

INSITU TESTING - Plate Load Test

Form INS016 Rev I
Sheet I - Test Results

| | | | |
|---------|-------------------------------|---------------|----------------|
| Project | Newport Quinn - Phase 2 | Test Location | PLT12 |
| | | Project No | PN224395 |
| Client | Pinnacle Consulting Engineers | Date | 05 August 2022 |
| | | Test No | I |

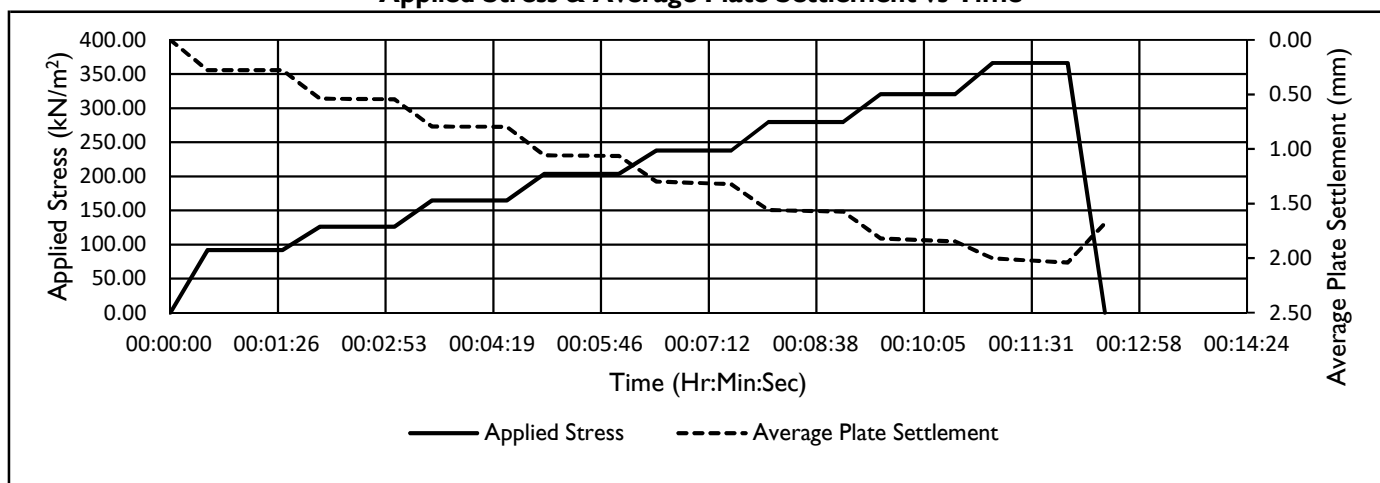
Test carried out in accordance with
BS 1377-9:1990 & Design Manual for Roads & Bridges IAN 73/06 Revision I (2009)

| | | | |
|--------------------|---|---------------------|---------|
| Soil Description | MG - Reddish brown gravelly slightly silty fine to coarse sand. | Plate Diameter (mm) | 300 |
| Test Depth (m bgl) | 0.15 | Kentledge Type | JCB 3CX |
| Carried out by | AJ | Checked by | JSJ |

Test Results

| Applied Load (kN) | Applied Stress (kN/m ²) | Average Plate Settlement (mm) | Applied Stress vs Average Plate Settlement |
|-------------------|-------------------------------------|-------------------------------|--|
| 0.00 | 0.00 | 0.00 | |
| 6.51 | 92.10 | 0.28 | |
| 8.92 | 126.19 | 0.54 | |
| 11.63 | 164.53 | 0.80 | |
| 14.38 | 203.44 | 1.06 | |
| 16.81 | 237.81 | 1.32 | |
| 19.78 | 279.83 | 1.57 | |
| 22.64 | 320.29 | 1.85 | |
| 25.89 | 366.27 | 2.04 | |
| 0.00 | 0.00 | 1.68 | |
| | | | |
| | | | |
| | | | |

Applied Stress & Average Plate Settlement vs Time



Applied Stress at 1.25mm Settlement

237.8 kN/m²

Modulus of Subgrade Reaction

84.0 MN/m²/m

Equivalent CBR Value

20.9 %

Remarks

INSITU TESTING - Plate Load Test

Form INS016 Rev I
Sheet I - Test Results

| | | | |
|---------|-------------------------------|---------------|----------------|
| Project | Newport Quinn - Phase 2 | Test Location | PLT13 |
| | | Project No | PN224395 |
| Client | Pinnacle Consulting Engineers | Date | 04 August 2022 |
| | | Test No | I |

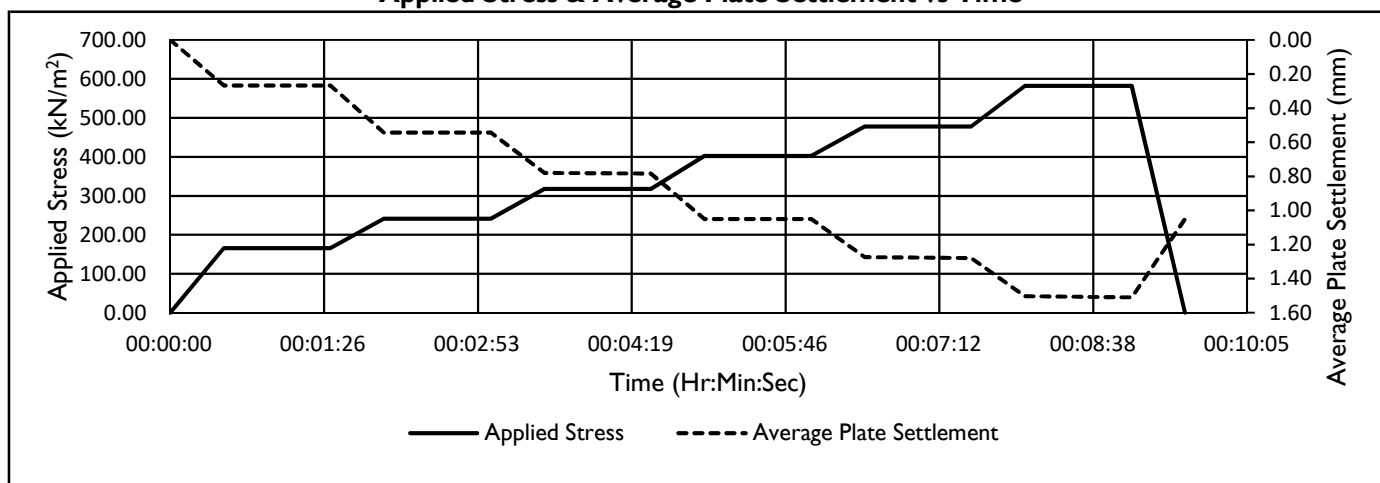
Test carried out in accordance with
BS 1377-9:1990 & Design Manual for Roads & Bridges IAN 73/06 Revision I (2009)

| | | | |
|--------------------|---|---------------------|---------|
| Soil Description | MG - Reddish brown gravelly slightly silty fine to coarse sand. | Plate Diameter (mm) | 300 |
| Test Depth (m bgl) | 0.45 | Kentledge Type | JCB 3CX |
| Carried out by | AJ | Checked by | JSJ |

Test Results

| Applied Load (kN) | Applied Stress (kN/m ²) | Average Plate Settlement (mm) | Applied Stress vs Average Plate Settlement |
|-------------------|-------------------------------------|-------------------------------|--|
| 0.00 | 0.00 | 0.00 | |
| 11.73 | 165.95 | 0.27 | |
| 17.05 | 241.21 | 0.54 | |
| 22.47 | 317.89 | 0.78 | |
| 28.46 | 402.63 | 1.05 | |
| 33.76 | 477.61 | 1.28 | |
| 41.15 | 582.15 | 1.51 | |
| 0.00 | 0.00 | 1.05 | |
| | | | |
| | | | |
| | | | |

Applied Stress & Average Plate Settlement vs Time



Applied Stress at 1.25mm Settlement

477.6 kN/m²

Modulus of Subgrade Reaction

168.8 MN/m²/m

Equivalent CBR Value

69.9 %

Remarks

INSITU TESTING - Plate Load TestForm INS016 Rev I
Sheet I - Test Results

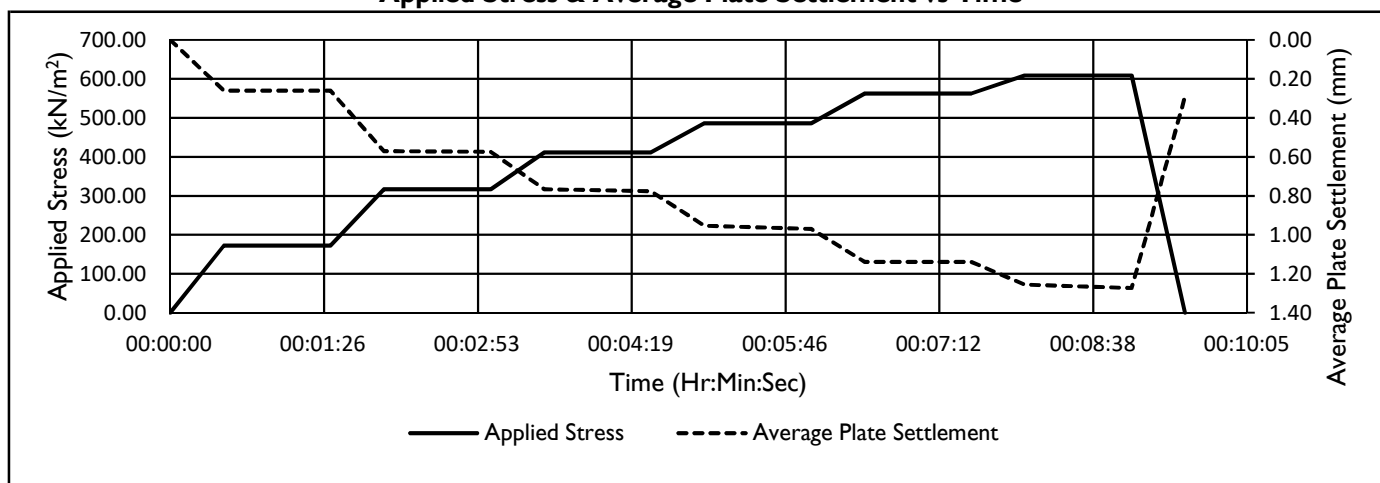
| | | | |
|---------|-------------------------------|---------------|----------------|
| Project | Newport Quinn - Phase 2 | Test Location | PLT14 |
| | | Project No | PN224395 |
| Client | Pinnacle Consulting Engineers | Date | 01 August 2022 |
| | | Test No | I |

**Test carried out in accordance with
BS 1377-9:1990 & Design Manual for Roads & Bridges IAN 73/06 Revision I (2009)**

| | | | |
|--------------------|---|---------------------|---------|
| Soil Description | MG - Reddish brown gravelly slightly silty fine to coarse sand. | Plate Diameter (mm) | 300 |
| Test Depth (m bgl) | 0.20 | Kentledge Type | JCB 3CX |
| Carried out by | AJ | Checked by | JSJ |

Test Results

| Applied Load (kN) | Applied Stress (kN/m ²) | Average Plate Settlement (mm) | Applied Stress vs Average Plate Settlement |
|-------------------|-------------------------------------|-------------------------------|--|
| 0.00 | 0.00 | 0.00 | |
| 12.20 | 172.59 | 0.26 | |
| 22.38 | 316.61 | 0.57 | |
| 29.08 | 411.40 | 0.78 | |
| 34.38 | 486.38 | 0.97 | |
| 39.75 | 562.35 | 1.14 | |
| 43.04 | 608.89 | 1.27 | |
| 0.00 | 0.00 | 0.29 | |
| | | | |
| | | | |
| | | | |

Applied Stress & Average Plate Settlement vs Time

Applied Stress at 1.25mm Settlement

585.0 kN/m²

Modulus of Subgrade Reaction

206.7 MN/m²/m

Equivalent CBR Value

99.3 %

Remarks

INSITU TESTING - Plate Load Test

Form INS016 Rev I
Sheet I - Test Results

| | | | |
|---------|-------------------------------|---------------|----------------|
| Project | Newport Quinn - Phase 2 | Test Location | PLT15 |
| | | Project No | PN224395 |
| Client | Pinnacle Consulting Engineers | Date | 02 August 2022 |
| | | Test No | I |

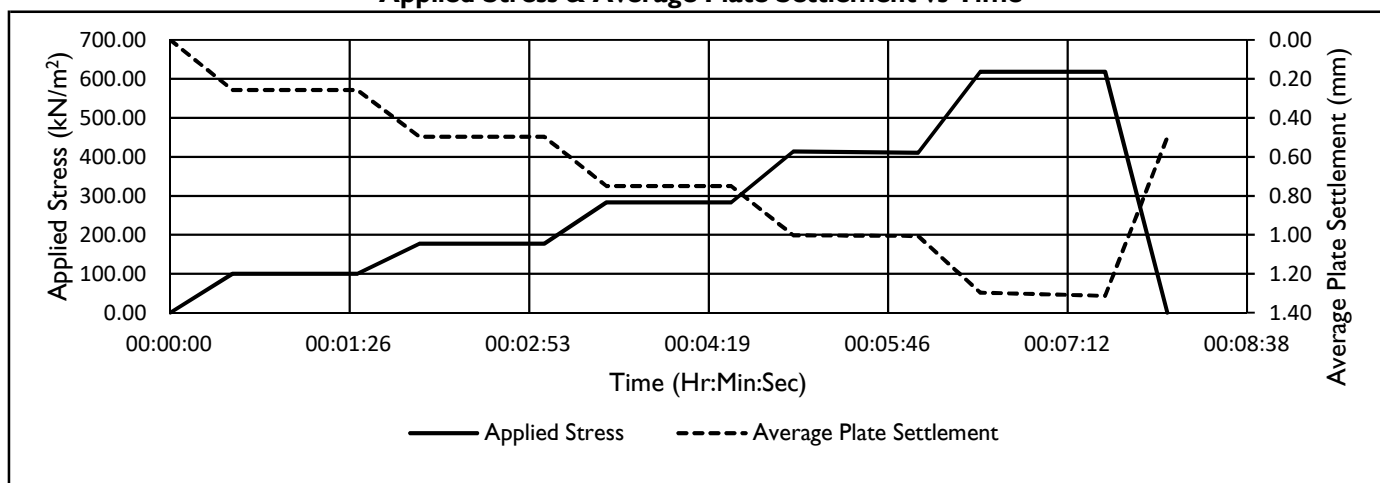
Test carried out in accordance with
BS 1377-9:1990 & Design Manual for Roads & Bridges IAN 73/06 Revision I (2009)

| | | | |
|--------------------|---|---------------------|---------|
| Soil Description | MG - Reddish brown gravelly slightly silty fine to coarse sand. | Plate Diameter (mm) | 300 |
| Test Depth (m bgl) | 0.20 | Kentledge Type | JCB 3CX |
| Carried out by | AJ | Checked by | JSJ |

Test Results

| Applied Load (kN) | Applied Stress (kN/m ²) | Average Plate Settlement (mm) | Applied Stress vs Average Plate Settlement |
|-------------------|-------------------------------------|-------------------------------|--|
| 0.00 | 0.00 | 0.00 | |
| 7.06 | 99.88 | 0.26 | |
| 12.55 | 177.55 | 0.50 | |
| 20.03 | 283.37 | 0.75 | |
| 29.03 | 410.69 | 1.01 | |
| 43.71 | 618.37 | 1.31 | |
| 0.00 | 0.00 | 0.50 | |
| | | | |
| | | | |
| | | | |
| | | | |

Applied Stress & Average Plate Settlement vs Time



Applied Stress at 1.25mm Settlement

585.0 kN/m²

Modulus of Subgrade Reaction

206.7 MN/m²/m

Equivalent CBR Value

99.3 %

Remarks

INSITU TESTING - Plate Load Test

Form INS016 Rev I
Sheet I - Test Results

| | | | |
|---------|-------------------------------|---------------|----------------|
| Project | Newport Quinn - Phase 2 | Test Location | PLT16 |
| | | Project No | PN224395 |
| Client | Pinnacle Consulting Engineers | Date | 02 August 2022 |
| | | Test No | I |

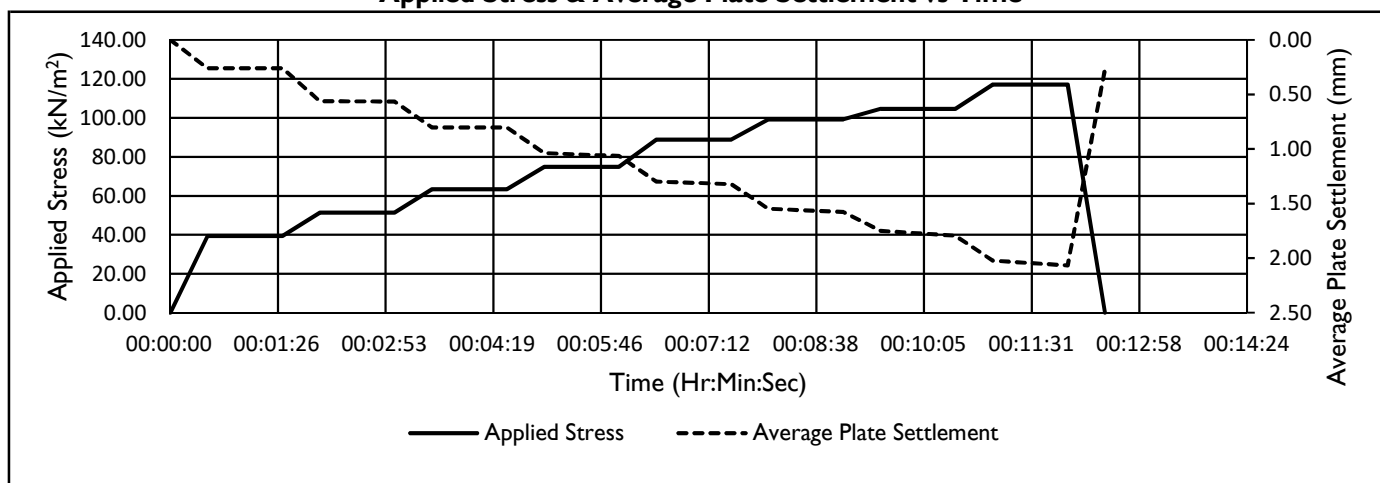
Test carried out in accordance with
BS 1377-9:1990 & Design Manual for Roads & Bridges IAN 73/06 Revision I (2009)

| | | | |
|--------------------|---|---------------------|---------|
| Soil Description | MG - Reddish brown gravelly slightly silty fine to coarse sand. | Plate Diameter (mm) | 300 |
| Test Depth (m bgl) | 0.20 | Kentledge Type | JCB 3CX |
| Carried out by | AJ | Checked by | JSJ |

Test Results

| Applied Load (kN) | Applied Stress (kN/m ²) | Average Plate Settlement (mm) | Applied Stress vs Average Plate Settlement |
|-------------------|-------------------------------------|-------------------------------|--|
| 0.00 | 0.00 | 0.00 | |
| 2.78 | 39.33 | 0.26 | |
| 3.63 | 51.35 | 0.56 | |
| 4.48 | 63.38 | 0.80 | |
| 5.29 | 74.84 | 1.06 | |
| 6.28 | 88.84 | 1.32 | |
| 7.01 | 99.17 | 1.58 | |
| 7.40 | 104.69 | 1.79 | |
| 8.28 | 117.14 | 2.07 | |
| 0.00 | 0.00 | 0.27 | |
| | | | |
| | | | |
| | | | |

Applied Stress & Average Plate Settlement vs Time



Applied Stress at 1.25mm Settlement

88.8 kN/m²

Modulus of Subgrade Reaction

31.4 MN/m²/m

Equivalent CBR Value

3.8 %

Remarks

INSITU TESTING - Plate Load Test

Form INS016 Rev I
Sheet I - Test Results

| | | | |
|---------|-------------------------------|---------------|----------------|
| Project | Newport Quinn - Phase 2 | Test Location | PLT17 |
| | | Project No | PN224395 |
| Client | Pinnacle Consulting Engineers | Date | 03 August 2022 |
| | | Test No | I |

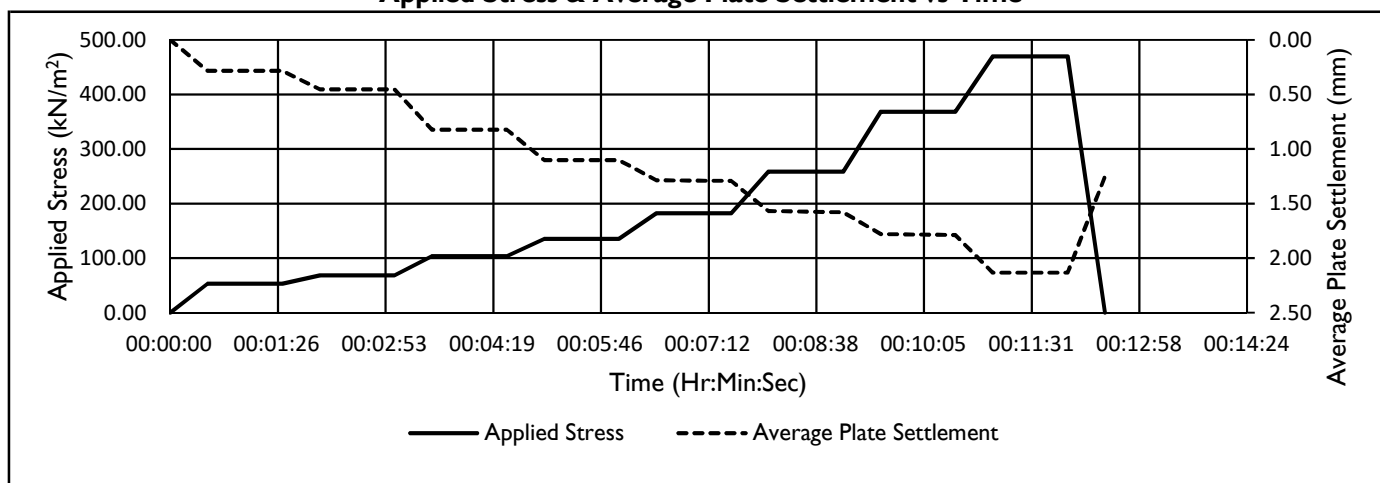
Test carried out in accordance with
BS 1377-9:1990 & Design Manual for Roads & Bridges IAN 73/06 Revision I (2009)

| | | | |
|--------------------|---|---------------------|---------|
| Soil Description | MG - Reddish brown gravelly slightly silty fine to coarse sand. | Plate Diameter (mm) | 300 |
| Test Depth (m bgl) | 0.45 | Kentledge Type | JCB 3CX |
| Carried out by | AJ | Checked by | JSJ |

Test Results

| Applied Load (kN) | Applied Stress (kN/m ²) | Average Plate Settlement (mm) | Applied Stress vs Average Plate Settlement |
|-------------------|-------------------------------------|-------------------------------|--|
| 0.00 | 0.00 | 0.00 | |
| 3.76 | 53.19 | 0.28 | |
| 4.83 | 68.33 | 0.45 | |
| 7.33 | 103.70 | 0.82 | |
| 9.56 | 135.25 | 1.10 | |
| 12.90 | 182.50 | 1.29 | |
| 18.29 | 258.75 | 1.58 | |
| 26.03 | 368.25 | 1.79 | |
| 33.22 | 469.97 | 2.13 | |
| 0.00 | 0.00 | 1.25 | |
| | | | |
| | | | |
| | | | |
| | | | |

Applied Stress & Average Plate Settlement vs Time



Applied Stress at 1.25mm Settlement

182.5 kN/m²

Modulus of Subgrade Reaction

64.5 MN/m²/m

Equivalent CBR Value

13.2 %

Remarks

INSITU TESTING - Plate Load TestForm INS016 Rev I
Sheet I - Test Results

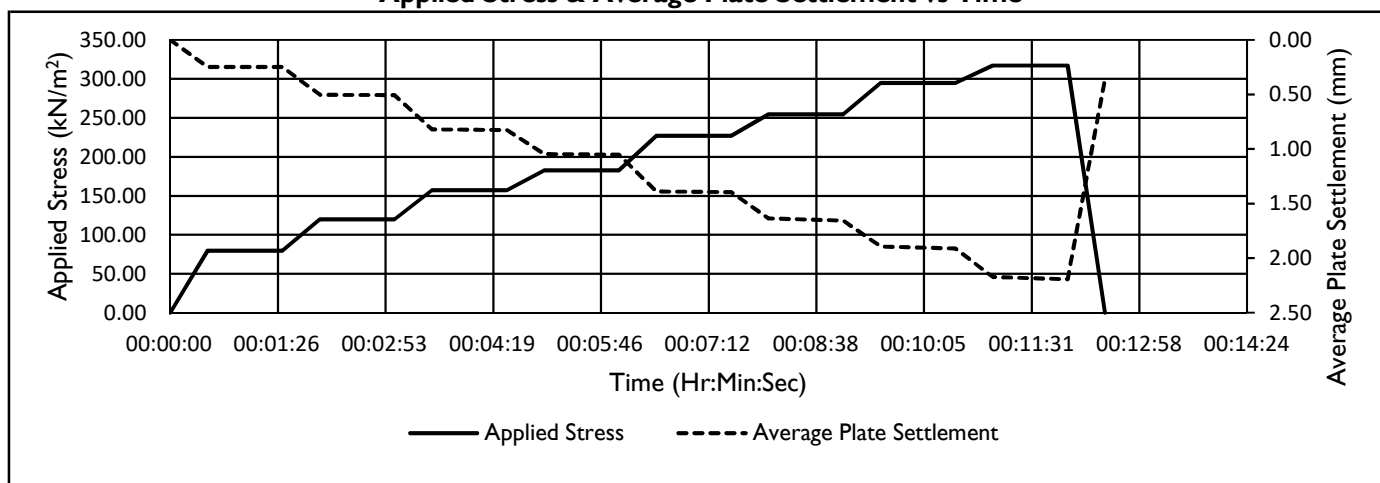
| | | | |
|---------|-------------------------------|---------------|----------------|
| Project | Newport Quinn - Phase 2 | Test Location | PLT18 |
| | | Project No | PN224395 |
| Client | Pinnacle Consulting Engineers | Date | 03 August 2022 |
| | | Test No | I |

**Test carried out in accordance with
BS 1377-9:1990 & Design Manual for Roads & Bridges IAN 73/06 Revision I (2009)**

| | | | |
|--------------------|---|---------------------|---------|
| Soil Description | MG - Reddish brown gravelly slightly silty fine to coarse sand. | Plate Diameter (mm) | 300 |
| Test Depth (m bgl) | 0.40 | Kentledge Type | JCB 3CX |
| Carried out by | AJ | Checked by | JSJ |

Test Results

| Applied Load (kN) | Applied Stress (kN/m ²) | Average Plate Settlement (mm) | Applied Stress vs Average Plate Settlement |
|-------------------|-------------------------------------|-------------------------------|--|
| 0.00 | 0.00 | 0.00 | |
| 5.62 | 79.51 | 0.25 | |
| 8.48 | 119.97 | 0.51 | |
| 11.11 | 157.17 | 0.83 | |
| 12.90 | 182.50 | 1.05 | |
| 16.06 | 227.20 | 1.39 | |
| 18.00 | 254.65 | 1.66 | |
| 20.83 | 294.68 | 1.91 | |
| 22.42 | 317.18 | 2.19 | |
| 0.00 | 0.00 | 0.36 | |
| | | | |
| | | | |
| | | | |

Applied Stress & Average Plate Settlement vs Time

Applied Stress at 1.25mm Settlement

210.0 kN/m²

Modulus of Subgrade Reaction

74.2 MN/m²/m

Equivalent CBR Value

16.8 %

Remarks

APPENDIX 7

Monitoring Results

FIELDWORK - *In Situ Gas Monitoring - Visit Record*

Project Newport Quinn Phase 2

Client Pinnacle Consulting Engineers Limited

Project No. PN224395

Instrument used

Date 13/09/2022

Meteorological Conditions:

Ground Condition: 0

Precipitation: 0

Wind: 0

Cloud Cover: 0

Atmospheric Pressure Trend: 0

[illegible]

FIELDWORK - In Situ Gas Monitoring - Visit Record

| | | | | | |
|------------------------|-----------------------|---------------|---------------------------------------|--------------------|------------|
| Project | Newport Quinn Phase 2 | Client | Pinnacle Consulting Engineers Limited | Project No. | PN224395 |
| Instrument used | | | | Date | 20/09/2022 |

Meteorological Conditions:
 Ground Condition:
 Precipitation:
 Wind:
 Cloud Cover:
 Atmospheric Pressure Trend:

| Location ID | Pipe Ref. | Installation Diameter (mm) | Time of Reading (hh:mm:ss) | Flow (Peak) (l/hr) | Flow (Steady) (l/hr) | Methane (Peak) (% v/v) | Methane (Steady) (% v/v) | Carbon Dioxide (Peak) (% v/v) | Carbon Dioxide (Steady) (% v/v) | Oxygen (Peak) (% v/v) | Oxygen (Steady) (% v/v) | Carbon Monoxide (ppm) | Hydrogen Sulphide (ppm) | PID (ppm) | Air Temperature (°C) | Atmospheric Pressure (mb) | Diff. Pressure (Pa) | Depth to Water (m bgl) | Depth to Base (m bgl) | Remarks |
|-------------|-----------|----------------------------|----------------------------|--------------------|----------------------|------------------------|--------------------------|-------------------------------|---------------------------------|-----------------------|-------------------------|-----------------------|-------------------------|-----------|----------------------|---------------------------|---------------------|------------------------|-----------------------|--|
| BH01 | 1 | 50 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.4 | 20.4 | 0 | 0 | | 17.0 | 1028 | 0 | 2.68 | | |
| BH03 | 1 | 50 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 20.4 | 20.4 | 0 | 0 | | 17.0 | 1028 | 0 | 2.25 | | |
| BH04A | 1 | 50 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.4 | 20.4 | 0 | 0 | | 17.0 | 1028 | 0 | 2.62 | | |
| BH06 | 1 | 50 | | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 | 1.3 | 18.9 | 18.9 | 0 | 0 | | 17.0 | 1027 | 0 | 1.80 | | |
| BH07 | 1 | 50 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.6 | 19.6 | 19.6 | 0 | 0 | | 17.0 | 1027 | 0 | 4.95 | | |
| BH09 | 1 | 50 | | -28.0 | 0.0 | 1.0 | 1.0 | 1.7 | 1.7 | 18.7 | 18.7 | 0 | 0 | | 17.0 | 1026 | -198 | 2.28 | | |
| BH10 | 1 | 50 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 0.7 | 17.6 | 17.6 | 0 | 0 | | 17.0 | 1025 | 0 | 2.83 | | |
| BH13 | 1 | 50 | | | | | | | | | | | | | | | | | | |
| BH17A | 1 | 50 | | 9.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 19.8 | 19.8 | 0 | 0 | | 17.0 | 1026 | 0 | 3.44 | | |
| BH19 | 1 | 50 | | | | | | | | | | | | | | | | 3.03 | | Unable to monitor gas concentrations as no gas bung installed. |
| BH23 | 1 | 50 | | | | | | | | | | | | | | | | 4.75 | | Unable to monitor gas concentrations as no gas bung installed. |
| BH25 | 1 | 50 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 0.5 | 8.5 | 8.5 | 0 | 0 | | 20.0 | 1026 | 0 | 4.56 | | |
| BH28 | 1 | 50 | | | | | | | | | | | | | | | | 3.45 | | Unable to monitor gas concentrations as gas bung open. |
| BH30 | 1 | 50 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.1 | 20.1 | 0 | 0 | | 20.0 | 1026 | 0 | 3.25 | | |
| CP-BH101 | 2 | 50 | | | | | | | | | | | | | | | | 2.10 | | Unable to monitor gas concentrations as installation flooded. Groundwater level measured after opening bung to allow surface water to drain into installation. |
| CP-BH102 | 1 | 50 | | | | | | | | | | | | | | | | 4.69 | | Unable to monitor gas concentrations as installation flooded. Groundwater level measured after opening bung to allow surface water to drain into installation. |
| CP-BH103 | 1 | 50 | | | | | | | | | | | | | | | | 1.30 | | Unable to monitor gas concentrations as installation flooded. Groundwater level measured after opening bung to allow surface water to drain into installation. |
| RC-BH101 | 1 | 50 | | 4.3 | 0.0 | 0.0 | 0.0 | 0.5 | 0.5 | 20.2 | 20.2 | 0 | 0 | | 20.0 | 1026 | 0 | 2.26 | | |
| RC-BH102 | 1 | 50 | | | | | | | | | | | | | | | | 2.66 | | Unable to monitor gas concentrations as gas bung open. |
| RC-BH103 | 1 | 50 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.3 | 15.0 | 13.3 | 0 | 0 | | 20.0 | 1026 | 0 | 4.10 | | |
| RC-BH104 | 1 | 50 | | | | | | | | | | | | | | | | 2.66 | | Unable to monitor gas concentrations as gas bung open. |
| RC-BH105 | 1 | 50 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.1 | 20.1 | 0 | 0 | | 18.0 | 1023 | 0 | 3.12 | | |
| WS-BH102 | 1 | 50 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.9 | 0.9 | 20.0 | 20.0 | 0 | 0 | | 18.0 | 1027 | 0 | DRY | | |
| WS-BH103 | 1 | 50 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 0.5 | 19.5 | 19.5 | 0 | 0 | | 18.0 | 1026 | 0 | DRY | | |
| WS-BH104 | 1 | 50 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.3 | 20.2 | 0 | 0 | | 18.0 | 1025 | 0 | DRY | | |
| WS-BH105 | 1 | 50 | | 4.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 21.0 | 21.0 | 0 | 0 | | 18.0 | 1026 | 0 | 0.73 | | |

FIELDWORK - In Situ Gas Monitoring - Visit Record

| | | | | | |
|------------------------|-----------------------|---------------|---------------------------------------|--------------------|------------|
| Project | Newport Quinn Phase 2 | Client | Pinnacle Consulting Engineers Limited | Project No. | PN224395 |
| Instrument used | | | | Date | 26/09/2022 |

Meteorological Conditions:
 Ground Condition:
 Precipitation:
 Wind:
 Cloud Cover:
 Atmospheric Pressure Trend:

| Location ID | Pipe Ref. | Installation Diameter (mm) | Time of Reading (hh:mm:ss) | Flow (Peak) (l/hr) | Flow (Steady) (l/hr) | Methane (Peak) (% v/v) | Methane (Steady) (% v/v) | Carbon Dioxide (Peak) (% v/v) | Carbon Dioxide (Steady) (% v/v) | Oxygen (Peak) (% v/v) | Oxygen (Steady) (% v/v) | Carbon Monoxide (ppm) | Hydrogen Sulphide (ppm) | PID (ppm) | Air Temperature (°C) | Atmospheric Pressure (mb) | Diff. Pressure (Pa) | Depth to Water (m bgl) | Depth to Base (m bgl) | Remarks |
|-------------|-----------|----------------------------|----------------------------|--------------------|----------------------|------------------------|--------------------------|-------------------------------|---------------------------------|-----------------------|-------------------------|-----------------------|-------------------------|-----------|----------------------|---------------------------|---------------------|------------------------|-----------------------|--|
| BH01 | 1 | 50 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.3 | 20.0 | 19.7 | 0 | 0 | | 15.0 | 1005 | 0 | 2.63 | | |
| BH03 | 1 | 50 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.4 | 20.4 | 0 | 0 | | 15.0 | 1005 | 0 | 2.13 | | |
| BH04A | 1 | 50 | | 22.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.4 | 20.4 | 0 | 0 | | 15.0 | 1005 | 230 | 2.60 | | |
| BH06 | 1 | 50 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.3 | 20.3 | 20.3 | 0 | 0 | | 15.0 | 1006 | 0 | 1.79 | | |
| BH07 | 1 | 50 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.5 | 20.5 | 0 | 0 | | 15.0 | 1005 | 0 | 4.95 | | |
| BH09 | 1 | 50 | | 24.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.2 | 20.4 | 20.3 | 0 | 0 | | 15.0 | 1004 | 240 | 2.29 | | |
| BH10 | 1 | 50 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.2 | 19.9 | 19.9 | 0 | 0 | | 15.0 | 1004 | 0 | 2.79 | | |
| BH13 | 1 | 50 | | | | | | | | | | | | | 15.0 | | | | | |
| BH17A | 1 | 50 | | 15.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.5 | 20.5 | 0 | 0 | | 15.0 | 1004 | 90 | 3.56 | | |
| BH19 | 1 | 50 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.5 | 20.5 | 0 | 0 | | 15.0 | 1003 | 0 | 3.00 | | |
| BH23 | 1 | 50 | | -26.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.6 | 20.6 | 0 | 0 | | 17.0 | 1005 | 206 | 4.73 | | |
| BH25 | 1 | 50 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 19.1 | 19.1 | 0 | 0 | | 17.0 | 1004 | 0 | 3.07 | | |
| BH28 | 1 | 50 | | 0.8 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 20.6 | 20.6 | 0 | 0 | | 17.0 | 1005 | 5 | 3.50 | | |
| BH30 | 1 | 50 | | 47.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.6 | 20.6 | 0 | 0 | | 17.0 | 1004 | 640 | 3.22 | | |
| CP-BH101 | 2 | 50 | | | | | | | | | | | | | | | | 1.95 | | Unable to monitor gas concentrations as installation flooded. Groundwater level measured after opening bung to allow surface water to drain into installation. |
| CP-BH102 | 1 | 50 | | | | | | | | | | | | | | | | 3.92 | | Unable to monitor gas concentrations as installation flooded. Groundwater level measured after opening bung to allow surface water to drain into installation. |
| CP-BH103 | 1 | 50 | | | | | | | | | | | | | | | | 1.36 | | Unable to monitor gas concentrations as installation flooded. Groundwater level measured after opening bung to allow surface water to drain into installation. |
| RC-BH101 | 1 | 50 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.6 | 20.6 | 0 | 0 | | 17.0 | 1005 | 0 | 2.32 | | |
| RC-BH102 | 1 | 50 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.6 | 20.6 | 0 | 0 | | 17.0 | 1004 | 0 | 2.64 | | |
| RC-BH103 | 1 | 50 | | | | | | | | | | | | | | | | 2.35 | | Unable to monitor gas concentrations as installation flooded. Groundwater level measured after opening bung to allow surface water to drain into installation. |
| RC-BH104 | 1 | 50 | | | | | | | | | | | | | | | | 2.62 | | Unable to monitor gas concentrations as installation flooded. Groundwater level measured after opening bung to allow surface water to drain into installation. |
| RC-BH105 | 1 | 50 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.6 | 20.6 | 0 | 0 | | 15.0 | 1005 | 0 | 3.08 | | |
| WS-BH102 | 1 | 50 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.6 | 20.5 | 0 | 0 | | 15.0 | 1005 | 0 | DRY | | |
| WS-BH103 | 1 | 50 | | | | | 0.0 | | | | | | | | 15.0 | | | | | |

APPENDIX 8

Laboratory Test Results - Geotechnical

Classification and Strength

| Symbol | C - Clay (0 - containing organic matter) Plasticity | M - Silt L - Low I - Intermediate H - High V - Very High E - Extremely High |
|-----------------------|---|--|
| I_p | Plasticity Index | |
| % | % retained on 425 μ m sieve, shown under I_p value | |
| w_L | Liquid Limit | |
| w_p | Plastic Limit | |
| NP | Non-Plastic | |
| NAT | Sample tested in natural state | |
| w | Water Content | |
| ρ_d | Particle Density | |
| Test | Quick undrained triaxial tests | |
| | SS | Single stage - 102mm diameter. |
| | S3 | Single stage - set of 3 38mm diameter. |
| | MS | Multistage - 102mm diameter. |
| | D | Drained Test |
| | HV | Hand Vane |
| | PP | Pocket Penetrometer (kg/cm^2) |
| | NST | Not suitable for test |
| γ_b | Bulk Density | |
| σ_3 | Triaxial Cell Pressure | |
| $\sigma_1 - \sigma_3$ | Deviator Stress | |
| ## | Excessive Strain | |
| c_u | Undrained Cohesion | |
| c | Cohesion Intercept | |
| ϕ | Angle of Shearing Resistance | |
| Linear Shrink | Linear Shrinkage | |
| Stab add- | Stabiliser which is added | |

Consolidation

| | |
|-----------|---|
| m_v | Coefficient of Volume Compressibility |
| c_{v50} | Coefficient of Consolidation - Log t |
| c_{v90} | Coefficient of Consolidation - \sqrt{t} |

Rock

| | |
|----|----------------------|
| UF | Unacceptable Failure |
|----|----------------------|

Chemical Analysis

| | |
|-----------------|--|
| Acid Soluble | Total sulphate in specimen, expressed as SO_3 %, value in brackets expressed as SO_4 % |
| Water Soluble | Soluble sulphate in 2:1 water : soil extract, expressed as SO_3 g/l, value in brackets expressed as SO_4 g/l |
| In Water | Sulphate content of groundwater, expressed as SO_3 g/l, value in brackets expressed as SO_4 g/l |
| pH | pH value |
| Organic content | Organic content expressed as a percentage of dry weight |
| Chloride | Chloride Ion content expressed as a percentage of dry weight |

MCV, Compaction, CBR

| | |
|-----|---|
| MCV | Moisture Condition Value at natural water content |
| MCC | Moisture Condition Calibration |
| CCV | Chalk Crushing Value |

Compaction

| | | | |
|-------------------------------------|--------------|---|--|
| Type | 2.5 | = | 2.5 kg Rammer |
| | 4.5 | = | 4.5 kg Rammer |
| | V | = | Vibrating Hammer |
| γ_b | Bulk Density | | |
| γ_d | Dry Density | | |
| CBR California Bearing Ratio | | | |
| Type | 2.5 | = | Test on Specimen Recompacted using 2.5 kg Rammer |
| | 4.5 | = | As above but using 4.5 kg Rammer |
| | V | = | As above but using Vibrating Hammer |
| | M | = | Test on open drive mould specimen cut in field |
| | S | = | Soaked Specimen |

| | |
|--------|------------------------|
| Top | CBR at top of mould |
| Bottom | CBR at bottom of mould |
| ND | None Detected |

* In the Sample Description denotes a laboratory only description

Laboratory Test Certificate

Form REP008 Rev 3

| | | | |
|---------------------------|---|----------------------------------|---------------------|
| Issued To | Geotechnics Ltd The Geotechnical Centre 203 Torrington Avenue Tile Hill Coventry, CV4 9AP | Date of issue | 01.11.22 |
| | | Issue No. | 1 |
| | | Client Ref. No. | N/A |
| | | Samples / Material Source | |
| | | Samples Recv'd | 26.09.22 |
| Testing Start Date | 30.09.22 | Sample State | As received |
| Testing Complete | 31.10.22 | Sampled by | Geotechnics Limited |
| Comments | | | |
| Project No | PN224395 | | |
| Project Name | Newport Quinn Phase 2. | | |

Summary of Tests

| Standard | Test Description | Test Quantity | UKAS |
|--|---|---------------|------|
| BS EN ISO 17892-1:2014 | Water Content | 32 | Yes |
| BS EN ISO 17892-12:2018 Cl. 5.3 & 5.5 | Liquid Limit and Plastic Limit (4 Points Method) | 29 | Yes |
| BS EN ISO 17892-4:2016 Cl. 5.2 | Particle Size Distribution by Sieving Method | 18 | Yes |
| BS EN ISO 17892-4:2016 Cl. 5.4 | Particle Size Distribution by Pipette Method | 14 | Yes |
| BS EN ISO 17892-8:2018 | Shear Strength by Unconsolidated Undrained Triaxial Test - Single Stage | 2 | Yes |
| BS EN ISO 17892-5:2017 | Incremental Loading Oedometer | 1 | Yes |
| BS 1377-4:1990 Cl. 3.3 | 2.5 kg Rammer Dry Density/Moisture Content Relationship (Compaction) | 7 | Yes |
| BS 1377-4:1990 Cl. 3.5 | 4.5 kg Rammer Dry Density/Moisture Content Relationship (Compaction) | 7 | Yes |
| BS 1377-4:1990 Cl. 7.2 | California Bearing Ratio (CBR) | 13 | Yes |
| ASTM D5334-14 | Determination of Thermal Conductivity of Soil and Soft Rock by Thermal Needle Probe | 22 | No |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

Note: Any descriptions, opinions or interpretations are outside the scope of UKAS accreditation.
The results within this report relate only to the samples tested and received from the client.



Test Results checked and approved for issue.
Signed for and on behalf of Geotechnics Limited

Paul Smart (Laboratory Testing Manager)

GEOTECHNICS
geotechnical and geoenvironmental specialists


203 Torrington Avenue, Tile Hill,
Coventry, CV4 9UT

LABORATORY RESULTS - Classification and Strength

Project NEWPORT QUINN PHASE 2

Project No: PN224395

| Sample | | | | | Classification | | | | | Strength | | | | | |
|--------|-----------------------------------|------|---------------|--|----------------|--------------------------|------------|------------|-----------------------|----------|--|---------------------------------|--|----------------------------|--------------------------------|
| Hole | Depth (Specimen Depth) m | Type | Sample Ref | Description | Symbol | I_p (>425) % | w_L % | w_p % | w (p_d) % | Test | γ_b (γ_d) ³ Mg/m ³ | σ_3 kN/m ² | $\sigma_1 - \sigma_3$ kN/m ² | c_u kN/m ² | c_{Avg} kN/m ² |
| BH01 | 4.80 (4.80) | D | N84040 | Brown clayey very sandy GRAVEL (See Test Remarks Sheet for further information) | | NST (76%) | | | 15.7 | | | | | | |
| BH02 | 6.80 (6.80) | D | N84046 | Brown slightly clayey GRAVEL.* (See Test Remarks Sheet for further information) | | NST (86%) | | | 12.0 | | | | | | |
| BH03 | 2.00- 2.50 (2.00) | B | N84047 | Brown slightly gravelly slightly sandy CLAY. | CL | 13 (65%) | 32 | 19 | 10.6 | | | | | | |
| BH03 | 5.80 (5.80) | D | N84049 | Brown mottled red slightly gravelly silty CLAY. | MH | 23 (36%) | 53 | 30 | 31.8 | | | | | | |
| BH04A | 2.00- 2.50 (2.00) | B | N84051 | Brown gravelly sandy CLAY. | | | | | 11.0 | | | | | | |
| BH05 | 2.60 (2.60) | D | N84053 | Brown slightly gravelly slightly sandy CLAY. | MV | 34 (8%) | 77 | 43 | 39.5 | | | | | | |
| BH06 | 1.20- 1.70 (1.20) | B | N84054 | Brown slightly gravelly sandy CLAY. | CL | 11 (7%) | 26 | 15 | 9.3 | | | | | | |
| BH07 | 0.50 (0.50) | D | N84055 | Brown mottled grey slightly gravelly slightly sandy CLAY. | CL | 14 (32%) | 31 | 17 | 13.5 | | | | | | |
| BH07 | 3.00 (3.00) | D | N84059 | Brown slightly sandy clayey GRAVEL. | | | | | 6.3 | | | | | | |
| BH07 | 5.05 (5.05) | D | N84060 | Red mottled brown slightly sandy slightly gravelly CLAY. | | | | | 26.2 | | | | | | |
| BH08 | 5.00- 5.45 (5.00) | D | N84063 | Red mottled brown slightly sandy slightly gravelly CLAY. | CI | 21 (14%) | 43 | 22 | 27.8 | | | | | | |
| BH09 | 3.80 (3.80) | D | N84064 | Brown slightly sandy slightly gravelly CLAY. | MI | 17 (8%) | 44 | 27 | 27.0 | | | | | | |
| BH09 | 4.00- 4.45 (4.00) | UT | N84065 | Brown slightly sandy slightly gravelly CLAY. | CI | 23 (1%) | 49 | 26 | 33.3 | | | | | | |
| BH09 | 5.45- 5.50 (5.45) | D | N84067 | Black mottled brown slightly gravelly CLAY with organic material. | | (13%) | 156 | NP | 141 | | | | | | |
| BH10 | 3.10 (3.10) | D | N84070 | Brown mottled black slightly sandy slightly gravelly CLAY. | MH | 20 (12%) | 54 | 34 | 41.2 | | | | | | |
| BH10 | 4.20 (4.20) | D | N84071 | Grey mottled brown slightly gravelly slightly sandy CLAY. | CL | 11 (9%) | 28 | 17 | 19.6 | | | | | | |
| BH10 | 5.00- 5.45 (5.14) | UT | N84072 | Brown slightly gravelly sandy silty CLAY | | | | | 32.2 <26.2> | SS | 1.98 | 100 | 152 | 76 | 76 |
| | | | | | | | | | | | | | | | |

Remarks  NST - Not suitable for Test
 For Standards followed see Laboratory Test Certificate
 $w\%$ - \wedge = Rock water content test; x = Aggregate moisture content test
 QUT Water Contents: <Failure Zone>, [After test]


GEOTECHNICS
 geotechnical and geoenvironmental specialists

LABORATORY RESULTS - Classification and Strength


Project NEWPORT QUINN PHASE 2

Project No: PN224395

| Sample | | | | | Classification | | | | | Strength | | | | | |
|--------|-----------------------------------|------|---------------|---|----------------|-------------------------------|---------------------|---------------------|-----------------------------|----------|---|-------------------------------------|---|-------------------------------------|---------------------------------------|
| Hole | Depth (Specimen Depth) m | Type | Sample Ref | Description | Symbol | I _p (>425) % | w _L % | w _p % | w (p _d) % | Test | γ _b (γ _d) ³ Mg/m ³ | σ ₃ kN/m ² | σ ₁ -σ ₃ kN/m ² | c _u kN/m ² | c _{Avg} kN/m ² |
| BH11 | 1.20- 1.40 (1.20) | D | N84074 | Brown slightly sandy slightly gravelly CLAY with cobbles. (See Test Remarks Sheet for further information) | CL | 14 (74%) | 32 | 18 | 11.3 | | | | | | |
| BH11 | 3.00- 3.50 (3.00) | B | N84075 | Red mottled brown slightly gravelly slightly sandy CLAY. | MH | 26 (34%) | 60 | 34 | 35.7 | | | | | | |
| BH13 | 3.00- 3.45 (3.00) | D | N84081 | Brown mottled red and grey slightly sandy slightly gravelly CLAY. | CI | 25 (36%) | 49 | 24 | 20.6 | | | | | | |
| BH13 | 4.80 (4.80) | D | N84082 | Brown slightly clayey GRAVEL. (See Test Remarks Sheet for further information) | | NST (83%) | | | 9.5 | | | | | | |
| BH14A | 2.80 (2.80) | D | N84083 | Brown slightly gravelly CLAY. | CL | 9 (48%) | 24 | 15 | 12.1 | | | | | | |
| BH15 | 3.00- 3.45 (3.14) | UT | N84086 | Firm reddish brown slightly gravelly silty CLAY | | | | | 23.6 <24.8> | SS | 2.00 | 60 | 127 | 64 | 64 |
| BH15 | 3.50 (3.50) | D | N84087 | Red mottled brown slightly sandy slightly gravelly CLAY. (See Test Remarks Sheet for further information) | CI | 19 (61%) | 40 | 21 | 22.4 | | | | | | |
| BH17A | 2.30 (2.30) | D | N84094 | Brown slightly sandy gravelly CLAY. (See Test Remarks Sheet for further information) | CL | 17 (58%) | 33 | 16 | 10.4 | | | | | | |
| BH17A | 4.05 (4.05) | D | N84095 | Red mottled brown slightly gravelly slightly sandy CLAY. | CL | 17 (38%) | 33 | 16 | 17.2 | | | | | | |
| BH18 | 3.80 (3.80) | D | N84099 | Brown slightly gravelly slightly sandy CLAY. | CL | 15 (63%) | 32 | 17 | 11.5 | | | | | | |
| BH23 | 4.70 (4.70) | D | N84115 | Red mottled brown slightly gravelly CLAY. | CI | 15 (1%) | 40 | 25 | 23.0 | | | | | | |
| BH24 | 2.00 (2.00) | D | N84118 | Brown slightly gravelly sandy CLAY. | CI | 17 (33%) | 36 | 19 | 9.2 | | | | | | |
| BH25 | 1.00 (1.00) | D | N84120 | Brown slightly sandy slightly gravelly CLAY. | CI | 19 (51%) | 41 | 22 | 10.9 | | | | | | |
| BH26 | 1.80 (1.80) | D | N84123 | Brown slightly sandy slightly gravelly CLAY. | CL | 15 (48%) | 31 | 16 | 10.9 | | | | | | |
| BH26 | 4.00- 4.45 (4.00) | D | N84126 | Brown mottled grey slightly sandy slightly gravelly CLAY. (See Test Remarks Sheet for further information) | MH | 23 (12%) | 52 | 29 | 32.5 | | | | | | |
| BH29 | 1.80 (1.80) | D | N84133 | Brown gravelly sandy CLAY. | CL | 12 (66%) | 27 | 15 | 8.3 | | | | | | |
| | | | | | | | | | | | | | | | |

Remarks


NST - Not suitable for Test
For Standards followed see Laboratory Test Certificate
w% - ^ = Rock water content test; x = Aggregate moisture content test
QUT Water Contents: <Failure Zone>, [After test]



geotechnical and geoenvironmental specialists

LABORATORY RESULTS - Classification and Strength

Project NEWPORT QUINN PHASE 2

Project No: PN224395


[illegible]


LABORATORY RESULTS - Atterberg Limit

Project NEWPORT QUINN PHASE 2

Project No: PN224395

| Sample | | | | | Results | | | | | | | |
|--------|--------------------------------|------|------------|--|---|---------------|------------------------|-------------|--------|---------------------|---------------------|---------------------|
| Hole | Depth (Specimen Depth) m | Type | Sample Ref | Description | Test Type | Point Data | | Sym- bol | p % | >425 sieve µm | w _L % | w _p % |
| | | | | | | Cone Pene. | Water % (Factor) | | | | | |
| BH01 | 4.80 (4.80) | D | N84040 | Brown clayey very sandy GRAVEL (See Test Remarks Sheet for further information) Test Remark: Unsuitable for testing due to insufficient fine material. | Not suitable for Test | | | | | | | |
| BH02 | 6.80 (6.80) | D | N84046 | Brown slightly clayey GRAVEL.* (See Test Remarks Sheet for further information) Test Remark: Unsuitable for testing due to insufficient fine material. | Not suitable for Test | | | | | | | |
| BH03 | 2.00- 2.50 (2.00) | B | N84047 | Brown slightly gravelly slightly sandy CLAY. | Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve | | | CL | 13 | 65% | 32 | 19 |
| BH03 | 5.80 (5.80) | D | N84049 | Brown mottled red slightly gravelly silty CLAY. | Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve | | | MH | 23 | 36% | 53 | 30 |
| BH05 | 2.60 (2.60) | D | N84053 | Brown slightly gravelly slightly sandy CLAY. | Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve | | | MV | 34 | 8% | 77 | 43 |
| BH06 | 1.20- 1.70 (1.20) | B | N84054 | Brown slightly gravelly sandy CLAY. | Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve | | | CL | 11 | 7% | 26 | 15 |
| BH07 | 0.50 (0.50) | D | N84055 | Brown mottled grey slightly gravelly slightly sandy CLAY. | Fall Cone 4pt with decreasing water content, cone type: 80g/30, washed over 425um sieve | | | CL | 14 | 32% | 31 | 17 |
| BH08 | 5.00- 5.45 (5.00) | D | N84063 | Red mottled brown slightly sandy slightly gravelly CLAY. | Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve | | | CI | 21 | 14% | 43 | 22 |
| BH09 | 3.80 (3.80) | D | N84064 | Brown slightly sandy slightly gravelly CLAY. | Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve | | | MI | 17 | 8% | 44 | 27 |
| | | | | | | | | | | | | |

Remarks 



geotechnical and geoenvironmental specialists


LABORATORY RESULTS - Atterberg Limit


Project NEWPORT QUINN PHASE 2

Project No: PN224395

| Sample | | | | | Results | | | | | | | |
|--------|-----------------------------------|------|---------------|---|---|---------------|------------------------|-------------|--------|---------------------|---------------------|---------------------|
| Hole | Depth (Specimen Depth) m | Type | Sample Ref | Description | Test Type | Point Data | | Sym- bol | p % | >425 sieve µm | w _L % | w _p % |
| | | | | | | Cone Pene. | Water % (Factor) | | | | | |
| BH09 | 4.00- 4.45 (4.00) | UT | N84065 | Brown slightly sandy slightly gravelly CLAY. | Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve | | | CI | 23 | 1% | 49 | 26 |
| BH09 | 5.45- 5.50 (5.45) | D | N84067 | Black mottled brown slightly gravelly CLAY with organic material. | Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve | | | | | 13% | 156 | NP |
| BH10 | 3.10 (3.10) | D | N84070 | Brown mottled black slightly sandy slightly gravelly CLAY. | Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve | | | MH | 20 | 12% | 54 | 34 |
| BH10 | 4.20 (4.20) | D | N84071 | Grey mottled brown slightly gravelly slightly sandy CLAY. | Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve | | | CL | 11 | 9% | 28 | 17 |
| BH11 | 1.20- 1.40 (1.20) | D | N84074 | Brown slightly sandy slightly gravelly CLAY with cobbles. (See Test Remarks Sheet for further information) | Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve | | | CL | 14 | 74% | 32 | 18 |
| BH11 | 3.00- 3.50 (3.00) | B | N84075 | Red mottled brown slightly gravelly slightly sandy CLAY. | Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve | | | MH | 26 | 34% | 60 | 34 |
| BH13 | 3.00- 3.45 (3.00) | D | N84081 | Brown mottled red and grey slightly sandy slightly gravelly CLAY. | Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve | | | CI | 25 | 36% | 49 | 24 |
| BH13 | 4.80 (4.80) | D | N84082 | Brown slightly clayey GRAVEL. (See Test Remarks Sheet for further information) Test Remark: Unsuitable for testing due to insufficient fine material. | Not suitable for Test | | | | | | | |
| BH14A | 2.80 (2.80) | D | N84083 | Brown slightly gravelly CLAY. | Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve | | | CL | 9 | 48% | 24 | 15 |
| | | | | | | | | | | | | |

Remarks





geotechnical and geoenvironmental specialists

LABORATORY RESULTS - Atterberg Limit

Project NEWPORT QUINN PHASE 2

Project No: PN224395

| Sample | | | | | Results | | | | | | | |
|--------|--------------------------------|------|------------|---|---|--------------|-------------------------------|--------|--------|------------------|---------------------|---------------------|
| Hole | Depth (Specimen Depth) m | Type | Sample Ref | Description | Test Type | Point Data | | Symbol | p % | >425 sieve µm | w _L % | w _p % |
| | | | | | | Cone Pene. | Water % (Factor) | | | | | |
| BH15 | 3.50 (3.50) | D | N84087 | Red mottled brown slightly sandy slightly gravelly CLAY. (See Test Remarks Sheet for further information) Test Remark: 1-point cone Insufficient sample for 4 point test. | Fall Cone 1pt with increasing water content, cone type: 80g/30, washed over 425um sieve | 20.2 20.6 | 36.99 36.79 (1.094) | CI | 19 | 61% | 40 | 21 |
| BH17A | 2.30 (2.30) | D | N84094 | Brown slightly sandy gravelly CLAY. (See Test Remarks Sheet for further information) Test Remark: 1-point cone Insufficient sample for 4 point test. | Fall Cone 1pt with increasing water content, cone type: 80g/30, washed over 425um sieve | 20.0 20.0 | 30.95 30.57 (1.057) | CL | 17 | 58% | 33 | 16 |
| BH17A | 4.05 (4.05) | D | N84095 | Red mottled brown slightly gravelly slightly sandy CLAY. | Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve | | | CL | 17 | 38% | 33 | 16 |
| BH18 | 3.80 (3.80) | D | N84099 | Brown slightly gravelly slightly sandy CLAY. | Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve | | | CL | 15 | 63% | 32 | 17 |
| BH23 | 4.70 (4.70) | D | N84115 | Red mottled brown slightly gravelly CLAY. | Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve | | | CI | 15 | 1% | 40 | 25 |
| BH24 | 2.00 (2.00) | D | N84118 | Brown slightly gravelly sandy CLAY. | Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve | | | CI | 17 | 33% | 36 | 19 |
| BH25 | 1.00 (1.00) | D | N84120 | Brown slightly sandy slightly gravelly CLAY. | Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve | | | CI | 19 | 51% | 41 | 22 |
| BH26 | 1.80 (1.80) | D | N84123 | Brown slightly sandy slightly gravelly CLAY. | Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve | | | CL | 15 | 48% | 31 | 16 |
| BH26 | 4.00-4.45 (4.00) | D | N84126 | Brown mottled grey slightly sandy slightly gravelly CLAY. (See Test Remarks Sheet for further information) | Fall Cone 4pt with decreasing water content, cone type: 80g/30, washed over 425um sieve | | | MH | 23 | 12% | 52 | 29 |
| | | | | | | | | | | | | |

Remarks

geotechnical and geoenvironmental specialists

LABORATORY RESULTS - Atterberg Limit

Project NEWPORT QUINN PHASE 2

Project No: PN224395

| Sample | | | | | Results | | | | | | | |
|--------|-----------------------------------|------|---------------|--|---|---------------|------------------------|-------------|--------|---------------------|---------------------|---------------------|
| Hole | Depth (Specimen Depth) m | Type | Sample Ref | Description | Test Type | Point Data | | Sym- bol | p % | >425 sieve µm | w _L % | w _p % |
| | | | | | | Cone Pene. | Water % (Factor) | | | | | |
| BH29 | 1.80 (1.80) | D | N84133 | Brown gravelly sandy CLAY. | Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve | | | CL | 12 | 66% | 27 | 15 |
| BH30 | 3.30 (3.30) | D | N84135 | Brown mottled grey slightly gravelly CLAY. | Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve | | | CL | 14 | 22% | 29 | 15 |
| | | | | | | | | | | | | |

Remarks 

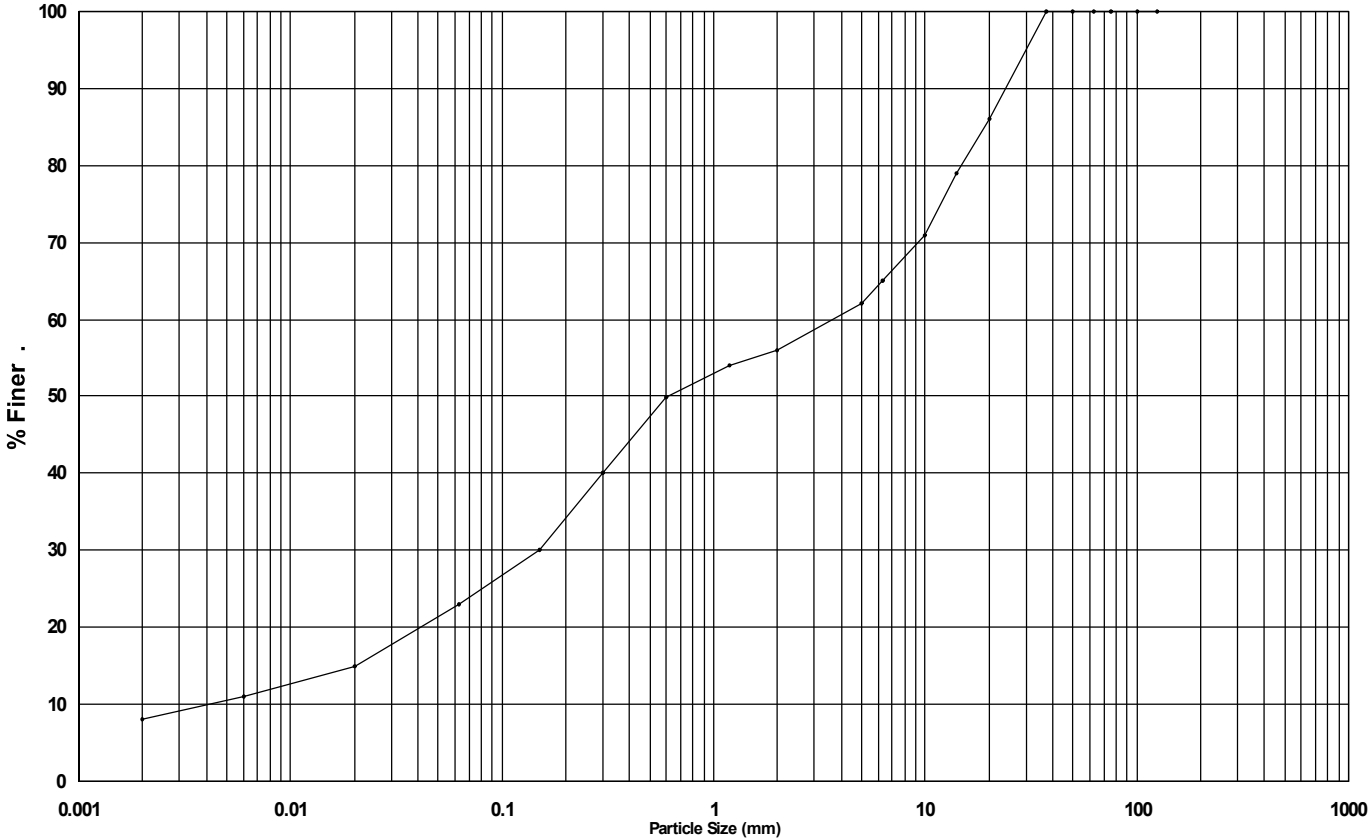
LABORATORY RESULTS - Particle Size Distribution

Project: NEWPORT QUINN PHASE 2

Hole BH01
Sample Depth 1.20-1.65m
Sample Type D
Sample Ref N84037

Project No: PN224395

Sample Description
Brown sandy gravelly CLAY.



| Classification | CLAY | Fine | Medium | Coarse | Fine | Medium | Coarse | Fine | Medium | Coarse | Cobbles | Boulders |
|----------------|------|------|--------|--------|------|--------|--------|--------|--------|--------|---------|----------|
| | | SILT | | | SAND | | | Gravel | | | | |

| Classification | % of each |
|----------------|-----------|
| CLAY | 8 |
| SILT | 15 |
| SAND | 33 |
| GRAVEL | 44 |
| COBBLES | 0 |
| BOULDERS | 0 |

| Size | % Finer |
|---------|---------|
| 125 mm | 100 |
| 100 mm | 100 |
| 75 mm | 100 |
| 63 mm | 100 |
| 50 mm | 100 |
| 37.5 mm | 100 |
| 20 mm | 86 |
| 14 mm | 79 |
| 10 mm | 71 |
| 6.3 mm | 65 |
| 5 mm | 62 |
| 2 mm | 56 |
| 1.18 mm | 54 |
| 600 µm | 50 |
| 300 µm | 40 |
| 150 µm | 30 |

| Size | % Finer |
|-------|---------|
| 63 µm | 23 |
| 20 µm | 15 |
| 6 µm | 11 |
| 2 µm | 8 |

| Uniformity Coefficient | |
|-------------------------|-------------------|
| 803.26 | |
| Sieving Method | |
| Wet sieve | |
| Fine Particle Analysis | |
| Method | Pipette |
| Pre-treated with | Hydrogen Peroxide |
| % loss on Pre-treatment | 0.00 |
| Particle Density | 2.65 (Assumed) |

Remarks Sieve:-Test performed in accordance with BS EN ISO 17892-4:2016
Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

02/11/2022

LABORATORY RESULTS - Particle Size Distribution

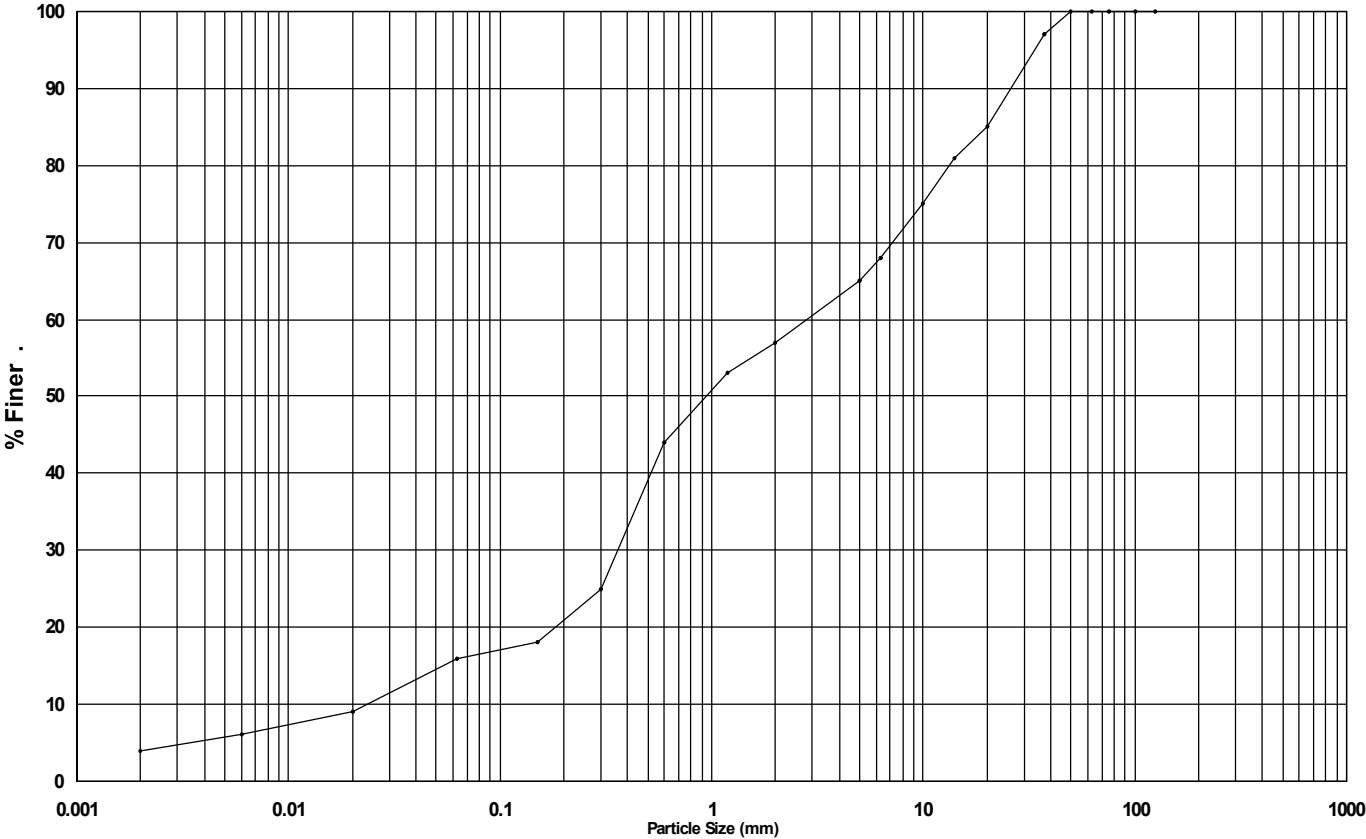
Project: NEWPORT QUINN PHASE 2

Hole BH01
Sample Depth 4.00-4.50m
Sample Type B
Sample Ref N84039

Project No: PN224395

Sample Description

Brown very sandy GRAVEL with dark red clay pockets.



| Classification | CLAY | Fine | Medium | Coarse | Fine | Medium | Coarse | Fine | Medium | Coarse | Cobbles | Boulders |
|----------------|------|------|--------|--------|------|--------|--------|--------|--------|--------|---------|----------|
| | | SILT | | | SAND | | | Gravel | | | | |

| Classification | % of each |
|----------------|-----------|
| CLAY | 4 |
| SILT | 12 |
| SAND | 41 |
| GRAVEL | 43 |
| COBBLES | 0 |
| BOULDERS | 0 |

| Size | % Finer |
|---------|---------|
| 125 mm | 100 |
| 100 mm | 100 |
| 75 mm | 100 |
| 63 mm | 100 |
| 50 mm | 100 |
| 37.5 mm | 97 |
| 20 mm | 85 |
| 14 mm | 81 |
| 10 mm | 75 |
| 6.3 mm | 68 |
| 5 mm | 65 |
| 2 mm | 57 |
| 1.18 mm | 53 |
| 600 µm | 44 |
| 300 µm | 25 |
| 150 µm | 18 |

| Size | % Finer |
|-------|---------|
| 63 µm | 16 |
| 20 µm | 9 |
| 6 µm | 6 |
| 2 µm | 4 |

| Uniformity Coefficient | |
|-------------------------|-------------------|
| 118.77 | |
| Sieving Method | |
| Wet sieve | |
| Fine Particle Analysis | |
| Method | Pipette |
| Pre-treated with | Hydrogen Peroxide |
| % loss on Pre-treatment | 0.00 |
| Particle Density | 2.65 (Assumed) |

Remarks Sieve:-Test performed as "Non Standard" due to sample mass not being in accordance with BS EN ISO 17892-4:2016
Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

02/11/2022

LABORATORY RESULTS - Particle Size Distribution

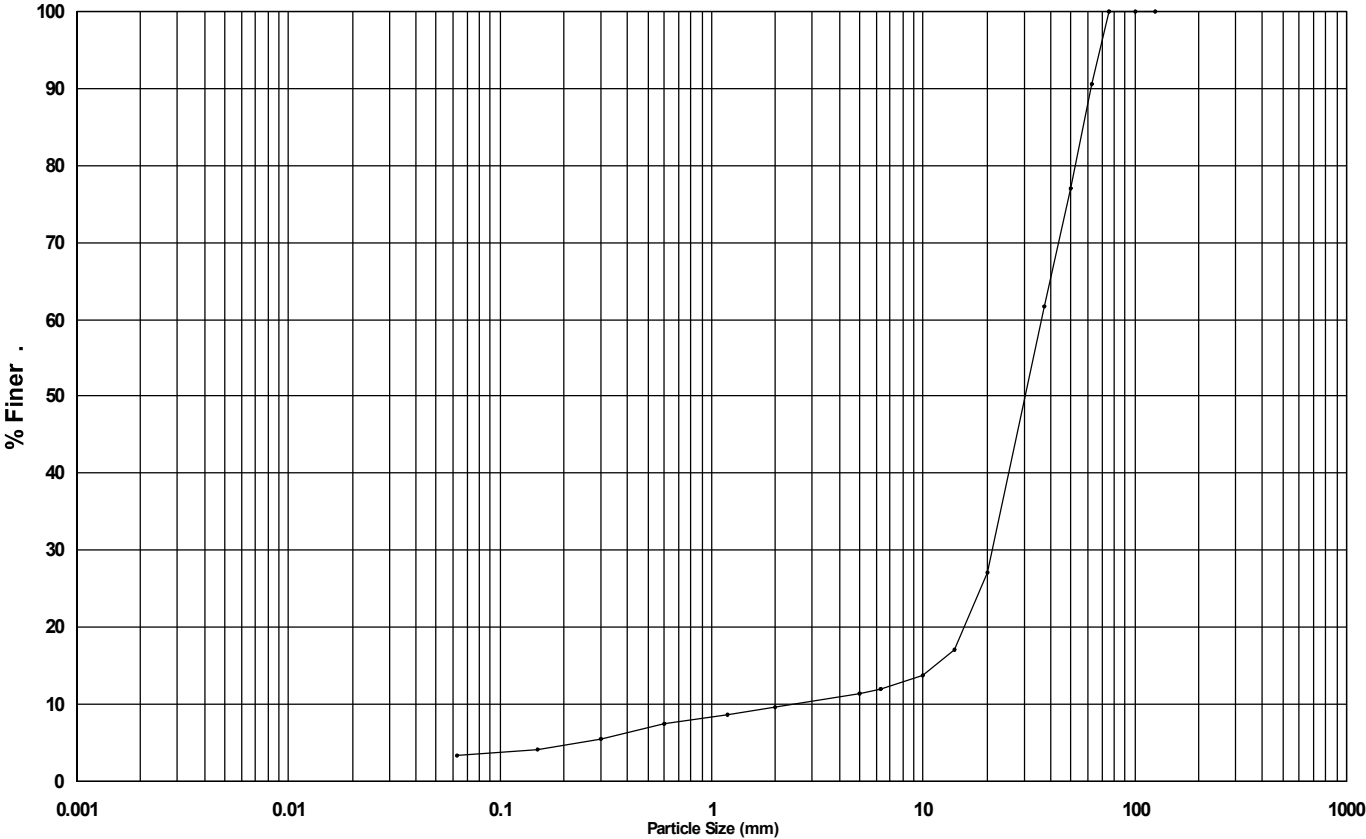
Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH02
Sample Depth 2.00-2.50m
Sample Type B
Sample Ref N84043

