	mg/kg	0.020		< 0.020	< 0.020		< 0.020		< 0.020		
Cresols	M	2920	mg/kg	0.020		< 0.020	< 0.020		< 0.020		< 0.020		
Xylenols	M	2920	mg/kg	0.020		< 0.020	< 0.020		< 0.020		< 0.020		
1-Naphthol	N	2920	mg/kg	0.020		< 0.020	< 0.020	1	< 0.020	1	< 0.020		
Trimethylphenols	M	2920	mg/kg	0.020		< 0.020	< 0.020	1	< 0.020	1	< 0.020		
Total Phenols	M	2920		0.10		< 0.10	< 0.10		< 0.10		< 0.10		

Client: IGSL		Ch	emtest .	Job No.:	22-48580	22-48580	22-48580	22-48580	22-48580	22-48580	22-48580	22-48580	22-48580
Quotation No.: Q22-28896				nple ID.:	1567080	1567081	1567082	1567084	1567085	1567086	1567087	1567089	1567090
Order No.:				ple Ref.:	AA186979	AA186963	AA186966	AA186969	AA185474	AA185457	AA185458	AA185485	AA185464
				_ocation:	TP06	TP07	TP08	TP10	TP13	TP14	TP14	TP17	TP18
				ole Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				epth (m):	0.50	0.50	0.50	0.50	0.50	0.50	0.80	0.60	0.50
			Asbes	stos Lab:	DURHAM			DURHAM		DURHAM		1	DURHAM
Determinand	Accred.	SOP	Units	LOD									
ACM Type	U	2192		N/A	-			-		-			-
Asbestos Identification	U	2192		N/A	No Asbestos Detected			No Asbestos Detected		No Asbestos Detected			No Asbestos Detected
Moisture	N	2030	%	0.020	13	13	12	13	14	10	6.6	9.5	6.9
рН	М	2010		4.0	[A] 8.5			[A] 8.6		[A] 8.4		1	[A] 8.5
Boron (Hot Water Soluble)	М	2120	mg/kg	0.40	[A] < 0.40			[A] < 0.40		[A] < 0.40		1	[A] < 0.40
Sulphate (2:1 Water Soluble) as SO4	М	2120	g/l	0.010	[A] < 0.010			[A] < 0.010		[A] < 0.010		1	[A] < 0.010
Total Sulphur	М	2175	%	0.010	[A] < 0.010			[A] < 0.010		[A] < 0.010		1	[A] < 0.010
Sulphur (Elemental)	М	2180	mg/kg	1.0	[A] < 1.0			[A] < 1.0		[A] < 1.0			[A] < 1.0
Cyanide (Free)	М	2300	mg/kg	0.50	[A] < 0.50			[A] < 0.50		[A] < 0.50			[A] < 0.50
Cyanide (Total)	М	2300	mg/kg	0.50	[A] < 0.50			[A] < 0.50		[A] < 0.50			[A] < 0.50
Thiocyanate	М	2300	mg/kg	5.0	[A] < 5.0			[A] < 5.0		[A] < 5.0			[A] < 5.0
Aluminium (Total)	N	2430	mg/kg	100	[A] 3700			[A] 5500		[A] 6200			[A] 4700
Iron (Total)	N	2430	mg/kg	100	[A] 7500			[A] 10000		[A] 9600			[A] 13000
Arsenic	М	2455	mg/kg	0.5	4.5			6.5		4.6			6.8
Barium	М	2455	mg/kg	0	27			40		45			54
Beryllium	U	2455	mg/kg	0.5	< 0.5			0.6		0.5			0.6
Cadmium	М	2455	mg/kg	0.10	0.85			1.1		0.76			1.4
Chromium	М	2455	mg/kg	0.5	12			18		13			18
Manganese	М	2455	mg/kg	1.0	330			410		190			440
Copper	М	2455	mg/kg	0.50	10			17		6.4			13
Mercury	М	2455	mg/kg	0.05	< 0.05			0.08		< 0.05			0.05
Nickel	М	2455	mg/kg	0.50	19			29		17			28
Lead	М	2455	mg/kg	0.50	29			22		19			26
Selenium	М	2455	mg/kg	0.25	0.55			0.74		0.67			0.95
Vanadium	U	2455	mg/kg	0.5	12			16		13			17
Zinc	М	2455	mg/kg	0.50	62			96		54			97
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50			< 0.50		< 0.50			< 0.50
Organic Matter	М	2625	%	0.40	[A] 1.3			[A] 0.54		[A] 0.88			[A] 1.3
Total Organic Carbon	М	2625	%	0.20	[A] 0.76			[A] 0.32		[A] 0.51			[A] 0.78
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	[A] < 1.0			[A] < 1.0		[A] < 1.0			[A] < 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	[A] < 1.0			[A] < 1.0		[A] < 1.0			[A] < 1.0
Aliphatic TPH >C8-C10	N	2680	mg/kg	1.0	[A] < 1.0			[A] < 1.0		[A] < 1.0			[A] < 1.0
Aliphatic TPH >C10-C12	N	2680	mg/kg	1.0	[A] < 1.0			[A] < 1.0		[A] < 1.0			[A] < 1.0
Aliphatic TPH >C12-C16	N	2680	mg/kg	1.0	[A] < 1.0			[A] < 1.0		[A] < 1.0			[A] < 1.0
Aliphatic TPH >C16-C21	N	2680	mg/kg	1.0	[A] < 1.0			[A] < 1.0		[A] < 1.0			[A] < 1.0
Aliphatic TPH >C21-C35	N	2680	mg/kg	1.0	[A] < 1.0			[A] < 1.0		[A] < 1.0			[A] < 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	[A] < 1.0			[A] < 1.0		[A] < 1.0			[A] < 1.0

Client: IGSL		Ch	emtest .	Job No.:	22-48580	22-48580	22-48580	22-48580	22-48580	22-48580	22-48580	22-48580	22-48580
Quotation No.: Q22-28896		Chem	test Sar	nple ID.:	1567080	1567081	1567082	1567084	1567085	1567086	1567087	1567089	1567090
Order No.:		Cli	ent Sam	ple Ref.:	AA186979	AA186963	AA186966	AA186969	AA185474	AA185457	AA185458	AA185485	AA185464
			Sample I	Location:	TP06	TP07	TP08	TP10	TP13	TP14	TP14	TP17	TP18
			Sam	ole Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top D	epth (m):	0.50	0.50	0.50	0.50	0.50	0.50	0.80	0.60	0.50
			Asbe	stos Lab:	DURHAM			DURHAM		DURHAM			DURHAM
Determinand	Accred.	SOP	Units	LOD									
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	[A] < 5.0			[A] < 5.0		[A] < 5.0			[A] < 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	[A] < 1.0			[A] < 1.0		[A] < 1.0			[A] < 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	[A] < 1.0			[A] < 1.0		[A] < 1.0			[A] < 1.0
Aromatic TPH >C8-C10	N	2680	mg/kg	1.0	[A] < 1.0			[A] < 1.0		[A] < 1.0			[A] < 1.0
Aromatic TPH >C10-C12	N	2680	mg/kg	1.0	[A] < 1.0			[A] < 1.0		[A] < 1.0			[A] < 1.0
Aromatic TPH >C12-C16	N	2680	mg/kg	1.0	[A] < 1.0			[A] < 1.0		[A] < 1.0			[A] < 1.0
Aromatic TPH >C16-C21	N	2680	mg/kg	1.0	[A] < 1.0			[A] < 1.0		[A] < 1.0			[A] < 1.0
Aromatic TPH >C21-C35	N	2680	mg/kg	1.0	[A] < 1.0			[A] < 1.0		[A] < 1.0			[A] < 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	[A] < 1.0			[A] < 1.0		[A] < 1.0			[A] < 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	[A] < 5.0			[A] < 5.0		[A] < 5.0			[A] < 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	[A] < 10			[A] < 10		[A] < 10			[A] < 10
Dichlorodifluoromethane	U	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
Chloromethane	M	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
Vinyl Chloride	M	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
Bromomethane	М	2760	mg/kg	0.020		[A] < 0.020			[A] < 0.020		[A] < 0.020		
Chloroethane	U	2760	mg/kg	0.0020		[A] < 0.0020			[A] < 0.0020		[A] < 0.0020		
Trichlorofluoromethane	M	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
1,1-Dichloroethene	М	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
Trans 1,2-Dichloroethene	М	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
1,1-Dichloroethane	M	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
cis 1,2-Dichloroethene	M	2760	mg/kg			[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
Bromochloromethane	U	2760	mg/kg	0.0050		[A] < 0.0050			[A] < 0.0050		[A] < 0.0050		
Trichloromethane	M	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
1,1,1-Trichloroethane	M	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
Tetrachloromethane	M	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
1,1-Dichloropropene	U	2760	mg/kg			[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
Benzene	М	2760	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010		[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010		[A] < 0.0010
1,2-Dichloroethane	М	2760	mg/kg	0.0020		[A] < 0.0020			[A] < 0.0020		[A] < 0.0020		
Trichloroethene	N	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
1,2-Dichloropropane	М	2760	mg/kg			[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
Dibromomethane	М	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
Bromodichloromethane	М	2760	mg/kg			[A] < 0.0050			[A] < 0.0050		[A] < 0.0050		
cis-1,3-Dichloropropene	N	2760	mg/kg	0.010		[A] < 0.010			[A] < 0.010		[A] < 0.010		
Toluene	М	2760	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010		[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010		[A] < 0.0010
Trans-1,3-Dichloropropene	N	2760	mg/kg	0.010		[A] < 0.010			[A] < 0.010	1	[A] < 0.010		
1,1,2-Trichloroethane	М	2760	mg/kg	0.010		[A] < 0.010			[A] < 0.010	1	[A] < 0.010		
Tetrachloroethene	М	2760	mg/kg			[A] < 0.0010			[A] < 0.0010	1	[A] < 0.0010		
1,3-Dichloropropane	U	2760		0.0020		[A] < 0.0020			[A] < 0.0020		[A] < 0.0020		

Client: IGSL				Job No.:	22-48580	22-48580	22-48580	22-48580	22-48580	22-48580	22-48580	22-48580	22-48580
Quotation No.: Q22-28896				nple ID.:	1567080	1567081	1567082	1567084	1567085	1567086	1567087	1567089	1567090
Order No.:		Cli	ent Sam	ple Ref.:	AA186979	AA186963	AA186966	AA186969	AA185474	AA185457	AA185458	AA185485	AA185464
		;	Sample l	Location:	TP06	TP07	TP08	TP10	TP13	TP14	TP14	TP17	TP18
			Sam	ole Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top D	epth (m):	0.50	0.50	0.50	0.50	0.50	0.50	0.80	0.60	0.50
			Asbes	stos Lab:	DURHAM			DURHAM		DURHAM			DURHAM
Determinand	Accred.	SOP	Units	LOD									
Dibromochloromethane	U	2760	mg/kg	0.010		[A] < 0.010			[A] < 0.010		[A] < 0.010		
1,2-Dibromoethane	M	2760	mg/kg	0.0050		[A] < 0.0050			[A] < 0.0050		[A] < 0.0050		
Chlorobenzene	M	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
1,1,1,2-Tetrachloroethane	М	2760	mg/kg	0.0020		[A] < 0.0020			[A] < 0.0020		[A] < 0.0020		
Ethylbenzene	М	2760	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010		[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010		[A] < 0.0010
m & p-Xylene	М	2760	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010		[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010		[A] < 0.0010
o-Xylene	М	2760	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010		[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010		[A] < 0.0010
Styrene	М	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
Tribromomethane	U	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
Isopropylbenzene	М	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
Bromobenzene	М	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
1,2,3-Trichloropropane	N	2760	mg/kg	0.050		[A] < 0.050			[A] < 0.050		[A] < 0.050		
N-Propylbenzene	U	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
2-Chlorotoluene	М	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
1,3,5-Trimethylbenzene	M	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
4-Chlorotoluene	U	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
Tert-Butylbenzene	Ü	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
1,2,4-Trimethylbenzene	M	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
Sec-Butylbenzene	U	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
1,3-Dichlorobenzene	М	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
4-Isopropyltoluene	N	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
1,4-Dichlorobenzene	M	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
N-Butylbenzene	U	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
1,2-Dichlorobenzene	M	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
1,2-Dibromo-3-Chloropropane	U	2760	mg/kg	0.050		[A] < 0.050			[A] < 0.050		[A] < 0.050		
1,2,4-Trichlorobenzene	M	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
Hexachlorobutadiene	U	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
1,2,3-Trichlorobenzene	Ü	2760	mg/kg	0.0020		[A] < 0.0020			[A] < 0.0020		[A] < 0.0020		
Methyl Tert-Butyl Ether	M	2760	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010		[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010		[A] < 0.0010
N-Nitrosodimethylamine	M	2790	mg/kg	0.50	[ ]	[A] < 0.50		[1]	[A] < 0.50	[ ]	[A] < 0.50		[ ]
Phenol	M	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50		
2-Chlorophenol	M	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50		
Bis-(2-Chloroethyl)Ether	M	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50		
1.3-Dichlorobenzene	M	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50		
1,4-Dichlorobenzene	N	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50		
1,2-Dichlorobenzene	M	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50		
2-Methylphenol	M	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50		
Bis(2-Chloroisopropyl)Ether	M	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50		

Client: IGSL		Che	emtest .	Job No.:	22-48580	22-48580	22-48580	22-48580	22-48580	22-48580	22-48580	22-48580	22-48580
Quotation No.: Q22-28896		Chemt	est San	nple ID.:	1567080	1567081	1567082	1567084	1567085	1567086	1567087	1567089	1567090
Order No.:				ple Ref.:	AA186979	AA186963	AA186966	AA186969	AA185474	AA185457	AA185458	AA185485	AA185464
		S	Sample I	ocation:	TP06	TP07	TP08	TP10	TP13	TP14	TP14	TP17	TP18
				ole Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top De	epth (m):	0.50	0.50	0.50	0.50	0.50	0.50	0.80	0.60	0.50
			Asbes	stos Lab:	DURHAM			DURHAM		DURHAM			DURHAM
Determinand	Accred.	SOP	Units	LOD									
Hexachloroethane	N	2790	mg/kg	0.50		[A] < 0.50	1		[A] < 0.50		[A] < 0.50	1	
N-Nitrosodi-n-propylamine	М	2790	mg/kg	0.50		[A] < 0.50	1		[A] < 0.50		[A] < 0.50	1	
4-Methylphenol	М	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50	1	
Nitrobenzene	М	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50	1	
Isophorone	M	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50	<del>                                     </del>	
2-Nitrophenol	N	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50	<del>                                     </del>	
2,4-Dimethylphenol	N	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50	<del>                                     </del>	
Bis(2-Chloroethoxy)Methane	M	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50	† †	
2,4-Dichlorophenol	M	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50	<del>                                     </del>	
1,2,4-Trichlorobenzene	M	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50	<del>                                     </del>	
4-Chloroaniline	N	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50	<del>                                     </del>	
Hexachlorobutadiene	M	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50	1	
4-Chloro-3-Methylphenol	M	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50	<del>                                     </del>	
2-Methylnaphthalene	M	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50	<del>                                     </del>	
4-Nitrophenol	N	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50	<del>                                     </del>	
Hexachlorocyclopentadiene	N	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50	<del>                                     </del>	
2,4,6-Trichlorophenol	M	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50	1	
2,4,5-Trichlorophenol	M	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50	<del>                                     </del>	
2-Chloronaphthalene	M	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50	<del>                                     </del>	
2-Nitroaniline	M	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50	1	
Dimethylphthalate	M	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50	<del>                                     </del>	
2,6-Dinitrotoluene	M	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50	1	
3-Nitroaniline	N	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50	<del>                                     </del>	
Dibenzofuran	M	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50	<del>                                     </del>	
4-Chlorophenylphenylether	М	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50	<del>                                     </del>	
2,4-Dinitrotoluene	M	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50	<del>                                     </del>	
Diethyl Phthalate	M	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50	<del>                                     </del>	
4-Nitroaniline	M	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50	<del>                                     </del>	
2-Methyl-4,6-Dinitrophenol	N	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50	<del>                                     </del>	
Azobenzene	M	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50	<del>                                     </del>	
4-Bromophenylphenyl Ether	M	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50	<del>                                     </del>	
Hexachlorobenzene	M	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50	<del>                                     </del>	
Pentachlorophenol	N	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50	† †	
Carbazole	M	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50	<del>                                     </del>	
Di-N-Butyl Phthalate	M	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50	<del>                                     </del>	
Butylbenzyl Phthalate	M	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50	<del>                                     </del>	
Bis(2-Ethylhexyl)Phthalate	N N	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50	<del>                                     </del>	
Di-N-Octyl Phthalate	M		mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50	<del>                                     </del>	

Project. 24530 Haiversowii Naas Propo	Jeu Data C												
Client: IGSL				Job No.:	22-48580	22-48580	22-48580	22-48580	22-48580	22-48580	22-48580	22-48580	22-48580
Quotation No.: Q22-28896				nple ID.:	1567080	1567081	1567082	1567084	1567085	1567086	1567087	1567089	1567090
Order No.:				ple Ref.:	AA186979	AA186963	AA186966	AA186969	AA185474	AA185457	AA185458	AA185485	AA185464
				Location:	TP06	TP07	TP08	TP10	TP13	TP14	TP14	TP17	TP18
				ole Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				epth (m):	0.50	0.50	0.50	0.50	0.50	0.50	0.80	0.60	0.50
			Asbe	stos Lab:	DURHAM			DURHAM		DURHAM			DURHAM
Determinand	Accred.	SOP	Units	LOD									
Naphthalene	М	2800	mg/kg	0.10	< 0.10			< 0.10		< 0.10			< 0.10
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10			< 0.10		< 0.10			< 0.10
Acenaphthene	М	2800	mg/kg	0.10	< 0.10			< 0.10		< 0.10			< 0.10
Fluorene	М	2800	mg/kg	0.10	< 0.10			< 0.10		< 0.10			< 0.10
Phenanthrene	М	2800	mg/kg	0.10	< 0.10			< 0.10		< 0.10			< 0.10
Anthracene	М	2800	mg/kg	0.10	< 0.10			< 0.10		< 0.10			< 0.10
Fluoranthene	М	2800	mg/kg	0.10	< 0.10			< 0.10		< 0.10			< 0.10
Pyrene	М	2800	mg/kg	0.10	< 0.10			< 0.10		< 0.10			< 0.10
Benzo[a]anthracene	М	2800	mg/kg	0.10	< 0.10			< 0.10		< 0.10			< 0.10
Chrysene	М	2800	mg/kg	0.10	< 0.10			< 0.10		< 0.10			< 0.10
Benzo[b]fluoranthene	М	2800	mg/kg	0.10	< 0.10			< 0.10		< 0.10			< 0.10
Benzo[k]fluoranthene	М	2800	mg/kg	0.10	< 0.10			< 0.10		< 0.10			< 0.10
Benzo[a]pyrene	М	2800	mg/kg	0.10	< 0.10			< 0.10		< 0.10			< 0.10
Indeno(1,2,3-c,d)Pyrene	М	2800	mg/kg	0.10	< 0.10			< 0.10		< 0.10			< 0.10
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10			< 0.10		< 0.10			< 0.10
Benzo[g,h,i]perylene	М	2800	mg/kg	0.10	< 0.10			< 0.10		< 0.10			< 0.10
Total Of 16 PAH's	N	2800	mg/kg	2.0	< 2.0			< 2.0		< 2.0			< 2.0
PCB 81	N	2815	mg/kg	0.010			< 0.010					< 0.010	
PCB 77	U	2815	mg/kg	0.010			< 0.010					< 0.010	
PCB 105	N	2815	mg/kg	0.010			< 0.010					< 0.010	
PCB 114	N	2815	mg/kg	0.010			< 0.010					< 0.010	
PCB 118	N	2815	mg/kg	0.010			< 0.010					< 0.010	
PCB 123	N	2815	mg/kg	0.010			< 0.010					< 0.010	1
PCB 126	N	2815	mg/kg	0.010			< 0.010					< 0.010	
PCB 156	N	2815	mg/kg	0.010			< 0.010					< 0.010	
PCB 157	N	2815	mg/kg	0.010			< 0.010					< 0.010	
PCB 167	N	2815	mg/kg	0.010			< 0.010					< 0.010	
PCB 169	N	2815	mg/kg	0.010			< 0.010					< 0.010	
PCB 189	N	2815	mg/kg	0.010			< 0.010					< 0.010	
Total PCBs (12 Congeners)	N	2815	mg/kg	0.12			< 0.12					< 0.12	
Resorcinol	М	2920	mg/kg	0.020	< 0.020			< 0.020		< 0.020			< 0.020
Phenol	М	2920	mg/kg	0.020	< 0.020			< 0.020		< 0.020			< 0.020
Cresols	М	2920	mg/kg	0.020	< 0.020			< 0.020		< 0.020			< 0.020
Xylenols	М	2920	mg/kg	0.020	< 0.020			< 0.020		< 0.020			< 0.020
1-Naphthol	N	2920	mg/kg	0.020	< 0.020			< 0.020		< 0.020			< 0.020
Trimethylphenols	М	2920	mg/kg	0.020	< 0.020			< 0.020		< 0.020			< 0.020
Total Phenols	М	2920	mg/kg	0.10	< 0.10			< 0.10		< 0.10			< 0.10

Project: 24330 Halversown Naas Prop	osea Data C												
Client: IGSL				Job No.:	22-48580	22-48580	22-48580	22-48580	22-48580	22-48580	22-48580	22-48580	22-48580
Quotation No.: Q22-28896				nple ID.:	1567091	1567092	1567093	1567094	1567096	1567097	1567098	1567099	1567100
Order No.:			ent Sam	<u> </u>	AA185488	AA185498	AA181957	AA181963	AA181976	AA181972	AA181969	AA181966	AA181978
		9		_ocation:	TP20	TP22	TP23	TP25	TP26	TP27	TP28	TP29	TP30
				ole Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				epth (m):	0.60	1.40	0.50	0.50	1.30	0.50	0.60	0.50	0.50
				stos Lab:	DURHAM		DURHAM			DURHAM		DURHAM	
Determinand	Accred.	SOP	Units	LOD									
ACM Type	U	2192		N/A	-		-			-		-	
Asbestos Identification	U	2192		N/A	No Asbestos		No Asbestos			No Asbestos		No Asbestos	
Aspestos identification					Detected		Detected			Detected		Detected	
Moisture	N	2030	%	0.020	13	11	14	13	10	11	21	8.4	14
pH	М	2010		4.0	[A] 8.6		[A] 8.5			[A] 8.5		[A] 8.4	
Boron (Hot Water Soluble)	М	2120	mg/kg	0.40	[A] < 0.40		[A] < 0.40			[A] < 0.40		[A] < 0.40	
Sulphate (2:1 Water Soluble) as SO4	М	2120	g/l	0.010	[A] < 0.010		[A] < 0.010			[A] < 0.010		[A] < 0.010	
Total Sulphur	М	2175	%	0.010	[A] < 0.010		[A] < 0.010			[A] < 0.010		[A] < 0.010	
Sulphur (Elemental)	М	2180	mg/kg	1.0	[A] < 1.0		[A] < 1.0			[A] < 1.0		[A] < 1.0	
Cyanide (Free)	М	2300	mg/kg	0.50	[A] < 0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50	
Cyanide (Total)	М	2300	mg/kg	0.50	[A] < 0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50	
Thiocyanate	М	2300	mg/kg	5.0	[A] < 5.0		[A] < 5.0			[A] < 5.0		[A] < 5.0	
Aluminium (Total)	N	2430	mg/kg	100	[A] 3700		[A] 7500			[A] 4100		[A] 4800	
Iron (Total)	N	2430	mg/kg	100	[A] 9200		[A] 15000			[A] 9800		[A] 4900	
Arsenic	М	2455	mg/kg	0.5	5.8		9.1			7.5		7.7	
Barium	М	2455	mg/kg	0	79		51			71		46	
Beryllium	U	2455	mg/kg	0.5	< 0.5		0.8			0.5		0.8	
Cadmium	М	2455	mg/kg	0.10	1.2		2.4			1.9		1.7	
Chromium	М	2455	mg/kg	0.5	14		20			14		19	
Manganese	М	2455	mg/kg	1.0	< 1.0		1000			1000		680	
Copper	М	2455	mg/kg	0.50	11		21			13		17	
Mercury	М	2455	mg/kg	0.05	< 0.05		0.07			< 0.05		0.06	
Nickel	М	2455	mg/kg	0.50	24		52			35		37	
Lead	М	2455	mg/kg	0.50	19		29			23		25	
Selenium	М	2455	mg/kg	0.25	0.60		1.1			0.54		0.84	
Vanadium	U	2455	mg/kg	0.5	14		21			14		18	
Zinc	М	2455	mg/kg	0.50	73		130			88		110	
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50		< 0.50			< 0.50		< 0.50	
Organic Matter	М	2625	%	0.40	[A] 0.75		[A] 0.66			[A] < 0.40		[A] < 0.40	
Total Organic Carbon	М	2625	%	0.20	[A] 0.43		[A] 0.38			[A] < 0.20		[A] < 0.20	
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0			[A] < 1.0		[A] < 1.0	
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0			[A] < 1.0		[A] < 1.0	
Aliphatic TPH >C8-C10	N	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0			[A] < 1.0		[A] < 1.0	
Aliphatic TPH >C10-C12	N	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0			[A] < 1.0		[A] < 1.0	
Aliphatic TPH >C12-C16	N	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0			[A] < 1.0		[A] < 1.0	
Aliphatic TPH >C16-C21	N	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0			[A] < 1.0		[A] < 1.0	
Aliphatic TPH >C21-C35	N	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0			[A] < 1.0		[A] < 1.0	
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0			[A] < 1.0		[A] < 1.0	