Sample Description

Brown slightly clayey sandy GRAVEL with cobbles.



| Classification | CLAY | Fine | Medium | Coarse | Fine | Medium | Coarse | Fine | Medium | Coarse | Cobbles | Boulders |
|----------------|------|------|--------|--------|------|--------|--------|--------|--------|--------|---------|----------|
| | | SILT | | | SAND | | | Gravel | | | | |

| Classification | % of each |
|-----------------------|-----------|
| | |
| SILT (including CLAY) | 3 |
| SAND | 7 |
| GRAVEL | 81 |
| COBBLES | 9 |
| BOULDERS | 0 |

| Size | % Finer |
|---------|---------|
| 125 mm | 100 |
| 100 mm | 100 |
| 75 mm | 100 |
| 63 mm | 91 |
| 50 mm | 77 |
| 37.5 mm | 62 |
| 20 mm | 27 |
| 14 mm | 17 |
| 10 mm | 14 |
| 6.3 mm | 12 |
| 5 mm | 11 |
| 2 mm | 10 |
| 1.18 mm | 9 |
| 600 μm | 8 |
| 300 μm | 6 |
| 150 μm | 4 |

| Size | % Finer |
|-------|---------|
| 63 μm | 3 |

| Uniformity Coefficient | |
|-------------------------|--|
| 14.50 | |
| Sieving Method | |
| Wet sieve | |
| Fine Particle Analysis | |
| Method | |
| Pre-treated with | |
| % loss on Pre-treatment | |
| Particle Density | |

Remarks Sieve:-Test performed as "Non Standard" due to sample mass not being in accordance with BS EN ISO 17892-4:2016

02/11/2022

LABORATORY RESULTS - Particle Size Distribution

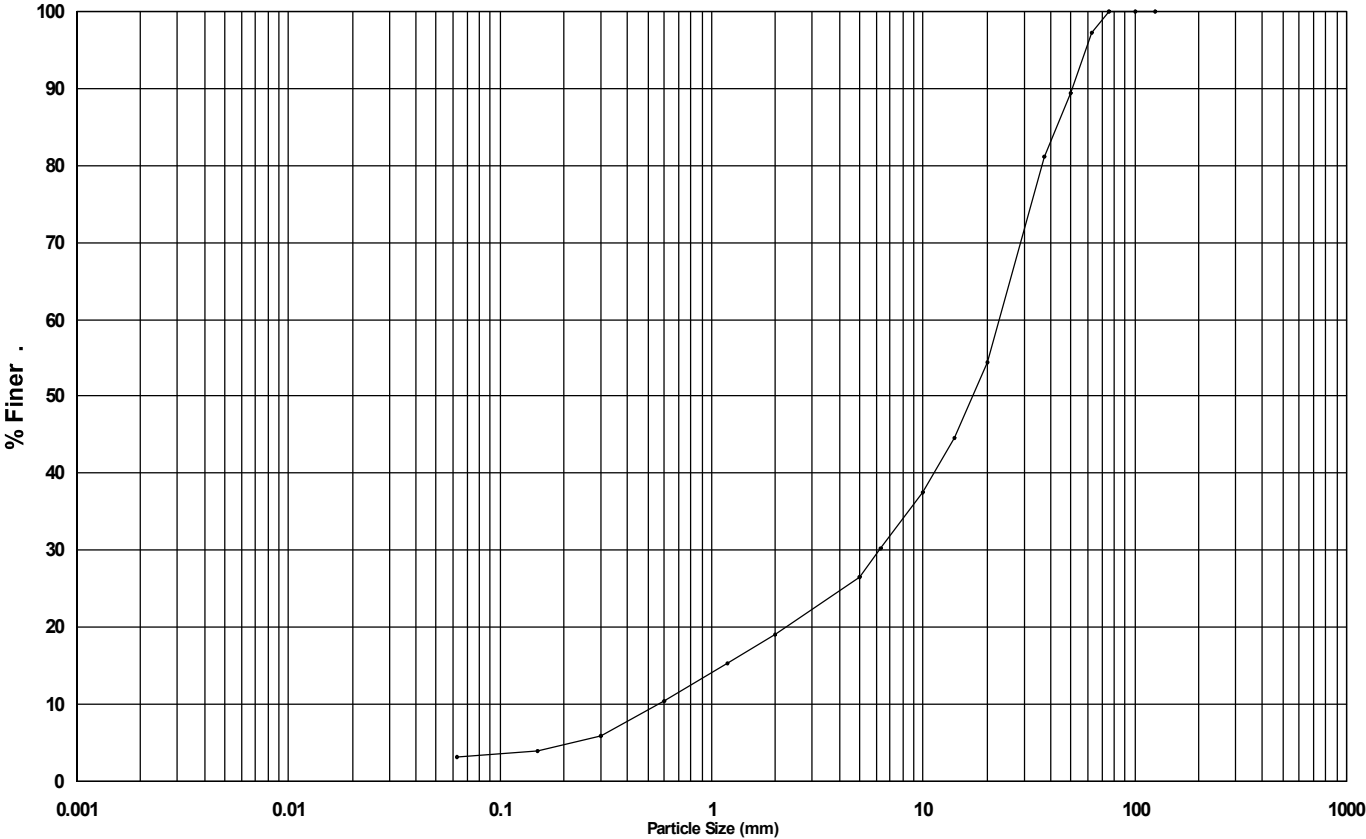
Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH02
Sample Depth 4.00-4.50m
Sample Type B
Sample Ref N84045

Sample Description

Dark brown slightly clayey gravelly COBBLES. **



| Classification | CLAY | Fine | Medium | Coarse | Fine | Medium | Coarse | Fine | Medium | Coarse | Cobbles | Boulders |
|----------------|------|------|--------|--------|------|--------|--------|--------|--------|--------|---------|----------|
| | | SILT | | | SAND | | | Gravel | | | | |

| Classification | % of each |
|-----------------------|-----------|
| | |
| SILT (including CLAY) | 3 |
| SAND | 16 |
| GRAVEL | 78 |
| COBBLES | 3 |
| BOULDERS | 0 |

| Size | % Finer |
|---------|---------|
| 125 mm | 100 |
| 100 mm | 100 |
| 75 mm | 100 |
| 63 mm | 97 |
| 50 mm | 89 |
| 37.5 mm | 81 |
| 20 mm | 54 |
| 14 mm | 45 |
| 10 mm | 37 |
| 6.3 mm | 30 |
| 5 mm | 27 |
| 2 mm | 19 |
| 1.18 mm | 15 |
| 600 μm | 10 |
| 300 μm | 6 |
| 150 μm | 4 |

| Size | % Finer |
|-------|---------|
| 63 μm | 3 |

| Uniformity Coefficient | |
|-------------------------|--|
| 40.35 | |
| Sieving Method | |
| Wet sieve | |
| Fine Particle Analysis | |
| Method | |
| Pre-treated with | |
| % loss on Pre-treatment | |
| Particle Density | |

Remarks Sieve:-Test performed in accordance with BS EN ISO 17892-4:2016

02/11/2022

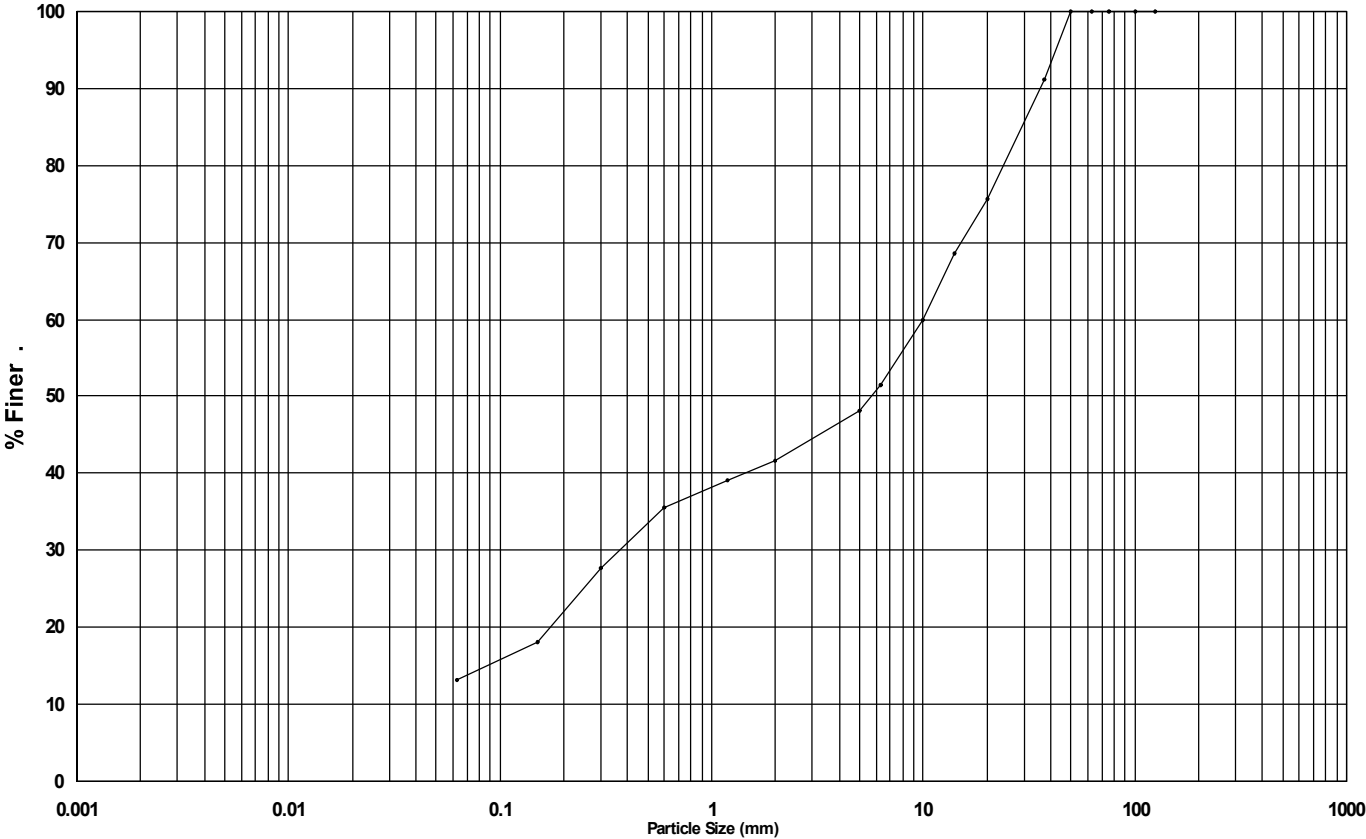
LABORATORY RESULTS - Particle Size Distribution

Project: NEWPORT QUINN PHASE 2

Hole BH03
Sample Depth 3.00-3.50m
Sample Type B
Sample Ref N84048

Project No: PN224395

Sample Description
Brown clayey very sandy GRAVEL.



| Classification | CLAY | Fine | Medium | Coarse | Fine | Medium | Coarse | Fine | Medium | Coarse | Cobbles | Boulders |
|----------------|------|------|--------|--------|------|--------|--------|--------|--------|--------|---------|----------|
| | | SILT | | | SAND | | | Gravel | | | | |

| Classification | % of each |
|-----------------------|-----------|
| | |
| SILT (including CLAY) | 13 |
| SAND | 29 |
| GRAVEL | 58 |
| COBBLES | 0 |
| BOULDERS | 0 |

| Size | % Finer |
|---------|---------|
| 125 mm | 100 |
| 100 mm | 100 |
| 75 mm | 100 |
| 63 mm | 100 |
| 50 mm | 100 |
| 37.5 mm | 91 |
| 20 mm | 76 |
| 14 mm | 69 |
| 10 mm | 60 |
| 6.3 mm | 51 |
| 5 mm | 48 |
| 2 mm | 42 |
| 1.18 mm | 39 |
| 600 μm | 36 |
| 300 μm | 28 |
| 150 μm | 18 |

| Size | % Finer |
|-------|---------|
| 63 μm | 13 |

| Uniformity Coefficient | |
|-------------------------|--|
| Not Available | |
| Sieving Method | |
| Wet sieve | |
| Fine Particle Analysis | |
| Method | |
| Pre-treated with | |
| % loss on Pre-treatment | |
| Particle Density | |

Remarks Sieve:-Test performed as "Non Standard" due to sample mass not being in accordance with BS EN ISO 17892-4:2016

02/11/2022

LABORATORY RESULTS - Particle Size Distribution

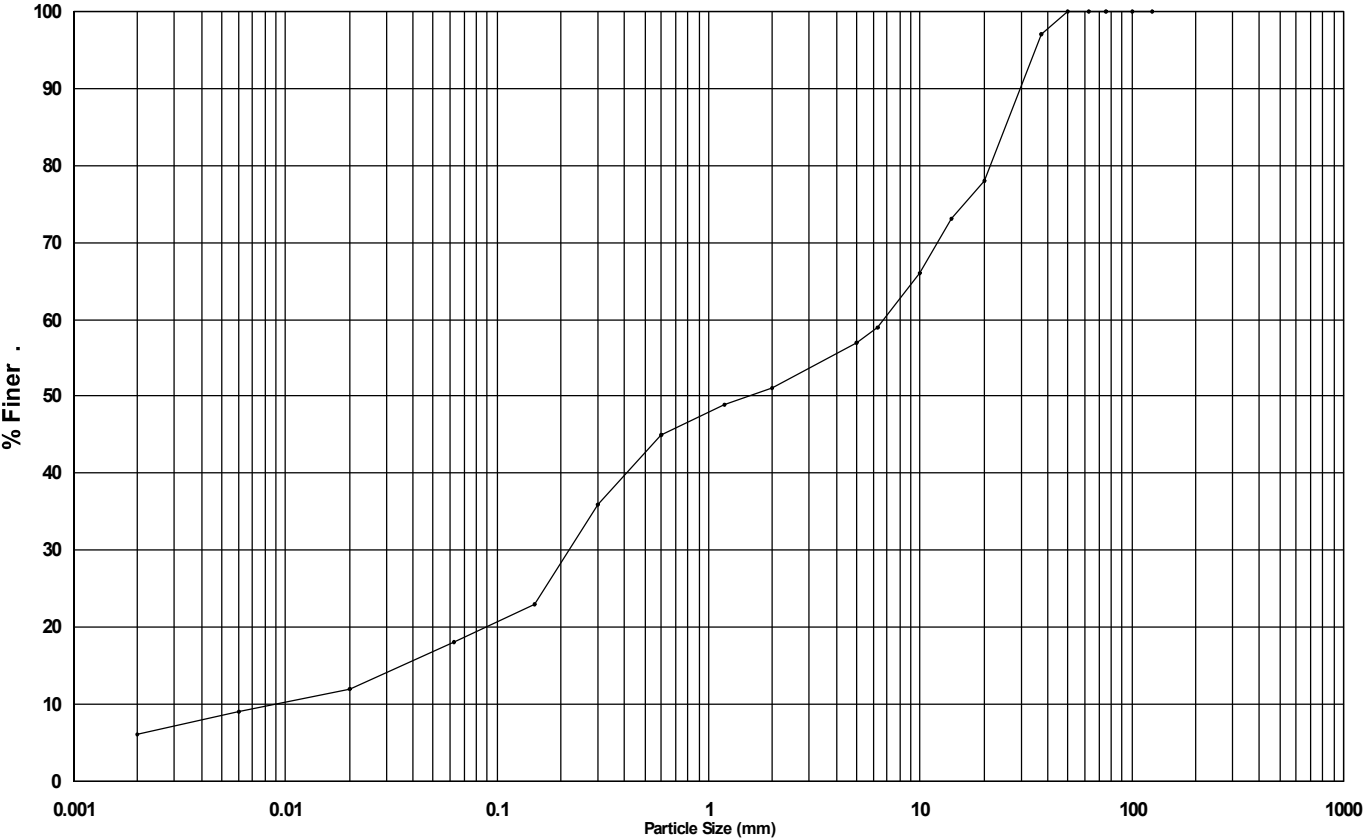
Project: NEWPORT QUINN PHASE 2

Hole BH07
Sample Depth 2.00-2.50m
Sample Type B
Sample Ref N84058

Project No: PN224395

Sample Description

Brown slightly clayey slightly sandy GRAVEL.



| Classification | CLAY | Fine | Medium | Coarse | Fine | Medium | Coarse | Fine | Medium | Coarse | Cobbles | Boulders |
|----------------|------|------|--------|--------|------|--------|--------|--------|--------|--------|---------|----------|
| | | SILT | | | SAND | | | Gravel | | | | |

| Classification | % of each |
|----------------|-----------|
| CLAY | 6 |
| SILT | 12 |
| SAND | 33 |
| GRAVEL | 49 |
| COBBLES | 0 |
| BOULDERS | 0 |

| Size | % Finer |
|---------|---------|
| 125 mm | 100 |
| 100 mm | 100 |
| 75 mm | 100 |
| 63 mm | 100 |
| 50 mm | 100 |
| 37.5 mm | 97 |
| 20 mm | 78 |
| 14 mm | 73 |
| 10 mm | 66 |
| 6.3 mm | 59 |
| 5 mm | 57 |
| 2 mm | 51 |
| 1.18 mm | 49 |
| 600 µm | 45 |
| 300 µm | 36 |
| 150 µm | 23 |

| Size | % Finer |
|-------|---------|
| 63 µm | 18 |
| 20 µm | 12 |
| 6 µm | 9 |
| 2 µm | 6 |

| Uniformity Coefficient | |
|-------------------------|-------------------|
| 685.74 | |
| Sieving Method | |
| Wet sieve | |
| Fine Particle Analysis | |
| Method | Pipette |
| Pre-treated with | Hydrogen Peroxide |
| % loss on Pre-treatment | 0.00 |
| Particle Density | 2.65 (Assumed) |

Remarks Sieve:-Test performed as "Non Standard" due to sample mass not being in accordance with BS EN ISO 17892-4:2016
Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

02/11/2022

LABORATORY RESULTS - Particle Size Distribution

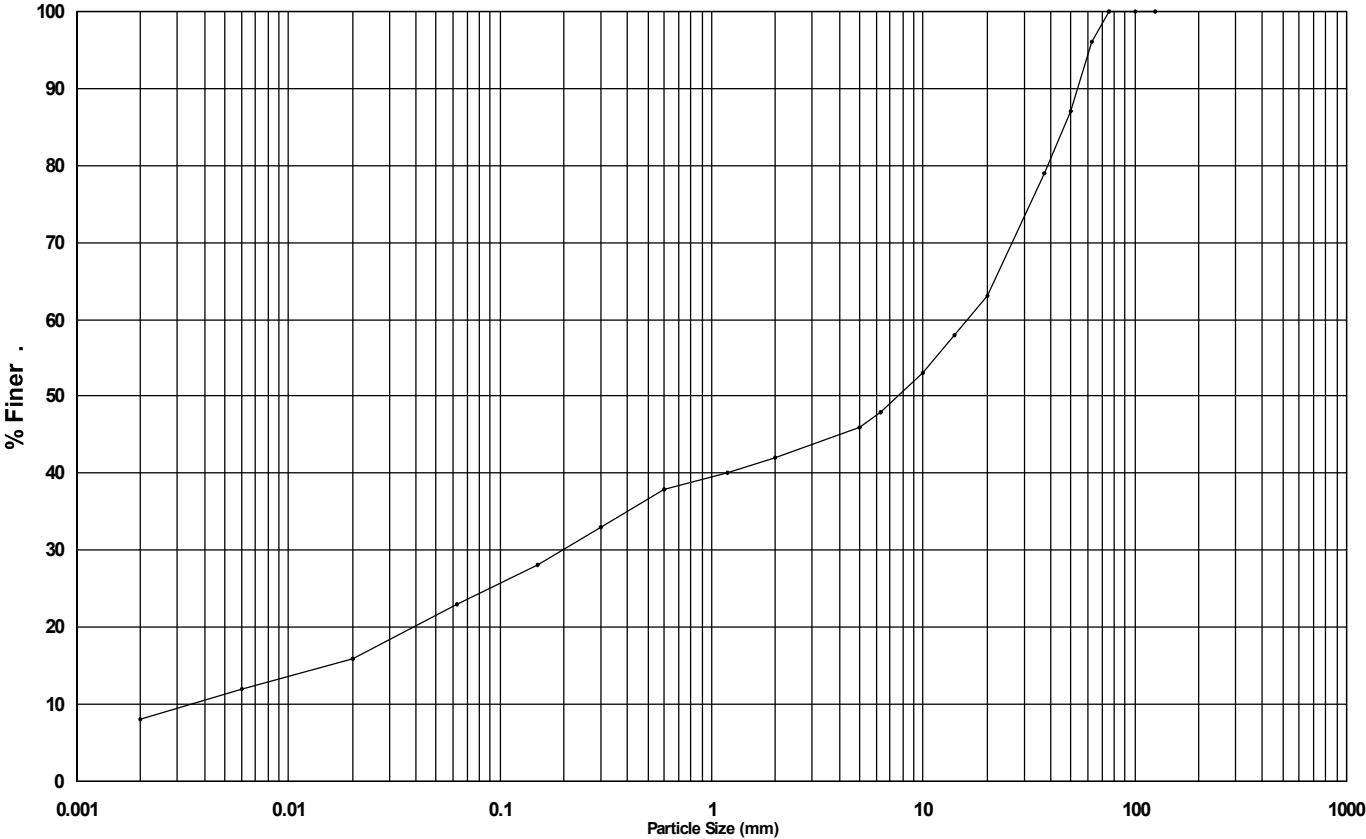
Project: NEWPORT QUINN PHASE 2

Hole BH08
Sample Depth 3.00-3.50m
Sample Type B
Sample Ref N84062

Project No: PN224395

Sample Description

Brown slightly sandy clayey GRAVEL with cobbles.



| Classification | CLAY | Fine | Medium | Coarse | Fine | Medium | Coarse | Fine | Medium | Coarse | Cobbles | Boulders |
|----------------|------|------|--------|--------|------|--------|--------|--------|--------|--------|---------|----------|
| | | SILT | | | SAND | | | Gravel | | | | |

| Classification | % of each |
|----------------|-----------|
| CLAY | 8 |
| SILT | 15 |
| SAND | 19 |
| GRAVEL | 54 |
| COBBLES | 4 |
| BOULDERS | 0 |

| Size | % Finer |
|---------|---------|
| 125 mm | 100 |
| 100 mm | 100 |
| 75 mm | 100 |
| 63 mm | 96 |
| 50 mm | 87 |
| 37.5 mm | 79 |
| 20 mm | 63 |
| 14 mm | 58 |
| 10 mm | 53 |
| 6.3 mm | 48 |
| 5 mm | 46 |
| 2 mm | 42 |
| 1.18 mm | 40 |
| 600 µm | 38 |
| 300 µm | 33 |
| 150 µm | 28 |

| Size | % Finer |
|-------|---------|
| 63 µm | 23 |
| 20 µm | 16 |
| 6 µm | 12 |
| 2 µm | 8 |

| Uniformity Coefficient | |
|-------------------------|-------------------|
| 4787.32 | |
| Sieving Method | |
| Wet sieve | |
| Fine Particle Analysis | |
| Method | Pipette |
| Pre-treated with | Hydrogen Peroxide |
| % loss on Pre-treatment | 0.00 |
| Particle Density | 2.65 (Assumed) |

Remarks Sieve:-Test performed as "Non Standard" due to sample mass not being in accordance with BS EN ISO 17892-4:2016
Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

02/11/2022

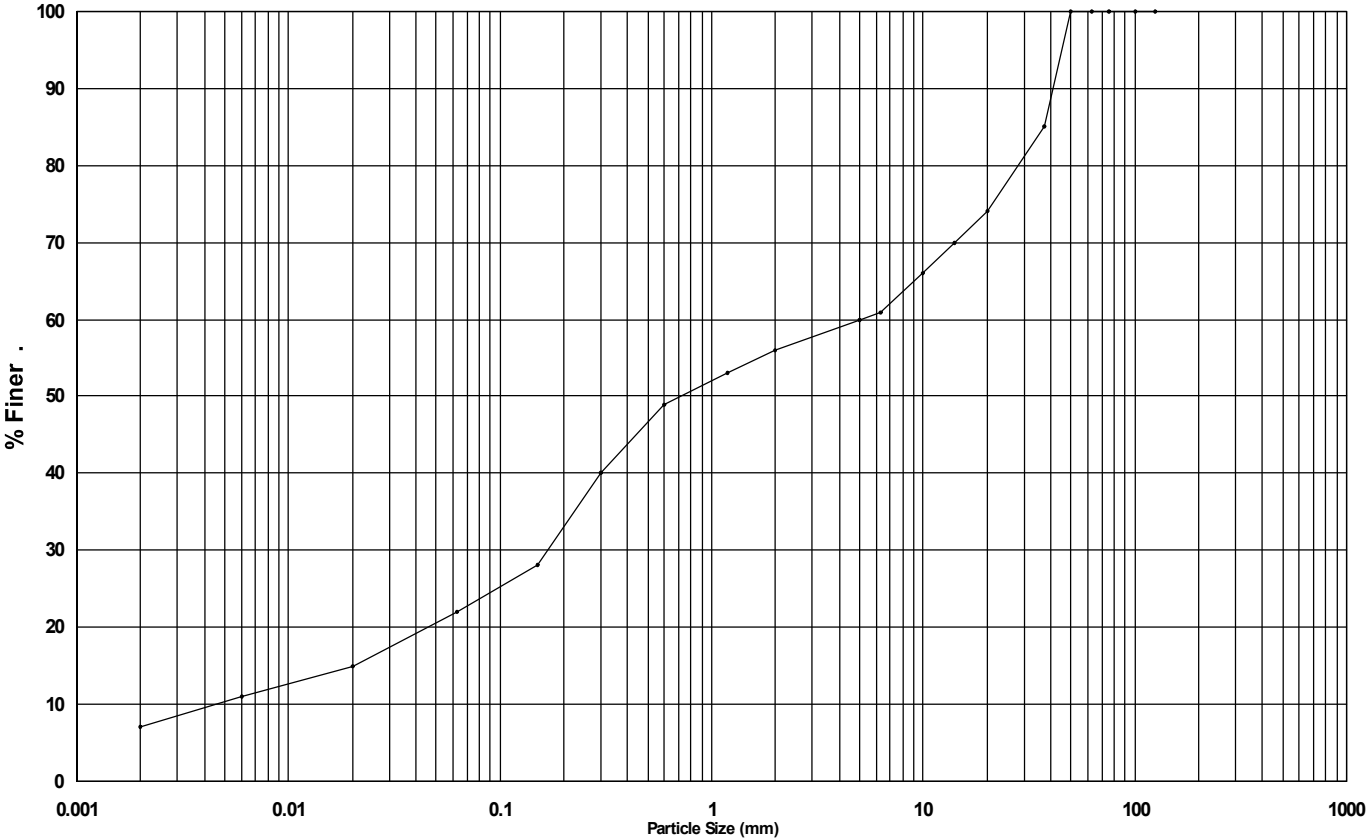
LABORATORY RESULTS - Particle Size Distribution

Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH10
Sample Depth 2.00-2.50m
Sample Type B
Sample Ref N84069

Sample Description
Brown clayey very sandy GRAVEL.



| Classification | CLAY | Fine | Medium | Coarse | Fine | Medium | Coarse | Fine | Medium | Coarse | Cobbles | Boulders |
|----------------|------|------|--------|--------|------|--------|--------|--------|--------|--------|---------|----------|
| | | SILT | | | SAND | | | Gravel | | | | |

| Classification | % of each |
|----------------|-----------|
| CLAY | 7 |
| SILT | 15 |
| SAND | 34 |
| GRAVEL | 44 |
| COBBLES | 0 |
| BOULDERS | 0 |

| Size | % Finer |
|---------|---------|
| 125 mm | 100 |
| 100 mm | 100 |
| 75 mm | 100 |
| 63 mm | 100 |
| 50 mm | 100 |
| 37.5 mm | 85 |
| 20 mm | 74 |
| 14 mm | 70 |
| 10 mm | 66 |
| 6.3 mm | 61 |
| 5 mm | 60 |
| 2 mm | 56 |
| 1.18 mm | 53 |
| 600 μm | 49 |
| 300 μm | 40 |
| 150 μm | 28 |

| Size | % Finer |
|-------|---------|
| 63 μm | 22 |
| 20 μm | 15 |
| 6 μm | 11 |
| 2 μm | 7 |

| Uniformity Coefficient | |
|-------------------------|-------------------|
| 1121.71 | |
| Sieving Method | |
| Wet sieve | |
| Fine Particle Analysis | |
| Method | Pipette |
| Pre-treated with | Hydrogen Peroxide |
| % loss on Pre-treatment | 0.00 |
| Particle Density | 2.65 (Assumed) |

Remarks Sieve:-Test performed as "Non Standard" due to sample mass not being in accordance with BS EN ISO 17892-4:2016
Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

02/11/2022

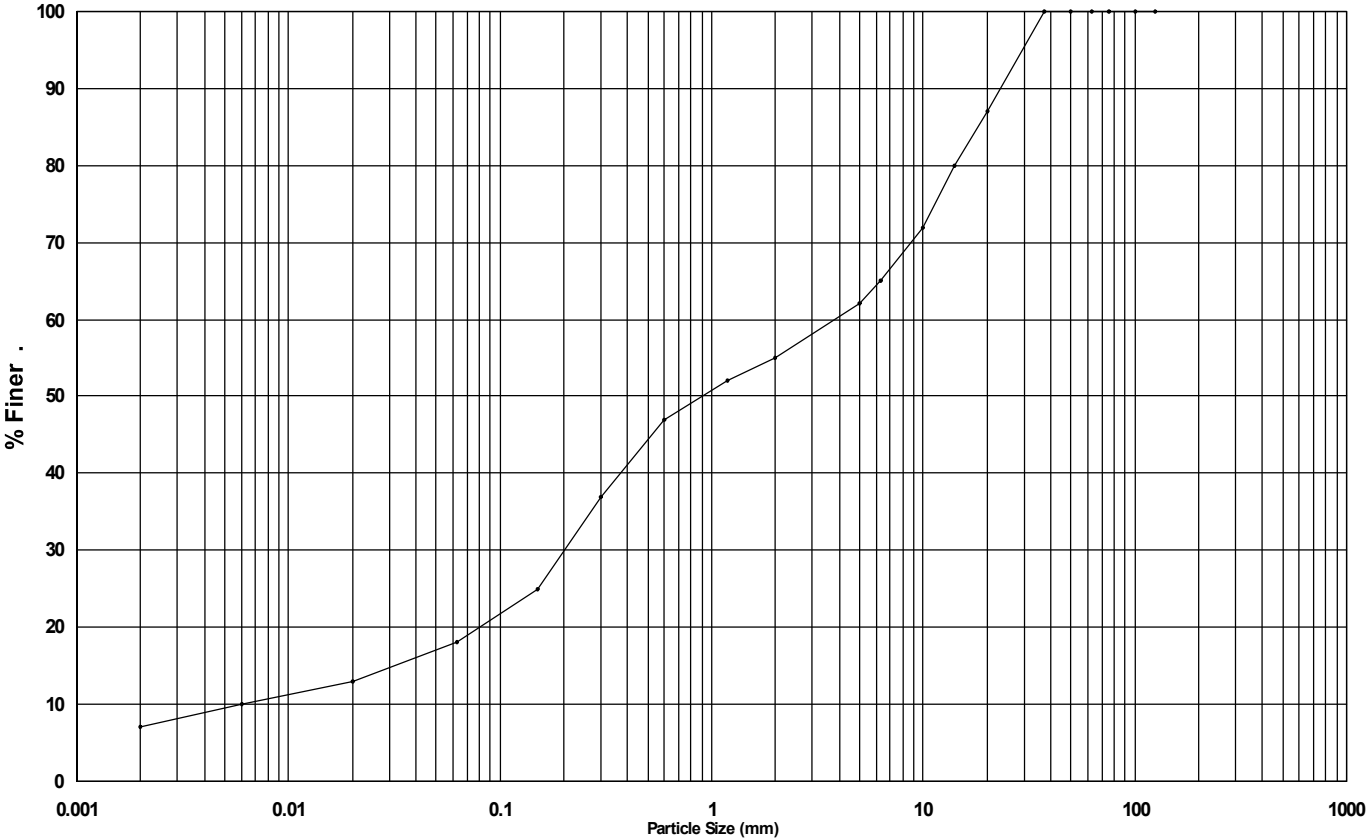
LABORATORY RESULTS - Particle Size Distribution

Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH12
Sample Depth 2.00-2.50m
Sample Type B
Sample Ref N84078

Sample Description
Brown clayey very sandy GRAVEL.



| Classification | CLAY | Fine | Medium | Coarse | Fine | Medium | Coarse | Fine | Medium | Coarse | Cobbles | Boulders |
|----------------|------|------|--------|--------|------|--------|--------|--------|--------|--------|---------|----------|
| | | SILT | | | SAND | | | Gravel | | | | |

| Classification | % of each |
|----------------|-----------|
| CLAY | 7 |
| SILT | 11 |
| SAND | 37 |
| GRAVEL | 45 |
| COBBLES | 0 |
| BOULDERS | 0 |

| Size | % Finer |
|---------|---------|
| 125 mm | 100 |
| 100 mm | 100 |
| 75 mm | 100 |
| 63 mm | 100 |
| 50 mm | 100 |
| 37.5 mm | 100 |
| 20 mm | 87 |
| 14 mm | 80 |
| 10 mm | 72 |
| 6.3 mm | 65 |
| 5 mm | 62 |
| 2 mm | 55 |
| 1.18 mm | 52 |
| 600 µm | 47 |
| 300 µm | 37 |
| 150 µm | 25 |

| Size | % Finer |
|-------|---------|
| 63 µm | 18 |
| 20 µm | 13 |
| 6 µm | 10 |
| 2 µm | 7 |

| Uniformity Coefficient | |
|-------------------------|-------------------|
| 538.63 | |
| Sieving Method | |
| Wet sieve | |
| Fine Particle Analysis | |
| Method | Pipette |
| Pre-treated with | Hydrogen Peroxide |
| % loss on Pre-treatment | 0.00 |
| Particle Density | 2.65 (Assumed) |

Remarks Sieve:-Test performed in accordance with BS EN ISO 17892-4:2016
Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

02/11/2022

LABORATORY RESULTS - Particle Size Distribution

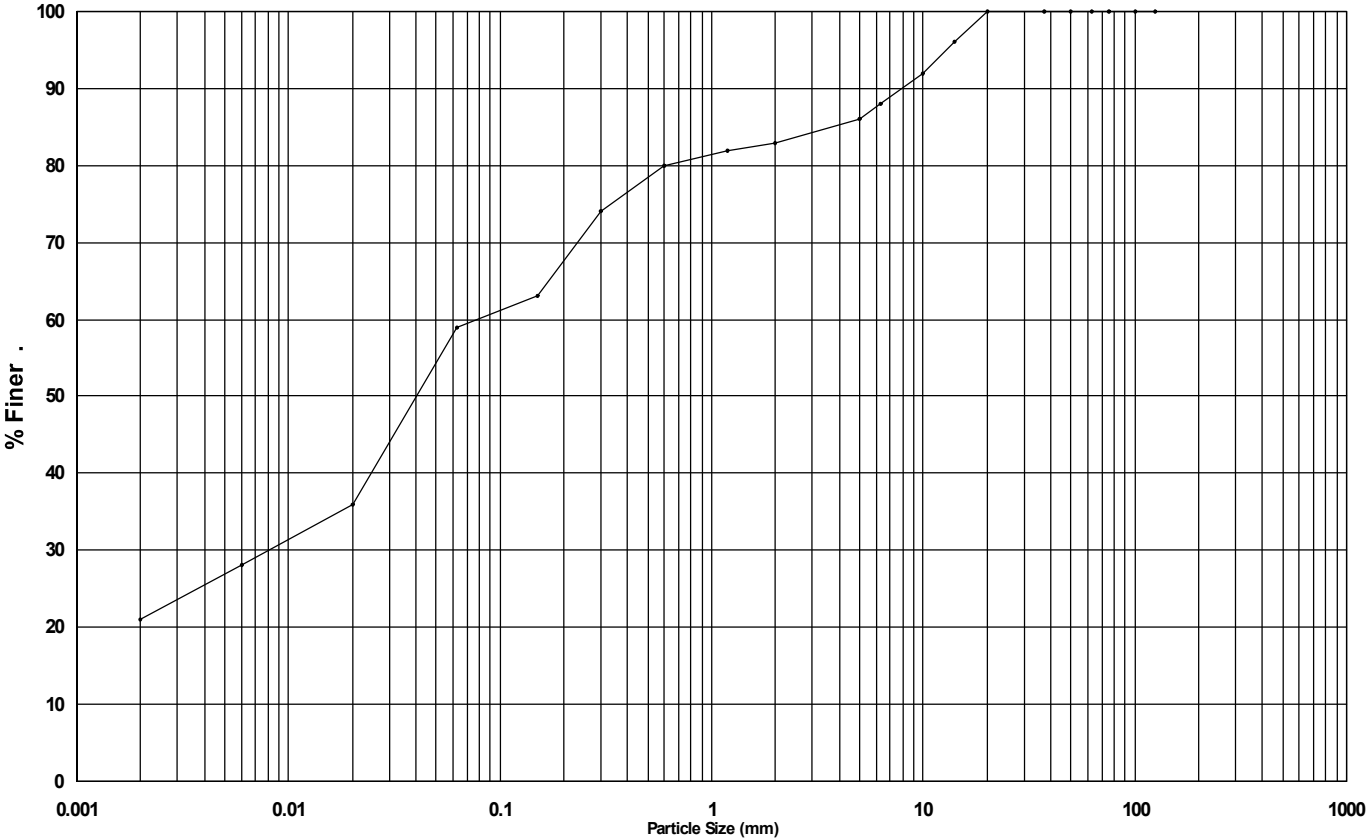
Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH15
Sample Depth 2.00-2.50m
Sample Type B
Sample Ref N84085

Sample Description

Brown mottled red slightly sandy slightly gravelly silty CLAY.



| Classification | CLAY | Fine | Medium | Coarse | Fine | Medium | Coarse | Fine | Medium | Coarse | Cobbles | Boulders |
|----------------|------|------|--------|--------|------|--------|--------|--------|--------|--------|---------|----------|
| | | SILT | | | SAND | | | Gravel | | | | |

| Classification | % of each |
|----------------|-----------|
| CLAY | 21 |
| SILT | 38 |
| SAND | 24 |
| GRAVEL | 17 |
| COBBLES | 0 |
| BOULDERS | 0 |

| Size | % Finer |
|---------|---------|
| 125 mm | 100 |
| 100 mm | 100 |
| 75 mm | 100 |
| 63 mm | 100 |
| 50 mm | 100 |
| 37.5 mm | 100 |
| 20 mm | 100 |
| 14 mm | 96 |
| 10 mm | 92 |
| 6.3 mm | 88 |
| 5 mm | 86 |
| 2 mm | 83 |
| 1.18 mm | 82 |
| 600 μm | 80 |
| 300 μm | 74 |
| 150 μm | 63 |

| Size | % Finer |
|-------|---------|
| 63 μm | 59 |
| 20 μm | 36 |
| 6 μm | 28 |
| 2 μm | 21 |

| Uniformity Coefficient | |
|-------------------------|-------------------|
| Not Available | |
| Sieving Method | |
| Wet sieve | |
| Fine Particle Analysis | |
| Method | Pipette |
| Pre-treated with | Hydrogen Peroxide |
| % loss on Pre-treatment | 0.00 |
| Particle Density | 2.65 (Assumed) |

Remarks Sieve:-Test performed in accordance with BS EN ISO 17892-4:2016
Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

02/11/2022

LABORATORY RESULTS - Particle Size Distribution

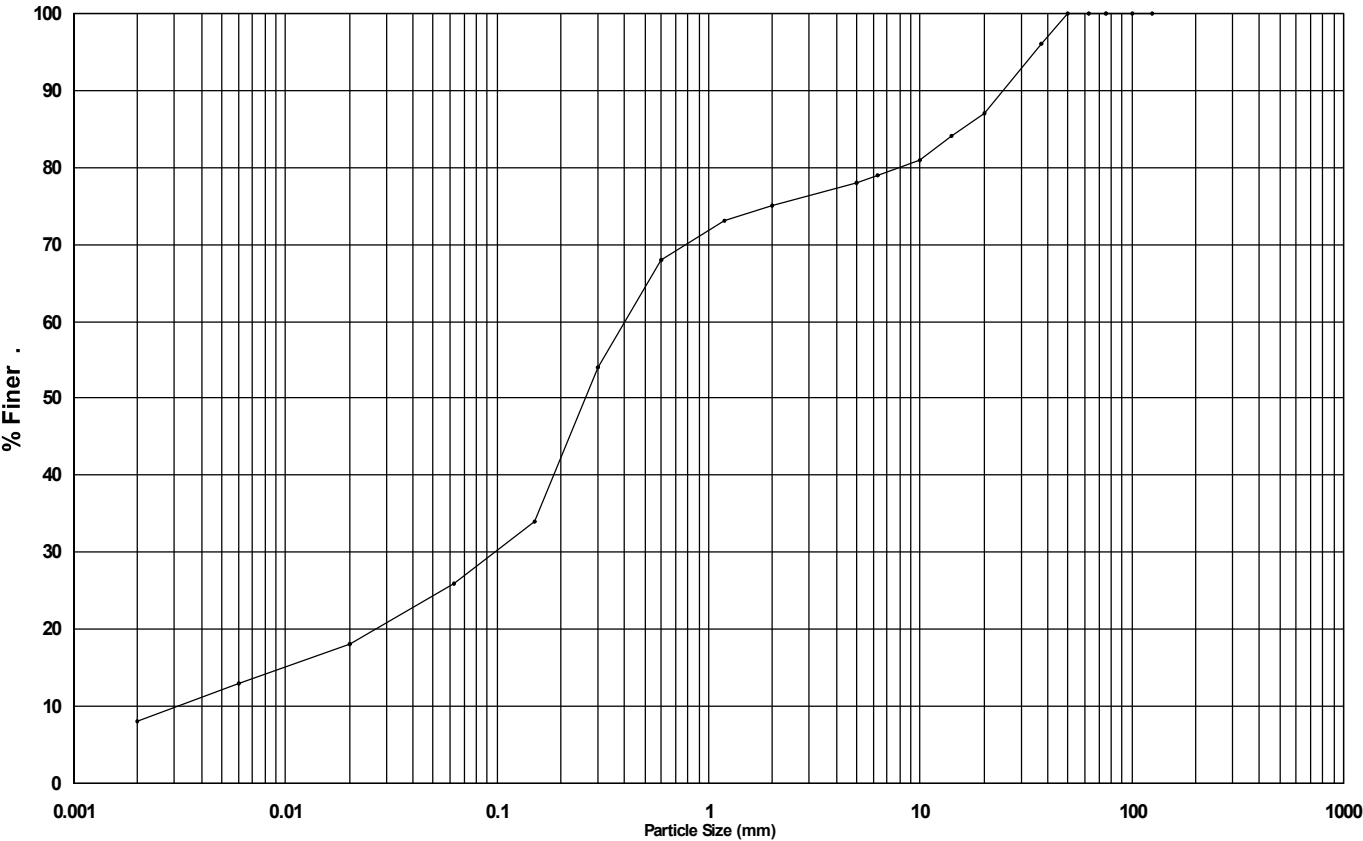
Project: NEWPORT QUINN PHASE 2

Hole BH16
Sample Depth 2.00-2.50m
Sample Type B
Sample Ref N84089

Project No: PN224395

Sample Description

Brown slightly sandy slightly gravelly clayey SILT.




| Classification | CLAY | Fine | Medium | Coarse | Fine | Medium | Coarse | Fine | Medium | Coarse | Cobbles | Boulders |
|----------------|------|------|--------|--------|------|--------|--------|--------|--------|--------|---------|----------|
| | | SILT | | | SAND | | | Gravel | | | | |

| Classification | % of each |
|----------------|-----------|
| CLAY | 8 |
| SILT | 18 |
| SAND | 49 |
| GRAVEL | 25 |
| COBBLES | 0 |
| BOULDERS | 0 |

| Size | % Finer |
|---------|---------|
| 125 mm | 100 |
| 100 mm | 100 |
| 75 mm | 100 |
| 63 mm | 100 |
| 50 mm | 100 |
| 37.5 mm | 96 |
| 20 mm | 87 |
| 14 mm | 84 |
| 10 mm | 81 |
| 6.3 mm | 79 |
| 5 mm | 78 |
| 2 mm | 75 |
| 1.18 mm | 73 |
| 600 µm | 68 |
| 300 µm | 54 |
| 150 µm | 34 |

| Size | % Finer |
|-------|---------|
| 63 µm | 26 |
| 20 µm | 18 |
| 6 µm | 13 |
| 2 µm | 8 |

| Uniformity Coefficient | |
|-------------------------|-------------------|
| 138.53 | |
| Sieving Method | |
| Wet sieve | |
| Fine Particle Analysis | |
| Method | Pipette |
| Pre-treated with | Hydrogen Peroxide |
| % loss on Pre-treatment | 0.00 |
| Particle Density | 2.65 (Assumed) |

Remarks  Sieve:-Test performed as "Non Standard" due to sample mass not being in accordance with BS EN ISO 17892-4:2016
Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

02/11/2022

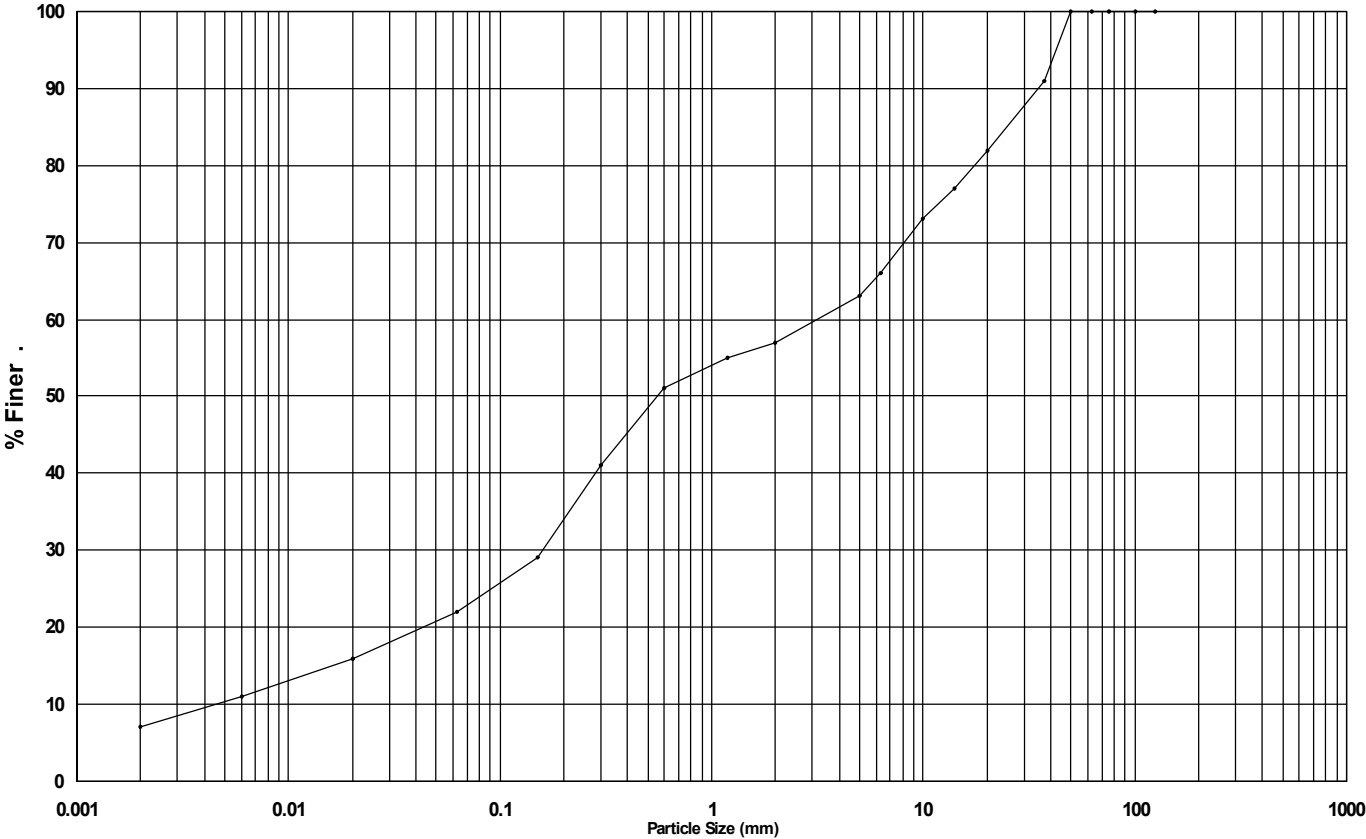
LABORATORY RESULTS - Particle Size Distribution

Project: NEWPORT QUINN PHASE 2

Hole BH18
Sample Depth 3.00-3.50m
Sample Type B
Sample Ref N84098

Project No: PN224395

Sample Description
Brown clayey silty very sandy GRAVEL.



| Classification | CLAY | Fine | Medium | Coarse | Fine | Medium | Coarse | Fine | Medium | Coarse | Cobbles | Boulders |
|----------------|------|------|--------|--------|------|--------|--------|--------|--------|--------|---------|----------|
| | | SILT | | | SAND | | | Gravel | | | | |

| Classification | % of each |
|----------------|-----------|
| CLAY | 7 |
| SILT | 15 |
| SAND | 35 |
| GRAVEL | 43 |
| COBBLES | 0 |
| BOULDERS | 0 |

| Size | % Finer |
|---------|---------|
| 125 mm | 100 |
| 100 mm | 100 |
| 75 mm | 100 |
| 63 mm | 100 |
| 50 mm | 100 |
| 37.5 mm | 91 |
| 20 mm | 82 |
| 14 mm | 77 |
| 10 mm | 73 |
| 6.3 mm | 66 |
| 5 mm | 63 |
| 2 mm | 57 |
| 1.18 mm | 55 |
| 600 μm | 51 |
| 300 μm | 41 |
| 150 μm | 29 |

| Size | % Finer |
|-------|---------|
| 63 μm | 22 |
| 20 μm | 16 |
| 6 μm | 11 |
| 2 μm | 7 |

| Uniformity Coefficient | |
|-------------------------|-------------------|
| 650.19 | |
| Sieving Method | |
| Wet sieve | |
| Fine Particle Analysis | |
| Method | Pipette |
| Pre-treated with | Hydrogen Peroxide |
| % loss on Pre-treatment | 0.00 |
| Particle Density | 2.65 (Assumed) |

Remarks Sieve:-Test performed as "Non Standard" due to sample mass not being in accordance with BS EN ISO 17892-4:2016
Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

02/11/2022

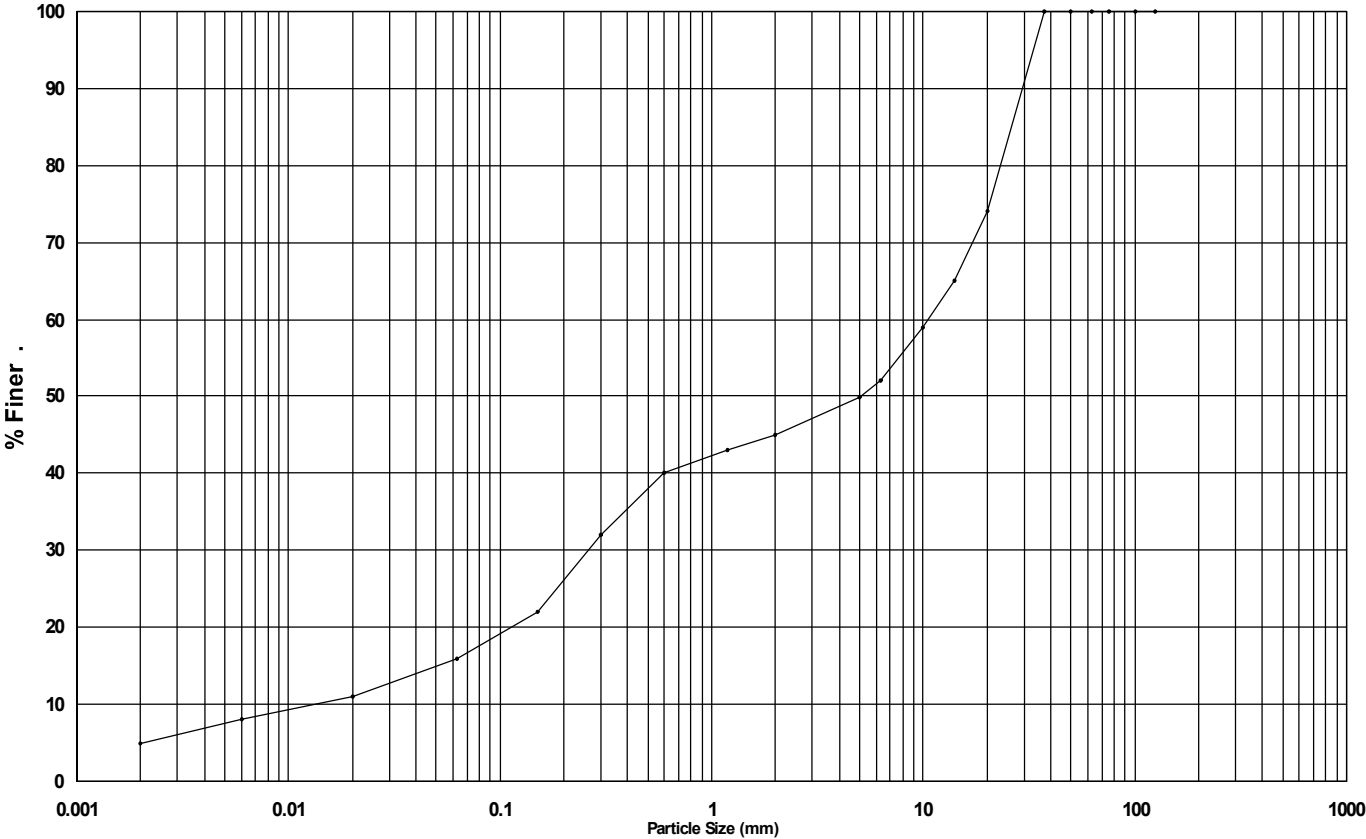
LABORATORY RESULTS - Particle Size Distribution

Project: NEWPORT QUINN PHASE 2

Hole BH19
Sample Depth 4.00-4.50m
Sample Type B
Sample Ref N84102

Project No: PN224395

Sample Description
Brown clayey silty very sandy GRAVEL.



| Classification | CLAY | Fine | Medium | Coarse | Fine | Medium | Coarse | Fine | Medium | Coarse | Cobbles | Boulders |
|----------------|------|------|--------|--------|------|--------|--------|--------|--------|--------|---------|----------|
| | | SILT | | | SAND | | | Gravel | | | | |

| Classification | % of each |
|----------------|-----------|
| CLAY | 5 |
| SILT | 11 |
| SAND | 29 |
| GRAVEL | 55 |
| COBBLES | 0 |
| BOULDERS | 0 |

| Size | % Finer |
|---------|---------|
| 125 mm | 100 |
| 100 mm | 100 |
| 75 mm | 100 |
| 63 mm | 100 |
| 50 mm | 100 |
| 37.5 mm | 100 |
| 20 mm | 74 |
| 14 mm | 65 |
| 10 mm | 59 |
| 6.3 mm | 52 |
| 5 mm | 50 |
| 2 mm | 45 |
| 1.18 mm | 43 |
| 600 µm | 40 |
| 300 µm | 32 |
| 150 µm | 22 |

| Size | % Finer |
|-------|---------|
| 63 µm | 16 |
| 20 µm | 11 |
| 6 µm | 8 |
| 2 µm | 5 |

| Uniformity Coefficient | |
|-------------------------|-------------------|
| 753.07 | |
| Sieving Method | |
| Wet sieve | |
| Fine Particle Analysis | |
| Method | Pipette |
| Pre-treated with | Hydrogen Peroxide |
| % loss on Pre-treatment | 0.00 |
| Particle Density | 2.65 (Assumed) |

Remarks Sieve:-Test performed in accordance with BS EN ISO 17892-4:2016
Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

02/11/2022

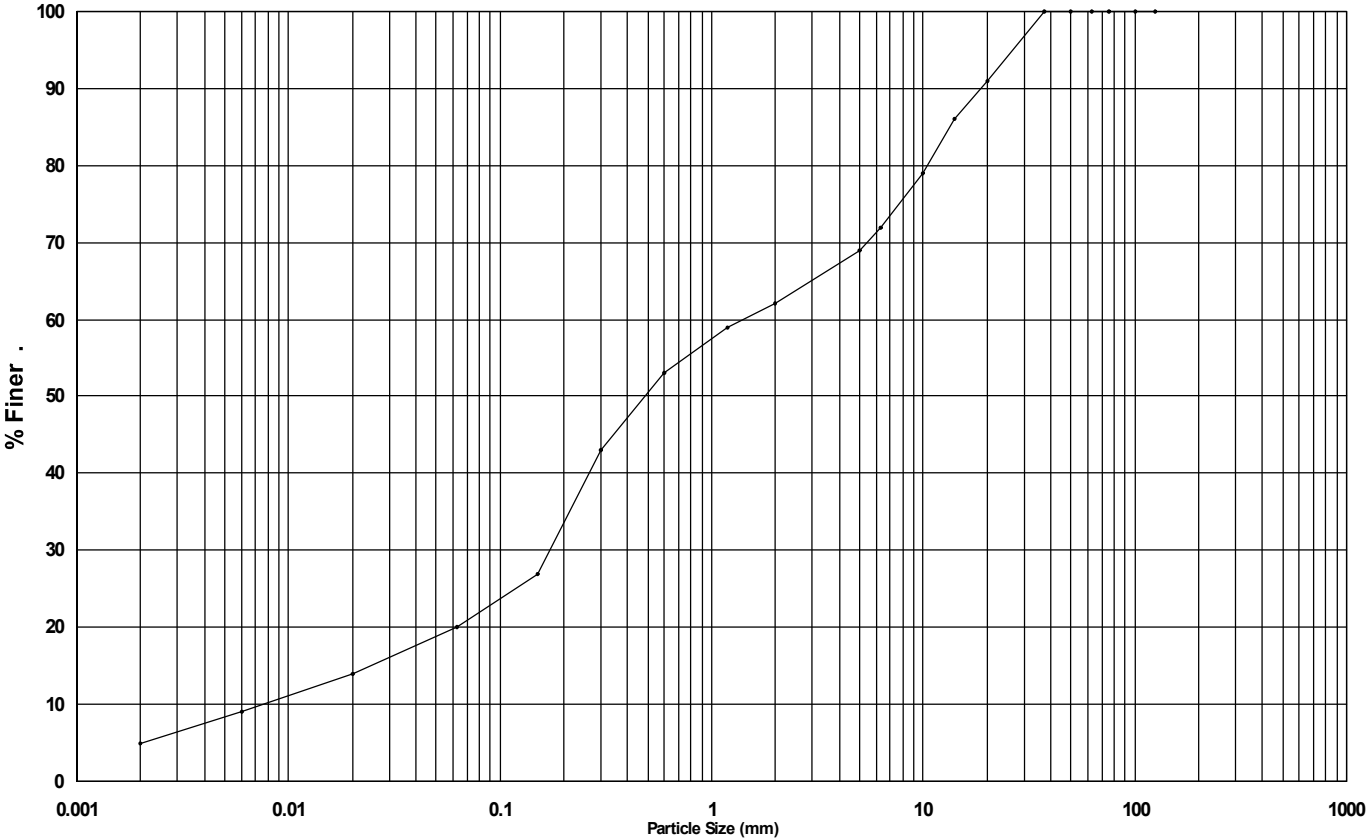
LABORATORY RESULTS - Particle Size Distribution

Project: NEWPORT QUINN PHASE 2

Hole BH20
Sample Depth 1.20-1.70m
Sample Type B
Sample Ref N84104

Project No: PN224395

Sample Description
Brown clayey silty very gravelly SAND.



| Classification | CLAY | Fine | Medium | Coarse | Fine | Medium | Coarse | Fine | Medium | Coarse | Cobbles | Boulders |
|----------------|------|------|--------|--------|------|--------|--------|--------|--------|--------|---------|----------|
| | | SILT | | | SAND | | | Gravel | | | | |

| Classification | % of each |
|----------------|-----------|
| CLAY | 5 |
| SILT | 15 |
| SAND | 42 |
| GRAVEL | 38 |
| COBBLES | 0 |
| BOULDERS | 0 |

| Size | % Finer |
|---------|---------|
| 125 mm | 100 |
| 100 mm | 100 |
| 75 mm | 100 |
| 63 mm | 100 |
| 50 mm | 100 |
| 37.5 mm | 100 |
| 20 mm | 91 |
| 14 mm | 86 |
| 10 mm | 79 |
| 6.3 mm | 72 |
| 5 mm | 69 |
| 2 mm | 62 |
| 1.18 mm | 59 |
| 600 μm | 53 |
| 300 μm | 43 |
| 150 μm | 27 |

| Size | % Finer |
|-------|---------|
| 63 μm | 20 |
| 20 μm | 14 |
| 6 μm | 9 |
| 2 μm | 5 |

| Uniformity Coefficient | |
|-------------------------|-------------------|
| 174.39 | |
| Sieving Method | |
| Wet sieve | |
| Fine Particle Analysis | |
| Method | Pipette |
| Pre-treated with | Hydrogen Peroxide |
| % loss on Pre-treatment | 0.00 |
| Particle Density | 2.65 (Assumed) |

Remarks Sieve:-Test performed in accordance with BS EN ISO 17892-4:2016
Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

02/11/2022

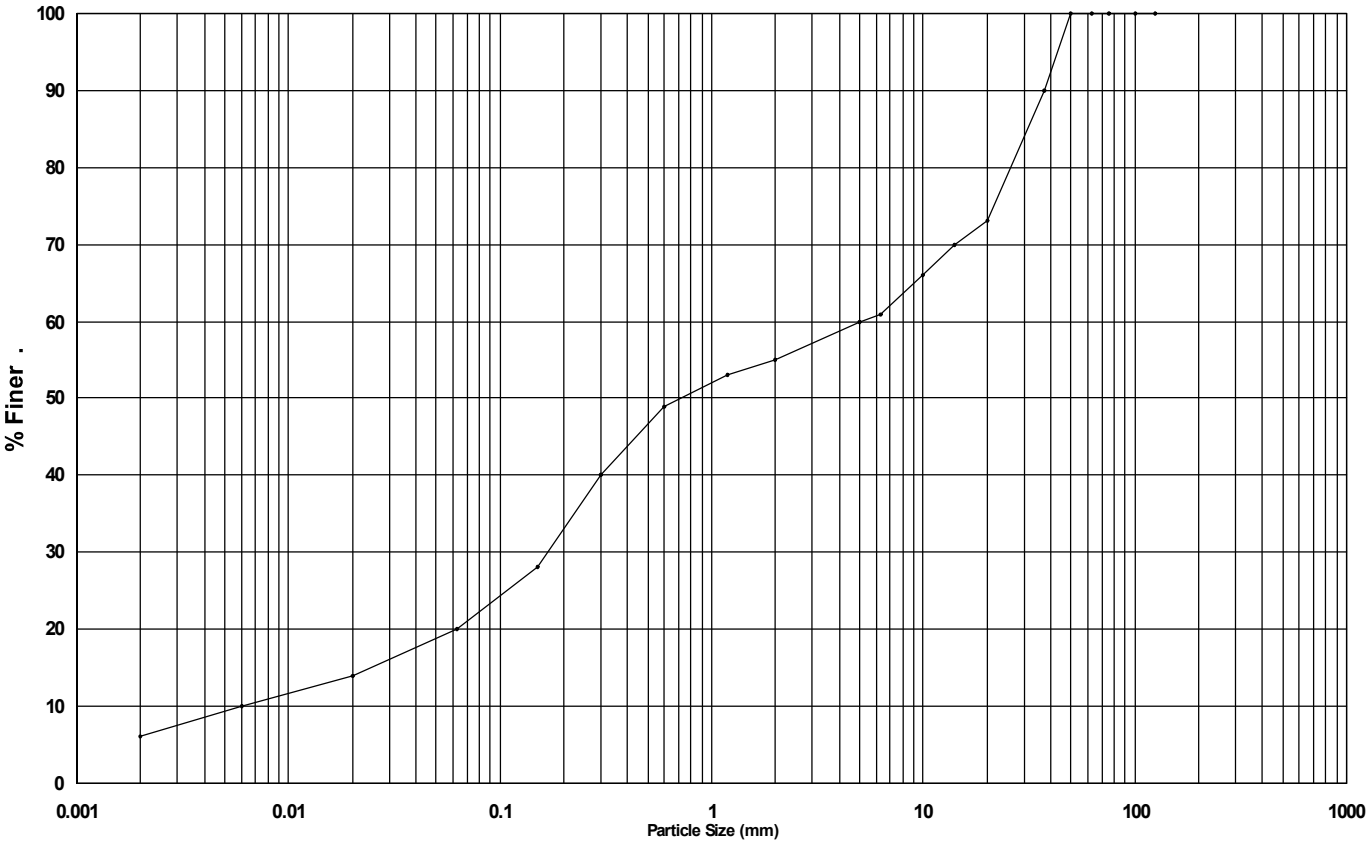
LABORATORY RESULTS - Particle Size Distribution

Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH21
Sample Depth 2.00-2.50m
Sample Type B
Sample Ref N84107

Sample Description
Brown clayey silty very sandy GRAVEL.



| Classification | CLAY | Fine | Medium | Coarse | Fine | Medium | Coarse | Fine | Medium | Coarse | Cobbles | Boulders |
|----------------|------|------|--------|--------|------|--------|--------|--------|--------|--------|---------|----------|
| | | SILT | | | SAND | | | Gravel | | | | |

| Classification | % of each |
|----------------|-----------|
| CLAY | 6 |
| SILT | 14 |
| SAND | 35 |
| GRAVEL | 45 |
| COBBLES | 0 |
| BOULDERS | 0 |

| Size | % Finer |
|---------|---------|
| 125 mm | 100 |
| 100 mm | 100 |
| 75 mm | 100 |
| 63 mm | 100 |
| 50 mm | 100 |
| 37.5 mm | 90 |
| 20 mm | 73 |
| 14 mm | 70 |
| 10 mm | 66 |
| 6.3 mm | 61 |
| 5 mm | 60 |
| 2 mm | 55 |
| 1.18 mm | 53 |
| 600 μm | 49 |
| 300 μm | 40 |
| 150 μm | 28 |

| Size | % Finer |
|-------|---------|
| 63 μm | 20 |
| 20 μm | 14 |
| 6 μm | 10 |
| 2 μm | 6 |

| Uniformity Coefficient | |
|-------------------------|-------------------|
| 792.36 | |
| Sieving Method | |
| Wet sieve | |
| Fine Particle Analysis | |
| Method | Pipette |
| Pre-treated with | Hydrogen Peroxide |
| % loss on Pre-treatment | 0.00 |
| Particle Density | 2.65 (Assumed) |

Remarks Sieve:-Test performed as "Non Standard" due to sample mass not being in accordance with BS EN ISO 17892-4:2016
Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

02/11/2022

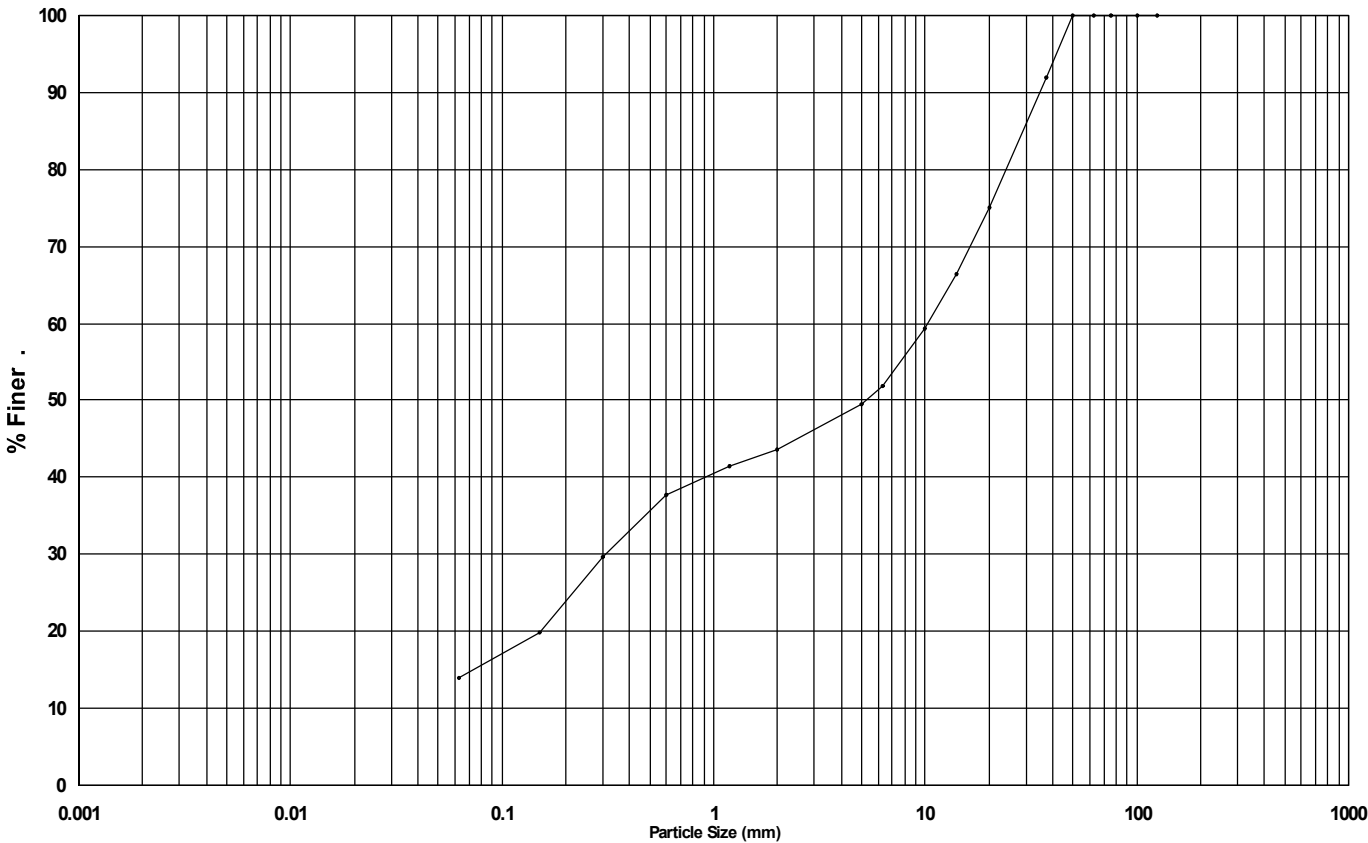
LABORATORY RESULTS - Particle Size Distribution

Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH22
Sample Depth 2.00-2.50m
Sample Type B
Sample Ref N84109

Sample Description
Brown silty/clayey very sandy GRAVEL



| Classification | CLAY | Fine | Medium | Coarse | Fine | Medium | Coarse | Fine | Medium | Coarse | Cobbles | Boulders |
|----------------|------|------|--------|--------|------|--------|--------|--------|--------|--------|---------|----------|
| | | SILT | | | SAND | | | Gravel | | | | |

| Classification | % of each |
|-----------------------|-----------|
| | |
| SILT (including CLAY) | 14 |
| SAND | 30 |
| GRAVEL | 56 |
| COBBLES | 0 |
| BOULDERS | 0 |

| Size | % Finer |
|---------|---------|
| 125 mm | 100 |
| 100 mm | 100 |
| 75 mm | 100 |
| 63 mm | 100 |
| 50 mm | 100 |
| 37.5 mm | 92 |
| 20 mm | 75 |
| 14 mm | 66 |
| 10 mm | 59 |
| 6.3 mm | 52 |
| 5 mm | 49 |
| 2 mm | 44 |
| 1.18 mm | 41 |
| 600 μm | 38 |
| 300 μm | 30 |
| 150 μm | 20 |

| Size | % Finer |
|-------|---------|
| 63 μm | 14 |

| Uniformity Coefficient | |
|-------------------------|--|
| Not Available | |
| Sieving Method | |
| Wet sieve | |
| Fine Particle Analysis | |
| Method | |
| Pre-treated with | |
| % loss on Pre-treatment | |
| Particle Density | |

Remarks Sieve:-Test performed as "Non Standard" due to sample mass not being in accordance with BS EN ISO 17892-4:2016

02/11/2022

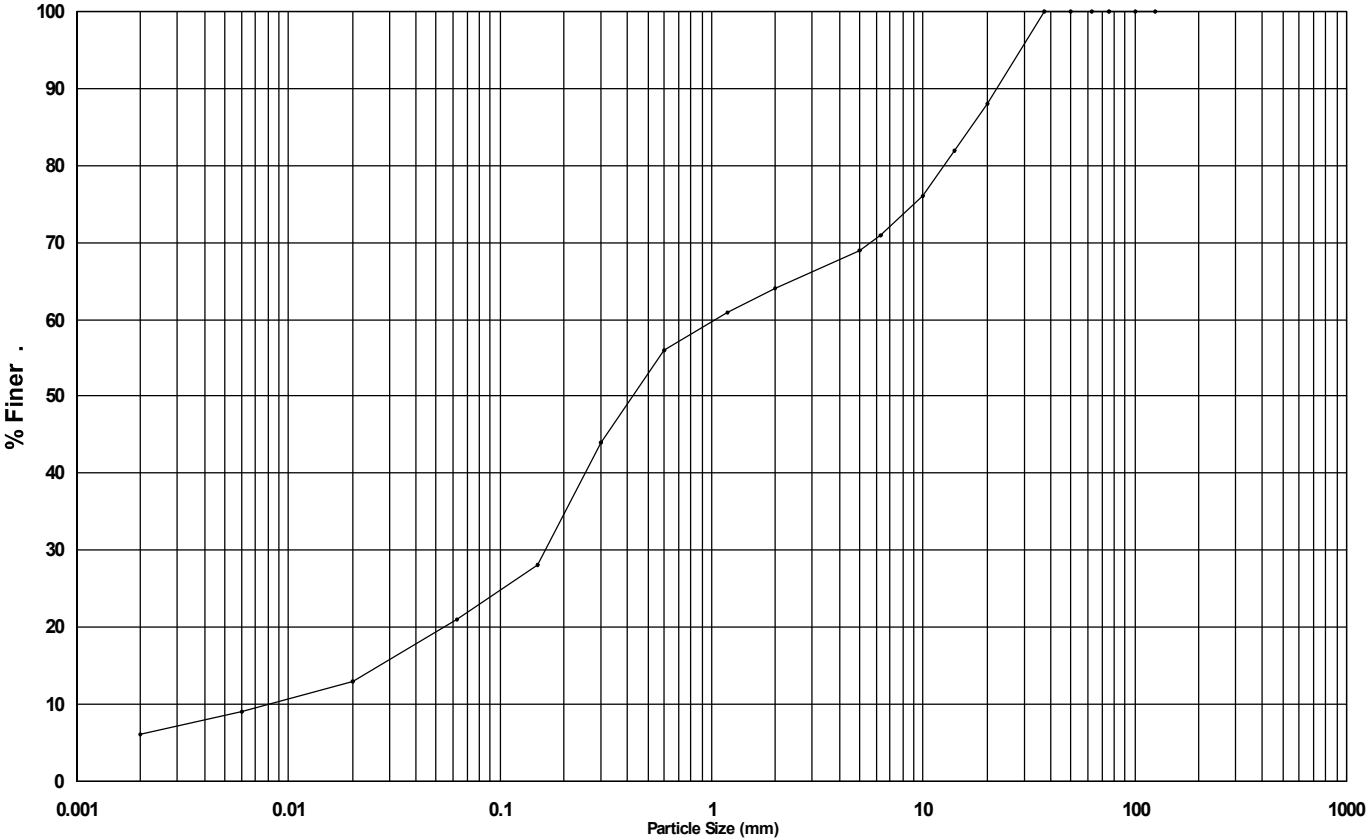
LABORATORY RESULTS - Particle Size Distribution

Project: NEWPORT QUINN PHASE 2

Hole BH23
Sample Depth 3.00-3.50m
Sample Type B
Sample Ref N84114

Project No: PN224395

Sample Description
Brown clayey silty very gravelly SAND.



| Classification | CLAY | Fine | Medium | Coarse | Fine | Medium | Coarse | Fine | Medium | Coarse | Cobbles | Boulders |
|----------------|------|------|--------|--------|------|--------|--------|--------|--------|--------|---------|----------|
| | | SILT | | | SAND | | | Gravel | | | | |

| Classification | % of each |
|----------------|-----------|
| CLAY | 6 |
| SILT | 15 |
| SAND | 43 |
| GRAVEL | 36 |
| COBBLES | 0 |
| BOULDERS | 0 |

| Size | % Finer |
|---------|---------|
| 125 mm | 100 |
| 100 mm | 100 |
| 75 mm | 100 |
| 63 mm | 100 |
| 50 mm | 100 |
| 37.5 mm | 100 |
| 20 mm | 88 |
| 14 mm | 82 |
| 10 mm | 76 |
| 6.3 mm | 71 |
| 5 mm | 69 |
| 2 mm | 64 |
| 1.18 mm | 61 |
| 600 µm | 56 |
| 300 µm | 44 |
| 150 µm | 28 |

| Size | % Finer |
|-------|---------|
| 63 µm | 21 |
| 20 µm | 13 |
| 6 µm | 9 |
| 2 µm | 6 |

| Uniformity Coefficient | |
|-------------------------|-------------------|
| 133.66 | |
| Sieving Method | |
| Wet sieve | |
| Fine Particle Analysis | |
| Method | Pipette |
| Pre-treated with | Hydrogen Peroxide |
| % loss on Pre-treatment | 0.00 |
| Particle Density | 2.65 (Assumed) |

Remarks Sieve:-Test performed in accordance with BS EN ISO 17892-4:2016
Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

02/11/2022

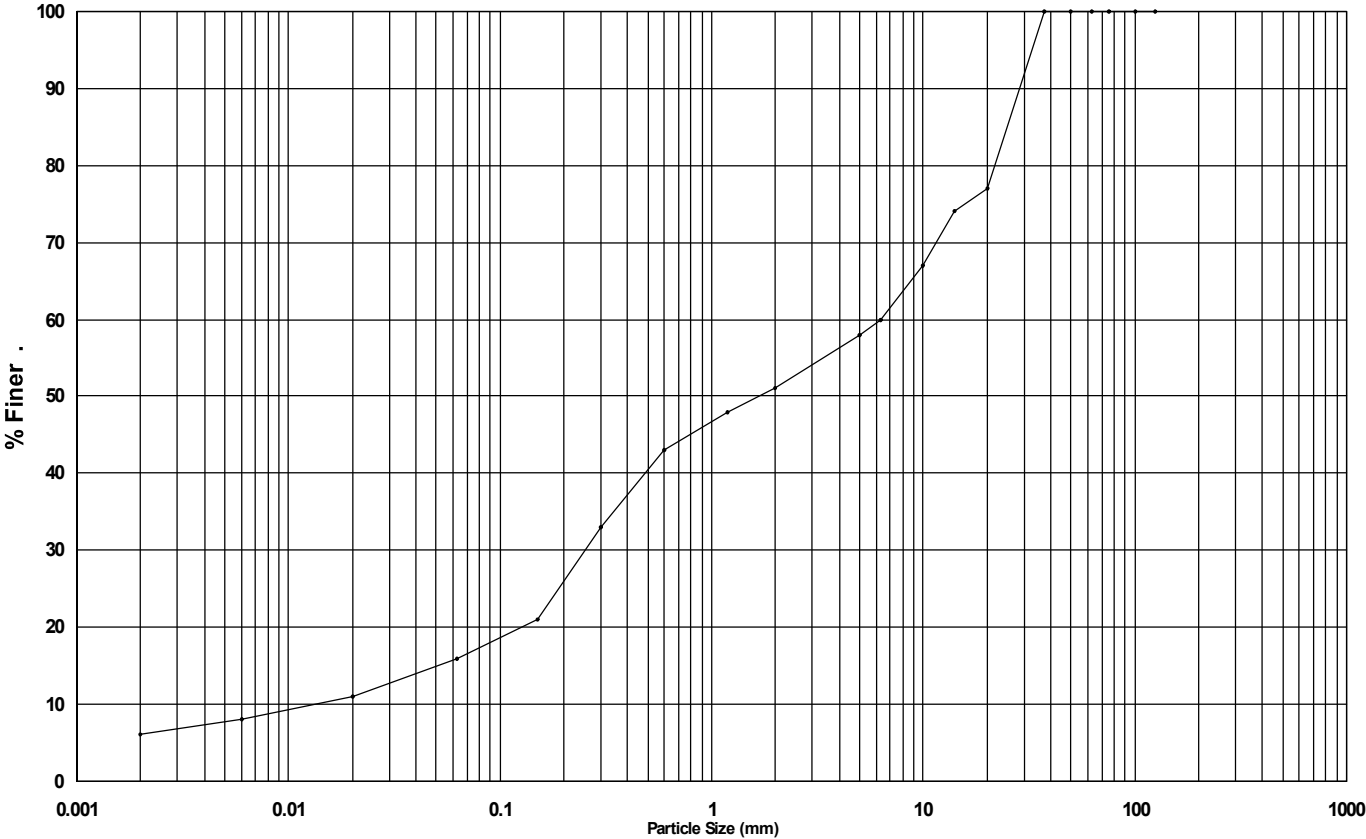
LABORATORY RESULTS - Particle Size Distribution

Project: NEWPORT QUINN PHASE 2

Hole BH27
Sample Depth 1.20-1.70m
Sample Type B
Sample Ref N84128

Project No: PN224395

Sample Description
Brown clayey silty very sandy GRAVEL.



| Classification | CLAY | Fine | Medium | Coarse | Fine | Medium | Coarse | Fine | Medium | Coarse | Cobbles | Boulders |
|----------------|------|------|--------|--------|------|--------|--------|--------|--------|--------|---------|----------|
| | | SILT | | | SAND | | | Gravel | | | | |

| Classification | % of each |
|----------------|-----------|
| CLAY | 6 |
| SILT | 10 |
| SAND | 35 |
| GRAVEL | 49 |
| COBBLES | 0 |
| BOULDERS | 0 |

| Size | % Finer |
|---------|---------|
| 125 mm | 100 |
| 100 mm | 100 |
| 75 mm | 100 |
| 63 mm | 100 |
| 50 mm | 100 |
| 37.5 mm | 100 |
| 20 mm | 77 |
| 14 mm | 74 |
| 10 mm | 67 |
| 6.3 mm | 60 |
| 5 mm | 58 |
| 2 mm | 51 |
| 1.18 mm | 48 |
| 600 μm | 43 |
| 300 μm | 33 |
| 150 μm | 21 |

| Size | % Finer |
|-------|---------|
| 63 μm | 16 |
| 20 μm | 11 |
| 6 μm | 8 |
| 2 μm | 6 |

| Uniformity Coefficient | |
|-------------------------|-------------------|
| 526.38 | |
| Sieving Method | |
| Wet sieve | |
| Fine Particle Analysis | |
| Method | Pipette |
| Pre-treated with | Hydrogen Peroxide |
| % loss on Pre-treatment | 0.00 |
| Particle Density | 2.65 (Assumed) |

Remarks Sieve:-Test performed in accordance with BS EN ISO 17892-4:2016
Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

02/11/2022

LABORATORY RESULTS - Unconsolidated Undrained Triaxial Test

Project: NEWPORT QUINN PHASE 2

Hole BH10
Sample Depth 5.00-5.45m
Sample Type UT
Sample Ref N84072

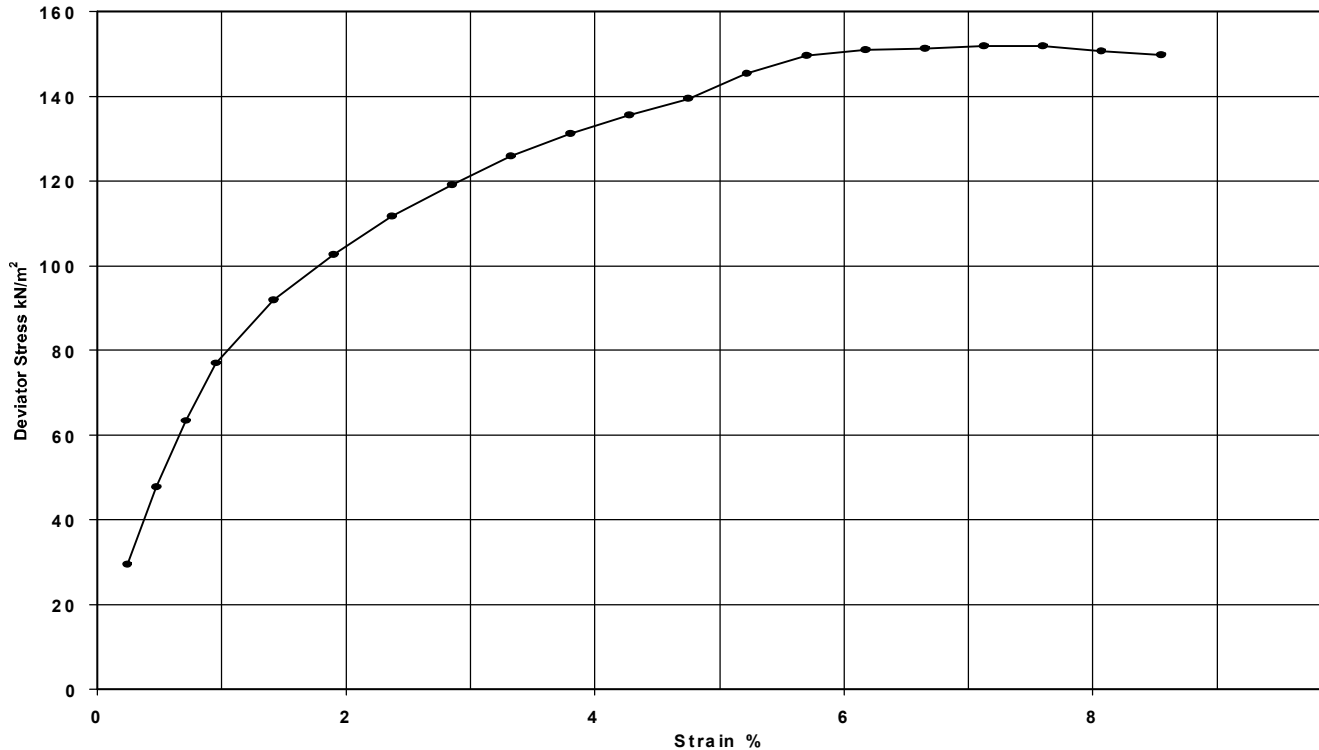
Project No: PN224395

Sample Description

The following samples were combined to perform this test:

Brown slightly gravelly sandy silty CLAY

BS EN ISO 17892-8:2018



| | Stage 1 | Stage 2 | Stage 3 | Strain % | Corrected Deviator Stress kN/m ² | Strain % | Corrected Deviator Stress kN/m ² |
|---|--------------|---------|---------|----------|---|----------|---|
| Test Type | Single Stage | | | 0.2 | 29.4 | | |
| Sample Condition | Undisturbed | | | 0.5 | 47.6 | | |
| Orientation of sample | Vertical | | | 0.7 | 63.4 | | |
| Initial Diameter (mm) | 102.18 | | | 0.9 | 77.0 | | |
| Initial Length (mm) | 210.62 | | | 1.4 | 91.9 | | |
| Initial Water Content (%) | 32.2 | | | 1.9 | 102.5 | | |
| Initial Bulk Density (Mg/m ³) | 1.98 | | | 2.4 | 111.6 | | |
| Initial Dry Density (Mg/m ³) | 1.50 | | | 2.8 | 119.1 | | |
| Particle Density (Mg/m ³) | 2.65 Assumed | | | 3.3 | 125.7 | | |
| Cell Pressure (kPa) | 100 | | | 3.8 | 131.2 | | |
| 'Specimen Height' at start of Shearing Stage (mm) | 210.56 | | | 4.3 | 135.5 | | |
| Membrane Thickness/Correction (mm/kPa) | 100 / 0.0000 | | | 4.7 | 139.4 | | |
| Rate of Strain (%/min) | 1.9 | | | 5.2 | 145.3 | | |
| Corrected Deviator Stress (kPa) | 152 | | | 5.7 | 149.6 | | |
| Undrained Shear Strength (kPa) | 76 | | | 6.2 | 150.9 | | |
| Strain at Failure (%) | 7.6 | | | 6.6 | 151.3 | | |
| Failure Zone Water Content (%) | 26.2 | | | 7.1 | 151.7 | | |
| Water Content (after test) (%) | | | | 7.6 | 151.7 | | |
| Mode of Failure | Intermediate | | | 8.1 | 150.6 | | |
| | | | | 8.5 | 149.7 | | |

Remarks 

02/11/2022

GEOTECHNICS

LABORATORY RESULTS - Unconsolidated Undrained Triaxial Test

| | | | |
|-------------|-----------------------|--------------|------------|
| Project: | NEWPORT QUINN PHASE 2 | Hole | BH10 |
| | | Sample Depth | 5.00-5.45m |
| | | Sample Type | UT |
| Project No: | PN224395 | Sample Ref | N84072 |



Remarks



02/11/2022

GEOTECHNICS

LABORATORY RESULTS - Unconsolidated Undrained Triaxial Test

Project: NEWPORT QUINN PHASE 2

Hole BH15
Sample Depth 3.00-3.45m
Sample Type UT
Sample Ref N84086

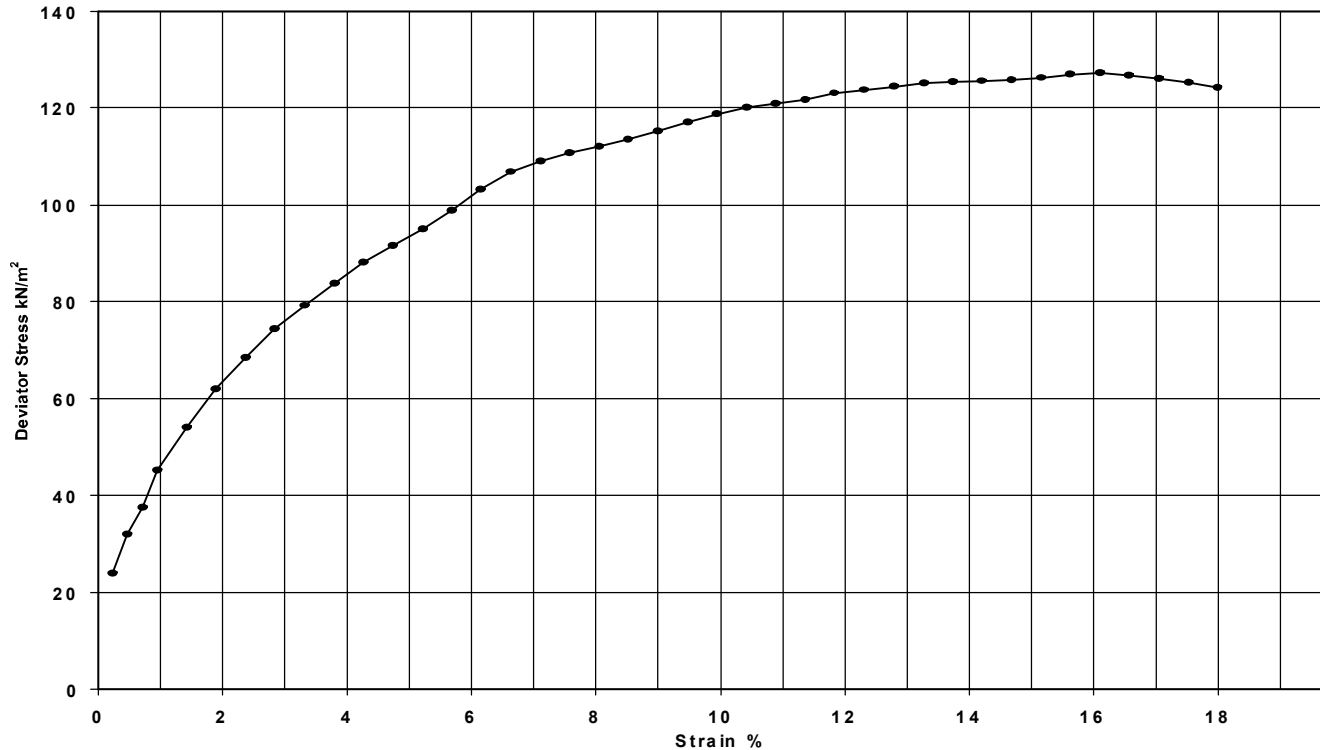
Project No: PN224395

Sample Description

The following samples were combined to perform this test:

Firm reddish brown slightly gravelly silty CLAY

BS EN ISO 17892-8:2018



| | Stage 1 | Stage 2 | Stage 3 | Strain % | Corrected Deviator Stress kN/m ² | Strain % | Corrected Deviator Stress kN/m ² |
|---|--------------|---------|---------|----------|---|----------|---|
| Test Type | Single Stage | | | 0.2 | 24.0 | 9.9 | 118.7 |
| Sample Condition | Undisturbed | | | 0.5 | 32.0 | 10.4 | 120.1 |
| Orientation of sample | Vertical | | | 0.7 | 37.4 | 10.9 | 121.0 |
| Initial Diameter (mm) | 102.34 | | | 0.9 | 45.1 | 11.4 | 121.7 |
| Initial Length (mm) | 211.24 | | | 1.4 | 54.1 | 11.8 | 123.0 |
| Initial Water Content (%) | 23.6 | | | 1.9 | 62.0 | 12.3 | 123.8 |
| Initial Bulk Density (Mg/m ³) | 2.00 | | | 2.4 | 68.5 | 12.8 | 124.5 |
| Initial Dry Density (Mg/m ³) | 1.62 | | | 2.8 | 74.3 | 13.3 | 125.1 |
| Particle Density (Mg/m ³) | 2.65 Assumed | | | 3.3 | 79.2 | 13.7 | 125.5 |
| Cell Pressure (kPa) | 60 | | | 3.8 | 83.7 | 14.2 | 125.6 |
| 'Specimen Height' at start of Shearing Stage (mm) | 211.19 | | | 4.3 | 88.1 | 14.7 | 125.8 |
| Membrane Thickness/Correction (mm/kPa) | 100 / 0.0000 | | | 4.7 | 91.5 | 15.1 | 126.2 |
| Rate of Strain (%/min) | 1.9 | | | 5.2 | 94.9 | 15.6 | 126.9 |
| Corrected Deviator Stress (kPa) | 127 | | | 5.7 | 98.7 | 16.1 | 127.3 |
| Undrained Shear Strength (kPa) | 64 | | | 6.2 | 103.2 | 16.6 | 126.8 |
| Strain at Failure (%) | 16.1 | | | 6.6 | 106.9 | 17.0 | 126.1 |
| Failure Zone Water Content (%) | 24.8 | | | 7.1 | 109.1 | 17.5 | 125.3 |
| Water Content (after test) (%) | | | | 7.6 | 110.7 | 18.0 | 124.3 |
| Mode of Failure | Plastic | | | 8.0 | 112.0 | | |
| | | | | 8.5 | 113.6 | | |
| | | | | 9.0 | 115.1 | | |
| | | | | 9.5 | 117.1 | | |

Remarks 

02/11/2022

GEOTECHNICS

LABORATORY RESULTS - Unconsolidated Undrained Triaxial Test

Project: NEWPORT QUINN PHASE 2

Hole BH15
Sample Depth 3.00-3.45m
Sample Type UT
Sample Ref N84086

Project No: PN224395



Remarks



02/11/2022

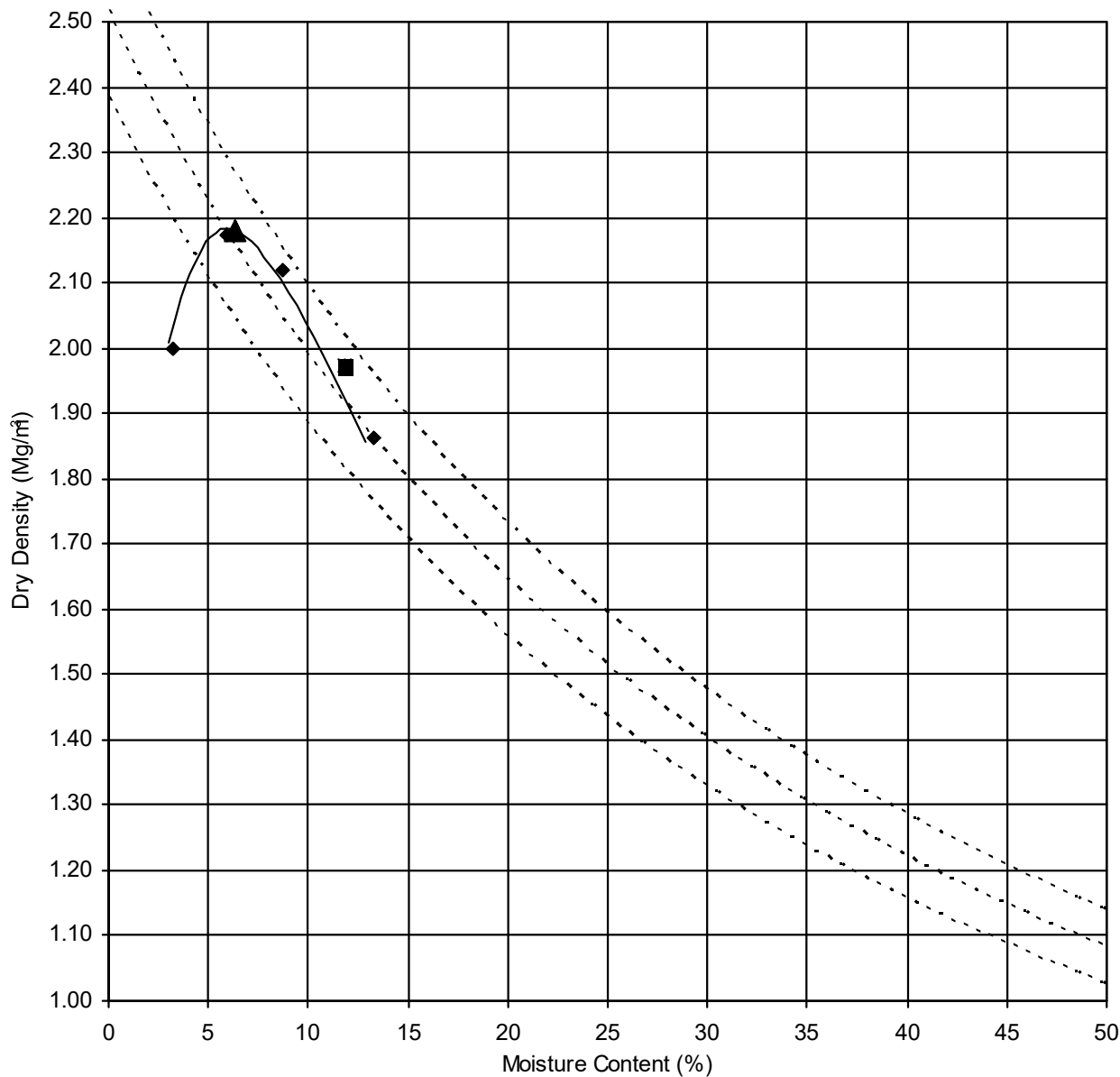
GEOTECHNICS

LABORATORY RESULTS - Compaction

Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH02
Sample Depth 1.20-1.70m
Sample Type B
Sample Ref N84042




▲ Optimum Moisture Content
 ◆ 4.5kg Rammer
 ■ 4.5kg Rammer at natural moisture content

Optimum Moisture Content 6.3
Maximum Dry Density 2.18 Mg/m³

Particles retained on 37.5mm 14 %
 20mm sieve 23 %

Particle Density 2.65 (Ass'm) Mg/m³
 Preparation Single Sample
 4.5kg Rammer

Description Brown slightly gravelly SAND.

Remarks  BS1377 Part 4 1990 : Clause 3.5 and 3.6

GEOTECHNICS
 geotechnical and geoenvironmental specialists

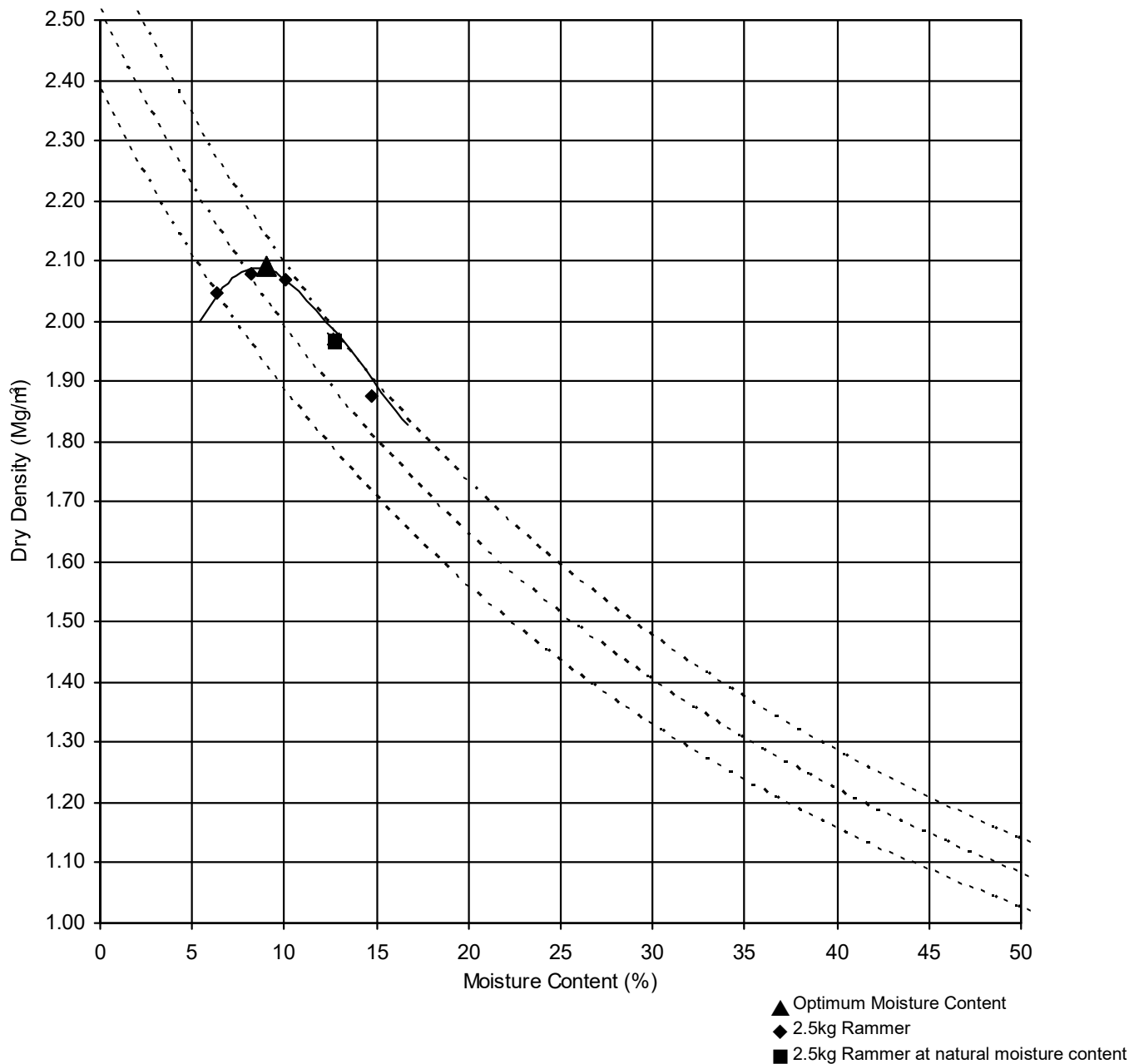
02/11/2022

LABORATORY RESULTS - Compaction

Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH04A
Sample Depth 1.20-1.70m
Sample Type B
Sample Ref N84050




Optimum Moisture Content 9.0
Maximum Dry Density 2.09 Mg/m³

Particles retained on 37.5mm 3 %
20mm sieve 11 %

Particle Density 2.65 (Ass'm) Mg/m³
Preparation Single Sample
2.5kg Rammer

Description Brown slightly gravelly sandy CLAY.

Remarks  BS1377 Part 4 1990 : Clause 3.3 and 3.4

GEOTECHNICS
geotechnical and geoenvironmental specialists

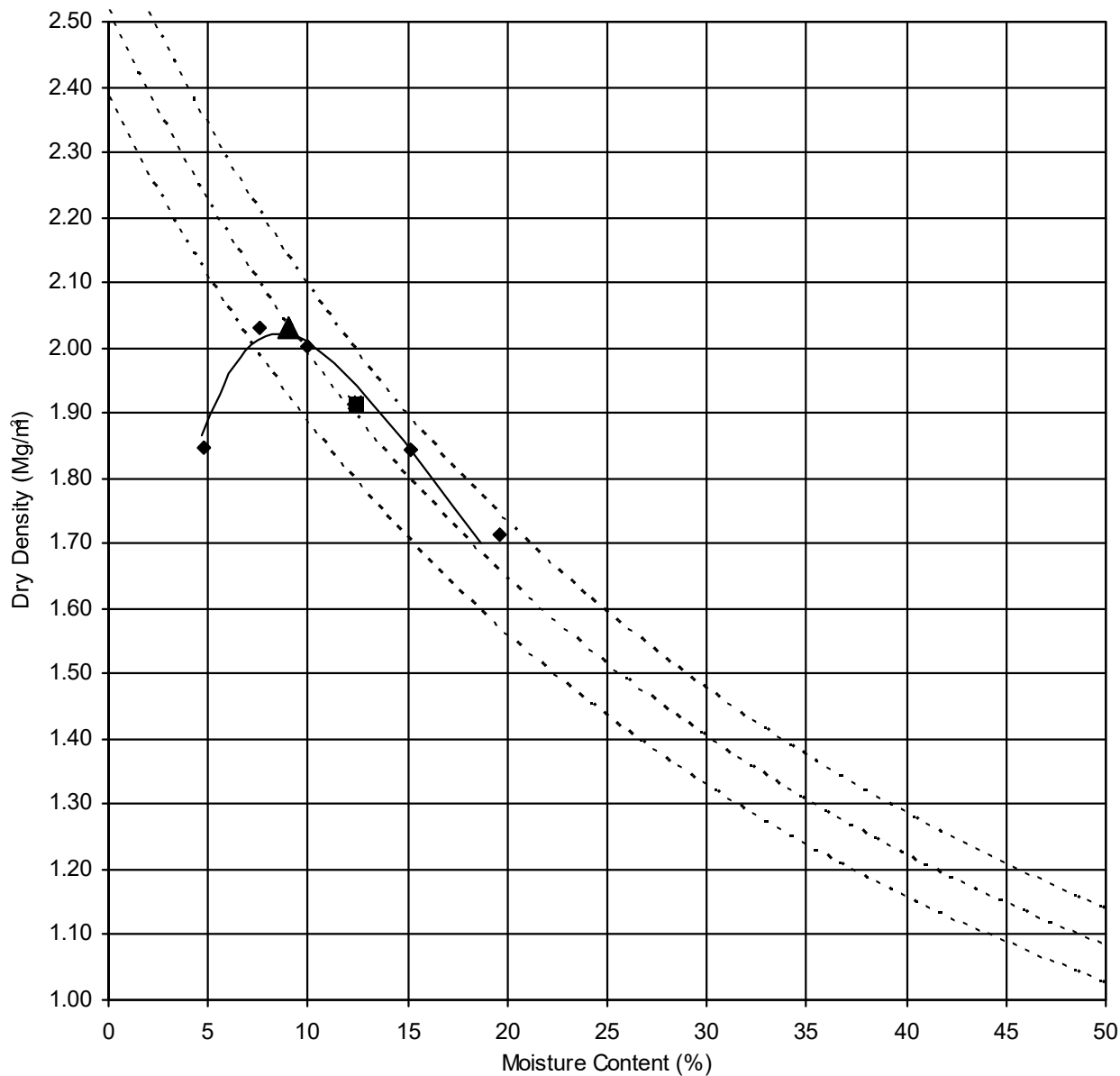
02/11/2022

LABORATORY RESULTS - Compaction

Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH05
Sample Depth 2.00-2.50m
Sample Type B
Sample Ref N84052



▲ Optimum Moisture Content
 ◆ 4.5kg Rammer
 ■ 4.5kg Rammer at natural moisture content

Optimum Moisture Content 9.0
Maximum Dry Density 2.03 Mg/m³

Particles retained on 37.5mm 0 %
 20mm sieve 11 %

Particle Density 2.65 (Ass'm) Mg/m³
 Preparation Single Sample
 4.5kg Rammer

Description Brow slightly gravelly slightly sandy CLAY.

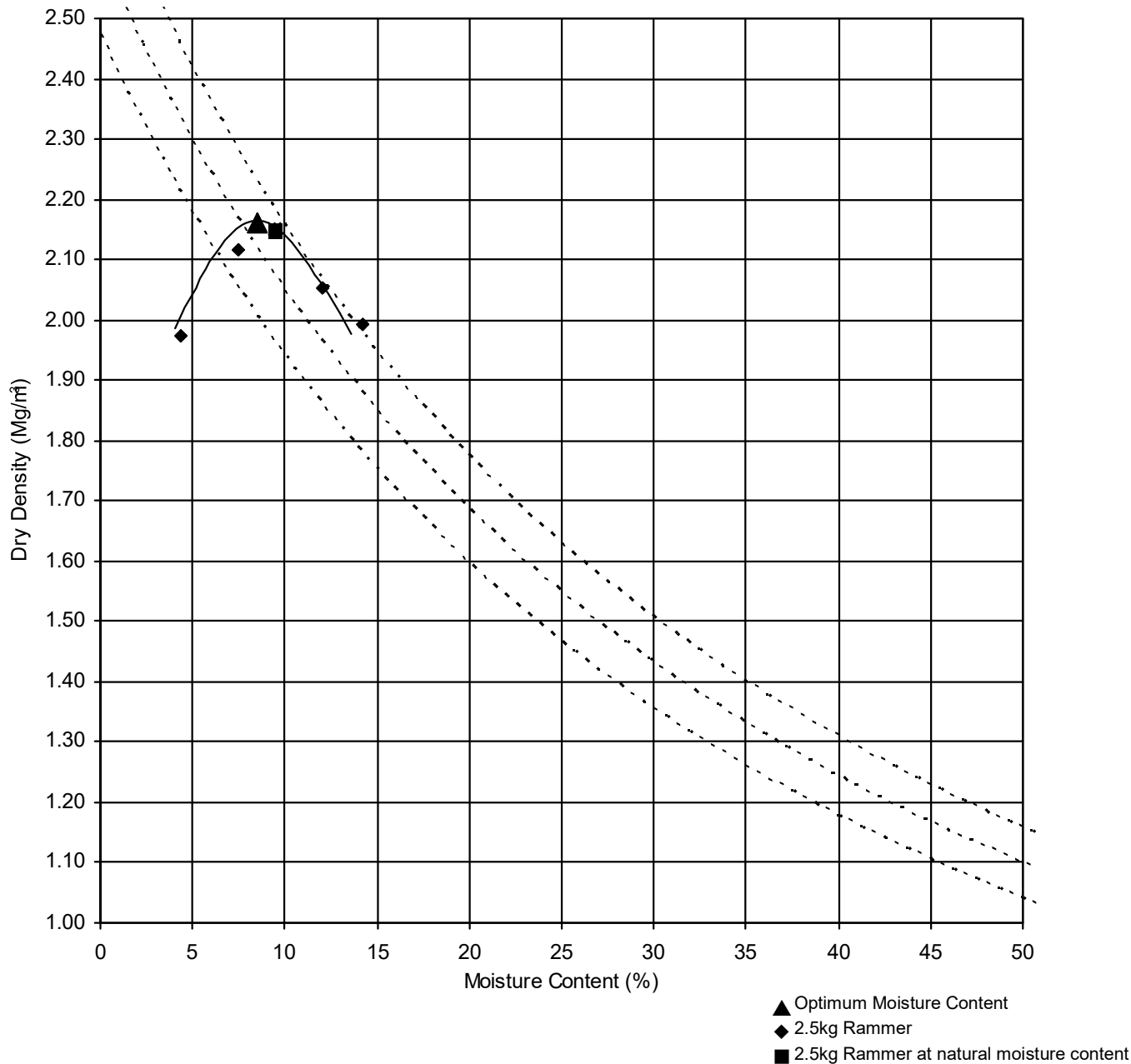
Remarks BS1377 Part 4 1990 : Clause 3.5 and 3.6

LABORATORY RESULTS - Compaction

Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH08
Sample Depth 1.20-1.70m
Sample Type B
Sample Ref N84061




Optimum Moisture Content 8.5
Maximum Dry Density 2.16 Mg/m³

Particles retained on 37.5mm 11 %
20mm sieve 34 %

Particle Density 2.75 (Ass'm) Mg/m³
Preparation Single Sample
2.5kg Rammer

Description Brown slightly sandy clayey GRAVEL.

Remarks  BS1377 Part 4 1990 : Clause 3.3 and 3.4

GEOTECHNICS
geotechnical and geoenvironmental specialists

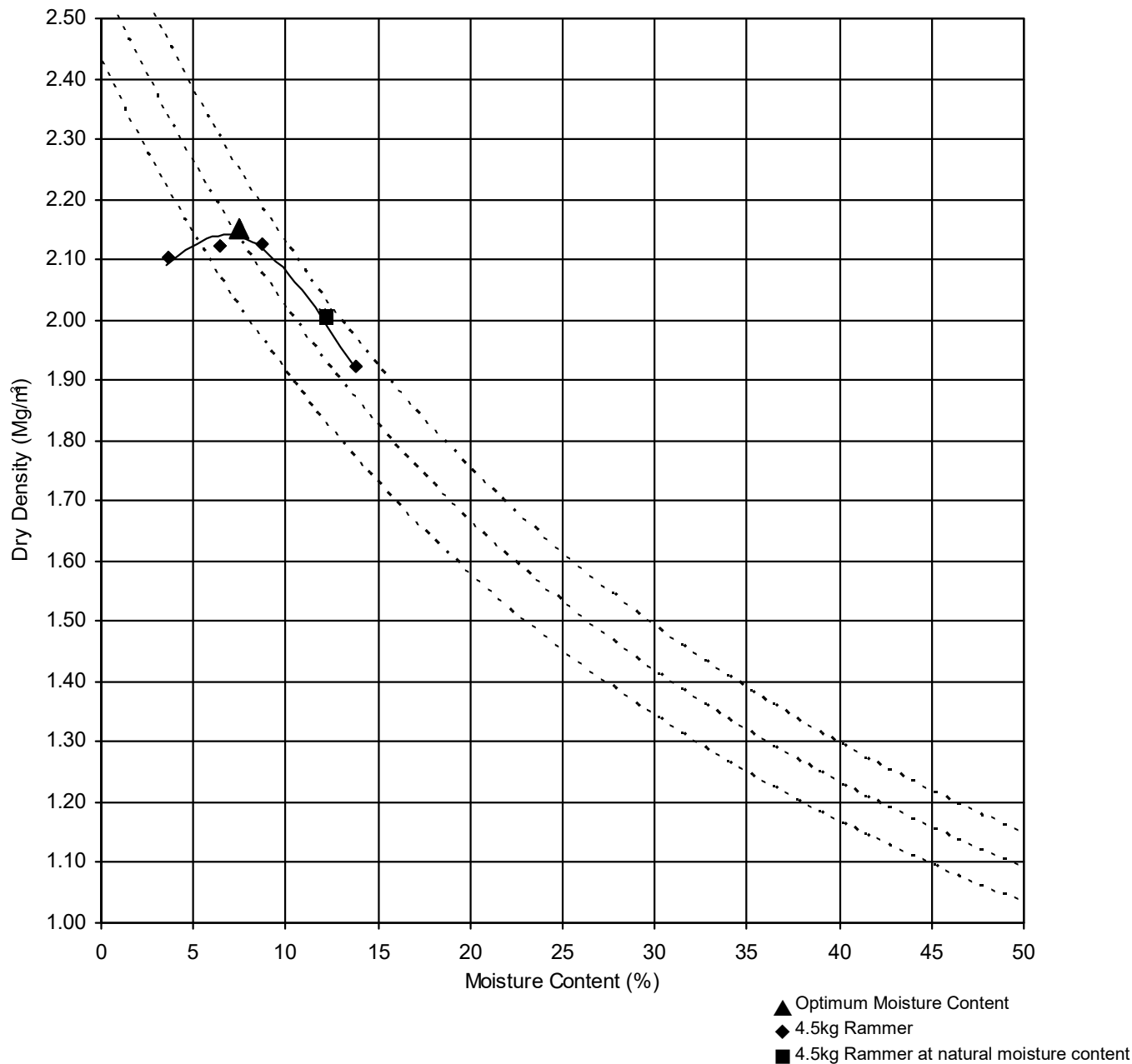
02/11/2022

LABORATORY RESULTS - Compaction

Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH13
Sample Depth 1.20-1.70m
Sample Type B
Sample Ref N84079




Optimum Moisture Content 7.5
Maximum Dry Density 2.15 Mg/m³

Particles retained on 37.5mm 5 %
20mm sieve 13 %

Particle Density 2.70 (Ass'm) Mg/m³
Preparation Single Sample
4.5kg Rammer

Description Brown slightly gravelly clayey SAND.

Remarks  BS1377 Part 4 1990 : Clause 3.5 and 3.6

GEOTECHNICS
geotechnical and geoenvironmental specialists

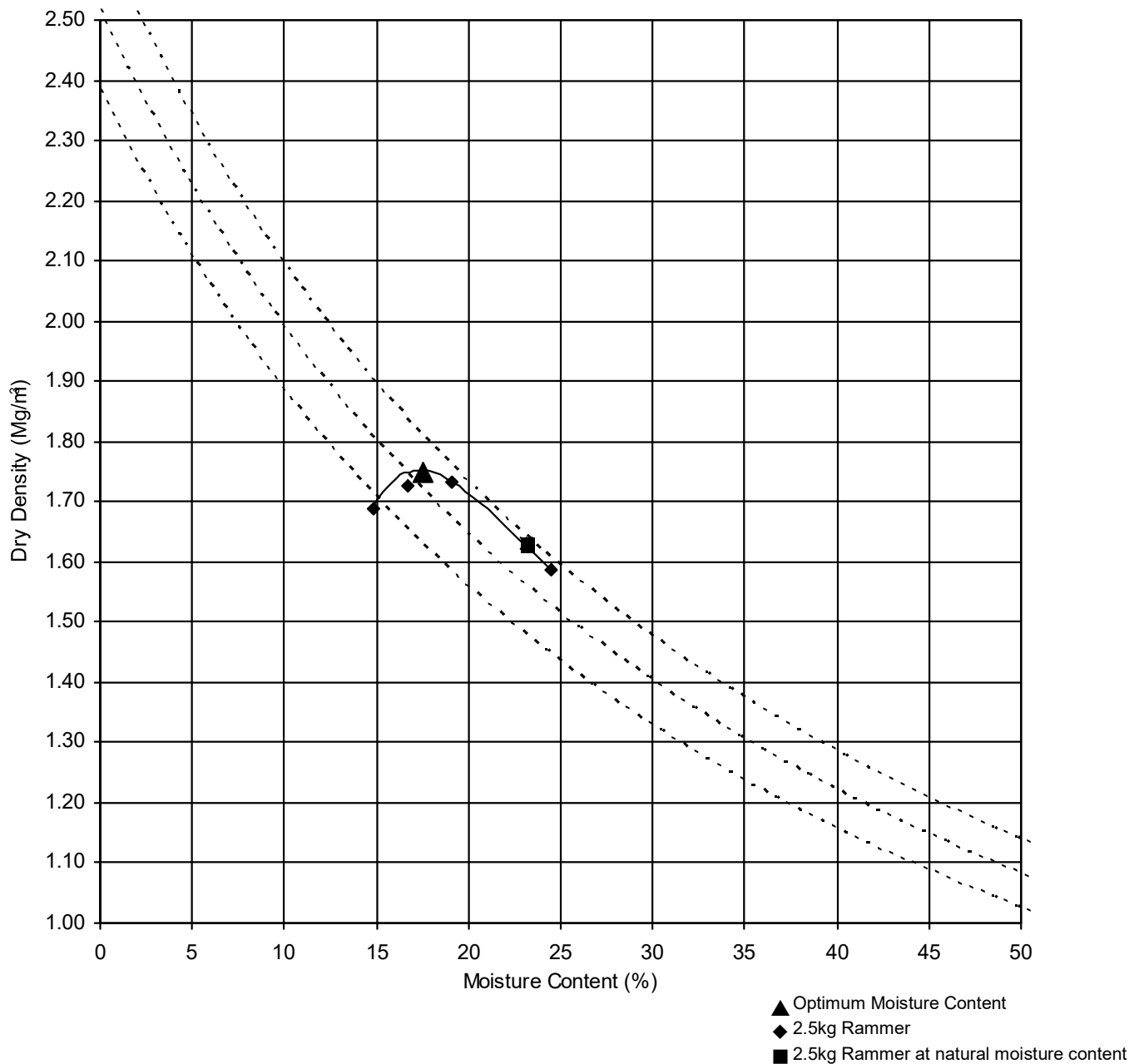
02/11/2022

LABORATORY RESULTS - Compaction

Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH14A
Sample Depth 3.00-3.45m
Sample Type D
Sample Ref N84084




Optimum Moisture Content 17.5
Maximum Dry Density 1.75 Mg/m³

Particles retained on 37.5mm 0 %
20mm sieve 0 %

Particle Density 2.65 (Ass'm) Mg/m³
Preparation Single Sample
2.5kg Rammer

Description Brown mottled red slightly gravelly CLAY.

Remarks  BS1377 Part 4 1990 : Clause 3.3 and 3.4
Combined with B 4.00-4.50m

GEOTECHNICS
geotechnical and geoenvironmental specialists

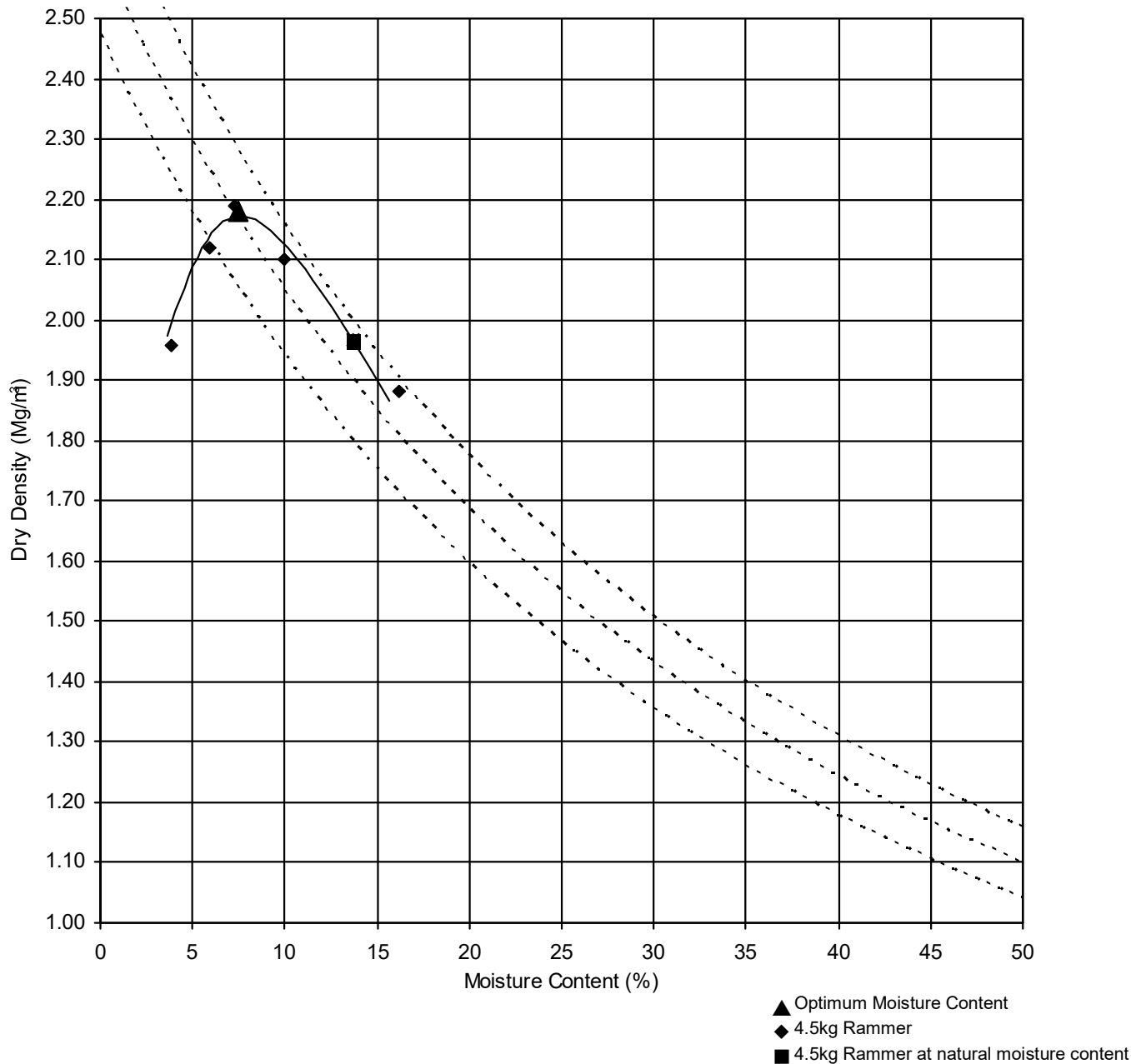
02/11/2022

LABORATORY RESULTS - Compaction

Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH16
Sample Depth 3.00-3.50m
Sample Type B
Sample Ref N84090



Optimum Moisture Content 7.5
Maximum Dry Density 2.18 Mg/m³

Particles retained on 37.5mm 18 %
 20mm sieve 27 %

Particle Density 2.75 (Ass'm) Mg/m³
 Preparation Single Sample
 4.5kg Rammer

Description Brown slightly sandy slightly gravelly clayey SILT.

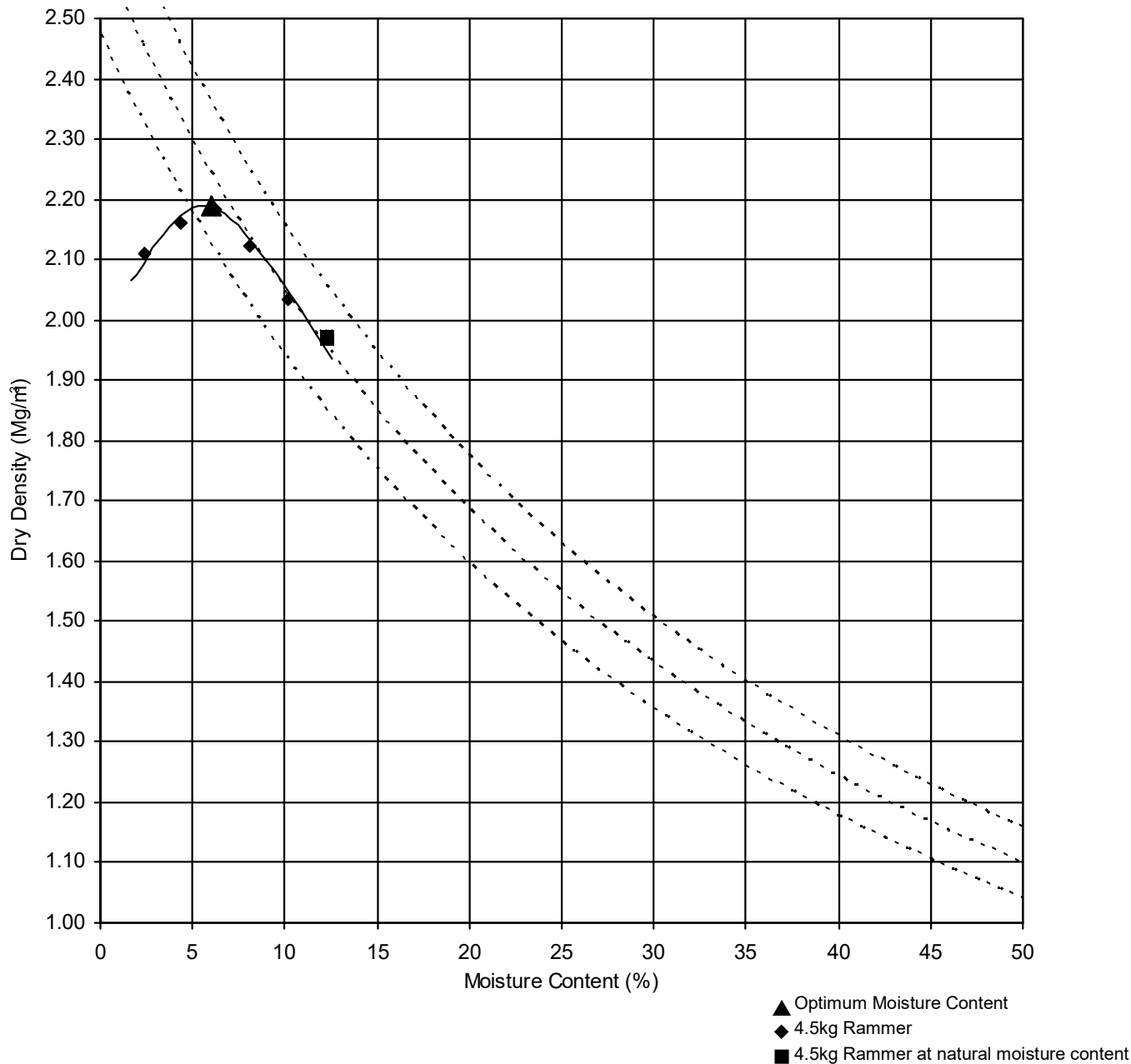
Remarks BS1377 Part 4 1990 : Clause 3.5 and 3.6

LABORATORY RESULTS - Compaction

Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH17A
Sample Depth 2.00-2.50m
Sample Type B
Sample Ref N84093




Optimum Moisture Content 6.0
Maximum Dry Density 2.19 Mg/m³

Particles retained on 37.5mm 5 %
20mm sieve 21 %

Particle Density 2.75 (Ass'm) Mg/m³
Preparation Single Sample
4.5kg Rammer

Description Brown slightly gravelly slightly sandy CLAY.

Remarks  BS1377 Part 4 1990 : Clause 3.5 and 3.6

GEOTECHNICS
geotechnical and geoenvironmental specialists

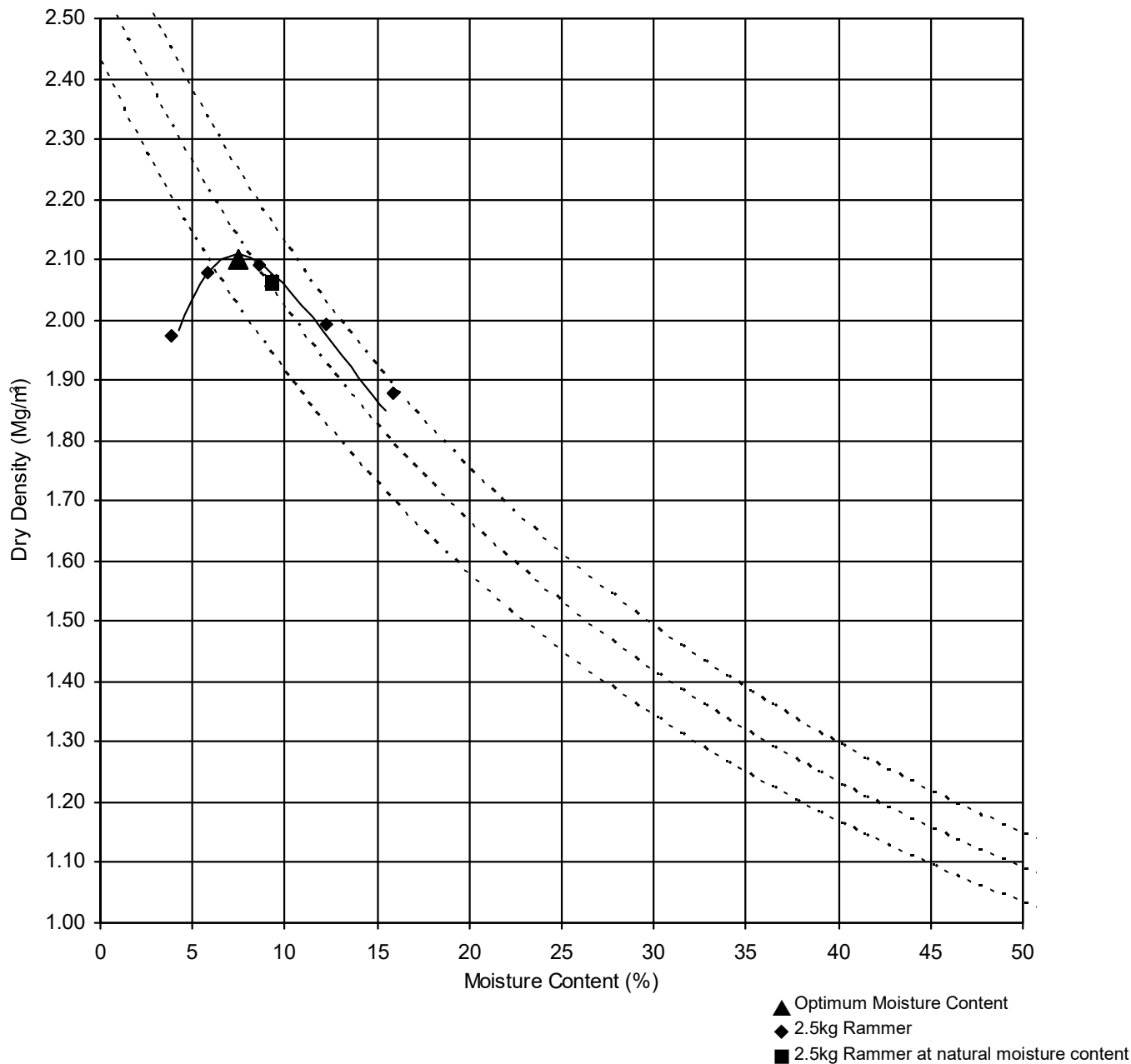
02/11/2022

LABORATORY RESULTS - Compaction

Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH19
Sample Depth 2.00-2.50m
Sample Type B
Sample Ref N84101




Optimum Moisture Content 7.5
Maximum Dry Density 2.10 Mg/m³

Particles retained on 37.5mm 8 %
 20mm sieve 18 %

Particle Density 2.70 (Ass'm) Mg/m³
 Preparation Single Sample
 2.5kg Rammer

Description Brown clayey sandy GRAVEL.

Remarks  BS1377 Part 4 1990 : Clause 3.3 and 3.4

GEOTECHNICS
 geotechnical and geoenvironmental specialists

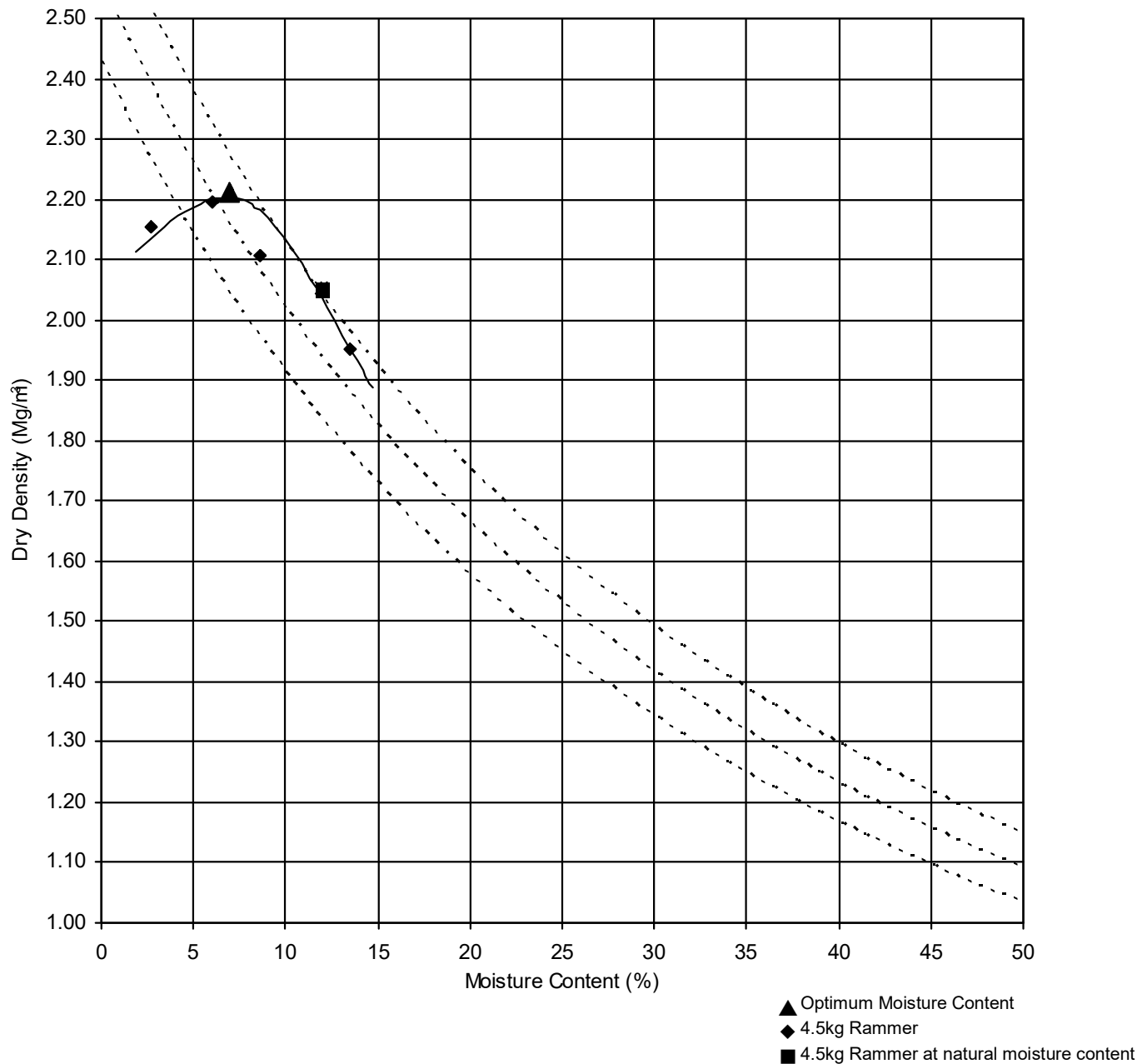
02/11/2022

LABORATORY RESULTS - Compaction

Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH20
Sample Depth 3.00-3.50m
Sample Type B
Sample Ref N84105




Optimum Moisture Content 7.0
Maximum Dry Density 2.21 Mg/m³

Particles retained on 37.5mm 6 %
20mm sieve 28 %

Particle Density 2.70 (Ass'm) Mg/m³
Preparation Single Sample
4.5kg Rammer

Description Brown clayey silty very gravelly SAND.

Remarks  BS1377 Part 4 1990 : Clause 3.5 and 3.6

GEOTECHNICS
geotechnical and geoenvironmental specialists

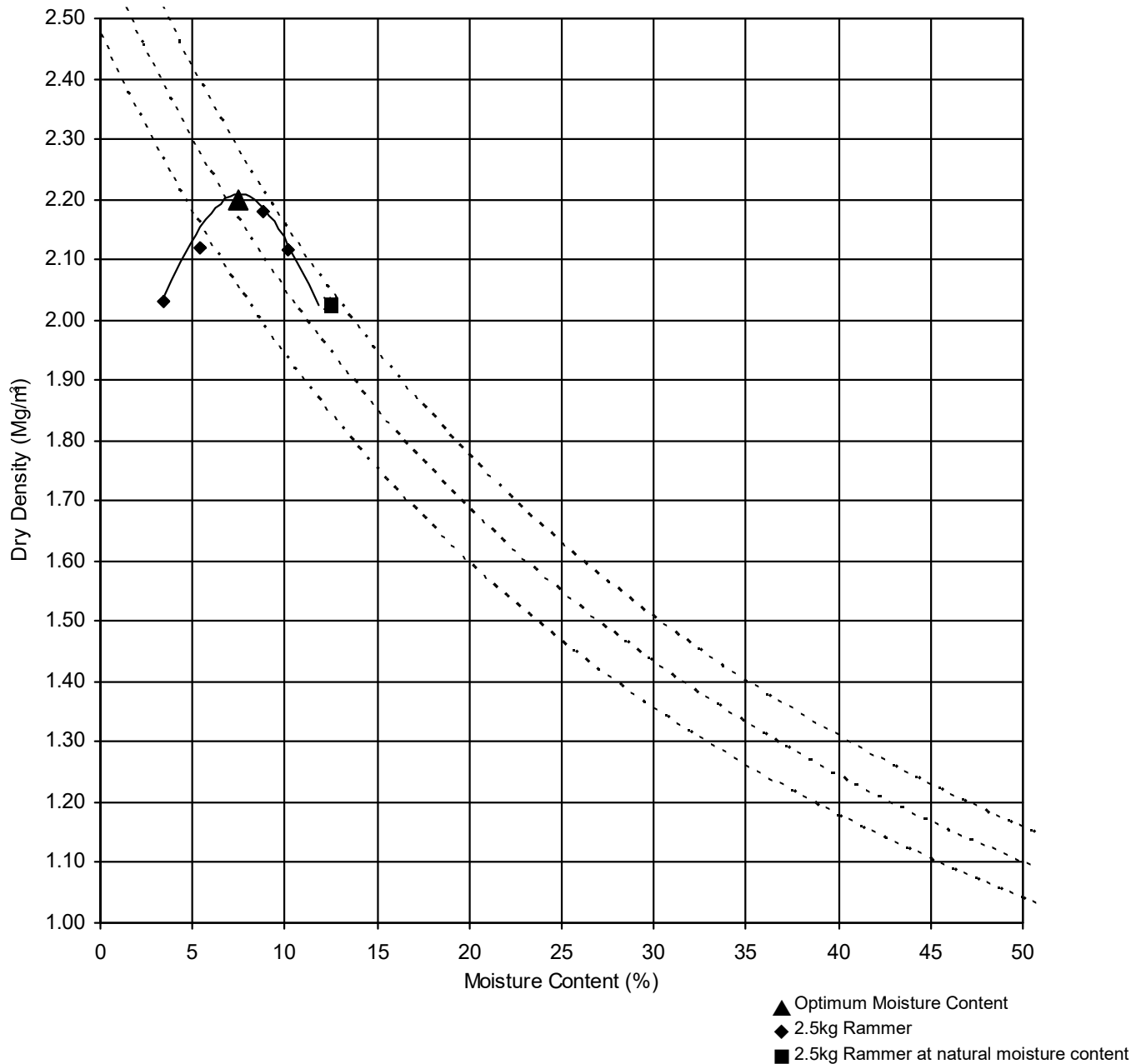
02/11/2022

LABORATORY RESULTS - Compaction

Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH24
Sample Depth 1.20-1.70m
Sample Type B
Sample Ref N84116



Optimum Moisture Content 7.5
Maximum Dry Density 2.20 Mg/m³

Particles retained on 37.5mm 6 %
 20mm sieve 9 %

Particle Density 2.75 (Ass'm) Mg/m³
 Preparation Single Sample
 2.5kg Rammer

Description Brown slightly sandy slightly gravelly CLAY with cobbles.

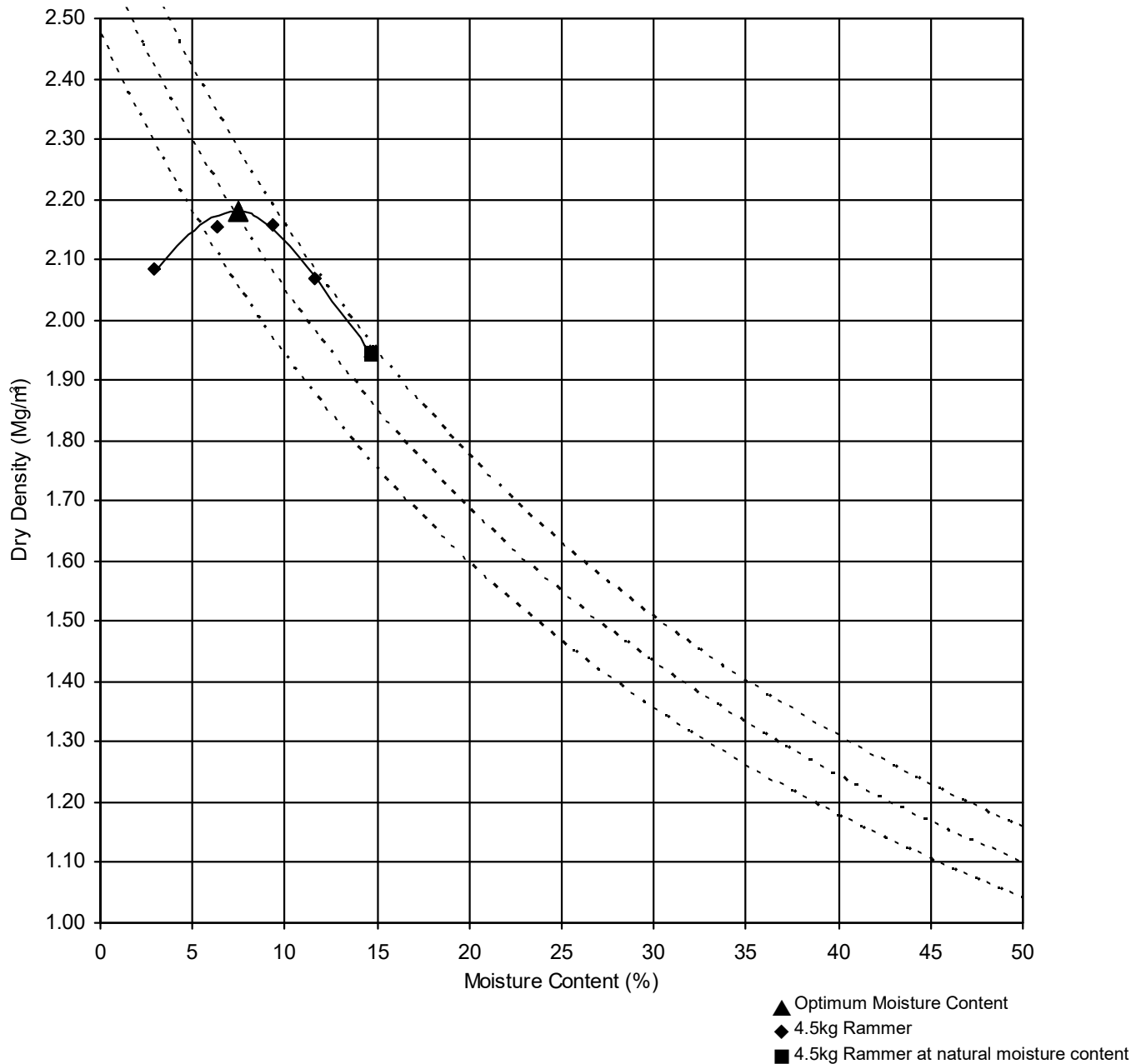
Remarks BS1377 Part 4 1990 : Clause 3.3 and 3.4

LABORATORY RESULTS - Compaction

Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH25
Sample Depth 1.20-1.70m
Sample Type B
Sample Ref N84121




Optimum Moisture Content 7.5
Maximum Dry Density 2.18 Mg/m³

Particles retained on 37.5mm 5 %
 20mm sieve 16 %

Particle Density 2.75 (Ass'm) Mg/m³
 Preparation Single Sample
 4.5kg Rammer

Description Brown slightly sandy slightly gravelly CLAY.

Remarks  BS1377 Part 4 1990 : Clause 3.5 and 3.6

GEOTECHNICS
 geotechnical and geoenvironmental specialists

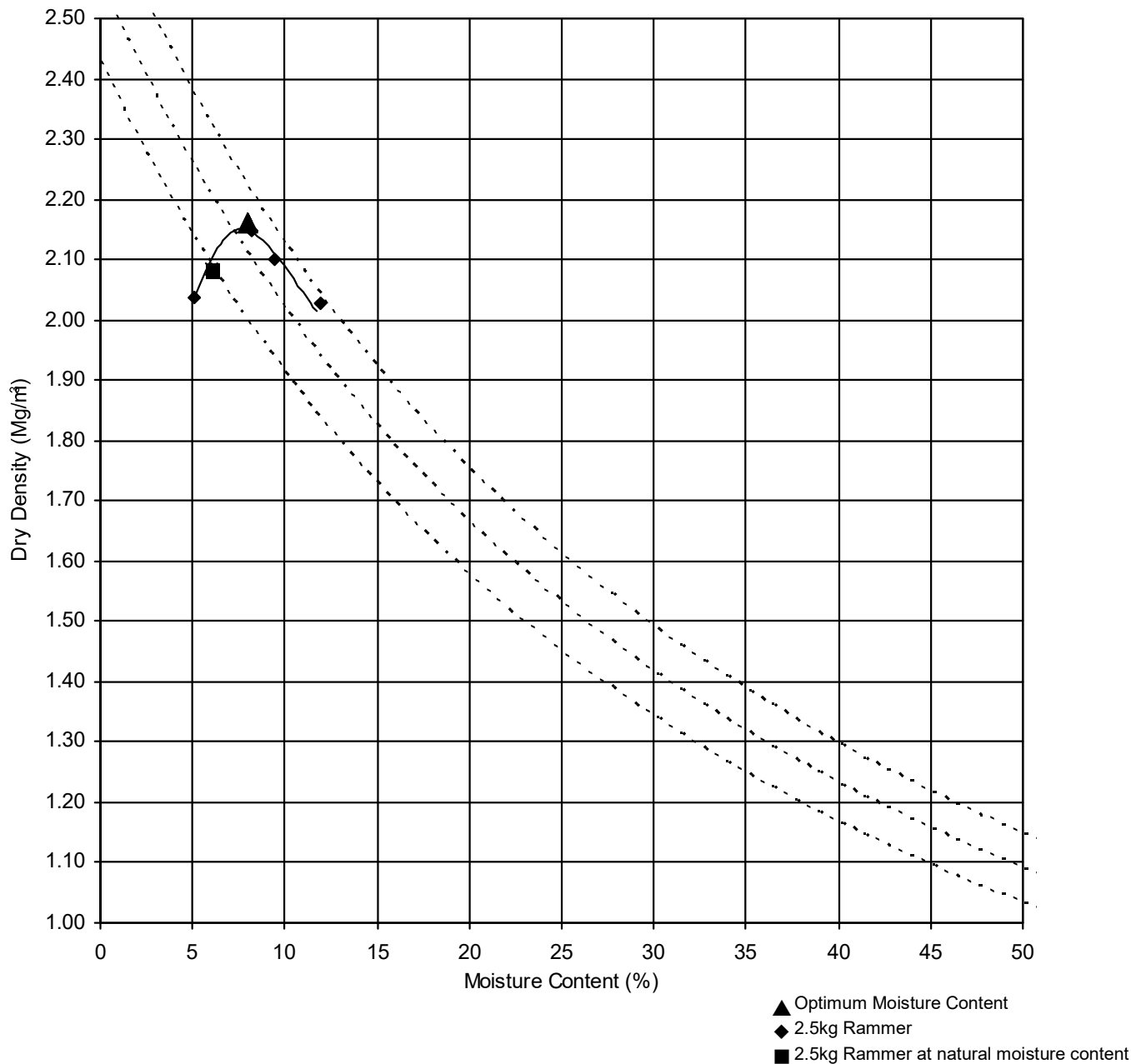
02/11/2022

LABORATORY RESULTS - Compaction

Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH27
Sample Depth 0.36-1.20m
Sample Type B
Sample Ref N84127




Optimum Moisture Content 8.0
Maximum Dry Density 2.16 Mg/m³

Particles retained on 37.5mm 14 %
20mm sieve 30 %

Particle Density 2.70 (Ass'm) Mg/m³
Preparation Single Sample
2.5kg Rammer

Description Brown gravelly SAND.