Client: IGSL		Ch	emtest .	Job No.:	22-48580	22-48580	22-48580	22-48580	22-48580	22-48580	22-48580	22-48580	22-48580
Quotation No.: Q22-28896			test San		1567091	1567092	1567093	1567094	1567096	1567097	1567098	1567099	1567100
Order No.:			ent Sam		AA185488	AA185498	AA181957	AA181963	AA181976	AA181972	AA181969	AA181966	AA181978
		(	Sample I	ocation:	TP20	TP22	TP23	TP25	TP26	TP27	TP28	TP29	TP30
			Samp	ole Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top De	epth (m):	0.60	1.40	0.50	0.50	1.30	0.50	0.60	0.50	0.50
			Asbes	stos Lab:	DURHAM		DURHAM			DURHAM		DURHAM	
Determinand	Accred.	SOP	Units	LOD									
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	[A] < 5.0		[A] < 5.0			[A] < 5.0		[A] < 5.0	
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0			[A] < 1.0		[A] < 1.0	
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0			[A] < 1.0		[A] < 1.0	
Aromatic TPH >C8-C10	N	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0			[A] < 1.0		[A] < 1.0	
Aromatic TPH >C10-C12	N	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0			[A] < 1.0		[A] < 1.0	
Aromatic TPH >C12-C16	N	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0			[A] < 1.0		[A] < 1.0	
Aromatic TPH >C16-C21	N	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0			[A] < 1.0		[A] < 1.0	
Aromatic TPH >C21-C35	N	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0			[A] < 1.0		[A] < 1.0	
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0			[A] < 1.0		[A] < 1.0	
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	[A] < 5.0		[A] < 5.0			[A] < 5.0		[A] < 5.0	
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	[A] < 10		[A] < 10			[A] < 10		[A] < 10	
Dichlorodifluoromethane	U	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
Chloromethane	М	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
Vinyl Chloride	М	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
Bromomethane	М	2760	mg/kg	0.020		[A] < 0.020			[A] < 0.020		[A] < 0.020		
Chloroethane	U	2760	mg/kg	0.0020		[A] < 0.0020			[A] < 0.0020		[A] < 0.0020		
Trichlorofluoromethane	М	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
1,1-Dichloroethene	М	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
Trans 1,2-Dichloroethene	М	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
1,1-Dichloroethane	М	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
cis 1,2-Dichloroethene	М	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
Bromochloromethane	U	2760	mg/kg	0.0050		[A] < 0.0050			[A] < 0.0050		[A] < 0.0050		
Trichloromethane	М	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
1,1,1-Trichloroethane	М	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
Tetrachloromethane	М	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
1,1-Dichloropropene	U	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
Benzene	М	2760	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010		[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	
1,2-Dichloroethane	М	2760	mg/kg	0.0020		[A] < 0.0020			[A] < 0.0020		[A] < 0.0020		
Trichloroethene	N	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
1,2-Dichloropropane	М	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
Dibromomethane	М	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
Bromodichloromethane	М	2760	mg/kg	0.0050		[A] < 0.0050			[A] < 0.0050		[A] < 0.0050		
cis-1,3-Dichloropropene	N	2760	mg/kg	0.010		[A] < 0.010			[A] < 0.010		[A] < 0.010		
Toluene	М	2760	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010		[A] < 0.0010	[A] < 0.0010		[A] < 0.0010	
Trans-1,3-Dichloropropene	N	2760	mg/kg	0.010		[A] < 0.010			[A] < 0.010		[A] < 0.010		
1,1,2-Trichloroethane	М	2760	mg/kg	0.010		[A] < 0.010	ĺ		[A] < 0.010		[A] < 0.010		
Tetrachloroethene	М	2760	0 0	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
1,3-Dichloropropane	U			0.0020		[A] < 0.0020			[A] < 0.0020	i	[A] < 0.0020		

Client: IGSL				Job No.:	22-48580	22-48580	22-48580	22-48580	22-48580	22-48580	22-48580	22-48580	22-48580
Quotation No.: Q22-28896		Chem	test Sar	nple ID.:	1567091	1567092	1567093	1567094	1567096	1567097	1567098	1567099	1567100
Order No.:		Cli	ent Sam	ple Ref.:	AA185488	AA185498	AA181957	AA181963	AA181976	AA181972	AA181969	AA181966	AA181978
		(	Sample	Location:	TP20	TP22	TP23	TP25	TP26	TP27	TP28	TP29	TP30
			Sam	ole Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top D	epth (m):	0.60	1.40	0.50	0.50	1.30	0.50	0.60	0.50	0.50
			Asbe	stos Lab:	DURHAM		DURHAM			DURHAM		DURHAM	
Determinand	Accred.	SOP	Units	LOD									
Dibromochloromethane	U	2760	mg/kg	0.010		[A] < 0.010			[A] < 0.010		[A] < 0.010		
1,2-Dibromoethane	М	2760	mg/kg	0.0050		[A] < 0.0050			[A] < 0.0050		[A] < 0.0050		
Chlorobenzene	М	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		İ
1,1,1,2-Tetrachloroethane	М	2760	mg/kg	0.0020		[A] < 0.0020			[A] < 0.0020		[A] < 0.0020		
Ethylbenzene	М	2760	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010		[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	
m & p-Xylene	М	2760	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010		[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	
o-Xylene	М	2760	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010		[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	
Styrene	М	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
Tribromomethane	U	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
Isopropylbenzene	М	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
Bromobenzene	М	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
1,2,3-Trichloropropane	N	2760	mg/kg	0.050		[A] < 0.050			[A] < 0.050		[A] < 0.050		
N-Propylbenzene	U	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
2-Chlorotoluene	М	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
1,3,5-Trimethylbenzene	М	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
4-Chlorotoluene	U	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
Tert-Butylbenzene	U	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
1,2,4-Trimethylbenzene	М	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
Sec-Butylbenzene	U	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
1,3-Dichlorobenzene	М	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
4-Isopropyltoluene	N	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
1,4-Dichlorobenzene	М	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
N-Butylbenzene	U	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
1,2-Dichlorobenzene	М	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
1,2-Dibromo-3-Chloropropane	U	2760	mg/kg	0.050		[A] < 0.050			[A] < 0.050		[A] < 0.050		
1,2,4-Trichlorobenzene	М	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
Hexachlorobutadiene	U	2760	mg/kg	0.0010		[A] < 0.0010			[A] < 0.0010		[A] < 0.0010		
1,2,3-Trichlorobenzene	U	2760	mg/kg	0.0020		[A] < 0.0020			[A] < 0.0020		[A] < 0.0020		
Methyl Tert-Butyl Ether	М	2760	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010		[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	
N-Nitrosodimethylamine	М	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50		
Phenol	М	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50		
2-Chlorophenol	М	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50		
Bis-(2-Chloroethyl)Ether	М	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50		
1,3-Dichlorobenzene	М	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50		1
1,4-Dichlorobenzene	N	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50		
1,2-Dichlorobenzene	М	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50		
2-Methylphenol	М	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50		
Bis(2-Chloroisopropyl)Ether	M	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50		i

Project: 24330 Halversown Naas P	l Data 5			Job No.:	22 40500	22 40500	22 40500	22 40500	22 40500	22 40500	22 40500	22 40500	22 40500
Client: IGSL					22-48580	22-48580	22-48580	22-48580	22-48580	22-48580	22-48580	22-48580	22-48580
Quotation No.: Q22-28896				nple ID.:	1567091	1567092	1567093	1567094	1567096	1567097	1567098	1567099	1567100
Order No.:			ent Sam		AA185488	AA185498	AA181957	AA181963	AA181976	AA181972	AA181969	AA181966	AA181978
				_ocation:	TP20	TP22	TP23	TP25	TP26	TP27	TP28	TP29	TP30
				ole Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				epth (m):	0.60	1.40	0.50	0.50	1.30	0.50	0.60	0.50	0.50
	-			stos Lab:	DURHAM		DURHAM			DURHAM		DURHAM	
Determinand	Accred.	SOP	Units	LOD									
Hexachloroethane	N	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50		
N-Nitrosodi-n-propylamine	М	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50		
4-Methylphenol	М	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50		
Nitrobenzene	M	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50		
Isophorone	M	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50		
2-Nitrophenol	N	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50		
2,4-Dimethylphenol	N	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50		
Bis(2-Chloroethoxy)Methane	M	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50		
2,4-Dichlorophenol	M	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50		
1,2,4-Trichlorobenzene	М	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50		
4-Chloroaniline	N	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50		
Hexachlorobutadiene	M	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50		
4-Chloro-3-Methylphenol	М	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50		
2-Methylnaphthalene	М	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50		
4-Nitrophenol	N	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50		
Hexachlorocyclopentadiene	N	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50		
2,4,6-Trichlorophenol	М	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50		
2,4,5-Trichlorophenol	М	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50		
2-Chloronaphthalene	М	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50		
2-Nitroaniline	М	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50		
Dimethylphthalate	М	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50		
2,6-Dinitrotoluene	М	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50		
3-Nitroaniline	N	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50		
Dibenzofuran	M	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50		
4-Chlorophenylphenylether	M	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50		
2,4-Dinitrotoluene	M	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50		
Diethyl Phthalate	M	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50		
4-Nitroaniline	M	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50		
2-Methyl-4,6-Dinitrophenol	N N	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50		
Azobenzene	M	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50	-	<del> </del>
4-Bromophenylphenyl Ether	M	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50		1
Hexachlorobenzene	M	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50		1
Pentachlorophenol	N N	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50		
Carbazole	M	2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50		1
Di-N-Butyl Phthalate	M	2790	mg/kg	0.50		[A] < 0.50		<del> </del>	[A] < 0.50		[A] < 0.50	<del>                                     </del>	+
Butylbenzyl Phthalate	M	2790		0.50		[A] < 0.50					[A] < 0.50	<del>                                     </del>	+
	N N		mg/kg						[A] < 0.50				1
Bis(2-Ethylhexyl)Phthalate		2790	mg/kg	0.50		[A] < 0.50			[A] < 0.50		[A] < 0.50		
Di-N-Octyl Phthalate	M	2790	mg/kg	0.50		[A] < 0.50		L	[A] < 0.50		[A] < 0.50		

Client: IGSL		Ch	emtest	Job No.:	22-48580	22-48580	22-48580	22-48580	22-48580	22-48580	22-48580	22-48580	22-48580
Quotation No.: Q22-28896		Chem	test Sar	nple ID.:	1567091	1567092	1567093	1567094	1567096	1567097	1567098	1567099	1567100
Order No.:		Cli	ent Sam	ple Ref.:	AA185488	AA185498	AA181957	AA181963	AA181976	AA181972	AA181969	AA181966	AA181978
		5	Sample	Location:	TP20	TP22	TP23	TP25	TP26	TP27	TP28	TP29	TP30
			Sam	ole Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top D	epth (m):	0.60	1.40	0.50	0.50	1.30	0.50	0.60	0.50	0.50
			Asbe	stos Lab:	DURHAM		DURHAM			DURHAM		DURHAM	
Determinand	Accred.	SOP	Units	LOD									
Naphthalene	M	2800	mg/kg	0.10	< 0.10		< 0.10			< 0.10		< 0.10	
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10		< 0.10			< 0.10		< 0.10	
Acenaphthene	М	2800	mg/kg	0.10	< 0.10		< 0.10			< 0.10		< 0.10	
Fluorene	М	2800	mg/kg	0.10	< 0.10		< 0.10			< 0.10		< 0.10	
Phenanthrene	М	2800	mg/kg	0.10	< 0.10		< 0.10			< 0.10		< 0.10	
Anthracene	M	2800	mg/kg	0.10	< 0.10		< 0.10			< 0.10		< 0.10	
Fluoranthene	М	2800	mg/kg	0.10	< 0.10		< 0.10			< 0.10		< 0.10	
Pyrene	М	2800	mg/kg	0.10	< 0.10		< 0.10			< 0.10		< 0.10	
Benzo[a]anthracene	М	2800	mg/kg	0.10	< 0.10		< 0.10			< 0.10		< 0.10	
Chrysene	М	2800	mg/kg	0.10	< 0.10		< 0.10			< 0.10		< 0.10	
Benzo[b]fluoranthene	М	2800	mg/kg	0.10	< 0.10		< 0.10			< 0.10		< 0.10	
Benzo[k]fluoranthene	М	2800	mg/kg	0.10	< 0.10		< 0.10			< 0.10		< 0.10	
Benzo[a]pyrene	М	2800	mg/kg	0.10	< 0.10		< 0.10			< 0.10		< 0.10	
Indeno(1,2,3-c,d)Pyrene	М	2800	mg/kg	0.10	< 0.10		< 0.10			< 0.10		< 0.10	
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10		< 0.10			< 0.10		< 0.10	
Benzo[g,h,i]perylene	М	2800	mg/kg	0.10	< 0.10		< 0.10			< 0.10		< 0.10	
Total Of 16 PAH's	N	2800	mg/kg	2.0	< 2.0		< 2.0			< 2.0		< 2.0	
PCB 81	N	2815	mg/kg	0.010				< 0.010					< 0.010
PCB 77	U	2815	mg/kg	0.010				< 0.010					< 0.010
PCB 105	N	2815	mg/kg	0.010				< 0.010					< 0.010
PCB 114	N	2815	mg/kg	0.010				< 0.010					< 0.010
PCB 118	N	2815	mg/kg	0.010				< 0.010					< 0.010
PCB 123	N	2815	mg/kg	0.010				< 0.010					< 0.010
PCB 126	N	2815	mg/kg	0.010				< 0.010					< 0.010
PCB 156	N	2815	mg/kg	0.010				< 0.010					< 0.010
PCB 157	N	2815	mg/kg	0.010				< 0.010					< 0.010
PCB 167	N	2815	mg/kg	0.010				< 0.010					< 0.010
PCB 169	N	2815	mg/kg	0.010				< 0.010					< 0.010
PCB 189	N	2815	mg/kg	0.010				< 0.010					< 0.010
Total PCBs (12 Congeners)	N	2815	mg/kg	0.12				< 0.12					< 0.12
Resorcinol	М	2920	mg/kg	0.020	< 0.020		< 0.020			< 0.020		< 0.020	
Phenol	М	2920	mg/kg	0.020	< 0.020		< 0.020			< 0.020		< 0.020	
Cresols	М	2920	mg/kg	0.020	< 0.020		< 0.020			< 0.020		< 0.020	
Xylenols	М	2920	mg/kg	0.020	< 0.020		< 0.020			< 0.020		< 0.020	
1-Naphthol	N	2920	mg/kg	0.020	< 0.020	Ì	< 0.020			< 0.020		< 0.020	1
Trimethylphenols	М	2920	mg/kg	0.020	< 0.020		< 0.020			< 0.020		< 0.020	
Total Phenols	М	2920	mg/kg	0.10	< 0.10		< 0.10			< 0.10		< 0.10	1

Project: 24330 Halversown Naas Proposed Data Centre Sites (DOBA)

Client: IGSL		Ch	emtest .	Job No.:	22-48580	22-48580	22-48580	22-48580
Quotation No.: Q22-28896		Chem	test Sar	nple ID.:	1567101	1567103	1567104	1567105
Order No.:		Cli	ent Sam	ple Ref.:	AA181992	AA181995	AA181989	AA181987
		5	Sample I	_ocation:	TP31	TP32	TP33	TP34
			Samp	ole Type:	SOIL	SOIL	SOIL	SOIL
			Top De	epth (m):	0.50	1.40	0.50	1.40
			Asbes	stos Lab:	DURHAM	DURHAM	DURHAM	
Determinand	Accred.	SOP	Units	LOD				
ACM Type	U	2192		N/A	-	-	-	
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos	No Asbestos	
Maintrina	NI NI	2020	%	0.000		Detected 9.0	Detected 15	0.1
Moisture	N	2030	%	0.020	11			9.1
pH	M	2010		4.0	[A] 7.3	[A] 8.3	[A] 7.7	
Boron (Hot Water Soluble)	M M	2120	mg/kg	0.40	[A] < 0.40	[A] < 0.40	[A] < 0.40	
Sulphate (2:1 Water Soluble) as SO4			g/l	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	
Total Sulphur	M	2175	%	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	
Sulphur (Elemental)	M	2180	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	
Cyanide (Free)	М	2300	mg/kg	0.50	[A] 0.50	[A] 1.1	[A] 0.60	
Cyanide (Total)	М	2300	mg/kg	0.50	[A] 0.60	[A] 1.1	[A] 0.60	
Thiocyanate	М	2300	mg/kg	5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0	
Aluminium (Total)	N	2430	mg/kg	100	[A] 8700	[A] 2200	[A] 5100	
Iron (Total)	N	2430	mg/kg	100	[A] 17000	[A] 7700	[A] 14000	
Arsenic	М	2455	mg/kg	0.5	9.4	6.9	7.6	
Barium	М	2455	mg/kg	0	42	35	42	
Beryllium	U	2455	mg/kg	0.5	0.8	< 0.5	0.6	
Cadmium	M	2455	mg/kg	0.10	1.1	0.99	1.6	
Chromium	M	2455	mg/kg	0.5	19	6.8	15	
Manganese	M	2455	mg/kg	1.0	990	580	740	
Copper	M	2455	mg/kg	0.50	18	10	16	
Mercury	M	2455	mg/kg	0.05	0.08	< 0.05	0.05	
Nickel	M	2455	mg/kg	0.50	41	17	34	
Lead	M	2455	mg/kg	0.50	32	12	25	
Selenium	M	2455	mg/kg	0.25	0.95	0.62	0.72	
Vanadium	U	2455	mg/kg	0.5	21	7.2	16	
Zinc	М	2455	mg/kg	0.50	130	58	100	
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	
Organic Matter	М	2625	%	0.40	[A] 0.59	[A] < 0.40	[A] 0.67	
Total Organic Carbon	М	2625	%	0.20	[A] 0.34	[A] 0.22	[A] 0.39	
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	
Aliphatic TPH >C8-C10	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	
Aliphatic TPH >C10-C12	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	
Aliphatic TPH >C12-C16	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	
Aliphatic TPH >C16-C21	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	
Aliphatic TPH >C21-C35	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	

Client: IGSL				Job No.:	22-48580	22-48580	22-48580	22-48580
Quotation No.: Q22-28896				nple ID.:	1567101	1567103	1567104	1567105
Order No.:				ple Ref.:	AA181992	AA181995	AA181989	AA181987
		5		_ocation:	TP31	TP32	TP33	TP34
			Sam	ole Type:	SOIL	SOIL	SOIL	SOIL
			Top D	epth (m):	0.50	1.40	0.50	1.40
			Asbe	stos Lab:	DURHAM	DURHAM	DURHAM	
Determinand	Accred.	SOP	Units	LOD				
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0	
Aromatic TPH >C5-C7	N		mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	
Aromatic TPH >C8-C10	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	
Aromatic TPH >C10-C12	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	
Aromatic TPH >C12-C16	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	
Aromatic TPH >C16-C21	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	
Aromatic TPH >C21-C35	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0	
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	[A] < 10	[A] < 10	[A] < 10	
Dichlorodifluoromethane	U		mg/kg					[A] < 0.0010
Chloromethane	M	2760	mg/kg	0.0010				[A] < 0.0010
Vinyl Chloride	M	2760	mg/kg	0.0010				[A] < 0.0010
Bromomethane	M	2760	mg/kg	0.020				[A] < 0.020
Chloroethane	U	2760	mg/kg	0.0020				[A] < 0.0020
Trichlorofluoromethane	M	2760	mg/kg	0.0010				[A] < 0.0010
1,1-Dichloroethene	M	2760	mg/kg	0.0010				[A] < 0.0010
Trans 1,2-Dichloroethene	M	2760	mg/kg	0.0010				[A] < 0.0010
1,1-Dichloroethane	M	2760	mg/kg	0.0010				[A] < 0.0010
cis 1,2-Dichloroethene	M	2760	mg/kg	0.0010				[A] < 0.0010
Bromochloromethane	U	2760	mg/kg	0.0050				[A] < 0.0050
Trichloromethane	M	2760	mg/kg	0.0010				[A] < 0.0010
1,1,1-Trichloroethane	M	2760	mg/kg	0.0010				[A] < 0.0010
Tetrachloromethane	M	2760	mg/kg	0.0010				[A] < 0.0010
1,1-Dichloropropene	U	2760	mg/kg	0.0010				[A] < 0.0010
Benzene	M	2760	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010
1,2-Dichloroethane	M	2760	mg/kg	0.0020				[A] < 0.0020
Trichloroethene	N	2760	mg/kg	0.0010				[A] < 0.0010
1,2-Dichloropropane	М	2760	mg/kg	0.0010				[A] < 0.0010
Dibromomethane	М	2760		0.0010				[A] < 0.0010
Bromodichloromethane	М	2760	mg/kg	0.0050				[A] < 0.0050
cis-1,3-Dichloropropene	N	2760	mg/kg					[A] < 0.010
Toluene	М	2760	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010
Trans-1,3-Dichloropropene	N		mg/kg	0.010				[A] < 0.010
1,1,2-Trichloroethane	М	2760	mg/kg	0.010				[A] < 0.010
Tetrachloroethene	М	2760	mg/kg	0.0010				[A] < 0.0010
1,3-Dichloropropane	U	2760		0.0020				[A] < 0.0020

Client: IGSL				Job No.:	22-48580	22-48580	22-48580	22-48580
Quotation No.: Q22-28896				nple ID.:	1567101	1567103	1567104	1567105
Order No.:		Cli	ent Sam	ple Ref.:	AA181992	AA181995	AA181989	AA181987
		5		Location:	TP31	TP32	TP33	TP34
				ole Type:	SOIL	SOIL	SOIL	SOIL
				epth (m):	0.50	1.40	0.50	1.40
				stos Lab:	DURHAM	DURHAM	DURHAM	
Determinand	Accred.	SOP	Units	LOD				
Dibromochloromethane	U	2760	mg/kg					[A] < 0.010
1,2-Dibromoethane	M	2760		0.0050				[A] < 0.0050
Chlorobenzene	M		mg/kg	0.0010				[A] < 0.0010
1,1,1,2-Tetrachloroethane	M	2760	mg/kg					[A] < 0.0020
Ethylbenzene	M	2760	mg/kg		[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010
m & p-Xylene	M	2760	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010
o-Xylene	M	2760	mg/kg		[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010
Styrene	M		mg/kg	0.0010				[A] < 0.0010
Tribromomethane	U	2760	mg/kg					[A] < 0.0010
Isopropylbenzene	M	2760	mg/kg					[A] < 0.0010
Bromobenzene	M	2760	mg/kg	0.0010				[A] < 0.0010
1,2,3-Trichloropropane	N	2760	mg/kg	0.050				[A] < 0.050
N-Propylbenzene	U	2760	mg/kg	0.0010				[A] < 0.0010
2-Chlorotoluene	М	2760	mg/kg	0.0010				[A] < 0.0010
1,3,5-Trimethylbenzene	M	2760	mg/kg	0.0010				[A] < 0.0010
4-Chlorotoluene	U	2760	mg/kg	0.0010				[A] < 0.0010
Tert-Butylbenzene	U	2760	mg/kg	0.0010				[A] < 0.0010
1,2,4-Trimethylbenzene	M	2760	mg/kg	0.0010				[A] < 0.0010
Sec-Butylbenzene	U	2760	mg/kg	0.0010				[A] < 0.0010
1,3-Dichlorobenzene	M	2760	mg/kg	0.0010				[A] < 0.0010
4-Isopropyltoluene	N	2760	mg/kg	0.0010				[A] < 0.0010
1,4-Dichlorobenzene	M		mg/kg	0.0010				[A] < 0.0010
N-Butylbenzene	U	2760	mg/kg	0.0010				[A] < 0.0010
1,2-Dichlorobenzene	М	2760	mg/kg	0.0010				[A] < 0.0010
1,2-Dibromo-3-Chloropropane	U	2760	mg/kg	0.050				[A] < 0.050
1,2,4-Trichlorobenzene	М	2760	mg/kg	0.0010				[A] < 0.0010
Hexachlorobutadiene	U	2760	mg/kg	0.0010				[A] < 0.0010
1.2.3-Trichlorobenzene	U	2760	mg/kg	0.0020				[A] < 0.0020
Methyl Tert-Butyl Ether	M	2760	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010
N-Nitrosodimethylamine	М	2790	mg/kg	0.50	. 1	. ,		[A] < 0.50
Phenol	M	2790	mg/kg	0.50				[A] < 0.50
2-Chlorophenol	M	2790		0.50				[A] < 0.50
Bis-(2-Chloroethyl)Ether	M	2790	mg/kg	0.50				[A] < 0.50
1,3-Dichlorobenzene	M		mg/kg	0.50				[A] < 0.50
1.4-Dichlorobenzene	N N	2790	mg/kg	0.50				[A] < 0.50
1,2-Dichlorobenzene	M	2790	mg/kg	0.50				[A] < 0.50
2-Methylphenol	M	2790		0.50				[A] < 0.50
Bis(2-Chloroisopropyl)Ether	M	2790	0 0	0.50		<u> </u>		[A] < 0.50