Remarks  BS1377 Part 4 1990 : Clause 3.3 and 3.4

GEOTECHNICS
geotechnical and geoenvironmental specialists

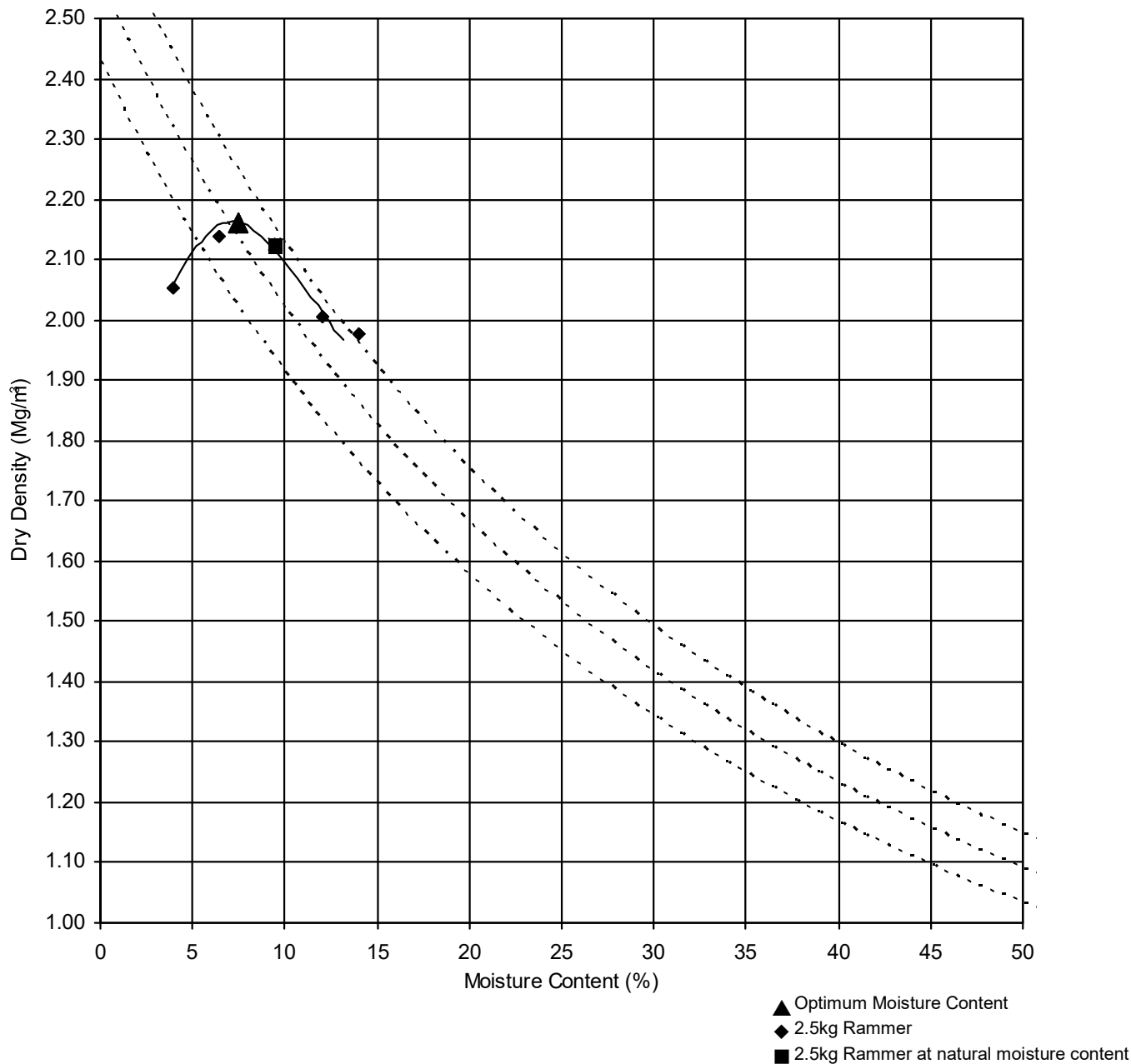
02/11/2022

LABORATORY RESULTS - Compaction

Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH29
Sample Depth 2.00-2.50m
Sample Type B
Sample Ref N84134




| | |
|--------------------------|------------------------|
| Optimum Moisture Content | 7.5 |
| Maximum Dry Density | 2.16 Mg/m ³ |

| | |
|------------------------------|------|
| Particles retained on 37.5mm | 11 % |
| 20mm sieve | 26 % |

| | | |
|------------------|-------------------------------|-------------------|
| Particle Density | 2.70 (Ass'm) | Mg/m ³ |
| Preparation | Single Sample 2.5kg Rammer | |

| | |
|-------------|----------------------------|
| Description | Brown gravelly sandy CLAY. |
|-------------|----------------------------|

Remarks  BS1377 Part 4 1990 : Clause 3.3 and 3.4

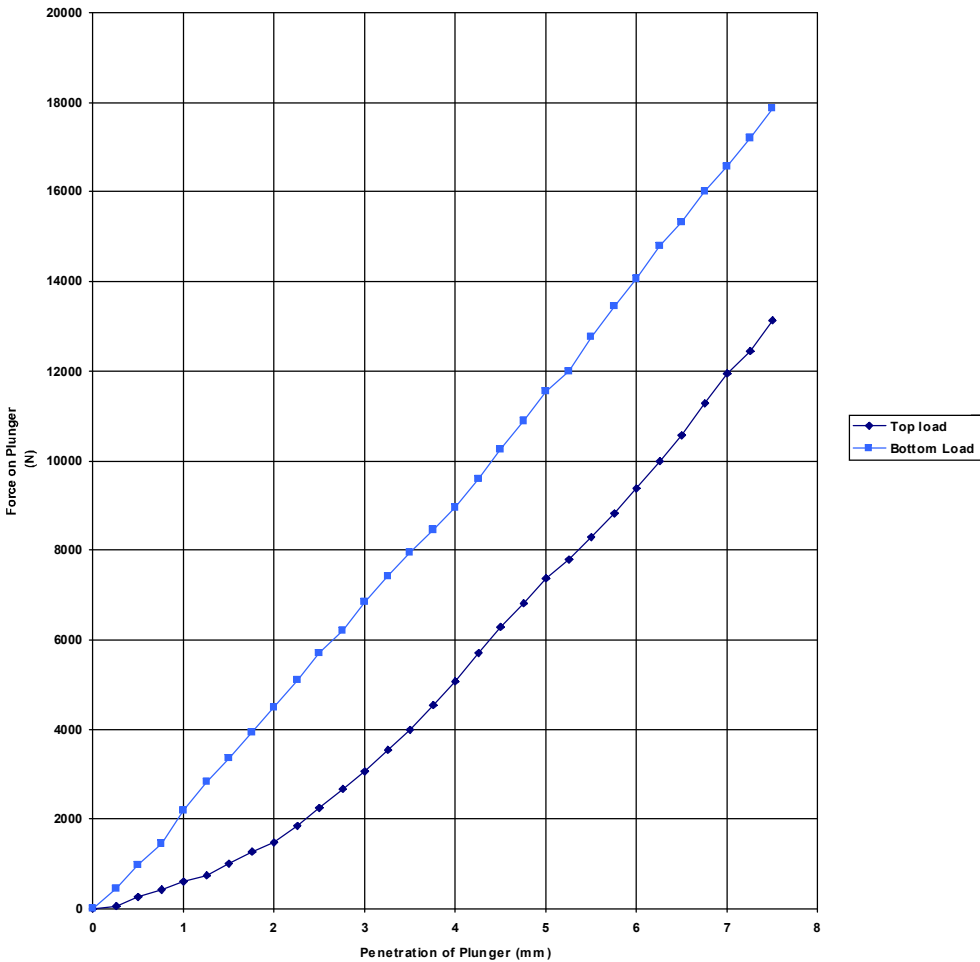
LABORATORY RESULTS - CBR Force Penetration

Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH01
Sample Depth 0.50m
Sample Type D
Sample Ref N84035

Sample Description
Reddish brown clayey gravelly SAND.



| Penetration | Top (N) | Bottom (N) |
|-------------|---------|------------|
| 0.25mm | 54 | 440 |
| 0.50mm | 264 | 987 |
| 0.75mm | 413 | 1459 |
| 1.00mm | 610 | 2180 |
| 1.25mm | 740 | 2814 |
| 1.50mm | 999 | 3362 |
| 1.75mm | 1259 | 3939 |
| 2.00mm | 1468 | 4495 |
| 2.25mm | 1859 | 5107 |
| 2.50mm | 2258 | 5717 |
| 2.75mm | 2669 | 6217 |
| 3.00mm | 3058 | 6847 |
| 3.25mm | 3550 | 7427 |
| 3.50mm | 3990 | 7964 |
| 3.75mm | 4551 | 8458 |

| Penetration | Top (N) | Bottom (N) |
|-------------|---------|------------|
| 4.00mm | 5065 | 8947 |
| 4.25mm | 5696 | 9594 |
| 4.50mm | 6284 | 10249 |
| 4.75mm | 6828 | 10892 |
| 5.00mm | 7370 | 11556 |
| 5.25mm | 7802 | 11998 |
| 5.50mm | 8289 | 12749 |
| 5.75mm | 8820 | 13453 |
| 6.00mm | 9388 | 14066 |
| 6.25mm | 9981 | 14784 |
| 6.50mm | 10561 | 15327 |
| 6.75mm | 11292 | 15999 |
| 7.00mm | 11942 | 16554 |
| 7.25mm | 12453 | 17208 |
| 7.50mm | 13143 | 17866 |

| | |
|-----------------------------------|---------------------------------|
| Test Type | 2.5kg |
| Method | BS1377 Part 4 1990 : Clause 7.0 |
| Surcharge | 13.60 kg |
| | 27.0 % |
| Bulk Density (Mg/m ³) | 2.20 |
| Dry Density (Mg/m ³) | 2.11 |
| Hand Calculation | No |

| CBR | Top | Bottom |
|-------|-----|--------|
| Value | 37 | 58 |
| w% | 3.1 | 5.4 |

Remarks Combined with B 0.20-0.60m

02/11/2022

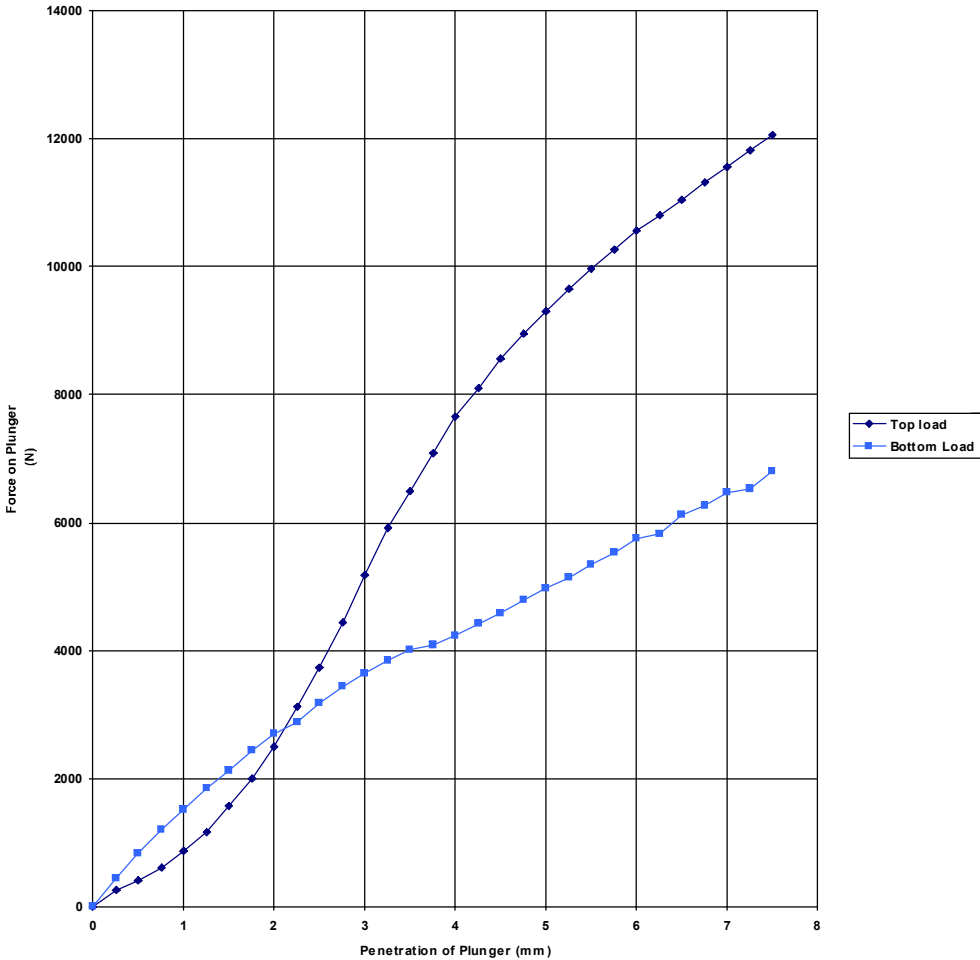
LABORATORY RESULTS - CBR Force Penetration

Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH01
Sample Depth 1.20-1.70m
Sample Type B
Sample Ref N84036

Sample Description
Brown sandy gravelly CLAY



| Penetration | Top (N) | Bottom (N) |
|-------------|---------|------------|
| 0.25mm | 261 | 445 |
| 0.50mm | 403 | 826 |
| 0.75mm | 606 | 1209 |
| 1.00mm | 871 | 1519 |
| 1.25mm | 1169 | 1843 |
| 1.50mm | 1569 | 2130 |
| 1.75mm | 1997 | 2437 |
| 2.00mm | 2500 | 2697 |
| 2.25mm | 3117 | 2884 |
| 2.50mm | 3727 | 3186 |
| 2.75mm | 4437 | 3433 |
| 3.00mm | 5173 | 3644 |
| 3.25mm | 5918 | 3854 |
| 3.50mm | 6489 | 4015 |
| 3.75mm | 7092 | 4090 |

| Penetration | Top (N) | Bottom (N) |
|-------------|---------|------------|
| 4.00mm | 7652 | 4240 |
| 4.25mm | 8105 | 4411 |
| 4.50mm | 8569 | 4580 |
| 4.75mm | 8955 | 4784 |
| 5.00mm | 9311 | 4975 |
| 5.25mm | 9652 | 5150 |
| 5.50mm | 9973 | 5348 |
| 5.75mm | 10272 | 5528 |
| 6.00mm | 10565 | 5744 |
| 6.25mm | 10807 | 5828 |
| 6.50mm | 11048 | 6122 |
| 6.75mm | 11312 | 6278 |
| 7.00mm | 11554 | 6473 |
| 7.25mm | 11821 | 6533 |
| 7.50mm | 12056 | 6798 |

| | | |
|----------------------|---------------------------------|----|
| Test Type | 2.5kg | |
| Method | BS1377 Part 4 1990 : Clause 7.0 | |
| Surcharge | 13.60 | kg |
| | 3.3 | % |
| Bulk Density (Mg/m³) | 2.16 | |
| Dry Density (Mg/m³) | 2.02 | |
| Hand Calculation | No | |

| CBR | Top | Bottom |
|-------|-----|--------|
| Value | 47 | 25 |
| w% | 7.5 | 7.3 |

Remarks AGS Combined with B 2.00-2.50m

02/11/2022

LABORATORY RESULTS - CBR Force Penetration

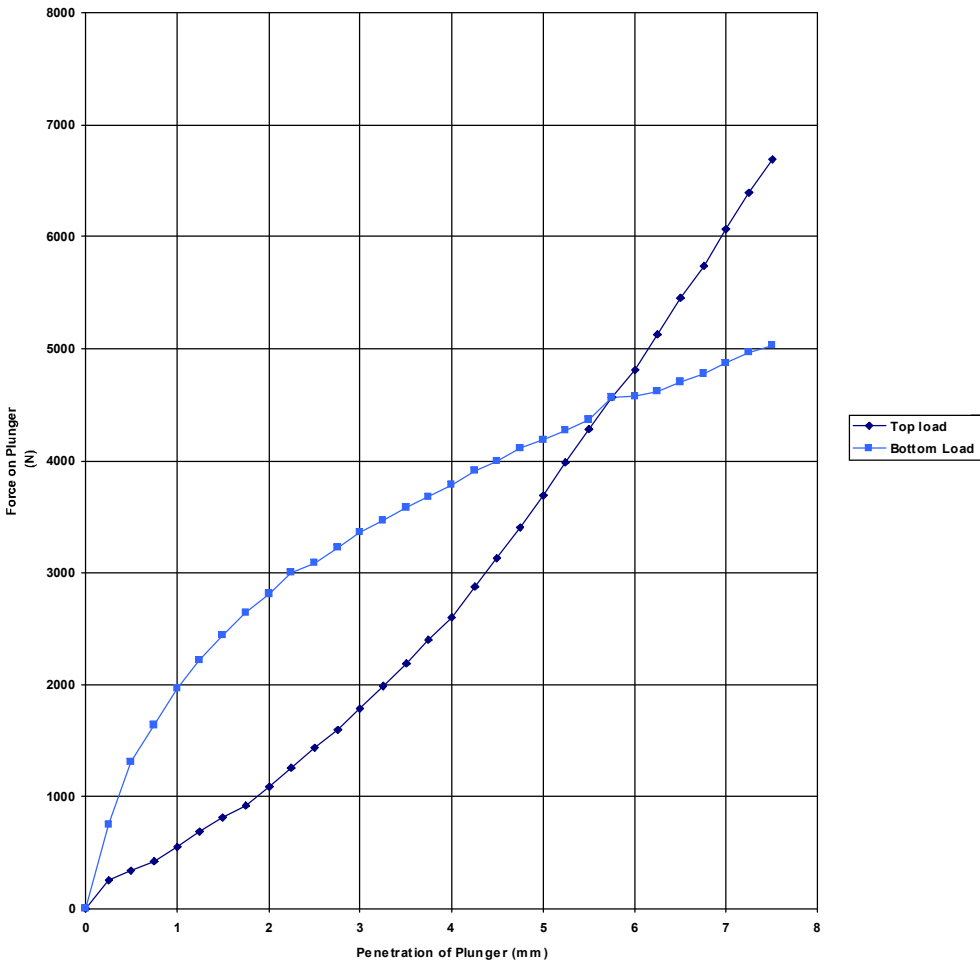
Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH02
Sample Depth 0.55-1.20m
Sample Type B
Sample Ref N84041

Sample Description

Brown gravelly SAND with cobbles.



| Penetration | Top (N) | Bottom (N) |
|-------------|---------|------------|
| 0.25mm | 257 | 750 |
| 0.50mm | 333 | 1309 |
| 0.75mm | 420 | 1639 |
| 1.00mm | 551 | 1961 |
| 1.25mm | 690 | 2222 |
| 1.50mm | 810 | 2438 |
| 1.75mm | 924 | 2640 |
| 2.00mm | 1090 | 2811 |
| 2.25mm | 1259 | 3001 |
| 2.50mm | 1433 | 3085 |
| 2.75mm | 1601 | 3222 |
| 3.00mm | 1785 | 3362 |
| 3.25mm | 1986 | 3466 |
| 3.50mm | 2185 | 3586 |
| 3.75mm | 2399 | 3677 |

| Penetration | Top (N) | Bottom (N) |
|-------------|---------|------------|
| 4.00mm | 2602 | 3782 |
| 4.25mm | 2873 | 3907 |
| 4.50mm | 3123 | 3995 |
| 4.75mm | 3404 | 4111 |
| 5.00mm | 3691 | 4187 |
| 5.25mm | 3982 | 4266 |
| 5.50mm | 4277 | 4369 |
| 5.75mm | 4569 | 4561 |
| 6.00mm | 4805 | 4580 |
| 6.25mm | 5127 | 4620 |
| 6.50mm | 5450 | 4702 |
| 6.75mm | 5742 | 4777 |
| 7.00mm | 6069 | 4870 |
| 7.25mm | 6395 | 4962 |
| 7.50mm | 6692 | 5028 |

| | |
|-----------------------------------|---------------------------------|
| Test Type | 2.5kg |
| Method | BS1377 Part 4 1990 : Clause 7.0 |
| Surcharge | 13.60 kg |
| | 26.0 % |
| Bulk Density (Mg/m ³) | 2.14 |
| Dry Density (Mg/m ³) | 1.98 |
| Hand Calculation | No |

| CBR | Top | Bottom |
|-------|-----|--------|
| Value | 18 | 23 |
| w% | 8.0 | 8.1 |

Remarks AGS

02/11/2022

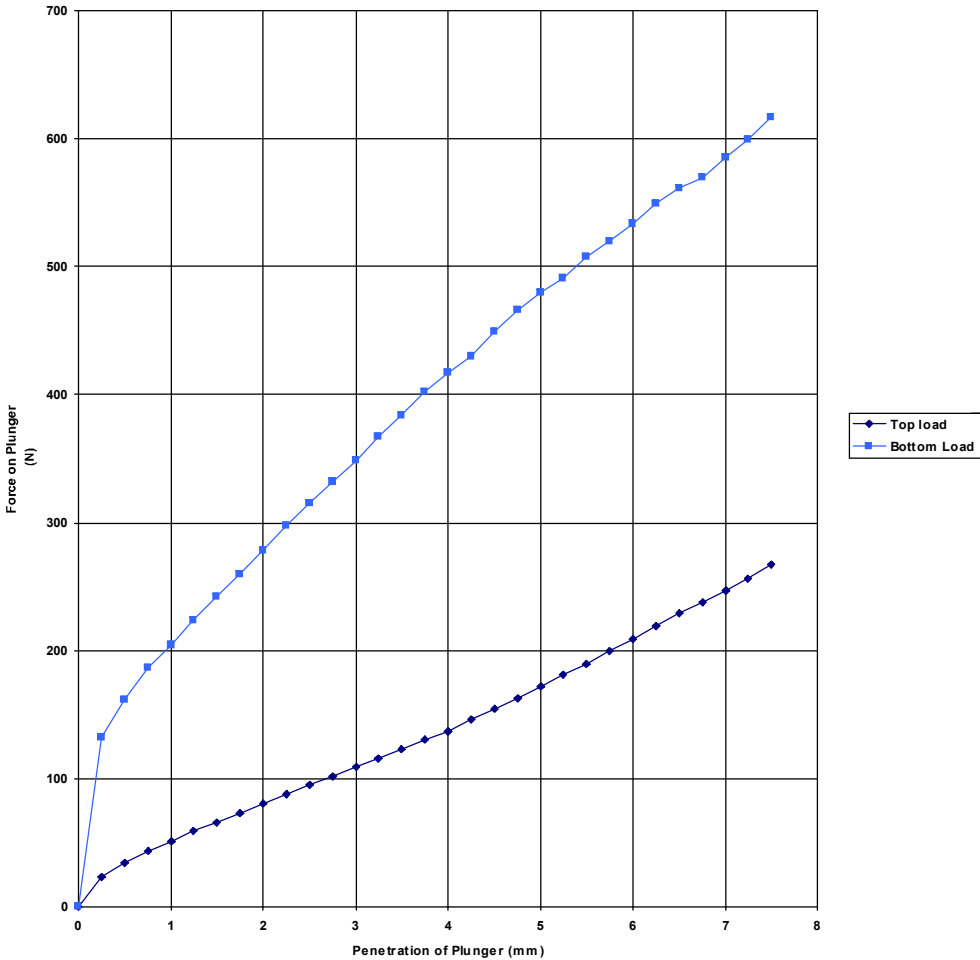
LABORATORY RESULTS - CBR Force Penetration

Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH06
Sample Depth 1.20-1.70m
Sample Type B
Sample Ref N84054

Sample Description
Brown slightly gravelly sandy CLAY.



| Penetration | Top (N) | Bottom (N) |
|-------------|---------|------------|
| 0.25mm | 23 | 132 |
| 0.50mm | 34 | 162 |
| 0.75mm | 43 | 187 |
| 1.00mm | 51 | 204 |
| 1.25mm | 59 | 224 |
| 1.50mm | 66 | 242 |
| 1.75mm | 73 | 260 |
| 2.00mm | 80 | 278 |
| 2.25mm | 88 | 298 |
| 2.50mm | 95 | 315 |
| 2.75mm | 102 | 332 |
| 3.00mm | 109 | 349 |
| 3.25mm | 116 | 367 |
| 3.50mm | 123 | 384 |
| 3.75mm | 130 | 402 |

| Penetration | Top (N) | Bottom (N) |
|-------------|---------|------------|
| 4.00mm | 137 | 417 |
| 4.25mm | 146 | 430 |
| 4.50mm | 154 | 449 |
| 4.75mm | 163 | 466 |
| 5.00mm | 172 | 480 |
| 5.25mm | 181 | 491 |
| 5.50mm | 190 | 508 |
| 5.75mm | 200 | 520 |
| 6.00mm | 209 | 534 |
| 6.25mm | 219 | 549 |
| 6.50mm | 229 | 561 |
| 6.75mm | 238 | 570 |
| 7.00mm | 247 | 585 |
| 7.25mm | 256 | 599 |
| 7.50mm | 267 | 617 |

| | |
|----------------------|---------------------------------|
| Test Type | 2.5kg |
| Method | BS1377 Part 4 1990 : Clause 7.0 |
| Surcharge | 13.60 kg |
| | 20.9 % |
| Bulk Density (Mg/m³) | 2.28 |
| Dry Density (Mg/m³) | 2.06 |
| Hand Calculation | No |

| CBR | Top | Bottom |
|-------|------|--------|
| Value | 0.86 | 2.4 |
| w% | 11.0 | 10.4 |

Remarks AGS

02/11/2022

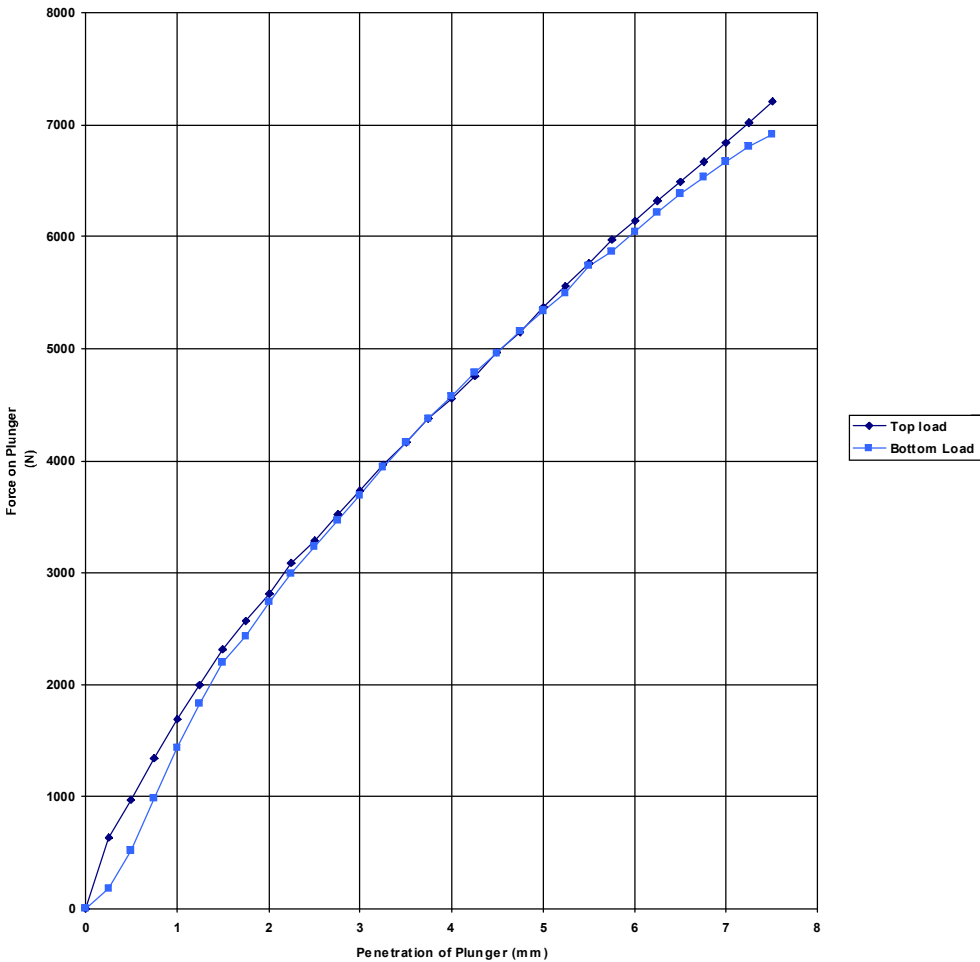
LABORATORY RESULTS - CBR Force Penetration

Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH07
Sample Depth 0.60-0.90m
Sample Type B
Sample Ref N84056

Sample Description
Brown slightly gravelly SAND.



| Penetration | Top (N) | Bottom (N) |
|-------------|---------|------------|
| 0.25mm | 631 | 179 |
| 0.50mm | 974 | 521 |
| 0.75mm | 1345 | 983 |
| 1.00mm | 1689 | 1441 |
| 1.25mm | 1998 | 1830 |
| 1.50mm | 2311 | 2195 |
| 1.75mm | 2573 | 2428 |
| 2.00mm | 2808 | 2738 |
| 2.25mm | 3090 | 2993 |
| 2.50mm | 3289 | 3238 |
| 2.75mm | 3518 | 3470 |
| 3.00mm | 3729 | 3688 |
| 3.25mm | 3964 | 3947 |
| 3.50mm | 4168 | 4159 |
| 3.75mm | 4378 | 4372 |

| Penetration | Top (N) | Bottom (N) |
|-------------|---------|------------|
| 4.00mm | 4553 | 4576 |
| 4.25mm | 4752 | 4783 |
| 4.50mm | 4963 | 4960 |
| 4.75mm | 5145 | 5159 |
| 5.00mm | 5367 | 5341 |
| 5.25mm | 5555 | 5500 |
| 5.50mm | 5757 | 5739 |
| 5.75mm | 5969 | 5865 |
| 6.00mm | 6140 | 6041 |
| 6.25mm | 6319 | 6212 |
| 6.50mm | 6490 | 6386 |
| 6.75mm | 6666 | 6526 |
| 7.00mm | 6838 | 6666 |
| 7.25mm | 7013 | 6803 |
| 7.50mm | 7211 | 6911 |

| | |
|-----------------------------------|---------------------------------|
| Test Type | 2.5kg |
| Method | BS1377 Part 4 1990 : Clause 7.0 |
| Surcharge | 13.60 kg |
| | 21.6 % |
| Bulk Density (Mg/m ³) | 2.20 |
| Dry Density (Mg/m ³) | 2.02 |
| Hand Calculation | No |

| CBR | Top | Bottom |
|-------|-----|--------|
| Value | 27 | 27 |
| w% | 8.7 | 9.2 |

Remarks AGS

02/11/2022

LABORATORY RESULTS - CBR Force Penetration

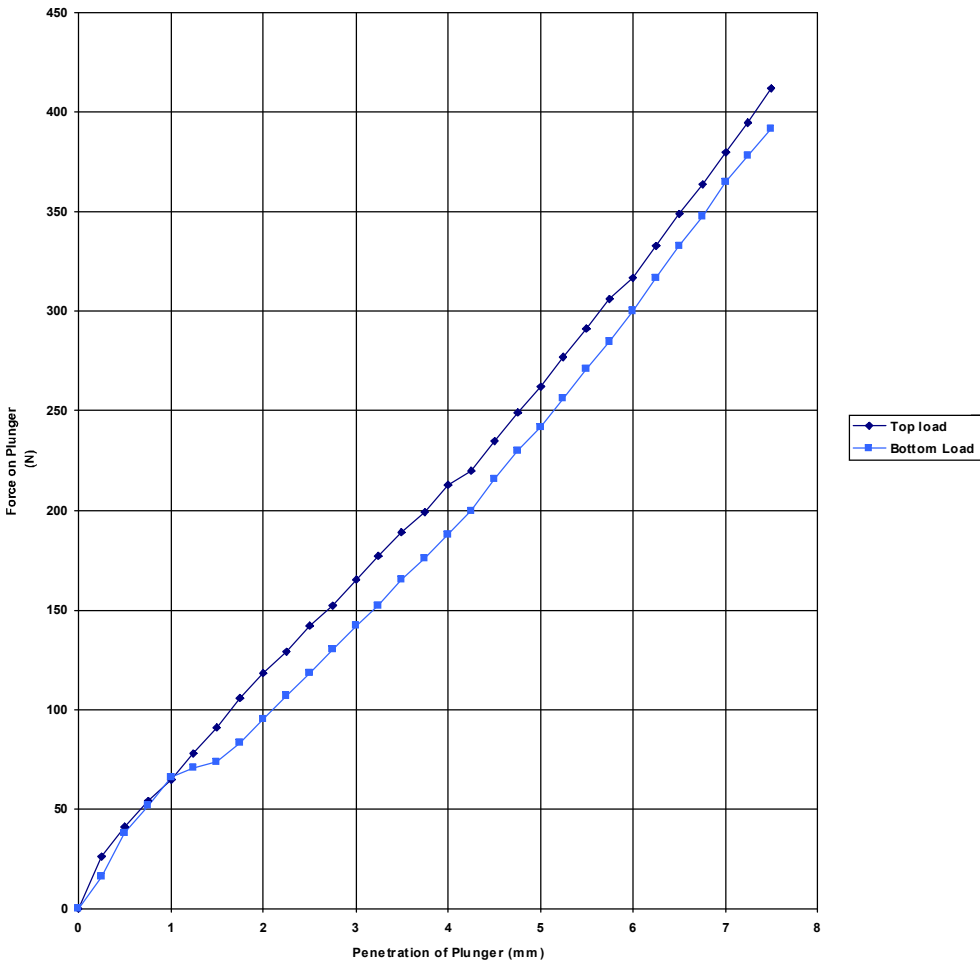
Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH12
Sample Depth 1.20-1.70m
Sample Type B
Sample Ref N84077

Sample Description

Brown slightly sandy gravelly CLAY with cobbles.



| Penetration | Top (N) | Bottom (N) |
|-------------|---------|------------|
| 0.25mm | 26 | 16 |
| 0.50mm | 41 | 38 |
| 0.75mm | 54 | 52 |
| 1.00mm | 65 | 66 |
| 1.25mm | 78 | 71 |
| 1.50mm | 91 | 74 |
| 1.75mm | 106 | 83 |
| 2.00mm | 118 | 95 |
| 2.25mm | 129 | 107 |
| 2.50mm | 142 | 118 |
| 2.75mm | 152 | 130 |
| 3.00mm | 165 | 142 |
| 3.25mm | 177 | 152 |
| 3.50mm | 189 | 165 |
| 3.75mm | 199 | 176 |

| Penetration | Top (N) | Bottom (N) |
|-------------|---------|------------|
| 4.00mm | 213 | 188 |
| 4.25mm | 220 | 200 |
| 4.50mm | 235 | 216 |
| 4.75mm | 249 | 230 |
| 5.00mm | 262 | 242 |
| 5.25mm | 277 | 256 |
| 5.50mm | 291 | 271 |
| 5.75mm | 306 | 285 |
| 6.00mm | 317 | 300 |
| 6.25mm | 333 | 317 |
| 6.50mm | 349 | 333 |
| 6.75mm | 364 | 348 |
| 7.00mm | 380 | 365 |
| 7.25mm | 395 | 378 |
| 7.50mm | 412 | 392 |

| | | |
|----------------------|---------------------------------|----|
| Test Type | 2.5kg | |
| Method | BS1377 Part 4 1990 : Clause 7.0 | |
| Surcharge | 13.60 | kg |
| | 11.0 | % |
| Bulk Density (Mg/m³) | 2.24 | |
| Dry Density (Mg/m³) | 2.03 | |
| Hand Calculation | No | |

| CBR | Top | Bottom |
|-------|------|--------|
| Value | 1.3 | 1.2 |
| w% | 11.0 | 10.4 |

Remarks AGS

02/11/2022

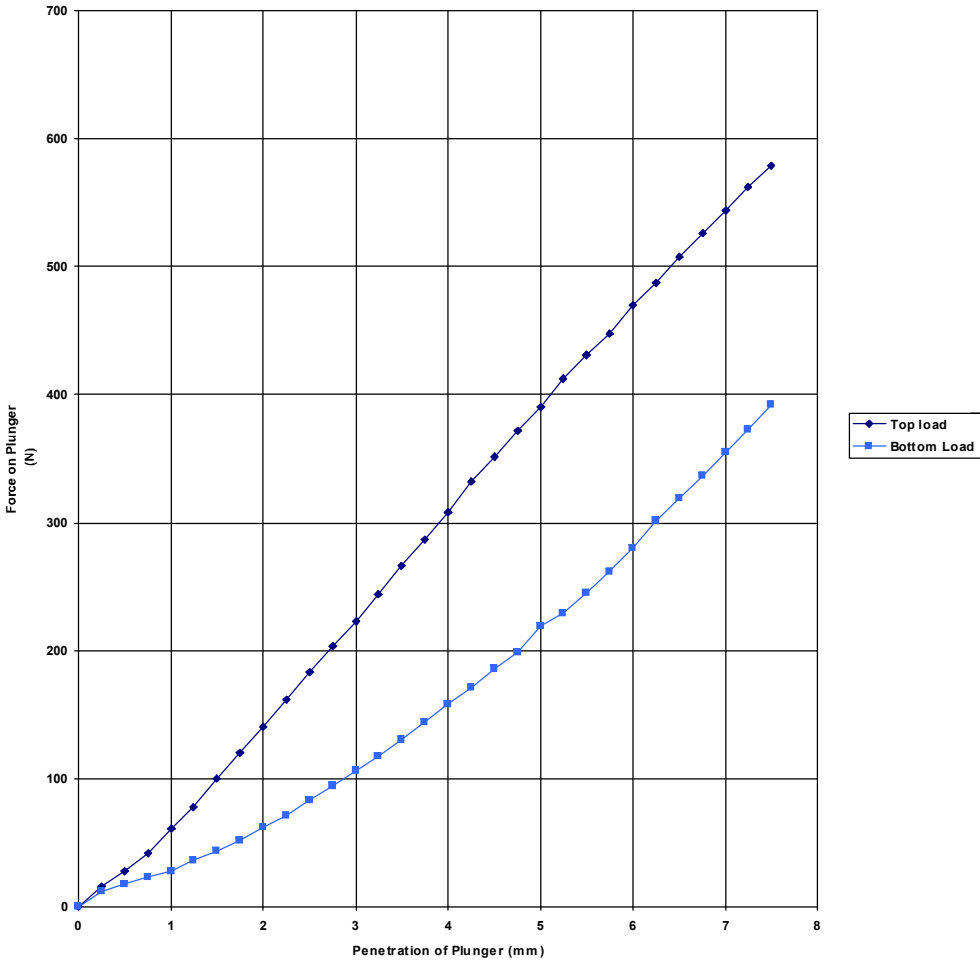
LABORATORY RESULTS - CBR Force Penetration

Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH16
Sample Depth 1.20-1.70m
Sample Type B
Sample Ref N84088

Sample Description
Brown slightly sandy slightly gravelly clayey SILT.



| Penetration | Top (N) | Bottom (N) |
|-------------|---------|------------|
| 0.25mm | 16 | 12 |
| 0.50mm | 28 | 18 |
| 0.75mm | 42 | 23 |
| 1.00mm | 61 | 28 |
| 1.25mm | 78 | 36 |
| 1.50mm | 100 | 43 |
| 1.75mm | 120 | 52 |
| 2.00mm | 141 | 62 |
| 2.25mm | 162 | 71 |
| 2.50mm | 183 | 83 |
| 2.75mm | 203 | 94 |
| 3.00mm | 223 | 106 |
| 3.25mm | 244 | 117 |
| 3.50mm | 266 | 130 |
| 3.75mm | 287 | 144 |

| Penetration | Top (N) | Bottom (N) |
|-------------|---------|------------|
| 4.00mm | 308 | 158 |
| 4.25mm | 332 | 171 |
| 4.50mm | 351 | 186 |
| 4.75mm | 372 | 199 |
| 5.00mm | 390 | 219 |
| 5.25mm | 412 | 229 |
| 5.50mm | 431 | 245 |
| 5.75mm | 448 | 262 |
| 6.00mm | 470 | 280 |
| 6.25mm | 487 | 301 |
| 6.50mm | 508 | 319 |
| 6.75mm | 526 | 337 |
| 7.00mm | 544 | 355 |
| 7.25mm | 562 | 373 |
| 7.50mm | 579 | 392 |

| | | |
|----------------------|---------------------------------|----|
| Test Type | 2.5kg | |
| Method | BS1377 Part 4 1990 : Clause 7.0 | |
| Surcharge | 13.60 | kg |
| | 12.8 | % |
| Bulk Density (Mg/m³) | 2.16 | |
| Dry Density (Mg/m³) | 1.89 | |
| Hand Calculation | No | |

| CBR | Top | Bottom |
|-------|------|--------|
| Value | 2.0 | 1.1 |
| w% | 14.7 | 14.4 |

Remarks AGS

02/11/2022

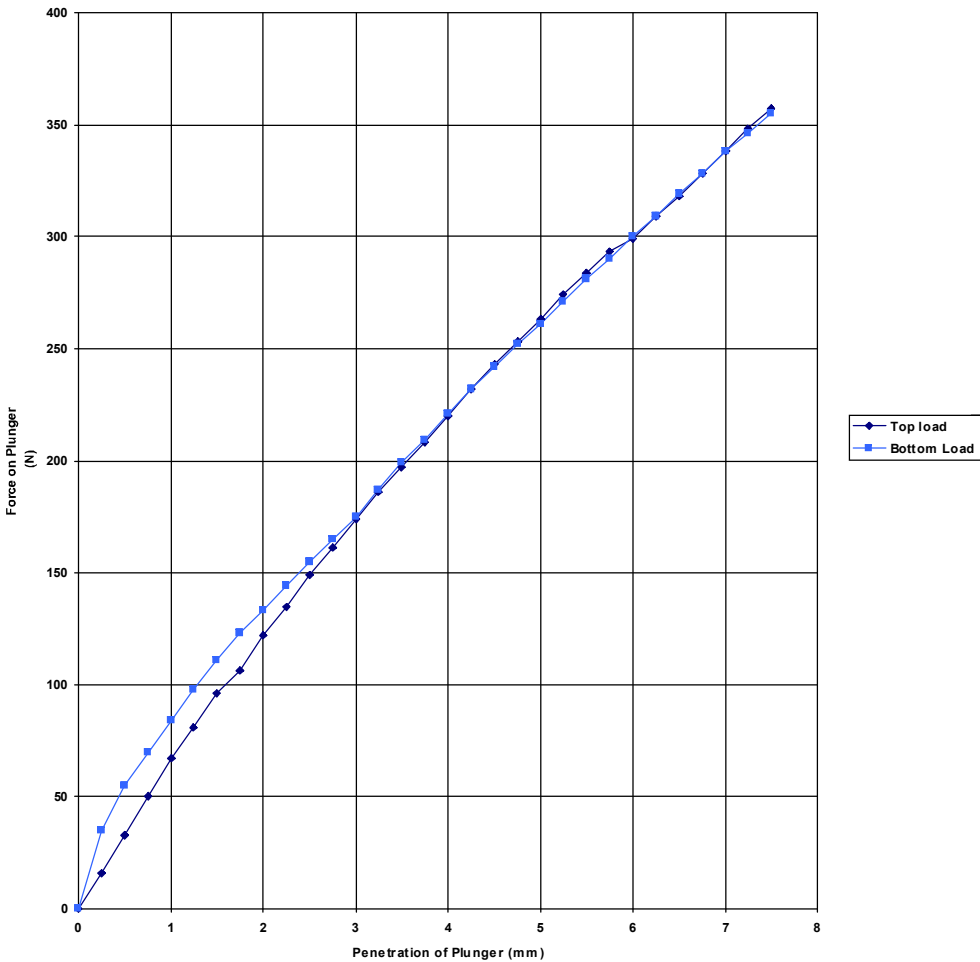
LABORATORY RESULTS - CBR Force Penetration

Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH18
Sample Depth 1.20-1.70m
Sample Type B
Sample Ref N84096

Sample Description
Brown slightly gravelly CLAY.



| Penetration | Top (N) | Bottom (N) |
|-------------|---------|------------|
| 0.25mm | 16 | 35 |
| 0.50mm | 33 | 55 |
| 0.75mm | 50 | 70 |
| 1.00mm | 67 | 84 |
| 1.25mm | 81 | 98 |
| 1.50mm | 96 | 111 |
| 1.75mm | 106 | 123 |
| 2.00mm | 122 | 133 |
| 2.25mm | 135 | 144 |
| 2.50mm | 149 | 155 |
| 2.75mm | 161 | 165 |
| 3.00mm | 174 | 175 |
| 3.25mm | 186 | 187 |
| 3.50mm | 197 | 199 |
| 3.75mm | 208 | 209 |

| Penetration | Top (N) | Bottom (N) |
|-------------|---------|------------|
| 4.00mm | 220 | 221 |
| 4.25mm | 232 | 232 |
| 4.50mm | 243 | 242 |
| 4.75mm | 253 | 252 |
| 5.00mm | 263 | 261 |
| 5.25mm | 274 | 271 |
| 5.50mm | 284 | 281 |
| 5.75mm | 293 | 290 |
| 6.00mm | 299 | 300 |
| 6.25mm | 309 | 309 |
| 6.50mm | 318 | 319 |
| 6.75mm | 328 | 328 |
| 7.00mm | 338 | 338 |
| 7.25mm | 348 | 346 |
| 7.50mm | 357 | 355 |

| | | |
|----------------------|---------------------------------|----|
| Test Type | 2.5kg | |
| Method | BS1377 Part 4 1990 : Clause 7.0 | |
| Surcharge | 13.60 | kg |
| | 6.3 | % |
| Bulk Density (Mg/m³) | 2.24 | |
| Dry Density (Mg/m³) | 1.96 | |
| Hand Calculation | No | |

| CBR | Top | Bottom |
|-------|------|--------|
| Value | 1.3 | 1.3 |
| w% | 13.7 | 13.9 |

Remarks AGS

02/11/2022

LABORATORY RESULTS - CBR Force Penetration

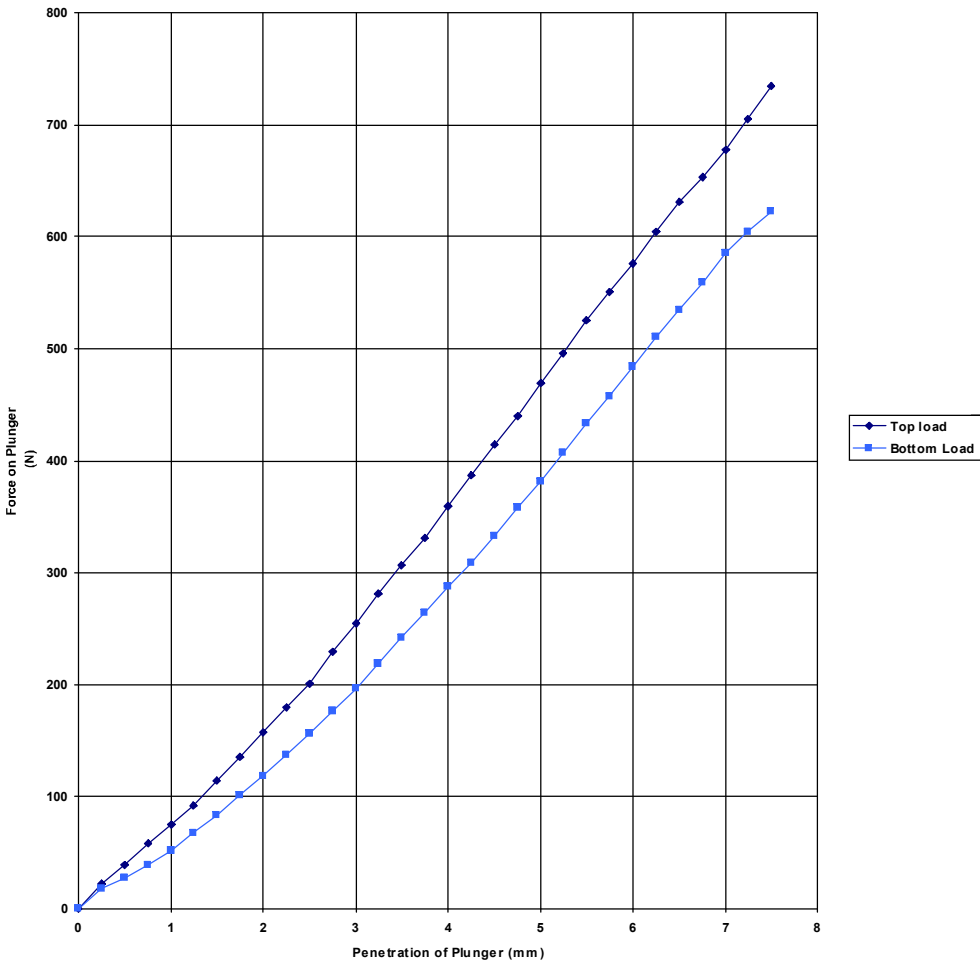
Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH21
Sample Depth 1.20-1.70m
Sample Type B
Sample Ref N84106

Sample Description

Brown clayey silty very sandy GRAVEL.



| Penetration | Top (N) | Bottom (N) |
|-------------|---------|------------|
| 0.25mm | 22 | 18 |
| 0.50mm | 39 | 28 |
| 0.75mm | 58 | 39 |
| 1.00mm | 75 | 52 |
| 1.25mm | 92 | 68 |
| 1.50mm | 114 | 84 |
| 1.75mm | 135 | 101 |
| 2.00mm | 157 | 118 |
| 2.25mm | 180 | 137 |
| 2.50mm | 201 | 156 |
| 2.75mm | 229 | 177 |
| 3.00mm | 255 | 197 |
| 3.25mm | 281 | 219 |
| 3.50mm | 307 | 242 |
| 3.75mm | 331 | 264 |

| Penetration | Top (N) | Bottom (N) |
|-------------|---------|------------|
| 4.00mm | 359 | 287 |
| 4.25mm | 387 | 309 |
| 4.50mm | 414 | 333 |
| 4.75mm | 440 | 358 |
| 5.00mm | 469 | 382 |
| 5.25mm | 496 | 407 |
| 5.50mm | 525 | 433 |
| 5.75mm | 551 | 458 |
| 6.00mm | 576 | 484 |
| 6.25mm | 604 | 510 |
| 6.50mm | 631 | 535 |
| 6.75mm | 653 | 559 |
| 7.00mm | 677 | 585 |
| 7.25mm | 705 | 605 |
| 7.50mm | 734 | 622 |

| | | |
|-----------------------------------|---------------------------------|----|
| Test Type | 2.5kg | |
| Method | BS1377 Part 4 1990 : Clause 7.0 | |
| Surcharge | 13.60 | kg |
| | 16.7 | % |
| Bulk Density (Mg/m ³) | 2.29 | |
| Dry Density (Mg/m ³) | 2.06 | |
| Hand Calculation | No | |

| CBR | Top | Bottom |
|-------|------|--------|
| Value | 2.4 | 1.9 |
| w% | 11.3 | 10.9 |

Remarks AGS

02/11/2022

LABORATORY RESULTS - CBR Force Penetration

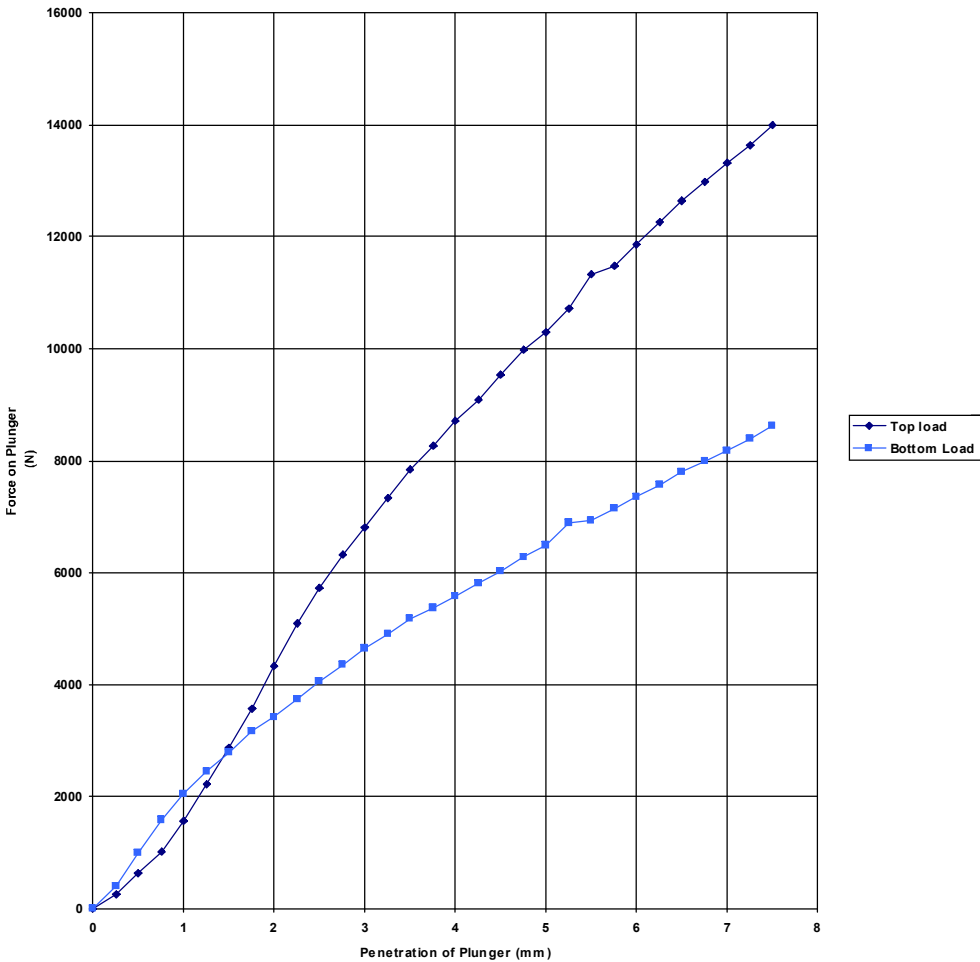
Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH22
Sample Depth 0.30-1.20m
Sample Type B
Sample Ref N84138

Sample Description

Brown silty/clayey very sandy GRAVEL



| Penetration | Top (N) | Bottom (N) |
|-------------|---------|------------|
| 0.25mm | 245 | 409 |
| 0.50mm | 629 | 997 |
| 0.75mm | 1015 | 1581 |
| 1.00mm | 1559 | 2054 |
| 1.25mm | 2223 | 2460 |
| 1.50mm | 2876 | 2799 |
| 1.75mm | 3566 | 3161 |
| 2.00mm | 4340 | 3426 |
| 2.25mm | 5088 | 3747 |
| 2.50mm | 5723 | 4050 |
| 2.75mm | 6324 | 4352 |
| 3.00mm | 6798 | 4641 |
| 3.25mm | 7338 | 4909 |
| 3.50mm | 7839 | 5171 |
| 3.75mm | 8270 | 5372 |

| Penetration | Top (N) | Bottom (N) |
|-------------|---------|------------|
| 4.00mm | 8699 | 5584 |
| 4.25mm | 9097 | 5810 |
| 4.50mm | 9540 | 6022 |
| 4.75mm | 9972 | 6276 |
| 5.00mm | 10292 | 6484 |
| 5.25mm | 10708 | 6898 |
| 5.50mm | 11329 | 6928 |
| 5.75mm | 11469 | 7148 |
| 6.00mm | 11852 | 7352 |
| 6.25mm | 12250 | 7566 |
| 6.50mm | 12642 | 7790 |
| 6.75mm | 12969 | 7995 |
| 7.00mm | 13318 | 8174 |
| 7.25mm | 13640 | 8401 |
| 7.50mm | 14001 | 8615 |

| | | |
|-----------------------------------|---------------------------------|----|
| Test Type | 2.5kg | |
| Method | BS1377 Part 4 1990 : Clause 7.0 | |
| Surcharge | 13.60 | kg |
| | 28.0 | % |
| Bulk Density (Mg/m ³) | 2.12 | |
| Dry Density (Mg/m ³) | 2.01 | |
| Hand Calculation | No | |

| CBR | Top | Bottom |
|-------|-----|--------|
| Value | 51 | 32 |
| w% | 5.3 | 5.4 |

Remarks AGS

02/11/2022

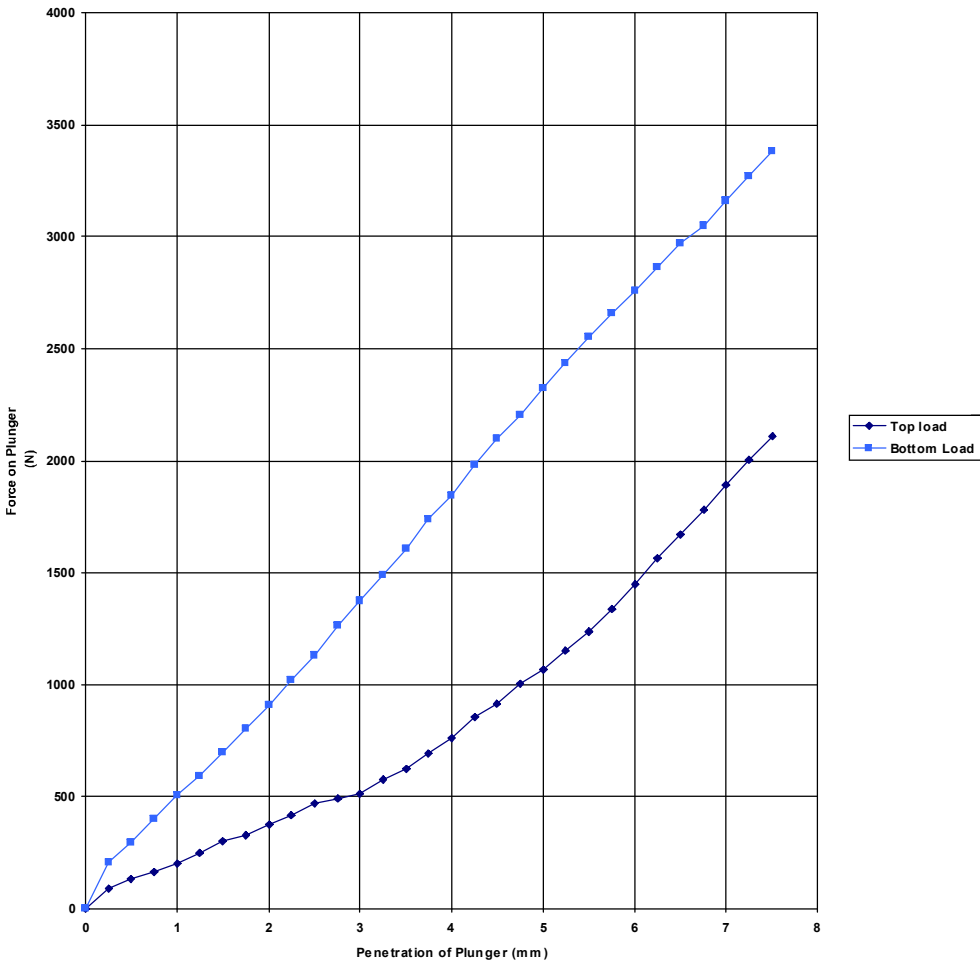
LABORATORY RESULTS - CBR Force Penetration

Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH23
Sample Depth 1.50-1.80m
Sample Type B
Sample Ref N84112

Sample Description
Brown clayey silty very gravelly SAND.



| Penetration | Top (N) | Bottom (N) |
|-------------|---------|------------|
| 0.25mm | 90 | 204 |
| 0.50mm | 131 | 298 |
| 0.75mm | 163 | 403 |
| 1.00mm | 202 | 508 |
| 1.25mm | 248 | 594 |
| 1.50mm | 299 | 698 |
| 1.75mm | 330 | 803 |
| 2.00mm | 376 | 908 |
| 2.25mm | 416 | 1022 |
| 2.50mm | 469 | 1132 |
| 2.75mm | 490 | 1262 |
| 3.00mm | 515 | 1376 |
| 3.25mm | 575 | 1490 |
| 3.50mm | 623 | 1605 |
| 3.75mm | 691 | 1737 |

| Penetration | Top (N) | Bottom (N) |
|-------------|---------|------------|
| 4.00mm | 763 | 1846 |
| 4.25mm | 854 | 1982 |
| 4.50mm | 916 | 2096 |
| 4.75mm | 1004 | 2205 |
| 5.00mm | 1069 | 2323 |
| 5.25mm | 1152 | 2434 |
| 5.50mm | 1237 | 2550 |
| 5.75mm | 1339 | 2656 |
| 6.00mm | 1448 | 2759 |
| 6.25mm | 1563 | 2862 |
| 6.50mm | 1672 | 2971 |
| 6.75mm | 1781 | 3050 |
| 7.00mm | 1894 | 3161 |
| 7.25mm | 2004 | 3272 |
| 7.50mm | 2106 | 3380 |

| | | |
|----------------------|---------------------------------|----|
| Test Type | 2.5kg | |
| Method | BS1377 Part 4 1990 : Clause 7.0 | |
| Surcharge | 13.60 | kg |
| | 27.6 | % |
| Bulk Density (Mg/m³) | 2.12 | |
| Dry Density (Mg/m³) | 1.96 | |
| Hand Calculation | No | |

| CBR | Top | Bottom |
|-------|-----|--------|
| Value | 5.4 | 12 |
| w% | 8.2 | 8.2 |

Remarks AGS

02/11/2022

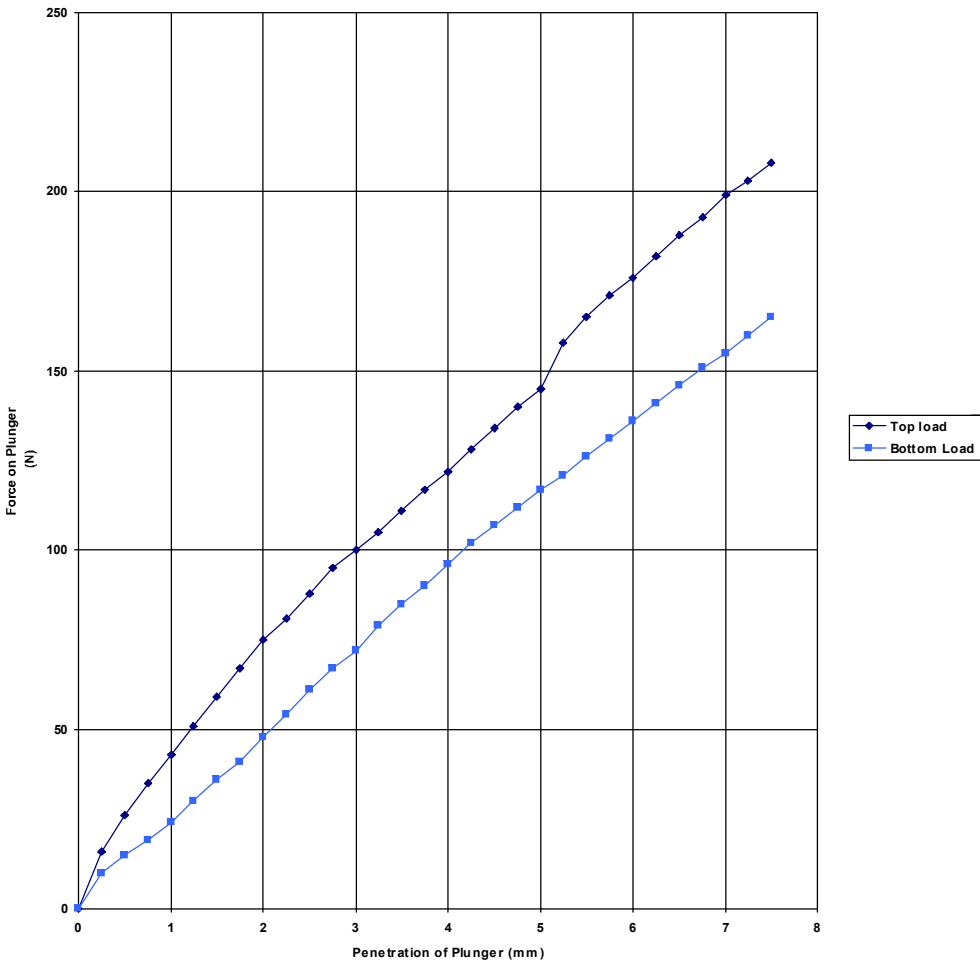
LABORATORY RESULTS - CBR Force Penetration

Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH26
Sample Depth 2.00-2.50m
Sample Type B
Sample Ref N84124

Sample Description
Brown slightly sandy slightly gravelly CLAY.



| Penetration | Top (N) | Bottom (N) |
|-------------|---------|------------|
| 0.25mm | 16 | 10 |
| 0.50mm | 26 | 15 |
| 0.75mm | 35 | 19 |
| 1.00mm | 43 | 24 |
| 1.25mm | 51 | 30 |
| 1.50mm | 59 | 36 |
| 1.75mm | 67 | 41 |
| 2.00mm | 75 | 48 |
| 2.25mm | 81 | 54 |
| 2.50mm | 88 | 61 |
| 2.75mm | 95 | 67 |
| 3.00mm | 100 | 72 |
| 3.25mm | 105 | 79 |
| 3.50mm | 111 | 85 |
| 3.75mm | 117 | 90 |

| Penetration | Top (N) | Bottom (N) |
|-------------|---------|------------|
| 4.00mm | 122 | 96 |
| 4.25mm | 128 | 102 |
| 4.50mm | 134 | 107 |
| 4.75mm | 140 | 112 |
| 5.00mm | 145 | 117 |
| 5.25mm | 158 | 121 |
| 5.50mm | 165 | 126 |
| 5.75mm | 171 | 131 |
| 6.00mm | 176 | 136 |
| 6.25mm | 182 | 141 |
| 6.50mm | 188 | 146 |
| 6.75mm | 193 | 151 |
| 7.00mm | 199 | 155 |
| 7.25mm | 203 | 160 |
| 7.50mm | 208 | 165 |

| | | |
|----------------------|---------------------------------|----|
| Test Type | 2.5kg | |
| Method | BS1377 Part 4 1990 : Clause 7.0 | |
| Surcharge | 13.60 | kg |
| | 17.3 | % |
| Bulk Density (Mg/m³) | 2.23 | |
| Dry Density (Mg/m³) | 1.97 | |
| Hand Calculation | No | |

| CBR | Top | Bottom |
|-------|------|--------|
| Value | 0.73 | 0.59 |
| w% | 13.2 | 13.2 |

Remarks AGS

02/11/2022

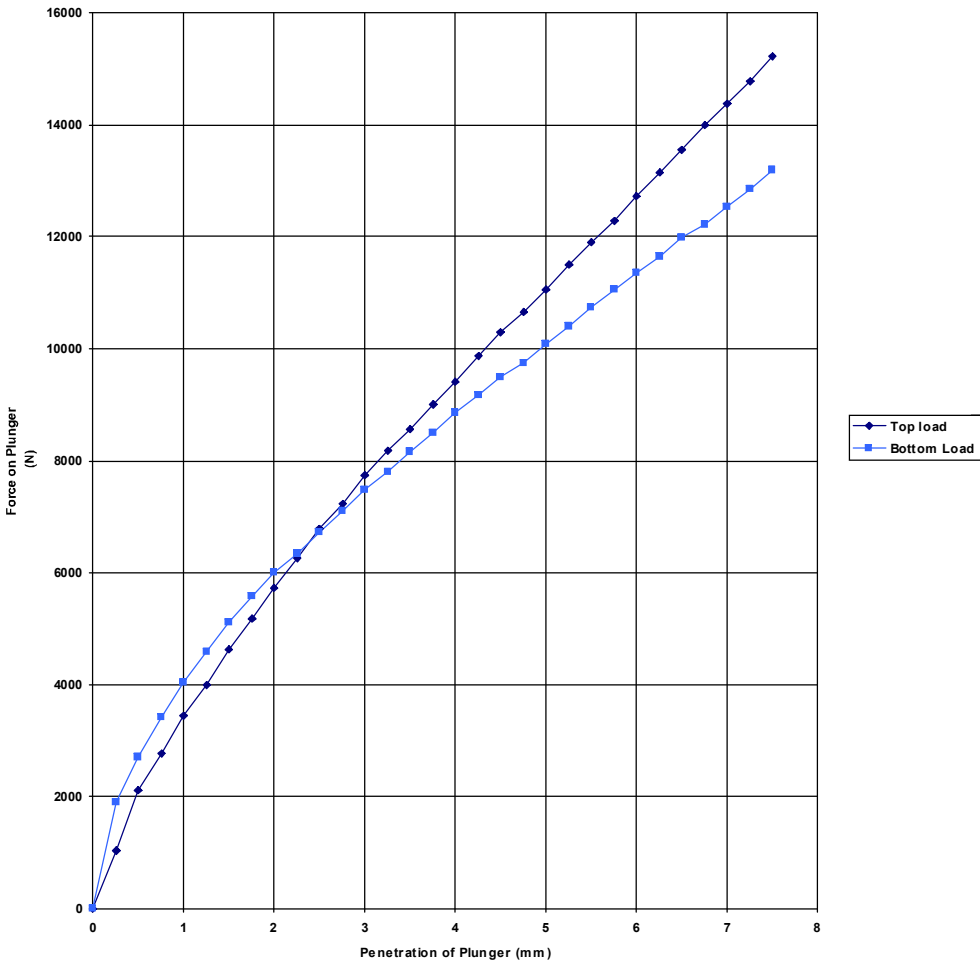
LABORATORY RESULTS - CBR Force Penetration

Project: NEWPORT QUINN PHASE 2

Project No: PN224395

Hole BH29
Sample Depth 0.90-1.20m
Sample Type B
Sample Ref N84131

Sample Description
Brown slightly clayey gravelly SAND.



| Penetration | Top (N) | Bottom (N) |
|-------------|---------|------------|
| 0.25mm | 1034 | 1892 |
| 0.50mm | 2110 | 2705 |
| 0.75mm | 2776 | 3414 |
| 1.00mm | 3450 | 4038 |
| 1.25mm | 3996 | 4584 |
| 1.50mm | 4620 | 5115 |
| 1.75mm | 5182 | 5575 |
| 2.00mm | 5726 | 5997 |
| 2.25mm | 6255 | 6338 |
| 2.50mm | 6778 | 6722 |
| 2.75mm | 7230 | 7099 |
| 3.00mm | 7742 | 7472 |
| 3.25mm | 8171 | 7801 |
| 3.50mm | 8567 | 8151 |
| 3.75mm | 9009 | 8492 |

| Penetration | Top (N) | Bottom (N) |
|-------------|---------|------------|
| 4.00mm | 9407 | 8849 |
| 4.25mm | 9872 | 9183 |
| 4.50mm | 10287 | 9500 |
| 4.75mm | 10652 | 9747 |
| 5.00mm | 11054 | 10076 |
| 5.25mm | 11497 | 10401 |
| 5.50mm | 11900 | 10743 |
| 5.75mm | 12288 | 11053 |
| 6.00mm | 12733 | 11340 |
| 6.25mm | 13143 | 11639 |
| 6.50mm | 13549 | 11974 |
| 6.75mm | 13992 | 12219 |
| 7.00mm | 14364 | 12539 |
| 7.25mm | 14782 | 12852 |
| 7.50mm | 15227 | 13191 |

| | |
|----------------------|---------------------------------|
| Test Type | 2.5kg |
| Method | BS1377 Part 4 1990 : Clause 7.0 |
| Surcharge | 13.60 kg |
| | 41.6 % |
| Bulk Density (Mg/m³) | 2.20 |
| Dry Density (Mg/m³) | 2.05 |
| Hand Calculation | No |

| CBR | Top | Bottom |
|-------|-----|--------|
| Value | 55 | 51 |
| w% | 7.2 | 7.0 |

Remarks AGS

02/11/2022

LABORATORY RESULTS - MCV, Compaction, CBR

Project NEWPORT QUINN PHASE 2

Project No: PN224395

| Sample | | | | | MCV | | Compaction | | | | | CBR | | | | |
|--------|-----------------------------------|------|---------------|---|-----|---|------------|---|-------------------------------|---|---|-------|----------|--------|----------|--------|
| Hole | Depth (Specimen Depth) m | Type | Sample Ref | Description | MCV | w | Type | w (Opt) % | ρ_d Mg/m ³ | γ_b Mg/m ³ | γ_d (Max) Mg/m ³ | Type | Top | | Bottom | |
| | | | | | | % | | | | | | | CBR % | w % | CBR % | w % |
| BH01 | 0.50 (0.50) | D | N84035 | Reddish brown clayey gravelly SAND. (See Test Remarks Sheet for further information) | | | | | | 2.20 | 2.11 | 2.5kg | 37 | 3.1 | 58 | 5.4 |
| BH01 | 1.20- 1.70 (1.20- 1.70) | B | N84036 | Brown sandy gravelly CLAY (See Test Remarks Sheet for further information) | | | | | | 2.16 | 2.02 | 2.5kg | 47 | 7.5 | 25 | 7.3 |
| BH02 | 0.55- 1.20 (0.55- 1.20) | B | N84041 | Brown gravelly SAND with cobbles. | | | | | | 2.14 | 1.98 | 2.5kg | 18 | 8.0 | 23 | 8.1 |
| BH02 | 1.20- 1.70 (1.20- 1.70) | B | N84042 | Brown slightly gravelly SAND. | | | 4.5kg | (6.3) 11.8* 13.3 5.9 8.7 3.2 | 2.65a | *2.21 2.11 2.30 2.31 2.06 | (2.18) *1.97 1.86 2.17 2.12 2.00 | | | | | |
| BH04A | 1.20- 1.70 (1.20- 1.70) | B | N84050 | Brown slightly gravelly sandy CLAY. | | | 2.5kg | (9.0) 12.6* 14.7 6.3 8.2 10.1 | 2.65a | *2.22 2.15 2.18 2.25 2.28 | (2.09) *1.97 1.87 2.05 2.08 2.07 | | | | | |
| BH05 | 2.00- 2.50 (2.00- 2.50) | B | N84052 | Brow slightly gravelly slightly sandy CLAY. | | | 4.5kg | (9.0) 12.4* 19.6 7.6 9.9 15.2 4.7 | 2.65a | *2.15 2.05 2.19 2.20 2.13 1.94 | (2.03) *1.92 1.71 2.03 2.00 1.85 1.85 | | | | | |
| BH06 | 1.20- 1.70 (1.20- 1.70) | B | N84054 | Brown slightly gravelly sandy CLAY. | | | | | | 2.28 | 2.06 | 2.5kg | 0.86 | 11.0 | 2.4 | 10.4 |
| BH07 | 0.60- 0.90 (0.60- 0.90) | B | N84056 | Brown slightly gravelly SAND. | | | | | | 2.20 | 2.02 | 2.5kg | 27 | 8.7 | 27 | 9.2 |
| BH08 | 1.20- 1.70 (1.20- 1.70) | B | N84061 | Brown slightly sandy clayey GRAVEL. | | | 2.5kg | (8.5) 9.4* 12.0 14.3 4.4 7.5 | 2.75a | *2.35 2.30 2.28 2.06 2.27 | (2.16) *2.15 2.05 1.99 1.98 2.12 | | | | | |
| | | | | | | | | | | | | | | | | |