Client: IGSL	Chemtest Job No.:				22-48580	22-48580	22-48580	22-48580
Quotation No.: Q22-28896	Chemtest Sample ID.:				1567101	1567103	1567104	1567105
Order No.:	Client Sample Ref.:				AA181992	AA181995	AA181989	AA181987
	Sample Location:				TP31	TP32	TP33	TP34
	Sample Type: Top Depth (m): Asbestos Lab:				SOIL	SOIL	SOIL	SOIL
					0.50	1.40	0.50	1.40
					DURHAM	DURHAM	DURHAM	
Determinand	Accred.	SOP	Units	LOD				
Hexachloroethane	N	2790	mg/kg	0.50				[A] < 0.50
N-Nitrosodi-n-propylamine	М		mg/kg	0.50				[A] < 0.50
4-Methylphenol	М	2790	mg/kg	0.50				[A] < 0.50
Nitrobenzene	М	2790	mg/kg	0.50				[A] < 0.50
Isophorone	М	2790	mg/kg	0.50				[A] < 0.50
2-Nitrophenol	N	2790	mg/kg	0.50				[A] < 0.50
2,4-Dimethylphenol	N	2790	mg/kg	0.50				[A] < 0.50
Bis(2-Chloroethoxy)Methane	М	2790	mg/kg	0.50				[A] < 0.50
2,4-Dichlorophenol	М	2790	mg/kg	0.50				[A] < 0.50
1,2,4-Trichlorobenzene	М	2790	mg/kg	0.50				[A] < 0.50
4-Chloroaniline	N	2790	mg/kg	0.50				[A] < 0.50
Hexachlorobutadiene	M	2790	mg/kg	0.50				[A] < 0.50
4-Chloro-3-Methylphenol	M		mg/kg	0.50				[A] < 0.50
2-Methylnaphthalene	М	2790		0.50				[A] < 0.50
4-Nitrophenol	N	2790	mg/kg	0.50				[A] < 0.50
Hexachlorocyclopentadiene	N	2790	mg/kg	0.50				[A] < 0.50
2,4,6-Trichlorophenol	М	2790	mg/kg	0.50				[A] < 0.50
2,4,5-Trichlorophenol	М	2790	mg/kg	0.50				[A] < 0.50
2-Chloronaphthalene	М	2790		0.50				[A] < 0.50
2-Nitroaniline	М	2790	mg/kg	0.50				[A] < 0.50
Dimethylphthalate	М	2790	mg/kg	0.50				[A] < 0.50
2,6-Dinitrotoluene	М	2790	mg/kg	0.50				[A] < 0.50
3-Nitroaniline	N		mg/kg	0.50				[A] < 0.50
Dibenzofuran	М	2790	mg/kg	0.50				[A] < 0.50
4-Chlorophenylphenylether	М	2790	mg/kg	0.50				[A] < 0.50
2,4-Dinitrotoluene	М	2790	mg/kg	0.50				[A] < 0.50
Diethyl Phthalate	М	2790		0.50				[A] < 0.50
4-Nitroaniline	М	2790	mg/kg	0.50				[A] < 0.50
2-Methyl-4,6-Dinitrophenol	N	2790	mg/kg	0.50				[A] < 0.50
Azobenzene	М		mg/kg	0.50				[A] < 0.50
4-Bromophenylphenyl Ether	М	2790	mg/kg	0.50				[A] < 0.50
Hexachlorobenzene	М	2790		0.50				[A] < 0.50
Pentachlorophenol	N	2790	mg/kg	0.50				[A] < 0.50
Carbazole	M		mg/kg	0.50				[A] < 0.50
Di-N-Butyl Phthalate	M		mg/kg	0.50				[A] < 0.50
Butylbenzyl Phthalate	M	2790	mg/kg	0.50				[A] < 0.50
Bis(2-Ethylhexyl)Phthalate	N		mg/kg	0.50				[A] < 0.50
Di-N-Octyl Phthalate	M	2790		0.50				[A] < 0.50

Project: 24330 Halversown Naas Proposed Data Centre Sites (DOBA)

Client: IGSL				Job No.:	22-48580	22-48580	22-48580	22-48580
Quotation No.: Q22-28896		Chemtest Sample ID.:			1567101	1567103	1567104	1567105
Order No.:	Client Sample Ref.:				AA181992 TP31	AA181995	AA181989	AA181987
		Sample Location:				TP32	TP33	TP34
		Sample Type:				SOIL	SOIL	SOIL
		Top Depth (m):				1.40	0.50	1.40
	Asbestos Lab:				DURHAM	DURHAM	DURHAM	
Determinand	Accred.	SOP	Units	LOD				
Naphthalene	M	2800	5	0.10	< 0.10	< 0.10	< 0.10	
Acenaphthylene	N		mg/kg	0.10	< 0.10	< 0.10	< 0.10	
Acenaphthene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	
Fluorene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	
Phenanthrene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	
Anthracene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	
Fluoranthene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	
Pyrene	М	2800	0 0	0.10	< 0.10	< 0.10	< 0.10	
Benzo[a]anthracene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	
Chrysene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	
Benzo[b]fluoranthene	M		mg/kg	0.10	< 0.10	< 0.10	< 0.10	
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	
Benzo[a]pyrene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	
Benzo[g,h,i]perylene	M		mg/kg	0.10	< 0.10	< 0.10	< 0.10	
Total Of 16 PAH's	N	2800	mg/kg	2.0	< 2.0	< 2.0	< 2.0	
PCB 81	N	2815	mg/kg	0.010				
PCB 77	U	2815	mg/kg	0.010				
PCB 105	N	2815	mg/kg	0.010				
PCB 114	N	2815	mg/kg	0.010				
PCB 118	N	2815	mg/kg	0.010				
PCB 123	N	2815	mg/kg	0.010				
PCB 126	N	2815	mg/kg	0.010				
PCB 156	N	2815	mg/kg	0.010				
PCB 157	N		mg/kg	0.010				
PCB 167	N		mg/kg	0.010				
PCB 169	N		mg/kg	0.010				
PCB 189	N		mg/kg	0.010				
Total PCBs (12 Congeners)	N		mg/kg	0.12				
Resorcinol	М		mg/kg	0.020	< 0.020	< 0.020	< 0.020	
Phenol	М	2920	mg/kg	0.020	< 0.020	< 0.020	< 0.020	
Cresols	М	2920	mg/kg	0.020	< 0.020	< 0.020	< 0.020	
Xylenols	М		mg/kg	0.020	< 0.020	< 0.020	< 0.020	
1-Naphthol	N		mg/kg	0.020	< 0.020	< 0.020	< 0.020	1
Trimethylphenols	M		mg/kg	0.020	< 0.020	< 0.020	< 0.020	i
Total Phenols	М	-	mg/kg	0.10	< 0.10	< 0.10	< 0.10	

Project: 24330 Halversown Naas Proj	osed Data Centre	Sites (DOBA)						
Chemtest Job No:	22-48580				Landfill Waste Acceptance Criteria			
Chemtest Sample ID:	1567078				Limits			
Sample Ref:	AA186953					Stable, Non-		
Sample ID:						reactive		
Sample Location:	TP03					hazardous	Hazardous	
Top Depth(m):	0.50				Inert Waste	waste in non-	Waste	
Bottom Depth(m):					Landfill	hazardous	Landfill	
Sampling Date:						Landfill		
Determinand	SOP	Accred.	Units					
Total Organic Carbon	2625	M	%	[A] 0.20	3	5	6	
Loss On Ignition	2610	М	%	1.7			10	
Total BTEX	2760	М	mg/kg	[A] < 0.010	6			
Total PCBs (7 Congeners)	2815	M	mg/kg	< 0.10	1			
TPH Total WAC	2670	М	mg/kg	[A] < 10	500			
Total (Of 17) PAH's	2700	N	mg/kg	< 2.0	100			
рН	2010	M		8.4		>6		
Acid Neutralisation Capacity	2015	N	mol/kg	0.035		To evaluate	To evaluate	
Eluate Analysis			10:1 Eluate	10:1 Eluate	Limit values	for compliance I	eaching test	
•			mg/l	mg/kg	using B	S EN 12457 at L/S	6 10 l/kg	
Arsenic	1455	U	0.0009	0.0093	0.5	2	25	
Barium	1455	U	< 0.005	< 0.050	20	100	300	
Cadmium	1455	U	< 0.00011	< 0.0011	0.04	1	5	
Chromium	1455	U	0.0010	0.010	0.5	10	70	
Copper	1455	U	0.0020	0.020	2	50	100	
Mercury	1455	U	< 0.00005	< 0.00050	0.01	0.2	2	
Molybdenum	1455	U	0.0009	0.0092	0.5	10	30	
Nickel	1455	U	0.0016	0.016	0.4	10	40	
Lead	1455	U	0.0010	0.0097	0.5	10	50	
Antimony	1455	U	< 0.0005	< 0.0050	0.06	0.7	5	
Selenium	1455	U	< 0.0005	< 0.0050	0.1	0.5	7	
Zinc	1455	U	0.032	0.32	4	50	200	
Chloride	1220	U	< 1.0	< 10	800	15000	25000	
Fluoride	1220	U	0.39	3.9	10	150	500	
Sulphate	1220	U	< 1.0	< 10	1000	20000	50000	
Total Dissolved Solids	1020	N	46	460	4000	60000	100000	
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-	
Dissolved Organic Carbon	1610	U	9.0	90	500	800	1000	

Solid Information						
Dry mass of test portion/kg	0.090					
Moisture (%)	13					

## **Waste Acceptance Criteria**

Project: 24330 Halversown Naas Proposed Data Centre Sites (DOBA)

Project: 24330 Haiversown Naas		Siles (DODA)			1	M4- A	- Oultout-
Chemtest Job No:	22-48580				Landfill Waste Acceptance Criteria		
Chemtest Sample ID:	1567083					Limits	
Sample Ref:	AA186975					Stable, Non-	
Sample ID:						reactive	
Sample Location:	TP09					hazardous	Hazardous
Top Depth(m):	0.50				Inert Waste	waste in non-	Waste
Bottom Depth(m):					Landfill	hazardous	Landfill
Sampling Date:						Landfill	
Determinand	SOP	Accred.	Units				
Total Organic Carbon	2625	M	%	[A] 0.26	3	5	6
Loss On Ignition	2610	M	%	1.7			10
Total BTEX	2760	M	mg/kg	[A] < 0.010	6		
Total PCBs (7 Congeners)	2815	M	mg/kg	< 0.10	1		
TPH Total WAC	2670	M	mg/kg	[A] < 10	500		
Total (Of 17) PAH's	2700	N	mg/kg	< 2.0	100		
pH	2010	M		8.5		>6	
Acid Neutralisation Capacity	2015	N	mol/kg	0.044		To evaluate	To evaluate
Eluate Analysis			10:1 Eluate	10:1 Eluate	Limit values	for compliance I	eaching test
_			mg/l	mg/kg	using B	S EN 12457 at L/S	S 10 I/kg
Arsenic	1455	U	0.0002	0.0023	0.5	2	25
Barium	1455	U	< 0.005	< 0.050	20	100	300
Cadmium	1455	U	< 0.00011	< 0.0011	0.04	1	5
Chromium	1455	U	< 0.0005	< 0.0050	0.5	10	70
Copper	1455	U	0.0011	0.011	2	50	100
Mercury	1455	U	< 0.00005	< 0.00050	0.01	0.2	2
Molybdenum	1455	U	0.0009	0.0094	0.5	10	30
Nickel	1455	U	0.0007	0.0072	0.4	10	40
Lead	1455	U	< 0.0005	< 0.0050	0.5	10	50
Antimony	1455	U	< 0.0005	< 0.0050	0.06	0.7	5
Selenium	1455	U	0.0007	0.0069	0.1	0.5	7
Zinc	1455	U	0.011	0.11	4	50	200
Chloride	1220	U	< 1.0	< 10	800	15000	25000
Fluoride	1220	U	0.69	6.9	10	150	500
Sulphate	1220	U	< 1.0	< 10	1000	20000	50000
Total Dissolved Solids	1020	N	62	620	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	4.8	< 50	500	800	1000

Solid Information						
Dry mass of test portion/kg	0.090					
Moisture (%)	14					

## **Waste Acceptance Criteria**

Project: 24330 Halversown Naas Proposed Data Centre Sites (DOBA)

Project: 24330 Halversown Naas		Sites (DOBA)					
Chemtest Job No:	22-48580		Landfill Waste Acceptance Criteria				
Chemtest Sample ID:	1567088				Limits		
Sample Ref:	AA185478					Stable, Non-	
Sample ID:						reactive	
Sample Location:	TP15					hazardous	Hazardous
Top Depth(m):	0.50				Inert Waste	waste in non-	Waste
Bottom Depth(m):					Landfill	hazardous	Landfill
Sampling Date:						Landfill	
Determinand	SOP	Accred.	Units				
Total Organic Carbon	2625	M	%	[A] 0.55	3	5	6
Loss On Ignition	2610	M	%	1.8			10
Total BTEX	2760	M	mg/kg	[A] < 0.010	6		
Total PCBs (7 Congeners)	2815	M	mg/kg	< 0.10	1		
TPH Total WAC	2670	M	mg/kg	[A] < 10	500		
Total (Of 17) PAH's	2700	N	mg/kg	< 2.0	100		
Hq	2010	M	, , ,	8.7		>6	
Acid Neutralisation Capacity	2015	N	mol/kg	0.20		To evaluate	To evaluate
Eluate Analysis	i i		10:1 Eluate	10:1 Eluate	Limit values	for compliance	eaching test
l			mg/l	mg/kg		S EN 12457 at L/S	
Arsenic	1455	U	< 0.0002	< 0.0020	0.5	2	25
Barium	1455	U	< 0.005	< 0.050	20	100	300
Cadmium	1455	U	< 0.00011	< 0.0011	0.04	1	5
Chromium	1455	U	< 0.0005	< 0.0050	0.5	10	70
Copper	1455	U	0.0012	0.012	2	50	100
Mercury	1455	U	< 0.00005	< 0.00050	0.01	0.2	2
Molybdenum	1455	U	0.0014	0.014	0.5	10	30
Nickel	1455	U	0.0007	0.0073	0.4	10	40
Lead	1455	U	< 0.0005	< 0.0050	0.5	10	50
Antimony	1455	U	< 0.0005	< 0.0050	0.06	0.7	5
Selenium	1455	U	< 0.0005	< 0.0050	0.1	0.5	7
Zinc	1455	U	0.019	0.19	4	50	200
Chloride	1220	U	< 1.0	< 10	800	15000	25000
Fluoride	1220	U	0.40	4.0	10	150	500
Sulphate	1220	U	< 1.0	< 10	1000	20000	50000
Total Dissolved Solids	1020	N	46	460	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	4.5	< 50	500	800	1000

Solid Information					
Dry mass of test portion/kg	0.090				
Moisture (%)	9.8				

## **Waste Acceptance Criteria**

Project: 24330 Halversown Naas Proposed Data Centre Sites (DOBA)

Project: 24330 Halversown Naas	Proposed Data Centre	Sites (DOBA)					
Chemtest Job No:	22-48580				Landfill Waste Acceptance Criteria		
Chemtest Sample ID:	1567095				Limits		
Sample Ref:	AA181975					Stable, Non-	
Sample ID:						reactive	
Sample Location:	TP26					hazardous	Hazardous
Top Depth(m):	0.50				Inert Waste	waste in non-	Waste
Bottom Depth(m):					Landfill	hazardous	Landfill
Sampling Date:						Landfill	
Determinand	SOP	Accred.	Units				
Total Organic Carbon	2625	M	%	[A] 0.63	3	5	6
Loss On Ignition	2610	M	%	2.9			10
Total BTEX	2760	M	mg/kg	[A] < 0.010	6		
Total PCBs (7 Congeners)	2815	M	mg/kg	< 0.10	1		
TPH Total WAC	2670	M	mg/kg	[A] < 10	500		
Total (Of 17) PAH's	2700	N	mg/kg	< 2.0	100		
pH	2010	М		8.4		>6	
Acid Neutralisation Capacity	2015	N	mol/kg	0.043		To evaluate	To evaluate
Eluate Analysis			10:1 Eluate	10:1 Eluate	Limit values for compliance leaching to		eaching test
			mg/l	mg/kg		S EN 12457 at L/S	
Arsenic	1455	U	0.0004	0.0039	0.5	2	25
Barium	1455	U	< 0.005	< 0.050	20	100	300
Cadmium	1455	U	< 0.00011	< 0.0011	0.04	1	5
Chromium	1455	U	< 0.0005	< 0.0050	0.5	10	70
Copper	1455	U	0.0019	0.019	2	50	100
Mercury	1455	U	< 0.00005	< 0.00050	0.01	0.2	2
Molybdenum	1455	U	0.0009	0.0090	0.5	10	30
Nickel	1455	U	0.0013	0.013	0.4	10	40
Lead	1455	U	0.0005	0.0051	0.5	10	50
Antimony	1455	U	< 0.0005	< 0.0050	0.06	0.7	5
Selenium	1455	U	< 0.0005	< 0.0050	0.1	0.5	7
Zinc	1455	U	0.028	0.28	4	50	200
Chloride	1220	U	< 1.0	< 10	800	15000	25000
Fluoride	1220	U	0.28	2.8	10	150	500
Sulphate	1220	U	< 1.0	< 10	1000	20000	50000
Total Dissolved Solids	1020	N	72	710	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	9.1	91	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	14

## **Waste Acceptance Criteria**

Project: 24330 Halversown Naas Proposed Data Centre Sites (DOBA)

Project: 24330 Halversown Naas		Sites (DOBA)					
Chemtest Job No:	22-48580				Landfill Waste Acceptance Criteria		
Chemtest Sample ID:	1567102				Limits		
Sample Ref:	AA181994					Stable, Non-	
Sample ID:						reactive	
Sample Location:	TP32					hazardous	Hazardous
Top Depth(m):	0.50				Inert Waste	waste in non-	Waste
Bottom Depth(m):					Landfill	hazardous	Landfill
Sampling Date:						Landfill	
Determinand	SOP	Accred.	Units				
Total Organic Carbon	2625	М	%	[A] 0.30	3	5	6
Loss On Ignition	2610	М	%	3.3			10
Total BTEX	2760	М	mg/kg	[A] < 0.010	6		
Total PCBs (7 Congeners)	2815	М	mg/kg	< 0.10	1		
TPH Total WAC	2670	М	mg/kg	[A] < 10	500		
Total (Of 17) PAH's	2700	N	mg/kg	< 2.0	100		
На	2010	М	J J	7.1		>6	
Acid Neutralisation Capacity	2015	N	mol/kg	0.038		To evaluate	To evaluate
Eluate Analysis			10:1 Eluate	10:1 Eluate	Limit values	for compliance l	eaching test
			mg/l	mg/kg		S EN 12457 at L/S	
Arsenic	1455	U	0.0006	0.0056	0.5	2	25
Barium	1455	U	< 0.005	< 0.050	20	100	300
Cadmium	1455	U	< 0.00011	< 0.0011	0.04	1	5
Chromium	1455	U	0.0010	0.0097	0.5	10	70
Copper	1455	U	0.0021	0.021	2	50	100
Mercury	1455	U	< 0.00005	< 0.00050	0.01	0.2	2
Molybdenum	1455	U	< 0.0002	< 0.0020	0.5	10	30
Nickel	1455	U	0.0027	0.027	0.4	10	40
Lead	1455	U	0.0010	0.010	0.5	10	50
Antimony	1455	U	< 0.0005	< 0.0050	0.06	0.7	5
Selenium	1455	U	< 0.0005	< 0.0050	0.1	0.5	7
Zinc	1455	U	0.041	0.41	4	50	200
Chloride	1220	U	1.2	12	800	15000	25000
Fluoride	1220	U	0.13	1.3	10	150	500
Sulphate	1220	U	< 1.0	< 10	1000	20000	50000
Total Dissolved Solids	1020	N	13	130	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	Ü	11	110	500	800	1000

Solid Information					
Dry mass of test portion/kg	0.090				
Moisture (%)	14				

## **Waste Acceptance Criteria**

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1567070	AA184690		BH03		А	Amber Glass 250ml
1567070	AA184690		BH03		А	Plastic Tub 500g
1567071	AA184693		BH04		А	Amber Glass 250ml
1567071	AA184693		BH04		А	Plastic Tub 500g
1567072	AA184669		BH06		А	Amber Glass 250ml
1567072	AA184669		BH06		А	Plastic Tub 500g
1567073	AA184668		BH08		А	Amber Glass 250ml
1567073	AA184668		BH08		А	Plastic Tub 500g
1567074	AA174678		BH10		А	Amber Glass 250ml
1567074	AA174678		BH10		А	Plastic Tub 500g
1567075	AA184675		BH12		А	Amber Glass 250ml
1567075	AA184675		BH12		А	Plastic Tub 500g
1567076	AA186957		TP01		А	Amber Glass 250ml
1567076	AA186957		TP01		А	Plastic Tub 500g
1567077	AA181997		TP02		А	Amber Glass 250ml
1567077	AA181997		TP02		А	Plastic Tub 500g
1567078	AA186953		TP03		А	Amber Glass 250ml
1567078	AA186953		TP03		А	Plastic Tub 500g
1567080	AA186979		TP06		А	Amber Glass 250ml
1567080	AA186979		TP06		А	Plastic Tub 500g
1567081	AA186963		TP07		А	Amber Glass 250ml
1567081	AA186963		TP07		А	Plastic Tub 500g

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1567083	AA186975		TP09		А	Amber Glass 250ml
1567083	AA186975		TP09		А	Plastic Tub 500g
1567084	AA186969		TP10		А	Amber Glass 250ml
1567084	AA186969		TP10		А	Plastic Tub 500g
1567085	AA185474		TP13		А	Amber Glass 250ml
1567085	AA185474		TP13		А	Plastic Tub 500g
1567086	AA185457		TP14		А	Amber Glass 250ml
1567086	AA185457		TP14		А	Plastic Tub 500g
1567087	AA185458		TP14		A	Amber Glass 250ml
1567087	AA185458		TP14		А	Plastic Tub 500g
1567088	AA185478		TP15		А	Amber Glass 250ml
1567088	AA185478		TP15		А	Plastic Tub 500g
1567090	AA185464		TP18		A	Amber Glass 250ml
1567090	AA185464		TP18		А	Plastic Tub 500g
1567091	AA185488		TP20		А	Amber Glass 250ml
1567091	AA185488		TP20		А	Plastic Tub 500g
1567092	AA185498		TP22		A	Amber Glass 250ml
1567092	AA185498		TP22		А	Plastic Tub 500g
1567093	AA181957		TP23		A	Amber Glass 250ml
1567093	AA181957		TP23		А	Plastic Tub 500g
1567095	AA181975		TP26		А	Amber Glass 250ml
1567095	AA181975		TP26		А	Plastic Tub 500g

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1567096	AA181976		TP26		А	Amber Glass 250ml
1567096	AA181976		TP26		А	Plastic Tub 500g
1567097	AA181972		TP27		А	Amber Glass 250ml
1567097	AA181972		TP27		А	Plastic Tub 500g
1567098	AA181969		TP28		А	Amber Glass 250ml
1567098	AA181969		TP28		А	Plastic Tub 500g
1567099	AA181966		TP29		А	Amber Glass 250ml
1567099	AA181966		TP29		А	Plastic Tub 500g
1567101	AA181992		TP31		А	Amber Glass 250ml
1567101	AA181992		TP31		А	Plastic Tub 500g
1567102	AA181994		TP32		А	Amber Glass 250ml
1567102	AA181994		TP32		А	Plastic Tub 500g
1567103	AA181995		TP32		А	Amber Glass 250ml
1567103	AA181995		TP32		А	Plastic Tub 500g
1567104	AA181989		TP33		A	Amber Glass 250ml
1567104	AA181989		TP33		А	Plastic Tub 500g
1567105	AA181987		TP34		А	Amber Glass 250ml
1567105	AA181987		TP34		А	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
2015	Acid Neutralisation Capacity	Acid Reserve	Titration
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
2175	Total Sulphur in Soils	Total Sulphur	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2180	Sulphur (Elemental) in Soils by HPLC	Sulphur	Dichloromethane extraction / HPLC with UV detection
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.
2455	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

# **Test Methods**

SOP	Title	Parameters included	Method summary
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	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-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
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.
2790	Semi-Volatile Organic Compounds (SVOCs) in Soils by GC-MS	Semi-volatile organic compounds(cf. USEPA Method 8270)	Acetone/Hexane extraction / GC-MS
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
2810	Polychlorinated Biphenyls (PCB) as Aroclors in Soils by GC-ECD	Polychlorinated Biphenyls expressed as an Aroclor (normally reported as *Aroclor 1242)	Extraction of a soil sample, as received, into hexane/acetone (50:50) followed by gas chromatography (GC) using mass spectrometric (MS) detection for identification of polychlorinated biphenyls and electron capture detection (ECD) for quanitation if present.
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1- Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge

#### Report Information

Key	
U	UKAS accredited
M	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
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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 UKAS accreditation

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: customerservices@chemtest.com



Eurofins Chemtest Ltd Depot Road Newmarket CB8 0AL Tel: 01638 606070

# Email: info@chemtest.com

# **Final Report**

**Report No.:** 22-48622-1

Initial Date of Issue: 05-Jan-2023

Client IGSL

Client Address: M7 Business Park

Naas

County Kildare

Ireland

Contact(s): Darren Keogh

Project 24330 Halversown Naas Proposed

Data Centre Sites ( DOBA )

Quotation No.: Q20-21693 Date Received: 20-Dec-2022

Order No.: Date Instructed: 20-Dec-2022

No. of Samples: 10

Turnaround (Wkdays): 7 Results Due: 04-Jan-2023

Date Approved: 05-Jan-2023

Approved By:

**Details:** Stuart Henderson, Technical

Manager

# Results - Soil

Project: 24330 Halversown Naas Proposed Data Centre Sites ( DOBA )

Client: IGSL		Che	ntest J	ob No.:	22-48622	22-48622	22-48622	22-48622	22-48622	22-48622	22-48622	22-48622	22-48622	22-48622
Quotation No.: Q20-21693	(	Chemte	st Sam	ple ID.:	1567189	1567190	1567191	1567192	1567193	1567194	1567196	1567197	1567198	1567199
Order No.:		Clie	nt Samp	le Ref.:	AA184687	AA184690	AA184670	AA184673	AA184679	AA184677	AA186982	AA185481	AA185468	AA181975
		Sa	mple Lo	ocation:	BH01	BH03	BH05	BH07	BH09	BH11	TP04	TP12	TP19	TP26
			Sampl	е Туре:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top De	pth (m):	1.00	1.00	1.00	1.00	1.00	1.00	0.60	0.50	0.50	0.50
Determinand	Accred.	SOP	Units	LOD										
Moisture	N	2030	%	0.020	14	13	10	28	14	21	16	11	9.3	17
pH (2.5:1)	N	2010		4.0	[A] 8.5	[A] 8.7	[A] 8.5	[A] 8.3	[A] 8.6	[A] 8.2	[A] 8.5	[A] 8.4	[A] 8.6	[A] 8.4
Magnesium (Water Soluble)	N	2120	g/l	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010
Total Sulphur	U	2175	%	0.010	[A] 0.032	[A] 0.051	[A] < 0.010	[A] 0.026	[A] < 0.010	[A] < 0.010	[A] 0.013	[A] 0.015	[A] 0.25	[A] 0.099
Chloride (Water Soluble)	U	2220	g/l	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010
Nitrate (Water Soluble)	N	2220	g/l	0.010	0.011	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Ammonium (Water Soluble)	U	2220	g/l	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Sulphate (Acid Soluble)	U	2430	%	0.010	[A] 0.11	[A] 0.024	[A] 0.037	[A] 0.074	[A] 0.024	[A] 0.036	[A] 0.026	[A] 0.015	[A] 0.019	[A] 0.030

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1567189	AA184687		BH01		А	Amber Glass 250ml
1567189	AA184687		BH01		А	Plastic Tub 500g
1567190	AA184690		BH03		А	Amber Glass 250ml
1567190	AA184690		BH03		А	Plastic Tub 500g
1567191	AA184670		BH05		А	Amber Glass 250ml
1567191	AA184670		BH05		А	Plastic Tub 500g
1567192	AA184673		BH07		А	Amber Glass 250ml
1567192	AA184673		BH07		А	Plastic Tub 500g
1567193	AA184679		BH09		А	Amber Glass 250ml
1567193	AA184679		ВН09		А	Plastic Tub 500g
1567194	AA184677		BH11		А	Amber Glass 250ml
1567194	AA184677		BH11		А	Plastic Tub 500g
1567196	AA186982		TP04		А	Amber Glass 250ml
1567196	AA186982		TP04		А	Plastic Tub 500g
1567197	AA185481		TP12		А	Amber Glass 250ml
1567197	AA185481		TP12		А	Plastic Tub 500g
1567198	AA185468		TP19		А	Amber Glass 250ml
1567198	AA185468		TP19		А	Plastic Tub 500g
1567199	AA181975		TP26		А	Amber Glass 250ml
1567199	AA181975		TP26		А	Plastic Tub 500g

# **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
2175	Total Sulphur in Soils	Total Sulphur	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2220	Water soluble Chloride in Soils	Chloride	Aqueous extraction and measuremernt by 'Aquakem 600' Discrete Analyser using ferric nitrate / mercuric thiocyanate.
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.