Remarks

Particle Density - a=assumed, m=measured
w% - * = at natural moisture content; x = aggregate moisture content
= stabilised, see relevant test plot for details
NST = Not suitable for Test
For Standards followed see Laboratory Test Certificate

LABORATORY RESULTS - MCV, Compaction, CBR

Project NEWPORT QUINN PHASE 2

Project No: PN224395

| Sample | | | | | MCV | | Compaction | | | | | CBR | | | | |
|--------|-----------------------------------|------|---------------|---|-----|---|------------|---|-------------------------------|---|---|-------|----------|--------|----------|--------|
| Hole | Depth (Specimen Depth) m | Type | Sample Ref | Description | MCV | w | Type | w (Opt) % | ρ_d Mg/m ³ | γ_b Mg/m ³ | γ_d (Max) Mg/m ³ | Type | Top | | Bottom | |
| | | | | | | % | | | | | | | CBR % | w % | CBR % | w % |
| BH12 | 1.20- 1.70 (1.20- 1.70) | B | N84077 | Brown slightly sandy gravelly CLAY with cobbles. | | | | | | 2.24 | 2.03 | 2.5kg | 1.3 | 11.0 | 1.2 | 10.4 |
| BH13 | 1.20- 1.70 (1.20- 1.70) | B | N84079 | Brown slightly gravelly clayey SAND. | | | 4.5kg | (7.5) 12.1* 3.7 8.7 13.8 6.4 | 2.70a | *2.25 2.18 2.31 2.19 2.26 | (2.15) *2.01 2.10 2.13 1.92 2.12 | | | | | |
| BH14A | 3.00- 3.45 (3.00- 3.45) | D | N84084 | Brown mottled red slightly gravelly CLAY. (See Test Remarks Sheet for further information) | | | 2.5kg | (17.5) 23.2* 24.5 14.9 16.8 19.1 | 2.65a | *2.01 1.98 1.94 2.02 2.06 | (1.75) *1.63 1.59 1.69 1.73 1.73 | | | | | |
| BH16 | 1.20- 1.70 (1.20- 1.70) | B | N84088 | Brown slightly sandy slightly gravelly clayey SILT. | | | | | | 2.16 | 1.89 | 2.5kg | 2.0 | 14.7 | 1.1 | 14.4 |
| BH16 | 3.00- 3.50 (3.00- 3.50) | B | N84090 | Brown slightly sandy slightly gravelly clayey SILT. | | | 4.5kg | (7.5) 13.7* 6.0 7.3 10.0 16.2 3.8 | 2.75a | *2.24 2.25 2.35 2.31 2.19 2.03 | (2.18) *1.97 2.12 2.19 2.10 1.88 1.96 | | | | | |
| BH17A | 2.00- 2.50 (2.00- 2.50) | B | N84093 | Brown slightly gravelly slightly sandy CLAY. | | | 4.5kg | (6.0) 6.2 8.1 2.4 12.2* 4.4 10.2 | 2.75a | 2.32 2.29 2.16 *2.22 2.26 2.24 | (2.19) 2.18 2.12 2.11 *1.97 2.16 2.03 | | | | | |
| BH18 | 1.20- 1.70 (1.20- 1.70) | B | N84096 | Brown slightly gravelly CLAY. | | | | | | 2.24 | 1.96 | 2.5kg | 1.3 | 13.7 | 1.3 | 13.9 |
| BH19 | 2.00- 2.50 (2.00- 2.50) | B | N84101 | Brown clayey sandy GRAVEL. | | | 2.5kg | (7.5) 9.3* 3.9 5.8 8.6 12.3 15.9 | 2.70a | *2.26 2.05 2.20 2.27 2.24 2.18 | (2.10) *2.07 1.97 2.08 2.09 1.99 1.88 | | | | | |
| | | | | | | | | | | | | | | | | |

Remarks

Particle Density - a=assumed, m=measured
w% - * = at natural moisture content; x = aggregate moisture content
= stabilised, see relevant test plot for details
NST = Not suitable for Test
For Standards followed see Laboratory Test Certificate

LABORATORY RESULTS - MCV, Compaction, CBR

Project NEWPORT QUINN PHASE 2

Project No: PN224395

| Sample | | | | | MCV | | Compaction | | | | | CBR | | | | |
|--------|-----------------------------------|------|---------------|---|-----|---|------------|---|-------------------------------|---------------------------------------|---|-------|----------|--------|----------|--------|
| Hole | Depth (Specimen Depth) m | Type | Sample Ref | Description | MCV | w | Type | w (Opt) % | ρ_d Mg/m ³ | γ_b Mg/m ³ | γ_d (Max) Mg/m ³ | Type | Top | | Bottom | |
| | | | | | | % | | | | | | | CBR % | w % | CBR % | w % |
| BH20 | 3.00- 3.50 (3.00- 3.50) | B | N84105 | Brown clayey silty very gravelly SAND. | | | 4.5kg | (7.0) 11.9* 2.7 6.1 8.6 13.5 | 2.70a | *2.30 2.21 2.33 2.29 2.21 | (2.21) *2.05 2.15 2.19 2.11 1.95 | | | | | |
| BH21 | 1.20- 1.70 (1.20- 1.70) | B | N84106 | Brown clayey silty very sandy GRAVEL. | | | | | | 2.29 | 2.06 | 2.5kg | 2.4 | 11.3 | 1.9 | 10.9 |
| BH22 | 0.30- 1.20 (0.30- 1.20) | B | N84138 | Brown silty/clayey very sandy GRAVEL | | | | | | 2.12 | 2.01 | 2.5kg | 51 | 5.3 | 32 | 5.4 |
| BH23 | 1.50- 1.80 (1.50- 1.80) | B | N84112 | Brown clayey silty very gravelly SAND. | | | | | | 2.12 | 1.96 | 2.5kg | 5.4 | 8.2 | 12 | 8.2 |
| BH24 | 1.20- 1.70 (1.20- 1.70) | B | N84116 | Brown slightly sandy slightly gravelly CLAY with cobbles. | | | 2.5kg | (7.5) 12.5* 3.4 5.4 8.8 10.2 | 2.75a | *2.28 2.10 2.23 2.37 2.33 | (2.20) *2.03 2.03 2.12 2.18 2.12 | | | | | |
| BH25 | 1.20- 1.70 (1.20- 1.70) | B | N84121 | Brown slightly sandy slightly gravelly CLAY. | | | 4.5kg | (7.5) 14.6* 2.9 6.4 9.3 11.6 | 2.75a | *2.23 2.15 2.29 2.36 2.31 | (2.18) *1.95 2.09 2.15 2.16 2.07 | | | | | |
| BH26 | 2.00- 2.50 (2.00- 2.50) | B | N84124 | Brown slightly sandy slightly gravelly CLAY. | | | | | | 2.23 | 1.97 | 2.5kg | 0.73 | 13.2 | 0.59 | 13.2 |
| BH27 | 0.36- 1.20 (0.36- 1.20) | B | N84127 | Brown gravelly SAND. | | | 2.5kg | (8.0) 6.1* 5.0 8.2 9.5 11.9 | 2.70a | *2.21 2.14 2.33 2.30 2.27 | (2.16) *2.09 2.04 2.15 2.10 2.03 | | | | | |
| BH29 | 0.90- 1.20 (0.90- 1.20) | B | N84131 | Brown slightly clayey gravelly SAND. | | | | | | 2.20 | 2.05 | 2.5kg | 55 | 7.2 | 51 | 7.0 |
| | | | | | | | | | | | | | | | | |

Remarks

Particle Density - a=assumed, m=measured
w% - * = at natural moisture content; x = aggregate moisture content
= stabilised, see relevant test plot for details
NST = Not suitable for Test
For Standards followed see Laboratory Test Certificate

LABORATORY RESULTS - MCV, Compaction, CBR

Project NEWPORT QUINN PHASE 2

Project No: PN224395

[illegible]Remarks

Particle Density - a=assumed, m=measured

w% - * = at natural moisture content; x = aggregate moisture content

= stabilised, see relevant test plot for details

NST = Not suitable for Test

For Standards followed see Laboratory Test Certificate

GEOTECHNICS
geotechnical and geoenvironmental specialists

LABORATORY RESULTS - Consolidation $e/\log p$ Plot

Project Newport Quinn

Project No PN224395

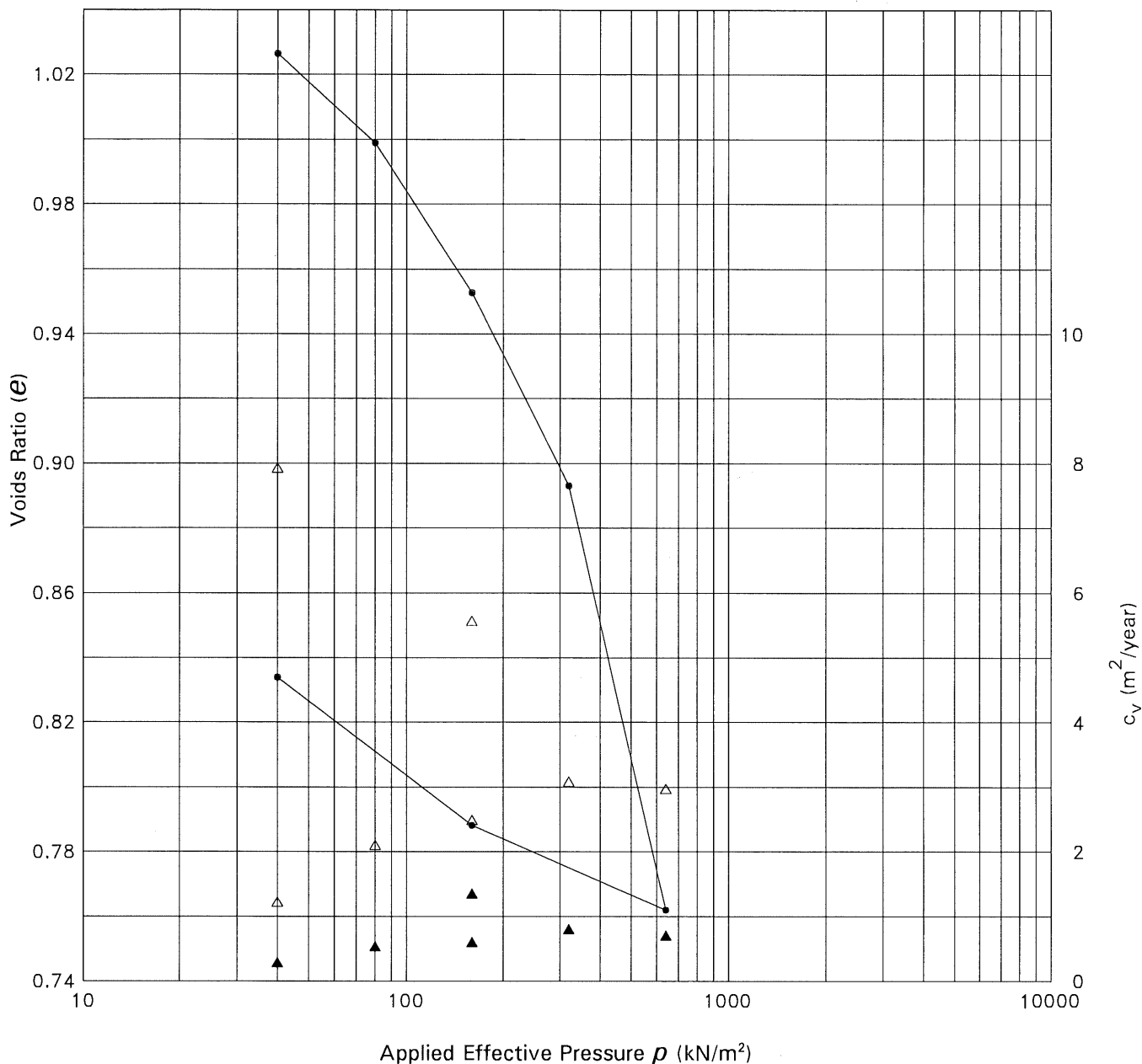
Borehole BH09

Sample Depth 4.00 - 4.45 m

Sample Type U

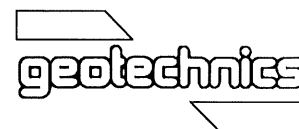
Client

Symbols: Voids Ratio \bullet , c_{v50} \blacktriangle , c_{v90} \triangle



| Applied Pressure kN/m^2 | 0-40 | 40-80 | 80-160 | 160-320 | 320-640 | 640-160 | 160-40 | | | |
|--|-------|-------|---|---------|---------|---|--------|--|--|--|
| m_v m^2/MN | 0.44 | 0.34 | 0.29 | 0.19 | 0.22 | 0.03 | 0.21 | | | |
| c_{v50} Log Time m^2/yr | - | 0.53 | 0.60 | 0.80 | 0.70 | 1.35 | 0.29 | | | |
| c_{v90} Root Time m^2/yr | - | 2.10 | 2.49 | 3.08 | 2.97 | 5.57 | 1.22 | | | |
| Voids Ratio | 1.026 | 0.999 | 0.953 | 0.893 | 0.762 | 0.788 | 0.834 | | | |
| Description N84065 - Firm reddish brown slightly gravelly silty CLAY | | | Specimen Diameter 74.550 mm Initial Height 18.700 mm Particle Density 2.65 Assumed Initial Voids Ratio 1.063 | | | Initial Water Content 41.35 % Final Water Content 34.73 % Initial Saturation 100 % Initial Bulk Density 1.82 Mg/m^3 Initial Dry Density 1.28 Mg/m^3 | | | | |

Remarks Laboratory temperature $20^\circ\text{C} \pm 3^\circ\text{C}$
Specimen cut vertically from middle of sample
Test performed in accordance with BS EN ISO 17892-5:2017
Average laboratory temperature during test 20°C





LABORATORY REPORT



4043

Contract Number: PSL22/7077

Report Date: 22 November 2022
Client's Reference: PN224395
Client Name: Geotechnics
203 Torrington Avenue
Tile Hill
Coventry
CV4 9UT

For the attention of: Paul Smart

Contract Title: Newport Quinn Phase 2
Date Received: 2/11/2022
Date Commenced: 2/11/2022
Date Completed: 22/11/2022

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins
(Director)

R Berriman
(Quality Manager)

S Royle
(Laboratory Manager)

L Knight
(Assistant Laboratory Manager)


S Eyre
(Senior Technician)

T Watkins
(Senior Technician)

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

Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]

4043

PSL
Professional Soils Laboratory

Newport Quinn

Contract No:**PSL22/7077****Client Ref:****PN224395**

ONE DIMENSIONAL CONSOLIDATION TEST

BS 1377: Part 5: 1990: Clause 3

Hole Number: BH09

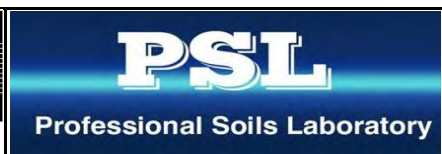
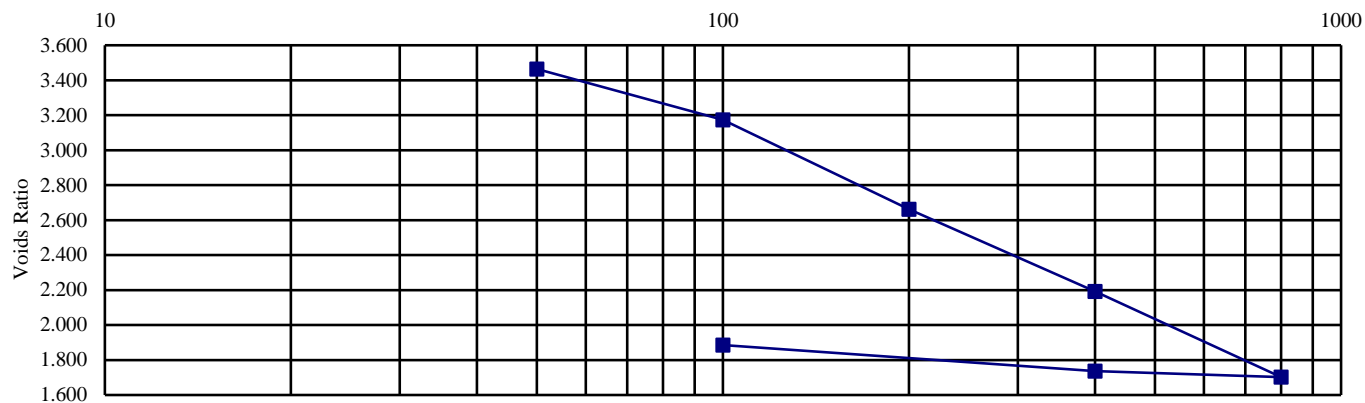
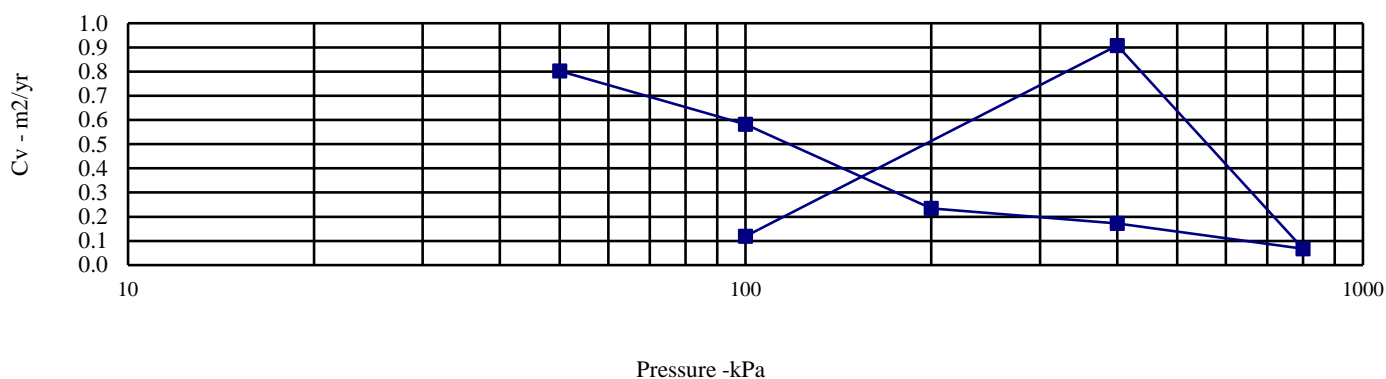
Top Depth (m): 5.00

Sample Number: N84066

Base Depth (m) : 5.45

Sample Type: UT

| Initial Conditions | | Pressure Range | | Mv | Cv | Specimen location | |
|---------------------------|--------|----------------|-----|-------|-------|----------------------------------|-----|
| Moisture Content (%): | 133 | kPa | | m2/MN | m2/yr | within tube: | Top |
| Bulk Density (Mg/m3): | 1.28 | 0 | 50 | 1.515 | 0.803 | Method used to | |
| Dry Density (Mg/m3): | 0.55 | 50 | 100 | 1.303 | 0.582 | determine CV: | T90 |
| Voids Ratio: | 3.830 | 100 | 200 | 1.223 | 0.234 | Nominal temperature | |
| Degree of saturation: | 91.7 | 200 | 400 | 0.643 | 0.173 | during test ' C: | 20 |
| Height (mm): | 19.938 | 400 | 800 | 0.383 | 0.068 | Remarks: | |
| Diameter (mm) | 75.01 | 800 | 400 | 0.032 | 0.908 | See summary of soil descriptions | |
| Particle Density (Mg/m3): | 2.65 | 400 | 100 | 0.182 | 0.118 | | |
| Assumed | | | | | | | |



Newport Quinn

Contract No:

PSL22/7077

Client Ref:

PN224395



DETS

Certificate of Analysis

Certificate Number 22-18896

Issued: 29-Sep-22

Client Geotechnics LTD
The Geotechnical Centre
Unit 1B Borders Ind. Park
River Lane
Saltney
Chester
CH4 8RJ

Our Reference 22-18896

Client Reference PN224395

Order No ON34492

Contract Title Newport Quinn Phase 2

Description 28 Soil samples.

Date Received 23-Sep-22

Date Started 23-Sep-22

Date Completed 29-Sep-22

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

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

Approved By



Kirk Bridgewood
General Manager



2139

Summary of Chemical Analysis

Soil Samples

Our Ref 22-18896

Client Ref PN224395

Contract Title Newport Quinn Phase 2

| Lab No | 2062081 | 2062082 | 2062083 | 2062084 | 2062085 | 2062086 | 2062087 | 2062088 | 2062089 | 2062090 | 2062091 |
|---------------|---------|------------|-----------|-----------|---------|-----------|---------|-----------|------------|------------|------------|
| Sample ID | BH01 | BH01 | BH03 | BH04 | BH05 | BH06 | BH10 | BH11 | BH12 | BH14A | BH15 |
| Depth | 1.20 | 5.80 | 2.00-2.50 | 3.00-3.50 | 1.00 | 2.00-2.50 | 1.00 | 2.00-2.50 | 1.00 | 1.80 | 1.80 |
| Other ID | | | | | | | | | | | |
| Sample Type | D | D | D | D | D | D | D | D | D | D | D |
| Sampling Date | n/s | 10/08/2022 | n/s | n/s | n/s | n/s | n/s | n/s | 11/08/2022 | 04/08/2022 | 02/08/2022 |
| Sampling Time | n/s | n/s | n/s | n/s | n/s | n/s | n/s | n/s | n/s | n/s | n/s |

| Test | Method | LOD | Units | | | | | | | | | | | |
|---------------------------------|-------------|------|-------|--------|-------|--------|-------|--------|--------|--------|--------|--------|-------|--------|
| Metals | | | | | | | | | | | | | | |
| Magnesium Aqueous Extract | DETSC 2076* | 10 | mg/l | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 |
| Inorganics | | | | | | | | | | | | | | |
| pH | DETSC 2008# | | pH | 7.8 | 8.8 | 7.1 | 8.3 | 7.9 | 8.3 | 8.4 | 7.1 | 7.7 | 10.5 | 8.0 |
| Organic matter | DETSC 2002# | 0.1 | % | | | | | | | | | | | |
| Ammonia Aqueous Extract as N | DETSC 2119 | 10 | mg/l | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 |
| Chloride Aqueous Extract | DETSC 2055 | 1 | mg/l | 6.8 | 18 | 4.7 | 7.0 | 13 | 6.0 | 4.7 | 3.7 | 6.2 | 23 | 4.1 |
| Nitrate Aqueous Extract as NO3 | DETSC 2055 | 1 | mg/l | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | 1.7 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Sulphate Aqueous Extract as SO4 | DETSC 2076# | 10 | mg/l | 15 | 34 | 16 | 14 | 12 | 12 | 27 | < 10 | 12 | 64 | 15 |
| Sulphur as S, Total | DETSC 2320 | 0.01 | % | < 0.01 | 0.02 | < 0.01 | 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | 0.05 | < 0.01 |
| Sulphate as SO4, Total | DETSC 2321# | 0.01 | % | 0.02 | 0.04 | 0.02 | 0.03 | 0.02 | 0.01 | 0.02 | < 0.01 | < 0.01 | 0.07 | < 0.01 |

Summary of Chemical Analysis

Soil Samples

Our Ref 22-18896

Client Ref PN224395

Contract Title Newport Quinn Phase 2

| Lab No | 2062092 | 2062093 | 2062094 | 2062095 | 2062096 | 2062097 | 2062098 | 2062099 | 2062100 | 2062101 | 2062102 |
|---------------|------------|------------|---------|------------|------------|------------|---------|------------|---------|---------|------------|
| Sample ID | BH18 | BH18 | BH20 | BH21 | BH22 | BH23 | BH24 | BH25 | BH27 | BH28 | BH28 |
| Depth | 4.00-4.45 | 4.80 | 0.80 | 5.00-5.45 | 3.90 | 1.00 | 4.00 | 0.55 | 1.00 | 2.70 | 3.80 |
| Other ID | | | | | | | | | | | |
| Sample Type | D | D | D | D | D | D | D | D | D | D | D |
| Sampling Date | 03/08/2022 | 03/08/2022 | n/s | 31/08/2022 | 02/08/2022 | 26/07/2022 | n/s | 28/07/2022 | n/s | n/s | 29/07/2022 |
| Sampling Time | n/s | n/s | n/s | n/s | n/s | n/s | n/s | n/s | n/s | n/s | n/s |

| Test | Method | LOD | Units | | | | | | | | | | | |
|---------------------------------|-------------|------|-------|--------|-------|-------|--------|--------|--------|--------|-------|-------|--------|--------|
| Metals | | | | | | | | | | | | | | |
| Magnesium Aqueous Extract | DETSC 2076* | 10 | mg/l | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 |
| Inorganics | | | | | | | | | | | | | | |
| pH | DETSC 2008# | | pH | 7.4 | 7.0 | 8.0 | 7.0 | 7.3 | 7.7 | 8.8 | 11.1 | 10.7 | 7.5 | 7.0 |
| Organic matter | DETSC 2002# | 0.1 | % | | | | | | | | | | | |
| Ammonia Aqueous Extract as N | DETSC 2119 | 10 | mg/l | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 | < 10 |
| Chloride Aqueous Extract | DETSC 2055 | 1 | mg/l | 6.4 | 5.7 | 4.2 | 8.3 | 6.3 | 15 | 11 | 29 | 5.9 | 3.5 | 5.3 |
| Nitrate Aqueous Extract as NO3 | DETSC 2055 | 1 | mg/l | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Sulphate Aqueous Extract as SO4 | DETSC 2076# | 10 | mg/l | 24 | 29 | 32 | 19 | 17 | 13 | 29 | 99 | 13 | 17 | 15 |
| Sulphur as S, Total | DETSC 2320 | 0.01 | % | < 0.01 | 0.01 | 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | 0.21 | 0.01 | < 0.01 | < 0.01 |
| Sulphate as SO4, Total | DETSC 2321# | 0.01 | % | 0.02 | 0.02 | 0.03 | 0.01 | < 0.01 | 0.02 | 0.03 | 0.29 | 0.02 | 0.01 | < 0.01 |

Summary of Chemical Analysis

Soil Samples

Our Ref 22-18896

Client Ref PN224395

Contract Title Newport Quinn Phase 2

| | | | | | | |
|---------------|---------|------------|------------|------------|-----------|------------|
| Lab No | 2062103 | 2062104 | 2062105 | 2062106 | 2062107 | 2062108 |
| Sample ID | BH29 | BH29 | BH30 | BH30 | BH09 | BH26 |
| Depth | 1.00 | 4.00 | 1.00 | 5.00-5.45 | 4.50-5.00 | 4.80 |
| Other ID | | | | | | |
| Sample Type | D | D | D | D | D | D |
| Sampling Date | n/s | 28/07/2022 | 28/07/2022 | 05/08/2022 | n/s | 11/08/2022 |
| Sampling Time | n/s | n/s | n/s | n/s | n/s | n/s |

| Test | Method | LOD | Units | | | | | | |
|---------------------------------|-------------|------|-------|--------|--------|--------|-------|-----|----|
| Metals | | | | | | | | | |
| Magnesium Aqueous Extract | DETSC 2076* | 10 | mg/l | < 10 | < 10 | < 10 | < 10 | | |
| Inorganics | | | | | | | | | |
| pH | DETSC 2008# | | pH | 8.5 | 6.6 | 7.2 | 11.2 | | |
| Organic matter | DETSC 2002# | 0.1 | % | | | | | 0.7 | 21 |
| Ammonia Aqueous Extract as N | DETSC 2119 | 10 | mg/l | < 10 | < 10 | < 10 | < 10 | | |
| Chloride Aqueous Extract | DETSC 2055 | 1 | mg/l | 2.1 | 11 | 6.3 | 30 | | |
| Nitrate Aqueous Extract as NO3 | DETSC 2055 | 1 | mg/l | < 1.0 | < 1.0 | < 1.0 | < 1.0 | | |
| Sulphate Aqueous Extract as SO4 | DETSC 2076# | 10 | mg/l | 20 | 42 | 25 | 92 | | |
| Sulphur as S, Total | DETSC 2320 | 0.01 | % | < 0.01 | < 0.01 | < 0.01 | 0.07 | | |
| Sulphate as SO4, Total | DETSC 2321# | 0.01 | % | 0.01 | 0.02 | 0.01 | 0.25 | | |

Information in Support of the Analytical Results

Our Ref 22-18896
 Client Ref PN224395
 Contract Newport Quinn Phase 2

Containers Received & Deviating Samples

| Lab No | Sample ID | Date Sampled | Containers Received | Holding time exceeded for tests | Inappropriate container for tests |
|---------|---------------------|--------------|---------------------|--|-----------------------------------|
| 2062081 | BH01 1.20 SOIL | | PT 1L | Sample date not supplied, Anions 2:1 (30 days), Ammonia Aqueous Extract (3 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), Metals ICP Prep (182 days), pH + Conductivity (7 days) | |
| 2062082 | BH01 5.80 SOIL | 10/08/22 | PT 1L | Anions 2:1 (30 days), Ammonia Aqueous Extract (3 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), pH + Conductivity (7 days) | |
| 2062083 | BH03 2.00-2.50 SOIL | | PT 1L | Sample date not supplied, Anions 2:1 (30 days), Ammonia Aqueous Extract (3 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), Metals ICP Prep (182 days), pH + Conductivity (7 days) | |
| 2062084 | BH04 3.00-3.50 SOIL | | PT 1L | Sample date not supplied, Anions 2:1 (30 days), Ammonia Aqueous Extract (3 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), Metals ICP Prep (182 days), pH + Conductivity (7 days) | |
| 2062085 | BH05 1.00 SOIL | | PT 1L | Sample date not supplied, Anions 2:1 (30 days), Ammonia Aqueous Extract (3 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), Metals ICP Prep (182 days), pH + Conductivity (7 days) | |
| 2062086 | BH06 2.00-2.50 SOIL | | PT 1L | Sample date not supplied, Anions 2:1 (30 days), Ammonia Aqueous Extract (3 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), Metals ICP Prep (182 days), pH + Conductivity (7 days) | |
| 2062087 | BH10 1.00 SOIL | | PT 1L | Sample date not supplied, Anions 2:1 (30 days), Ammonia Aqueous Extract (3 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), Metals ICP Prep (182 days), pH + Conductivity (7 days) | |
| 2062088 | BH11 2.00-2.50 SOIL | | PT 1L | Sample date not supplied, Anions 2:1 (30 days), Ammonia Aqueous Extract (3 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), Metals ICP Prep (182 days), pH + Conductivity (7 days) | |
| 2062089 | BH12 1.00 SOIL | 11/08/22 | PT 1L | Anions 2:1 (30 days), Ammonia Aqueous Extract (3 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), pH + Conductivity (7 days) | |
| 2062090 | BH14A 1.80 SOIL | 04/08/22 | PT 1L | Anions 2:1 (30 days), Ammonia Aqueous Extract (3 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), pH + Conductivity (7 days) | |
| 2062091 | BH15 1.80 SOIL | 02/08/22 | PT 1L | Anions 2:1 (30 days), Ammonia Aqueous Extract (3 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), pH + Conductivity (7 days) | |

Information in Support of the Analytical Results

Our Ref 22-18896
 Client Ref PN224395
 Contract Newport Quinn Phase 2

| Lab No | Sample ID | Date Sampled | Containers Received | Holding time exceeded for tests | Inappropriate container for tests |
|---------|---------------------|--------------|---------------------|--|-----------------------------------|
| 2062092 | BH18 4.00-4.45 SOIL | 03/08/22 | PT 1L | Anions 2:1 (30 days), Ammonia Aqueous Extract (3 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), pH + Conductivity (7 days) | |
| 2062093 | BH18 4.80 SOIL | 03/08/22 | PT 1L | Anions 2:1 (30 days), Ammonia Aqueous Extract (3 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), pH + Conductivity (7 days) | |
| 2062094 | BH20 0.80 SOIL | | PT 1L | Sample date not supplied, Anions 2:1 (30 days), Ammonia Aqueous Extract (3 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), Metals ICP Prep (182 days), pH + Conductivity (7 days) | |
| 2062095 | BH21 5.00-5.45 SOIL | 31/08/22 | PT 1L | Ammonia Aqueous Extract (3 days), Total Sulphur ICP (7 days), pH + Conductivity (7 days) | |
| 2062096 | BH22 3.90 SOIL | 02/08/22 | PT 1L | Anions 2:1 (30 days), Ammonia Aqueous Extract (3 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), pH + Conductivity (7 days) | |
| 2062097 | BH23 1.00 SOIL | 26/07/22 | PT 1L | Anions 2:1 (30 days), Ammonia Aqueous Extract (3 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), pH + Conductivity (7 days) | |
| 2062098 | BH24 4.00 SOIL | | PT 1L | Sample date not supplied, Anions 2:1 (30 days), Ammonia Aqueous Extract (3 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), Metals ICP Prep (182 days), pH + Conductivity (7 days) | |
| 2062099 | BH25 0.55 SOIL | 28/07/22 | PT 1L | Anions 2:1 (30 days), Ammonia Aqueous Extract (3 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), pH + Conductivity (7 days) | |
| 2062100 | BH27 1.00 SOIL | | PT 1L | Sample date not supplied, Anions 2:1 (30 days), Ammonia Aqueous Extract (3 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), Metals ICP Prep (182 days), pH + Conductivity (7 days) | |
| 2062101 | BH28 2.70 SOIL | | PT 1L | Sample date not supplied, Anions 2:1 (30 days), Ammonia Aqueous Extract (3 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), Metals ICP Prep (182 days), pH + Conductivity (7 days) | |
| 2062102 | BH28 3.80 SOIL | 29/07/22 | PT 1L | Anions 2:1 (30 days), Ammonia Aqueous Extract (3 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), pH + Conductivity (7 days) | |
| 2062103 | BH29 1.00 SOIL | | PT 1L | Sample date not supplied, Anions 2:1 (30 days), Ammonia Aqueous Extract (3 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), Metals ICP Prep (182 days), pH + Conductivity (7 days) | |

Information in Support of the Analytical Results

Our Ref 22-18896
 Client Ref PN224395
 Contract Newport Quinn Phase 2

| Lab No | Sample ID | Date Sampled | Containers Received | Holding time exceeded for tests | Inappropriate container for tests |
|---------|---------------------|--------------|---------------------|--|-----------------------------------|
| 2062104 | BH29 4.00 SOIL | 28/07/22 | PT 1L | Anions 2:1 (30 days), Ammonia Aqueous Extract (3 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), pH + Conductivity (7 days) | |
| 2062105 | BH30 1.00 SOIL | 28/07/22 | PT 1L | Anions 2:1 (30 days), Ammonia Aqueous Extract (3 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), pH + Conductivity (7 days) | |
| 2062106 | BH30 5.00-5.45 SOIL | 05/08/22 | PT 1L | Anions 2:1 (30 days), Ammonia Aqueous Extract (3 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), pH + Conductivity (7 days) | |
| 2062107 | BH09 4.50-5.00 SOIL | | PT 1L | Sample date not supplied, Organic Matter (Manual) (28 days) | |
| 2062108 | BH26 4.80 SOIL | 11/08/22 | PT 500ml | Organic Matter (Manual) (28 days) | |

Key: P-Plastic T-Tub

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

Soil Analysis Notes

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

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

End of Report



LABORATORY REPORT



4043

Contract Number: PSL22/6080

Report Date: 05 October 2022
Client's Reference: PN224395
Client Name: Geotechnics
203 Torrington Avenue
Tile Hill
Coventry
CV4 9UT

For the attention of: Josh Noble

Contract Title: Newport Quinn Phase 2
Date Received: 21/9/2022
Date Commenced: 21/9/2022
Date Completed: 5/10/2022

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins
(Director)

R Berriman
(Quality Manager)

S Royle
(Laboratory Manager)

L Knight
(Assistant Laboratory Manager)


S Eyre
(Senior Technician)

T Watkins
(Senior Technician)

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

Page 1 of

SUMMARY OF POINT LOAD TEST RESULTS


ISRM Suggested Methods : 2007

| Borehole Number | Depth (m) | Sample Ref | Test Type | Orientation Par / Perp | Dimensions (mm) | | Area (mm ²) | D _c ² | D _c (mm) | Failure Load (P) | | I _s (MPa) | Corr Fac F | I _{s50} (MPa) | Failure Type | Remarks |
|-----------------|-----------|------------|-----------|---------------------------|-----------------|----|-------------------------|-----------------------------|---------------------|------------------|------|----------------------|------------|------------------------|--------------|---------|
| | | | | | W | D | | | | (Mpa) | (kN) | | | | | |
| BH01 | 8.18 | | I | Perp | 75 | 30 | 2250 | 2864.79 | 53.52 | - | 0.71 | 0.25 | 1.031 | 0.26 | Valid | |
| BH01 | 8.26 | | A | Perp | 80 | 27 | 2160 | 2750.20 | 52.44 | - | 0.18 | 0.07 | 1.022 | 0.07 | Valid | |
| BH01 | 8.61 | | A | Perp | 80 | 28 | 2240 | 2852.06 | 53.40 | - | 0.31 | 0.11 | 1.030 | 0.11 | Valid | |
| BH01 | 8.73 | | A | Perp | 80 | 28 | 2240 | 2852.06 | 53.40 | - | 0.27 | 0.09 | 1.030 | 0.10 | Valid | |
| BH01 | 8.86 | | A | Perp | 80 | 30 | 2400 | 3055.77 | 55.28 | - | 0.17 | 0.06 | 1.046 | 0.06 | Valid | |
| BH01 | 10.70 | | A | Perp | 80 | 26 | 2080 | 2648.34 | 51.46 | - | 0.89 | 0.34 | 1.013 | 0.34 | Valid | |
| BH01 | 12.50 | | A | Perp | 80 | 28 | 2240 | 2852.06 | 53.40 | - | 0.30 | 0.11 | 1.030 | 0.11 | Valid | |
| BH01 | 12.83 | | A | Perp | 80 | 27 | 2160 | 2750.20 | 52.44 | - | 0.17 | 0.06 | 1.022 | 0.06 | Valid | |
| BH01 | 13.05 | | A | Perp | 80 | 30 | 2400 | 3055.77 | 55.28 | - | 2.88 | 0.94 | 1.046 | 0.99 | Valid | |
| BH01 | 13.40 | | A | Perp | 80 | 32 | 2560 | 3259.49 | 57.09 | - | 0.84 | 0.26 | 1.062 | 0.27 | Valid | |
| BH01 | 15.37 | | A | Perp | 80 | 28 | 2240 | 2852.06 | 53.40 | - | 1.81 | 0.63 | 1.030 | 0.65 | Valid | |
| BH01 | 16.42 | | A | Perp | 80 | 28 | 2240 | 2852.06 | 53.40 | - | 1.21 | 0.42 | 1.030 | 0.44 | Valid | |
| BH01 | 18.00 | | A | Perp | 80 | 25 | 2000 | 2546.48 | 50.46 | - | 0.88 | 0.35 | 1.004 | 0.35 | Valid | |
| BH01 | 18.92 | | A | Perp | 80 | 30 | 2400 | 3055.77 | 55.28 | - | 1.20 | 0.39 | 1.046 | 0.41 | Valid | |
| BH01 | 19.95 | | A | Perp | 80 | 48 | 3840 | 4889.24 | 69.92 | - | 3.11 | 0.64 | 1.163 | 0.74 | Valid | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

| | | | |
|--|-----------------------|--|--------------|
|  PSL Professional Soils Laboratory 4043 | Newport Quinn Phase 2 | | Contract No: |
| | | | PSL22/6080 |
| | | | Client Ref: |
| | | | PN224395 |

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

| Borehole Number | Depth (m) | Sample Ref | Test Type | Orientation | Dimensions (mm) | | D_c^2 | D_c (mm) | Failure Load | | I_s (MPa) | Corr Fac F | I_{s50} (MPa) | Failure Type | Remarks |
|-----------------|-----------|------------|-----------|-------------|-----------------|----|---------|---------------|--------------|------|----------------|---------------|--------------------|--------------|---------|
| | | | | Par / Perp | L | D | | | (Mpa) | (kN) | | | | | |
| BH01 | 8.26 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.14 | 0.022 | 1.236 | 0.03 | Valid | |
| BH01 | 8.61 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.22 | 0.034 | 1.236 | 0.04 | Valid | |
| BH01 | 8.73 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.44 | 0.069 | 1.236 | 0.08 | Valid | |
| BH01 | 8.86 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.11 | 0.017 | 1.236 | 0.02 | Valid | |
| BH01 | 10.70 | | D | Par | - | 80 | 6400 | 80.00 | - | 1.00 | 0.156 | 1.236 | 0.19 | Valid | |
| BH01 | 12.50 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.20 | 0.031 | 1.236 | 0.04 | Valid | |
| BH01 | 12.83 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.12 | 0.019 | 1.236 | 0.02 | Valid | |
| BH01 | 13.05 | | D | Par | - | 80 | 6400 | 80.00 | - | 2.63 | 0.411 | 1.236 | 0.51 | Valid | |
| BH01 | 13.40 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.91 | 0.142 | 1.236 | 0.18 | Valid | |
| BH01 | 15.37 | | D | Par | - | 80 | 6400 | 80.00 | - | 1.26 | 0.197 | 1.236 | 0.24 | Valid | |
| BH01 | 16.42 | | D | Par | - | 80 | 6400 | 80.00 | - | 1.03 | 0.161 | 1.236 | 0.20 | Valid | |
| BH01 | 18.00 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.97 | 0.152 | 1.236 | 0.19 | Valid | |
| BH01 | 18.92 | | D | Par | - | 80 | 6400 | 80.00 | - | 1.14 | 0.178 | 1.236 | 0.22 | Valid | |
| BH01 | 19.95 | | D | Par | - | 80 | 6400 | 80.00 | - | 2.78 | 0.434 | 1.236 | 0.54 | Valid | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random



Newport Quinn Phase 2

Contract No:

PSL22/6080

Client Ref:

PN224395

SUMMARY OF POINT LOAD TEST RESULTS



ISRM Suggested Methods : 2007

| Borehole Number | Depth (m) | Sample Ref | Test Type | Orientation Par / Perp | Dimensions (mm) | | Area (mm ²) | D _c ² | D _c (mm) | Failure Load (P) | | I _s (MPa) | Corr Fac F | I _{s50} (MPa) | Failure Type | Remarks |
|-----------------|-----------|------------|-----------|---------------------------|-----------------|----|-------------------------|-----------------------------|---------------------|------------------|------|----------------------|------------|------------------------|--------------|---------|
| | | | | | W | D | | | | (Mpa) | (kN) | | | | | |
| BH04A | 5.52 | | A | Perp | 80 | 38 | 3040 | 3870.65 | 62.21 | - | 0.22 | 0.06 | 1.103 | 0.06 | Valid | |
| BH04A | 5.60 | | A | Perp | 80 | 47 | 3760 | 4787.38 | 69.19 | - | 0.17 | 0.04 | 1.157 | 0.04 | Valid | |
| BH04A | 5.78 | | A | Perp | 80 | 40 | 3200 | 4074.37 | 63.83 | - | 0.22 | 0.05 | 1.116 | 0.06 | Valid | |
| BH04A | 6.65 | | A | Perp | 80 | 38 | 3040 | 3870.65 | 62.21 | - | 0.11 | 0.03 | 1.103 | 0.03 | Valid | |
| BH04A | 6.80 | | A | Perp | 80 | 39 | 3120 | 3972.51 | 63.03 | - | 0.38 | 0.10 | 1.110 | 0.11 | Valid | |
| BH04A | 8.10 | | A | Perp | 80 | 42 | 3360 | 4278.08 | 65.41 | - | 0.18 | 0.04 | 1.128 | 0.05 | Valid | |
| BH04A | 9.95 | | A | Perp | 80 | 28 | 2240 | 2852.06 | 53.40 | - | 0.27 | 0.09 | 1.030 | 0.10 | Valid | |
| BH04A | 10.93 | | A | Perp | 80 | 25 | 2000 | 2546.48 | 50.46 | - | 0.18 | 0.07 | 1.004 | 0.07 | Valid | |
| BH04A | 12.21 | | A | Perp | 80 | 28 | 2240 | 2852.06 | 53.40 | - | 0.28 | 0.10 | 1.030 | 0.10 | Valid | |
| BH04A | 14.45 | | A | Perp | 80 | 30 | 2400 | 3055.77 | 55.28 | - | 0.74 | 0.24 | 1.046 | 0.25 | Valid | |
| BH04A | 15.87 | | A | Perp | 80 | 30 | 2400 | 3055.77 | 55.28 | - | 0.37 | 0.12 | 1.046 | 0.13 | Valid | |
| BH04A | 16.43 | | A | Perp | 80 | 28 | 2240 | 2852.06 | 53.40 | - | 0.80 | 0.28 | 1.030 | 0.29 | Valid | |
| BH04A | 17.40 | | A | Perp | 80 | 34 | 2720 | 3463.21 | 58.85 | - | 0.14 | 0.04 | 1.076 | 0.04 | Valid | |
| BH04A | 19.20 | | A | Perp | 80 | 38 | 3040 | 3870.65 | 62.21 | - | 0.20 | 0.05 | 1.103 | 0.06 | Valid | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

| | | | |
|--|---|------------------------------|--------------|
|  4043 |  | <p>Newport Quinn Phase 2</p> | Contract No: |
| | | | PSL22/6080 |
| | | | Client Ref: |
| | | | PN224395 |

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

| Borehole Number | Depth (m) | Sample Ref | Test Type | Orientation | Dimensions (mm) | | D _c ² | D _e (mm) | Failure Load | | I _s (MPa) | Corr Fac F | I _{s50} (MPa) | Failure Type | Remarks |
|-----------------|-----------|------------|-----------|-------------|-----------------|----|-----------------------------|------------------------|--------------|------|-------------------------|---------------|---------------------------|--------------|---------|
| | | | | Par / Perp | L | D | | | (Mpa) | (kN) | | | | | |
| BH04A | 5.52 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.14 | 0.022 | 1.236 | 0.03 | Valid | |
| BH04A | 5.60 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.21 | 0.033 | 1.236 | 0.04 | Valid | |
| BH04A | 5.78 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.16 | 0.025 | 1.236 | 0.03 | Valid | |
| BH04A | 6.65 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.06 | 0.009 | 1.236 | 0.01 | Valid | |
| BH04A | 6.80 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.24 | 0.038 | 1.236 | 0.05 | Valid | |
| BH04A | 8.10 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.11 | 0.017 | 1.236 | 0.02 | Valid | |
| BH04A | 9.95 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.23 | 0.036 | 1.236 | 0.04 | Valid | |
| BH04A | 10.93 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.10 | 0.016 | 1.236 | 0.02 | Valid | |
| BH04A | 12.21 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.14 | 0.022 | 1.236 | 0.03 | Valid | |
| BH04A | 14.45 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.63 | 0.098 | 1.236 | 0.12 | Valid | |
| BH04A | 15.87 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.40 | 0.063 | 1.236 | 0.08 | Valid | |
| BH04A | 16.43 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.76 | 0.119 | 1.236 | 0.15 | Valid | |
| BH04A | 17.40 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.18 | 0.028 | 1.236 | 0.03 | Valid | |
| BH04A | 19.20 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.15 | 0.023 | 1.236 | 0.03 | Valid | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random



Newport Quinn Phase 2

Contract No:

PSL22/6080

Client Ref:

PN224395

SUMMARY OF POINT LOAD TEST RESULTS



ISRM Suggested Methods : 2007

| Borehole Number | Depth (m) | Sample Ref | Test Type | Orientation Par / Perp | Dimensions (mm) | | Area (mm ²) | D _c ² | D _c (mm) | Failure Load (P) | | I _s (MPa) | Corr Fac F | I _{s50} (MPa) | Failure Type | Remarks |
|-----------------|-----------|------------|-----------|---------------------------|-----------------|----|-------------------------|-----------------------------|---------------------|------------------|------|----------------------|------------|------------------------|--------------|---------|
| | | | | | W | D | | | | (Mpa) | (kN) | | | | | |
| BH07 | 7.86 | | I | Perp | 37 | 24 | 888 | 1130.64 | 33.62 | - | 0.30 | 0.27 | 0.836 | 0.22 | Valid | |
| BH07 | 8.32 | | A | Perp | 80 | 28 | 2240 | 2852.06 | 53.40 | - | 0.20 | 0.07 | 1.030 | 0.07 | Valid | |
| BH07 | 9.94 | | A | Perp | 80 | 27 | 2160 | 2750.20 | 52.44 | - | 0.18 | 0.07 | 1.022 | 0.07 | Valid | |
| BH07 | 10.10 | | I | Perp | 32 | 21 | 672 | 855.62 | 29.25 | - | 0.21 | 0.25 | 0.786 | 0.19 | Valid | |
| BH07 | 10.40 | | A | Perp | 80 | 27 | 2160 | 2750.20 | 52.44 | - | 0.22 | 0.08 | 1.022 | 0.08 | Valid | |
| BH07 | 12.69 | | A | Perp | 80 | 25 | 2000 | 2546.48 | 50.46 | - | 0.11 | 0.04 | 1.004 | 0.04 | Valid | |
| BH07 | 13.43 | | A | Perp | 80 | 28 | 2240 | 2852.06 | 53.40 | - | 0.22 | 0.08 | 1.030 | 0.08 | Valid | |
| BH07 | 13.70 | | A | Perp | 80 | 27 | 2160 | 2750.20 | 52.44 | - | 0.20 | 0.07 | 1.022 | 0.07 | Valid | |
| BH07 | 15.27 | | A | Perp | 80 | 36 | 2880 | 3666.93 | 60.56 | - | 0.21 | 0.06 | 1.090 | 0.06 | Valid | |
| BH07 | 15.60 | | A | Perp | 80 | 48 | 3840 | 4889.24 | 69.92 | - | 0.26 | 0.05 | 1.163 | 0.06 | Valid | |
| BH07 | 16.90 | | A | Perp | 80 | 47 | 3760 | 4787.38 | 69.19 | - | 0.20 | 0.04 | 1.157 | 0.05 | Valid | |
| BH07 | 17.21 | | A | Perp | 80 | 33 | 2640 | 3361.35 | 57.98 | - | 0.47 | 0.14 | 1.069 | 0.15 | Valid | |
| BH07 | 18.00 | | A | Perp | 80 | 27 | 2160 | 2750.20 | 52.44 | - | 0.18 | 0.07 | 1.022 | 0.07 | Valid | |
| BH07 | 18.90 | | A | Perp | 80 | 38 | 3040 | 3870.65 | 62.21 | - | 0.22 | 0.06 | 1.103 | 0.06 | Valid | |
| BH07 | 19.85 | | A | Perp | 80 | 43 | 3440 | 4379.94 | 66.18 | - | 0.37 | 0.08 | 1.134 | 0.10 | Valid | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

| | | | |
|---|---|------------------------------|---------------------|
|  4043 |  | Newport Quinn Phase 2 | Contract No: |
| | | | PSL22/6080 |
| | | | Client Ref: |
| | | | PN224395 |

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

| Borehole Number | Depth (m) | Sample Ref | Test Type | Orientation | Dimensions (mm) | | D_c^2 | D_c (mm) | Failure Load | | I_s (MPa) | Corr Fac F | I_{s50} (MPa) | Failure Type | Remarks |
|-----------------|-----------|------------|-----------|-------------|-----------------|----|---------|---------------|--------------|------|----------------|---------------|--------------------|--------------|---------|
| | | | | Par / Perp | L | D | | | (Mpa) | (kN) | | | | | |
| BH07 | 8.32 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.28 | 0.044 | 1.236 | 0.05 | Valid | |
| BH07 | 9.94 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.14 | 0.022 | 1.236 | 0.03 | Valid | |
| BH07 | 10.40 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.17 | 0.027 | 1.236 | 0.03 | Valid | |
| BH07 | 12.69 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.20 | 0.031 | 1.236 | 0.04 | Valid | |
| BH07 | 13.43 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.21 | 0.033 | 1.236 | 0.04 | Valid | |
| BH07 | 13.70 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.16 | 0.025 | 1.236 | 0.03 | Valid | |
| BH07 | 15.27 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.20 | 0.031 | 1.236 | 0.04 | Valid | |
| BH07 | 15.60 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.22 | 0.034 | 1.236 | 0.04 | Valid | |
| BH07 | 16.90 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.21 | 0.033 | 1.236 | 0.04 | Valid | |
| BH07 | 17.21 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.33 | 0.052 | 1.236 | 0.06 | Valid | |
| BH07 | 18.00 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.20 | 0.031 | 1.236 | 0.04 | Valid | |
| BH07 | 18.90 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.23 | 0.036 | 1.236 | 0.04 | Valid | |
| BH07 | 19.85 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.49 | 0.077 | 1.236 | 0.09 | Valid | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random



Newport Quinn Phase 2

Contract No:

PSL22/6080

Client Ref:

PN224395

SUMMARY OF POINT LOAD TEST RESULTS


ISRM Suggested Methods : 2007

| Borehole Number | Depth (m) | Sample Ref | Test Type | Orientation Par / Perp | Dimensions (mm) | | Area (mm ²) | D _c ² | D _c (mm) | Failure Load (P) | | I _s (MPa) | Corr Fac F | I _{s50} (MPa) | Failure Type | Remarks |
|-----------------|-----------|------------|-----------|---------------------------|-----------------|----|-------------------------|-----------------------------|---------------------|------------------|------|----------------------|------------|------------------------|--------------|---------|
| | | | | | W | D | | | | (Mpa) | (kN) | | | | | |
| BH10 | 6.74 | | A | Perp | 80 | 28 | 2240 | 2852.06 | 53.40 | - | 0.77 | 0.27 | 1.030 | 0.28 | Valid | |
| BH10 | 7.50 | | A | Perp | 80 | 25 | 2000 | 2546.48 | 50.46 | - | 1.01 | 0.40 | 1.004 | 0.40 | Valid | |
| BH10 | 8.45 | | A | Perp | 80 | 30 | 2400 | 3055.77 | 55.28 | - | 0.38 | 0.12 | 1.046 | 0.13 | Valid | |
| BH10 | 8.98 | | A | Perp | 80 | 31 | 2480 | 3157.63 | 56.19 | - | 1.01 | 0.32 | 1.054 | 0.34 | Valid | |
| BH10 | 9.47 | | A | Perp | 80 | 38 | 3040 | 3870.65 | 62.21 | - | 0.27 | 0.07 | 1.103 | 0.08 | Valid | |
| BH10 | 11.30 | | A | Perp | 80 | 30 | 2400 | 3055.77 | 55.28 | - | 2.71 | 0.89 | 1.046 | 0.93 | Valid | |
| BH10 | 11.90 | | A | Perp | 80 | 31 | 2480 | 3157.63 | 56.19 | - | 2.37 | 0.75 | 1.054 | 0.79 | Valid | |
| BH10 | 12.33 | | A | Perp | 80 | 27 | 2160 | 2750.20 | 52.44 | - | 1.30 | 0.47 | 1.022 | 0.48 | Valid | |
| BH10 | 12.82 | | A | Perp | 80 | 27 | 2160 | 2750.20 | 52.44 | - | 4.21 | 1.53 | 1.022 | 1.56 | Valid | |
| BH10 | 13.08 | | A | Perp | 80 | 28 | 2240 | 2852.06 | 53.40 | - | 2.01 | 0.70 | 1.030 | 0.73 | Valid | |
| BH10 | 14.16 | | A | Perp | 80 | 31 | 2480 | 3157.63 | 56.19 | - | 1.53 | 0.48 | 1.054 | 0.51 | Valid | |
| BH10 | 16.20 | | A | Perp | 80 | 27 | 2160 | 2750.20 | 52.44 | - | 1.94 | 0.71 | 1.022 | 0.72 | Valid | |
| BH10 | 17.43 | | A | Perp | 80 | 30 | 2400 | 3055.77 | 55.28 | - | 0.88 | 0.29 | 1.046 | 0.30 | Valid | |
| BH10 | 19.05 | | A | Perp | 80 | 37 | 2960 | 3768.79 | 61.39 | - | 1.94 | 0.51 | 1.097 | 0.56 | Valid | |
| BH10 | 20.24 | | A | Perp | 80 | 28 | 2240 | 2852.06 | 53.40 | - | 0.89 | 0.31 | 1.030 | 0.32 | Valid | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

| | | | |
|---|-----------------------|--|--------------|
|  PSL Professional Soils Laboratory 4043 | Newport Quinn Phase 2 | | Contract No: |
| | | | PSL22/6080 |
| | | | Client Ref: |
| | | | PN224395 |

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

| Borehole Number | Depth (m) | Sample Ref | Test Type | Orientation | Dimensions (mm) | | D_c^2 | D_c (mm) | Failure Load | | I_s (MPa) | Corr Fac F | I_{s50} (MPa) | Failure Type | Remarks |
|-----------------|-----------|------------|-----------|-------------|-----------------|----|---------|---------------|--------------|------|----------------|---------------|--------------------|--------------|---------|
| | | | | Par / Perp | L | D | | | (Mpa) | (kN) | | | | | |
| BH10 | 6.74 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.11 | 0.017 | 1.236 | 0.02 | Valid | |
| BH10 | 7.50 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.22 | 0.034 | 1.236 | 0.04 | Valid | |
| BH10 | 8.45 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.43 | 0.067 | 1.236 | 0.08 | Valid | |
| BH10 | 8.98 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.88 | 0.138 | 1.236 | 0.17 | Valid | |
| BH10 | 9.47 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.36 | 0.056 | 1.236 | 0.07 | Valid | |
| BH10 | 11.30 | | D | Par | - | 80 | 6400 | 80.00 | - | 1.98 | 0.309 | 1.236 | 0.38 | Valid | |
| BH10 | 11.90 | | D | Par | - | 80 | 6400 | 80.00 | - | 2.45 | 0.383 | 1.236 | 0.47 | Valid | |
| BH10 | 12.33 | | D | Par | - | 80 | 6400 | 80.00 | - | 1.17 | 0.183 | 1.236 | 0.23 | Valid | |
| BH10 | 12.82 | | D | Par | - | 80 | 6400 | 80.00 | - | 3.04 | 0.475 | 1.236 | 0.59 | Valid | |
| BH10 | 13.08 | | D | Par | - | 80 | 6400 | 80.00 | - | 3.85 | 0.602 | 1.236 | 0.74 | Valid | |
| BH10 | 14.16 | | D | Par | - | 80 | 6400 | 80.00 | - | 1.48 | 0.231 | 1.236 | 0.29 | Valid | |
| BH10 | 16.20 | | D | Par | - | 80 | 6400 | 80.00 | - | 2.64 | 0.413 | 1.236 | 0.51 | Valid | |
| BH10 | 17.43 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.71 | 0.111 | 1.236 | 0.14 | Valid | |
| BH10 | 19.05 | | D | Par | - | 80 | 6400 | 80.00 | - | 1.84 | 0.288 | 1.236 | 0.36 | Valid | |
| BH10 | 20.24 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.70 | 0.109 | 1.236 | 0.14 | Valid | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random



Newport Quinn Phase 2

Contract No:

PSL22/6080

Client Ref:

PN224395

SUMMARY OF POINT LOAD TEST RESULTS


ISRM Suggested Methods : 2007

| Borehole Number | Depth (m) | Sample Ref | Test Type | Orientation Par / Perp | Dimensions (mm) | | Area (mm ²) | D _c ² | D _e (mm) | Failure Load (P) | | I _s (MPa) | Corr Fac F | I _{s50} (MPa) | Failure Type | Remarks |
|-----------------|-----------|------------|-----------|---------------------------|-----------------|----|-------------------------|-----------------------------|---------------------|------------------|------|----------------------|------------|------------------------|--------------|---------|
| | | | | | W | D | | | | (Mpa) | (kN) | | | | | |
| BH14A | 7.15 | | A | Perp | 80 | 37 | 2960 | 3768.79 | 61.39 | - | 0.24 | 0.06 | 1.097 | 0.07 | Valid | |
| BH14A | 8.03 | | A | Perp | 80 | 37 | 2960 | 3768.79 | 61.39 | - | 0.20 | 0.05 | 1.097 | 0.06 | Valid | |
| BH14A | 8.50 | | A | Perp | 80 | 34 | 2720 | 3463.21 | 58.85 | - | 0.22 | 0.06 | 1.076 | 0.07 | Valid | |
| BH14A | 10.80 | | A | Perp | 80 | 28 | 2240 | 2852.06 | 53.40 | - | 0.18 | 0.06 | 1.030 | 0.07 | Valid | |
| BH14A | 11.80 | | A | Perp | 80 | 30 | 2400 | 3055.77 | 55.28 | - | 0.19 | 0.06 | 1.046 | 0.07 | Valid | |
| BH14A | 12.00 | | A | Perp | 80 | 44 | 3520 | 4481.80 | 66.95 | - | 0.20 | 0.04 | 1.140 | 0.05 | Valid | |
| BH14A | 12.80 | | A | Perp | 80 | 32 | 2560 | 3259.49 | 57.09 | - | 0.22 | 0.07 | 1.062 | 0.07 | Valid | |
| BH14A | 13.40 | | A | Perp | 80 | 36 | 2880 | 3666.93 | 60.56 | - | 0.18 | 0.05 | 1.090 | 0.05 | Valid | |
| BH14A | 13.90 | | A | Perp | 80 | 32 | 2560 | 3259.49 | 57.09 | - | 0.16 | 0.05 | 1.062 | 0.05 | Valid | |
| BH14A | 14.00 | | A | Perp | 80 | 40 | 3200 | 4074.37 | 63.83 | - | 0.27 | 0.07 | 1.116 | 0.07 | Valid | |
| BH14A | 14.90 | | I | Perp | 72 | 38 | 2736 | 3483.58 | 59.02 | - | 0.24 | 0.07 | 1.078 | 0.07 | Valid | |
| BH14A | 16.15 | | A | Perp | 80 | 32 | 2560 | 3259.49 | 57.09 | - | 0.20 | 0.06 | 1.062 | 0.07 | Valid | |
| BH14A | 16.77 | | A | Perp | 80 | 40 | 3200 | 4074.37 | 63.83 | - | 0.20 | 0.05 | 1.116 | 0.05 | Valid | |
| BH14A | 17.77 | | A | Perp | 80 | 38 | 3040 | 3870.65 | 62.21 | - | 0.19 | 0.05 | 1.103 | 0.05 | Valid | |
| BH14A | 18.80 | | A | Perp | 80 | 30 | 2400 | 3055.77 | 55.28 | - | 0.22 | 0.07 | 1.046 | 0.08 | Valid | |
| BH14A | 20.22 | | A | Perp | 80 | 30 | 2400 | 3055.77 | 55.28 | - | 0.22 | 0.07 | 1.046 | 0.08 | Valid | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

| | | |
|---|------------------------------|---------------------|
|  PSL Professional Soils Laboratory | Newport Quinn Phase 2 | Contract No: |
| | | PSL22/6080 |
| | | Client Ref: |
| | | PN224395 |

4043

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

| Borehole Number | Depth (m) | Sample Ref | Test Type | Orientation | Dimensions (mm) | | D_c^2 | D_c (mm) | Failure Load | | I_s (MPa) | Corr Fac F | I_{s50} (MPa) | Failure Type | Remarks |
|-----------------|-----------|------------|-----------|-------------|-----------------|----|---------|---------------|--------------|------|----------------|---------------|--------------------|--------------|---------|
| | | | | Par / Perp | L | D | | | (Mpa) | (kN) | | | | | |
| BH14A | 7.15 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.22 | 0.034 | 1.236 | 0.04 | Valid | |
| BH14A | 8.03 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.16 | 0.025 | 1.236 | 0.03 | Valid | |
| BH14A | 8.50 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.19 | 0.030 | 1.236 | 0.04 | Valid | |
| BH14A | 10.80 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.16 | 0.025 | 1.236 | 0.03 | Valid | |
| BH14A | 11.80 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.15 | 0.023 | 1.236 | 0.03 | Valid | |
| BH14A | 12.00 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.18 | 0.028 | 1.236 | 0.03 | Valid | |
| BH14A | 12.80 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.17 | 0.027 | 1.236 | 0.03 | Valid | |
| BH14A | 13.40 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.11 | 0.017 | 1.236 | 0.02 | Valid | |
| BH14A | 13.90 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.14 | 0.022 | 1.236 | 0.03 | Valid | |
| BH14A | 14.00 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.19 | 0.030 | 1.236 | 0.04 | Valid | |
| BH14A | 16.15 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.11 | 0.017 | 1.236 | 0.02 | Valid | |
| BH14A | 16.77 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.18 | 0.028 | 1.236 | 0.03 | Valid | |
| BH14A | 17.77 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.17 | 0.027 | 1.236 | 0.03 | Valid | |
| BH14A | 18.80 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.24 | 0.038 | 1.236 | 0.05 | Valid | |
| BH14A | 20.22 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.14 | 0.022 | 1.236 | 0.03 | Valid | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random



Newport Quinn Phase 2

Contract No:

PSL22/6080

Client Ref:

PN224395

SUMMARY OF POINT LOAD TEST RESULTS


ISRM Suggested Methods : 2007

| Borehole Number | Depth (m) | Sample Ref | Test Type | Orientation Par / Perp | Dimensions (mm) | | Area (mm ²) | D _c ² | D _e (mm) | Failure Load (P) | | I _s (MPa) | Corr Fac F | I _{s50} (MPa) | Failure Type | Remarks |
|-----------------|-----------|------------|-----------|---------------------------|-----------------|----|-------------------------|-----------------------------|---------------------|------------------|-------|----------------------|------------|------------------------|--------------|---------|
| | | | | | W | D | | | | (Mpa) | (kN) | | | | | |
| BH17A | 6.50 | | A | Perp | 80 | 44 | 3520 | 4481.80 | 66.95 | - | 0.38 | 0.08 | 1.140 | 0.10 | Valid | |
| BH17A | 7.05 | | A | Perp | 80 | 38 | 3040 | 3870.65 | 62.21 | - | 0.32 | 0.08 | 1.103 | 0.09 | Valid | |
| BH17A | 7.60 | | A | Perp | 80 | 38 | 3040 | 3870.65 | 62.21 | - | 0.36 | 0.09 | 1.103 | 0.10 | Valid | |
| BH17A | 9.30 | | A | Perp | 80 | 40 | 3200 | 4074.37 | 63.83 | - | 0.24 | 0.06 | 1.116 | 0.07 | Valid | |
| BH17A | 10.25 | | A | Perp | 80 | 34 | 2720 | 3463.21 | 58.85 | - | 0.14 | 0.04 | 1.076 | 0.04 | Valid | |
| BH17A | 11.40 | | A | Perp | 80 | 40 | 3200 | 4074.37 | 63.83 | - | 0.40 | 0.10 | 1.116 | 0.11 | Valid | |
| BH17A | 12.00 | | A | Perp | 80 | 44 | 3520 | 4481.80 | 66.95 | - | 0.31 | 0.07 | 1.140 | 0.08 | Valid | |
| BH17A | 12.50 | | A | Perp | 80 | 36 | 2880 | 3666.93 | 60.56 | - | 0.30 | 0.08 | 1.090 | 0.09 | Valid | |
| BH17A | 15.80 | | A | Perp | 80 | 38 | 3040 | 3870.65 | 62.21 | - | 0.48 | 0.12 | 1.103 | 0.14 | Valid | |
| BH17A | 16.15 | | A | Perp | 80 | 37 | 2960 | 3768.79 | 61.39 | - | 0.37 | 0.10 | 1.097 | 0.11 | Valid | |
| BH17A | 16.60 | | A | Perp | 80 | 45 | 3600 | 4583.66 | 67.70 | - | 0.88 | 0.19 | 1.146 | 0.22 | Valid | |
| BH17A | 16.95 | | A | Perp | 80 | 30 | 2400 | 3055.77 | 55.28 | - | 0.94 | 0.31 | 1.046 | 0.32 | Valid | |
| BH17A | 17.43 | | A | Perp | 80 | 47 | 3760 | 4787.38 | 69.19 | - | 1.08 | 0.23 | 1.157 | 0.26 | Valid | |
| BH17A | 17.80 | | A | Perp | 80 | 50 | 4000 | 5092.96 | 71.36 | - | 0.41 | 0.08 | 1.174 | 0.09 | Valid | |
| BH17A | 19.64 | | A | Perp | 80 | 38 | 3040 | 3870.65 | 62.21 | - | 18.99 | 4.91 | 1.103 | 5.41 | Valid | |
| BH17A | 19.85 | | A | Perp | 80 | 28 | 2240 | 2852.06 | 53.40 | - | 9.21 | 3.23 | 1.030 | 3.33 | Valid | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

| | | | |
|--|-----------------------|--|--------------|
|  PSL Professional Soils Laboratory | Newport Quinn Phase 2 | | Contract No: |
| | | | PSL22/6080 |
| | | | Client Ref: |
| | | | PN224395 |

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

| Borehole Number | Depth (m) | Sample Ref | Test Type | Orientation | Dimensions (mm) | | D _c ² | D _e (mm) | Failure Load | | I _s (MPa) | Corr Fac F | I _{s50} (MPa) | Failure Type | Remarks |
|-----------------|-----------|------------|-----------|-------------|-----------------|----|-----------------------------|------------------------|--------------|-------|-------------------------|---------------|---------------------------|--------------|---------|
| | | | | Par / Perp | L | D | | | (Mpa) | (kN) | | | | | |
| BH17A | 6.50 | | D | Par | - | 80 | 6400 | 80.00 | - | 1.04 | 0.163 | 1.236 | 0.20 | Valid | |
| BH17A | 7.05 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.40 | 0.063 | 1.236 | 0.08 | Valid | |
| BH17A | 7.60 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.47 | 0.073 | 1.236 | 0.09 | Valid | |
| BH17A | 9.30 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.38 | 0.059 | 1.236 | 0.07 | Valid | |
| BH17A | 10.25 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.17 | 0.027 | 1.236 | 0.03 | Valid | |
| BH17A | 11.40 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.36 | 0.056 | 1.236 | 0.07 | Valid | |
| BH17A | 12.00 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.43 | 0.067 | 1.236 | 0.08 | Valid | |
| BH17A | 12.50 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.32 | 0.050 | 1.236 | 0.06 | Valid | |
| BH17A | 15.80 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.41 | 0.064 | 1.236 | 0.08 | Valid | |
| BH17A | 16.15 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.50 | 0.078 | 1.236 | 0.10 | Valid | |
| BH17A | 16.60 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.47 | 0.073 | 1.236 | 0.09 | Valid | |
| BH17A | 16.95 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.26 | 0.041 | 1.236 | 0.05 | Valid | |
| BH17A | 17.43 | | D | Par | - | 80 | 6400 | 80.00 | - | 1.54 | 0.241 | 1.236 | 0.30 | Valid | |
| BH17A | 17.80 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.21 | 0.033 | 1.236 | 0.04 | Valid | |
| BH17A | 19.64 | | D | Par | - | 80 | 6400 | 80.00 | - | 22.14 | 3.459 | 1.236 | 4.27 | Valid | |
| BH17A | 19.85 | | D | Par | - | 80 | 6400 | 80.00 | - | 10.82 | 1.691 | 1.236 | 2.09 | Valid | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random



Newport Quinn Phase 2

Contract No:

PSL22/6080

Client Ref:

PN224395

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular



Newport Quinn Phase 2

Contract No:

PSL22/6080

Client Ref:**PN224395**

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

| Borehole Number | Depth (m) | Sample Ref | Test Type | Orientation | Dimensions (mm) | | D _c ² | D _e (mm) | Failure Load | | I _s (MPa) | Corr Fac F | I _{s50} (MPa) | Failure Type | Remarks |
|-----------------|-----------|------------|-----------|-------------|-----------------|----|-----------------------------|------------------------|--------------|------|-------------------------|---------------|---------------------------|--------------|---------|
| | | | | Par / Perp | L | D | | | (Mpa) | (kN) | | | | | |
| BH23 | 11.80 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.24 | 0.038 | 1.236 | 0.05 | Valid | |
| BH23 | 12.95 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.30 | 0.047 | 1.236 | 0.06 | Valid | |
| BH23 | 14.70 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.11 | 0.017 | 1.236 | 0.02 | Valid | |
| BH23 | 15.15 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.22 | 0.034 | 1.236 | 0.04 | Valid | |
| BH23 | 15.68 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.22 | 0.034 | 1.236 | 0.04 | Valid | |
| BH23 | 16.37 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.29 | 0.045 | 1.236 | 0.06 | Valid | |
| BH23 | 16.90 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.27 | 0.042 | 1.236 | 0.05 | Valid | |
| BH23 | 17.10 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.14 | 0.022 | 1.236 | 0.03 | Valid | |
| BH23 | 17.90 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.26 | 0.041 | 1.236 | 0.05 | Valid | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random



Newport Quinn Phase 2

Contract No:

PSL22/6080

Client Ref:

PN224395

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular



Newport Quinn Phase 2

Contract No:

PSL22/6080

Client Ref:

PN224395

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

| Borehole Number | Depth (m) | Sample Ref | Test Type | Orientation | Dimensions (mm) | | D _c ² | D _e (mm) | Failure Load | | I _s (MPa) | Corr Fac F | I _{s50} (MPa) | Failure Type | Remarks |
|-----------------|-----------|------------|-----------|-------------|-----------------|----|-----------------------------|------------------------|--------------|------|-------------------------|---------------|---------------------------|--------------|---------|
| | | | | Par / Perp | L | D | | | (Mpa) | (kN) | | | | | |
| BH27 | 6.80 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.20 | 0.031 | 1.236 | 0.04 | Valid | |
| BH27 | 7.03 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.30 | 0.047 | 1.236 | 0.06 | Valid | |
| BH27 | 9.65 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.20 | 0.031 | 1.236 | 0.04 | Valid | |
| BH27 | 12.10 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.53 | 0.083 | 1.236 | 0.10 | Valid | |
| BH27 | 13.75 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.30 | 0.047 | 1.236 | 0.06 | Valid | |
| BH27 | 15.47 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.44 | 0.069 | 1.236 | 0.08 | Valid | |
| BH27 | 16.25 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.14 | 0.022 | 1.236 | 0.03 | Valid | |
| BH27 | 19.95 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.24 | 0.038 | 1.236 | 0.05 | Valid | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random



Newport Quinn Phase 2

Contract No:

PSL22/6080

Client Ref:

PN224395

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular



Newport Quinn Phase 2

Contract No:

PSL22/6080

Client Ref:

PN224395

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

| Borehole Number | Depth (m) | Sample Ref | Test Type | Orientation | Dimensions (mm) | | D_c^2 | D_c (mm) | Failure Load | | I_s (MPa) | Corr Fac F | I_{s50} (MPa) | Failure Type | Remarks |
|-----------------|-----------|------------|-----------|-------------|-----------------|----|---------|---------------|--------------|------|----------------|---------------|--------------------|--------------|---------|
| | | | | Par / Perp | L | D | | | (Mpa) | (kN) | | | | | |
| BH28 | 5.60 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.21 | 0.033 | 1.236 | 0.04 | Valid | |
| BH28 | 5.70 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.21 | 0.033 | 1.236 | 0.04 | Valid | |
| BH28 | 9.65 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.14 | 0.022 | 1.236 | 0.03 | Valid | |
| BH28 | 10.30 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.12 | 0.019 | 1.236 | 0.02 | Valid | |
| BH28 | 11.15 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.13 | 0.020 | 1.236 | 0.03 | Valid | |
| BH28 | 12.05 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.11 | 0.017 | 1.236 | 0.02 | Valid | |
| BH28 | 14.88 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.22 | 0.034 | 1.236 | 0.04 | Valid | |
| BH28 | 17.00 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.16 | 0.025 | 1.236 | 0.03 | Valid | |
| BH28 | 19.90 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.20 | 0.031 | 1.236 | 0.04 | Valid | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random



Newport Quinn Phase 2

Contract No:

PSL22/6080

Client Ref:

PN224395

SUMMARY OF POINT LOAD TEST RESULTS


ISRM Suggested Methods : 2007

| Borehole Number | Depth (m) | Sample Ref | Test Type | Orientation Par / Perp | Dimensions (mm) | | Area (mm ²) | D _c ² | D _e (mm) | Failure Load (P) | | I _s (MPa) | Corr Fac F | I _{s50} (MPa) | Failure Type | Remarks |
|-----------------|-----------|------------|-----------|---------------------------|-----------------|----|-------------------------|-----------------------------|---------------------|------------------|------|----------------------|------------|------------------------|--------------|---------|
| | | | | | W | D | | | | (Mpa) | (kN) | | | | | |
| BH30 | 5.75 | | A | Perp | 80 | 43 | 3440 | 4379.94 | 66.18 | - | 0.23 | 0.05 | 1.134 | 0.06 | Valid | |
| BH30 | 7.30 | | A | Perp | 80 | 50 | 4000 | 5092.96 | 71.36 | - | 0.22 | 0.04 | 1.174 | 0.05 | Valid | |
| BH30 | 7.70 | | A | Perp | 80 | 49 | 3920 | 4991.10 | 70.65 | - | 0.17 | 0.03 | 1.168 | 0.04 | Valid | |
| BH30 | 8.85 | | A | Perp | 80 | 47 | 3760 | 4787.38 | 69.19 | - | 0.17 | 0.04 | 1.157 | 0.04 | Valid | |
| BH30 | 9.24 | | A | Perp | 80 | 37 | 2960 | 3768.79 | 61.39 | - | 4.99 | 1.32 | 1.097 | 1.45 | Valid | |
| BH30 | 9.40 | | A | Perp | 80 | 42 | 3360 | 4278.08 | 65.41 | - | 7.01 | 1.64 | 1.128 | 1.85 | Valid | |
| BH30 | 11.88 | | A | Perp | 80 | 40 | 3200 | 4074.37 | 63.83 | - | 0.17 | 0.04 | 1.116 | 0.05 | Valid | |
| BH30 | 15.10 | | A | Perp | 80 | 32 | 2560 | 3259.49 | 57.09 | - | 0.15 | 0.05 | 1.062 | 0.05 | Valid | |
| BH30 | 15.87 | | A | Perp | 80 | 24 | 1920 | 2444.62 | 49.44 | - | 0.61 | 0.25 | 0.995 | 0.25 | Valid | |
| BH30 | 16.75 | | A | Perp | 80 | 30 | 2400 | 3055.77 | 55.28 | - | 0.28 | 0.09 | 1.046 | 0.10 | Valid | |
| BH30 | 17.80 | | A | Perp | 80 | 40 | 3200 | 4074.37 | 63.83 | - | 1.30 | 0.32 | 1.116 | 0.36 | Valid | |
| BH30 | 18.00 | | A | Perp | 80 | 32 | 2560 | 3259.49 | 57.09 | - | 1.02 | 0.31 | 1.062 | 0.33 | Valid | |
| BH30 | 19.15 | | A | Perp | 80 | 27 | 2160 | 2750.20 | 52.44 | - | 0.18 | 0.07 | 1.022 | 0.07 | Valid | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

| | | | |
|--|-----------------------|--|--------------|
|  PSL Professional Soils Laboratory 4043 | Newport Quinn Phase 2 | | Contract No: |
| | | | PSL22/6080 |
| | | | Client Ref: |
| | | | PN224395 |

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

| Borehole Number | Depth (m) | Sample Ref | Test Type | Orientation | Dimensions (mm) | | D_c^2 | D_c (mm) | Failure Load | | I_s (MPa) | Corr Fac F | I_{s50} (MPa) | Failure Type | Remarks |
|-----------------|-----------|------------|-----------|-------------|-----------------|----|---------|---------------|--------------|------|----------------|---------------|--------------------|--------------|---------|
| | | | | Par / Perp | L | D | | | (Mpa) | (kN) | | | | | |
| BH30 | 5.75 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.21 | 0.033 | 1.236 | 0.04 | Valid | |
| BH30 | 7.30 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.31 | 0.048 | 1.236 | 0.06 | Valid | |
| BH30 | 7.70 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.20 | 0.031 | 1.236 | 0.04 | Valid | |
| BH30 | 8.85 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.22 | 0.034 | 1.236 | 0.04 | Valid | |
| BH30 | 9.24 | | D | Par | - | 80 | 6400 | 80.00 | - | 5.15 | 0.805 | 1.236 | 0.99 | Valid | |
| BH30 | 9.40 | | D | Par | - | 80 | 6400 | 80.00 | - | 6.94 | 1.084 | 1.236 | 1.34 | Valid | |
| BH30 | 11.88 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.14 | 0.022 | 1.236 | 0.03 | Valid | |
| BH30 | 15.10 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.17 | 0.027 | 1.236 | 0.03 | Valid | |
| BH30 | 15.87 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.69 | 0.108 | 1.236 | 0.13 | Valid | |
| BH30 | 16.75 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.24 | 0.038 | 1.236 | 0.05 | Valid | |
| BH30 | 17.80 | | D | Par | - | 80 | 6400 | 80.00 | - | 1.19 | 0.186 | 1.236 | 0.23 | Valid | |
| BH30 | 18.00 | | D | Par | - | 80 | 6400 | 80.00 | - | 1.69 | 0.264 | 1.236 | 0.33 | Valid | |
| BH30 | 19.15 | | D | Par | - | 80 | 6400 | 80.00 | - | 0.14 | 0.022 | 1.236 | 0.03 | Valid | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random



Newport Quinn Phase 2

Contract No:

PSL22/6080

Client Ref:

PN224395

DETERMINATION OF UNCONFINED COMPRESSIVE STRENGTH

ISRM Suggested Methods, pp 111 –116, 1981.

| Hole Number | Sample Number | Sample Type | Top Depth (m) | Base Depth (m) | Sample Diameter (mm) | Sample Length (mm) | Height Ratio | Initial Mass (g) | Bulk Density (Mg/m) | Moisture Content (%) | Dry Density (Mg/m) | Load Failure (kN) | UCS (MPa) | Failure Mode | Date Tested | Remarks |
|-------------|---------------|-------------|---------------|----------------|----------------------|--------------------|--------------|------------------|---------------------|----------------------|--------------------|-------------------|-----------|--------------|-------------|---------|
| BH01 | | C | 8.42 | 8.61 | 80 | 160 | 2.0 | 1984 | 2.47 | 9.2 | 2.26 | 20.2 | 4.0 | Brittle | 29/09/22 | |
| BH01 | | C | 11.61 | 11.80 | 80 | 160 | 2.0 | 1904 | 2.37 | 11 | 2.14 | 33.2 | 6.6 | Brittle | 29/09/22 | |
| BH01 | | C | 14.32 | 14.50 | 80 | 160 | 2.0 | 2145 | 2.67 | 5.4 | 2.53 | 65.2 | 13.0 | Brittle | 29/09/22 | |
| BH01 | | C | 15.55 | 15.70 | 80 | 160 | 2.0 | 2108 | 2.62 | 8.9 | 2.41 | 48.2 | 9.6 | Brittle | 29/09/22 | |
| BH04A | | C | 7.93 | 8.10 | 80 | 160 | 2.0 | 1898 | 2.36 | 15 | 2.06 | 22.1 | 4.4 | Brittle | 29/09/22 | |
| BH04A | | C | 12.70 | 12.90 | 80 | 160 | 2.0 | 1890 | 2.35 | 20 | 1.96 | 18.7 | 3.7 | Brittle | 29/09/22 | |
| BH07 | | C | 10.23 | 10.40 | 80 | 160 | 2.0 | 1924 | 2.39 | 13 | 2.12 | 22.4 | 4.5 | Brittle | 29/09/22 | |
| BH07 | | C | 14.72 | 15.00 | 80 | 160 | 2.0 | 2011 | 2.50 | 8.5 | 2.30 | 28.2 | 5.6 | Brittle | 29/09/22 | |
| BH07 | | C | 17.70 | 17.93 | 80 | 160 | 2.0 | 1994 | 2.48 | 13 | 2.19 | 22.6 | 4.5 | Brittle | 29/09/22 | |
| BH10 | | C | 9.90 | 10.10 | 80 | 160 | 2.0 | 1808 | 2.25 | 5.9 | 2.12 | 25.6 | 5.1 | Brittle | 29/09/22 | |
| BH10 | | C | 10.45 | 10.58 | 80 | 140 | 1.8 | 1608 | 2.28 | 12 | 2.04 | 10.2 | 2.0 | Brittle | 29/09/22 | |
| BH10 | | C | 11.53 | 11.70 | 80 | 150 | 1.9 | 2100 | 2.78 | 5.5 | 2.64 | 31.2 | 6.2 | Brittle | 29/09/22 | |
| BH10 | | C | 13.70 | 13.96 | 80 | 160 | 2.0 | 1998 | 2.48 | 7.8 | 2.30 | 38.8 | 7.7 | Brittle | 29/09/22 | |
| BH10 | | C | 14.70 | 15.05 | 80 | 160 | 2.0 | 2184 | 2.72 | 4.7 | 2.59 | 29.2 | 5.8 | Brittle | 29/09/22 | |
| BH10 | | C | 17.90 | 18.12 | 80 | 160 | 2.0 | 1881 | 2.34 | 7.1 | 2.18 | 26.7 | 5.3 | Brittle | 29/09/22 | |
| BH14A | | C | 6.90 | 7.15 | 80 | 160 | 2.0 | 2002 | 2.49 | 14 | 2.18 | 98.7 | 19.6 | Brittle | 29/09/22 | |
| BH14A | | C | 11.15 | 11.35 | 80 | 160 | 2.0 | 1987 | 2.47 | 23 | 2.02 | 19.2 | 3.8 | Brittle | 29/09/22 | |
| BH14A | | C | 13.15 | 13.40 | 80 | 160 | 2.0 | 1899 | 2.36 | 14 | 2.07 | 24.1 | 4.8 | Brittle | 29/09/22 | |
| BH14A | | C | 17.45 | 17.65 | 80 | 160 | 2.0 | 2014 | 2.50 | 9.7 | 2.28 | 26.8 | 5.3 | Brittle | 29/09/22 | |
| | | | | | | | | | | | | | | | | |



Newport Quinn Phase 2

Contract No:

PSL22/6080

Client Ref:

PN224395

DETERMINATION OF UNCONFINED COMPRESSIVE STRENGTH

ISRM Suggested Methods, pp 111 –116, 1981.

| Hole Number | Sample Number | Sample Type | Top Depth (m) | Base Depth (m) | Sample Diameter (mm) | Sample Length (mm) | Height Ratio | Initial Mass (g) | Bulk Density (Mg/m) | Moisture Content (%) | Dry Density (Mg/m) | Load Failure (kN) | UCS (MPa) | Failure Mode | Date Tested | Remarks |
|-------------|---------------|-------------|---------------|----------------|----------------------|--------------------|--------------|------------------|---------------------|----------------------|--------------------|-------------------|-----------|--------------|-------------|---------|
| BH17A | | C | 7.10 | 7.47 | 80 | 160 | 2.0 | 2008 | 2.50 | 8.7 | 2.30 | 27.1 | 5.4 | Brittle | 29/09/22 | |
| BH17A | | C | 8.62 | 8.92 | 80 | 160 | 2.0 | 2014 | 2.50 | 15 | 2.17 | 10.2 | 2.0 | Brittle | 29/09/22 | |
| BH17A | | C | 11.60 | 11.95 | 80 | 160 | 2.0 | 1994 | 2.48 | 10 | 2.25 | 14.2 | 2.8 | Brittle | 29/09/22 | |
| BH17A | | C | 13.17 | 13.50 | 80 | 160 | 2.0 | 2101 | 2.61 | 5.1 | 2.49 | 38.2 | 7.6 | Brittle | 29/09/22 | |
| BH17A | | C | 14.07 | 14.50 | 80 | 160 | 2.0 | 1802 | 2.24 | 5.3 | 2.13 | 8.2 | 1.6 | Brittle | 29/09/22 | |
| BH17A | | C | 18.50 | 18.95 | 80 | 160 | 2.0 | 1788 | 2.22 | 6.5 | 2.09 | 4.2 | 0.8 | Brittle | 29/09/22 | |
| BH23 | | C | 16.10 | 16.37 | 80 | 160 | 2.0 | 2002 | 2.49 | 14 | 2.18 | 20.4 | 4.1 | Brittle | 29/09/22 | |
| BH23 | | C | 16.65 | 16.90 | 80 | 160 | 2.0 | 1986 | 2.47 | 14 | 2.17 | 23.7 | 4.7 | Brittle | 29/09/22 | |
| BH23 | | C | 17.60 | 17.90 | 80 | 160 | 2.0 | 1899 | 2.36 | 14 | 2.06 | 18.9 | 3.8 | Brittle | 29/09/22 | |
| BH27 | | C | 11.60 | 11.85 | 80 | 160 | 2.0 | 2000 | 2.49 | 9.3 | 2.27 | 20.2 | 4.0 | Brittle | 29/09/22 | |
| BH27 | | C | 16.70 | 17.00 | 80 | 160 | 2.0 | 2006 | 2.49 | 13 | 2.21 | 27.2 | 5.4 | Brittle | 29/09/22 | |
| BH27 | | C | 18.60 | 18.90 | 80 | 160 | 2.0 | 2011 | 2.50 | 14 | 2.20 | 24.8 | 4.9 | Brittle | 29/09/22 | |
| BH28 | | C | 8.30 | 8.55 | 80 | 160 | 2.0 | 1886 | 2.34 | 17 | 2.01 | 21.2 | 4.2 | Brittle | 29/09/22 | |
| BH28 | | C | 11.50 | 11.80 | 80 | 160 | 2.0 | 1883 | 2.34 | 15 | 2.04 | 18.8 | 3.7 | Brittle | 29/09/22 | |
| BH28 | | C | 17.55 | 17.95 | 80 | 160 | 2.0 | 1891 | 2.35 | 12 | 2.11 | 19.1 | 3.8 | Brittle | 29/09/22 | |
| BH30 | | C | 5.32 | 5.75 | 80 | 160 | 2.0 | 2104 | 2.62 | 6.5 | 2.46 | 30.2 | 6.0 | Brittle | 29/09/22 | |
| BH30 | | C | 11.40 | 11.60 | 80 | 160 | 2.0 | 2148 | 2.67 | 5.0 | 2.54 | 65.7 | 13.1 | Brittle | 29/09/22 | |
| BH30 | | C | 14.05 | 14.30 | 80 | 160 | 2.0 | 2104 | 2.62 | 3.8 | 2.52 | 28.2 | 5.6 | Brittle | 29/09/22 | |
| BH30 | | C | 15.65 | 15.85 | 80 | 160 | 2.0 | 2081 | 2.59 | 3.1 | 2.51 | 27.1 | 5.4 | Brittle | 29/09/22 | |
| | | | | | | | | | | | | | | | | |



Newport Quinn Phase 2

Contract No:

PSL22/6080



Client Ref:

PN224395

LABORATORY RESULTS - Test Remarks

Project NEWPORT QUINN PHASE 2

Project No: PN224395

| Sample | | | | Laboratory Remark |
|--|-----------------------------------|------|---------------|--|
| Hole | Depth (Specimen Depth) m | Type | Sample Ref | |
| BH01 | 0.50 (0.50) | D | N84035 | CBR Test - Combined with B 0.20-0.60m |
| BH01 | 1.20- 1.70 (1.20- 1.70) | B | N84036 | CBR Test - Combined with B 2.00-2.50m |
| BH01 | 4.80 (4.80) | D | N84040 | Atterberg Limit Test - Unsuitable for testing due to insufficient fine material. |
| BH02 | 6.80 (6.80) | D | N84046 | Atterberg Limit Test - Unsuitable for testing due to insufficient fine material. |
| BH11 | 1.20- 1.40 (1.20- 1.40) | D | N84074 | Water Content Test - WC & PI combined with D 1.80m |
| BH13 | 4.80 (4.80) | D | N84082 | Atterberg Limit Test - Unsuitable for testing due to insufficient fine material. |
| BH14A | 3.00- 3.45 (3.00- 3.45) | D | N84084 | Compaction 2.5kg - Combined with B 4.00-4.50m |
| BH15 | 3.50 (3.50) | D | N84087 | Atterberg Limit Test - 1-point cone Insufficient sample for 4 point test. |
| BH17A | 2.30 (2.30) | D | N84094 | Atterberg Limit Test - 1-point cone Insufficient sample for 4 point test. |
| BH26 | 4.00- 4.45 (4.00- 4.45) | D | N84126 | Water Content Test - WC & PI combined with 5.80m B |
| | | | | |
| Remarks  | | | | |
|  geotechnical and geoenvironmental specialists | | | | |

APPENDIX 9

Laboratory Test Results - Contamination (Soil)



Certificate of Analysis

Certificate Number 22-15257

Issued: 16-Aug-22

Client Geotechnics LTD
The Geotechnical Centre
Unit 1B Borders Ind. Park
River Lane
Saltney
Chester
CH4 8RJ

Our Reference 22-15257

Client Reference PN224395

Order No ON34492

Contract Title Newport Quinn Phase 2

Description 6 Soil samples.

Date Received 08-Aug-22

Date Started 08-Aug-22

Date Completed 16-Aug-22

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

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

Approved By

A handwritten signature in black ink, appearing to read "K. Bridgewood".

Kirk Bridgewood
General Manager



2139

Summary of Chemical Analysis

Soil Samples

Our Ref 22-15257

Client Ref PN224395

Contract Title Newport Quinn Phase 2

| Lab No | 2042859 | 2042860 | 2042861 | 2042862 | 2042863 | 2042864 |
|---------------|------------|------------|------------|------------|------------|------------|
| Sample ID | BH13 | BH14 | BH22 | BH25 | BH27 | BH29 |
| Depth | 0.50 | 0.50 | 1.00 | 1.00 | 1.00 | 1.00 |
| Other ID | | | | | | |
| Sample Type | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sampling Date | 02/08/2022 | 02/08/2022 | 27/07/2022 | 29/07/2022 | 27/07/2022 | 27/07/2022 |
| Sampling Time | n/s | n/s | n/s | n/s | n/s | n/s |

| Test | Method | LOD | Units | | | | | | |
|-------------------------------|-------------|------|-------|---------|---------|---------|--------|---------|---------|
| Metals | | | | | | | | | |
| Arsenic | DETSC 2301# | 0.2 | mg/kg | 5.4 | 5.1 | 6.4 | 4.1 | 5.4 | 3.4 |
| Barium | DETSC 2301# | 1.5 | mg/kg | 130 | 480 | 64 | 180 | 60 | 75 |
| Beryllium | DETSC 2301# | 0.2 | mg/kg | 0.4 | 0.3 | 0.6 | 0.5 | 0.4 | 0.8 |
| Boron, Water Soluble | DETSC 2311# | 0.2 | mg/kg | 0.7 | 3.4 | < 0.2 | 1.8 | 0.3 | 1.0 |
| Cadmium | DETSC 2301# | 0.1 | mg/kg | 0.9 | 1.0 | < 0.1 | 0.6 | < 0.1 | < 0.1 |
| Chromium | DETSC 2301# | 0.15 | mg/kg | 19 | 1000 | 13 | 20 | 30 | 7.0 |
| Copper | DETSC 2301# | 0.2 | mg/kg | 12 | 77 | 9.7 | 9.8 | 9.4 | 7.7 |
| Lead | DETSC 2301# | 0.3 | mg/kg | 27 | 27 | 7.2 | 16 | 6.1 | 3.5 |
| Mercury | DETSC 2325# | 0.05 | mg/kg | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| Nickel | DETSC 2301# | 1 | mg/kg | 17 | 14 | 23 | 12 | 22 | 11 |
| Selenium | DETSC 2301# | 0.5 | mg/kg | < 0.5 | 4.6 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Vanadium | DETSC 2301# | 0.8 | mg/kg | 15 | 170 | 16 | 16 | 17 | 7.9 |
| Zinc | DETSC 2301# | 1 | mg/kg | 73 | 110 | 47 | 53 | 38 | 32 |
| Petroleum Hydrocarbons | | | | | | | | | |
| Aliphatic C5-C6 | DETSC 3321* | 0.01 | mg/kg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Aliphatic C6-C8 | DETSC 3321* | 0.01 | mg/kg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Aliphatic C8-C10 | DETSC 3321* | 0.01 | mg/kg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Aliphatic >EC10-EC12 | DETSC 3521# | 1.5 | mg/kg | < 1.50 | < 1.50 | 1.86 | < 1.50 | < 1.50 | 1.57 |
| Aliphatic >EC12-EC16 | DETSC 3521# | 1.2 | mg/kg | 1.42 | < 1.20 | 3.26 | 2.48 | < 1.20 | 1.99 |
| Aliphatic >EC16-EC21 | DETSC 3521# | 1.5 | mg/kg | 1.70 | < 1.50 | 3.05 | 2.52 | < 1.50 | 2.38 |
| Aliphatic >EC21-EC35 | DETSC 3521# | 3.4 | mg/kg | < 3.40 | < 3.40 | < 3.40 | < 3.40 | < 3.40 | < 3.40 |
| Aliphatic C5-C35 | DETSC 3521* | 10 | mg/kg | < 10.00 | < 10.00 | 11.76 | 10.46 | < 10.00 | < 10.00 |
| Aromatic C5-C7 | DETSC 3321* | 0.01 | mg/kg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Aromatic C7-C8 | DETSC 3321* | 0.01 | mg/kg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Aromatic C8-C10 | DETSC 3321* | 0.01 | mg/kg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Aromatic >EC10-EC12 | DETSC 3521# | 0.9 | mg/kg | < 0.90 | < 0.90 | < 0.90 | < 0.90 | < 0.90 | < 0.90 |
| Aromatic >EC12-EC16 | DETSC 3521# | 0.5 | mg/kg | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 | < 0.50 |
| Aromatic >EC16-EC21 | DETSC 3521# | 0.6 | mg/kg | 1.02 | < 0.60 | < 0.60 | < 0.60 | < 0.60 | < 0.60 |
| Aromatic >EC21-EC35 | DETSC 3521# | 1.4 | mg/kg | < 1.40 | < 1.40 | < 1.40 | 28.49 | < 1.40 | < 1.40 |
| Aromatic C5-C35 | DETSC 3521* | 10 | mg/kg | < 10.00 | < 10.00 | < 10.00 | 30.74 | < 10.00 | < 10.00 |
| TPH Ali/Aro Total C5-C35 | DETSC 3521* | 10 | mg/kg | 12.26 | 11.45 | 15.36 | 41.19 | 11.51 | 13.11 |

Summary of Chemical Analysis

Soil Samples

Our Ref 22-15257

Client Ref PN224395

Contract Title Newport Quinn Phase 2

| Lab No | 2042859 | 2042860 | 2042861 | 2042862 | 2042863 | 2042864 |
|---------------|------------|------------|------------|------------|------------|------------|
| Sample ID | BH13 | BH14 | BH22 | BH25 | BH27 | BH29 |
| Depth | 0.50 | 0.50 | 1.00 | 1.00 | 1.00 | 1.00 |
| Other ID | | | | | | |
| Sample Type | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sampling Date | 02/08/2022 | 02/08/2022 | 27/07/2022 | 29/07/2022 | 27/07/2022 | 27/07/2022 |
| Sampling Time | n/s | n/s | n/s | n/s | n/s | n/s |

| Test | Method | LOD | Units | | | | | | |
|----------------------------|-------------|------|-------|--------|--------|--------|--------|--------|--------|
| VOCs | | | | | | | | | |
| Vinyl Chloride | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| 1,1 Dichloroethylene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Trans-1,2-dichloroethylene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| 1,1-dichloroethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Cis-1,2-dichloroethylene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| 2,2-dichloropropane | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Bromochloromethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Chloroform | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| 1,1,1-trichloroethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| 1,1-dichloropropene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Carbon tetrachloride | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Benzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| 1,2-dichloroethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Trichloroethylene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| 1,2-dichloropropane | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Dibromomethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Bromodichloromethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| cis-1,3-dichloropropene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Toluene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| trans-1,3-dichloropropene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| 1,1,2-trichloroethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Tetrachloroethylene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| 1,3-dichloropropane | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Dibromochloromethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| 1,2-dibromoethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Chlorobenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| 1,1,1,2-tetrachloroethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Ethylbenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| m+p-Xylene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| o-Xylene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Styrene | DETSC 3431* | 0.01 | mg/kg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Bromoform | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Isopropylbenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Bromobenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| 1,2,3-trichloropropane | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| n-propylbenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| 2-chlorotoluene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| 1,3,5-trimethylbenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| 4-chlorotoluene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Tert-butylbenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| 1,2,4-trimethylbenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |

Summary of Chemical Analysis

Soil Samples

Our Ref 22-15257

Client Ref PN224395

Contract Title Newport Quinn Phase 2

| Lab No | 2042859 | 2042860 | 2042861 | 2042862 | 2042863 | 2042864 |
|---------------|------------|------------|------------|------------|------------|------------|
| Sample ID | BH13 | BH14 | BH22 | BH25 | BH27 | BH29 |
| Depth | 0.50 | 0.50 | 1.00 | 1.00 | 1.00 | 1.00 |
| Other ID | | | | | | |
| Sample Type | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sampling Date | 02/08/2022 | 02/08/2022 | 27/07/2022 | 29/07/2022 | 27/07/2022 | 27/07/2022 |
| Sampling Time | n/s | n/s | n/s | n/s | n/s | n/s |

| Test | Method | LOD | Units | | | | | | |
|-----------------------------|-------------|------|-------|--------|--------|--------|--------|--------|--------|
| sec-butylbenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| p-isopropyltoluene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| 1,3-dichlorobenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| 1,4-dichlorobenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| n-butylbenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| 1,2-dichlorobenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| 1,2-dibromo-3-chloropropane | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| 1,2,4-trichlorobenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Hexachlorobutadiene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Naphthalene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| 1,2,3-trichlorobenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| MTBE | DETSC 3431* | 0.01 | mg/kg | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| SVOCs | | | | | | | | | |
| Phenol | DETSC 3433 | 0.1 | mg/kg | < 0.1 | < 0.1 | | < 0.1 | | |
| Aniline | DETSC 3433* | 0.1 | mg/kg | < 0.1 | < 0.1 | | < 0.1 | | |
| 2-Chlorophenol | DETSC 3433 | 0.1 | mg/kg | < 0.1 | < 0.1 | | < 0.1 | | |
| Benzyl Alcohol | DETSC 3433 | 0.1 | mg/kg | < 0.1 | < 0.1 | | < 0.1 | | |
| 2-Methylphenol | DETSC 3433 | 0.1 | mg/kg | < 0.1 | < 0.1 | | < 0.1 | | |
| Bis(2-chloroisopropyl)ether | DETSC 3433 | 0.1 | mg/kg | < 0.1 | < 0.1 | | < 0.1 | | |
| 3&4-Methylphenol | DETSC 3433 | 0.1 | mg/kg | < 0.1 | < 0.1 | | < 0.1 | | |
| 2,4-Dimethylphenol | DETSC 3433 | 0.1 | mg/kg | < 0.1 | < 0.1 | | < 0.1 | | |
| Bis-(dichloroethoxy)methane | DETSC 3433 | 0.1 | mg/kg | < 0.1 | < 0.1 | | < 0.1 | | |
| 2,4-Dichlorophenol | DETSC 3433 | 0.1 | mg/kg | < 0.1 | < 0.1 | | < 0.1 | | |
| 1,2,4-Trichlorobenzene | DETSC 3433 | 0.1 | mg/kg | < 0.1 | < 0.1 | | < 0.1 | | |
| 4-Chloro-3-methylphenol | DETSC 3433 | 0.1 | mg/kg | < 0.1 | < 0.1 | | < 0.1 | | |
| 2-Methylnaphthalene | DETSC 3433 | 0.1 | mg/kg | < 0.1 | < 0.1 | | < 0.1 | | |
| Hexachlorocyclopentadiene | DETSC 3433* | 0.1 | mg/kg | < 0.1 | < 0.1 | | < 0.1 | | |
| 2,4,6-Trichlorophenol | DETSC 3433 | 0.1 | mg/kg | < 0.1 | < 0.1 | | < 0.1 | | |
| 2,4,5-Trichlorophenol | DETSC 3433* | 0.1 | mg/kg | < 0.1 | < 0.1 | | < 0.1 | | |
| 2-Chloronaphthalene | DETSC 3433 | 0.1 | mg/kg | < 0.1 | < 0.1 | | < 0.1 | | |
| 2-Nitroaniline | DETSC 3433* | 0.1 | mg/kg | < 0.1 | < 0.1 | | < 0.1 | | |
| 2,4-Dinitrotoluene | DETSC 3433* | 0.1 | mg/kg | < 0.1 | < 0.1 | | < 0.1 | | |
| Acenaphthylene | DETSC 3433 | 0.1 | mg/kg | < 0.1 | < 0.1 | | < 0.1 | | |
| 3-Nitroaniline | DETSC 3433* | 0.1 | mg/kg | < 0.1 | < 0.1 | | < 0.1 | | |
| Acenaphthene | DETSC 3433 | 0.1 | mg/kg | < 0.1 | < 0.1 | | < 0.1 | | |
| 4-Nitrophenol | DETSC 3433* | 0.1 | mg/kg | < 0.1 | < 0.1 | | < 0.1 | | |
| Dibenzofuran | DETSC 3433 | 0.1 | mg/kg | < 0.1 | < 0.1 | | < 0.1 | | |
| 2,6-Dinitrotoluene | DETSC 3433 | 0.1 | mg/kg | < 0.1 | < 0.1 | | < 0.1 | | |
| 2,3,4,6-Tetrachlorophenol | DETSC 3433* | 0.1 | mg/kg | < 0.1 | < 0.1 | | < 0.1 | | |
| Diethylphthalate | DETSC 3433 | 0.1 | mg/kg | < 0.1 | < 0.1 | | < 0.1 | | |
| 4-Chlorophenylphenylether | DETSC 3433* | 0.1 | mg/kg | < 0.1 | < 0.1 | | < 0.1 | | |
| Fluorene | DETSC 3433 | 0.1 | mg/kg | < 0.1 | < 0.1 | | < 0.1 | | |

Summary of Chemical Analysis

Soil Samples

Our Ref 22-15257

Client Ref PN224395

Contract Title Newport Quinn Phase 2

| Lab No | 2042859 | 2042860 | 2042861 | 2042862 | 2042863 | 2042864 |
|---------------|------------|------------|------------|------------|------------|------------|
| Sample ID | BH13 | BH14 | BH22 | BH25 | BH27 | BH29 |
| Depth | 0.50 | 0.50 | 1.00 | 1.00 | 1.00 | 1.00 |
| Other ID | | | | | | |
| Sample Type | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| Sampling Date | 02/08/2022 | 02/08/2022 | 27/07/2022 | 29/07/2022 | 27/07/2022 | 27/07/2022 |
| Sampling Time | n/s | n/s | n/s | n/s | n/s | n/s |

| Test | Method | LOD | Units | | | | | | |
|----------------------------|-------------|-----|-------|-------|-------|--|-------|--|--|
| 4-Nitroaniline | DETSC 3433* | 0.1 | mg/kg | < 0.1 | < 0.1 | | < 0.1 | | |
| 2-Methyl-4,6-Dinitrophenol | DETSC 3433* | 0.1 | mg/kg | < 0.1 | < 0.1 | | < 0.1 | | |
| Diphenylamine | DETSC 3433 | 0.1 | mg/kg | < 0.1 | < 0.1 | | < 0.1 | | |
| 4-Bromophenylphenylether | DETSC 3433 | 0.1 | mg/kg | < 0.1 | < 0.1 | | < 0.1 | | |
| Hexachlorobenzene | DETSC 3433 | 0.1 | mg/kg | < 0.1 | < 0.1 | | < 0.1 | | |
| Pentachlorophenol | DETSC 3433* | 0.1 | mg/kg | < 0.1 | < 0.1 | | < 0.1 | | |
| Phenanthrene | DETSC 3433 | 0.1 | mg/kg | < 0.1 | < 0.1 | | < 0.1 | | |
| Anthracene | DETSC 3433 | 0.1 | mg/kg | < 0.1 | < 0.1 | | < 0.1 | | |
| Di-n-butylphthalate | DETSC 3433 | 0.1 | mg/kg | < 0.1 | < 0.1 | | < 0.1 | | |
| Fluoranthene | DETSC 3433 | 0.1 | mg/kg | < 0.1 | < 0.1 | | < 0.1 | | |
| Pyrene | DETSC 3433 | 0.1 | mg/kg | < 0.1 | < 0.1 | | < 0.1 | | |
| Butylbenzylphthalate | DETSC 3433* | 0.1 | mg/kg | < 0.1 | < 0.1 | | < 0.1 | | |
| Benzo(a)anthracene | DETSC 3433 | 0.1 | mg/kg | < 0.1 | < 0.1 | | < 0.1 | | |
| Chrysene | DETSC 3433 | 0.1 | mg/kg | < 0.1 | < 0.1 | | < 0.1 | | |
| Bis(2-ethylhexyl)phthalate | DETSC 3433 | 0.1 | mg/kg | < 0.1 | < 0.1 | | < 0.1 | | |
| Di-n-octylphthalate | DETSC 3433* | 0.1 | mg/kg | < 0.1 | < 0.1 | | < 0.1 | | |
| Benzo(b)fluoranthene | DETSC 3433 | 0.1 | mg/kg | < 0.1 | < 0.1 | | < 0.1 | | |
| Benzo(k)fluoranthene | DETSC 3433 | 0.1 | mg/kg | < 0.1 | < 0.1 | | < 0.1 | | |
| Benzo(a)pyrene | DETSC 3433 | 0.1 | mg/kg | < 0.1 | < 0.1 | | < 0.1 | | |
| Indeno(123cd)pyrene | DETSC 3433 | 0.1 | mg/kg | < 0.1 | < 0.1 | | < 0.1 | | |
| Dibenzo(ah)anthracene | DETSC 3433 | 0.1 | mg/kg | < 0.1 | < 0.1 | | < 0.1 | | |
| Benzo(ghi)perylene | DETSC 3433 | 0.1 | mg/kg | < 0.1 | < 0.1 | | < 0.1 | | |
| 1,4-Dinitrobenzene | DETSC 3433* | 0.1 | mg/kg | < 0.1 | < 0.1 | | < 0.1 | | |
| Dimethylphthalate | DETSC 3433 | 0.1 | mg/kg | < 0.1 | < 0.1 | | < 0.1 | | |
| 1,3-Dinitrobenzene | DETSC 3433* | 0.1 | mg/kg | < 0.1 | < 0.1 | | < 0.1 | | |
| 1,2-Dinitrobenzene | DETSC 3433* | 0.1 | mg/kg | < 0.1 | < 0.1 | | < 0.1 | | |
| 2,3,5,6-Tetrachlorophenol | DETSC 3433* | 0.1 | mg/kg | < 0.1 | < 0.1 | | < 0.1 | | |
| Azobenzene | DETSC 3433 | 0.1 | mg/kg | < 0.1 | < 0.1 | | < 0.1 | | |
| Carbazole | DETSC 3433* | 0.1 | mg/kg | < 0.1 | < 0.1 | | < 0.1 | | |

Summary of Asbestos Analysis

Soil Samples

Our Ref 22-15257

Client Ref PN224395

Contract Title Newport Quinn Phase 2

| Lab No | Sample ID | Material Type | Result | Comment* | Analyst |
|---------|-----------|---------------|--------|----------|-----------|
| 2042859 | BH13 0.50 | SOIL | NAD | none | Josh Best |
| 2042860 | BH14 0.50 | SOIL | NAD | none | Josh Best |
| 2042861 | BH22 1.00 | SOIL | NAD | none | Josh Best |
| 2042862 | BH25 1.00 | SOIL | NAD | none | Josh Best |
| 2042863 | BH27 1.00 | SOIL | NAD | none | Josh Best |
| 2042864 | BH29 1.00 | SOIL | NAD | none | Josh Best |

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

Information in Support of the Analytical Results

Our Ref 22-15257
 Client Ref PN224395
 Contract Newport Quinn Phase 2

Containers Received & Deviating Samples

| | | | | | Inappropriate container for tests |
|---------|----------------|----------|-----------------------------|---------------------------------|-----------------------------------|
| | | Date | | | |
| Lab No | Sample ID | Sampled | Containers Received | Holding time exceeded for tests | tests |
| 2042859 | BH13 0.50 SOIL | 02/08/22 | GJ 250ml x2, GJ 60ml, PT 1L | | |
| 2042860 | BH14 0.50 SOIL | 02/08/22 | GJ 250ml x2, GJ 60ml, PT 1L | | |
| 2042861 | BH22 1.00 SOIL | 27/07/22 | GJ 250ml x2, GJ 60ml, PT 1L | VOC (7 days) | |
| 2042862 | BH25 1.00 SOIL | 29/07/22 | GJ 250ml x2, GJ 60ml, PT 1L | VOC (7 days) | |
| 2042863 | BH27 1.00 SOIL | 27/07/22 | GJ 250ml x2, GJ 60ml, PT 1L | VOC (7 days) | |
| 2042864 | BH29 1.00 SOIL | 27/07/22 | GJ 250ml x2, GJ 60ml, PT 1L | VOC (7 days) | |

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

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

Soil Analysis Notes

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

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

End of Report



Certificate of Analysis

Certificate Number 22-15280

Issued: 16-Aug-22

Client Geotechnics LTD
The Geotechnical Centre
Unit 1B Borders Ind. Park
River Lane
Saltney
Chester
CH4 8RJ

Our Reference 22-15280

Client Reference PN224395

Order No ON34492

Contract Title Newport Quinn Phase 2

Description One Soil sample.

Date Received 08-Aug-22

Date Started 08-Aug-22

Date Completed 16-Aug-22

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

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

Approved By

Kirk Bridgewood
General Manager



2139

Summary of Chemical Analysis

Soil Samples

Our Ref 22-15280

Client Ref PN224395

Contract Title Newport Quinn Phase 2

| | |
|---------------|------------|
| Lab No | 2043009 |
| Sample ID | BH18 |
| Depth | 1.00 |
| Other ID | |
| Sample Type | ES |
| Sampling Date | 03/08/2022 |
| Sampling Time | n/s |

| Test | Method | LOD | Units | |
|-------------------------------|-------------|------|-------|---------|
| Metals | | | | |
| Arsenic | DETSC 2301# | 0.2 | mg/kg | 4.5 |
| Barium | DETSC 2301# | 1.5 | mg/kg | 290 |
| Beryllium | DETSC 2301# | 0.2 | mg/kg | 0.3 |
| Boron, Water Soluble | DETSC 2311# | 0.2 | mg/kg | 5.9 |
| Cadmium | DETSC 2301# | 0.1 | mg/kg | 1.1 |
| Chromium | DETSC 2301# | 0.15 | mg/kg | 430 |
| Copper | DETSC 2301# | 0.2 | mg/kg | 61 |
| Lead | DETSC 2301# | 0.3 | mg/kg | 62 |
| Mercury | DETSC 2325# | 0.05 | mg/kg | < 0.05 |
| Nickel | DETSC 2301# | 1 | mg/kg | 40 |
| Selenium | DETSC 2301# | 0.5 | mg/kg | 1.9 |
| Vanadium | DETSC 2301# | 0.8 | mg/kg | 91 |
| Zinc | DETSC 2301# | 1 | mg/kg | 190 |
| Petroleum Hydrocarbons | | | | |
| Aliphatic C5-C6 | DETSC 3321* | 0.01 | mg/kg | < 0.01 |
| Aliphatic C6-C8 | DETSC 3321* | 0.01 | mg/kg | < 0.01 |
| Aliphatic C8-C10 | DETSC 3321* | 0.01 | mg/kg | < 0.01 |
| Aliphatic >EC10-EC12 | DETSC 3521# | 1.5 | mg/kg | 1.91 |
| Aliphatic >EC12-EC16 | DETSC 3521# | 1.2 | mg/kg | < 1.20 |
| Aliphatic >EC16-EC21 | DETSC 3521# | 1.5 | mg/kg | < 1.50 |
| Aliphatic >EC21-EC35 | DETSC 3521# | 3.4 | mg/kg | < 3.40 |
| Aliphatic C5-C35 | DETSC 3521* | 10 | mg/kg | < 10.00 |
| Aromatic C5-C7 | DETSC 3321* | 0.01 | mg/kg | < 0.01 |
| Aromatic C7-C8 | DETSC 3321* | 0.01 | mg/kg | < 0.01 |
| Aromatic C8-C10 | DETSC 3321* | 0.01 | mg/kg | < 0.01 |
| Aromatic >EC10-EC12 | DETSC 3521# | 0.9 | mg/kg | < 0.90 |
| Aromatic >EC12-EC16 | DETSC 3521# | 0.5 | mg/kg | < 0.50 |
| Aromatic >EC16-EC21 | DETSC 3521# | 0.6 | mg/kg | < 0.60 |
| Aromatic >EC21-EC35 | DETSC 3521# | 1.4 | mg/kg | < 1.40 |
| Aromatic C5-C35 | DETSC 3521* | 10 | mg/kg | < 10.00 |
| TPH Ali/Aro Total C5-C35 | DETSC 3521* | 10 | mg/kg | 12.36 |

Summary of Chemical Analysis

Soil Samples

Our Ref 22-15280

Client Ref PN224395

Contract Title Newport Quinn Phase 2

| | |
|---------------|------------|
| Lab No | 2043009 |
| Sample ID | BH18 |
| Depth | 1.00 |
| Other ID | |
| Sample Type | ES |
| Sampling Date | 03/08/2022 |
| Sampling Time | n/s |

| Test | Method | LOD | Units | |
|----------------------------|-------------|------|-------|--------|
| VOCs | | | | |
| Vinyl Chloride | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 1,1 Dichloroethylene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Trans-1,2-dichloroethylene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 1,1-dichloroethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Cis-1,2-dichloroethylene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 2,2-dichloropropane | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Bromochloromethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Chloroform | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 1,1,1-trichloroethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 1,1-dichloropropene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Carbon tetrachloride | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Benzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 1,2-dichloroethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Trichloroethylene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 1,2-dichloropropane | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Dibromomethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Bromodichloromethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| cis-1,3-dichloropropene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Toluene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| trans-1,3-dichloropropene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 1,1,2-trichloroethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Tetrachloroethylene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 1,3-dichloropropane | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Dibromochloromethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 1,2-dibromoethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Chlorobenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 1,1,1,2-tetrachloroethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Ethylbenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| m+p-Xylene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| o-Xylene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Styrene | DETSC 3431* | 0.01 | mg/kg | < 0.01 |
| Bromoform | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Isopropylbenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Bromobenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 1,2,3-trichloropropane | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| n-propylbenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 2-chlorotoluene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 1,3,5-trimethylbenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 4-chlorotoluene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Tert-butylbenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 1,2,4-trimethylbenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |

Summary of Chemical Analysis Soil Samples

Our Ref 22-15280

Client Ref PN224395

Contract Title Newport Quinn Phase 2

| | |
|---------------|------------|
| Lab No | 2043009 |
| Sample ID | BH18 |
| Depth | 1.00 |
| Other ID | |
| Sample Type | ES |
| Sampling Date | 03/08/2022 |
| Sampling Time | n/s |

| Test | Method | LOD | Units | |
|-----------------------------|-------------|------|-------|--------|
| sec-butylbenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| p-isopropyltoluene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 1,3-dichlorobenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 1,4-dichlorobenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| n-butylbenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 1,2-dichlorobenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 1,2-dibromo-3-chloropropane | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 1,2,4-trichlorobenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Hexachlorobutadiene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Naphthalene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 1,2,3-trichlorobenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| MTBE | DETSC 3431* | 0.01 | mg/kg | < 0.01 |

Summary of Asbestos Analysis Soil Samples

Our Ref 22-15280

Client Ref PN224395

Contract Title Newport Quinn Phase 2

| Lab No | Sample ID | Material Type | Result | Comment* | Analyst |
|---------|-----------|---------------|------------|-------------------------------------|-------------|
| 2043009 | BH18 1.00 | SOIL | Chrysotile | Chrysotile present as fibre bundles | D Wilkinson |

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

Information in Support of the Analytical Results

Our Ref 22-15280
 Client Ref PN224395
 Contract Newport Quinn Phase 2

Containers Received & Deviating Samples

| Lab No | Sample ID | Date Sampled | Containers Received | Holding time exceeded for tests | Inappropriate container for tests |
|--|----------------|--------------|-----------------------------|---------------------------------|-----------------------------------|
| 2043009 | BH18 1.00 SOIL | 03/08/22 | GJ 250ml x2, GJ 60ml, PT 1L | | |
| Key: G-Glass P-Plastic J-Jar T-Tub DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable. | | | | | |

Soil Analysis Notes

| |
|--|
| Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377. Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis. The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C. |
|--|

Disposal

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

End of Report



Certificate of Analysis

Certificate Number 22-15764

Issued: 19-Aug-22

Client Geotechnics LTD
The Geotechnical Centre
Unit 1B Borders Ind. Park
River Lane
Saltney
Chester
CH4 8RJ

Our Reference 22-15764

Client Reference PN224395

Order No ON34492

Contract Title Newport Quinn Phase 2

Description One Soil sample.

Date Received 12-Aug-22

Date Started 12-Aug-22

Date Completed 19-Aug-22

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

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

Approved By

A handwritten signature in black ink, appearing to read "K. Bridgewood".

Kirk Bridgewood
General Manager



2139

Summary of Chemical Analysis

Soil Samples

Our Ref 22-15764

Client Ref PN224395

Contract Title Newport Quinn Phase 2

| | |
|---------------|---------|
| Lab No | 2045230 |
| Sample ID | BH14A |
| Depth | 2.00 |
| Other ID | |
| Sample Type | ES |
| Sampling Date | n/s |
| Sampling Time | n/s |

| Test | Method | LOD | Units | |
|-------------------------------|-------------|------|-------|---------|
| Metals | | | | |
| Arsenic | DETSC 2301# | 0.2 | mg/kg | 5.2 |
| Barium | DETSC 2301# | 1.5 | mg/kg | 240 |
| Beryllium | DETSC 2301# | 0.2 | mg/kg | 0.4 |
| Boron, Water Soluble | DETSC 2311# | 0.2 | mg/kg | 0.7 |
| Cadmium | DETSC 2301# | 0.1 | mg/kg | 0.6 |
| Chromium | DETSC 2301# | 0.15 | mg/kg | 14 |
| Copper | DETSC 2301# | 0.2 | mg/kg | 34 |
| Lead | DETSC 2301# | 0.3 | mg/kg | 29 |
| Mercury | DETSC 2325# | 0.05 | mg/kg | < 0.05 |
| Nickel | DETSC 2301# | 1 | mg/kg | 24 |
| Selenium | DETSC 2301# | 0.5 | mg/kg | < 0.5 |
| Vanadium | DETSC 2301# | 0.8 | mg/kg | 19 |
| Zinc | DETSC 2301# | 1 | mg/kg | 110 |
| Petroleum Hydrocarbons | | | | |
| Aliphatic C5-C6 | DETSC 3321* | 0.01 | mg/kg | < 0.01 |
| Aliphatic C6-C8 | DETSC 3321* | 0.01 | mg/kg | < 0.01 |
| Aliphatic C8-C10 | DETSC 3321* | 0.01 | mg/kg | < 0.01 |
| Aliphatic >EC10-EC12 | DETSC 3521# | 1.5 | mg/kg | < 1.50 |
| Aliphatic >EC12-EC16 | DETSC 3521# | 1.2 | mg/kg | < 1.20 |
| Aliphatic >EC16-EC21 | DETSC 3521# | 1.5 | mg/kg | < 1.50 |
| Aliphatic >EC21-EC35 | DETSC 3521# | 3.4 | mg/kg | < 3.40 |
| Aliphatic C5-C35 | DETSC 3521* | 10 | mg/kg | < 10.00 |
| Aromatic C5-C7 | DETSC 3321* | 0.01 | mg/kg | < 0.01 |
| Aromatic C7-C8 | DETSC 3321* | 0.01 | mg/kg | < 0.01 |
| Aromatic C8-C10 | DETSC 3321* | 0.01 | mg/kg | < 0.01 |
| Aromatic >EC10-EC12 | DETSC 3521# | 0.9 | mg/kg | < 0.90 |
| Aromatic >EC12-EC16 | DETSC 3521# | 0.5 | mg/kg | < 0.50 |
| Aromatic >EC16-EC21 | DETSC 3521# | 0.6 | mg/kg | < 0.60 |
| Aromatic >EC21-EC35 | DETSC 3521# | 1.4 | mg/kg | < 1.40 |
| Aromatic C5-C35 | DETSC 3521* | 10 | mg/kg | < 10.00 |
| TPH Ali/Aro Total C5-C35 | DETSC 3521* | 10 | mg/kg | 12.02 |

Summary of Chemical Analysis

Soil Samples

Our Ref 22-15764

Client Ref PN224395

Contract Title Newport Quinn Phase 2

| | |
|---------------|---------|
| Lab No | 2045230 |
| Sample ID | BH14A |
| Depth | 2.00 |
| Other ID | |
| Sample Type | ES |
| Sampling Date | n/s |
| Sampling Time | n/s |

| Test | Method | LOD | Units | |
|----------------------------|-------------|------|-------|--------|
| VOCs | | | | |
| Vinyl Chloride | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 1,1 Dichloroethylene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Trans-1,2-dichloroethylene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 1,1-dichloroethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Cis-1,2-dichloroethylene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 2,2-dichloropropane | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Bromochloromethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Chloroform | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 1,1,1-trichloroethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 1,1-dichloropropene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Carbon tetrachloride | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Benzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 1,2-dichloroethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Trichloroethylene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 1,2-dichloropropane | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Dibromomethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Bromodichloromethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| cis-1,3-dichloropropene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Toluene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| trans-1,3-dichloropropene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 1,1,2-trichloroethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Tetrachloroethylene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 1,3-dichloropropane | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Dibromochloromethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 1,2-dibromoethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Chlorobenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 1,1,1,2-tetrachloroethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Ethylbenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| m+p-Xylene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| o-Xylene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Styrene | DETSC 3431* | 0.01 | mg/kg | < 0.01 |
| Bromoform | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Isopropylbenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Bromobenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 1,2,3-trichloropropane | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| n-propylbenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 2-chlorotoluene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 1,3,5-trimethylbenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 4-chlorotoluene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Tert-butylbenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |

Summary of Chemical Analysis Soil Samples

Our Ref 22-15764

Client Ref PN224395

Contract Title Newport Quinn Phase 2

| | |
|---------------|---------|
| Lab No | 2045230 |
| Sample ID | BH14A |
| Depth | 2.00 |
| Other ID | |
| Sample Type | ES |
| Sampling Date | n/s |
| Sampling Time | n/s |

| Test | Method | LOD | Units | |
|-----------------------------|-------------|------|-------|--------|
| 1,2,4-trimethylbenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| sec-butylbenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| p-isopropyltoluene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 1,3-dichlorobenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 1,4-dichlorobenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| n-butylbenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 1,2-dichlorobenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 1,2-dibromo-3-chloropropane | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 1,2,4-trichlorobenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Hexachlorobutadiene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Naphthalene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 1,2,3-trichlorobenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| MTBE | DETSC 3431* | 0.01 | mg/kg | < 0.01 |

Summary of Asbestos Analysis Soil Samples

Our Ref 22-15764

Client Ref PN224395

Contract Title Newport Quinn Phase 2

| Lab No | Sample ID | Material Type | Result | Comment* | Analyst |
|--|------------|---------------|--------|----------|-----------------|
| 2045230 | BH14A 2.00 | SOIL | NAD | none | Darryl Fletcher |
| Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * - not included in laboratory scope of accreditation. | | | | | |

Information in Support of the Analytical Results

Our Ref 22-15764
 Client Ref PN224395
 Contract Newport Quinn Phase 2

Containers Received & Deviating Samples

| Lab No | Sample ID | Date Sampled | Containers Received | Holding time exceeded for tests | Inappropriate container for tests |
|---------|-----------------|--------------|-----------------------------|---|-----------------------------------|
| 2045230 | BH14A 2.00 SOIL | | GJ 250ml x2, GJ 60ml, PT 1L | Sample date not supplied, Aliphatics/Aromatics (14 days), Boron (365 days), BTEX (14 days), EPH/Aliphatic/Aromatic (14 days), Mercury (28 days), ICP WS Boron (182 days), Metals ICP (182 days) | |

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

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

Soil Analysis Notes

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

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

End of Report



Certificate of Analysis

Certificate Number 22-15981

Issued: 30-Aug-22

Client Geotechnics LTD
The Geotechnical Centre
Unit 1B Borders Ind. Park
River Lane
Saltney
Chester
CH4 8RJ

Our Reference 22-15981

Client Reference PN224395

Order No ON34492

Contract Title Newport Quinn Phase 2

Description 2 Soil samples.

Date Received 16-Aug-22

Date Started 16-Aug-22

Date Completed 30-Aug-22

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

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

Approved By

A handwritten signature in black ink, appearing to read "K. Bridgewood".

Kirk Bridgewood
General Manager



2139

Summary of Chemical Analysis

Soil Samples

Our Ref 22-15981

Client Ref PN224395

Contract Title Newport Quinn Phase 2

| | | |
|---------------|------------|------------|
| Lab No | 2046349 | 2046350 |
| Sample ID | BH04A | BH10 |
| Depth | 0.60 | 0.50 |
| Other ID | | |
| Sample Type | ES | ES |
| Sampling Date | 10/08/2022 | 10/08/2022 |
| Sampling Time | n/s | n/s |

| Test | Method | LOD | Units | | |
|-------------------------------|-------------|------|-------|---------|---------|
| Metals | | | | | |
| Arsenic | DETSC 2301# | 0.2 | mg/kg | 6.2 | 4.1 |
| Barium | DETSC 2301# | 1.5 | mg/kg | 390 | 330 |
| Beryllium | DETSC 2301# | 0.2 | mg/kg | 0.5 | 0.4 |
| Boron, Water Soluble | DETSC 2311# | 0.2 | mg/kg | < 0.2 | 0.3 |
| Cadmium | DETSC 2301# | 0.1 | mg/kg | 0.5 | 0.5 |
| Chromium | DETSC 2301# | 0.15 | mg/kg | 11 | 18 |
| Copper | DETSC 2301# | 0.2 | mg/kg | 9.5 | 14 |
| Lead | DETSC 2301# | 0.3 | mg/kg | 14 | 24 |
| Mercury | DETSC 2325# | 0.05 | mg/kg | 0.07 | < 0.05 |
| Nickel | DETSC 2301# | 1 | mg/kg | 20 | 20 |
| Selenium | DETSC 2301# | 0.5 | mg/kg | < 0.5 | < 0.5 |
| Vanadium | DETSC 2301# | 0.8 | mg/kg | 16 | 30 |
| Zinc | DETSC 2301# | 1 | mg/kg | 78 | 90 |
| Petroleum Hydrocarbons | | | | | |
| Aliphatic C5-C6 | DETSC 3321* | 0.01 | mg/kg | < 0.01 | < 0.01 |
| Aliphatic C6-C8 | DETSC 3321* | 0.01 | mg/kg | 0.08 | 0.12 |
| Aliphatic C8-C10 | DETSC 3321* | 0.01 | mg/kg | < 0.01 | < 0.01 |
| Aliphatic >EC10-EC12 | DETSC 3521# | 1.5 | mg/kg | < 1.50 | < 1.50 |
| Aliphatic >EC12-EC16 | DETSC 3521# | 1.2 | mg/kg | < 1.20 | 2.68 |
| Aliphatic >EC16-EC21 | DETSC 3521# | 1.5 | mg/kg | < 1.50 | 2.21 |
| Aliphatic >EC21-EC35 | DETSC 3521# | 3.4 | mg/kg | < 3.40 | < 3.40 |
| Aliphatic C5-C35 | DETSC 3521* | 10 | mg/kg | < 10.00 | 10.42 |
| Aromatic C5-C7 | DETSC 3321* | 0.01 | mg/kg | < 0.01 | < 0.01 |
| Aromatic C7-C8 | DETSC 3321* | 0.01 | mg/kg | < 0.01 | < 0.01 |
| Aromatic C8-C10 | DETSC 3321* | 0.01 | mg/kg | < 0.01 | < 0.01 |
| Aromatic >EC10-EC12 | DETSC 3521# | 0.9 | mg/kg | < 0.90 | < 0.90 |
| Aromatic >EC12-EC16 | DETSC 3521# | 0.5 | mg/kg | < 0.50 | < 0.50 |
| Aromatic >EC16-EC21 | DETSC 3521# | 0.6 | mg/kg | 3.55 | 1.32 |
| Aromatic >EC21-EC35 | DETSC 3521# | 1.4 | mg/kg | < 1.40 | < 1.40 |
| Aromatic C5-C35 | DETSC 3521* | 10 | mg/kg | < 10.00 | < 10.00 |
| TPH Ali/Aro Total C5-C35 | DETSC 3521* | 10 | mg/kg | < 10.00 | 14.86 |

Summary of Chemical Analysis

Soil Samples

Our Ref 22-15981

Client Ref PN224395

Contract Title Newport Quinn Phase 2

| | | |
|---------------|------------|------------|
| Lab No | 2046349 | 2046350 |
| Sample ID | BH04A | BH10 |
| Depth | 0.60 | 0.50 |
| Other ID | | |
| Sample Type | ES | ES |
| Sampling Date | 10/08/2022 | 10/08/2022 |
| Sampling Time | n/s | n/s |

| Test | Method | LOD | Units | | |
|----------------------------|-------------|------|-------|--------|--------|
| VOCs | | | | | |
| Vinyl Chloride | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| 1,1 Dichloroethylene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| Trans-1,2-dichloroethylene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| 1,1-dichloroethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| Cis-1,2-dichloroethylene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| 2,2-dichloropropane | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| Bromochloromethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| Chloroform | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| 1,1,1-trichloroethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| 1,1-dichloropropene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| Carbon tetrachloride | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| Benzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| 1,2-dichloroethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| Trichloroethylene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| 1,2-dichloropropane | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| Dibromomethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| Bromodichloromethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| cis-1,3-dichloropropene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| Toluene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| trans-1,3-dichloropropene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| 1,1,2-trichloroethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| Tetrachloroethylene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| 1,3-dichloropropane | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| Dibromochloromethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| 1,2-dibromoethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| Chlorobenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| 1,1,1,2-tetrachloroethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| Ethylbenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| m+p-Xylene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| o-Xylene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| Styrene | DETSC 3431* | 0.01 | mg/kg | < 0.01 | < 0.01 |
| Bromoform | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| Isopropylbenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| Bromobenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| 1,2,3-trichloropropane | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| n-propylbenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| 2-chlorotoluene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| 1,3,5-trimethylbenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| 4-chlorotoluene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| Tert-butylbenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |

Summary of Chemical Analysis

Soil Samples

Our Ref 22-15981

Client Ref PN224395

Contract Title Newport Quinn Phase 2

| | | |
|---------------|------------|------------|
| Lab No | 2046349 | 2046350 |
| Sample ID | BH04A | BH10 |
| Depth | 0.60 | 0.50 |
| Other ID | | |
| Sample Type | ES | ES |
| Sampling Date | 10/08/2022 | 10/08/2022 |
| Sampling Time | n/s | n/s |

| Test | Method | LOD | Units | | |
|-----------------------------|-------------|------|-------|--------|--------|
| 1,2,4-trimethylbenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| sec-butylbenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| p-isopropyltoluene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| 1,3-dichlorobenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| 1,4-dichlorobenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| n-butylbenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| 1,2-dichlorobenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| 1,2-dibromo-3-chloropropane | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| 1,2,4-trichlorobenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| Hexachlorobutadiene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| Naphthalene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| 1,2,3-trichlorobenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| MTBE | DETSC 3431* | 0.01 | mg/kg | < 0.01 | < 0.01 |
| SVOCs | | | | | |
| Phenol | DETSC 3433 | 0.1 | mg/kg | | < 0.1 |
| Aniline | DETSC 3433* | 0.1 | mg/kg | | < 0.1 |
| 2-Chlorophenol | DETSC 3433 | 0.1 | mg/kg | | < 0.1 |
| Benzyl Alcohol | DETSC 3433 | 0.1 | mg/kg | | < 0.1 |
| 2-Methylphenol | DETSC 3433 | 0.1 | mg/kg | | < 0.1 |
| Bis(2-chloroisopropyl)ether | DETSC 3433 | 0.1 | mg/kg | | < 0.1 |
| 3&4-Methylphenol | DETSC 3433 | 0.1 | mg/kg | | < 0.1 |
| 2,4-Dimethylphenol | DETSC 3433 | 0.1 | mg/kg | | < 0.1 |
| Bis-(dichloroethoxy)methane | DETSC 3433 | 0.1 | mg/kg | | < 0.1 |
| 2,4-Dichlorophenol | DETSC 3433 | 0.1 | mg/kg | | < 0.1 |
| 1,2,4-Trichlorobenzene | DETSC 3433 | 0.1 | mg/kg | | < 0.1 |
| 4-Chloro-3-methylphenol | DETSC 3433 | 0.1 | mg/kg | | < 0.1 |
| 2-Methylnaphthalene | DETSC 3433 | 0.1 | mg/kg | | < 0.1 |
| Hexachlorocyclopentadiene | DETSC 3433* | 0.1 | mg/kg | | < 0.1 |
| 2,4,6-Trichlorophenol | DETSC 3433 | 0.1 | mg/kg | | < 0.1 |
| 2,4,5-Trichlorophenol | DETSC 3433* | 0.1 | mg/kg | | < 0.1 |
| 2-Chloronaphthalene | DETSC 3433 | 0.1 | mg/kg | | < 0.1 |
| 2-Nitroaniline | DETSC 3433* | 0.1 | mg/kg | | < 0.1 |
| 2,4-Dinitrotoluene | DETSC 3433* | 0.1 | mg/kg | | < 0.1 |
| Acenaphthylene | DETSC 3433 | 0.1 | mg/kg | | < 0.1 |
| 3-Nitroaniline | DETSC 3433* | 0.1 | mg/kg | | < 0.1 |
| Acenaphthene | DETSC 3433 | 0.1 | mg/kg | | < 0.1 |
| 4-Nitrophenol | DETSC 3433* | 0.1 | mg/kg | | < 0.1 |
| Dibenzofuran | DETSC 3433 | 0.1 | mg/kg | | < 0.1 |
| 2,6-Dinitrotoluene | DETSC 3433 | 0.1 | mg/kg | | < 0.1 |
| 2,3,4,6-Tetrachlorophenol | DETSC 3433* | 0.1 | mg/kg | | < 0.1 |
| Diethylphthalate | DETSC 3433 | 0.1 | mg/kg | | < 0.1 |

Summary of Chemical Analysis Soil Samples

Our Ref 22-15981

Client Ref PN224395

Contract Title Newport Quinn Phase 2

| | | |
|---------------|------------|------------|
| Lab No | 2046349 | 2046350 |
| Sample ID | BH04A | BH10 |
| Depth | 0.60 | 0.50 |
| Other ID | | |
| Sample Type | ES | ES |
| Sampling Date | 10/08/2022 | 10/08/2022 |
| Sampling Time | n/s | n/s |

| Test | Method | LOD | Units | | |
|----------------------------|-------------|-----|-------|--|-------|
| 4-Chlorophenylphenylether | DETSC 3433* | 0.1 | mg/kg | | < 0.1 |
| Fluorene | DETSC 3433 | 0.1 | mg/kg | | < 0.1 |
| 4-Nitroaniline | DETSC 3433* | 0.1 | mg/kg | | < 0.1 |
| 2-Methyl-4,6-Dinitrophenol | DETSC 3433* | 0.1 | mg/kg | | < 0.1 |
| Diphenylamine | DETSC 3433 | 0.1 | mg/kg | | < 0.1 |
| 4-Bromophenylphenylether | DETSC 3433 | 0.1 | mg/kg | | < 0.1 |
| Hexachlorobenzene | DETSC 3433 | 0.1 | mg/kg | | < 0.1 |
| Pentachlorophenol | DETSC 3433* | 0.1 | mg/kg | | < 0.1 |
| Phenanthrene | DETSC 3433 | 0.1 | mg/kg | | < 0.1 |
| Anthracene | DETSC 3433 | 0.1 | mg/kg | | < 0.1 |
| Di-n-butylphthalate | DETSC 3433 | 0.1 | mg/kg | | < 0.1 |
| Fluoranthene | DETSC 3433 | 0.1 | mg/kg | | < 0.1 |
| Pyrene | DETSC 3433 | 0.1 | mg/kg | | < 0.1 |
| Butylbenzylphthalate | DETSC 3433* | 0.1 | mg/kg | | < 0.1 |
| Benzo(a)anthracene | DETSC 3433 | 0.1 | mg/kg | | < 0.1 |
| Chrysene | DETSC 3433 | 0.1 | mg/kg | | < 0.1 |
| Bis(2-ethylhexyl)phthalate | DETSC 3433 | 0.1 | mg/kg | | < 0.1 |
| Di-n-octylphthalate | DETSC 3433* | 0.1 | mg/kg | | < 0.1 |
| Benzo(b)fluoranthene | DETSC 3433 | 0.1 | mg/kg | | < 0.1 |
| Benzo(k)fluoranthene | DETSC 3433 | 0.1 | mg/kg | | < 0.1 |
| Benzo(a)pyrene | DETSC 3433 | 0.1 | mg/kg | | < 0.1 |
| Indeno(123cd)pyrene | DETSC 3433 | 0.1 | mg/kg | | < 0.1 |
| Dibenzo(ah)anthracene | DETSC 3433 | 0.1 | mg/kg | | < 0.1 |
| Benzo(ghi)perylene | DETSC 3433 | 0.1 | mg/kg | | < 0.1 |
| 1,4-Dinitrobenzene | DETSC 3433* | 0.1 | mg/kg | | < 0.1 |
| Dimethylphthalate | DETSC 3433 | 0.1 | mg/kg | | < 0.1 |
| 1,3-Dinitrobenzene | DETSC 3433* | 0.1 | mg/kg | | < 0.1 |
| 1,2-Dinitrobenzene | DETSC 3433* | 0.1 | mg/kg | | < 0.1 |
| 2,3,5,6-Tetrachlorophenol | DETSC 3433* | 0.1 | mg/kg | | < 0.1 |
| Azobenzene | DETSC 3433 | 0.1 | mg/kg | | < 0.1 |
| Carbazole | DETSC 3433* | 0.1 | mg/kg | | < 0.1 |

Summary of Asbestos Analysis Soil Samples

Our Ref 22-15981

Client Ref PN224395

Contract Title Newport Quinn Phase 2

| Lab No | Sample ID | Material Type | Result | Comment* | Analyst |
|---------|------------|---------------|--------|----------|----------|
| 2046349 | BH04A 0.60 | SOIL | NAD | none | Ben Rose |
| 2046350 | BH10 0.50 | SOIL | NAD | none | Ben Rose |

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

Information in Support of the Analytical Results

Our Ref 22-15981
 Client Ref PN224395
 Contract Newport Quinn Phase 2

Containers Received & Deviating Samples

| Lab No | Sample ID | Date Sampled | Containers Received | Hold time exceeded for tests | Inappropriate container for tests |
|---------|-----------------|--------------|-----------------------------|------------------------------|-----------------------------------|
| 2046349 | BH04A 0.60 SOIL | 10/08/22 | GJ 250ml x2, GJ 60ml, PT 1L | | |
| 2046350 | BH10 0.50 SOIL | 10/08/22 | GJ 250ml x2, GJ 60ml, PT 1L | | |

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

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

Soil Analysis Notes

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

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

End of Report



Certificate of Analysis

Certificate Number 22-16491

Issued: 26-Aug-22

Client Geotechnics LTD
The Geotechnical Centre
Unit 1B Borders Ind. Park
River Lane
Saltney
Chester
CH4 8RJ

Our Reference 22-16491

Client Reference PN224395

Order No ON34492

Contract Title Newport Quinn Phase 2

Description One Soil sample.

Date Received 22-Aug-22

Date Started 23-Aug-22

Date Completed 26-Aug-22

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

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

Approved By

Kirk Bridgewood
General Manager



2139

Summary of Chemical Analysis

Soil Samples

Our Ref 22-16491

Client Ref PN224395

Contract Title Newport Quinn Phase 2

| | |
|---------------|------------|
| Lab No | 2049007 |
| Sample ID | BH11 |
| Depth | 2.00 |
| Other ID | 4 |
| Sample Type | ES |
| Sampling Date | 16/08/2022 |
| Sampling Time | n/s |

| Test | Method | LOD | Units | |
|-------------------------------|-------------|------|-------|---------|
| Metals | | | | |
| Arsenic | DETSC 2301# | 0.2 | mg/kg | 8.0 |
| Barium | DETSC 2301# | 1.5 | mg/kg | 57 |
| Beryllium | DETSC 2301# | 0.2 | mg/kg | 0.7 |
| Boron, Water Soluble | DETSC 2311# | 0.2 | mg/kg | < 0.2 |
| Cadmium | DETSC 2301# | 0.1 | mg/kg | < 0.1 |
| Chromium | DETSC 2301# | 0.15 | mg/kg | 24 |
| Copper | DETSC 2301# | 0.2 | mg/kg | 17 |
| Lead | DETSC 2301# | 0.3 | mg/kg | 7.1 |
| Mercury | DETSC 2325# | 0.05 | mg/kg | < 0.05 |
| Nickel | DETSC 2301# | 1 | mg/kg | 26 |
| Selenium | DETSC 2301# | 0.5 | mg/kg | < 0.5 |
| Vanadium | DETSC 2301# | 0.8 | mg/kg | 55 |
| Zinc | DETSC 2301# | 1 | mg/kg | 64 |
| Petroleum Hydrocarbons | | | | |
| Aliphatic C5-C6 | DETSC 3321* | 0.01 | mg/kg | < 0.01 |
| Aliphatic C6-C8 | DETSC 3321* | 0.01 | mg/kg | < 0.01 |
| Aliphatic C8-C10 | DETSC 3321* | 0.01 | mg/kg | < 0.01 |
| Aliphatic >EC10-EC12 | DETSC 3521# | 1.5 | mg/kg | 1.70 |
| Aliphatic >EC12-EC16 | DETSC 3521# | 1.2 | mg/kg | 2.42 |
| Aliphatic >EC16-EC21 | DETSC 3521# | 1.5 | mg/kg | < 1.50 |
| Aliphatic >EC21-EC35 | DETSC 3521# | 3.4 | mg/kg | < 3.40 |
| Aliphatic C5-C35 | DETSC 3521* | 10 | mg/kg | < 10.00 |
| Aromatic C5-C7 | DETSC 3321* | 0.01 | mg/kg | < 0.01 |
| Aromatic C7-C8 | DETSC 3321* | 0.01 | mg/kg | < 0.01 |
| Aromatic C8-C10 | DETSC 3321* | 0.01 | mg/kg | < 0.01 |
| Aromatic >EC10-EC12 | DETSC 3521# | 0.9 | mg/kg | < 0.90 |
| Aromatic >EC12-EC16 | DETSC 3521# | 0.5 | mg/kg | < 0.50 |
| Aromatic >EC16-EC21 | DETSC 3521# | 0.6 | mg/kg | 1.46 |
| Aromatic >EC21-EC35 | DETSC 3521# | 1.4 | mg/kg | < 1.40 |
| Aromatic C5-C35 | DETSC 3521* | 10 | mg/kg | < 10.00 |
| TPH Ali/Aro Total C5-C35 | DETSC 3521* | 10 | mg/kg | 14.21 |

Summary of Chemical Analysis

Soil Samples

Our Ref 22-16491

Client Ref PN224395

Contract Title Newport Quinn Phase 2

| | |
|---------------|------------|
| Lab No | 2049007 |
| Sample ID | BH11 |
| Depth | 2.00 |
| Other ID | 4 |
| Sample Type | ES |
| Sampling Date | 16/08/2022 |
| Sampling Time | n/s |

| Test | Method | LOD | Units | |
|----------------------------|-------------|------|-------|--------|
| VOCs | | | | |
| Vinyl Chloride | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 1,1 Dichloroethylene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Trans-1,2-dichloroethylene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 1,1-dichloroethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Cis-1,2-dichloroethylene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 2,2-dichloropropane | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Bromochloromethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Chloroform | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 1,1,1-trichloroethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 1,1-dichloropropene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Carbon tetrachloride | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Benzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 1,2-dichloroethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Trichloroethylene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 1,2-dichloropropane | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Dibromomethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Bromodichloromethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| cis-1,3-dichloropropene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Toluene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| trans-1,3-dichloropropene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 1,1,2-trichloroethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Tetrachloroethylene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 1,3-dichloropropane | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Dibromochloromethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 1,2-dibromoethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Chlorobenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 1,1,1,2-tetrachloroethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Ethylbenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| m+p-Xylene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| o-Xylene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Styrene | DETSC 3431* | 0.01 | mg/kg | < 0.01 |
| Bromoform | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Isopropylbenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Bromobenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 1,2,3-trichloropropane | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| n-propylbenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 2-chlorotoluene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 1,3,5-trimethylbenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 4-chlorotoluene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Tert-butylbenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 1,2,4-trimethylbenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |

Summary of Chemical Analysis Soil Samples

Our Ref 22-16491

Client Ref PN224395

Contract Title Newport Quinn Phase 2

| | |
|---------------|------------|
| Lab No | 2049007 |
| Sample ID | BH11 |
| Depth | 2.00 |
| Other ID | 4 |
| Sample Type | ES |
| Sampling Date | 16/08/2022 |
| Sampling Time | n/s |

| Test | Method | LOD | Units | |
|-----------------------------|-------------|------|-------|--------|
| sec-butylbenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| p-isopropyltoluene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 1,3-dichlorobenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 1,4-dichlorobenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| n-butylbenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 1,2-dichlorobenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 1,2-dibromo-3-chloropropane | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 1,2,4-trichlorobenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Hexachlorobutadiene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| Naphthalene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| 1,2,3-trichlorobenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 |
| MTBE | DETSC 3431* | 0.01 | mg/kg | < 0.01 |

Summary of Asbestos Analysis Soil Samples

Our Ref 22-16491

Client Ref PN224395

Contract Title Newport Quinn Phase 2

| Lab No | Sample ID | Material Type | Result | Comment* | Analyst |
|---------|-------------|---------------|--------|----------|---------------|
| 2049007 | BH11 4 2.00 | SOIL | NAD | none | Vicky Convery |

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

Information in Support of the Analytical Results

Our Ref 22-16491
 Client Ref PN224395
 Contract Newport Quinn Phase 2

Containers Received & Deviating Samples

| Lab No | Sample ID | Date | | Holding time exceeded for tests | Inappropriate container for tests |
|---------|----------------|----------|-----------------------------|---------------------------------------|---|
| | | Sampled | Containers Received | | |
| 2049007 | BH11 2.00 SOIL | 16/08/22 | GJ 250ml, GJ 60ml, PT 500ml | | |

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

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

Soil Analysis Notes

| |
|--|
| Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377. |
| Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis. |
| The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C. |

Disposal

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

End of Report



Certificate of Analysis

Certificate Number 22-17090

Issued: 09-Sep-22

Client Geotechnics LTD
The Geotechnical Centre
Unit 1B Borders Ind. Park
River Lane
Saltney
Chester
CH4 8RJ

Our Reference 22-17090

Client Reference PN224395

Order No ON34492

Contract Title Newport Quinn Phase 2

Description 2 Soil samples.

Date Received 31-Aug-22

Date Started 31-Aug-22

Date Completed 09-Sep-22

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

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

Approved By

A handwritten signature in black ink, appearing to read "K. Bridgewood".