#### Report Information

Key	
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M	MCERTS and UKAS accredited
Ν	Unaccredited
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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: customerservices@chemtest.com



7 - 11 Harding Street

IGSL

Unit F

M7 Business Park

Naas

Analytical Test Report: L23/00718/IGS - 23-32082

Your Project Reference: 24330 Halverstown Naas

Your Order Number: 21187 Samples Received / Instructed: 15/02/2023 / 15/02/2023

Report Issue Number: 1 Sample Tested: 15/02 to 22/02/2023

Samples Analysed: 5 aggregate samples Report issued: 23/02/2023

Signed

14

James Gane

Analytical Services Manager

CTS Group

Notes:

#### General

Please refer to Methodologies page for details pertaining to the analytical methods undertaken.

Samples will be retained for 14 days after issue of this report unless otherwise requested.

Moisture Content was determined in accordance with CTS method statement MS - CL - Sample Prep, oven dried at <30°C.

Moisture Content is reported as a percentage of the dry mass of soil, this calculation is in accordance with BS1377, Part 2, 1990, Clause 3.2

Where specification limits are included these are for guidance only. Where a measured value has been highlighted this is not implying acceptance or failure and certainty of measurement values have

Uncertainty of measurement values are available on request.

Samples were supplied by customer, results apply to the samples as received.

#### **Deviating Samples**

On receipt samples are compared against our sample holding and handling protocols, where any deviations have been noted these are reported on our deviating sample page (if present)

#### Accreditation Key

 ${\sf UKAS = UKAS \ Accreditation, \ MCERTS = MCERTS \ Accreditation, \ u = Unaccredited}$ 

MCERTS Accreditation only covers the SAND, CLAY and LOAM matrices

Date of Issue: 23.09.2022

Issued by: J. Gane

Issue No: 1





Leicester

#### L23/00718/IGS - 23-32082

Project Reference - 24330 Halverstown Naas Analytical Test Results - Chemical Analysis

Lab Reference			279664	279665	279666	279667	279668
Client Sample ID			A22/7562	A22/7575	A22/7568	A22/7563	A22/7578
Material			Soil	Soil	Soil	Soil	Soil
Source/Client Reference			TP04@ 0.6m	TP026@ 0.5m	TP19 @ 0.5m	TP12@ 0.5m	TP31@ 0.5m
Sample Matrix			Sand	Sand	Sand	Sand	Sand
Determinant	Units	Accreditation					
Water soluble sulphate	(mg/l)	u	< 10	< 10	< 10	< 10	< 10
Acid Soluble Sulphate	(%)	u	0.07	0.06	0.05	0.05	0.20
Total Sulphur	(%)	UKAS	0.03	0.03	0.03	0.03	0.08
pH Value	pH Units	MCERTS	12.7	12.6	12.8	12.5	12.6







7 - 11 Harding Street Leicester LE1 4DH

## L23/00718/IGS - 23-32082

Project Reference - 24330 Halverstown Naas

## Sample Descriptions

						•	
Lab Reference	Client Sample ID	Material	Source/Client Reference	Description	Moisture Content (%)	Stone Content (%)	Passing 2mm test sieve (%)
279664	A22/7562	Soil	TP04@0.6m	Mottled brown very gravelly silty sand	-	-	40
279665	A22/7575	Soil	TP026@0.5m	Mottled brown very gravelly silty sand	-	-	57
279666	A22/7568	Soil	TP19@0.5m	Mottled brown very gravelly silty sand	-	-	52
279667	A22/7563	Soil	TP12@0.5m	Mottled brown very gravelly silty sand	-	-	61
279668	A22/7578	Soil	TP31@0.5m	Mottled brown very gravelly silty sand	-	-	55







7 - 11 Harding Street Leicester LE1 4DH

## L23/00718/IGS - 23-32082

Project Reference - 24330 Halverstown Naas

## **Sample Comments**

Lab Reference	Client Sample ID	Material	Source/Client Reference	Comments
279664	A22/7562	Soil	TP04@0.6m	
279665	A22/7575	Soil	TP026@0.5m	
279666	A22/7568	Soil	TP19@0.5m	
279667	A22/7563	Soil	TP12@0.5m	
279668	A22/7578	Soil	TP31@0.5m	





7 - 11 Harding Street Leicester LE1 4DH

## L23/00718/IGS - 23-32082

#### Project Reference - 24330 Halverstown Naas

## **Analysis Methodologies**

Test Code	Test Name / Reference	Sample condition for analysis	Sample Preperation	Test Details
ANIONSS	MS - CL - Anions by Aquakem (2:1Extract)	Oven dried	Passing 2mm test sieve	Determination of Anions (inc Sulphate, chloride etc.) in soils by Aquakem. Analysis is based on a 2:1 water to soil extraction ratio
PHS	MS - CL - pH in Soils	As received	Passing 10mm test sieve	Determination of pH in soils using a pH probe (using a 1:3 soil to water extraction)
ASSO4S	MS - CL - Acid Soluble Sulphate	Oven Dried	Passing 2mm test sieve	Determination of total sulphate in soils by acid extraction followed by ICP analysis
SAMPLEPREP	MS - CL - Sample Preparation	-	-	Preparation of samples (including determination of moisture content) to allow for subsequent analysis
1377TS-ELT	BS1377 Total Sulphur Content by HTC	Oven dried	BS1377 : Part 1 : 2016	Total Sulphur Content testing of Soil in accordance with BS 1377 : Part 3 : 2018 + A1 : 2021 Clause 7.10 (using Eltra CS-800 Analyser)







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LE1 4DF

#### L23/00718/IGS - 23-32082

#### Project Reference - 24330 Halverstown Naas

#### **Sample Deviations**

Deviations are listed below against each sample and associated test method, where deviation(s) are noted it means data may not be representative of the sample at the time of sampling and it is possible that results provided may be compromised.

#### Observations on receipt

- A No date of sampling provided
- C Received in inappropriate container
- H Contains headspace
- T Temperature on receipt exceeds storage temperature
- R Date of sampling to receipt insufficient to allow analysis to be completed without deviation, Please note this is only a deviation if 'X' is also recorded against the sample

#### Observations whist in laboratory

X - Exceeds sampling to extraction or analysis timescales

Lab Reference	Client Sample ID	Material	Source/Client Reference Test	Deviations
279664	A22/7562	Soil	TP04@0.6m	A
279665	A22/7575	Soil	TP026@0.5m	A
279666	A22/7568	Soil	TP19@0.5m	A
279667	A22/7563	Soil	TP12@0.5m	A
279668	A22/7578	Soil	TP31@0.5m	A

# Appendix 13

**Waste Characterisation Report (OCM)** 



T: 021 434 5366 E:admin@ocallaghanmoran.com www.ocallaghanmoran.com

#### **Waste Characterisation Assessment**

#### Lands at Halverstown

Naas

Co. Kildare

Prepared For: -

IGSL Limited
Unit F
M7 Business Park
Naas
County Kildare

Prepared By: -

O'Callaghan Moran & Associates Unit 15 Melbourne Business Park Model Farm Road Cork

February 2023

Registration/VAT Number: 8272844U

Project	Waste Characterisation: Halverstown, Naas, Co. Kildare					
Client	IGSL Limited					
Report No	Date	Status	Prepared By	Reviewed By		
230010101	15/02/2023	Final	Austin Hynes PGeo MSc	Sean Moran B.Sc. MSc		

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	2.2	Waste Classification	
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## **APPENDICES**

APPENDIX 1 - Trial Pit Logs

APPENDIX 2 - Laboratory Results

APPENDIX 3 - Waste Classification Report

#### 1 INTRODUCTION

IGSL Limited requested O'Callaghan Moran & Associates (OCM) to undertake a waste characterisation assessment of five (5 No.) samples of natural ground collected from five (5 No.) trial pits from lands at Halverstown, Naas, Co. Kildare.

## 1.1 Methodology

IGSL provided a description of the ground conditions and collected samples of the soils from the trial pit locations. The samples were analysed at an accredited laboratory and the results formed the basis for a waste classification assessment, which was undertaken by OCM in accordance with the Environmental Protection Agency (EPA) Guidelines on the Classification of Waste (2015).

#### 2 WASTE CLASSIFICATION ASSESSMENT

#### 2.1 Soil Sampling and Laboratory Analysis

#### 2.1.1 Site Investigation

The site investigation was completed by IGSL Limited in October 2022 and included the collection of five (5 No.) composite samples from five (5 No.) trial pits. The location of the samples is shown on Figure 2.1. The logs for the trial pits are in Appendix 1.

Each trial pit was installed in a separate field across the site area. There is topsoil at the surface of all trial pits to 0.30 mbgl. The subsurface of all trial pits comprises Natural Ground.

The subsurface of TP03 is composed of silty slight gravelly SAND to 0.80 mbgl. This is underlain by stiff, sandy gravelly SILT to 1.80 mbgl. Firm to stiff sandy gravelly CLAY was encountered between 1.80-2.20 mbgl.

At TP09, firm sandy gravelly SILT was encountered between 0.30-0.80 mbgl. This is underlain by firm, sandy gravelly SILT with cobble content to 1.60 mbgl. Silty sandy GRAVEL with cobble content was encountered to a depth of 2.40 mbgl.

TP15 is composed of firm, sandy gravelly SILT with cobble content to 1.00 mbgl. This is underlain by firm, sandy gravelly SILT to 1.70 mbgl. Soft to firm, sandy gravelly CLAY with cobble content was encountered between 1.70-2.80 mbgl.

The subsurface of TP26 comprises firm, sandy gravelly CLAY to 0.90 mbgl. Stiff, sandy gravelly CLAY with cobble content was encountered between 0.90-2.10 mbgl. This is underlain by firm to stiff, sandy gravelly CLAY with cobble content.

At TP32, firm, sandy gravelly CLAY was encountered to 0.80 mbgl. This is underlain by stiff, sandy gravelly CLAY with cobble content to 2.30 mbgl.

#### 2.1.2 Sample Collection

IGSL collected the samples and placed them in laboratory prepared containers that were stored in coolers prior to shipment to Chemtest Ltd.

#### 2.1.3 Laboratory Analysis

The samples were tested for metals (arsenic, barium, cadmium, chromium, copper, mercury, molybdenum, nickel, lead, antimony, selenium and zinc, total organic carbon (TOC), BTEX (benzene, toluene, ethylbenzene and xylene) aliphatic and aromatic hydrocarbons, polychlorinated biphenyls (PCB), mineral oil, polyaromatic hydrocarbons (PAH) and asbestos. Leachate generated from the samples was tested for arsenic, barium, cadmium, chromium, copper,

mercury, molybdenum, nickel, lead, antimony, selenium and zinc, chloride, fluoride, soluble sulphate, phenols, dissolved organic carbon (DOC), total dissolved solids (TDS).

This parameter range facilitates an assessment of the hazardous properties of the waste, and also allows a determination of appropriate off-site management options based on the Waste Acceptance Criteria (WAC) applied by landfill operators.

The analytical methods were all ISO/CEN approved and the method detection limits were below the relevant guidance/threshold values. The full laboratory report is in Appendix 2.





O'Callaghan Moran & Associates, Unit 15 Melbourne Business Park, Model Farm Road, Cork. Tel. (021) 4345366

Email: info@ocallaghanmoran.com

This drawing is the property of O'Callaghan Moran & Associates and shall not be used, reproduced or disclosed to anyone without the prior written permission of O'Callaghan Moran & Associates and shall be returned upon request.

Title:

Figure 2.1 Sample Location Plan

Legend

Client:

**IGSL Limited** 

#### 2.7 Waste Classification

The Haz Waste Online Classification Engine, developed in the UK by One Touch Data Ltd, was used to determine the waste classification. This tool was developed specifically to establish whether waste is non-hazardous or hazardous and has been approved for use in Ireland by the Environmental Protection Agency. The full Waste Classification Report is in Appendix 3 and the results are summarised in Table 2.1.

Table 2.1 Waste Classification

Sample No.	Depth	Classification	LoW Code			
TP3 0.5		Non-Hazardous	17 05 04			
TP9 0.5		Non-Hazardous	17 05 04			
TP15	0.5	Non-Hazardous	17 05 04			
TP26	0.5	Non-Hazardous	17 05 04			
TP32	0.5	Non-Hazardous	17 05 04			

Asbestos was not detected in any of the samples tested.

All samples are classified as non-hazardous and the appropriate List of Waste Code is 17 05 04 (Soil and Stone other than those mentioned in 17 05 03\*).

## 2.3 Waste Acceptance Criteria

The results of the WAC testing are presented in Table 2.2, which includes for comparative purposes the WAC for Inert, Non Hazardous and Hazardous Waste Landfills pursuant to Article 16 of the EU Landfill Directive 1999/31/EC Annex II which establishes criteria and procedures for the acceptance of waste at landfills.

The sample from TP26 marginally exceeds the inert WAC for Total Organic Carbon (TOC).

All other samples meet the inert WAC.

6 of 10

**Table 2.2 WAC Results** 

Parameter	Unit	TP3	TP9	TP15	TP26	TP32	Inert Landfill	Inert Landfill Increased Limits	Non- Hazardous Landfill	Hazardous Landfill
Depth	m	0.5	0.5	0.5	0.5	0.5				
Antimony	mg/kg	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	0.06	0.18	0.7	5
Arsenic	mg/kg	0.013	0.020	0.022	0.017	0.015	0.5	1.5	2	25
Barium	mg/kg	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	20	20	100	300
Cadmium	mg/kg	< 0.0011	< 0.0011	< 0.0011	< 0.0011	< 0.0011	0.04	0.04	1	5
Chromium	mg/kg	< 0.0050	0.015	0.010	< 0.0050	0.0074	0.5	0.5	10	70
Copper	mg/kg	0.024	0.022	0.020	0.016	0.010	2	2	50	100
Lead	mg/kg	< 0.0050	0.011	0.014	< 0.0050	< 0.0050	0.5	0.5	10	50
Molybdenum	mg/kg	0.0090	0.0041	0.0083	0.013	0.0062	0.5	1.5	10	30
Nickel	mg/kg	0.0050	0.016	0.012	0.0063	0.0058	0.4	0.4	10	40
Selenium	mg/kg	0.048	0.043	0.047	0.043	0.041	0.1	0.3	0.5	7
Zinc	mg/kg	0.12	0.10	0.081	0.076	0.041	4	4	50	200
Mercury	mg/kg	< 0.00050	< 0.00050	< 0.00050	< 0.00050	< 0.00050	0.01	0.01	0.2	2
Phenol	mg/kg	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	1	1	NE	NE
Fluoride	mg/kg	1.1	2.5	1.6	1.2	1.2	10	10	150	500
Chloride	mg/kg	13	< 10	< 10	< 10	< 10	800	2,400	15,000	25,000
Sulphate	mg/kg	28	13	< 10	< 10	< 10	1000*	3,000	20000*	50,000
DOC **	mg/kg	55	65	68	63	< 50	500	500	800	1,000
pH	pH units	8.7	8.6	8.7	8.4	8.9	NE	NE	NE	NE
TDS ***	mg/kg	640	300	390	540	420	4,000	12,000	60,000	100,000
TOC	%	0.23	0.29	< 0.20	3.2	0.9	3	6	NE	6
Benzene	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	6	6	NE	NE
Toluene	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	6	6	NE	NE
Ethylbenzene	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	6	6	NE	NE
m/p-Xylene	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	6	6	NE	NE
o-Xylene	mg/kg	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	6	6	NE	NE
PCB Total of 7	mg/kg	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	1	1	NE	NE
Total 17 PAH's	mg/kg	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	NE	100	NE	NE
Mineral Oil	mg/kg	< 10	< 10	< 10	< 10	< 10	500	500	NE	NE
Asbestos	% mass	NAD	NAD	NAD	NAD	NAD	NE	NE	NE	NE

#### NAD denotes No Asbestos Detected

PAH over 1mg/kg and Mineral Oil over 50 mg/kg exceeds limit at soil recovery site in Ireland

<sup>\*</sup> denotes sulphate level exceeding inert waste limit may be considered as complying if the TDS value does not exceed 6,000mg/kg at L/S = 101/kg.

<sup>\*\*</sup> denotes a higher limit may be accepted provided the DOC alternative values of 500mg/kg is achieved

<sup>\*\*\*</sup> denotes TDS. The values for TDS can be used to sulphate and chloride.

#### 2.4 Waste Management Options

All of the soils are suitable for retention on site for landscaping or similar purposes. However if the soils are removed from the site options for recovery or disposal are outlined in this section.

The EPA has issued guidance on acceptance criteria for a range of parameters for soil recovery sites. This includes;

- Metals (solid conc. not leachability) in soil and stone (including As, Cd, Cr, Cu, Hg, Ni, Pb, Zn);
- Total organic carbon in soil and stone;
- Total BTEX (benzene, toluene, ethylbenzene, xylenes) in soil and stone;
- Mineral oil in soil and stone;
- Polycyclic aromatic hydrocarbons (PAHs) in soil and stone;
- Polychlorinated Biphenyls (PCBs) in soil and stone;
- Asbestos fibres in soil and stone.

The guidance requires that soils from brownfield sites should not exceed the limits for the parameters specified in Table 2.3 and 2.4. For metals limits have been specified for a range of soil types nationally separated into six domain areas.

**Table 2.3 Soil Recovery Site Criteria** 

Parameter	<b>Limit for Soil Recovery Sites</b>		
Total BTEX	0.05 mg/kg		
Mineral Oil	50 mg/kg		
Total PAHs	1 mg/kg		
Total PCBs	0.05 mg/kg		

All samples which meet the Inert WAC meet the soil recovery criteria for BTEX, Mineral Oil, PAH's and PCB's.

The soil and stone cannot be sent to soil recovery sites if the trigger levels for a particular domain are exceeded. There is however some flexibility in applying the limits. A derogation applies where up to three parameters can exceed the limit for a sample provided the concentration in the samples is no more than 1.5 times the trigger level. The site which is subject to this investigation is located in Domain 2 and the trigger levels are listed in Table 2.4.

**Table 2.4 Soil Recovery Trigger Levels** 

		Domain 2 Trigger Level	1.5 times Trigger Level	
Arsenic	mg/kg	24.90	37.35	
Cadmium	mg/kg	3.28	4.92	
Chromium	mg/kg	50.30	75.45	
Copper	mg/kg	63.50	95.25	
Mercury	mg/kg	0.36	0.54	
Nickel	mg/kg	61.90	92.85	
Lead	mg/kg	86.10	129.15	
Zinc	mg/kg	197.00	295.5	

0 01

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All samples meet the soil recovery criteria for metal concentrations.

Waste management options are summarised on Table 2.5. All are subject to approval of the waste management facility operators. The sample from TP-26 marginally exceeded the TOC limit but the level exceedance is not considered to be significant and the sample is therefore considered to meet Class A for recovery purposes subject to approval of the facility operator. If it is not accepted then it must be sent to a facility that can accept Class B-1 material (inert waste increased limits). Class A material is suitable for soil recovery at permitted soil recovery sites.

**Table 2.5 Waste Management Options** 

are are trainingement options						
Sample No.	Depth	Classification	LoW Code	Category		
TP3	0.5	Non-Hazardous	17 05 04	А		
TP9	0.5	Non-Hazardous	17 05 04	Α		
TP15	0.5	Non-Hazardous	17 05 04	А		
TP26	0.5	Non-Hazardous	17 05 04	А		
TP32	0.5	Non-Hazardous	17 05 04	А		

A Meets Soil Recovery Criteria

#### 3 CONCLUSIONS AND RECOMMENDATIONS

## 3.1 Conclusions

## 3.1.1 Waste Classification

Asbestos was not detected in any of the samples tested.

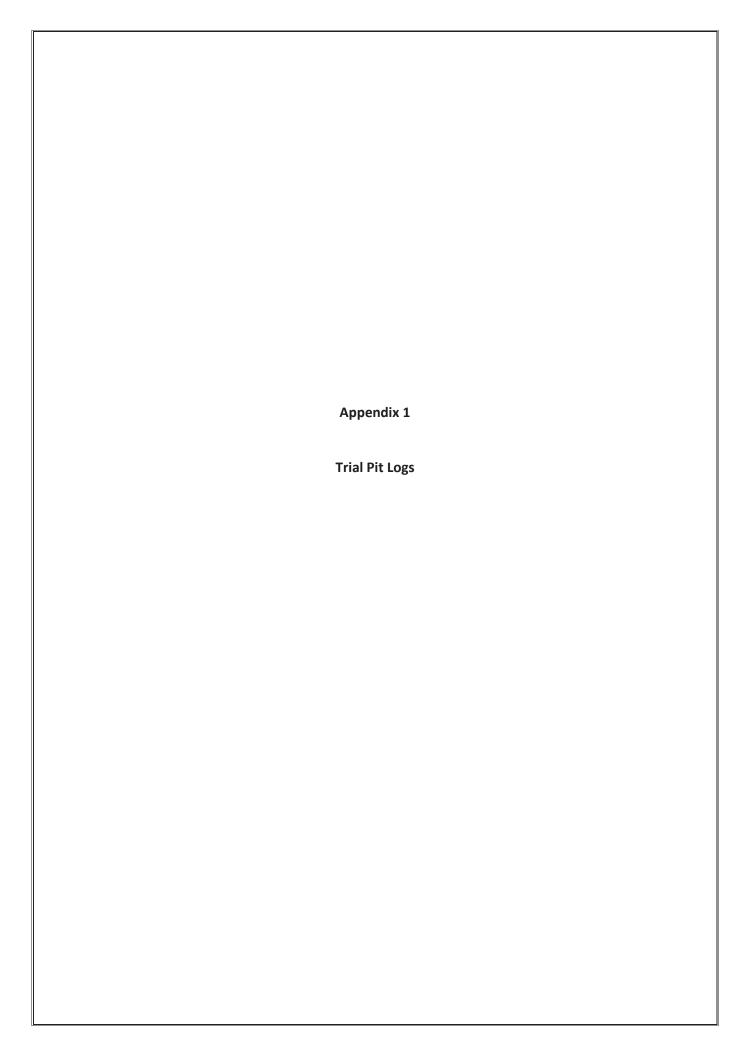
All samples are classified as non-hazardous and the appropriate List of Waste Code is 17 05 04 (Soil and Stone other than those mentioned in 17 05 03\*).

If the soils have to be removed from the site the recovery/disposal options are discussed in Section 2.4.

#### 3.2 Recommendations

OCM recommend that a copy of this report be provided in full to the relevant waste management facilities to which the made ground and subsoils will be consigned to confirm its suitability for acceptance.

February 2023





REPORT NUMBER

CON	ITRACT Halverstown						TRIAL PI SHEET	T NO.	TP0	3 t 1 of 1	
LOG	GED BY MB	CO-ORDINAT		719,68	28.56 E 33.63 N		DATE ST			)/2022 )/2022	
CLIE	INT INEER DOBA	GROUND LE	VEL (m)	80.45			EXCAVATION 7t Hita METHOD			achi	
								Samples	;		eter
	Geotechnical Description		Legend	Depth (m)	Elevation	Water Strike	Sample Ref	Туре	Depth	Vane Test (KPa)	Hand Penetrometer
0.0	TOPSOIL: Soft brown slightly gravelly sand is fine to coarse. Gravel is fine to medium:  Brownish grey slightly gravelly silty SAND. medium. Gravel is fine to coarse subangul subrounded.	\(\frac{1}{2}\frac{1}{	0.30	80.15		AA186953	В	0.50-0.60	39 31 34		
1.0	Stiff grey mottled orange sandy gravelly SI to medium. Gravel is fine to coarse subang subrounded.	LT. Sand is fine gular to	× × × × × × × × × × × × × × × × × × ×	0.80	79.65		AA186954	В	1.20-1.20		
2.0	Firm to stiff brown sandy gravelly clayey SI medium cobble content. Sand is fine to confine to coarse subrounded. Cobbles are sul rounded of limestone.	arse. Gravel is	* × × × × × × × × × × × × × × × × × × ×	1.80	78.65		AA186955	В	1.80-1.80		
	Brownish grey very gravelly silty SAND wit cobbles and ocassional boulders. Sand is Gravel is fine to coarse subangular to subrounded. Cobbles and boulders are subtrounded of limestone.	fine to medium.	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	2.20	78.25		AA186956	В	2.50-2.60		
3.0	End of Trial Pit at 2.90m		\$ \disp\(\frac{1}{2}\)	2.90	77.55						
<b>Grou</b> Ory	undwater Conditions										
<b>Stab</b> i Sligh	<b>ility</b> htly unstable from 2.20m										
	eral Remarks ootprint scanned using cable avoidance tool	[CAT]. Pit backfil	led with a	arisings.							



REPORT NUMBER

CON	TRACT Halverstown		TRIAL PI SHEET	T NO.	TP0: Shee	<b>9</b> t 1 of 1						
LOG	GED BY MB	CO-ORDINAT		719,5	74.81 E 46.61 N		DATE ST			)/2022 )/2022		
CLIE ENGI	nt Neer doba	GROUND LE	VEL (m)	79.66			EXCAVATION 7t Hitachi METHOD					
							:	Sample	S	(R		
	Geotechnical Description		Legend	Depth (m)	Elevation	Water Strike	Sample Ref	Туре	Depth	Vane Test (KPa)	Hand Penetrometer	
0.0	TOPSOIL: Soft brown slightly gravelly sandy is fine to coarse. Gravel is fine to medium suffirm grey mottled orange sandy gravelly SIL sand lenses. Sand is fine to coarse. Gravel	ubrounded.  T with silty	\(\frac{1}{2}\frac{1}{	0.30	79.36					40 38		
1.0	coarse subrounded.  Firm greyish brown sandy gravelly clayey SI cobble content. Sand is fine to coarse. Grav coarse subrounded.Cobbles are subrounded.	el is fine to	× × × × × × × × × × × × × × × × × × ×	0.80	78.86		AA186975	В	0.50-0.60	46 60 63 67		
	of limestone.		× × × × × × × × × × × × × × × × × × ×	1.60	78.06		AA186976	В	1.20-1.30			
2.0	Brown silty sandy GRAVEL with a medium of content. Sand is fine to coarse. Gravel is fine subrounded.Cobbles are subrounded to rou limestone.  Side wall collapse at 1.60m	e to coarse			78.06		AA186977	В	1.90-2.00			
	Firm dark grey very sandy gravelly clayey SI medium cobble content. Sand is fine to coar fine to coarse subrounded.Cobbles are subrounded of limestone. (Recovered wet)	ILT with a rse. Gravel is rounded to	× × × × × × × × × × × × × × × × × × ×	2.40	77.26	(Seepage).	AA186978	В	2.50-2.60			
3.0	End of Trial Pit at 3.00m		×·_×	3.00	76.66							
	ndwater Conditions age at 2.50m			I								
<b>Stabi</b> Unsta	lity able, side wall collapse from 1.60m											
	oral Remarks otprint scanned using cable avoidance tool [C	CAT]. Pit backfil	led with a	arisings.								



REPORT NUMBER

CON	TRACT Halverstown						TRIAL PI	T NO.	TP1: Shee	<b>5</b> t 1 of 1	
.og	GED BY MB	CO-ORDINAT		719,53	14.04 E 38.61 N		DATE STARTED         04/10/2022           DATE COMPLETED         04/10/2022				
LIE	NT NEER DOBA	GROUND LEV	/EL (m)	80.39			EXCAVATION 7t Hitachi METHOD				
	NEET BOOK	l					5	Samples	6	(F	neter
	Geotechnical Description		Legend	Depth (m)	Elevation	Water Strike	Sample Ref	Туре	Depth	Vane Test (KPa)	Hand Penetrometer
0.0	TOPSOIL: Soft brown gravelly sandy CLAY Sand is fine to coarse. Gravel is fine to med subrounded.  Firm greyish brown sandy gravelly slightly cl with a low coblle content. Sand is fine to coafine to coarse subrounded. Cobbles are subrounded of limestone	elly slightly clayey SILT is fine to coarse. Gravel is			80.09		AA185478	В	0.50-0.50		
1.0	Firm greyish brown sandy gravelly SILT. Sal coarse. Gravel is fine to coarse subrounded subrounded to rounded of limestone	nd is fine to . Cobbles are	× × × × × × × × × × × × × × × × × × ×	1.00	79.39		AA185479	В	1.50-1.50		
2.0	Firm rarely soft to firm brown slightly sandy of CLAY with a low cobble content with pocket yellow sand from 2.50m. Gravel is fine to co subrounded. Cobbles are subrounded to rou limestone Side wall collapse from 2.0m to 2.50m	s of coarse arse	x x x x x x x x x x x x x x x x x x x	1.70	78.69		AA185480	В	2.30-2.30		
3.0	End of Trial Pit at 2.80m		×	2.80	77.59						
Grou Dry	indwater Conditions		1								
<b>Stabi</b> Sligh	ility tly unstable, side wall collapse at 2.0m										
	eral Remarks ootprint scanned using cable avoidance tool [0	CAT]. Pit backfill	ed with a	arisings.							



REPORT NUMBER

O.	337									500		
CON	TRACT Halverstown						TRIAL PI	T NO.	TP2			
_og	GED BY MB	CO-ORDINAT	ES		11.58 E 26.52 N		DATE ST					
		GROUND LEVEL (m) 83.00				DATE CO		7t Hit				
CLIE ENGI	NI NEER DOBA						METHOD		7(1110	acm		
							5	Sample	s	a)	neter	
	Geotechnical Description		Legend	Depth (m)	Elevation	Water Strike	Sample Ref	Туре	Depth	Vane Test (KPa)	Hand Penetrometer (KPa)	
0.0	TOPSOIL: Soft brown gravelly sandy silty Clifine to coarse. Gravel is fine to medium sub-	LAY. Sand is rounded.	1/ 2/ 1/ 1/									
			11/2 11/2	0.30	82.70					38		
	Firm brown sandy gravelly silty CLAY with ro Sand is fine to coarse. Gravel is fine to coar	oot hairs. se subangular	×>							46 42		
	to subrounded.		O	5			AA181975	В	0.50-0.60	66 73		
			- X							68		
	Stiff brown very sandy very gravelly silty CL	ΔV with a	×	0.90	82.10							
.0	Stiff brown very sandy very gravelly silty CL/ medium cobble content and ocassional bou fine to coarse. Gravel is fine to coarse	lders. Sand is										
	subrounded.Cobbles and boulders are subrrounded of limestone.	ounded to	2									
	Tourided of limestone.		∞ _×				AA181976	В	1.30-1.40			
			7									
			<u>~</u>									
	Boulder at 1.80m (up to 400mm)											
0												
	Firm to stiff brown sandy very gravelly silty Clow cobble content. Sand is fine to coarse. C	CLAY with a	-XO	2.10	80.90							
	to coarse subrounded. Cobbles are subroun- rounded of limestone.											
	Tourided of lifflestorie.		X				AA181978	В	2.40-2.50			
			<u>×</u>	2.70	80.30							
	End of Trial Pit at 2.70m											
.0												
·U												
<b>irou</b> Ory	ndwater Conditions											
Stab	ility											
3000												
	eral Remarks otprint scanned using cable avoidance tool [C	CATL Pit backfil	led with	arisinas								
10	out Southing doing subject avoidance tool [C		.50 111111	ioigo.								



REPORT NUMBER

03	331/								24.	330			
CON	TRACT Halverstown						TRIAL PI	T NO.	TP3				
l OG	GED BY MB	CO-ORDINA	TES	686,0	84.15 E 79.36 N		DATE ST	ARTED					
	CLD D1 WID	GROUND LE	VEL (m)	83.16			DATE COMPLETED 17/10/202						
CLIE ENGI	INT INEER DOBA	GROOND	VEL (III)	00.10			METHOD		7t Hit	tachi	hi		
								Sample	s	a)	neter		
	Geotechnical Description					ē e				t (KP	etror		
	'		Legend	Depth (m)	Elevation	Water Strike	Sample Ref	Туре	Depth	Vane Test (KPa)	Hand Penetrometer		
0.0	TOPSOIL: Soft brown gravelly sandy CLAY Sand is fine to coarse. Gravel is fine to med subrounded.	with roolets. lium	1/ 2/1/2 1/2 1/ 2/1/2 1/2							25			
	Firm brown very sandy slightly gravelly silty is fine to coarse. Gravel is fine to coarse	CLAY. Sand	<u> </u>	0.30	82.86					34 29			
	subrounded.Cobbles are subrounded to rou limestone.	inded of		5			AA181994	В	0.50-0.60	50 56			
			X	0.80	82.36					58			
	Stiff brown very sandy slightly silty gravelly of medium cobble content. Sand is fine to coars fine to coarse subrounded. Cobbles are sub-	CLAY with a se. Gravel is	<u> </u>										
1.0	rounded of limestone.	ordanaea to											
						AA181995	В	1.40-1.50					
		× - ×											
			× · · ·										
.0			<u> </u>										
				2.30	80.86								
	Stiff greyish brown sandy gravelly clayey SII medium cobble content and occassional bo	ulders. Sand	* 0×	2.30	80.86								
	is fine to coarse. Gravel is fine to coarse sul Cobbles and boulders are subrounded to ro limestone.		× 0 × 9				AA181996	В	2.50-2.60				
	End of Trial Pit at 2.30m		~~~	2.80	80.36								
3.0													
200	ındwater Conditions												
Dry	individes Conditions												
Stab Good													
	eral Remarks												
Pit fo	ootprint scanned using cable avoidance tool [C	CAT]. Pit backfi	illed with a	arisings.									





Eurofins Chemtest Ltd Depot Road Newmarket CB8 0AL Tel: 01638 606070

## Email: info@chemtest.com

## **Final Report**

**Report No.:** 23-02702-1

Initial Date of Issue: 13-Feb-2023

Client IGSL

Client Address: M7 Business Park

Naas

County Kildare

Ireland

Contact(s): Darren Keogh

Project Halverstown

Quotation No.: Q20-19951 Date Received: 30-Jan-2023

Order No.: Date Instructed: 30-Jan-2023

No. of Samples: 5

Turnaround (Wkdays): 7 Results Due: 07-Feb-2023

Date Approved: 13-Feb-2023

Approved By:

**Details:** Stuart Henderson, Technical

Manager

## Results - Leachate

#### Project: Halverstown

Client: IGSL	Chemtest Job No.:				23-02702	23-02702	23-02702	23-02702	23-02702	
Quotation No.: Q20-19951		Chemtest Sample ID.:		1580840	1580841	1580842	1580843	1580844		
	Client Sample ID.:				TP3	TP9	TP15	TP26	TP32	
	Sample Type:				SOIL	SOIL	SOIL	SOIL	SOIL	
		Top Depth (m):				0.5	0.5	0.5	0.5	0.5
Determinand	Accred.	SOP	Type	Units	LOD					
рН	U	1010	10:1		N/A	7.2	7.5	7.8	7.9	8.2
Ammonium	U	1220	10:1	mg/l	0.050	0.077	< 0.050	0.073	0.095	0.11
Ammonium	N	1220	10:1	mg/kg	0.10	0.78	1.1	0.76	1.0	1.2
Boron (Dissolved)	U	1455	10:1	mg/kg	0.01	< 0.01	< 0.01	< 0.01	0.11	< 0.01
Benzo[j]fluoranthene	N	1800	10:1	μg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010

## Results - Soil

#### Project: Halverstown

Client: IGSL		Ch	omtost	Job No.:	23-02702	23-02702	23-02702	23-02702	23-02702
Quotation No.: Q20-19951				nple ID.:	1580840	1580841	1580842	1580843	1580844
Quotation No Q20-19951	+			nple ID.:	TP3	TP9	TP15	TP26	TP32
	+			ole Type:	SOIL	SOIL	SOIL	SOIL	SOIL
	+			epth (m):	0.5	0.5	0.5	0.5	0.5
				stos Lab:	NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB
D-4	A	000			NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB
Determinand ACM Tyme	Accred.	SOP	Units	LOD N/A					
ACM Type	U	2192		IN/A	- N- A-b	- N- A-b	- N- A-b4	- N- A-b4	- N - A 4
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Moisture	N	2030	%	0.020	13	16	9.8	27	13
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40	[A] < 0.40	[A] < 0.40	[A] < 0.40	[A] < 0.40	[A] < 0.40
Sulphur (Elemental)	U	2180	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Cyanide (Total)	U	2300	mg/kg	0.50	[A] < 0.50	[A] < 0.50	[A] < 0.50	[A] < 0.50	[A] < 0.50
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50	[A] 3.9	[A] 2.4	[A] 7.5	[A] 6.4	[A] 5.5
Sulphate (Acid Soluble)	U	2430	%	0.010	[A] 0.024	[A] 0.015	[A] 0.027	[A] 0.030	[A] 0.031
Arsenic	U	2455	mg/kg	0.5	7.1	7.3	9.7	7.4	9.7
Barium	U	2455	mg/kg	0	42	66	69	42	49
Cadmium	U	2455	mg/kg	0.10	1.9	1.7	1.9	1.3	2.2
Chromium	U	2455	mg/kg	0.5	14	19	19	16	20
Molybdenum	U	2455	mg/kg	0.5	0.7	< 0.5	1.0	0.6	1.6
Antimony	N	2455	mg/kg	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Copper	U	2455	mg/kg	0.50	13	16	17	14	17
Mercury	U	2455	mg/kg	0.05	0.08	0.07	0.07	0.07	0.10
Nickel	U	2455	mg/kg	0.50	32	34	37	28	37
Lead	U	2455	mg/kg	0.50	36	28	29	30	47
Selenium	U	2455	mg/kg	0.25	0.57	0.65	0.77	0.59	0.90
Zinc	U	2455	mg/kg	0.50	120	93	120	81	130
Chromium (Trivalent)	N	2490	mg/kg	1.0	14	19	19	16	20
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Mineral Oil (TPH Calculation)	N	2670	mg/kg	10	< 10	< 10	< 10	< 10	< 10
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aliphatic TPH >C8-C10	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aliphatic TPH >C10-C12	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aliphatic TPH >C12-C16	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aliphatic TPH >C16-C21	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aliphatic TPH >C21-C35	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aromatic TPH >C8-C10	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aromatic TPH >C10-C12	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aromatic TPH >C12-C16	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aromatic TPH >C16-C21	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Aromatic TPH >C21-C35	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0

## Results - Soil

#### Project: Halverstown

Client: IGSL		Ch	emtest .	Job No.:	23-02702	23-02702	23-02702	23-02702	23-02702
Quotation No.: Q20-19951		Chem	test Sar	nple ID.:	1580840	1580841	1580842	1580843	1580844
		С	lient Sa	mple ID.:	TP3	TP9	TP15	TP26	TP32
			Samp	ole Type:	SOIL	SOIL	SOIL	SOIL	SOIL
			Top D	epth (m):	0.5	0.5	0.5	0.5	0.5
			Asbes	stos Lab:	NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB
Determinand	Accred.	SOP	Units	LOD					
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0	[A] < 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	[A] < 10				
Benzene	U	2760	μg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Toluene	U	2760	μg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Ethylbenzene	U	2760	μg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
m & p-Xylene	U	2760	μg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
o-Xylene	U	2760	μg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Methyl Tert-Butyl Ether	U	2760	μg/kg	1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0	[A] < 1.0
Naphthalene	N	2800	mg/kg	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010
Acenaphthylene	N	2800	mg/kg	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010
Acenaphthene	N	2800	mg/kg	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010
Fluorene	N	2800	mg/kg	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010
Phenanthrene	N	2800	mg/kg	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010
Anthracene	N	2800	mg/kg	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010
Fluoranthene	N	2800	mg/kg	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010
Pyrene	N	2800	mg/kg	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010
Benzo[a]anthracene	N	2800	mg/kg	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010
Chrysene	N	2800	mg/kg	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010
Benzo[b]fluoranthene	N	2800	mg/kg	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010
Benzo[k]fluoranthene	N	2800	mg/kg	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010
Benzo[a]pyrene	N	2800	mg/kg	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010
Indeno(1,2,3-c,d)Pyrene	N	2800	mg/kg	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010
Benzo[g,h,i]perylene	N	2800	mg/kg	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010
Coronene	N	2800	mg/kg	0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010	[A] < 0.010
Total Of 17 PAH's	N	2800	mg/kg	0.20	[A] < 0.20	[A] < 0.20	[A] < 0.20	[A] < 0.20	[A] < 0.20
PCB 28	N	2815	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010
PCB 52	N	2815	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010
PCB 90+101	N	2815		0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010
PCB 118	N	2815	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010
PCB 153	N	2815	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010
PCB 138	N	2815	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010
PCB 180	N	2815	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010
Total PCBs (7 congeners)	N	2815	mg/kg	0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010	[A] < 0.0010
Total Phenols	U	2920	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

Pro	ject:	Halv	ersto/	wn

Project: Halverstown							
Chemtest Job No:	23-02702				Landfill V	Vaste Acceptanc	e Criteria
Chemtest Sample ID:	1580840					Limits	
Sample Ref:						Stable, Non-	
Sample ID:	TP3					reactive	
Sample Location:						hazardous	Hazardous
Top Depth(m):	0.5				Inert Waste	waste in non-	Waste
Bottom Depth(m):					Landfill	hazardous	Landfill
Sampling Date:						Landfill	
Determinand	SOP	Accred.	Units				
Total Organic Carbon	2625	U	%	[A] 0.23	3	5	6
Loss On Ignition	2610	U	%	1.3			10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6		
Total PCBs (7 congeners)	2815	N	mg/kg	[A] < 0.0010	1		
TPH Total WAC	2670	U	mg/kg	[A] < 10	500		
Total Of 17 PAH's	2800	N	mg/kg	[A] < 0.20	100		
рН	2010	U		8.7		>6	
Acid Neutralisation Capacity	2015	N	mol/kg	0.10		To evaluate	To evaluate
Eluate Analysis			10:1 Eluate	10:1 Eluate	Limit values	eaching test	
1			mg/l	mg/kg	using BS EN 12457 at L/S 10 l/kg		
Arsenic	1455	U	0.0013	0.013	0.5	2	25
Barium	1455	U	< 0.005	< 0.050	20	100	300
Cadmium	1455	U	< 0.00011	< 0.0011	0.04	1	5
Chromium	1455	U	< 0.0005	< 0.0050	0.5	10	70
Copper	1455	U	0.0024	0.024	2	50	100
Mercury	1455	U	< 0.00005	< 0.00050	0.01	0.2	2
Molybdenum	1455	U	0.0009	0.0090	0.5	10	30
Nickel	1455	U	0.0005	0.0050	0.4	10	40
Lead	1455	U	< 0.0005	< 0.0050	0.5	10	50
Antimony	1455	U	< 0.0005	< 0.0050	0.06	0.7	5
Selenium	1455	U	0.0048	0.048	0.1	0.5	7
Zinc	1455	U	0.012	0.12	4	50	200
Chloride	1220	U	1.3	13	800	15000	25000
Fluoride	1220	U	0.11	1.1	10	150	500
Sulphate	1220	U	2.8	28	1000	20000	50000
Total Dissolved Solids	1020	N	64	640	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	13

#### **Waste Acceptance Criteria**

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Pro	ect:	Hal	vers	town

Project: Halverstown								
Chemtest Job No:	23-02702				Landfill Waste Acceptance Criteria			
Chemtest Sample ID:	1580841			Limits				
Sample Ref:						Stable, Non-		
Sample ID:	TP9					reactive		
Sample Location:						hazardous	Hazardous	
Top Depth(m):	0.5				Inert Waste	waste in non-	Waste	
Bottom Depth(m):					Landfill	hazardous	Landfill	
Sampling Date:						Landfill		
Determinand	SOP	Accred.	Units					
Total Organic Carbon	2625	U	%	[A] 0.29	3	5	6	
Loss On Ignition	2610	U	%	1.7			10	
Total BTEX	2760	U	mg/kg	[A] < 0.010	6			
Total PCBs (7 congeners)	2815	N	mg/kg	[A] < 0.0010	1			
TPH Total WAC	2670	U	mg/kg	[A] < 10	500			
Total Of 17 PAH's	2800	N	mg/kg	[A] < 0.20	100			
рН	2010	U		8.6		>6		
Acid Neutralisation Capacity	2015	N	mol/kg	0.026		To evaluate	To evaluate	
Eluate Analysis			10:1 Eluate	10:1 Eluate	Limit values	for compliance I	eaching test	
			mg/l	mg/kg	using B	S EN 12457 at L/S	3 10 l/kg	
Arsenic	1455	U	0.0020	0.020	0.5	2	25	
Barium	1455	U	< 0.005	< 0.050	20	100	300	
Cadmium	1455	U	< 0.00011	< 0.0011	0.04	1	5	
Chromium	1455	U	0.0015	0.015	0.5	10	70	
Copper	1455	U	0.0022	0.022	2	50	100	
Mercury	1455	U	< 0.00005	< 0.00050	0.01	0.2	2	
Molybdenum	1455	U	0.0004	0.0041	0.5	10	30	
Nickel	1455	U	0.0016	0.016	0.4	10	40	
Lead	1455	U	0.0011	0.011	0.5	10	50	
Antimony	1455	U	< 0.0005	< 0.0050	0.06	0.7	5	
Selenium	1455	U	0.0044	0.043	0.1	0.5	7	
Zinc	1455	U	0.010	0.10	4	50	200	
Chloride	1220	U	< 1.0	< 10	800	15000	25000	
Fluoride	1220	U	0.25	2.5	10	150	500	
Sulphate	1220	U	1.3	13	1000	20000	50000	
Total Dissolved Solids	1020	N	30	300	4000	60000	100000	
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-	

Solid Information					
Dry mass of test portion/kg	0.090				
Moisture (%)	16				

#### **Waste Acceptance Criteria**

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Pro	ect:	Hal	vers	town

Project: Halverstown								
Chemtest Job No:	23-02702				Landfill Waste Acceptance Criteria			
Chemtest Sample ID:	1580842			Limits				
Sample Ref:						Stable, Non-		
Sample ID:	TP15					reactive		
Sample Location:						hazardous	Hazardous	
Top Depth(m):	0.5				Inert Waste	waste in non-	Waste	
Bottom Depth(m):					Landfill	hazardous	Landfill	
Sampling Date:						Landfill		
Determinand	SOP	Accred.	Units					
Total Organic Carbon	2625	U	%	[A] < 0.20	3	5	6	
Loss On Ignition	2610	U	%	2.0			10	
Total BTEX	2760	U	mg/kg	[A] < 0.010	6			
Total PCBs (7 congeners)	2815	N	mg/kg	[A] < 0.0010	1			
TPH Total WAC	2670	U	mg/kg	[A] < 10	500			
Total Of 17 PAH's	2800	N	mg/kg	[A] < 0.20	100			
рН	2010	U		8.7		>6		
Acid Neutralisation Capacity	2015	N	mol/kg	0.12		To evaluate	To evaluate	
Eluate Analysis			10:1 Eluate	10:1 Eluate	Limit values for compliance leaching		eaching test	
			mg/l	mg/kg	using B	S EN 12457 at L/S	3 10 l/kg	
Arsenic	1455	U	0.0022	0.022	0.5	2	25	
Barium	1455	U	< 0.005	< 0.050	20	100	300	
Cadmium	1455	U	< 0.00011	< 0.0011	0.04	1	5	
Chromium	1455	U	0.0010	0.010	0.5	10	70	
Copper	1455	U	0.0020	0.020	2	50	100	
Mercury	1455	U	< 0.00005	< 0.00050	0.01	0.2	2	
Molybdenum	1455	U	0.0008	0.0083	0.5	10	30	
Nickel	1455	U	0.0012	0.012	0.4	10	40	
Lead	1455	U	0.0014	0.014	0.5	10	50	
Antimony	1455	U	< 0.0005	< 0.0050	0.06	0.7	5	
Selenium	1455	U	0.0047	0.047	0.1	0.5	7	
Zinc	1455	U	0.008	0.081	4	50	200	
Chloride	1220	U	< 1.0	< 10	800	15000	25000	
Fluoride	1220	U	0.16	1.6	10	150	500	
Sulphate	1220	U	< 1.0	< 10	1000	20000	50000	
Total Dissolved Solids	1020	N	39	390	4000	60000	100000	
Phenol Index	1920	U	< 0.030	< 0.30	1	-		
Dissolved Organic Carbon	1610	U	6.8	68	500	800	1000	