Kirk Bridgewood
General Manager



2139

Summary of Chemical Analysis

Soil Samples

Our Ref 22-17090

Client Ref PN224395

Contract Title Newport Quinn Phase 2

| | | |
|---------------|------------|------------|
| Lab No | 2052062 | 2052063 |
| Sample ID | BH09 | BH20 |
| Depth | 0.30 | 1.00 |
| Other ID | | |
| Sample Type | ES | ES |
| Sampling Date | 10/08/2022 | 10/08/2022 |
| Sampling Time | n/s | n/s |

| Test | Method | LOD | Units | | |
|-------------------------------|-------------|------|-------|---------|---------|
| Metals | | | | | |
| Arsenic | DETSC 2301# | 0.2 | mg/kg | 3.4 | 21 |
| Barium | DETSC 2301# | 1.5 | mg/kg | 560 | 560 |
| Beryllium | DETSC 2301# | 0.2 | mg/kg | 0.3 | 0.5 |
| Boron, Water Soluble | DETSC 2311# | 0.2 | mg/kg | 3.9 | 0.3 |
| Cadmium | DETSC 2301# | 0.1 | mg/kg | 1.3 | 0.4 |
| Chromium | DETSC 2301# | 0.15 | mg/kg | 210 | 15 |
| Copper | DETSC 2301# | 0.2 | mg/kg | 46 | 9.5 |
| Lead | DETSC 2301# | 0.3 | mg/kg | 55 | 16 |
| Mercury | DETSC 2325# | 0.05 | mg/kg | < 0.05 | < 0.05 |
| Nickel | DETSC 2301# | 1 | mg/kg | 22 | 21 |
| Selenium | DETSC 2301# | 0.5 | mg/kg | 1.5 | < 0.5 |
| Vanadium | DETSC 2301# | 0.8 | mg/kg | 77 | 24 |
| Zinc | DETSC 2301# | 1 | mg/kg | 200 | 66 |
| Petroleum Hydrocarbons | | | | | |
| Aliphatic C5-C6 | DETSC 3321* | 0.01 | mg/kg | < 0.01 | < 0.01 |
| Aliphatic C6-C8 | DETSC 3321* | 0.01 | mg/kg | < 0.01 | < 0.01 |
| Aliphatic C8-C10 | DETSC 3321* | 0.01 | mg/kg | < 0.01 | < 0.01 |
| Aliphatic >EC10-EC12 | DETSC 3521# | 1.5 | mg/kg | < 1.50 | < 1.50 |
| Aliphatic >EC12-EC16 | DETSC 3521# | 1.2 | mg/kg | < 1.20 | < 1.20 |
| Aliphatic >EC16-EC21 | DETSC 3521# | 1.5 | mg/kg | < 1.50 | < 1.50 |
| Aliphatic >EC21-EC35 | DETSC 3521# | 3.4 | mg/kg | < 3.40 | < 3.40 |
| Aliphatic C5-C35 | DETSC 3521* | 10 | mg/kg | < 10.00 | < 10.00 |
| Aromatic C5-C7 | DETSC 3321* | 0.01 | mg/kg | < 0.01 | < 0.01 |
| Aromatic C7-C8 | DETSC 3321* | 0.01 | mg/kg | < 0.01 | < 0.01 |
| Aromatic C8-C10 | DETSC 3321* | 0.01 | mg/kg | < 0.01 | < 0.01 |
| Aromatic >EC10-EC12 | DETSC 3521# | 0.9 | mg/kg | < 0.90 | < 0.90 |
| Aromatic >EC12-EC16 | DETSC 3521# | 0.5 | mg/kg | < 0.50 | < 0.50 |
| Aromatic >EC16-EC21 | DETSC 3521# | 0.6 | mg/kg | < 0.60 | < 0.60 |
| Aromatic >EC21-EC35 | DETSC 3521# | 1.4 | mg/kg | 12.49 | < 1.40 |
| Aromatic C5-C35 | DETSC 3521* | 10 | mg/kg | 14.76 | < 10.00 |
| TPH Ali/Aro Total C5-C35 | DETSC 3521* | 10 | mg/kg | 23.28 | 11.48 |

Summary of Chemical Analysis

Soil Samples

Our Ref 22-17090

Client Ref PN224395

Contract Title Newport Quinn Phase 2

| | | |
|---------------|------------|------------|
| Lab No | 2052062 | 2052063 |
| Sample ID | BH09 | BH20 |
| Depth | 0.30 | 1.00 |
| Other ID | | |
| Sample Type | ES | ES |
| Sampling Date | 10/08/2022 | 10/08/2022 |
| Sampling Time | n/s | n/s |

| Test | Method | LOD | Units | | |
|----------------------------|-------------|------|-------|--------|--------|
| VOCs | | | | | |
| Vinyl Chloride | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| 1,1 Dichloroethylene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| Trans-1,2-dichloroethylene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| 1,1-dichloroethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| Cis-1,2-dichloroethylene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| 2,2-dichloropropane | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| Bromochloromethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| Chloroform | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| 1,1,1-trichloroethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| 1,1-dichloropropene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| Carbon tetrachloride | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| Benzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| 1,2-dichloroethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| Trichloroethylene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| 1,2-dichloropropane | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| Dibromomethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| Bromodichloromethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| cis-1,3-dichloropropene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| Toluene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| trans-1,3-dichloropropene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| 1,1,2-trichloroethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| Tetrachloroethylene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| 1,3-dichloropropane | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| Dibromochloromethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| 1,2-dibromoethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| Chlorobenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| 1,1,1,2-tetrachloroethane | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| Ethylbenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| m+p-Xylene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| o-Xylene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| Styrene | DETSC 3431* | 0.01 | mg/kg | < 0.01 | < 0.01 |
| Bromoform | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| Isopropylbenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| Bromobenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| 1,2,3-trichloropropane | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| n-propylbenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| 2-chlorotoluene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| 1,3,5-trimethylbenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| 4-chlorotoluene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| Tert-butylbenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |

Summary of Chemical Analysis Soil Samples

Our Ref 22-17090

Client Ref PN224395

Contract Title Newport Quinn Phase 2

| | | |
|---------------|------------|------------|
| Lab No | 2052062 | 2052063 |
| Sample ID | BH09 | BH20 |
| Depth | 0.30 | 1.00 |
| Other ID | | |
| Sample Type | ES | ES |
| Sampling Date | 10/08/2022 | 10/08/2022 |
| Sampling Time | n/s | n/s |

| Test | Method | LOD | Units | | |
|-----------------------------|-------------|------|-------|--------|--------|
| 1,2,4-trimethylbenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| sec-butylbenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| p-isopropyltoluene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| 1,3-dichlorobenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| 1,4-dichlorobenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| n-butylbenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| 1,2-dichlorobenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| 1,2-dibromo-3-chloropropane | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| 1,2,4-trichlorobenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| Hexachlorobutadiene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| Naphthalene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| 1,2,3-trichlorobenzene | DETSC 3431 | 0.01 | mg/kg | < 0.01 | < 0.01 |
| MTBE | DETSC 3431* | 0.01 | mg/kg | < 0.01 | < 0.01 |

Summary of Asbestos Analysis Soil Samples

Our Ref 22-17090

Client Ref PN224395

Contract Title Newport Quinn Phase 2

| Lab No | Sample ID | Material Type | Result | Comment* | Analyst |
|---------|-----------|---------------|--------|----------|----------|
| 2052062 | BH09 0.30 | SOIL | NAD | none | Ben Rose |
| 2052063 | BH20 1.00 | SOIL | NAD | none | Ben Rose |

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

Information in Support of the Analytical Results

Our Ref 22-17090
 Client Ref PN224395
 Contract Newport Quinn Phase 2

Containers Received & Deviating Samples

| Lab No | Sample ID | Date Sampled | Containers Received | Holding time exceeded for tests | Inappropriate container for tests |
|---------|----------------|--------------|-----------------------------|--|-----------------------------------|
| 2052062 | BH09 0.30 SOIL | 10/08/22 | GJ 250ml, GJ 60ml, PT 1L | Aliphatics/Aromatics (14 days), BTEX (14 days), EPH/Aliphatic/Aromatic (14 days), VOC (7 days) | |
| 2052063 | BH20 1.00 SOIL | 10/08/22 | GJ 250ml x2, GJ 60ml, PT 1L | Aliphatics/Aromatics (14 days), BTEX (14 days), EPH/Aliphatic/Aromatic (14 days), VOC (7 days) | |

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

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

Soil Analysis Notes

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

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

End of Report

APPENDIX 10

Laboratory Test Results - Contamination (Groundwater)



Certificate of Analysis

Certificate Number 22-18372

Issued: 26-Sep-22

Client Geotechnics LTD
The Geotechnical Centre
Unit 1B Borders Ind. Park
River Lane
Saltney
Chester
CH4 8RJ

Our Reference 22-18372

Client Reference PN214233

Order No ON34492

Contract Title Newport Quinn Phase 2

Description 2 Water samples.

Date Received 16-Sep-22

Date Started 16-Sep-22

Date Completed 26-Sep-22

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

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

Approved By

A handwritten signature in black ink, appearing to read "K. Bridgewood".

Kirk Bridgewood
General Manager



2139

Summary of Chemical Analysis

Water Samples

Our Ref 22-18372

Client Ref PN214233

Contract Title Newport Quinn Phase 2

| | | |
|---------------|------------|------------|
| Lab No | 2058943 | 2058944 |
| Sample ID | BH01 | BH06 |
| Depth | 0.30 | 0.50 |
| Other ID | | |
| Sample Type | EW | EW |
| Sampling Date | 13/09/2022 | 13/09/2022 |
| Sampling Time | n/s | n/s |

| Test | Method | LOD | Units | | |
|-------------------------------|-------------|------|-------|--------|--------|
| Metals | | | | | |
| Arsenic, Dissolved | DETSC 2306 | 0.16 | ug/l | 1.1 | 0.52 |
| Barium, Dissolved | DETSC 2306 | 0.26 | ug/l | 640 | 220 |
| Beryllium, Dissolved | DETSC 2306* | 0.1 | ug/l | < 0.1 | < 0.1 |
| Boron, Dissolved | DETSC 2306* | 12 | ug/l | 31 | 180 |
| Cadmium, Dissolved | DETSC 2306 | 0.03 | ug/l | < 0.03 | < 0.03 |
| Calcium, Dissolved | DETSC 2306 | 0.09 | mg/l | 65 | 72 |
| Chromium, Dissolved | DETSC 2306 | 0.25 | ug/l | < 0.25 | < 0.25 |
| Copper, Dissolved | DETSC 2306 | 0.4 | ug/l | < 0.4 | 1.0 |
| Lead, Dissolved | DETSC 2306 | 0.09 | ug/l | < 0.09 | < 0.09 |
| Mercury, Dissolved | DETSC 2306 | 0.01 | ug/l | < 0.01 | < 0.01 |
| Nickel, Dissolved | DETSC 2306 | 0.5 | ug/l | 0.8 | 2.4 |
| Selenium, Dissolved | DETSC 2306 | 0.25 | ug/l | < 0.25 | < 0.25 |
| Vanadium, Dissolved | DETSC 2306 | 0.6 | ug/l | 2.2 | < 0.6 |
| Zinc, Dissolved | DETSC 2306 | 1.3 | ug/l | 6.7 | 4.0 |
| Inorganics | | | | | |
| pH | DETSC 2008 | | pH | 7.2 | 7.3 |
| Dissolved Organic Carbon | DETSC 2085 | 2 | mg/l | < 2.0 | 2.3 |
| Petroleum Hydrocarbons | | | | | |
| Aliphatic C5-C6 | DETSC 3322 | 0.1 | ug/l | < 0.1 | < 0.1 |
| Aliphatic C6-C8 | DETSC 3322 | 0.1 | ug/l | < 0.1 | < 0.1 |
| Aliphatic C8-C10 | DETSC 3322 | 0.1 | ug/l | < 0.1 | < 0.1 |
| Aliphatic C10-C12 | DETSC 3072* | 1 | ug/l | < 1.0 | < 1.0 |
| Aliphatic C12-C16 | DETSC 3072* | 1 | ug/l | < 1.0 | 3.4 |
| Aliphatic C16-C21 | DETSC 3072* | 1 | ug/l | < 1.0 | 16 |
| Aliphatic C21-C35 | DETSC 3072* | 1 | ug/l | < 1.0 | 94 |
| Aliphatic C5-C35 | DETSC 3072* | 10 | ug/l | < 10 | 110 |
| Aromatic C5-C7 | DETSC 3322 | 0.1 | ug/l | < 0.1 | < 0.1 |
| Aromatic C7-C8 | DETSC 3322 | 0.1 | ug/l | < 0.1 | < 0.1 |
| Aromatic C8-C10 | DETSC 3322 | 0.1 | ug/l | < 0.1 | < 0.1 |
| Aromatic C10-C12 | DETSC 3072* | 1 | ug/l | < 1.0 | < 1.0 |
| Aromatic C12-C16 | DETSC 3072* | 1 | ug/l | < 1.0 | < 1.0 |
| Aromatic C16-C21 | DETSC 3072* | 1 | ug/l | < 1.0 | < 1.0 |
| Aromatic C21-C35 | DETSC 3072* | 1 | ug/l | < 1.0 | < 1.0 |
| Aromatic C5-C35 | DETSC 3072* | 10 | ug/l | < 10 | < 10 |
| TPH Ali/Aro Total C5-C35 | DETSC 3072* | 10 | ug/l | < 10 | 110 |
| PAHs | | | | | |
| Naphthalene | DETSC 3304 | 0.05 | ug/l | < 0.05 | < 0.05 |
| Acenaphthylene | DETSC 3304 | 0.01 | ug/l | < 0.01 | < 0.01 |
| Acenaphthene | DETSC 3304 | 0.01 | ug/l | < 0.01 | < 0.01 |
| Fluorene | DETSC 3304 | 0.01 | ug/l | < 0.01 | < 0.01 |
| Phenanthrene | DETSC 3304 | 0.01 | ug/l | < 0.01 | < 0.01 |

Summary of Chemical Analysis

Water Samples

Our Ref 22-18372

Client Ref PN214233

Contract Title Newport Quinn Phase 2

| | | |
|---------------|------------|------------|
| Lab No | 2058943 | 2058944 |
| Sample ID | BH01 | BH06 |
| Depth | 0.30 | 0.50 |
| Other ID | | |
| Sample Type | EW | EW |
| Sampling Date | 13/09/2022 | 13/09/2022 |
| Sampling Time | n/s | n/s |

| Test | Method | LOD | Units | | |
|-------------------------|-------------|------|-------|--------|--------|
| Anthracene | DETSC 3304 | 0.01 | ug/l | < 0.01 | < 0.01 |
| Fluoranthene | DETSC 3304 | 0.01 | ug/l | < 0.01 | < 0.01 |
| Pyrene | DETSC 3304 | 0.01 | ug/l | < 0.01 | < 0.01 |
| Benzo(a)anthracene | DETSC 3304* | 0.01 | ug/l | < 0.01 | < 0.01 |
| Chrysene | DETSC 3304 | 0.01 | ug/l | < 0.01 | < 0.01 |
| Benzo(b)fluoranthene | DETSC 3304 | 0.01 | ug/l | < 0.01 | < 0.01 |
| Benzo(k)fluoranthene | DETSC 3304 | 0.01 | ug/l | < 0.01 | < 0.01 |
| Benzo(a)pyrene | DETSC 3304 | 0.01 | ug/l | < 0.01 | < 0.01 |
| Indeno(1,2,3-c,d)pyrene | DETSC 3304 | 0.01 | ug/l | < 0.01 | < 0.01 |
| Dibenzo(a,h)anthracene | DETSC 3304 | 0.01 | ug/l | < 0.01 | < 0.01 |
| Benzo(g,h,i)perylene | DETSC 3304 | 0.01 | ug/l | < 0.01 | < 0.01 |
| PAH Total | DETSC 3304 | 0.2 | ug/l | < 0.20 | < 0.20 |

Summary of Chemical Analysis

Water Samples

Our Ref 22-18372

Client Ref PN214233

Contract Title Newport Quinn Phase 2

| | | |
|---------------|------------|------------|
| Lab No | 2058943 | 2058944 |
| Sample ID | BH01 | BH06 |
| Depth | 0.30 | 0.50 |
| Other ID | | |
| Sample Type | EW | EW |
| Sampling Date | 13/09/2022 | 13/09/2022 |
| Sampling Time | n/s | n/s |

| Test | Method | LOD | Units | | |
|----------------------------|-------------|-----|-------|------|------|
| VOCs | | | | | |
| Dichlorodifluoromethane | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| Chloromethane | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| Vinyl Chloride | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| Bromomethane | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| Chloroethane | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| Trichlorofluoromethane | DETSC 3432* | 1 | ug/l | < 1 | < 1 |
| 1,1-dichloroethylene | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| Methylene Chloride | DETSC 3432* | 27 | ug/l | < 27 | < 27 |
| Trans-1,2-dichloroethylene | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| 1,1-dichloroethane | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| Cis-1,2-dichloroethylene | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| 2,2-dichloropropane | DETSC 3432* | 2 | ug/l | < 2 | < 2 |
| Bromochloromethane | DETSC 3432 | 4 | ug/l | < 4 | < 4 |
| Chloroform | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| 1,1,1-trichloroethane | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| 1,1-dichloropropene | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| Carbon tetrachloride | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| Benzene | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| 1,2-dichloroethane | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| Trichloroethylene | DETSC 3432* | 1 | ug/l | < 1 | < 1 |
| 1,2-dichloropropane | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| Dibromomethane | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| Bromodichloromethane | DETSC 3432 | 4 | ug/l | < 4 | < 4 |
| cis-1,3-dichloropropene | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| Toluene | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| trans-1,3-dichloropropene | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| 1,1,2-trichloroethane | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| Tetrachloroethylene | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| 1,3-dichloropropane | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| Dibromochloromethane | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| 1,2-dibromoethane | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| Chlorobenzene | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| 1,1,1,2-tetrachloroethane | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| Ethylbenzene | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| m+p-Xylene | DETSC 3432 | 2 | ug/l | < 2 | < 2 |
| o-Xylene | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| Styrene | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| Bromoform | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| Isopropylbenzene | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| 1,1,2,2-tetrachloroethane | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| Bromobenzene | DETSC 3432 | 1 | ug/l | < 1 | < 1 |

Summary of Chemical Analysis

Water Samples

Our Ref 22-18372

Client Ref PN214233

Contract Title Newport Quinn Phase 2

| | | |
|---------------|------------|------------|
| Lab No | 2058943 | 2058944 |
| Sample ID | BH01 | BH06 |
| Depth | 0.30 | 0.50 |
| Other ID | | |
| Sample Type | EW | EW |
| Sampling Date | 13/09/2022 | 13/09/2022 |
| Sampling Time | n/s | n/s |

| Test | Method | LOD | Units | | |
|-----------------------------|-------------|-----|-------|-------|-----|
| 1,2,3-trichloropropane | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| n-propylbenzene | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| 2-chlorotoluene | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| 1,3,5-trimethylbenzene | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| 4-chlorotoluene | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| Tert-butylbenzene | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| 1,2,4-trimethylbenzene | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| sec-butylbenzene | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| p-isopropyltoluene | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| 1,3-dichlorobenzene | DETSC 3432 | 2 | ug/l | < 2 | < 2 |
| 1,4-dichlorobenzene | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| n-butylbenzene | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| 1,2-dichlorobenzene | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| 1,2-dibromo-3-chloropropane | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| 1,2,4-trichlorobenzene | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| Hexachlorobutadiene | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| 1,2,3-trichlorobenzene | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| MTBE | DETSC 3432* | 1 | ug/l | < 1 | < 1 |
| SVOCs | | | | | |
| Phenol | DETSC 3434* | 1 | ug/l | < 1.0 | |
| Aniline | DETSC 3434* | 1 | ug/l | < 1.0 | |
| 2-Chlorophenol | DETSC 3434* | 1 | ug/l | < 1.0 | |
| Benzyl Alcohol | DETSC 3434* | 1 | ug/l | < 1.0 | |
| 2-Methylphenol | DETSC 3434* | 1 | ug/l | < 1.0 | |
| Bis(2-chloroisopropyl)ether | DETSC 3434* | 1 | ug/l | < 1.0 | |
| 3&4-Methylphenol | DETSC 3434* | 1 | ug/l | < 1.0 | |
| Bis(2-chloroethoxy)methane | DETSC 3434* | 1 | ug/l | < 1.0 | |
| 2,4-Dimethylphenol | DETSC 3434* | 1 | ug/l | < 1.0 | |
| 2,4-Dichlorophenol | DETSC 3434* | 1 | ug/l | < 1.0 | |
| 1,2,4-Trichlorobenzene | DETSC 3434* | 1 | ug/l | < 1.0 | |
| 4-Chloro-3-methylphenol | DETSC 3434* | 1 | ug/l | < 1.0 | |
| 2-Methylnaphthalene | DETSC 3434* | 1 | ug/l | < 1.0 | |
| Hexachlorocyclopentadiene | DETSC 3434* | 1 | ug/l | < 1.0 | |
| 2,4,6-Trichlorophenol | DETSC 3434* | 1 | ug/l | < 1.0 | |
| 2,4,5-Trichlorophenol | DETSC 3434* | 1 | ug/l | < 1.0 | |
| 2-Chloronaphthalene | DETSC 3434* | 1 | ug/l | < 1.0 | |
| 2-Nitroaniline | DETSC 3434* | 1 | ug/l | < 1.0 | |
| 2,4-Dinitrotoluene | DETSC 3434* | 1 | ug/l | < 1.0 | |
| 3-Nitroaniline | DETSC 3434* | 1 | ug/l | < 1.0 | |
| 4-Nitrophenol | DETSC 3434* | 1 | ug/l | < 1.0 | |
| Dibenzofuran | DETSC 3434* | 1 | ug/l | < 1.0 | |
| 2,6-Dinitrotoluene | DETSC 3434* | 1 | ug/l | < 1.0 | |

Summary of Chemical Analysis

Water Samples

Our Ref 22-18372

Client Ref PN214233

Contract Title Newport Quinn Phase 2

| | | |
|---------------|------------|------------|
| Lab No | 2058943 | 2058944 |
| Sample ID | BH01 | BH06 |
| Depth | 0.30 | 0.50 |
| Other ID | | |
| Sample Type | EW | EW |
| Sampling Date | 13/09/2022 | 13/09/2022 |
| Sampling Time | n/s | n/s |

| Test | Method | LOD | Units | | |
|----------------------------|-------------|-----|-------|-------|--|
| 2,3,4,6-Tetrachlorophenol | DETSC 3434* | 1 | ug/l | < 1.0 | |
| Diethylphthalate | DETSC 3434* | 1 | ug/l | < 1.0 | |
| 4-Chlorophenylphenylether | DETSC 3434* | 1 | ug/l | < 1.0 | |
| 4-Nitroaniline | DETSC 3434* | 1 | ug/l | < 1.0 | |
| Diphenylamine | DETSC 3434* | 1 | ug/l | < 1.0 | |
| 4-Bromophenylphenylether | DETSC 3434* | 1 | ug/l | < 1.0 | |
| Hexachlorobenzene | DETSC 3434* | 1 | ug/l | < 1.0 | |
| Bis(2-ethylhexyl)ester | DETSC 3434* | 1 | ug/l | < 1.0 | |
| Pentachlorophenol | DETSC 3434* | 1 | ug/l | < 1.0 | |
| Di-n-butylphthalate | DETSC 3434* | 1 | ug/l | < 1.0 | |
| Butylbenzylphthalate | DETSC 3434* | 1 | ug/l | < 1.0 | |
| Bis(2-ethylhexyl)phthalate | DETSC 3434* | 1 | ug/l | < 1.0 | |
| Di-n-octylphthalate | DETSC 3434* | 1 | ug/l | < 1.0 | |
| 1,4-Dinitrobenzene | DETSC 3434* | 1 | ug/l | < 1.0 | |
| Dimethylphthalate | DETSC 3434* | 1 | ug/l | < 1.0 | |
| 1,3-Dinitrobenzene | DETSC 3434* | 1 | ug/l | < 1.0 | |
| 2,3,5,6-Tetrachlorophenol | DETSC 3434* | 1 | ug/l | < 1.0 | |
| Azobenzene | DETSC 3434* | 1 | ug/l | < 1.0 | |
| Carbazole | DETSC 3434* | 1 | ug/l | < 1.0 | |
| 1-Methylnaphthalene | DETSC 3434* | 1 | ug/l | < 1.0 | |

Information in Support of the Analytical Results

Our Ref 22-18372
Client Ref PN214233
Contract Newport Quinn Phase 2

Containers Received & Deviating Samples

| Lab No | Sample ID | Date | | Containers Received | Holding time exceeded for tests | Inappropriate container for tests |
|---------|-----------------|----------|--|---------------------------|---------------------------------|-----------------------------------|
| | | Sampled | | | | |
| 2058943 | BH01 0.30 WATER | 13/09/22 | | GB 1L x2, GV x2, PB 1L x2 | pH/Cond/TDS (1 days) | |
| 2058944 | BH06 0.50 WATER | 13/09/22 | | GB 1L x2, GV x2, PB 1L x2 | pH/Cond/TDS (1 days) | |

Key: G-Glass P-Plastic B-Bottle V-Vial

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

Disposal

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

End of Report



Certificate of Analysis

Certificate Number 22-19512

Issued: 07-Oct-22

Client Geotechnics LTD
The Geotechnical Centre
Unit 1B Borders Ind. Park
River Lane
Saltney
Chester
CH4 8RJ

Our Reference 22-19512

Client Reference PC224395

Order No ON34492

Contract Title Newport Quinn Phase 2

Description 4 Water samples.

Date Received 30-Sep-22

Date Started 30-Sep-22

Date Completed 07-Oct-22

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

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

Approved By

A handwritten signature in black ink, appearing to read "K. Bridgewood".

Kirk Bridgewood
General Manager



2139

Summary of Chemical Analysis

Water Samples

Our Ref 22-19512

Client Ref PC224395

Contract Title Newport Quinn Phase 2

| Lab No | 2065525 | 2065526 | 2065527 | 2065528 |
|---------------|------------|------------|------------|------------|
| Sample ID | BH09 | BH10 | BH17 | BH19 |
| Depth | | | | |
| Other ID | | | | |
| Sample Type | EW | EW | EW | EW |
| Sampling Date | 26/09/2022 | 26/09/2022 | 26/09/2022 | 26/09/2022 |
| Sampling Time | n/s | n/s | n/s | n/s |

| Test | Method | LOD | Units | | | | |
|-------------------------------|-------------|------|-------|--------|--------|--------|--------|
| Metals | | | | | | | |
| Arsenic, Dissolved | DETSC 2306 | 0.16 | ug/l | 3.9 | 1.1 | 1.2 | 3.7 |
| Barium, Dissolved | DETSC 2306 | 0.26 | ug/l | 990 | 390 | 290 | 190 |
| Beryllium, Dissolved | DETSC 2306* | 0.1 | ug/l | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Boron, Dissolved | DETSC 2306* | 12 | ug/l | 520 | 43 | 76 | 610 |
| Cadmium, Dissolved | DETSC 2306 | 0.03 | ug/l | < 0.03 | 0.14 | < 0.03 | < 0.03 |
| Calcium, Dissolved | DETSC 2306 | 0.09 | mg/l | 110 | 53 | 42 | 90 |
| Chromium, Dissolved | DETSC 2306 | 0.25 | ug/l | < 0.25 | < 0.25 | < 0.25 | < 0.25 |
| Copper, Dissolved | DETSC 2306 | 0.4 | ug/l | 0.7 | 2.5 | 2.1 | 3.1 |
| Lead, Dissolved | DETSC 2306 | 0.09 | ug/l | < 0.09 | 0.70 | 1.6 | 0.14 |
| Mercury, Dissolved | DETSC 2306 | 0.01 | ug/l | < 0.01 | 0.03 | 0.04 | < 0.01 |
| Nickel, Dissolved | DETSC 2306 | 0.5 | ug/l | 11 | 4.2 | 3.0 | 7.4 |
| Selenium, Dissolved | DETSC 2306 | 0.25 | ug/l | 1.1 | 13 | 1.9 | 0.71 |
| Vanadium, Dissolved | DETSC 2306 | 0.6 | ug/l | < 0.6 | 1.6 | 2.3 | < 0.6 |
| Zinc, Dissolved | DETSC 2306 | 1.3 | ug/l | 36 | 17 | 27 | 17 |
| Inorganics | | | | | | | |
| pH | DETSC 2008 | | pH | 6.3 | 6.7 | 7.1 | 6.8 |
| Dissolved Organic Carbon | DETSC 2085 | 2 | mg/l | 40 | 7.2 | 3.1 | 12 |
| Petroleum Hydrocarbons | | | | | | | |
| Aliphatic C5-C6 | DETSC 3322 | 0.1 | ug/l | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Aliphatic C6-C8 | DETSC 3322 | 0.1 | ug/l | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Aliphatic C8-C10 | DETSC 3322 | 0.1 | ug/l | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Aliphatic C10-C12 | DETSC 3072* | 1 | ug/l | 13 | < 1.0 | < 1.0 | < 1.0 |
| Aliphatic C12-C16 | DETSC 3072* | 1 | ug/l | 17 | < 1.0 | < 1.0 | < 1.0 |
| Aliphatic C16-C21 | DETSC 3072* | 1 | ug/l | 20 | < 1.0 | < 1.0 | < 1.0 |
| Aliphatic C21-C35 | DETSC 3072* | 1 | ug/l | 20 | < 1.0 | < 1.0 | < 1.0 |
| Aliphatic C5-C35 | DETSC 3072* | 10 | ug/l | 71 | < 10 | < 10 | < 10 |
| Aromatic C5-C7 | DETSC 3322 | 0.1 | ug/l | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Aromatic C7-C8 | DETSC 3322 | 0.1 | ug/l | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Aromatic C8-C10 | DETSC 3322 | 0.1 | ug/l | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Aromatic C10-C12 | DETSC 3072* | 1 | ug/l | 48 | 16 | 10 | 9.8 |
| Aromatic C12-C16 | DETSC 3072* | 1 | ug/l | 110 | 32 | 22 | 18 |
| Aromatic C16-C21 | DETSC 3072* | 1 | ug/l | 120 | 34 | 23 | 18 |
| Aromatic C21-C35 | DETSC 3072* | 1 | ug/l | 58 | 10 | 7.4 | 6.0 |
| Aromatic C5-C35 | DETSC 3072* | 10 | ug/l | 340 | 91 | 63 | 52 |
| TPH Ali/Aro Total C5-C35 | DETSC 3072* | 10 | ug/l | 410 | 91 | 64 | 52 |
| PAHs | | | | | | | |
| Naphthalene | DETSC 3304 | 0.05 | ug/l | 0.34 | 0.06 | < 0.05 | 0.05 |
| Acenaphthylene | DETSC 3304 | 0.01 | ug/l | 0.20 | 0.08 | 0.05 | 0.03 |
| Acenaphthene | DETSC 3304 | 0.01 | ug/l | 0.19 | 0.08 | 0.06 | 0.04 |
| Fluorene | DETSC 3304 | 0.01 | ug/l | 0.15 | 0.09 | 0.06 | 0.05 |
| Phenanthrene | DETSC 3304 | 0.01 | ug/l | 0.32 | 0.18 | 0.15 | 0.14 |

Summary of Chemical Analysis

Water Samples

Our Ref 22-19512

Client Ref PC224395

Contract Title Newport Quinn Phase 2

| | | | | |
|---------------|------------|------------|------------|------------|
| Lab No | 2065525 | 2065526 | 2065527 | 2065528 |
| Sample ID | BH09 | BH10 | BH17 | BH19 |
| Depth | | | | |
| Other ID | | | | |
| Sample Type | EW | EW | EW | EW |
| Sampling Date | 26/09/2022 | 26/09/2022 | 26/09/2022 | 26/09/2022 |
| Sampling Time | n/s | n/s | n/s | n/s |

| Test | Method | LOD | Units | | | | |
|-------------------------|-------------|------|-------|--------|--------|--------|--------|
| Anthracene | DETSC 3304 | 0.01 | ug/l | 0.06 | 0.04 | 0.03 | 0.02 |
| Fluoranthene | DETSC 3304 | 0.01 | ug/l | 0.18 | 0.11 | 0.10 | 0.07 |
| Pyrene | DETSC 3304 | 0.01 | ug/l | 0.13 | 0.10 | 0.14 | 0.05 |
| Benzo(a)anthracene | DETSC 3304* | 0.01 | ug/l | 0.07 | 0.04 | 0.03 | 0.01 |
| Chrysene | DETSC 3304 | 0.01 | ug/l | 0.04 | 0.03 | 0.02 | 0.02 |
| Benzo(b)fluoranthene | DETSC 3304 | 0.01 | ug/l | 0.05 | 0.03 | 0.02 | 0.01 |
| Benzo(k)fluoranthene | DETSC 3304 | 0.01 | ug/l | 0.02 | 0.01 | 0.01 | < 0.01 |
| Benzo(a)pyrene | DETSC 3304 | 0.01 | ug/l | 0.04 | 0.02 | 0.02 | 0.01 |
| Indeno(1,2,3-c,d)pyrene | DETSC 3304 | 0.01 | ug/l | 0.03 | 0.02 | 0.02 | 0.02 |
| Dibenzo(a,h)anthracene | DETSC 3304 | 0.01 | ug/l | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Benzo(g,h,i)perylene | DETSC 3304 | 0.01 | ug/l | 0.02 | 0.02 | 0.02 | 0.01 |
| PAH Total | DETSC 3304 | 0.2 | ug/l | 1.9 | 0.91 | 0.71 | 0.54 |

Summary of Chemical Analysis

Water VOC/SVOC Samples

Our Ref 22-19512

Client Ref PC224395

Contract Title Newport Quinn Phase 2

| | | |
|---------------|------------|------------|
| Lab No | 2065525 | 2065526 |
| Sample ID | BH09 | BH10 |
| Depth | | |
| Other ID | | |
| Sample Type | EW | EW |
| Sampling Date | 26/09/2022 | 26/09/2022 |
| Sampling Time | n/s | n/s |

| Test | Method | LOD | Units | | |
|----------------------------|-------------|-----|-------|------|------|
| VOCs | | | | | |
| Dichlorodifluoromethane | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| Chloromethane | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| Vinyl Chloride | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| Bromomethane | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| Chloroethane | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| Trichlorofluoromethane | DETSC 3432* | 1 | ug/l | < 1 | < 1 |
| 1,1-dichloroethylene | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| Methylene Chloride | DETSC 3432* | 27 | ug/l | < 27 | < 27 |
| Trans-1,2-dichloroethylene | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| 1,1-dichloroethane | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| Cis-1,2-dichloroethylene | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| 2,2-dichloropropane | DETSC 3432* | 2 | ug/l | < 2 | < 2 |
| Bromochloromethane | DETSC 3432 | 4 | ug/l | < 4 | < 4 |
| Chloroform | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| 1,1,1-trichloroethane | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| 1,1-dichloropropene | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| Carbon tetrachloride | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| Benzene | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| 1,2-dichloroethane | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| Trichloroethylene | DETSC 3432* | 1 | ug/l | < 1 | < 1 |
| 1,2-dichloropropane | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| Dibromomethane | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| Bromodichloromethane | DETSC 3432 | 4 | ug/l | < 4 | < 4 |
| cis-1,3-dichloropropene | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| Toluene | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| trans-1,3-dichloropropene | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| 1,1,2-trichloroethane | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| Tetrachloroethylene | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| 1,3-dichloropropane | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| Dibromochloromethane | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| 1,2-dibromoethane | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| Chlorobenzene | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| 1,1,1,2-tetrachloroethane | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| Ethylbenzene | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| m+p-Xylene | DETSC 3432 | 2 | ug/l | < 2 | < 2 |
| o-Xylene | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| Styrene | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| Bromoform | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| Isopropylbenzene | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| 1,1,2,2-tetrachloroethane | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| Bromobenzene | DETSC 3432 | 1 | ug/l | < 1 | < 1 |

Summary of Chemical Analysis

Water VOC/SVOC Samples

Our Ref 22-19512

Client Ref PC224395

Contract Title Newport Quinn Phase 2

| | | |
|---------------|------------|------------|
| Lab No | 2065525 | 2065526 |
| Sample ID | BH09 | BH10 |
| Depth | | |
| Other ID | | |
| Sample Type | EW | EW |
| Sampling Date | 26/09/2022 | 26/09/2022 |
| Sampling Time | n/s | n/s |

| Test | Method | LOD | Units | | |
|-----------------------------|-------------|-----|-------|-------|-------|
| 1,2,3-trichloropropane | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| n-propylbenzene | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| 2-chlorotoluene | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| 1,3,5-trimethylbenzene | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| 4-chlorotoluene | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| Tert-butylbenzene | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| 1,2,4-trimethylbenzene | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| sec-butylbenzene | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| p-isopropyltoluene | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| 1,3-dichlorobenzene | DETSC 3432 | 2 | ug/l | < 2 | < 2 |
| 1,4-dichlorobenzene | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| n-butylbenzene | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| 1,2-dichlorobenzene | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| 1,2-dibromo-3-chloropropane | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| 1,2,4-trichlorobenzene | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| Hexachlorobutadiene | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| 1,2,3-trichlorobenzene | DETSC 3432 | 1 | ug/l | < 1 | < 1 |
| MTBE | DETSC 3432* | 1 | ug/l | < 1 | < 1 |
| SVOCs | | | | | |
| Phenol | DETSC 3434* | 1 | ug/l | < 1.0 | < 1.0 |
| Aniline | DETSC 3434* | 1 | ug/l | < 1.0 | < 1.0 |
| 2-Chlorophenol | DETSC 3434* | 1 | ug/l | < 1.0 | < 1.0 |
| Benzyl Alcohol | DETSC 3434* | 1 | ug/l | < 1.0 | < 1.0 |
| 2-Methylphenol | DETSC 3434* | 1 | ug/l | < 1.0 | < 1.0 |
| Bis(2-chloroisopropyl)ether | DETSC 3434* | 1 | ug/l | < 1.0 | < 1.0 |
| 3&4-Methylphenol | DETSC 3434* | 1 | ug/l | < 1.0 | < 1.0 |
| Bis(2-chloroethoxy)methane | DETSC 3434* | 1 | ug/l | < 1.0 | < 1.0 |
| 2,4-Dimethylphenol | DETSC 3434* | 1 | ug/l | < 1.0 | < 1.0 |
| 2,4-Dichlorophenol | DETSC 3434* | 1 | ug/l | < 1.0 | < 1.0 |
| 1,2,4-Trichlorobenzene | DETSC 3434* | 1 | ug/l | < 1.0 | < 1.0 |
| 4-Chloro-3-methylphenol | DETSC 3434* | 1 | ug/l | < 1.0 | < 1.0 |
| 2-Methylnaphthalene | DETSC 3434* | 1 | ug/l | < 1.0 | < 1.0 |
| Hexachlorocyclopentadiene | DETSC 3434* | 1 | ug/l | < 1.0 | < 1.0 |
| 2,4,6-Trichlorophenol | DETSC 3434* | 1 | ug/l | < 1.0 | < 1.0 |
| 2,4,5-Trichlorophenol | DETSC 3434* | 1 | ug/l | < 1.0 | < 1.0 |
| 2-Chloronaphthalene | DETSC 3434* | 1 | ug/l | < 1.0 | < 1.0 |
| 2-Nitroaniline | DETSC 3434* | 1 | ug/l | < 1.0 | < 1.0 |
| 2,4-Dinitrotoluene | DETSC 3434* | 1 | ug/l | < 1.0 | < 1.0 |
| 3-Nitroaniline | DETSC 3434* | 1 | ug/l | < 1.0 | < 1.0 |
| 4-Nitrophenol | DETSC 3434* | 1 | ug/l | < 1.0 | < 1.0 |
| Dibenzofuran | DETSC 3434* | 1 | ug/l | < 1.0 | < 1.0 |
| 2,6-Dinitrotoluene | DETSC 3434* | 1 | ug/l | < 1.0 | < 1.0 |

Summary of Chemical Analysis

Water VOC/SVOC Samples

Our Ref 22-19512

Client Ref PC224395

Contract Title Newport Quinn Phase 2

| | | |
|---------------|------------|------------|
| Lab No | 2065525 | 2065526 |
| Sample ID | BH09 | BH10 |
| Depth | | |
| Other ID | | |
| Sample Type | EW | EW |
| Sampling Date | 26/09/2022 | 26/09/2022 |
| Sampling Time | n/s | n/s |

| Test | Method | LOD | Units | | |
|----------------------------|-------------|-----|-------|-------|-------|
| 2,3,4,6-Tetrachlorophenol | DETSC 3434* | 1 | ug/l | < 1.0 | < 1.0 |
| Diethylphthalate | DETSC 3434* | 1 | ug/l | < 1.0 | < 1.0 |
| 4-Chlorophenylphenylether | DETSC 3434* | 1 | ug/l | < 1.0 | < 1.0 |
| 4-Nitroaniline | DETSC 3434* | 1 | ug/l | < 1.0 | < 1.0 |
| Diphenylamine | DETSC 3434* | 1 | ug/l | < 1.0 | < 1.0 |
| 4-Bromophenylphenylether | DETSC 3434* | 1 | ug/l | < 1.0 | < 1.0 |
| Hexachlorobenzene | DETSC 3434* | 1 | ug/l | < 1.0 | < 1.0 |
| Bis(2-ethylhexyl)ester | DETSC 3434* | 1 | ug/l | < 1.0 | < 1.0 |
| Pentachlorophenol | DETSC 3434* | 1 | ug/l | < 1.0 | < 1.0 |
| Di-n-butylphthalate | DETSC 3434* | 1 | ug/l | < 1.0 | < 1.0 |
| Butylbenzylphthalate | DETSC 3434* | 1 | ug/l | < 1.0 | < 1.0 |
| Bis(2-ethylhexyl)phthalate | DETSC 3434* | 1 | ug/l | < 1.0 | < 1.0 |
| Di-n-octylphthalate | DETSC 3434* | 1 | ug/l | < 1.0 | < 1.0 |
| 1,4-Dinitrobenzene | DETSC 3434* | 1 | ug/l | < 1.0 | < 1.0 |
| Dimethylphthalate | DETSC 3434* | 1 | ug/l | < 1.0 | < 1.0 |
| 1,3-Dinitrobenzene | DETSC 3434* | 1 | ug/l | < 1.0 | < 1.0 |
| 2,3,5,6-Tetrachlorophenol | DETSC 3434* | 1 | ug/l | < 1.0 | < 1.0 |
| Azobenzene | DETSC 3434* | 1 | ug/l | < 1.0 | < 1.0 |
| Carbazole | DETSC 3434* | 1 | ug/l | < 1.0 | < 1.0 |
| 1-Methylnaphthalene | DETSC 3434* | 1 | ug/l | < 1.0 | < 1.0 |

Information in Support of the Analytical Results

Our Ref 22-19512
 Client Ref PC224395
 Contract Newport Quinn Phase 2

Containers Received & Deviating Samples

| Lab No | Sample ID | Date | | Containers Received | Holding time exceeded for tests | Inappropriate container for tests |
|---------|------------|----------|--|---------------------------|---------------------------------|-----------------------------------|
| | | Sampled | | | | |
| 2065525 | BH09 WATER | 26/09/22 | | GB 1L x2, GV x2, PB 1L x2 | pH/Cond/TDS (1 days) | |
| 2065526 | BH10 WATER | 26/09/22 | | GB 1L x2, GV x2, PB 1L x2 | pH/Cond/TDS (1 days) | |
| 2065527 | BH17 WATER | 26/09/22 | | GB 1L x2, GV x2, PB 1L x2 | pH/Cond/TDS (1 days) | |
| 2065528 | BH19 WATER | 26/09/22 | | GB 1L x2, GV x2, PB 1L x2 | pH/Cond/TDS (1 days) | |

Key: G-Glass P-Plastic B-Bottle V-Vial

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

Disposal

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

End of Report



Certificate of Analysis

Certificate Number 22-20262

Issued: 17-Oct-22

Client Geotechnics LTD
The Geotechnical Centre
Unit 1B Borders Ind. Park
River Lane
Saltney
Chester
CH4 8RJ

Our Reference 22-20262

Client Reference PN224395

Order No ON34492

Contract Title Newport Quinn Phase 2

Description 4 Water samples.

Date Received 10-Oct-22

Date Started 10-Oct-22

Date Completed 17-Oct-22

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

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

Approved By

Kirk Bridgewood
General Manager



2139

Summary of Chemical Analysis

Water Samples

Our Ref 22-20262

Client Ref PN224395

Contract Title Newport Quinn Phase 2

| Lab No | 2069357 | 2069358 | 2069359 | 2069360 |
|---------------|------------|------------|------------|------------|
| Sample ID | BH23 | BH25 | BH28 | BH30 |
| Depth | 5.00-6.00 | 2.00-3.00 | 3.00-4.00 | 2.00-3.00 |
| Other ID | | | | |
| Sample Type | EW | EW | EW | EW |
| Sampling Date | 05/10/2022 | 05/10/2022 | 05/10/2022 | 05/10/2022 |
| Sampling Time | n/s | n/s | n/s | n/s |

| Test | Method | LOD | Units | | | | |
|-------------------------------|-------------|------|-------|--------|--------|--------|--------|
| Metals | | | | | | | |
| Arsenic, Dissolved | DETSC 2306 | 0.16 | ug/l | 0.70 | 1.3 | 0.27 | 0.79 |
| Barium, Dissolved | DETSC 2306 | 0.26 | ug/l | 160 | 680 | 110 | 250 |
| Beryllium, Dissolved | DETSC 2306* | 0.1 | ug/l | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Boron, Dissolved | DETSC 2306* | 12 | ug/l | 38 | 2100 | 56 | 220 |
| Cadmium, Dissolved | DETSC 2306 | 0.03 | ug/l | < 0.03 | < 0.03 | < 0.03 | 0.09 |
| Calcium, Dissolved | DETSC 2306 | 0.09 | mg/l | 40 | 85 | 38 | 50 |
| Chromium, Dissolved | DETSC 2306 | 0.25 | ug/l | 0.64 | < 0.25 | 1.4 | 2.1 |
| Copper, Dissolved | DETSC 2306 | 0.4 | ug/l | 3.4 | 1.6 | 1.6 | 3.1 |
| Lead, Dissolved | DETSC 2306 | 0.09 | ug/l | < 0.09 | < 0.09 | < 0.09 | < 0.09 |
| Mercury, Dissolved | DETSC 2306 | 0.01 | ug/l | < 0.01 | 0.02 | < 0.01 | 0.01 |
| Nickel, Dissolved | DETSC 2306 | 0.5 | ug/l | 1.6 | 5.3 | 0.7 | 1.4 |
| Selenium, Dissolved | DETSC 2306 | 0.25 | ug/l | 7.4 | 0.67 | 0.34 | 0.83 |
| Vanadium, Dissolved | DETSC 2306 | 0.6 | ug/l | 1.4 | < 0.6 | 0.7 | 2.8 |
| Zinc, Dissolved | DETSC 2306 | 1.3 | ug/l | 5.7 | 11 | 5.4 | 21 |
| Inorganics | | | | | | | |
| pH | DETSC 2008 | | pH | 7.6 | 6.9 | 7.5 | 7.5 |
| Dissolved Organic Carbon | DETSC 2085 | 2 | mg/l | 4.4 | 13 | 6.9 | 3.7 |
| Petroleum Hydrocarbons | | | | | | | |
| Aliphatic C5-C6 | DETSC 3322 | 0.1 | ug/l | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Aliphatic C6-C8 | DETSC 3322 | 0.1 | ug/l | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Aliphatic C8-C10 | DETSC 3322 | 0.1 | ug/l | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Aliphatic C10-C12 | DETSC 3072* | 1 | ug/l | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aliphatic C12-C16 | DETSC 3072* | 1 | ug/l | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aliphatic C16-C21 | DETSC 3072* | 1 | ug/l | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aliphatic C21-C35 | DETSC 3072* | 1 | ug/l | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aliphatic C5-C35 | DETSC 3072* | 10 | ug/l | < 10 | < 10 | < 10 | < 10 |
| Aromatic C5-C7 | DETSC 3322 | 0.1 | ug/l | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Aromatic C7-C8 | DETSC 3322 | 0.1 | ug/l | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Aromatic C8-C10 | DETSC 3322 | 0.1 | ug/l | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Aromatic C10-C12 | DETSC 3072* | 1 | ug/l | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aromatic C12-C16 | DETSC 3072* | 1 | ug/l | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aromatic C16-C21 | DETSC 3072* | 1 | ug/l | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aromatic C21-C35 | DETSC 3072* | 1 | ug/l | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Aromatic C5-C35 | DETSC 3072* | 10 | ug/l | < 10 | < 10 | < 10 | < 10 |
| TPH Ali/Aro Total C5-C35 | DETSC 3072* | 10 | ug/l | < 10 | < 10 | < 10 | < 10 |
| PAHs | | | | | | | |
| Naphthalene | DETSC 3304 | 0.05 | ug/l | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| Acenaphthylene | DETSC 3304 | 0.01 | ug/l | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Acenaphthene | DETSC 3304 | 0.01 | ug/l | 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Fluorene | DETSC 3304 | 0.01 | ug/l | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Phenanthrene | DETSC 3304 | 0.01 | ug/l | < 0.01 | < 0.01 | < 0.01 | < 0.01 |

Summary of Chemical Analysis

Water Samples

Our Ref 22-20262

Client Ref PN224395

Contract Title Newport Quinn Phase 2

| | | | | |
|---------------|------------|------------|------------|------------|
| Lab No | 2069357 | 2069358 | 2069359 | 2069360 |
| Sample ID | BH23 | BH25 | BH28 | BH30 |
| Depth | 5.00-6.00 | 2.00-3.00 | 3.00-4.00 | 2.00-3.00 |
| Other ID | | | | |
| Sample Type | EW | EW | EW | EW |
| Sampling Date | 05/10/2022 | 05/10/2022 | 05/10/2022 | 05/10/2022 |
| Sampling Time | n/s | n/s | n/s | n/s |

| Test | Method | LOD | Units | | | | |
|-------------------------|-------------|------|-------|--------|--------|--------|--------|
| Anthracene | DETSC 3304 | 0.01 | ug/l | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Fluoranthene | DETSC 3304 | 0.01 | ug/l | < 0.01 | 0.01 | < 0.01 | < 0.01 |
| Pyrene | DETSC 3304 | 0.01 | ug/l | < 0.01 | 0.03 | < 0.01 | < 0.01 |
| Benzo(a)anthracene | DETSC 3304* | 0.01 | ug/l | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Chrysene | DETSC 3304 | 0.01 | ug/l | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Benzo(b)fluoranthene | DETSC 3304 | 0.01 | ug/l | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Benzo(k)fluoranthene | DETSC 3304 | 0.01 | ug/l | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Benzo(a)pyrene | DETSC 3304 | 0.01 | ug/l | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Indeno(1,2,3-c,d)pyrene | DETSC 3304 | 0.01 | ug/l | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Dibenzo(a,h)anthracene | DETSC 3304 | 0.01 | ug/l | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Benzo(g,h,i)perylene | DETSC 3304 | 0.01 | ug/l | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| PAH Total | DETSC 3304 | 0.2 | ug/l | < 0.20 | < 0.20 | < 0.20 | < 0.20 |

Summary of Chemical Analysis

Water VOC Samples

Our Ref 22-20262

Client Ref PN224395

Contract Title Newport Quinn Phase 2

| | | | |
|---------------|------------|------------|------------|
| Lab No | 2069358 | 2069359 | 2069360 |
| Sample ID | BH25 | BH28 | BH30 |
| Depth | 2.00-3.00 | 3.00-4.00 | 2.00-3.00 |
| Other ID | | | |
| Sample Type | EW | EW | EW |
| Sampling Date | 05/10/2022 | 05/10/2022 | 05/10/2022 |
| Sampling Time | n/s | n/s | n/s |

| Test | Method | LOD | Units | | | |
|----------------------------|-------------|-----|-------|------|------|------|
| VOCs | | | | | | |
| Dichlorodifluoromethane | DETSC 3432 | 1 | ug/l | < 1 | < 1 | < 1 |
| Chloromethane | DETSC 3432 | 1 | ug/l | < 1 | < 1 | < 1 |
| Vinyl Chloride | DETSC 3432 | 1 | ug/l | < 1 | < 1 | < 1 |
| Bromomethane | DETSC 3432 | 1 | ug/l | < 1 | < 1 | < 1 |
| Chloroethane | DETSC 3432 | 1 | ug/l | < 1 | < 1 | < 1 |
| Trichlorofluoromethane | DETSC 3432* | 1 | ug/l | < 1 | < 1 | < 1 |
| 1,1-dichloroethylene | DETSC 3432 | 1 | ug/l | < 1 | < 1 | < 1 |
| Methylene Chloride | DETSC 3432* | 27 | ug/l | < 27 | < 27 | < 27 |
| Trans-1,2-dichloroethylene | DETSC 3432 | 1 | ug/l | < 1 | < 1 | < 1 |
| 1,1-dichloroethane | DETSC 3432 | 1 | ug/l | < 1 | < 1 | < 1 |
| Cis-1,2-dichloroethylene | DETSC 3432 | 1 | ug/l | < 1 | < 1 | < 1 |
| 2,2-dichloropropane | DETSC 3432* | 2 | ug/l | < 2 | < 2 | < 2 |
| Bromochloromethane | DETSC 3432 | 4 | ug/l | < 4 | < 4 | < 4 |
| Chloroform | DETSC 3432 | 1 | ug/l | < 1 | < 1 | < 1 |
| 1,1,1-trichloroethane | DETSC 3432 | 1 | ug/l | < 1 | < 1 | < 1 |
| 1,1-dichloropropene | DETSC 3432 | 1 | ug/l | < 1 | < 1 | < 1 |
| Carbon tetrachloride | DETSC 3432 | 1 | ug/l | < 1 | < 1 | < 1 |
| Benzene | DETSC 3432 | 1 | ug/l | < 1 | < 1 | < 1 |
| 1,2-dichloroethane | DETSC 3432 | 1 | ug/l | < 1 | < 1 | < 1 |
| Trichloroethylene | DETSC 3432* | 1 | ug/l | < 1 | < 1 | < 1 |
| 1,2-dichloropropane | DETSC 3432 | 1 | ug/l | < 1 | < 1 | < 1 |
| Dibromomethane | DETSC 3432 | 1 | ug/l | < 1 | < 1 | < 1 |
| Bromodichloromethane | DETSC 3432 | 4 | ug/l | < 4 | < 4 | < 4 |
| cis-1,3-dichloropropene | DETSC 3432 | 1 | ug/l | < 1 | < 1 | < 1 |
| Toluene | DETSC 3432 | 1 | ug/l | < 1 | < 1 | < 1 |
| trans-1,3-dichloropropene | DETSC 3432 | 1 | ug/l | < 1 | < 1 | < 1 |
| 1,1,2-trichloroethane | DETSC 3432 | 1 | ug/l | < 1 | < 1 | < 1 |
| Tetrachloroethylene | DETSC 3432 | 1 | ug/l | < 1 | < 1 | < 1 |
| 1,3-dichloropropane | DETSC 3432 | 1 | ug/l | < 1 | < 1 | < 1 |
| Dibromochloromethane | DETSC 3432 | 1 | ug/l | < 1 | < 1 | < 1 |
| 1,2-dibromoethane | DETSC 3432 | 1 | ug/l | < 1 | < 1 | < 1 |
| Chlorobenzene | DETSC 3432 | 1 | ug/l | < 1 | < 1 | < 1 |
| 1,1,1,2-tetrachloroethane | DETSC 3432 | 1 | ug/l | < 1 | < 1 | < 1 |
| Ethylbenzene | DETSC 3432 | 1 | ug/l | < 1 | < 1 | < 1 |
| m+p-Xylene | DETSC 3432 | 2 | ug/l | < 2 | < 2 | < 2 |
| o-Xylene | DETSC 3432 | 1 | ug/l | < 1 | < 1 | < 1 |
| Styrene | DETSC 3432 | 1 | ug/l | < 1 | < 1 | < 1 |
| Bromoform | DETSC 3432 | 1 | ug/l | < 1 | < 1 | < 1 |
| Isopropylbenzene | DETSC 3432 | 1 | ug/l | < 1 | < 1 | < 1 |
| 1,1,2,2-tetrachloroethane | DETSC 3432 | 1 | ug/l | < 1 | < 1 | < 1 |
| Bromobenzene | DETSC 3432 | 1 | ug/l | < 1 | < 1 | < 1 |

Summary of Chemical Analysis

Water VOC Samples

Our Ref 22-20262

Client Ref PN224395

Contract Title Newport Quinn Phase 2

| | | | |
|---------------|------------|------------|------------|
| Lab No | 2069358 | 2069359 | 2069360 |
| Sample ID | BH25 | BH28 | BH30 |
| Depth | 2.00-3.00 | 3.00-4.00 | 2.00-3.00 |
| Other ID | | | |
| Sample Type | EW | EW | EW |
| Sampling Date | 05/10/2022 | 05/10/2022 | 05/10/2022 |
| Sampling Time | n/s | n/s | n/s |

| Test | Method | LOD | Units | | | |
|-----------------------------|-------------|-----|-------|-----|-----|-----|
| 1,2,3-trichloropropane | DETSC 3432 | 1 | ug/l | < 1 | < 1 | < 1 |
| n-propylbenzene | DETSC 3432 | 1 | ug/l | < 1 | < 1 | < 1 |
| 2-chlorotoluene | DETSC 3432 | 1 | ug/l | < 1 | < 1 | < 1 |
| 1,3,5-trimethylbenzene | DETSC 3432 | 1 | ug/l | < 1 | < 1 | < 1 |
| 4-chlorotoluene | DETSC 3432 | 1 | ug/l | < 1 | < 1 | < 1 |
| Tert-butylbenzene | DETSC 3432 | 1 | ug/l | < 1 | < 1 | < 1 |
| 1,2,4-trimethylbenzene | DETSC 3432 | 1 | ug/l | < 1 | < 1 | < 1 |
| sec-butylbenzene | DETSC 3432 | 1 | ug/l | < 1 | < 1 | < 1 |
| p-isopropyltoluene | DETSC 3432 | 1 | ug/l | < 1 | < 1 | < 1 |
| 1,3-dichlorobenzene | DETSC 3432 | 2 | ug/l | < 2 | < 2 | < 2 |
| 1,4-dichlorobenzene | DETSC 3432 | 1 | ug/l | < 1 | < 1 | < 1 |
| n-butylbenzene | DETSC 3432 | 1 | ug/l | < 1 | < 1 | < 1 |
| 1,2-dichlorobenzene | DETSC 3432 | 1 | ug/l | < 1 | < 1 | < 1 |
| 1,2-dibromo-3-chloropropane | DETSC 3432 | 1 | ug/l | < 1 | < 1 | < 1 |
| 1,2,4-trichlorobenzene | DETSC 3432 | 1 | ug/l | < 1 | < 1 | < 1 |
| Hexachlorobutadiene | DETSC 3432 | 1 | ug/l | < 1 | < 1 | < 1 |
| 1,2,3-trichlorobenzene | DETSC 3432 | 1 | ug/l | < 1 | < 1 | < 1 |
| MTBE | DETSC 3432* | 1 | ug/l | < 1 | < 1 | < 1 |

Information in Support of the Analytical Results

Our Ref 22-20262
 Client Ref PN224395
 Contract Newport Quinn Phase 2

Containers Received & Deviating Samples

| | | | | | Inappropriate container for tests |
|---------|----------------------|--------------|---------------------------|--|-----------------------------------|
| Lab No | Sample ID | Date Sampled | Containers Received | Holding time exceeded for tests | |
| 2069357 | BH23 5.00-6.00 WATER | 05/10/22 | GB 1L x2, GV x2, PB 1L x2 | Aliphatics/Aromatics (4 days), pH/Cond/TDS (1 days), PAH MS (4 days) | |
| 2069358 | BH25 2.00-3.00 WATER | 05/10/22 | GB 1L x2, GV x2, PB 1L x2 | Aliphatics/Aromatics (4 days), pH/Cond/TDS (1 days), PAH MS (4 days) | |
| 2069359 | BH28 3.00-4.00 WATER | 05/10/22 | GB 1L x2, GV x2 | Aliphatics/Aromatics (4 days), pH/Cond/TDS (1 days), PAH MS (4 days) | |
| 2069360 | BH30 2.00-3.00 WATER | 05/10/22 | GB 1L x2, GV x2, PB 1L x2 | Aliphatics/Aromatics (4 days), pH/Cond/TDS (1 days), PAH MS (4 days) | |

Key: G-Glass P-Plastic B-Bottle V-Vial

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

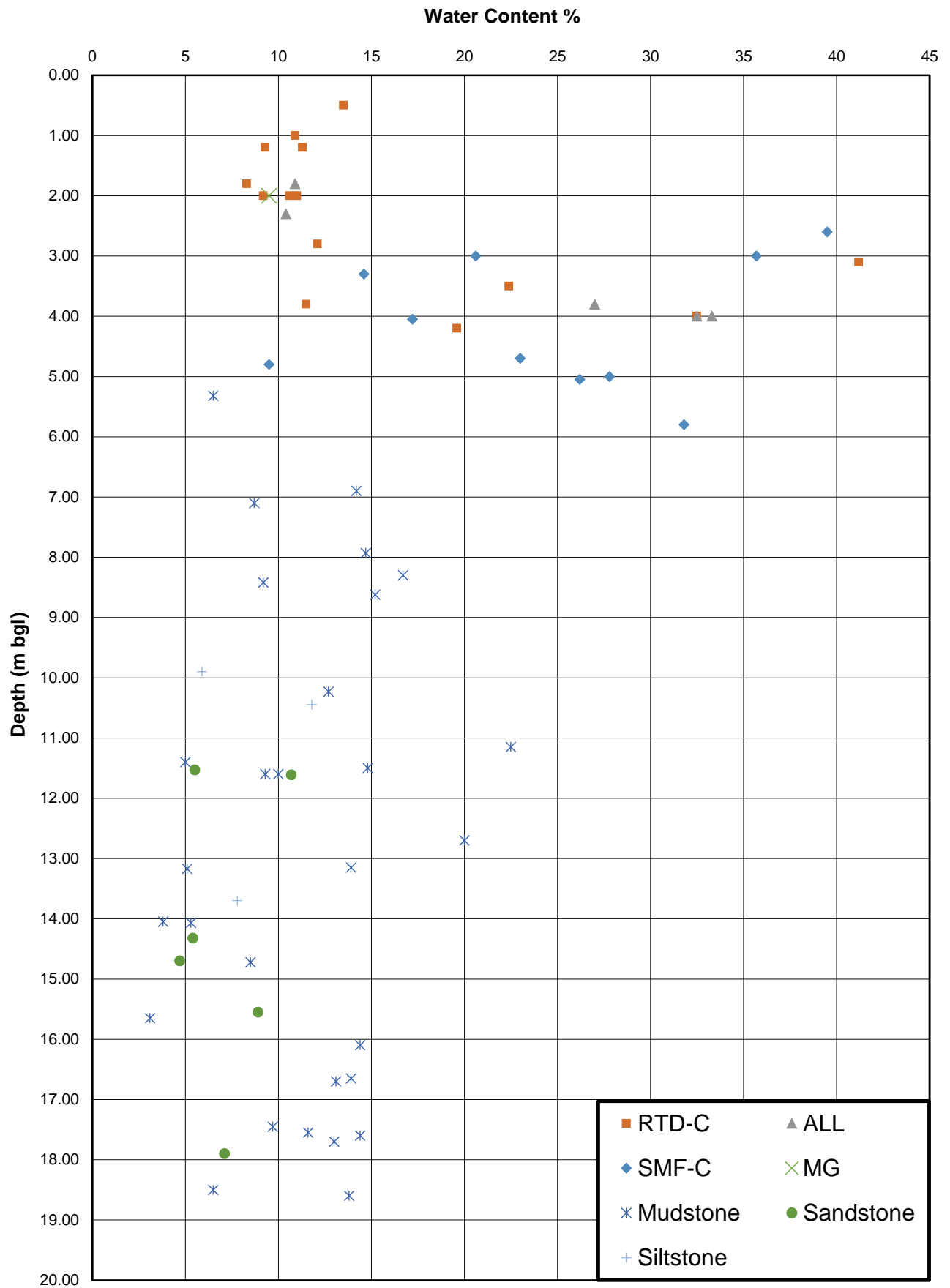
Disposal

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

End of Report

APPENDIX II

Material Property Plots



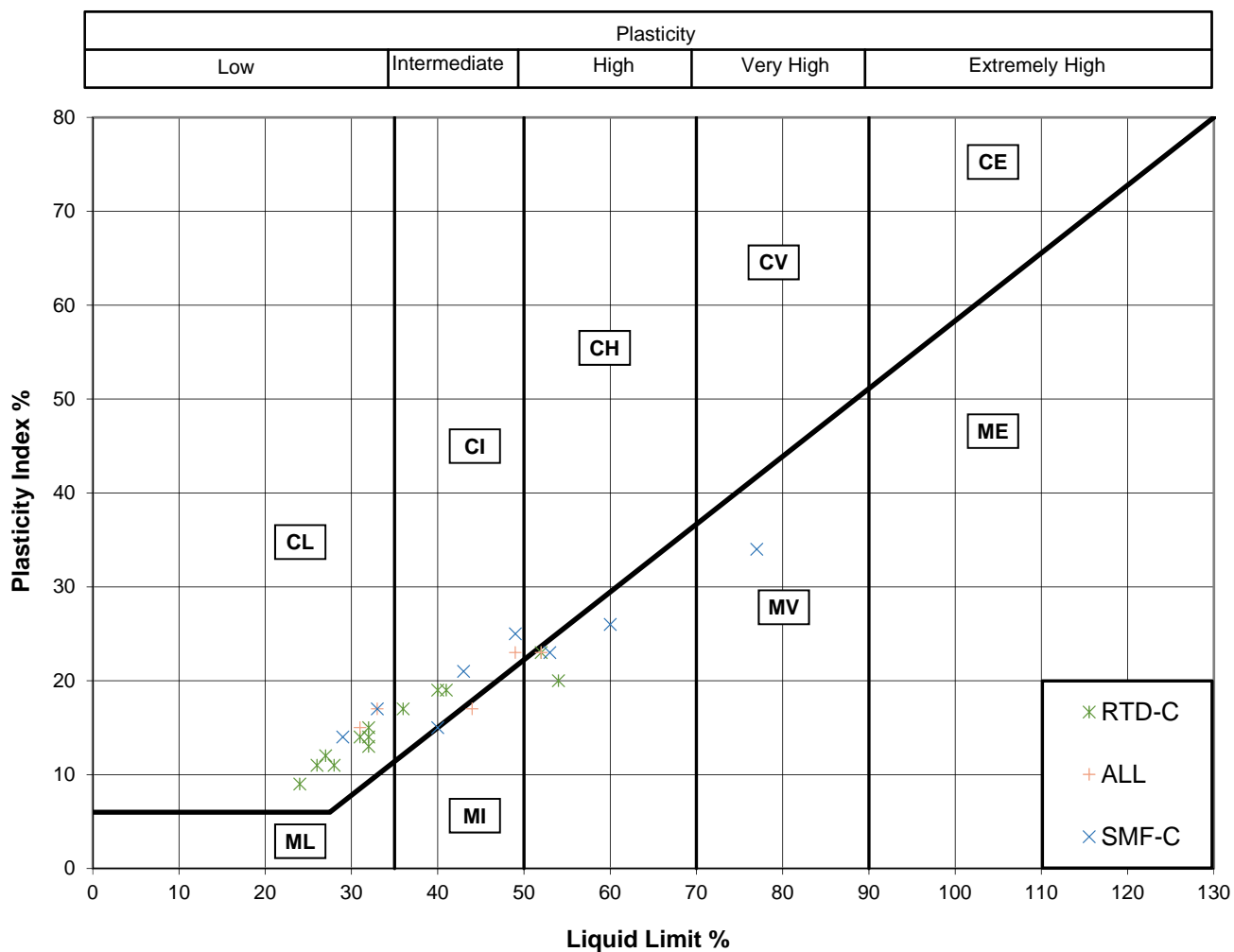
Job No PN224395

Date 16/12/2022

Figure 1

Newport Quinn
Water Content vs Depth Profile

GEOTECHNICS



| Soil Type | Plasticity Characteristics |
|-----------|----------------------------|
| C Clay | L Low |
| | I Intermediate |
| M Silt | H High |
| | V Very High |
| | E Extremely High |

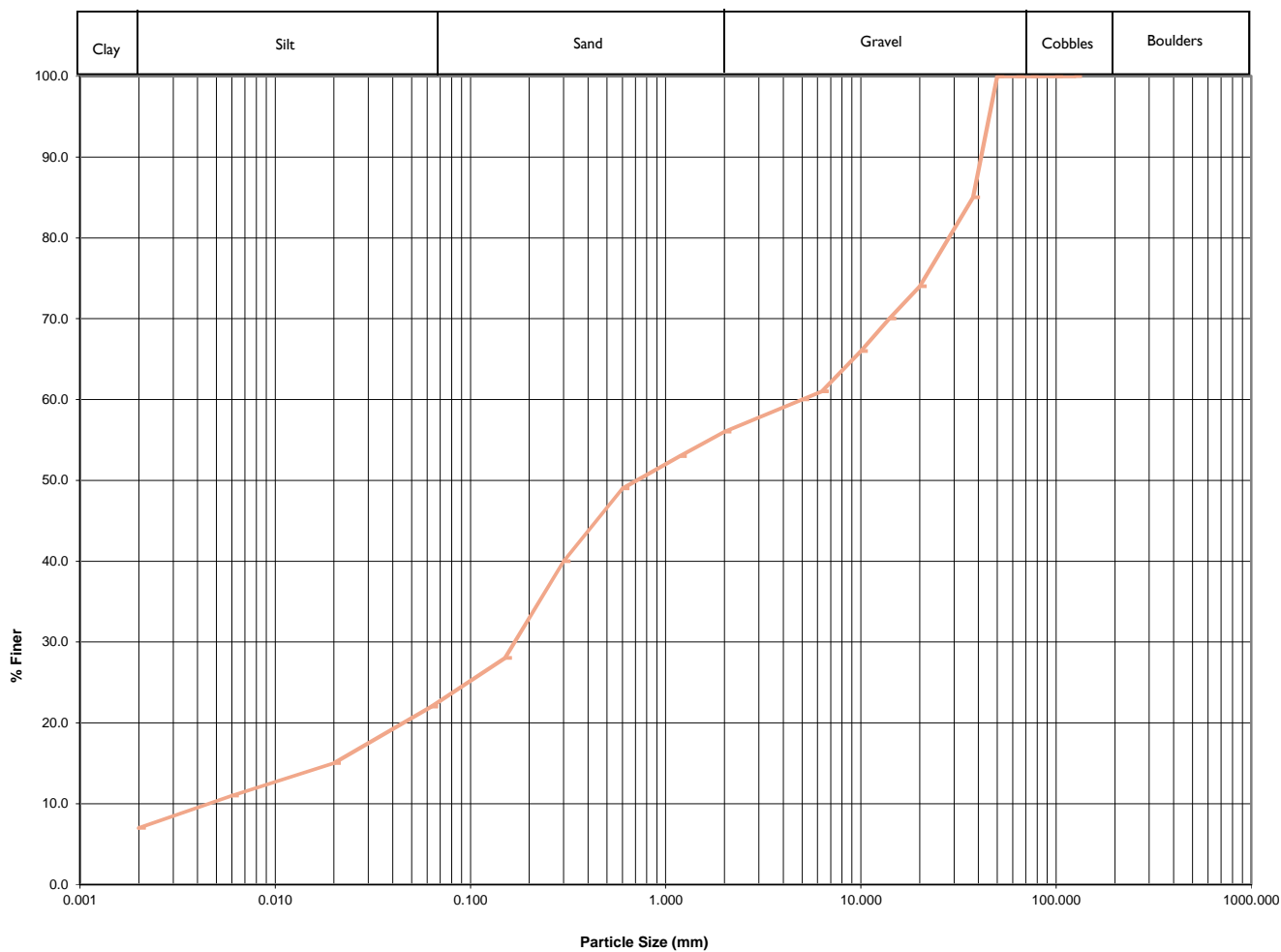
Job No PN224395

Date 16/12/2022

Figure 2

Newport Quinn
Plasticity Chart

GEOTECHNICS



BH10 2.00m B

Made Ground

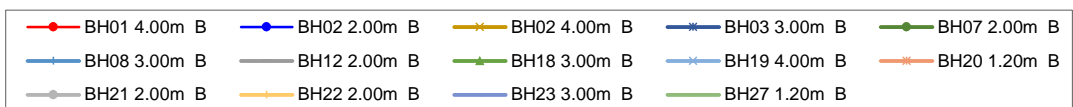
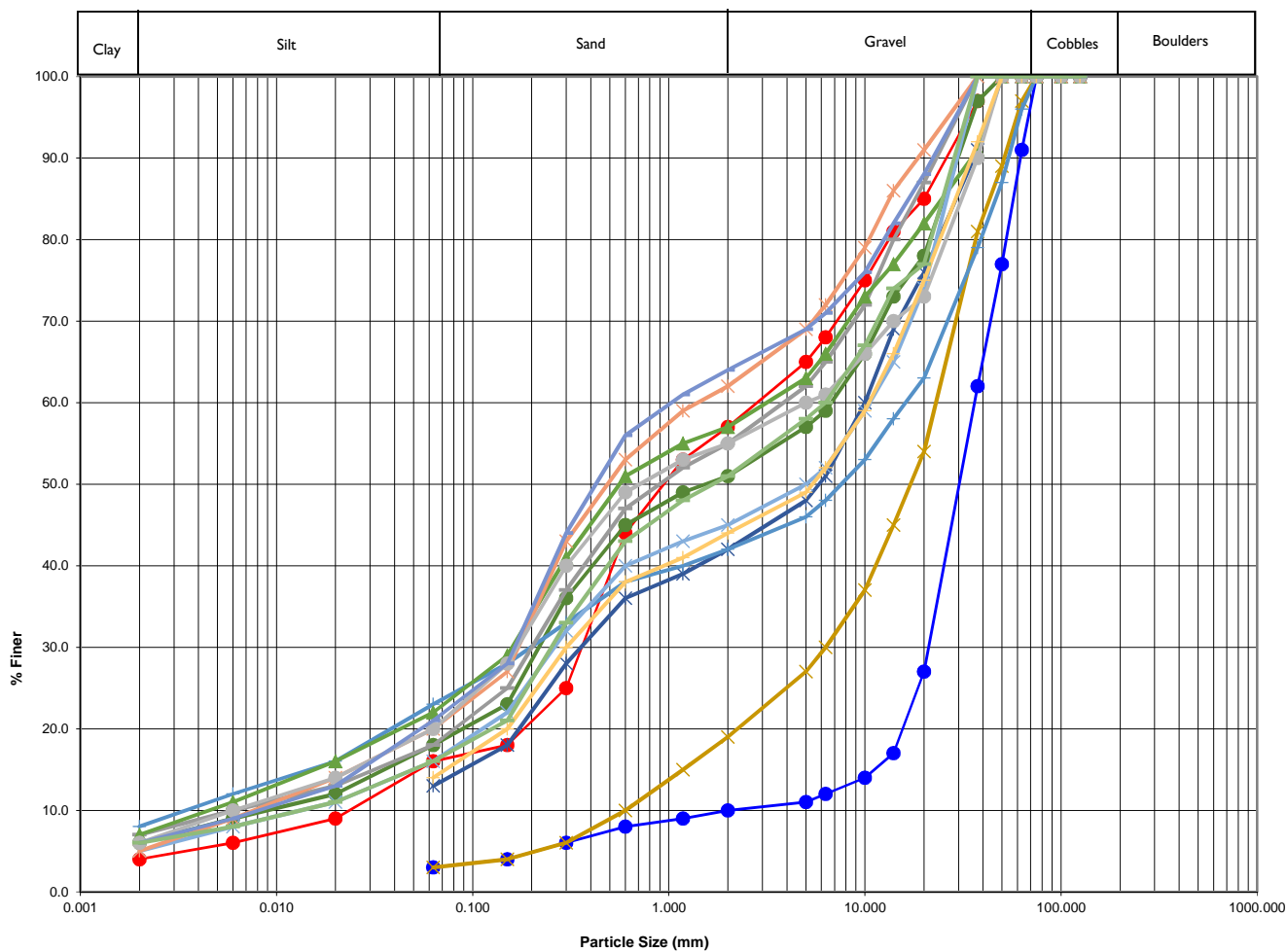
Job No PN224395