Solid Information					
Dry mass of test portion/kg	0.090				
Moisture (%)	9.8				

#### **Waste Acceptance Criteria**

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Pro	ject:	Hal	lvers	ito	wn

Project. Haiverstown				_			
Chemtest Job No:	23-02702			Landfill Waste Acceptance Criteria			
Chemtest Sample ID:	1580843				Limits		
Sample Ref:						Stable, Non-	
Sample ID:	TP26					reactive	
Sample Location:						hazardous	Hazardous
Top Depth(m):	0.5				Inert Waste	waste in non-	Waste
Bottom Depth(m):					Landfill	hazardous	Landfill
Sampling Date:						Landfill	
Determinand	SOP	Accred.	Units				
Total Organic Carbon	2625	U	%	[A] 3.2	3	5	6
Loss On Ignition	2610	U	%	3.0	-		10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6		
Total PCBs (7 congeners)	2815	N	mg/kg	[A] < 0.0010	1		
TPH Total WAC	2670	U	mg/kg	[A] < 10	500		
Total Of 17 PAH's	2800	N	mg/kg	[A] < 0.20	100		
pH	2010	U		8.4	-	>6	
Acid Neutralisation Capacity	2015	N	mol/kg	0.028		To evaluate	To evaluate
Eluate Analysis			10:1 Eluate	10:1 Eluate	Limit values for compliance leaching to		eaching test
-			mg/l	mg/kg	using B	S EN 12457 at L/S	6 10 l/kg
Arsenic	1455	U	0.0017	0.017	0.5	2	25
Barium	1455	U	< 0.005	< 0.050	20	100	300
Cadmium	1455	U	< 0.00011	< 0.0011	0.04	1	5
Chromium	1455	U	< 0.0005	< 0.0050	0.5	10	70
Copper	1455	U	0.0016	0.016	2	50	100
Mercury	1455	U	< 0.00005	< 0.00050	0.01	0.2	2
Molybdenum	1455	U	0.0013	0.013	0.5	10	30
Nickel	1455	U	0.0006	0.0063	0.4	10	40
Lead	1455	U	< 0.0005	< 0.0050	0.5	10	50
Antimony	1455	U	< 0.0005	< 0.0050	0.06	0.7	5
Selenium	1455	U	0.0044	0.043	0.1	0.5	7
Zinc	1455	U	0.008	0.076	4	50	200
Chloride	1220	U	< 1.0	< 10	800	15000	25000
Fluoride	1220	U	0.12	1.2	10	150	500
Sulphate	1220	U	< 1.0	< 10	1000	20000	50000
Total Dissolved Solids	1020	N	55	540	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	6.3	63	500	800	1000

Solid Information					
Dry mass of test portion/kg	0.090				
Moisture (%)	27				

#### **Waste Acceptance Criteria**

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Proj	ect:	на	lvei	rsto	wn

Project: Halverstown								
Chemtest Job No:	23-02702				Landfill Waste Acceptance Criteria			
Chemtest Sample ID:	1580844			Limits				
Sample Ref:						Stable, Non-		
Sample ID:	TP32					reactive		
Sample Location:						hazardous	Hazardous	
Top Depth(m):	0.5				Inert Waste	waste in non-	Waste	
Bottom Depth(m):					Landfill	hazardous	Landfill	
Sampling Date:						Landfill		
Determinand	SOP	Accred.	Units					
Total Organic Carbon	2625	U	%	[A] 0.90	3	5	6	
Loss On Ignition	2610	U	%	1.8			10	
Total BTEX	2760	U	mg/kg	[A] < 0.010	6			
Total PCBs (7 congeners)	2815	N	mg/kg	[A] < 0.0010	1			
TPH Total WAC	2670	U	mg/kg	[A] < 10	500			
Total Of 17 PAH's	2800	N	mg/kg	[A] < 0.20	100			
рН	2010	U		8.9		>6		
Acid Neutralisation Capacity	2015	N	mol/kg	0.079		To evaluate	To evaluate	
Eluate Analysis			10:1 Eluate	10:1 Eluate	Limit values	for compliance I	eaching test	
			mg/l	mg/kg	using B	S EN 12457 at L/S	3 10 l/kg	
Arsenic	1455	U	0.0015	0.015	0.5	2	25	
Barium	1455	U	< 0.005	< 0.050	20	100	300	
Cadmium	1455	U	< 0.00011	< 0.0011	0.04	1	5	
Chromium	1455	U	0.0007	0.0074	0.5	10	70	
Copper	1455	U	0.0010	0.010	2	50	100	
Mercury	1455	U	< 0.00005	< 0.00050	0.01	0.2	2	
Molybdenum	1455	U	0.0006	0.0062	0.5	10	30	
Nickel	1455	U	0.0006	0.0058	0.4	10	40	
Lead	1455	U	< 0.0005	< 0.0050	0.5	10	50	
Antimony	1455	U	< 0.0005	< 0.0050	0.06	0.7	5	
Selenium	1455	U	0.0041	0.041	0.1	0.5	7	
Zinc	1455	U	0.004	0.041	4	50	200	
Chloride	1220	U	< 1.0	< 10	800	15000	25000	
Fluoride	1220	U	0.12	1.2	10	150	500	
Sulphate	1220	U	< 1.0	< 10	1000	20000	50000	
Total Dissolved Solids	1020	N	42	420	4000	60000	100000	
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-	

Solid Information					
Dry mass of test portion/kg	0.090				
Moisture (%)	13				

#### **Waste Acceptance Criteria**

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

### **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:
1580840		TP3			А	Amber Glass 250ml
1580840		TP3			А	Plastic Tub 500g
1580841		TP9			А	Amber Glass 250ml
1580841		TP9			А	Plastic Tub 500g
1580842		TP15			А	Amber Glass 250ml
1580842		TP15			А	Plastic Tub 500g
1580843		TP26			А	Amber Glass 250ml
1580843		TP26			А	Plastic Tub 500g
1580844		TP32			А	Amber Glass 250ml
1580844		TP32			А	Plastic Tub 500g

## **Test Methods**

	Title	Parameters included	Method summary
1010	pH Value of Waters	рН	pH Meter
	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
	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Waters 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	Pentane extraction / GCMS detection
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
2015	Acid Neutralisation Capacity	Acid Reserve	Titration
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.
2020	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
	Sulphur (Elemental) in Soils by HPLC	Sulphur	Dichloromethane extraction / HPLC with UV detection
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2325	Sulphide in Soils	Sulphide	Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N–dimethyl-p-phenylenediamine.
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.
2455	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.

## **Test Methods**

SOP	Title	Parameters included	Method summary
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
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1- Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge

#### **Report Information**

Key	
U	UKAS accredited
M	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
	Commonts on intermediations are bound the same of LIVAC accorditation

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: customerservices@chemtest.com

	Appendix 3	
\	Waste Classification Report	





## Waste Classification Report

HazWasteOnline™ classifies waste as either **hazardous** or **non-hazardous** based on its chemical composition, related legislation and the rules and data defined in the current UK or EU technical guidance (Appendix C) (note that HP 9 Infectious is not assessed). It is the responsibility of the classifier named below to:

- a) understand the origin of the waste
- b) select the correct List of Waste code(s)
- c) confirm that the list of determinands, results and sampling plan are fit for purpose
- d) select and justify the chosen metal species (Appendix B)
- e) correctly apply moisture correction and other available corrections
- f) add the meta data for their user-defined substances (Appendix A)
- g) check that the classification engine is suitable with respect to the national destination of the waste (Appendix C)

To aid the reviewer, the laboratory results, assumptions and justifications managed by the classifier are highlighted in pale yellow.



HMMVA-RUOAH-IZTK

#### Job name

23-001-01 Halverstown

#### **Description/Comments**

5 No. composite samples from 5 No. Trial Pits in a greenfield site.

Project Site

23-001-01 Halverstown

#### Classified by

Name: Company:

Austin Hynes O'Callaghan Moran & Associates
Date: Unit 15 Melbourne Business Park,

14 Feb 2023 11:05 GMT Model Farm Road

Telephone: Cork

+353 (0)21 4345366

HazWasteOnline™ provides a two day, hazardous waste classification course that covers the use of the software and both basic and advanced waste classification techniques. Certification has to be renewed every 3 years.

HazWasteOnline™ Certification:

Course
Hazardous Waste Classification 06

**Date** 06 Oct 2022

CERTIFIED

Next 3 year Refresher due by Oct 2025

#### Purpose of classification

7 - Disposal of Waste

#### Address of the waste

Lands at Halverstown, Naas, Co. Kilare

Post Code NA

#### SIC for the process giving rise to the waste

41202 Construction of domestic buildings

#### Description of industry/producer giving rise to the waste

Site Investigation

#### Description of the specific process, sub-process and/or activity that created the waste

Excavation

#### Description of the waste

Soil and Stone





#### Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	Page
1	TP3	0.5	Non Hazardous		3
2	TP9	0.5	Non Hazardous		6
3	TP15	0.5	Non Hazardous		9
4	TP26	0.5	Non Hazardous		12
5	TP32	0.5	Non Hazardous		15

#### **Related documents**

# Name	Description
1 OCM Waste Stream Updated 2021	waste stream template used to create this Job

### Report

Created by: Austin Hynes Created date: 14 Feb 2023 11:05 GMT

Appendices	Page
Appendix A: Classifier defined and non EU CLP determinands	18
Appendix B: Rationale for selection of metal species	19
Appendix C: Version	20

Page 2 of 20 HMMVA-RUOAH-IZTKI www.hazwasteonline.com





17: Construction and Demolition Wastes (including excavated soil

17 05 04 (Soil and stones other than those mentioned in 17 05

Classification of sample: TP3

Non Hazardous Waste Classified as 17 05 04 in the List of Waste

03)

from contaminated sites)

Sample details

Sample name: LoW Code:

TP3 Chapter: Sample Depth:

0.5 m Entry:

Moisture content:

(dry weight correction)

**Hazard properties** 

None identified

#### **Determinands**

Moisture content: 13% Dry Weight Moisture Correction applied (MC)

#		EU CLP index number	Determinand  EC Number	CAS Number	CLP Note	User entere	d data	Conv. Factor	Compound	conc.	Classification value	MC Applied	Conc. Not Used
1	4	antimony { antimon 051-005-00-X	<mark>ly trioxide</mark> } 215-175-0	1309-64-4		<2	mg/kg	1.197	<2.394	mg/kg	<0.000239 %		<lod< td=""></lod<>
2	æ.	arsenic { arsenic tri 033-003-00-0	i <mark>oxide</mark> } 215-481-4	1327-53-3		7.1	mg/kg	1.32	8.296	mg/kg	0.00083 %	✓	
3	4	boron { diboron trio	xide }	1303-86-2		<0.4	mg/kg	3.22	<1.288	mg/kg	<0.000129 %		<lod< td=""></lod<>
4	4	cadmium { cadmiur 048-002-00-0	<mark>m oxide</mark> } 215-146-2	1306-19-0		1.9	mg/kg	1.142	1.921	mg/kg	0.000192 %	✓	
5	4	chromium in chrom		ls {		14	mg/kg	1.462	18.108	mg/kg	0.00181 %	✓	
6	4	chromium in chrom compounds, with the of compounds spec	nium(VI) compound ne exception of bar	ds { chromium (VI)		<0.5	mg/kg	2.27	<1.135	mg/kg	<0.000113 %		<lod< td=""></lod<>
7	4	024-017-00-8 copper { dicopper of 029-002-00-X	 	iide }		13	mg/kg	1.126	12.953	mg/kg	0.0013 %	✓	
8	4	lead { lead chromat		7758-97-6	1	36	mg/kg	1.56	49.693	mg/kg	0.00319 %	✓	
9	-	mercury { mercury 080-010-00-X	dichloride }	7487-94-7		0.08	mg/kg	1.353	0.0958	mg/kg	0.00000958 %	√	
10	-	molybdenum { moly 042-001-00-9	ybdenum(VI) oxide 215-204-7	}  1313-27-5		0.7	mg/kg	1.5	0.929	mg/kg	0.0000929 %	√	
11	-	nickel { <mark>nickel chror</mark> 028-035-00-7	<mark>nate</mark> } 238-766-5	14721-18-7		32	mg/kg	2.976	84.284	mg/kg	0.00843 %	√	
12	4	selenium { nickel se 028-031-00-5	<mark>elenate</mark> } 239-125-2	15060-62-5		0.57	mg/kg	2.554	1.288	mg/kg	0.000129 %	✓	
13		zinc { <mark>zinc chromat</mark> 024-007-00-3	<mark>e</mark> } 236-878-9	13530-65-9		120	mg/kg	2.774	294.6	mg/kg	0.0295 %	✓	
14	0	TPH (C6 to C40) p	etroleum group	TPH		<10	mg/kg		<10	mg/kg	<0.001 %		<lod< td=""></lod<>
15		tert-butyl methyl etl 2-methoxy-2-methy 603-181-00-X		1634-04-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<lod< td=""></lod<>



# HazWasteOnline<sup>™</sup> Report created by Austin Hynes on 14 Feb 2023

#		Determinand	o Note	User entered da	ata	Conv.	Compound	conc.	Classification value	Applied	Conc. Not Used
		EU CLP index	CLP							MC	
16		benzene		<0.001 mg	g/kg		<0.001	mg/kg	<0.0000001 %		<lod< td=""></lod<>
_		601-020-00-8 <u>2</u> 00-753-7 <u>7</u> 1-43-2	-							Н	-
17		toluene		<0.001 mg	g/kg		<0.001	mg/kg	<0.0000001 %		<lod< td=""></lod<>
-		601-021-00-3   203-625-9   108-88-3	-							Н	
18	0	ethylbenzene 601-023-00-4 202-849-4 100-41-4	-	<0.001 mg	g/kg		<0.001	mg/kg	<0.0000001 %		<lod< td=""></lod<>
		xylene									
19		601-022-00-9		<0.001 mg	g/kg		<0.001	mg/kg	<0.0000001 %		<lod< td=""></lod<>
20	4	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }		<0.5 m(	g/kg	1.884	<0.942	mg/kg	<0.0000942 %		<lod< td=""></lod<>
_		006-007-00-5	_							Ш	
21		naphthalene	-	<0.01 mg	g/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
-	_	acenaphthylene	H							Н	
22	0	205-917-1 208-96-8		<0.01 mg	g/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
23	0	acenaphthene		0.01	a./I.a.		<0.01	100 at /1 car	<0.000001 %		<lod< td=""></lod<>
23		201-469-6 83-32-9		<0.01 mg	g/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
24	0	fluorene		<0.01 mg	g/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
		201-695-5 86-73-7	1		55						
25	0	phenanthrene		<0.01 mg	g/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
$\vdash$		201-581-5 85-01-8 anthracene							<u> </u>	Н	
26	0	204-371-1   120-12-7	-	<0.01 mg	g/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
07	0	fluoranthene		0.04			0.04		0.000001.0/	П	1.00
27		205-912-4 206-44-0		<0.01 mg	g/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
28	0	pyrene		<0.01 mg	g/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
00		benzo[a]anthracene		0.04			0.04		0.000004.0/		1.00
29		601-033-00-9 200-280-6 56-55-3		<0.01 mg	g/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
30		chrysene		<0.01 mg	g/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
		601-048-00-0 205-923-4 218-01-9	L	-0.01	۵٬۰۰۹		30.01	9/10	0.0000170		
31		benzo[b]fluoranthene		<0.01 mg	g/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
-		601-034-00-4   205-911-9   205-99-2	-							H	
32		benzo[k]fluoranthene 601-036-00-5 205-916-6 207-08-9	-	<0.01 mg	g/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
-		benzo[a]pyrene; benzo[def]chrysene								H	
33		601-032-00-3   200-028-5   50-32-8	1	<0.01 mg	g/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
34	0	indeno[123-cd]pyrene		~0.01 ····	a/ka		<0.01	ma/ka	<0.000001 %		<lod< td=""></lod<>
34		205-893-2 193-39-5		<0.01 mg	g/kg		<0.01	mg/kg	<0.000001 %		<lud< td=""></lud<>
35		dibenz[a,h]anthracene		<0.01 mg	g/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
		601-041-00-2 200-181-8 53-70-3	_					<u> </u>			
36	0	benzo[ghi]perylene		<0.01 mg	g/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
-		205-883-8   191-24-2   phenol	$\vdash$							H	
37		604-001-00-2 203-632-7 108-95-2	-	<0.1 mg	g/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
38	0	1 11 11 1 BOD		<0.001 ····	a/ka		-0.001	ma/ka	<0.0000001.9/		4LOD
38		602-039-00-4 215-648-1 1336-36-3		<0.001 mg	g/kg		<0.001	mg/kg	<0.0000001 %		<lod< td=""></lod<>
								Total:	0.047 %	L	





Key

User supplied data

Determinand values ignored for classification, see column 'Conc. Not Used' for reason

Determinand defined or amended by HazWasteOnline (see Appendix A)

Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound

concentration

<LOD Below limit of detection

ND Not detected

CLP: Note 1 Only the metal concentration has been used for classification





17: Construction and Demolition Wastes (including excavated soil

17 05 04 (Soil and stones other than those mentioned in 17 05

Classification of sample: TP9

Non Hazardous Waste Classified as 17 05 04 in the List of Waste

03)

from contaminated sites)

Sample details

Sample name: LoW Code:

TP9 Chapter: Sample Depth:

0.5 m Entry: Moisture content:

16%

(dry weight correction)

#### **Hazard properties**

None identified

#### **Determinands**

Moisture content: 16% Dry Weight Moisture Correction applied (MC)

#		EU CLP index number	Determinand  EC Number	CAS Number	CLP Note	User entered	d data	Conv. Factor	Compound	conc.	Classification value	MC Applied	Conc. Not Used
1	4		ny trioxide }	1309-64-4		<2	mg/kg	1.197	<2.394	mg/kg	<0.000239 %		<lod< td=""></lod<>
2	_	arsenic { arsenic tr	ioxide } 215-481-4	1327-53-3		7.3	mg/kg	1.32	8.309	mg/kg	0.000831 %	<b>✓</b>	
3	4	,	oxide } 215-125-8	1303-86-2		<0.4	mg/kg	3.22	<1.288	mg/kg	<0.000129 %		<lod< td=""></lod<>
4	4	cadmium { cadmiui 048-002-00-0	m oxide } 215-146-2	1306-19-0		1.7	mg/kg	1.142	1.674	mg/kg	0.000167 %	<b>√</b>	
5	4	chromium in chrom		s {		19	mg/kg	1.462	23.939	mg/kg	0.00239 %	✓	
6	4	chromium in chrom compounds, with the of compounds spectors of compounds spectors of compounds spectors of chromium in chromiu	nium(VI) compound ne exception of bar	Is { chromium (VI) ium chromate and		<0.5	mg/kg	2.27	<1.135	mg/kg	<0.000113 %		<lod< td=""></lod<>
7	4	copper { dicopper o	Dxide; copper (I) ox 215-270-7	l <mark>ide</mark> } l1317-39-1		16	mg/kg	1.126	15.529	mg/kg	0.00155 %	<b>✓</b>	
8	æ a	lead { <mark>lead chroma</mark> 082-004-00-2	te } 231-846-0	7758-97-6	1	28	mg/kg	1.56	37.651	mg/kg	0.00241 %	<b>✓</b>	
9	_	mercury { mercury 080-010-00-X	dichloride } 231-299-8	7487-94-7		0.07	mg/kg	1.353	0.0817	mg/kg	0.00000817 %	<b>√</b>	
10	4		ybdenum(VI) oxide 215-204-7	} 1313-27-5		<0.5	mg/kg	1.5	<0.75	mg/kg	<0.000075 %		<lod< td=""></lod<>
11	4	nickel { <mark>nickel chro</mark> 028-035-00-7	<mark>mate</mark> }  238-766-5	14721-18-7		34	mg/kg	2.976	87.235	mg/kg	0.00872 %	<b>✓</b>	
12	4		<mark>elenate</mark> }  239-125-2	15060-62-5		0.65	mg/kg	2.554	1.431	mg/kg	0.000143 %	<b>√</b>	
13	4		e } 236-878-9	13530-65-9		93	mg/kg	2.774	222.41	mg/kg	0.0222 %	✓	
14	0	TPH (C6 to C40) p	etroleum group	TPH		<10	mg/kg		<10	mg/kg	<0.001 %		<lod< td=""></lod<>
15		tert-butyl methyl etl 2-methoxy-2-methy 603-181-00-X		1634-04-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<lod< td=""></lod<>



HazWasteOnline<sup>™</sup>

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leport created by Austin Hynes on 14 Feb 2023

en	rist	unmental management for business	_						η	_	1
#		Determinand	CLP Note	User entere	d data	Conv.	Compound	conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index	SL							MC	
16		benzene 601-020-00-8   200-753-7   71-43-2		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<lod< td=""></lod<>
	-	toluene	+								
17		601-021-00-3   203-625-9   108-88-3	-	<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<lod< td=""></lod<>
		ethylbenzene	+								
18		601-023-00-4   202-849-4   100-41-4	-	<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<lod< td=""></lod<>
		xylene									
19		202-422-2 [1] 95-47-6 [1] 203-396-5 [2] 106-42-3 [2] 203-576-3 [3] 108-38-3 [3] 215-535-7 [4] 1330-20-7 [4]		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<lod< td=""></lod<>
20	4	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }		<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<lod< td=""></lod<>
0.4		naphthalene		0.04			0.04		0.000004.0/		100
21		601-052-00-2 202-049-5 91-20-3		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
22	0	acenaphthylene		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %	Г	<lod< td=""></lod<>
		205-917-1 208-96-8		40.01					40.000001 /0		1202
23	0	acenaphthene		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
		201-469-6 83-32-9	_								
24	0	fluorene	4	<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
		201-695-5 86-73-7 phenanthrene	+								
25	0	201-581-5 85-01-8		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
26	0	anthracene   204-371-1   120-12-7		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
27	0	fluoranthene   205-912-4   206-44-0		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
28	0	pyrene   204-927-3   129-00-0		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
	-	benzo[a]anthracene	+								
29		601-033-00-9   200-280-6   56-55-3	-	<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
20		chrysene		0.01			0.04		0.000004.0/		1.00
30		601-048-00-0 205-923-4 218-01-9		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
31	٦	benzo[b]fluoranthene		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
		601-034-00-4 205-911-9 205-99-2		-0.01	9/119		.5.01	9/119			1
32		benzo[k]fluoranthene		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
		601-036-00-5 205-916-6 207-08-9	-								
33		benzo[a]pyrene; benzo[def]chrysene 601-032-00-3   200-028-5     50-32-8		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
$\dashv$		601-032-00-3  200-028-5  50-32-8   indeno[123-cd]pyrene	+								
34	0	205-893-2   193-39-5	-	<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
25		dibenz[a,h]anthracene	+								
35		601-041-00-2   200-181-8     53-70-3		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
36	0	benzo[ghi]perylene		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
37		phenol 604-001-00-2   203-632-7   108-95-2		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
38	0	polychlorobiphenyls; PCB 602-039-00-4   215-648-1   1336-36-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<lod< td=""></lod<>
		002-003-00-4   <u>E13-040-1</u>  1330-30-3						Total:	0.0402 %	-	l
								ioidi.	0.0402 /0		





Key

User supplied data

Determinand values ignored for classification, see column 'Conc. Not Used' for reason

Determinand defined or amended by HazWasteOnline (see Appendix A)

Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound

concentration

<LOD Below limit of detection

ND Not detected

CLP: Note 1 Only the metal concentration has been used for classification





Classification of sample: TP15

Non Hazardous Waste Classified as 17 05 04 in the List of Waste

03)

#### Sample details

LoW Code: Sample name:

TP15 Chapter: 17: Construction and Demolition Wastes (including excavated soil Sample Depth: from contaminated sites) 17 05 04 (Soil and stones other than those mentioned in 17 05

0.5 m Entry:

Moisture content: 9.8%

(dry weight correction)

#### **Hazard properties**

None identified

#### **Determinands**

Moisture content: 9.8% Dry Weight Moisture Correction applied (MC)

		The content. 3.0 % Bry Weight Worstone Correction of		,							
#		Determinand  EU CLP index	CLP Note	User entered data		Conv. Factor	L Compound conc		Classification value	MC Applied	Conc. Not Used
1	æ	antimony { antimony trioxide } 051-005-00-X		<2 m	ng/kg	1.197	<2.394	mg/kg	<0.000239 %		<lod< td=""></lod<>
2	æ			9.7 m	ng/kg	1.32	11.664	mg/kg	0.00117 %	✓	
3	4	boron { diboron trioxide } 005-008-00-8		<0.4 m	ng/kg	3.22	<1.288	mg/kg	<0.000129 %		<lod< td=""></lod<>
4	æ	cadmium { cadmium oxide } 048-002-00-0		1.9 m	ng/kg	1.142	1.977	mg/kg	0.000198 %	✓	
5	4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		19 m	ng/kg	1.462	25.291	mg/kg	0.00253 %	✓	
6	4	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }		<0.5 m	ng/kg	2.27	<1.135	mg/kg	<0.000113 %		<lod< td=""></lod<>
7	ď			17 m	ng/kg	1.126	17.432	mg/kg	0.00174 %	<b>√</b>	
8	4		1	29 m	ng/kg	1.56	41.197	mg/kg	0.00264 %	√	
9	ď	mercury { mercury dichloride } 080-010-00-X   231-299-8   7487-94-7		0.07 m	ng/kg	1.353	0.0863	mg/kg	0.00000863 %	✓	
10	4	molybdenum { molybdenum(VI) oxide } 042-001-00-9		1 m	ng/kg	1.5	1.366	mg/kg	0.000137 %	√	
11	4	nickel { nickel chromate }         028-035-00-7         238-766-5         14721-18-7		37 m	ng/kg	2.976	100.293	mg/kg	0.01 %	✓	
12	4	selenium {		0.77 m	ng/kg	2.554	1.791	mg/kg	0.000179 %	✓	
13	4	zinc { zinc chromate } 024-007-00-3   236-878-9   13530-65-9		120 m	ng/kg	2.774	303.185	mg/kg	0.0303 %	✓	
14	0	TPH (C6 to C40) petroleum group		<10 m	ng/kg		<10	mg/kg	<0.001 %		<lod< td=""></lod<>
15		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane 603-181-00-X   216-653-1   1634-04-4		<0.001 m	ng/kg		<0.001	mg/kg	<0.0000001 %		<lod< td=""></lod<>



# HazWasteOnline<sup>™</sup> Report created by Austin Hynes on 14 Feb 2023

#		Determinand		Note	User entered data		Conv.	Compound conc.		Classification value	Applied	Conc. Not Used	
		EU CLP index number	EC Number	CAS Number	CLP			racioi			value	MC,	oseu
16		benzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<lod< td=""></lod<>
			200-753-7	71-43-2									
17		toluene 601-021-00-3	203-625-9	108-88-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<lod< td=""></lod<>
18	0	ethylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<lod< td=""></lod<>
10		601-023-00-4 xylene	202-849-4	100-41-4	-	<0.001			<0.001	ilig/kg	<0.0000001 %		- CLOD
19		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<lod< td=""></lod<>
20	4	cyanides { salts exception of completerricyanides and no specified elsewhere	ex cyanides such a nercuric oxycyanid	as ferrocyanides,		<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<lod< td=""></lod<>
04		006-007-00-5 naphthalene				0.01			0.04		0.000004.0/		100
21			202-049-5	91-20-3		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
22	0	acenaphthylene	205-917-1	208-96-8		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
23	Θ	acenaphthene	201-469-6	83-32-9		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
24	0	fluorene	201-695-5	86-73-7		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
05	0	phenanthrene	201 000 0	00 70 7		-0.01			.0.01		0.000001.0/		1.00
25	0	anthracene	201-581-5	85-01-8	-	<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
26	9	animacono	204-371-1	120-12-7		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
27	0	fluoranthene	205-912-4	206-44-0		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
28	0	pyrene	204-927-3	129-00-0		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
29		benzo[a]anthracen	e			<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
25		601-033-00-9	200-280-6	56-55-3		<b>\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\</b>				mg/kg	<0.000001 70		\LOD
30		chrysene 601-048-00-0	205-923-4	218-01-9		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
31		benzo[b]fluoranthe 601-034-00-4	ne 205-911-9	205-99-2	-	<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
32		benzo[k]fluoranthe	ne 205-916-6	207-08-9		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
33		benzo[a]pyrene; be		50-32-8		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
34	0	indeno[123-cd]pyre	ene			<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
35		dibenz[a,h]anthrac		193-39-5		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
			200-181-8	53-70-3	-								
36	Θ	benzo[ghi]perylene	205-883-8	191-24-2	L	<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
37		phenol 604-001-00-2	203-632-7	108-95-2	1	<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
38	0	polychlorobiphenyl	s; PCB 215-648-1	1336-36-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<lod< td=""></lod<>
					1					Total:	0.0506 %		





Key

User supplied data

Determinand values ignored for classification, see column 'Conc. Not Used' for reason

Determinand defined or amended by HazWasteOnline (see Appendix A)

Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound

concentration

<LOD Below limit of detection

ND Not detected

CLP: Note 1 Only the metal concentration has been used for classification





17: Construction and Demolition Wastes (including excavated soil

17 05 04 (Soil and stones other than those mentioned in 17 05

Classification of sample: TP26

Non Hazardous Waste Classified as 17 05 04 in the List of Waste

03)

from contaminated sites)

Sample details

LoW Code: Sample name:

TP26 Chapter: Sample Depth:

0.5 m Entry: Moisture content:

(dry weight correction)

#### **Hazard properties**

None identified

#### **Determinands**

Moisture content: 27% Dry Weight Moisture Correction applied (MC)

#		EU CLP index number	Determinand  EC Number	CAS Number	CLP Note	User entere	d data	Conv. Factor	Compound	conc.	Classification value	MC Applied	Conc. Not Used
1	_	antimony { antimor	ny trioxide }	1309-64-4	-	<2	mg/kg	1.197	<2.394	mg/kg	<0.000239 %		<lod< td=""></lod<>
2	ď.	arsenic { arsenic tr		1327-53-3		7.4	mg/kg	1.32	7.693	mg/kg	0.000769 %	<b>✓</b>	
3	_	boron { <mark>diboron tric</mark> 005-008-00-8	<mark>oxide</mark> } 215-125-8	1303-86-2		<0.4	mg/kg	3.22	<1.288	mg/kg	<0.000129 %		<lod< td=""></lod<>
4	4	cadmium { cadmiu 048-002-00-0	m oxide } 215-146-2	1306-19-0	-	1.3	mg/kg	1.142	1.169	mg/kg	0.000117 %	✓	
5	æ\$	chromium in chrom		s { <sup>®</sup>		16	mg/kg	1.462	18.413	mg/kg	0.00184 %	<b>√</b>	
6	4	chromium in chrom compounds, with the of compounds special compounds special compounds special compounds special compounds special compounds and compounds special compounds are compounded in the compound of	nium(VI) compound ne exception of bar	ls { chromium (VI) ium chromate and		<0.5	mg/kg	2.27	<1.135	mg/kg	<0.000113 %		<lod< td=""></lod<>
7	4	copper { dicopper o	D <mark>xide; copper (I) ox</mark> 215-270-7	i <mark>de</mark> } 1317-39-1		14	mg/kg	1.126	12.411	mg/kg	0.00124 %	<b>✓</b>	
8	æ å	lead { <mark>lead chroma</mark> 082-004-00-2	te } 231-846-0	7758-97-6	1	30	mg/kg	1.56	36.846	mg/kg	0.00236 %	<b>√</b>	
9	-	mercury { mercury 080-010-00-X	dichloride } 231-299-8	7487-94-7		0.07	mg/kg	1.353	0.0746	mg/kg	0.00000746 %	<b>√</b>	
10	4		ybdenum(VI) oxide 215-204-7	} 1313-27-5		0.6	mg/kg	1.5	0.709	mg/kg	0.0000709 %	<b>✓</b>	
11	4		<mark>mate</mark> } 238-766-5	14721-18-7		28	mg/kg	2.976	65.618	mg/kg	0.00656 %	<b>✓</b>	
12	æ å		e <mark>lenate</mark> } 239-125-2	15060-62-5		0.59	mg/kg	2.554	1.186	mg/kg	0.000119 %	<b>√</b>	
13	_	zinc { zinc chromat 024-007-00-3	e } 236-878-9	13530-65-9	-	81	mg/kg	2.774	176.934	mg/kg	0.0177 %	<b>✓</b>	
14	0	TPH (C6 to C40) p	etroleum group	TPH	-	<10	mg/kg		<10	mg/kg	<0.001 %		<lod< td=""></lod<>
15		tert-butyl methyl et 2-methoxy-2-methy 603-181-00-X		1634-04-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<lod< td=""></lod<>



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Report created by Austin Hynes on 14 Feb 2023

#		Determinand  ELLCL Dinday		User entere	d data	Conv.	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index	CLP							MC	
16		benzene		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<lod< td=""></lod<>
		601-020-00-8 200-753-7 71-43-2	-							₩	
17		toluene 601-021-00-3   203-625-9   108-88-3	-	<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<lod< td=""></lod<>
H	_	ethylbenzene	+								
18	9	601-023-00-4   202-849-4   100-41-4	1	<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<lod< td=""></lod<>
		xylene									
19		601-022-00-9		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<lod< td=""></lod<>
20	4	cyanides { ** salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }		<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<lod< td=""></lod<>
$\vdash$		006-007-00-5	-							H	
21		naphthalene         202-049-5         91-20-3	-	<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
22	0	acenaphthylene 205-917-1 208-96-8		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
23	0	acenaphthene 201-469-6 83-32-9		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
	_	201-469-6   63-32-9	+								
24	0	201-695-5 86-73-7	-	<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
	0	phenanthrene									
25	Ĭ	201-581-5 85-01-8		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
26	0	anthracene		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
-	0	204-371-1   120-12-7	+	0.04			0.04		0.00001.0/		
27		205-912-4 206-44-0		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
28	0	pyrene   204-927-3   129-00-0		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
29		benzo[a]anthracene		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
		601-033-00-9 200-280-6 56-55-3	- 10.01	ilig/kg				40.000001 70		LOD	
30		chrysene		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
		601-048-00-0 205-923-4 218-01-9	-							H	
31		benzo[b]fluoranthene 601-034-00-4	-	<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
$\vdash$		benzo[k]fluoranthene									
32		601-036-00-5   205-916-6   207-08-9	-	<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
33		benzo[a]pyrene; benzo[def]chrysene 601-032-00-3   200-028-5   50-32-8		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
34	0	indeno[123-cd]pyrene		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
9-		dibenz[a,h]anthracene	+						0.00002121		
35		601-041-00-2 200-181-8 53-70-3	1	<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
36	0	benzo[ghi]perylene    205-883-8    191-24-2		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
37		phenol   108-95-2   108-95-2		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
38	0	polychlorobiphenyls; PCB 602-039-00-4   215-648-1   1336-36-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<lod< td=""></lod<>
								Total:	0.0324 %		





Key

User supplied data

Determinand values ignored for classification, see column 'Conc. Not Used' for reason

Determinand defined or amended by HazWasteOnline (see Appendix A)

Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound

concentration

<LOD Below limit of detection

ND Not detected

CLP: Note 1 Only the metal concentration has been used for classification





Classification of sample: TP32

Non Hazardous Waste Classified as 17 05 04 in the List of Waste

03)

#### Sample details

LoW Code: Sample name:

TP32 Chapter: 17: Construction and Demolition Wastes (including excavated soil Sample Depth: from contaminated sites) 17 05 04 (Soil and stones other than those mentioned in 17 05

0.5 m Entry: Moisture content:

13%

(dry weight correction)

#### **Hazard properties**

None identified

#### **Determinands**

Moisture content: 13% Dry Weight Moisture Correction applied (MC)

	,		_	T							
#		Determinand  EU CLP index	CLP Note	User entered	l data	Conv. Factor	Compound cor	nc.	Classification value	MC Applied	Conc. Not Used
1	4	antimony { antimony trioxide }		<2	mg/kg	1.197	<2.394 m	ng/kg	<0.000239 %		<lod< td=""></lod<>
		051-005-00-X 215-175-0 1309-64-4			9,9		12.001	.9,9	40.000200 70		1202
2	4	arsenic { arsenic trioxide } 033-003-00-0   215-481-4   1327-53-3		9.7	mg/kg	1.32	11.334 m	ng/kg	0.00113 %	✓	
3	4	boron { diboron trioxide } 005-008-00-8   215-125-8   1303-86-2		<0.4	mg/kg	3.22	<1.288 m	ng/kg	<0.000129 %		<lod< td=""></lod<>
4	4	cadmium { cadmium oxide }		2.2	mg/kg	1.142	2.224 m	ng/kg	0.000222 %	✓	
5	æ <u>&amp;</u>	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		20	mg/kg	1.462	25.868 m	ng/kg	0.00259 %	✓	
6	4	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }		<0.5	mg/kg	2.27	<1.135 m	ng/kg	<0.000113 %		<lod< td=""></lod<>
7	+-	024-017-00-8   copper { dicopper oxide; copper (I) oxide }	H	17	mg/kg	1.126	16.938 m	ng/kg	0.00169 %	✓	
		029-002-00-X 215-270-7 1317-39-1			3 3			3 3		•	
8	4	lead { lead chromate }           082-004-00-2         231-846-0         7758-97-6	1	47	mg/kg	1.56	64.877 m	ng/kg	0.00416 %	✓	
9	æ.	mercury { mercury dichloride } 080-010-00-X 231-299-8 7487-94-7		0.1	mg/kg	1.353	0.12 m	ng/kg	0.000012 %	✓	
10		molybdenum { molybdenum(VI) oxide } 042-001-00-9		1.6	mg/kg	1.5	2.124 m	ng/kg	0.000212 %	✓	
11	_	nickel { nickel chromate } 028-035-00-7		37	mg/kg	2.976	97.453 m	ng/kg	0.00975 %	✓	
12	æ å	selenium { nickel selenate } 028-031-00-5	_	0.9	mg/kg	2.554	2.034 m	ng/kg	0.000203 %	✓	
13	_	zinc { zinc chromate } 024-007-00-3		130	mg/kg	2.774	319.15 m	ng/kg	0.0319 %	✓	
14		TPH (C6 to C40) petroleum group		<10	mg/kg		<10 m	ng/kg	<0.001 %		<lod< td=""></lod<>
15		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane 603-181-00-X 216-653-1   1634-04-4		<0.001	mg/kg		<0.001 m	ng/kg	<0.0000001 %		<lod< td=""></lod<>
L	_	000 101 00 X  210-000-1  1004-04-4	_								



# HazWasteOnline<sup>™</sup> Report created by Austin Hynes on 14 Feb 2023

#			Note	User entere	d data	Conv.	Compound	conc.	Classification value	Applied	Conc. Not Used		
		EU CLP index number	EC Number	CAS Number	CLP			racioi			value	MC,	Oseu
16		benzene	,			<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<lod< td=""></lod<>
		601-020-00-8	200-753-7	71-43-2	_							-	
17		toluene	000 00= 0	400.00		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<lod< td=""></lod<>
-		601-021-00-3	203-625-9	108-88-3	┢								
18	0	ethylbenzene 601-023-00-4	202-849-4	100-41-4	-	<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<lod< td=""></lod<>
$\vdash$		xylene	202-049-4	100-41-4								-	
19		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<lod< td=""></lod<>
20	cyanides { * salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }					<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<lod< td=""></lod<>
-		006-007-00-5			-							-	
21		naphthalene 601-052-00-2	202-049-5	91-20-3	-	<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
_		acenaphthylene	202 040 0	51 20 0	$\vdash$								
22	Ĭ	. ,	205-917-1	208-96-8	1	<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
23	0	acenaphthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
20			201-469-6	83-32-9		V0.01	ilig/kg		V0.01	mg/kg	<0.000001 /8		\LOD
24	0	fluorene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
			201-695-5	86-73-7					10101	9/1.9	10.000001 70		
25	0	phenanthrene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
			201-581-5	85-01-8	_							-	
26	0	anthracene	001.071.1	400 40 =		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
-		fluoranthene	204-371-1	120-12-7								-	
27	0	liuoraninene	205-912-4	206-44-0	-	<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
_	0	pyrene	200 012 1	200 11 0									
28	Ĭ	F)******	204-927-3	129-00-0	1	<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
29		benzo[a]anthracen	е			-0.01	malka		<0.01 mg/kg		<0.000001 %		<lod< td=""></lod<>
29		601-033-00-9	200-280-6	56-55-3		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lud< td=""></lud<>
30		chrysene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
		601-048-00-0	205-923-4	218-01-9		40.01			40.01	9/119	40.000001 /0		
31		benzo[b]fluoranthe				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
<u></u>	_	601-034-00-4	205-911-9	205-99-2	1								
32		benzo[k]fluoranthe 601-036-00-5		207.09.0		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
$\vdash$		benzo[a]pyrene; be	205-916-6	207-08-9	-								
33		601-032-00-3	200-028-5	50-32-8	-	<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
	0	indeno[123-cd]pyre		00 02 0	$\vdash$								
34	9		205-893-2	193-39-5	-	<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
05		dibenz[a,h]anthrac			T	0.01			0.04		0.000001.0/		1.00
35			200-181-8	53-70-3		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>
36	0	In a second of the Company of the second of			<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<lod< td=""></lod<>	
				<0.01				\J.0.01	mg/ng	3.000001 70			
37		phenol				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
_			203-632-7	108-95-2	_								
38	0	polychlorobiphenyl		1006 06 0		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<lod< td=""></lod<>
		602-039-00-4	215-648-1	1336-36-3						Total:	0.0535 %	$\vdash$	
										iolali	0.0000 %		





Key

User supplied data

Determinand values ignored for classification, see column 'Conc. Not Used' for reason

Determinand defined or amended by HazWasteOnline (see Appendix A)

Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound

concentration

<LOD Below limit of detection

ND Not detected

CLP: Note 1 Only the metal concentration has been used for classification





### Appendix A: Classifier defined and non EU CLP determinands

### chromium(III) oxide (worst case) (EC Number: 215-160-9, CAS Number: 1308-38-9)

Description/Comments: Data from C&L Inventory Database

Data source: https://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/discli/details/33806

Data source date: 17 Jul 2015

Hazard Statements: Acute Tox. 4; H332 , Acute Tox. 4; H302 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Resp. Sens. 1; H334 , Skin

Sens. 1; H317, Repr. 1B; H360FD, Aquatic Acute 1; H400, Aquatic Chronic 1; H410

#### TPH (C6 to C40) petroleum group (CAS Number: TPH)

Description/Comments: Hazard statements taken from WM3 1st Edition 2015; Risk phrases: WM2 3rd Edition 2013

Data source: WM3 1st Edition 2015 Data source date: 25 May 2015

Hazard Statements: Flam. Liq. 3; H226 , Asp. Tox. 1; H304 , STOT RE 2; H373 , Muta. 1B; H340 , Carc. 1B; H350 , Repr. 2; H361d , Aquatic Chronic 2;

H411

#### ethylbenzene (EC Number: 202-849-4, CAS Number: 100-41-4)

EU CLP index number: 601-023-00-4

Description/Comments:

Additional Hazard Statement(s): Carc. 2; H351 Reason for additional Hazards Statement(s):

03 Jun 2015 - Carc. 2; H351 hazard statement sourced from: IARC Group 2B (77) 2000

## • salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex

EU CLP index number: 006-007-00-5

Description/Comments: Conversion factor based on a worst case compound: sodium cyanide

Additional Hazard Statement(s): EUH032 >= 0.2 % Reason for additional Hazards Statement(s):

14 Dec 2015 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

### acenaphthylene (EC Number: 205-917-1, CAS Number: 208-96-8)

Description/Comments: Data from C&L Inventory Database

Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database

Data source date: 17 Jul 2015

Hazard Statements: Acute Tox. 4; H302, Acute Tox. 1; H330, Acute Tox. 1; H310, Eye Irrit. 2; H319, STOT SE 3; H335, Skin Irrit. 2; H315

#### acenaphthene (EC Number: 201-469-6, CAS Number: 83-32-9)

Description/Comments: Data from C&L Inventory Database

Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database

Data source date: 17 Jul 2015

Hazard Statements: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Aquatic Chronic 2;

H411

#### • fluorene (EC Number: 201-695-5, CAS Number: 86-73-7)

Description/Comments: Data from C&L Inventory Database

Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database

Data source date: 06 Aug 2015

Hazard Statements: Aquatic Acute 1; H400, Aquatic Chronic 1; H410

## phenanthrene (EC Number: 201-581-5, CAS Number: 85-01-8)

Description/Comments: Data from C&L Inventory Database

Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database

Data source date: 06 Aug 2015

Hazard Statements: Acute Tox. 4; H302, Eye Irrit. 2; H319, STOT SE 3; H335, Carc. 2; H351, Skin Sens. 1; H317, Aquatic Acute 1; H400, Aquatic Chronic 1; H410, Skin Irrit. 2; H315

## anthracene (EC Number: 204-371-1, CAS Number: 120-12-7)

Description/Comments: Data from C&L Inventory Database

Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database

Data source date: 17 Jul 2015

Hazard Statements: Eye Irrit. 2; H319, STOT SE 3; H335, Skin Irrit. 2; H315, Skin Sens. 1; H317, Aquatic Acute 1; H400, Aquatic Chronic 1; H410

## <sup>®</sup> fluoranthene (EC Number: 205-912-4, CAS Number: 206-44-0)

Description/Comments: Data from C&L Inventory Database

Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database

Data source date: 21 Aug 2015

Hazard Statements: Acute Tox. 4; H302 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

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#### pyrene (EC Number: 204-927-3, CAS Number: 129-00-0)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 2014 Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database

Data source date: 21 Aug 2015

Hazard Statements: Skin Irrit. 2; H315, Eye Irrit. 2; H319, STOT SE 3; H335, Aquatic Acute 1; H400, Aquatic Chronic 1; H410

#### • indeno[123-cd]pyrene (EC Number: 205-893-2, CAS Number: 193-39-5)

Description/Comments: Data from C&L Inventory Database

Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database

Data source date: 06 Aug 2015 Hazard Statements: Carc. 2; H351

#### • benzo[ghi]perylene (EC Number: 205-883-8, CAS Number: 191-24-2)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015 Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database

Data source date: 23 Jul 2015

Hazard Statements: Aquatic Acute 1; H400, Aquatic Chronic 1; H410

#### polychlorobiphenyls; PCB (EC Number: 215-648-1, CAS Number: 1336-36-3)

EU CLP index number: 602-039-00-4

Description/Comments: Worst Case: IARC considers PCB Group 1; Carcinogenic to humans; POP specific threshold from ATP1 (Regulation 756/2010/EU) to POPs Regulation (Regulation 850/2004/EC). Where applicable, the calculation method laid down in European standards EN 12766-1 and EN 12766-2 shall be applied.

Additional Hazard Statement(s): Carc. 1A; H350

Reason for additional Hazards Statement(s):

29 Sep 2015 - Carc. 1A; H350 hazard statement sourced from: IARC Group 1 (23, Sup 7, 100C) 2012

#### Appendix B: Rationale for selection of metal species

#### antimony {antimony trioxide}

Worst case CLP species based on hazard statements/molecular weight and low solubility. Industrial sources include: flame retardants in electrical apparatus, textiles and coatings (edit as required)

### arsenic {arsenic trioxide}

Reasonable case CLP species based on hazard statements/molecular weight and most common (stable) oxide of arsenic. Industrial sources include: smelting; main precursor to other arsenic compounds (edit as required)

#### boron {diboron trioxide}

Reasonable case CLP species based on hazard statements/ molecular weight, physical form and low solubility. Industrial sources include: fluxing agent for glass/enamels; additive for fibre optics, borosilicate glass (edit as required)

### cadmium {cadmium oxide}

Reasonable case CLP species based on hazard statements/molecular weight, very low solubility in water. Industrial sources include: electroplating baths, electrodes for storage batteries, catalysts, ceramic glazes, phosphors, pigments and nematocides. (edit as required) Worst case compounds in CLP: cadmium sulphate, chloride, fluoride & iodide not expected as either very soluble and/or compound's industrial usage not related to site history (edit as required)

### chromium in chromium(III) compounds {chromium(III) oxide (worst case)}

Reasonable case species based on hazard statements/molecular weight. Industrial sources include: tanning, pigment in paint, inks and glass (edit as required)

chromium in chromium(VI) compounds {chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex}

Worst case species based on hazard statements/molecular weight (edit as required)

### copper {dicopper oxide; copper (I) oxide}

Reasonable case CLP species based on hazard statements/molecular weight and insolubility in water. Industrial sources include: oxidised copper metal, brake pads, pigments, antifouling paints, fungicide. (edit as required) Worse case copper sulphate is very soluble and likely to have been leached away if ever present and/or not enough soluble sulphate detected. (edit as required)

## lead {lead chromate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

## mercury {mercury dichloride}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

#### molybdenum {molybdenum(VI) oxide}

Worst case CLP species based on hazard statements/molecular weight (edit as required)





#### nickel {nickel chromate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

selenium {nickel selenate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

zinc {zinc chromate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

cyanides {salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex}

Harmonised group entry used as most reasonable case as complex cyanides and those specified elsewhere in the annex are not likely to be present in this soil: [Note conversion factor based on a worst case compound: sodium cyanide] (edit as required)

#### **Appendix C: Version**

HazWasteOnline Classification Engine: WM3 1st Edition v1.1.NI - Jan 2021 HazWasteOnline Classification Engine Version: 2023.25.5511.10206 (25 Jan 2023)

HazWasteOnline Database: 2023.25.5511.10206 (25 Jan 2023)

This classification utilises the following guidance and legislation: WM3 v1.1.NI - Waste Classification - 1st Edition v1.1.NI - Jan 2021

CLP Regulation - Regulation 1272/2008/EC of 16 December 2008

1st ATP - Regulation 790/2009/EC of 10 August 2009

2nd ATP - Regulation 286/2011/EC of 10 March 2011

3rd ATP - Regulation 618/2012/EU of 10 July 2012

4th ATP - Regulation 487/2013/EU of 8 May 2013

Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013

5th ATP - Regulation 944/2013/EU of 2 October 2013

6th ATP - Regulation 605/2014/EU of 5 June 2014

WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014 Revised List of Waste 2014 - Decision 2014/955/EU of 18 December 2014

7th ATP - Regulation 2015/1221/EU of 24 July 2015

8th ATP - Regulation (EU) 2016/918 of 19 May 2016 9th ATP - Regulation (EU) 2016/1179 of 19 July 2016

10th ATP - Regulation (EU) 2017/776 of 4 May 2017

HP14 amendment - Regulation (EU) 2017/997 of 8 June 2017

13th ATP - Regulation (EU) 2018/1480 of 4 October 2018

**14th ATP** - Regulation (EU) 2020/217 of 4 October 2019

15th ATP - Regulation (EU) 2020/1182 of 19 May 2020

The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use)(Amendment etc.) (EU Exit)

Regulations 2020 - UK: 2020 No. 1567 of 16th December 2020

The Waste and Environmental Permitting etc. (Legislative Functions and Amendment etc.) (EU Exit) Regulations 2020 - UK:

2020 No. 1540 of 16th December 2020

17th ATP - Regulation (EU) 2021/849 of 11 March 2021

18th ATP - Regulation (EU) 2022/692 of 16 February 2022

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## Appendix 14

## **Environmental Laboratory Results (Water)**

Report\_22-47891



Eurofins Chemtest Ltd Depot Road Newmarket CB8 0AL Tel: 01638 606070

Email: info@chemtest.com

# Final Report

**Report No.:** 22-47891-1

Initial Date of Issue: 10-Jan-2023

Client IGSL

Client Address: M7 Business Park

Naas

County Kildare

Ireland

Contact(s): Darren Keogh

Project Halverstown

Quotation No.: Date Received: 14-Dec-2022

Order No.: Date Instructed: 19-Dec-2022

No. of Samples: 5

Turnaround (Wkdays): 8 Results Due: 04-Jan-2023

Date Approved: 10-Jan-2023

Approved By:

**Details:** Stuart Henderson, Technical

Manager

Client: IGSL		C	hemtest .	loh No ·	22-47891	22-47891	22-47891	22-47891	22-47891
Quotation No.:			ntest San		1564373	1564375	1564377	1564378	1564379
Order No.:	1		lient Sam		Stream Start	Stream End	BH03	BH12	BH103
Order No			Client San		WS1(1)	WS2(1)	WSBH03	WSBH12	WSBH103
	+			ole Type:	WATER	WATER	WATER	WATER	WATER
	+			epth (m):	0.5	0.7	1.3	0.98	2.2
				Sampled:	0.5 02-Dec-2022				
Determinend	Acarad	COD	Units	LOD	02-Dec-2022	02-Dec-2022	02-Dec-2022	02-Dec-2022	02-Dec-2022
Determinand	Accred.	<b>SOP</b> 1010	Units	N/A	[D] 0 0	[D] 7.0	[D] 7.6	[D] 7.4	[D] 7 F
pH Disabled Overson			ma er 00/l		[B] 8.3 9.5	[B] 7.9 9.2	[B] 7.6 8.5	[B] 7.4 8.2	[B] 7.5
Dissolved Oxygen Dissolved CO2	N N	1150 1160	mg O2/I	0.50	9.5 [B] 3.8	9.2 [B] 10	B] 19	8.2 [B] 29	8.5 [B] 22
Alkalinity (Total)	U	1220	mg/l	10		[B] 390			[B] 340
	U		mg/l		[B] 400		[B] 340	[B] 370	
Orthophosphate as PO4	N	1220 1220	mg/l	0.050 1.0	[B] 0.097	[B] 0.081	[B] 0.065	[B] 0.064	[B] 0.064
Sulphur			mg/l		[B] 15	[B] 15	[B] 7.3	[B] 22	[B] 4.3
Cyanide (Total)	U	1300	mg/l	0.050	[B] < 0.050	[B] < 0.050	[B] < 0.050	[B] < 0.050	[B] < 0.050
Cyanide (Free) Sulphide	U	1300 1325	mg/l	0.050	[B] < 0.050 [B] < 0.050	[B] < 0.050	[B] < 0.050 [B] < 0.050	[B] < 0.050 [B] < 0.050	[B] < 0.050
			mg/l			[B] < 0.050			[B] < 0.050
Calcium (Dissolved)	U	1455	mg/l	2.00	[B] 120	[B] 120	[B] 77	[B] 110	[B] 87
Total Hardness as CaCO3		1270	mg/l	15	[B] 360	[B] 360	[B] 230	[B] 360	[B] 270
Aluminium (Dissolved)	N U	1455	μg/l	5.0	[B] < 5.0	[B] < 5.0	[B] < 5.0	[B] < 5.0	[B] < 5.0
Arsenic (Dissolved)		1455	μg/l	0.20	[B] 0.78	[B] 0.76	[B] 0.38	[B] 0.44	[B] 0.35
Boron (Dissolved)	U	1455	μg/l	10.0	[B] 26	[B] 27	[B] 29	[B] 22	[B] 32
Barium (Dissolved)	U	1455	μg/l	5.00	[B] 48	[B] 46	[B] 38	[B] 91	[B] 72
Beryllium (Dissolved)	U	1455	μg/l	1.00	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0	[B] < 1.0
Cadmium (Dissolved)	U	1455	μg/l	0.11	[B] < 0.11	[B] < 0.11	[B] < 0.11	[B] < 0.11	[B] < 0.11
Chromium (Dissolved)	U	1455	μg/l	0.50	[B] 7.1	[B] 7.9	[B] 0.89	[B] 0.54	[B] 8.8
Copper (Dissolved)	U	1455	μg/l	0.50	[B] 2.1	[B] 1.9	[B] 2.4	[B] 3.5	[B] 1.2
Iron (Dissolved)	N	1455	μg/l	5.0	[B] 9.3	[B] 8.3	[B] 5.9	[B] 8.7	[B] 5.0
Mercury (Dissolved)	U	1455	μg/l	0.05	[B] < 0.05	[B] < 0.05	[B] < 0.05	[B] < 0.05	[B] < 0.05
Manganese (Dissolved)		1455	μg/l	0.50	[B] 0.57	[B] 0.58	[B] 450	[B] 170	[B] 1.3
Nickel (Dissolved)	U	1455	μg/l	0.50	[B] 1.9	[B] 2.0	[B] 9.6	[B] 7.0	[B] 1.2
Lead (Dissolved)	U	1455	μg/l	0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50	[B] < 0.50
Selenium (Dissolved)	U	1455	μg/l	0.50	[B] 5.6	[B] 5.7	[B] 7.6	[B] 8.8	[B] 1.8
Vanadium (Dissolved)	U	1455	μg/l	0.50	[B] < 0.50	[B] < 0.50 [B] 2.7	[B] < 0.50 [B] 3.4	[B] < 0.50	[B] < 0.50
Zinc (Dissolved)	N	1455	μg/l	2.5	[B] < 2.5			[B] 9.4	[B] < 2.5
Chromium (Total)	U	1455	μg/l	0.50	[B] 9.9	[B] 11	[B] 15	[B] 33	[B] 24
Low-Level Chromium (Hexavalent)	_	1495	μg/l	0.10	[B] 4.6	[B] 5.2	[B] 0.41	[B] 0.27	[B] 6.1
Dissolved Organic Carbon	U	1610	mg/l	2.0	3.7	3.4	3.6	5.5	< 2.0
Dissolved Methane	N	1630	mg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	0.057
Aliphatic TPH > C5-C6	N	1675	μg/l	0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10
Aliphatic TPH > C6-C8	N	1675	μg/l	0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10
Aliphatic TPH > C8-C10	N	1675	μg/l	0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10
Aliphatic TPH > C10-C12	N	1675	μg/l	0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10
Aliphatic TPH >C12-C16	N	1675	μg/l	0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10
Aliphatic TPH >C16-C21	N	1675	μg/l	0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10
Aliphatic TPH >C21-C35	N	1675	μg/l	0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10
Aliphatic TPH >C35-C44	N	1675	μg/l	0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10

Client: IGSL		С	hemtest .	Job No.:	22-47891	22-47891	22-47891	22-47891	22-47891
Quotation No.:			ntest Sar		1564373	1564375	1564377	1564378	1564379
Order No.:			lient Sam			Stream End	BH03	BH12	BH103
	1		Client Sai		WS1(1)	WS2(1)	WSBH03	WSBH12	WSBH103
			Samı	ole Type:	WATER			WATER	WATER
				epth (m):	0.5	0.7	1.3	0.98	2.2
			Date S	Sampled:	02-Dec-2022	02-Dec-2022	02-Dec-2022	02-Dec-2022	02-Dec-2022
Determinand	Accred.	SOP	Units	LOD					
Total Aliphatic Hydrocarbons	N	1675	μg/l	5.0	[B] < 5.0	[B] < 5.0	[B] < 5.0	[B] < 5.0	[B] < 5.0
Aromatic TPH >C5-C7	N	1675	μg/l	0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10
Aromatic TPH >C7-C8	N	1675	μg/l	0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10
Aromatic TPH >C8-C10	N	1675	μg/l	0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10
Aromatic TPH >C10-C12	N	1675	μg/l	0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10
Aromatic TPH >C12-C16	N	1675	μg/l	0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10
Aromatic TPH >C16-C21	N	1675	μg/l	0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10
Aromatic TPH >C21-C35	N	1675	μg/l	0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10
Aromatic TPH >C35-C44	N	1675	μg/l	0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10
Total Aromatic Hydrocarbons	N	1675	μg/l	5.0	[B] < 5.0	[B] < 5.0	[B] < 5.0	[B] < 5.0	[B] < 5.0
Total Petroleum Hydrocarbons	N	1675	μg/l	10	[B] < 10	[B] < 10	[B] < 10	[B] < 10	[B] < 10
Dichlorodifluoromethane	U	1760	μg/l	1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0
Chloromethane	U	1760	μg/l	1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0
Vinyl Chloride	N	1760	μg/l	1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0
Bromomethane	U	1760	μg/l	5	[BC] < 5	[BC] < 5	[BC] < 5	[BC] < 5	[BC] < 5
Chloroethane	U	1760	μg/l	2.0	[BC] < 2.0	[BC] < 2.0	[BC] < 2.0	[BC] < 2.0	[BC] < 2.0
Trichlorofluoromethane	U	1760	μg/l	1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0
1,1-Dichloroethene	U	1760	μg/l	1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0
Trans 1,2-Dichloroethene	U	1760	μg/l	1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0
1,1-Dichloroethane	U	1760	μg/l	1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0
cis 1,2-Dichloroethene	U	1760	μg/l	1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0
Bromochloromethane	U	1760	μg/l	5	[BC] < 5	[BC] < 5	[BC] < 5	[BC] < 5	[BC] < 5
Trichloromethane	U	1760	μg/l	1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0
1,1,1-Trichloroethane	U	1760	μg/l	1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0
Tetrachloromethane	U	1760	μg/l	1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0
1,1-Dichloropropene	U	1760	μg/l	1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0
Benzene	U	1760	μg/l	1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0
1,2-Dichloroethane	U	1760	μg/l	2.0	[BC] < 2.0	[BC] < 2.0	[BC] < 2.0	[BC] < 2.0	[BC] < 2.0
Trichloroethene	N	1760	μg/l	1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0
1,2-Dichloropropane	U	1760	μg/l	1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0
Dibromomethane	U	1760	μg/l	10	[BC] < 10	[BC] < 10	[BC] < 10	[BC] < 10	[BC] < 10
Bromodichloromethane	U	1760	μg/l	5	[BC] < 5	[BC] < 5	[BC] < 5	[BC] < 5	[BC] < 5
cis-1,3-Dichloropropene	N	1760	μg/l	10	[BC] < 10	[BC] < 10	[BC] < 10	[BC] < 10	[BC] < 10
Toluene	U	1760	μg/l	1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0
Trans-1,3-Dichloropropene	N	1760	μg/l	10	[BC] < 10	[BC] < 10	[BC] < 10	[BC] < 10	[BC] < 10
1,1,2-Trichloroethane	U	1760	μg/l	10	[BC] < 10	[BC] < 10	[BC] < 10	[BC] < 10	[BC] < 10
Tetrachloroethene	U	1760	μg/l	1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0
1,3-Dichloropropane	U	1760	μg/l	2.0	[BC] < 2.0	[BC] < 2.0	[BC] < 2.0	[BC] < 2.0	[BC] < 2.0
Dibromochloromethane	U	1760	μg/l	10	[BC] < 10	[BC] < 10	[BC] < 10	[BC] < 10	[BC] < 10

Project: Halverstown			hemtest	loh No ı	00 47004	00 47004	00 47004	00 47004	00 47004
Client: IGSL					22-47891	22-47891	22-47891	22-47891	22-47891
Quotation No.:			ntest Sar		1564373	1564375	1564377	1564378	1564379
Order No.:			Client Sam			Stream End	BH03	BH12	BH103
			Client Sa		WS1(1)	WS2(1)	WSBH03	WSBH12	WSBH103
			Sam	ole Type:	WATER	WATER	WATER	WATER	WATER
				epth (m):	0.5	0.7	1.3	0.98	2.2
				Sampled:	02-Dec-2022	02-Dec-2022	02-Dec-2022	02-Dec-2022	02-Dec-2022
Determinand	Accred.	SOP	Units	LOD					
1,2-Dibromoethane	U	1760	μg/l	5	[BC] < 5	[BC] < 5	[BC] < 5	[BC] < 5	[BC] < 5
Chlorobenzene	N	1760	μg/l	1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0
1,1,1,2-Tetrachloroethane	U	1760	μg/l	2.0	[BC] < 2.0	[BC] < 2.0	[BC] < 2.0	[BC] < 2.0	[BC] < 2.0
Ethylbenzene	U	1760	μg/l	1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0
m & p-Xylene	U	1760	μg/l	1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0
o-Xylene	U	1760	μg/l	1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0
Styrene	U	1760	μg/l	1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0
Tribromomethane	U	1760	μg/l	1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0
Isopropylbenzene	U	1760	μg/l	1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0
Bromobenzene	U	1760	μg/l	1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0
1,2,3-Trichloropropane	N	1760	μg/l	50	[BC] < 50	[BC] < 50	[BC] < 50	[BC] < 50	[BC] < 50
N-Propylbenzene	U	1760	μg/l	1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0
2-Chlorotoluene	U	1760	μg/l	1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0
1,3,5-Trimethylbenzene	U	1760	μg/l	1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0
4-Chlorotoluene	U	1760	μg/l	1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0
Tert-Butylbenzene	U	1760	μg/l	1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0
1,2,4-Trimethylbenzene	U	1760	μg/l	1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0
Sec-Butylbenzene	U	1760	μg/l	1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0
1,3-Dichlorobenzene	N	1760	μg/l	1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0
4-Isopropyltoluene	U	1760	μg/l	1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0
1,4-Dichlorobenzene	U	1760	μg/l	1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0
N-Butylbenzene	U	1760	μg/l	1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0
1,2-Dichlorobenzene	U	1760	μg/l	1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0
1,2-Dibromo-3-Chloropropane	U	1760	μg/l	50	[BC] < 50	[BC] < 50	[BC] < 50	[BC] < 50	[BC] < 50
1,2,4-Trichlorobenzene	U	1760	μg/l	1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0
Hexachlorobutadiene	U	1760	μg/l	1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0
1,2,3-Trichlorobenzene	U	1760	μg/l	2.0	[BC] < 2.0	[BC] < 2.0	[BC] < 2.0	[BC] < 2.0	[BC] < 2.0
Methyl Tert-Butyl Ether	N	1760	μg/l	1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0	[BC] < 1.0
N-Nitrosodimethylamine	N	1790	μg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Phenol	N	1790	μg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2-Chlorophenol	N	1790	μg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Bis-(2-Chloroethyl)Ether	N	1790	μg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,3-Dichlorobenzene	N	1790	μg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,4-Dichlorobenzene	N	1790	μg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-Dichlorobenzene	N	1790	μg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2-Methylphenol (o-Cresol)	N	1790	μg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Bis(2-Chloroisopropyl)Ether	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Hexachloroethane	N	1790	μg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
N-Nitrosodi-n-propylamine	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50

Client: IGSL			hemtest .		22-47891	22-47891	22-47891	22-47891	22-47891
Quotation No.:			ntest Sar		1564373	1564375	1564377	1564378	1564379
Order No.:			lient Sam		Stream Start	Stream End	BH03	BH12	BH103
			Client Saı	mple ID.:	WS1(1)	WS2(1)	WSBH03	WSBH12	WSBH103
				ole Type:	WATER	WATER	WATER	WATER	WATER
			Top De	epth (m):	0.5	0.7	1.3	0.98	2.2
			Date S	Sampled:	02-Dec-2022	02-Dec-2022	02-Dec-2022	02-Dec-2022	02-Dec-2022
Determinand	Accred.	SOP	Units	LOD					
4-Methylphenol	N	1790	μg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Nitrobenzene	N	1790	μg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Isophorone	N	1790	μg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2-Nitrophenol	N	1790	μg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2,4-Dimethylphenol	N	1790	μg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Bis(2-Chloroethoxy)Methane	N	1790	μg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2,4-Dichlorophenol	N	1790	μg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2,4-Trichlorobenzene	N	1790	μg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
4-Chloroaniline	N	1790	μg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Hexachlorobutadiene	N	1790	μg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
4-Chloro-3-Methylphenol	N	1790	μg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2-Methylnaphthalene	N	1790	μg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Hexachlorocyclopentadiene	N	1790	μg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2,4,6-Trichlorophenol	N	1790	μg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2,4,5-Trichlorophenol	N	1790	μg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2-Chloronaphthalene	N	1790	μg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2-Nitroaniline	N	1790	μg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Dimethylphthalate	N	1790	μg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2,6-Dinitrotoluene	N	1790	μg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
3-Nitroaniline	N	1790	μg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Dibenzofuran	N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
4-Chlorophenylphenylether	N	1790	μg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2,4-Dinitrotoluene	N	1790	μg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Diethyl Phthalate	N	1790	μg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
4-Nitroaniline	N	1790	μg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2-Methyl-4,6-Dinitrophenol	N	1790	μg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Azobenzene	N	1790	μg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
4-Bromophenylphenyl Ether	N	1790	μg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Hexachlorobenzene	N	1790	μg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Pentachlorophenol	N	1790	μg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Carbazole	N	1790	μg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Di-N-Butyl Phthalate	N	1790	μg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Butylbenzyl Phthalate	N	1790	μg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Bis(2-Ethylhexyl)Phthalate	N	1790	μg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Di-N-Octyl Phthalate	N	1790	μg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
4-Nitrophenol	N	1790	μg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Naphthalene	U	1800	μg/l	0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10
Acenaphthylene	Ü	1800	μg/l	0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10
Acenaphthene	Ü	1800	μg/l	0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10

Client: IGSL			hemtest	lob No ı	22-47891	22-47891	22-47891	22-47891	22-47891
Quotation No.:			ntest Sar		1564373	1564375	1564377	1564378	1564379
				nple Ref.:	Stream Start		BH03	BH12	BH103
Order No.:			Client San		WS1(1)	Stream End WS2(1)	WSBH03	WSBH12	WSBH103
				ple Type:	WATER	WATER			WATER
			Top D	epth (m):	0.5	0.7	WATER 1.3	WATER 0.98	2.2
				Sampled:	0.5 02-Dec-2022	0.7 02-Dec-2022	02-Dec-2022	0.98 02-Dec-2022	02-Dec-2022
Determinand	Accred.	SOP	Units	LOD	02-Dec-2022	02-Dec-2022	02-Dec-2022	02-Dec-2022	02-Dec-2022
	U Accred.	1800		0.10	[D] < 0.40				
Fluorene Phenanthrene	U	1800	μg/l	0.10	[B] < 0.10 [B] < 0.10	[B] < 0.10 [B] < 0.10	[B] < 0.10 [B] < 0.10	[B] < 0.10 [B] < 0.10	[B] < 0.10 [B] < 0.10
	U	1800	μg/l	0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10
Anthracene			μg/l	0.10					
Fluoranthene	U	1800	μg/l		[B] < 0.10				
Pyrene	U	1800 1800	μg/l	0.10 0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10
Benzo[a]anthracene			μg/l		[B] < 0.10				
Chrysene	U	1800	μg/l	0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10
Benzo[b]fluoranthene	U	1800	μg/l	0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10
Benzo[k]fluoranthene	U	1800	μg/l	0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10
Benzo[a]pyrene	U	1800	μg/l	0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10
Indeno(1,2,3-c,d)Pyrene	U	1800	μg/l	0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10
Dibenz(a,h)Anthracene	U	1800	μg/l	0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10
Benzo[g,h,i]perylene	U	1800	μg/l	0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10	[B] < 0.10
Total Of 16 PAH's	U	1800	μg/l	2.0	[B] < 2.0	[B] < 2.0	[B] < 2.0	[B] < 2.0	[B] < 2.0
PCB 81	N	1815	μg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 77	N	1815	μg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 105	N	1815	μg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 114	N	1815	μg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 118	N	1815	μg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 123	N	1815	μg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 126	N	1815	μg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 156	N	1815	μg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 157	N	1815	μg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 167	N	1815	μg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 169	N	1815	μg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 189	N	1815	μg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Total PCBs (12 Congeners)	N	1815	μg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Resorcinol	U	1920	mg/l	0.0050	[B] < 0.0050	[B] < 0.0050	[B] < 0.0050	[B] < 0.0050	[B] < 0.0050
Phenol	U	1920	mg/l	0.0050	[B] < 0.0050	[B] < 0.0050	[B] < 0.0050	[B] < 0.0050	[B] < 0.0050
Cresols	U	1920	mg/l	0.0050	[B] < 0.0050	[B] < 0.0050	[B] < 0.0050	[B] < 0.0050	[B] < 0.0050
Xylenols	U	1920	mg/l	0.0050	[B] < 0.0050	[B] < 0.0050	[B] < 0.0050	[B] < 0.0050	[B] < 0.0050
1-Naphthol	N	1920	mg/l	0.0050	[B] < 0.0050	[B] < 0.0050	[B] < 0.0050	[B] < 0.0050	[B] < 0.0050
Trimethylphenols	U	1920	mg/l	0.0050	[B] < 0.0050	[B] < 0.0050	[B] < 0.0050	[B] < 0.0050	[B] < 0.0050
Total Phenols	U	1920	mg/l	0.030	[B] < 0.030	[B] < 0.030	[B] < 0.030	[B] < 0.030	[B] < 0.030

## **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:
1564373	Stream Start	WS1(1)		02-Dec-2022	BC	Coloured Winchester 1000ml
1564375	Stream End	WS2(1)		02-Dec-2022	ВС	Coloured Winchester 1000ml
1564377	ВН03	WSBH03		02-Dec-2022	BC	Coloured Winchester 1000ml
1564378	BH12	WSBH12		02-Dec-2022	BC	Coloured Winchester 1000ml
1564379	BH103	WSBH103		02-Dec-2022	BC	Coloured Winchester 1000ml

## **Test Methods**

SOP	Title	Parameters included	Method summary
1010	pH Value of Waters	рН	pH Meter
1150	Dissolved Oxygen	Dissolved Oxygen (DO)	Electrometric determination (on site preferred), using oxygen sensitive membrane electrode.
1160	Aggressive Dissolved CO2	Aggressive Dissolved CO2	Titration
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.
1270	Total Hardness of Waters	Total hardness	Calculation applied to calcium and magnesium results, expressed as mg I-1 CaCO3 equivalent.
1300	Cyanides & Thiocyanate in Waters	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Continuous Flow Analysis.
1325	Sulphide in Waters	Sulphides	Automated colorimetric analysis by 'Aquakem 600' Discrete Analyser using N,N–dimethylphenylenediamine.
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).
1495	Low Level Hexavalent Chromium in Waters	Chromium [VI]	Colorimetric determination of hexavalent chromium expressed as Cr (VI) µg/l in water, using Ion Chromatography and UV-visible spectrophotometry.
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation
	TPH Aliphatic/Aromatic split in Waters by GC-FID(cf. Texas Method 1006 / TPH CWG)	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	Pentane extraction / GCxGC FID detection
1760	Volatile Organic Compounds (VOCs) in Waters by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics. (cf. USEPA Method 8260)	Automated headspace gas chromatographic (GC) analysis of water samples with mass spectrometric (MS) detection of volatile organic compounds.
1790	Semi-Volatile Organic Compounds (SVOCs) in Waters by GC-MS	Semi-volatile organic compounds	Solvent extraction / GCMS detection
1800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Waters 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	Pentane extraction / GCMS detection
1815	Polychlorinated Biphenyls (PCB) ICES7 Congeners in Waters by GC-MS	ICES7 PCB congeners	Solvent extraction / GCMS detection
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.

## Report Information

Key	
U	UKAS accredited
M	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 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: customerservices@chemtest.com

## Appendix 15

Geotechnical Laboratory Results (Rock)

	(Diametrial) POINT LOAD STRENGTH INDEX TEST DATA												
Contract: Hal	verstown 24330		Sample Type: Date of test:	Core 31/05/2	2023				ISSL				
RC No.	Depth	D (Diameter)	P (failure load) kN	F	Is (index strength) Mpa	ls(50) (index strength) Mpa	*UCS MPa	Tuno	Orienation				
RC02	m 15.4	mm 78	29.0	1.222	мра 4.77	5.83	117	Type d	//				
RCU2	17.0	76 78	26.2	1.222	4.77	5.05	105	d	//				
	18.5	78	24.0	1.222	3.95	4.82	96	d	//				
	19.5	78	19.4	1.222	3.19	3.90	78	d	//				
RC03	9.9	78	18.5	1.222	3.04	3.71	74	d	//				
ICO3	11.0	78	2.8	1.222	0.47	0.57	11	d	//				
	11.6	78	21.6	1.222	3.54	4.33	87	d	//				
	12.7	78	23.0	1.222	3.78	4.62	92	d	//				
	14.0	78	22.0	1.222	3.62	4.42	88	d	//				
RC04	13.0	78	30.9	1.222	5.08	6.20	124	d	//				
	13.3	78	3.0	1.222	0.49	0.60	12	d	//				
	15.1	78	30.0	1.222	4.93	6.02	120	d	//				
	16.0	78	20.6	1.222	3.39	4.14	83	d	//				
	tistical Sumn		Is(50)	UCS*		Distribution Cur	ve		breviations				
Number of Sa Minimum	ampies reste	eu	13 0.57	13 11	0.16			i	irregular axial				
Average			4.19	84	0.14			a b	axiai block				
Maximum			6.20	124	0   /			d	diametral				
Standard Dev	,		1.78	36	1 0			u	Giailleti ai				
Upper 95% C		mit	7.68	153.65	1			annro	ox. orientation				
Lower 95% C			0.69	133.03	0.04				planes of				
1	, LI		0.03	10.77	0.02				ness/bedding				
Comments:					0.02			U	unknown				
*UCS taken a	s k x Point L	oad ls(50): k=		20	0 10	0 200	300	Р	perpendicular				
								//	parallel				

## Appendix 16

## **Exploratory Hole Location Plans**

2022 Investigation

**DWG01 – DWG05** 

2023 Investigation

**Additional Works** 