Date 03/01/2023

Figure 3.1

Newport Quinn
Summary of Particle Size Distribution
Analyses

GEOTECHNICS



River Terrace Deposits - Granular

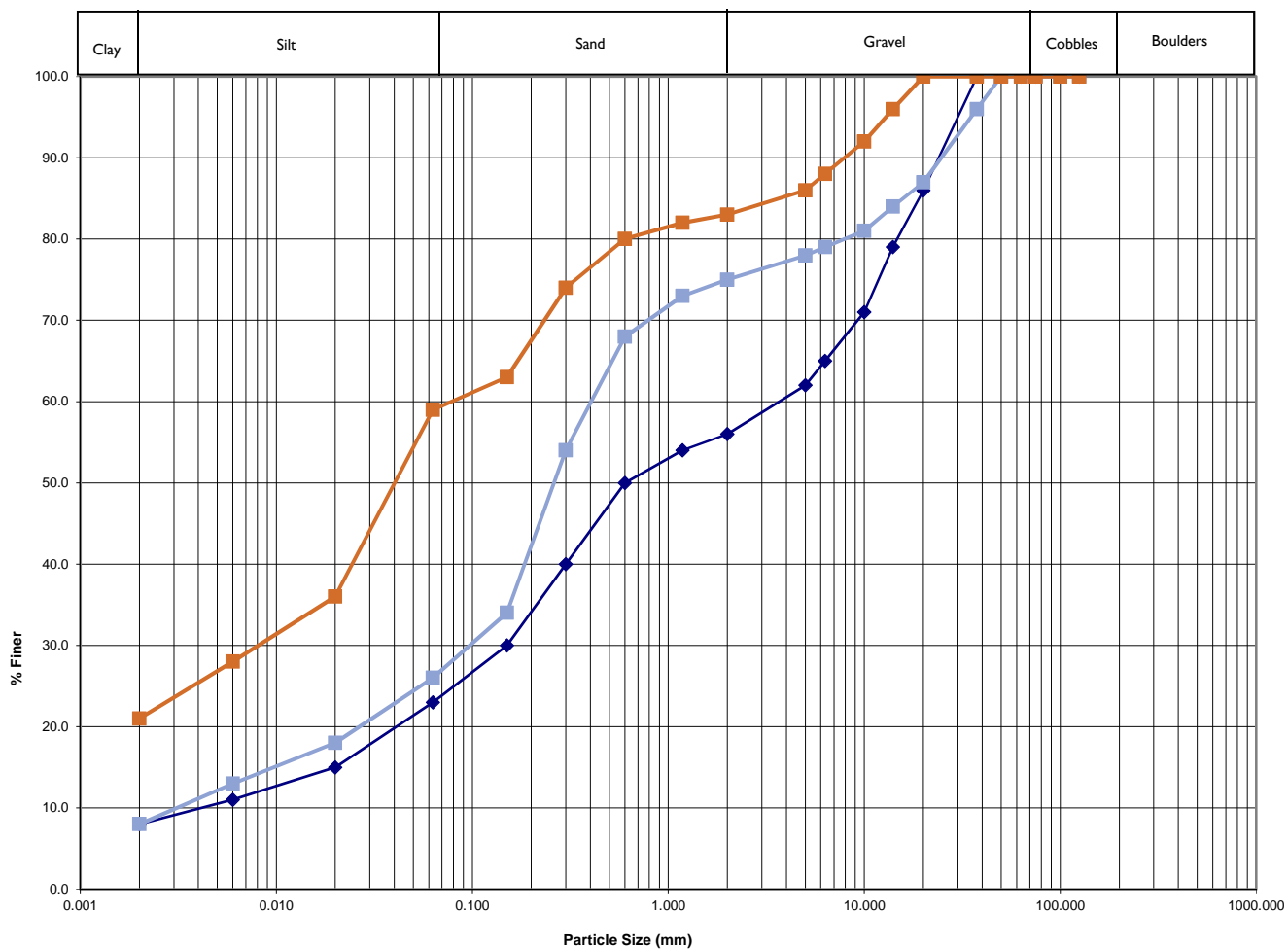
Job No PN224395

Date 03/01/2023

Figure 3.2

Newport Quinn
Summary of Particle Size Distribution
Analyses

GEOTECHNICS



—◆— BH01 1.20m D —■— BH16 2.00m B —■— BH15 2.00m B

River Terrace Deposits - Cohesive

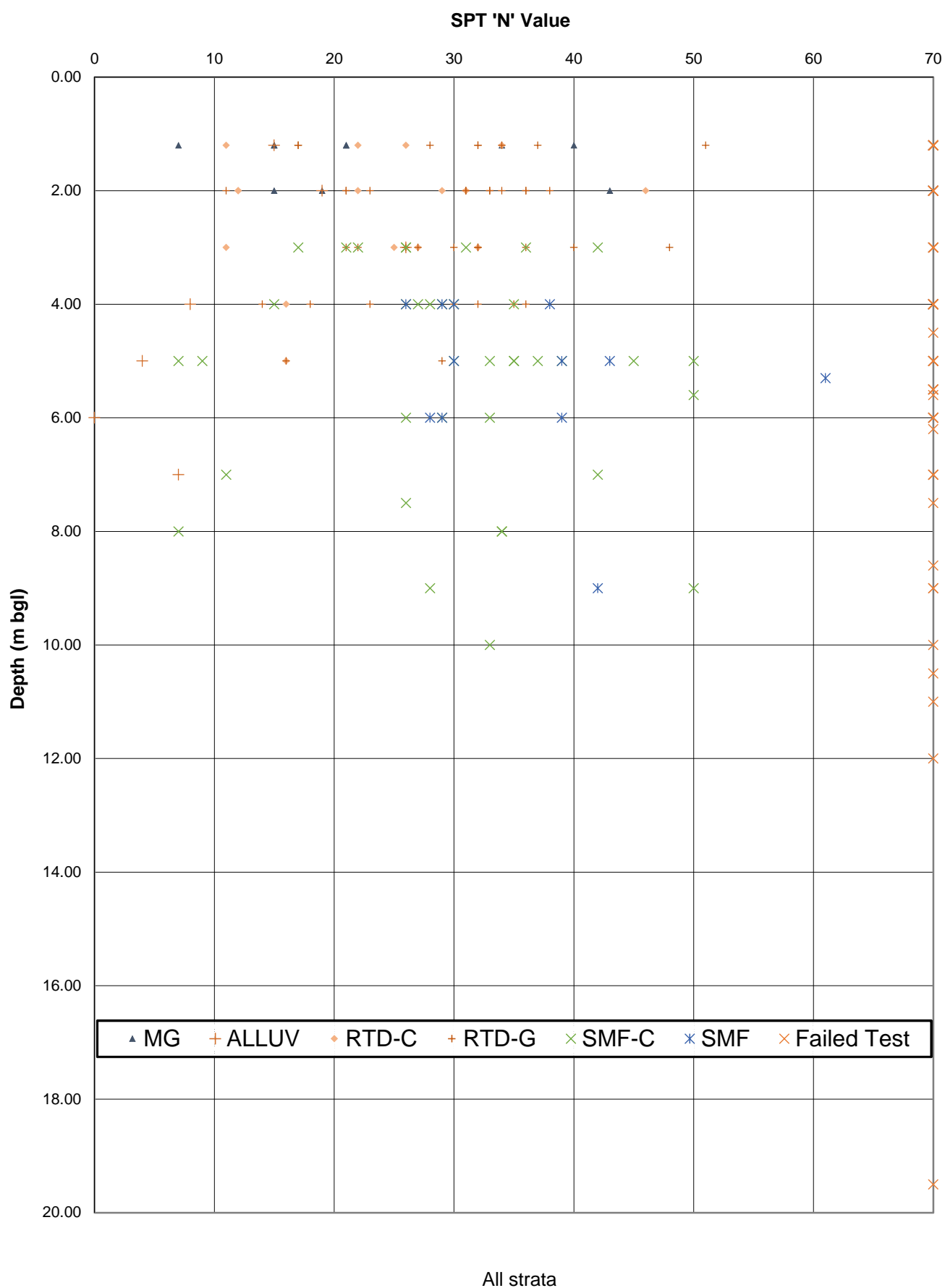
Job No PN224395

Date 03/01/2023

Figure 3.2

Newport Quinn
Summary of Particle Size Distribution
Analyses

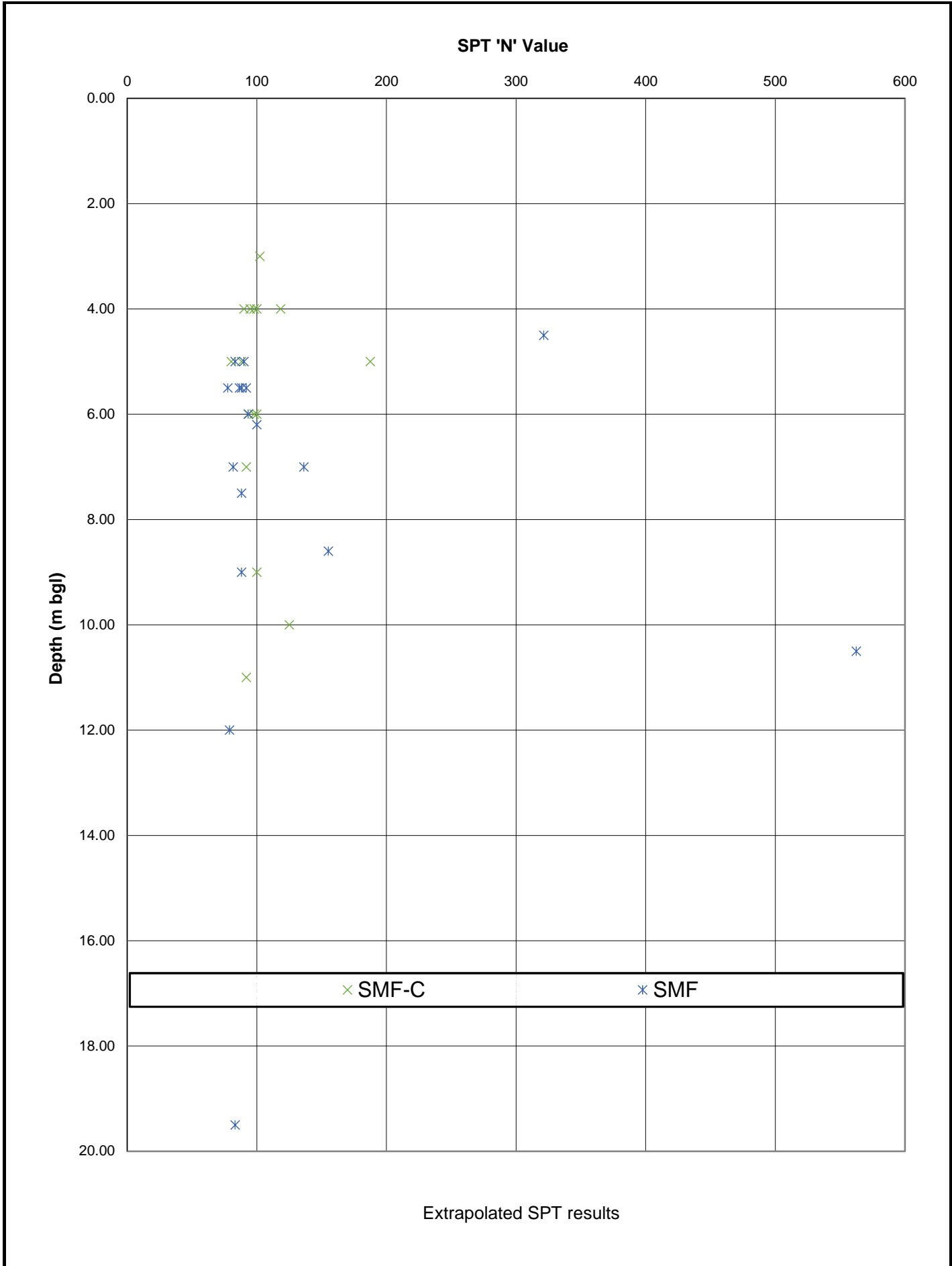
GEOTECHNICS

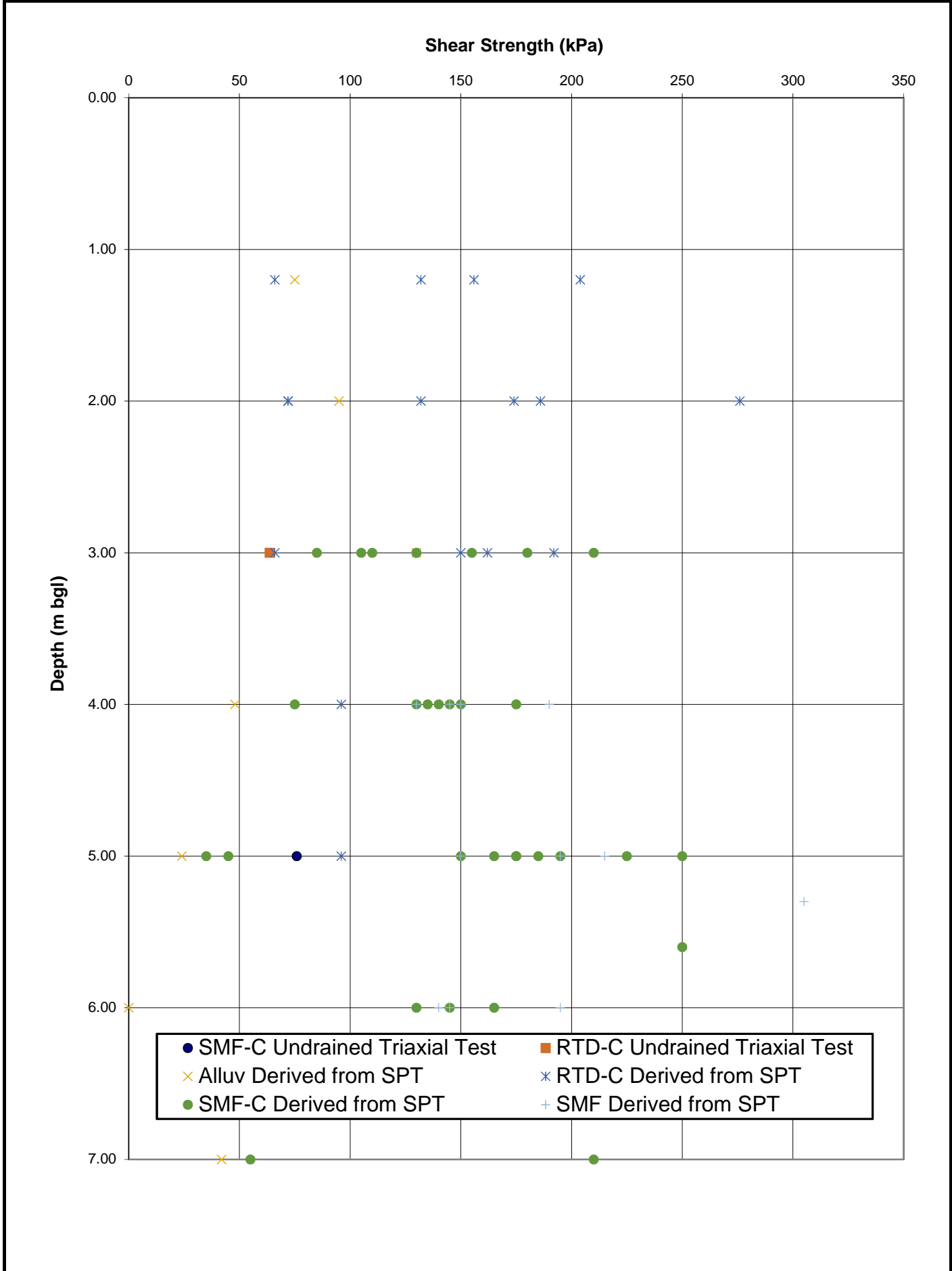


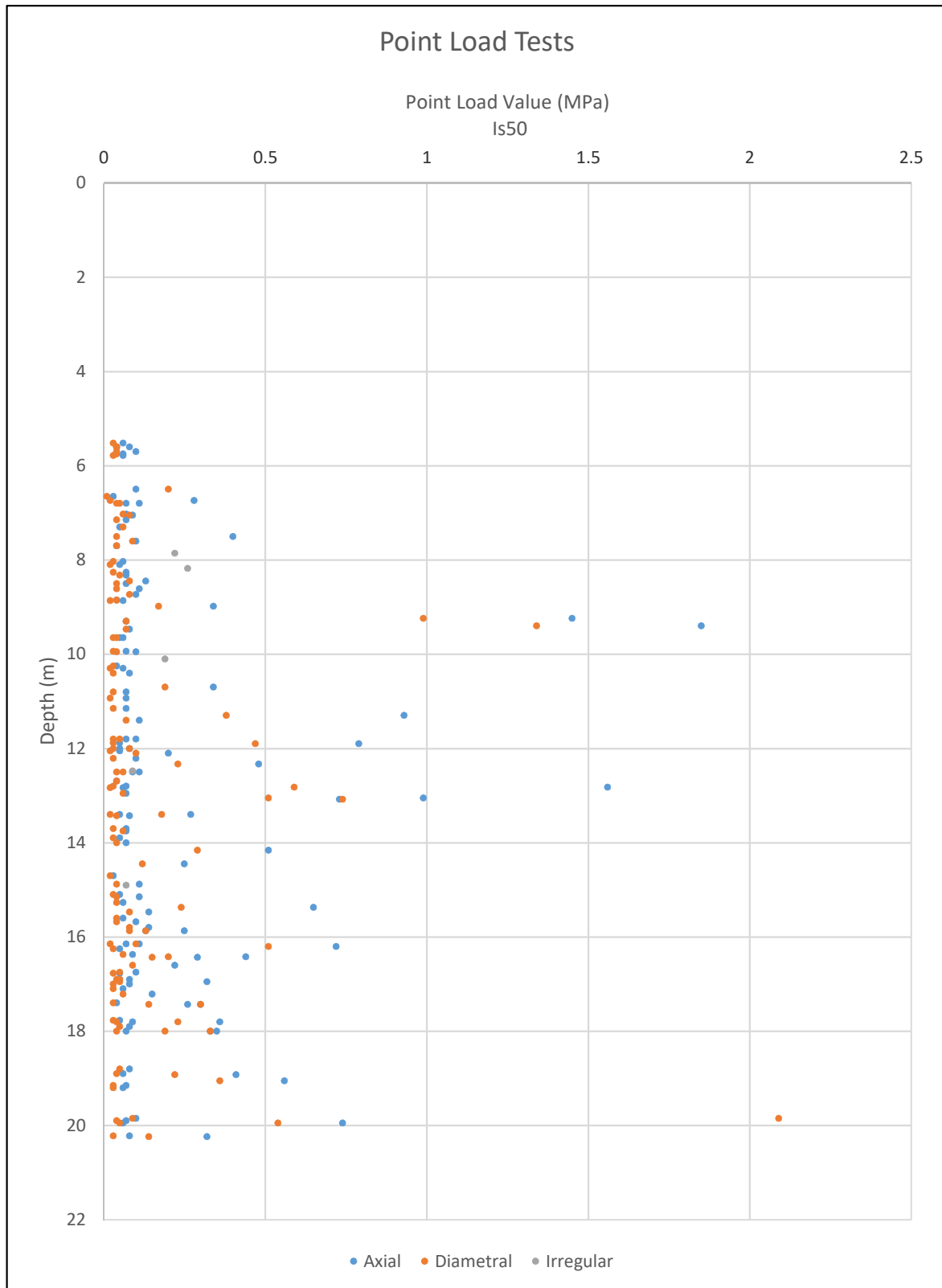
| | |
|---------------|------------|
| Job No | PN224395 |
| Date | 16/12/2022 |
| Figure | 4.1 |

Newport Quinn SPT vs Depth Profile

GEOTECHNICS





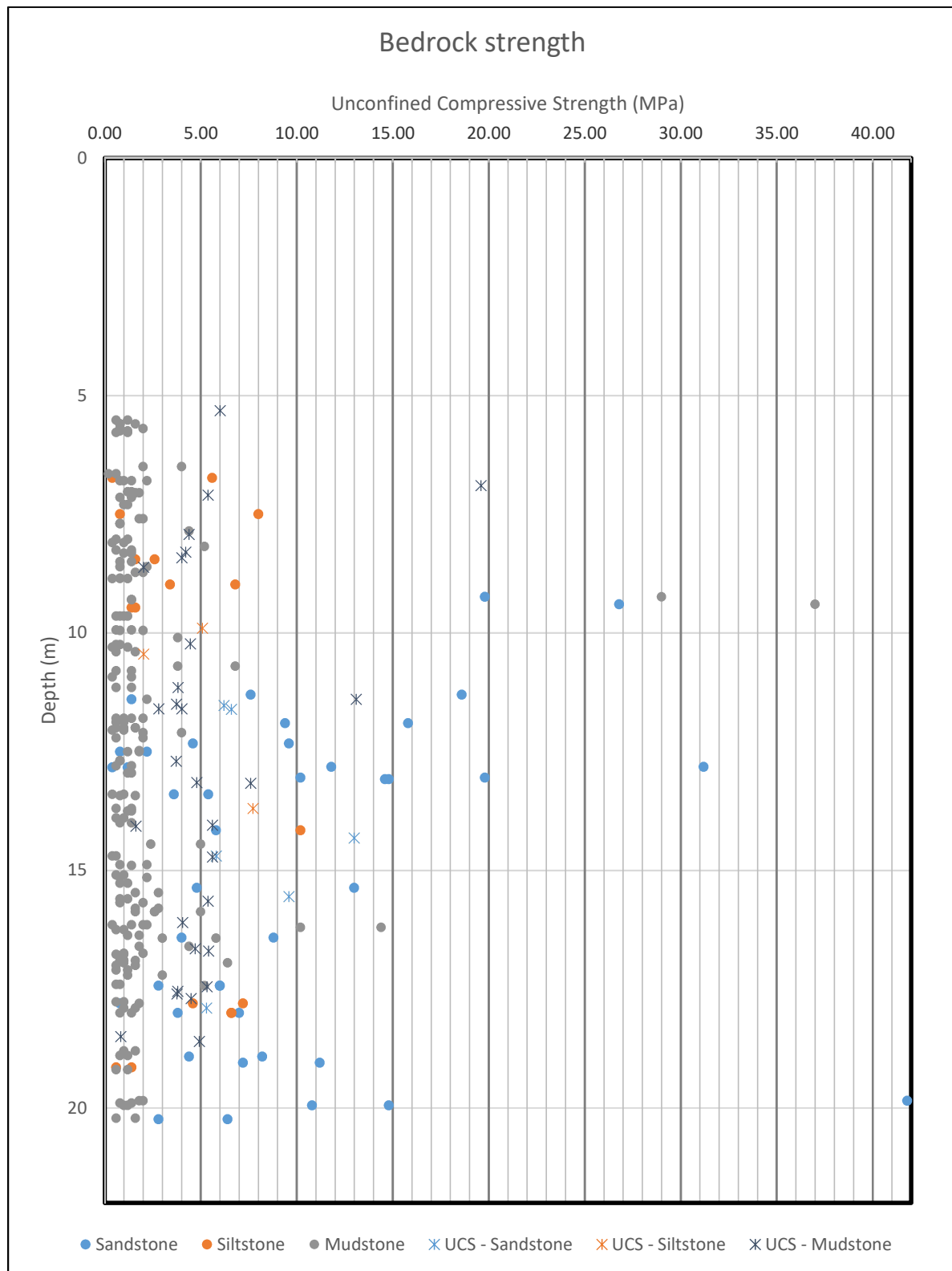


N.B. Point load Is50 values 3.33MPa (19.85m bgl), 4.27MPa (19.64m bgl) and 5.41MPa (19.64m bgl) have been omitted to allow a more appropriate scale.

Job No PN224395
Date 01/11/2022
Figure 6

Newport Quinn
 Point Load Test vs Depth Chart

GEOTECHNICS



Strength derived from point load test results and direct from
unconfined compressive strength (UCS) test results.

N.B. Point load derived values 67kPa and 108kPa at 19.64m and 19.85m depth have been omitted to allow more appropriate scale.

Job No PN224395
Date 01/11/2022
Figure 7

Newport Quinn
Bedrock Strength vs Depth Chart

GEOTECHNICS

DATA SHEET

Project: Newport Quinn

Project No.: PN224395

**Table 1: Summary of Measured and Derived Material Parameters
Made Ground**

| Parameter | Number of Tests | Range | Average | Figure Number | Remarks |
|---|-----------------|--------------|---------|---------------|---|
| Water Content (%) | 1 | 9.5 | 9.5 | 1 | |
| Atterberg Limits | | | | | No tests. Material mostly granular. |
| <u>Particle Size Distribution</u> | 1 | | | 3.1 | |
| % Gravel | | 44 | - | | |
| % Sand | | 34 | - | | |
| % Silt | | 15 | - | | |
| % Clay | | 7 | - | | |
| SPT N Value | 13 | 15 - 43 | 26 | 4 | Five additional tests did not achieve full penetration. |
| <u>Chemical Conditions</u> | 7 | | | | |
| pH | | 7.2 - 11.1 | 8.6 | | |
| Ammonia Aqueous Extract as N | | <10 | | | |
| Chloride Aqueous Extract | | 3.50 - 29.0 | 13.5 | | |
| Nitrate Aqueous Extract as NO ₃ | | <1.0 - 1.7 | 1.7 | | |
| Water soluble sulphate content SO ₄ (mg/l) | | 12 - 99 | 36.7 | | |
| Total Sulphur S (%) | | <0.01 - 0.21 | 0.13 | | |
| Total sulphate SO ₄ (%) | | 0.01 - 0.29 | 0.06 | | Average excluding <0.01 values. |
| <u>CBR</u> | 1 | | | | |
| Top (%) | | 37 | | | |
| Bottom (%) | | 58 | | | From laboratory tests. Recompact at as-received moisture content using 2.5 kg rammer. |

DATA SHEET

Project: **Newport Quinn**

Project No.: **PN224395**

Table 2: Summary of Measured and Derived Material Parameters
Alluvium

| Parameter | Number of Tests | Range | Average | Figure Number | Remarks |
|---|-----------------|-------------|---------|---------------|---|
| Water Content (%) | 4 | 10.4 - 141 | 43 | 1 | The water content of 141% was from material described as peat. |
| Atterberg Limits | 6 | | | 2 | One sample was described as peat with a liquid limit of 160% and was non-plastic. |
| Liquid Limit (%) | | 31 - 160 | 62 | | |
| Plastic Limit (%) | | 16 - 29 | 23 | | |
| Plasticity Index (%) | | 15 - 23 | 19 | | |
| Modified Plasticity Index (%) | 5 | 7 - 23 | 15 | | After NHBC Standards, Chapter 4.2 |
| SPT N Value | 7 | 0 - 26 | 11 | 4 | |
| Undrained Shear Strength (kN/m ²) | | | | 5 | No direct laboratory tests. |
| Estimated from SPT N Values | | 0 - 130 | 59 | | After Stroud & Butler (1978) |
| Organic Content (%) | 2 | 0.7 - 21 | 11 | | |
| Compaction | 1 | | | | 2.5 kg rammer |
| Optimum moisture content (%) | | 6.0 | | | |
| Maximum dry density (Mg/m ³) | | 2.19 | | | |
| CBR | 2 | | | | |
| Top (%) | | 0.73 - 18 | 9.4 | | From laboratory tests. Recompact at as-received moisture content using 2.5 kg rammer. |
| Bottom (%) | | 0.59 - 23 | 11.8 | | |
| Thermal Conductivity | 2 | | | | |
| Thermal Conductivity (W/(m.k)) | | 2.54 - 2.57 | 2.56 | | |
| Thermal Resistivity ((m.k)/W) | | 0.39 | 0.39 | | |
| Temperature (°C) | | 19.4 - 20.3 | 20 | | |

DATA SHEET

Project: **Newport Quinn**

Project No.: **PN224395**

Table 3: Summary of Measured and Derived Material Parameters
River Terrace Deposits - Cohesive

| Parameter | Number of Tests | Range | Average | Figure Number | Remarks |
|---|-----------------|--------------|---------|---------------|--|
| Water Content (%) | 15 | 8 - 41 | 16 | 1 | |
| <u>Atterberg Limits</u> | 14 | | | 2 | |
| Liquid Limit (%) | | 24 - 54 | 35 | | |
| Plastic Limit (%) | | 15 - 34 | 20 | | |
| Plasticity Index (%) | | 9 - 23 | 15 | | |
| Modified Plasticity Index (%) | 16 | 4 - 20 | 9 | | After NHBC Standards, Chapter 4.2 |
| <u>Particle Size Distribution</u> | 3 | | | 3.2 | |
| % Cobbles | | 0 | - | | |
| % Gravel | | 17 - 44 | - | | |
| % Sand | | 24 - 49 | - | | |
| % Silt | | 15 - 38 | - | | |
| % Clay | | 8 - 21 | - | | |
| SPT N Value | 28 | 11 - 46 | 23 | 4 | Twelve tests did not achieve full penetration. |
| <u>Undrained Shear Strength (kN/m²)</u> | | | | 5 | |
| Undrained Shear Strength (kN/m ²) | 1 | 64 | | | Unconsolidated undrained triaxial test. |
| Estimated from SPT N Values | 16 | 24 - 276 | 123 | | After Stroud & Butler (1978) |
| <u>Chemical Conditions</u> | 8 | | | | |
| pH | | 7.0 - 8.3 | 7.63 | | |
| Ammonia Aqueous Extract as N | | <10 | | | |
| Chloride Aqueous Extract | | 3.70 - 7.00 | 5.55 | | |
| Nitrate Aqueous Extract as NO ₃ | | <1.0 - 1.0 | | | |
| Water soluble sulphate content SO ₄ (mg/l) | | 12 - 29 | 17.8 | | |
| Total Sulphur S (%) | | <0.01 - 0.01 | | | |
| Total sulphate SO ₄ (%) | | <0.01 - 0.03 | 0.02 | | Average excluding <0.01 values. |
| <u>Compaction</u> | 5 | | | | 2.5 kg rammer |
| Optimum moisture content (%) | | 7.5 - 9 | 8 | | |
| Maximum dry density (Mg/m ³) | | 2.03 - 2.20 | 2.13 | | |

| | | | | | |
|--------------------------------|---|-------------|------|--|---|
| <u>CBR</u> | 5 | | | | |
| Top (%) | | 0.73 - 47 | 10 | | From laboratory tests. Recompacted at as-received moisture content using 2.5 kg rammer. |
| Bottom (%) | | 0.59 - 25 | 6 | | |
| <u>Thermal Conductivity</u> | 7 | | | | |
| Thermal Conductivity (W/(m.k)) | | 1.24 - 3.37 | 2.29 | | |
| Thermal Resistivity ((m.k)/W) | | 0.30 - 0.81 | 0.48 | | |
| Temperature (°C) | | 19.3 - 20.3 | 19.9 | | |

DATA SHEET

Project: **Newport Quinn**

Project No.: **PN224395**

Table 4: Summary of Measured and Derived Material Parameters
River Terrace Deposits - Granular

| Parameter | Number of Tests | Range | Average | Figure Number | Remarks |
|---|-----------------|--------------|---------|---------------|---|
| <u>Particle Size Distribution</u> | 14 | | | 3.2 | |
| % Cobbles | | 0 - 9 | - | | |
| % Gravel | | 36 - 81 | - | | |
| % Sand | | 7 - 43 | - | | |
| % Silt | | ~10 - 15 | - | | |
| % Clay | | 3 - 14 | - | | |
| SPT N Value | 47 | 11 - 51 | 29 | 4 | Eighteen tests did not achieve full penetration. |
| <u>Chemical Conditions</u> | 5 | | | | |
| pH | | 7.7 - 10.7 | 8.58 | | |
| Ammonia Aqueous Extract as N | | <10 | | | |
| Chloride Aqueous Extract | | 2.10 - 6.20 | 4.50 | | |
| Nitrate Aqueous Extract as NO ₃ | | <1.0 | | | |
| Water soluble sulphate content SO ₄ (mg/l) | | 12 - 32 | 18.4 | | |
| Total Sulphur S (%) | | <0.01 - 0.01 | | | |
| Total sulphate SO ₄ (%) | | <0.01 - 0.03 | 0.02 | | Average excluding <0.01 values. |
| <u>Compaction</u> | 7 | | | | 2.5 kg rammer |
| Optimum moisture content (%) | | 6 - 9 | 7.5 | | |
| Maximum dry density (Mg/m ³) | | 2.10 - 2.21 | 2.16 | | |
| <u>CBR</u> | 7 | | | | |
| Top (%) | | 1.30 - 55 | 23 | | From laboratory tests. Recompacted at as-received |
| Bottom (%) | | 1.2 - 51 | 21 | | moisture content using 2.5 kg rammer. |
| <u>Thermal Conductivity</u> | 10 | | | | |
| Thermal Conductivity (W/(m.k)) | | 1.80 - 2.78 | 2.37 | | |
| Thermal Resistivity ((m.k)/W) | | 0.36 - 0.55 | 0.43 | | |
| Temperature (°C) | | 17.8 - 20.6 | 19.8 | | |

DATA SHEET

Project: Newport Quinn

Project No.: PN224395

**Table 5: Summary of Measured and Derived Material Parameters
St. Maughan's Formation - Clay**

| Parameter | Number of Tests | Range | Average | Figure Number | Remarks |
|--|-----------------|--------------|---------|---------------|---|
| Water Content (%) | 9 | 9.5 - 40 | 24 | 1 | |
| <u>Atterberg Limits</u> | 7 | | | 2 | |
| Liquid Limit (%) | | 29 - 77 | 47 | | |
| Plastic Limit (%) | | 15 - 43 | 26 | | |
| Plasticity Index (%) | | 14 - 34 | 22 | | |
| Modified Plasticity Index (%) | 7 | 11 - 31 | 17 | | After NHBC Standards, Chapter 4.2 |
| SPT N Value | 55 | 7 - 50 | 30 | 4 | Seventeen tests did not achieve full penetration. |
| <u>Undrained Shear Strength (kN/m²)</u> | | | | 5 | |
| Unconsolidated Undrained Triaxial (kN/m ²) | 1 | 76 | 76 | | Unconsolidated undrained triaxial test. |
| Estimated from SPT N Values | 38 | 35 - 250 | 149 | | After Stroud & Butler (1978) |
| <u>Chemical Conditions</u> | 3 | | | | |
| pH | | 7.3 - 8.8 | 8.3 | | |
| Ammonia Aqueous Extract as N | | <10 | | | |
| Chloride Aqueous Extract | | 6.3 - 18 | 12 | | |
| Nitrate Aqueous Extract as NO ₃ | | <1.0 | | | |
| Water soluble sulphate content SO ₄ (mg/l) | | 17 - 34 | 27 | | |
| Total Sulphur S (%) | | <0.01 - 0.02 | | | |
| Total sulphate SO ₄ (%) | | <0.01 - 0.40 | 0.01 | | Average excluding <0.01 values. |
| <u>Compaction</u> | 1 | | | | 2.5 kg rammer |
| Optimum moisture content (%) | | 18 | | | |
| Maximum dry density (Mg/m ³) | | 1.75 | | | |
| <u>Thermal Conductivity</u> | 2 | | | | |
| Thermal Conductivity (W/(m.k)) | | 2.60 - 2.71 | 2.66 | | |
| Thermal Resistivity ((m.k)/W) | | 0.37 - 0.38 | 0.38 | | |
| Temperature (°C) | | 17.8 - 20.6 | 19.1 | | |

DATA SHEET

Project: **Newport Quinn**

Project No.: **PN224395**

**Table 6: Summary of Measured and Derived Parameters
Bedrock - St. Maughan's Formation**

| Parameter | Number of Tests | Range | Average | Figure Number | Remarks |
|---|-----------------|--------------|---------|---------------|---|
| SPT N Value | 29 | 26 - 61 | 36 | 4 | Seventeen tests did not achieve full penetration. |
| <u>Point Load - Sandstone</u> | | | | | |
| Is ₅₀ (MN/m ²) Axial | 9 | 0.06 - 1.56 | 0.57 | | |
| Is ₅₀ (MN/m ²) Diametral | 25 | 0.02 - 4.27 | 0.58 | | |
| <u>Point Load - Siltstone</u> | | | | | |
| Is ₅₀ (MN/m ²) Axial | 9 | 0.07 - 0.51 | 0.28 | | |
| Is ₅₀ (MN/m ²) Diametral | 8 | 0.02 - 0.33 | 0.12 | | |
| <u>Point Load - Mudstone</u> | | | | | |
| Is ₅₀ (MN/m ²) Axial | 100 | 0.03 - 5.41 | 0.21 | | |
| Is ₅₀ (MN/m ²) Diametral | 98 | 0.01 - 0.51 | 0.06 | | |
| <u>Unconfined Compressive Strength</u> | | | | | |
| Sandstone (MN/m ²) | 6 | 5.31 - 13.00 | 7.75 | | |
| Siltstone (MN/m ²) | 3 | 2.03 - 7.72 | 4.95 | | |
| Mudstone (MN/m ²) | 29 | 0.84 - 19.60 | 5.15 | | |
| <u>Moisture Content</u> | | | | | |
| Sandstone (%) | 6 | 4.7 - 10.7 | 7.1 | | |
| Siltstone (%) | 3 | 5.8 - 11.8 | 8.5 | | |
| Mudstone (%) | 30 | 3.1 - 32 | 12 | | |
| <u>Atterberg Limits - Mudstone (Clay)</u> | 1 | | | 2 | |
| Liquid Limit (%) | | 53 | | | |
| Plastic Limit (%) | | 30 | | | |
| Plasticity Index (%) | | 15 | | | |
| <u>Chemical Conditions</u> | 4 | | | | |
| pH | | 6.6 - 11 | 8 | | |
| Ammonia Aqueous Extract as N | | <10 | | | |
| Chloride Aqueous Extract | | 5.3 - 30 | 14 | | |
| Nitrate Aqueous Extract as NO ₃ | | <1.0 | | | |

| | | | | | |
|---|---|--------------|------|--|---------------------------------|
| Water soluble sulphate content SO ₄ (mg/l) | | 15 - 92 | 42 | | |
| Total Sulphur S (%) | | <0.01 - 0.07 | | | |
| Total sulphate SO ₄ (%) | | <0.01 - 0.25 | 0.09 | | Average excluding <0.01 values. |
| <u>Thermal Conductivity</u> | I | | | | |
| Thermal Conductivity (W/(m.k)) | | 1.18 | | | |
| Thermal Resistivity ((m.k)/W) | | 0.85 | | | |
| Temperature (°C) | | 19.1 | | | |

APPENDIX 12

Geological Sections

DATA SHEET - Symbols and Abbreviations used on Records



Sample Types

| | |
|-----|--|
| B | Bulk disturbed sample |
| BLK | Block sample |
| C | Core sample |
| D | Small disturbed sample (tub/jar) |
| E | Environmental test sample |
| ES | Environmental soil sample |
| EW | Environmental water sample |
| G | Gas sample |
| L | Liner sample |
| LB | Large bulk disturbed sample |
| P | Piston sample (PF - failed P sample) |
| TW | Thin walled push in sample |
| U | Open Tube - 102mm diameter with blows to take sample. (UF - failed U sample) |
| UT | Thin wall open drive tube sampler - 102mm diameter with blows to take sample. (UTF - failed UT sample) |
| V | Vial sample |
| W | Water sample |
| # | Sample Not Recovered |

Insitu Testing / Properties

| | |
|---|--|
| CBRP | CBR using TRL probe |
| CHP | Constant Head Permeability Test |
| COND | Electrical conductivity |
| TC | Thermal Conductivity |
| TR | Thermal Resistivity |
| HV | Strength from Hand Vane |
| ICBR | CBR Test |
| IDEN | Density Test |
| IRES | Resistivity Test |
| MEX | CBR using Mexecon Probe Test |
| PKR | Packer Permeability Test |
| PLT | Plate Load Test |
| PP | Strength from Pocket Penetrometer |
| Temp | Temperature |
| VHP | Variable Head Permeability Test |
| VN | Strength from Insitu Vane |
| w% | Water content |
| (All other strengths from undrained triaxial testing) | |
| S | Standard Penetration Test (SPT) |
| C | SPT with cone |
| N | SPT Result |
| -/- | Blows/penetration (mm) after seating drive |
| -*/- (mm) | Total blows/penetration |
| () | Extrapolated value |

Groundwater

| | |
|---------------------|--|
| Water Strike | |
| Depth Water Rose To | |

Instrumentation

Seal

Filter

Seal

Strata

Made Ground Granular

Made Ground Cohesive

Topsoil

Cobbles and Boulders

Gravel

Sand

Silt

Clay

Peat

Note: Composite soil types shown by combined symbols

Chalk

Limestone

Sandstone

Coal

Strata, Continued

Mudstone

Siltstone

Metamorphic Rock

Fine Grained

Medium Grained

Coarse Grained

Igneous Rock

Fine Grained

Medium Grained

Coarse Grained

Backfill Materials

Arisings

Bentonite

Concrete

Sand

Grout

Gravel

Asphalt/Tarmacadam

Rotary Core

RQD Rock Quality Designation (% of intact core >100mm)

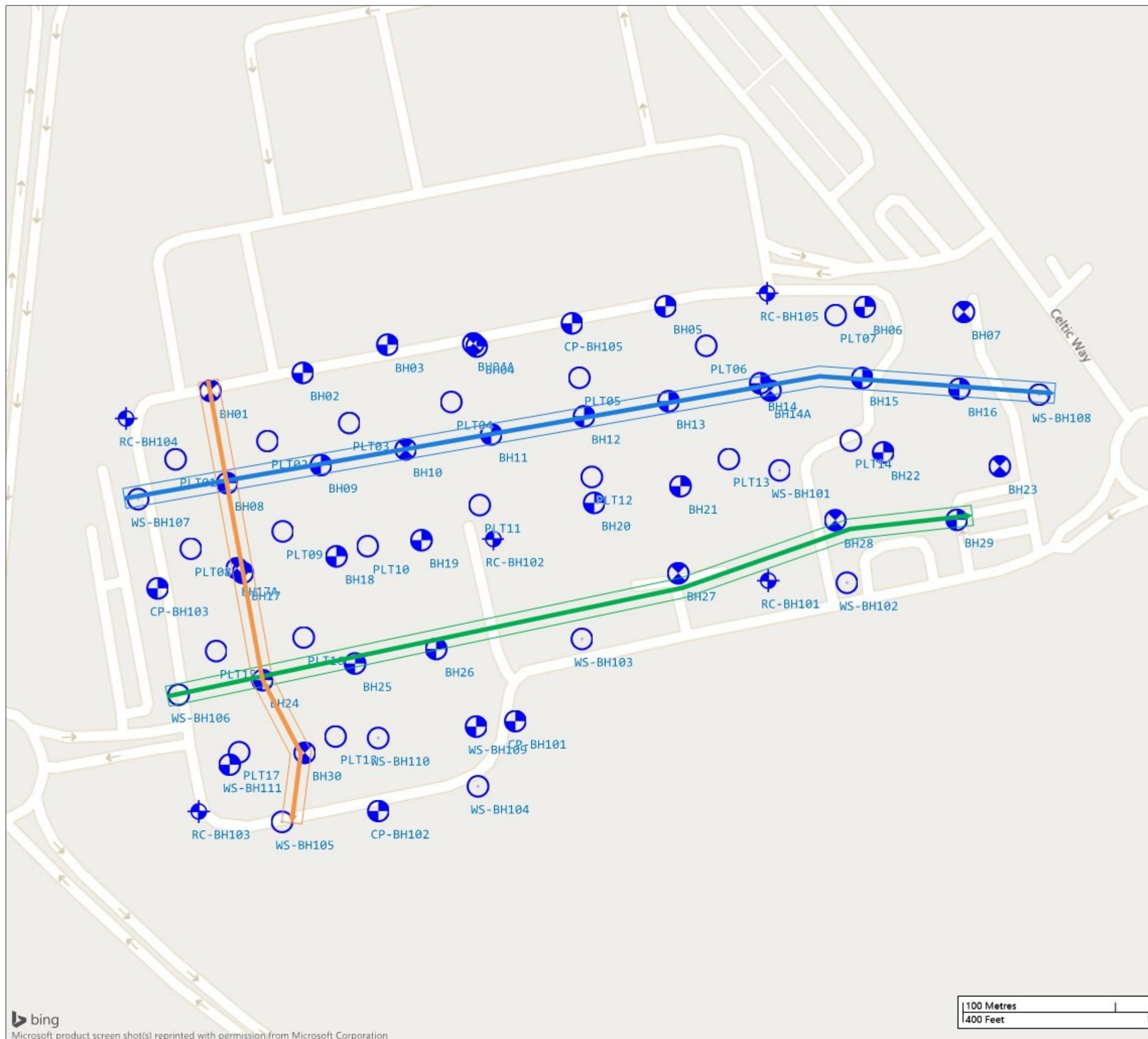
FRACTURE INDEX

Fractures/metre

NI Non-intact core

NR No core recovery

AZCL Assumed zone of core loss



Legend

- Sections - Section line A-A'
- Sections - Section line B-B'
- Sections - Section line C-C'
- Locations By Type - CP
- Locations By Type - CP+RC
- Locations By Type - DS
- Locations By Type - DS+RC
- Locations By Type - PLT

GEOTECHNICS

geotechnical and geoenvironmental specialists

Unit 1B Borders Industrial Park
River Lane
Saltney
Chester CH4 8RJ

Phone: 01244 671117
Email: mail@geotechnics.co.uk
www.geotechnics.co.uk

Engineer:

Pinnacle Consulting Engineers Limited

Client:

Pinnacle Consulting Engineers Limited

Project:

Newport Quinn Phase 2

Drawing Title:

Cross Section Layout with Exploratory Holes

Scale:

1:2500 at A3

Date:

07/02/2023


Project No.:

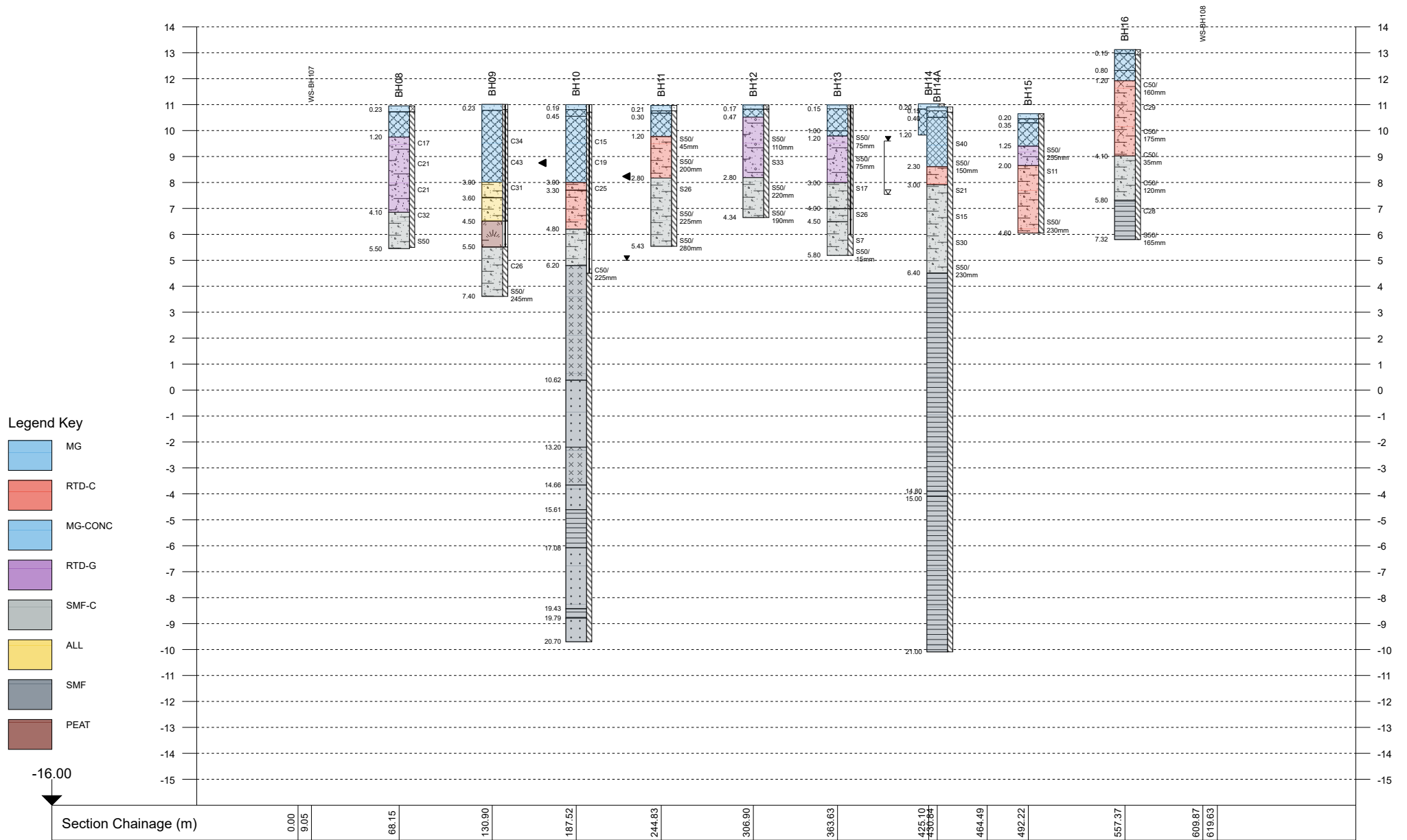
PN224395


**Exploratory Hole
Location Plan**

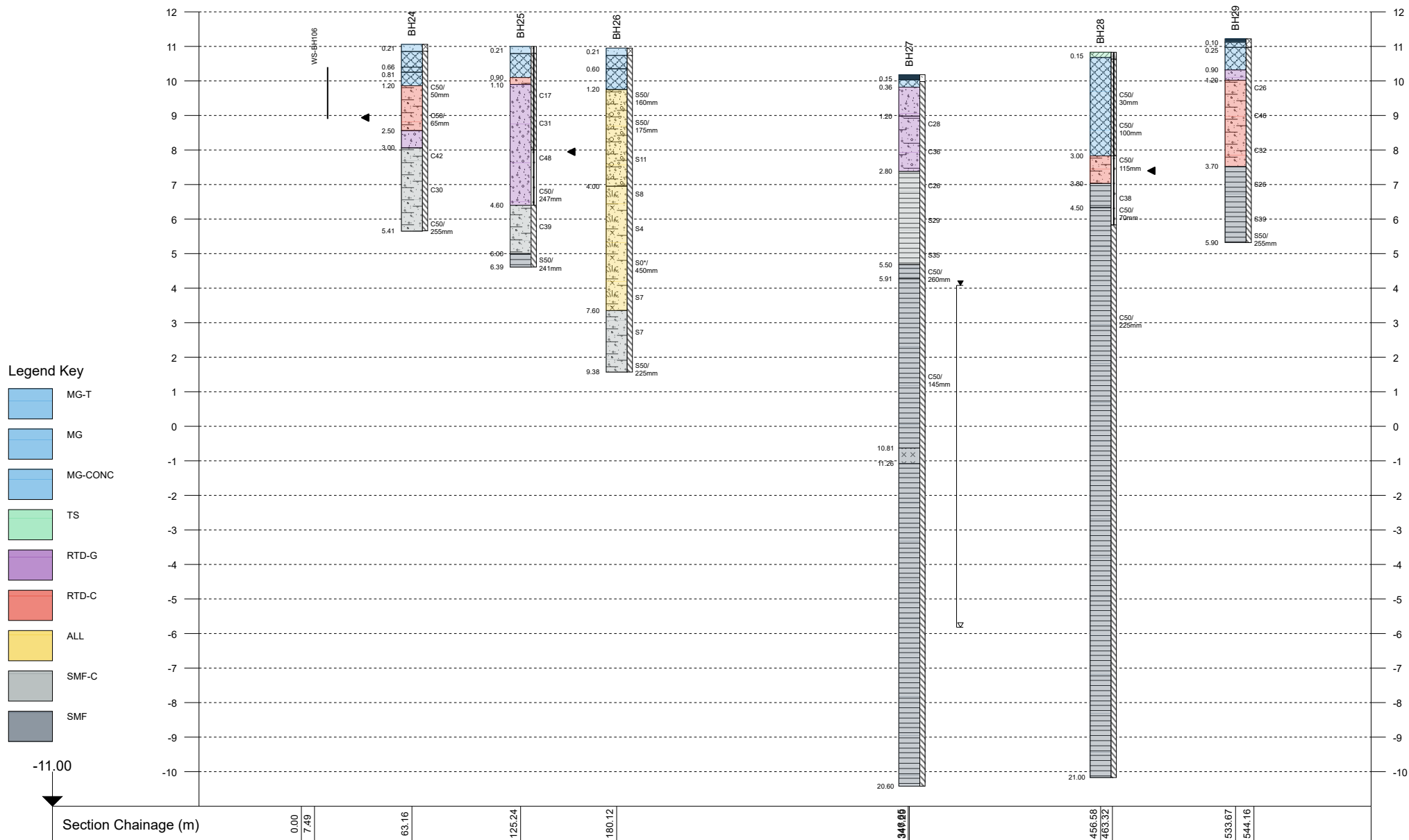



Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation

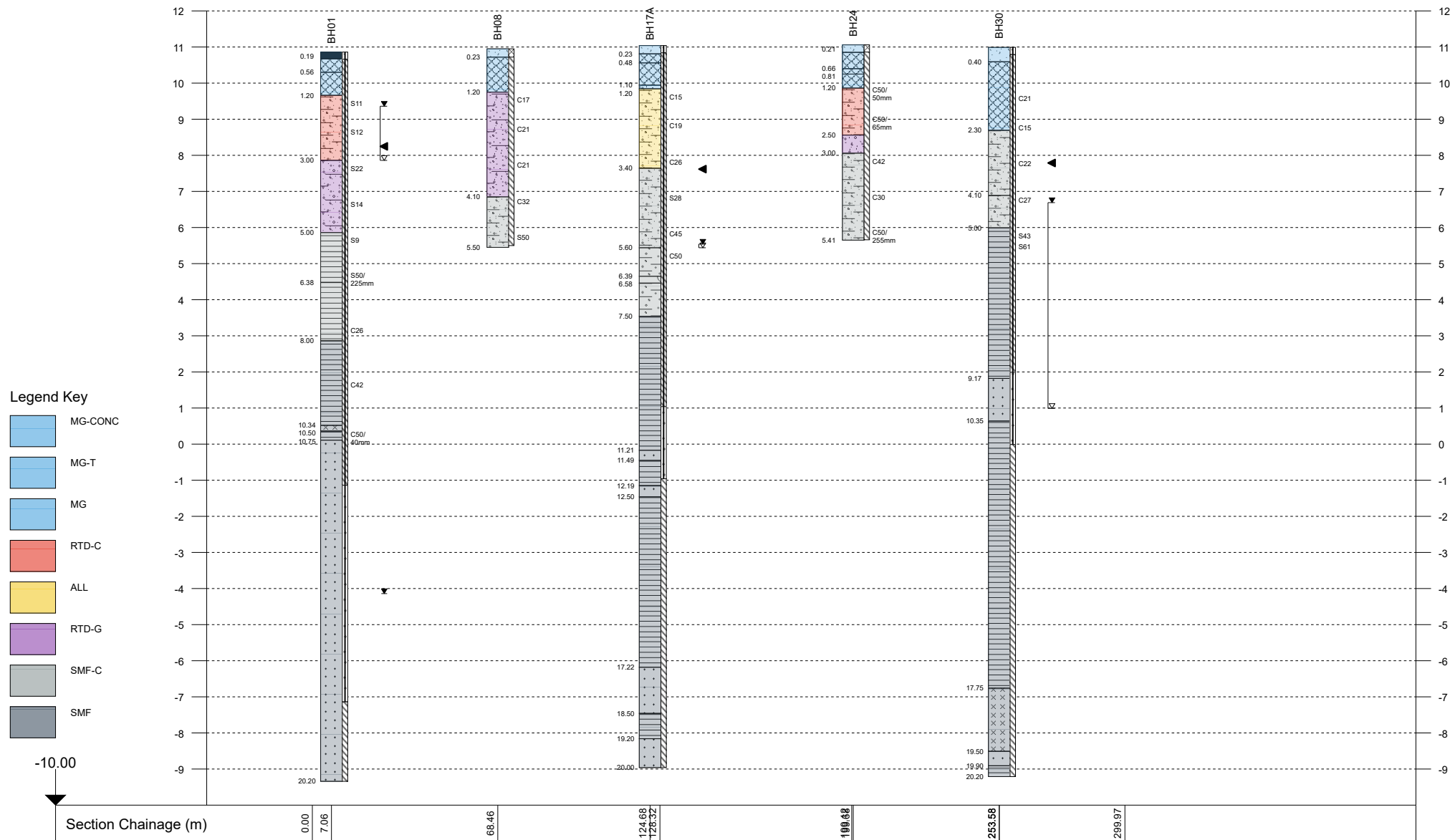
| | | | | |
|--|--|---|---|---|
| Project: Newport Quinn Phase 2 | Title: Section Line A-A' | Unit 1B Borders Industrial Park River Lane Saltney Chester CH4 8RJ | Phone: 01244 671117 Email: mail@geotechnics.co.uk www.geotechnics.co.uk |  geotechnical and geoenvironmental specialists |
| | Vertical Scale: 1:200 | | | |
| Project No.: PN224395 | Horizontal Scale: 1:3500 | | | |
| Client: Pinnacle Consulting Engineers Limited | Engineer: Pinnacle Consulting Engineers Limited | | | |



| | | | | |
|--|---------------------------------|---|---|---|
| Project: Newport Quinn Phase 2 | Title: Section Line B-B' | Unit 1B Borders Industrial Park River Lane Saltney Chester CH4 8RJ | Phone: 01244 671117 Email: mail@geotechnics.co.uk www.geotechnics.co.uk |  GEOTECHNICS geotechnical and geoenvironmental specialists |
| Project No.: PN224395 | Vertical Scale: 1:152 | | | |
| Client: Pinnacle Consulting Engineers Limited | Horizontal Scale: 1:3000 | Engineer: Pinnacle Consulting Engineers Limited | | |

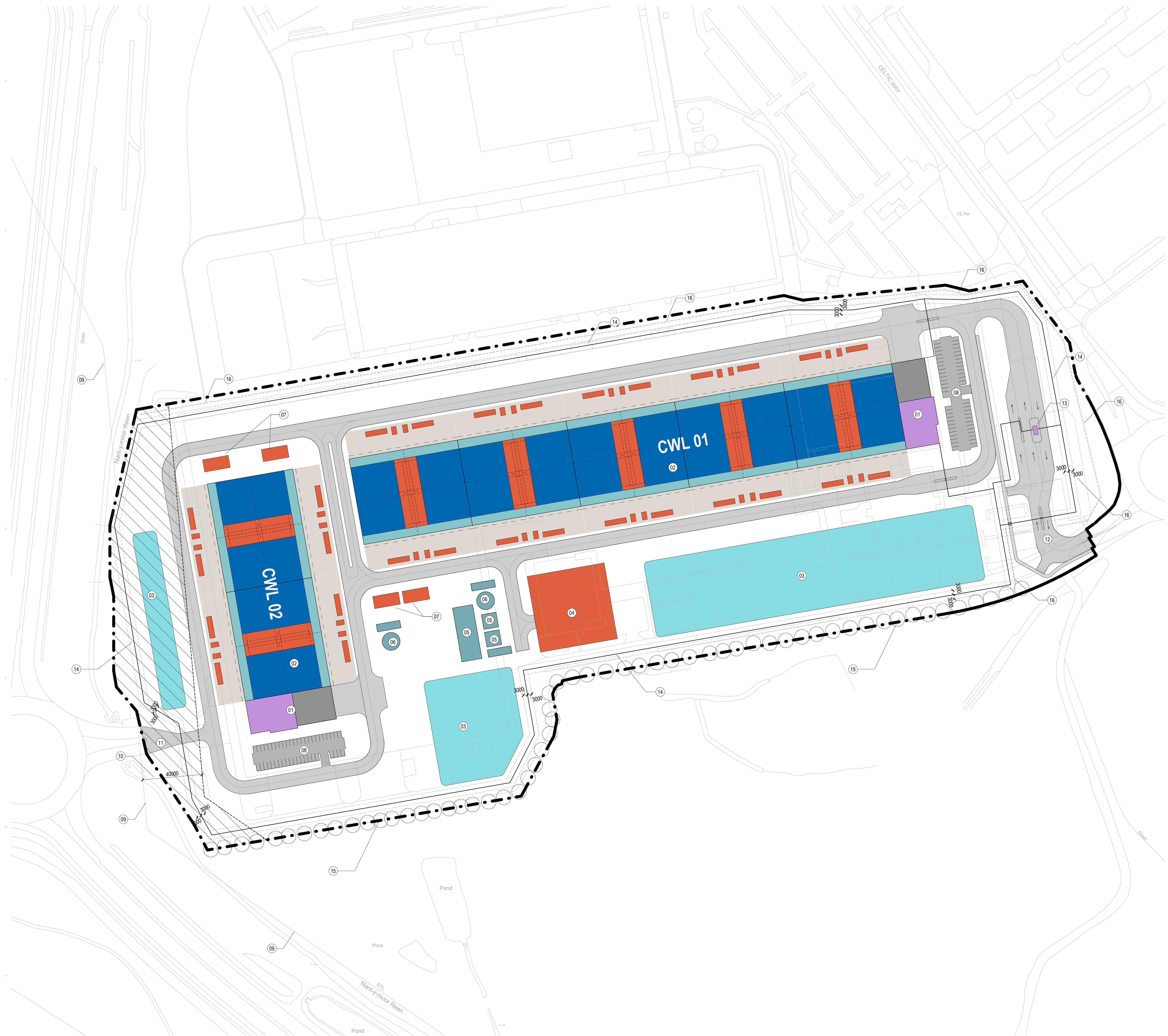


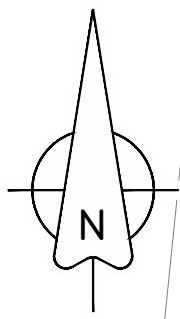
| | | | | |
|--|--|---|---|---|
| Project: Newport Quinn Phase 2 | Title: Section Line C-C' | Unit 1B Borders Industrial Park River Lane Saltney Chester CH4 8RJ | Phone: 01244 671117 Email: mail@geotechnics.co.uk www.geotechnics.co.uk |  geotechnical and geoenvironmental specialists |
| | Vertical Scale: 1:150 | | | |
| Project No.: PN224395 | Horizontal Scale: 1:2000 | | | |
| Client: Pinnacle Consulting Engineers Limited | Engineer: Pinnacle Consulting Engineers Limited | | | |



APPENDIX I3

Proposed Layout





GENERAL NOTES

- DO NOT SCALE THIS DRAWING. WORK ONLY TO FIGURED DIMENSIONS.
- FOR ALL RELEVANT NOTES, REFER TO STRUCTURAL AND CIVIL ENGINEERING PERFORMANCE SPECIFICATION.
- ANY DISCREPANCIES ARE TO BE REPORTED TO PINNACLE CONSULTING ENGINEERS IMMEDIATELY.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ENGINEERS, ARCHITECTS AND SUB-CONTRACTORS DRAWINGS AND DETAILS.

LEGEND

- SITE BOUNDARY
- PROPOSED LEVELS
- EXISTING LEVELS
- PROPOSED GRADIENT
- MINOR CONTOUR (0.100M INTERVALS)
- MAJOR CONTOUR (0.500M INTERVALS)
- RETAINING WALL



| | | | |
|-----------------|----|-----|----------|
| FOR INFORMATION | SC | JJ | 03.06.21 |
| DESCRIPTION | BY | CHK | DATE |
| CLIENT | | | |

PROJECT
NEWPORT SDD MSFT

DRAWING TITLE
LEVELS STRATEGY

PINNACLE
CONSULTING ENGINEERS

ALCOHRY,
BESSEMER ROAD,
WELWYN GARDEN CITY,
HERTS.
ALY THE. TELEPHONE: 01707 527 630
NORWICH LONDON DUBLIN THE HAGUE

| DRAWING STATUS | | | |
|------------------------------|----------|----------|---------|
| INFORMATION | | | |
| SCALE @ A3 | DATE | DRAWN BY | CHECKED |
| 1:750 | JUN '21 | SC | JJ |
| DRG NO | REVISION | | |
| C210420-PIN-XX-XX-DR-C-SK011 | P01 | | |

COPYRIGHT PINNACLE



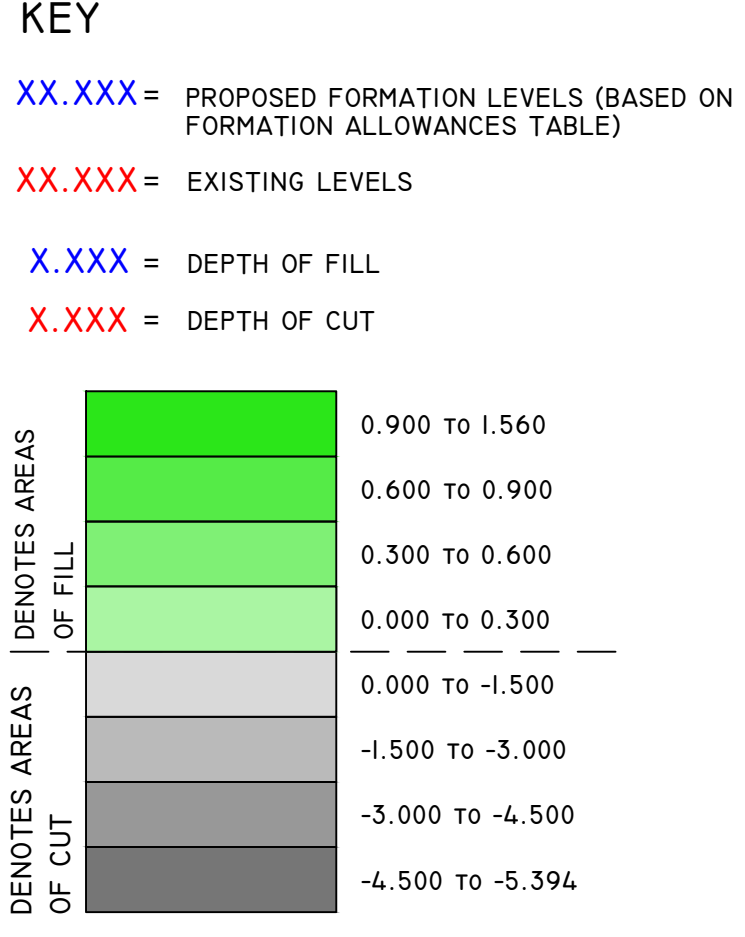
THIS DRAWING IS INDICATIVE, FOR INFORMATION ONLY.

VOLUMES ARE BASED ON ASSUMPTIONS AND INFORMATION AS STATED AND IS SUBJECT TO CHANGE THROUGH ON GOING SITE INVESTIGATIONS AND DESIGN DEVELOPMENT, AND SHOULD NOT BE USED FOR COSTING

IT IS ASSUMED ALL CUT MATERIAL IS NOT SUITABLE FOR RE-USE AS FILL.
THE CONTRACTOR IS TO SATISFY THEMSELVES THAT ANY CUT & FILL MATERIAL IS SUITABLE FOR RE-USE AS ENGINEERED FILL.

THIS DRAWING IS BASED ON ARCHITECTS DRAWING CWL XX-SK-104 DATED 05/24/21 & TOPOGRAPHY SURVEY BY LASER SURVEYS ON MAY 2021 REF: N1082

FORMATION ALLOWANCES ARE CALCULATED BASED ON A 2.5% CBR VALUE



| CUT & FILL VOLUMES | |
|------------------------------------|------------------------|
| CUT (ABOVE FORMATION LEVEL) | = 87.232m ³ |
| FILL (BELOW FORMATION LEVEL) | = 10.695m ³ |
| ESTIMATED ON-SITE ARISING (CUT) | = 16.000m ³ |
| (FOUNDATIONS, DRAINAGE & SERVICES) | |

- FORMATION ALLOWANCES**
- BUILDING AREA CONSTRUCTION DEPTH = 610mm (200mm SLAB + 410mm TYPE I FILL)
 - ROADS AND SITE ACCESS CONSTRUCTION DEPTH = 900mm (300mm SURFACING + 250mm CAPPING + 410mm TYPE I)
 - CAR PARKING & HARDSTANDING CONSTRUCTION DEPTH = 850mm (200mm SURFACING + 250mm CAPPING + 410mm TYPE I)
 - LANDSCAPE AREA FORMATION DEPTH = 150mm

- FIGURES DO NOT INCLUDE THE FOLLOWING:
- SETTLEMENT
 - BULKING
 - EXISTING GROUND FLOOR SLABS
 - HIGHWAY WORKS
 - HOTSPOT CONTAMINATION REMOVALS
 - ANY EXISTING CONCRETE SLABS TO BE REMOVED, CRUSHED, RE-LAID & COMPACTED

| | |
|---------------------|----------------|
| 0 50m ON A0 DWG. 50 | |
| POI FOR INFORMATION | SC JJ 03.06.21 |
| REV DESCRIPTION | BY CHK DATE |
| CLIENT | |

PROJECT

NEWPORT SDD MSFT

DRAWING TITLE

BULK EARTHWORKS ANALYSIS

PINNACLE
CONSULTING ENGINEERS

ALCOHRY,
BESSEMER ROAD,
WELWYN GARDEN CITY,
HERTS.

ALF THE. TELEPHONE: 01707 527 630

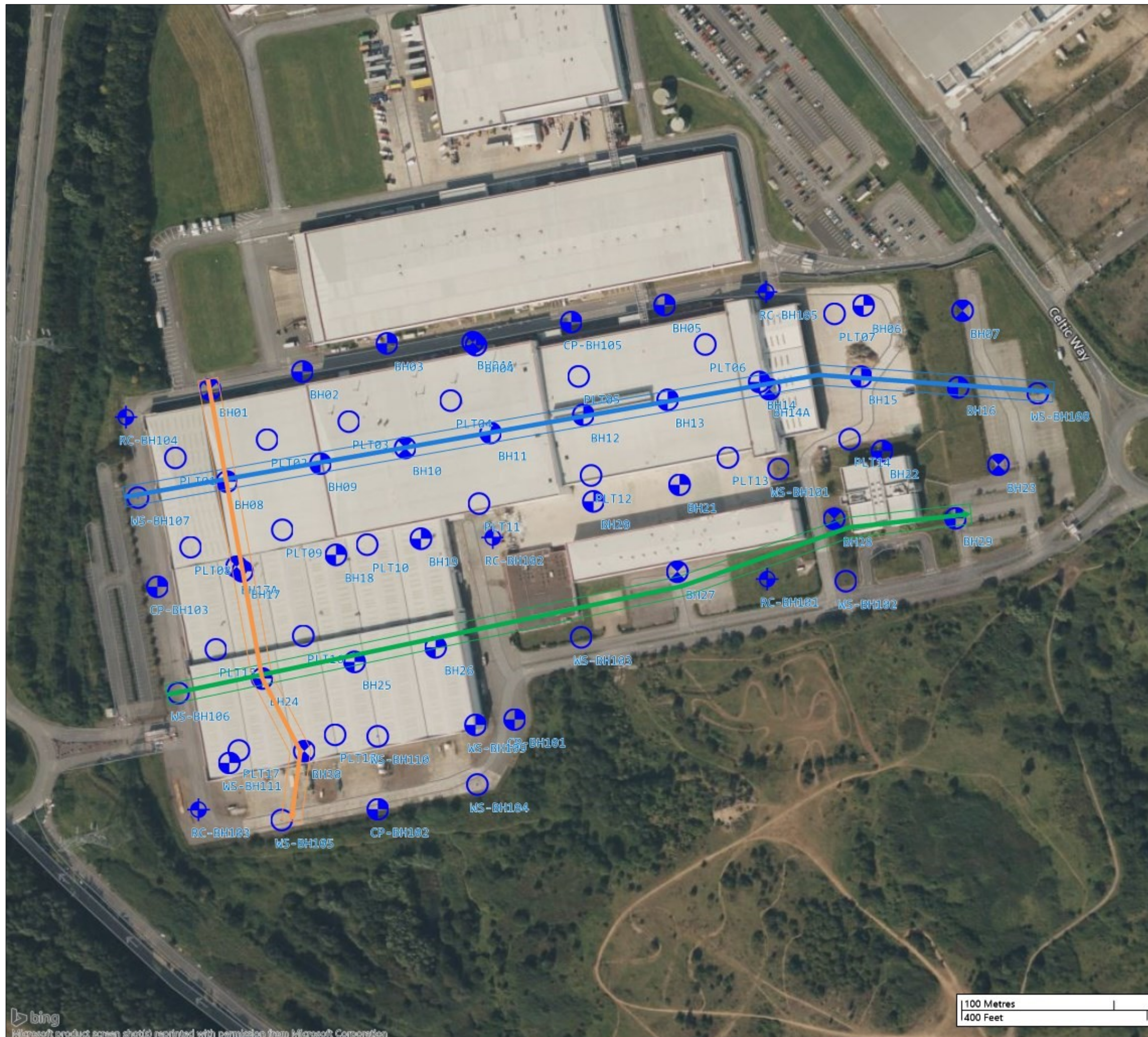
NORWICH LONDON DUBLIN THE HAGUE

| DRAWING STATUS | | | |
|------------------------------|----------|----------|---------|
| INFORMATION | | | |
| SCALE @ A0 | DATE | DRAWN BY | CHECKED |
| 1:750 | JUN '21 | SC | JJ |
| DWG NO | REVISION | | |
| C210420-PIN-XX-XX-DR-C-SK101 | P01 | | |

COPYRIGHT PINNACLE

APPENDIX I4

Exploratory Hole Location Plan



Legend

- Sections - Section line A-A'
- Sections - Section line B-B'
- Sections - Section line C-C'
- Locations By Type - CP
- Locations By Type - CP+RC
- Locations By Type - DS
- Locations By Type - DS+RC
- Locations By Type - PLT

GEOTECHNICS
geotechnical and geoenvironmental specialists

Unit 1B Borders Industrial Park
River Lane
Saltney
Chester CH4 8RJ

Phone: 01244 671117
Email: mail@geotechnics.co.uk
www.geotechnics.co.uk

Engineer:
Pinnacle Consulting Engineers Limited

Client:
Pinnacle Consulting Engineers Limited

Project:
Newport Quinn Phase 2

Drawing Title:
Exploratory Hole Location Plan

Scale:
1:2500 at A3

Date:
07/02/2023

Project No.:
PN224395

**Exploratory Hole
Location Plan**

APPENDIX 15

Investigation Techniques and General Notes

INTRODUCTION

The following brief review of Ground Investigation techniques, generally used as part of most Site Investigations in the UK, summarises their methodology, advantages and limitations. Detailed descriptions of the techniques are available and can be provided on request. This review should be read in conjunction with the accompanying General Notes.

TRIAL PITS

The trial pit is amongst the simplest yet most effective means of identifying shallow ground conditions on a site. Its advantages include simplicity, speed, potential accuracy and cost-effectiveness. The trial pit is most commonly formed using a back-acting excavator which can typically determine ground conditions to some 4 metres below ground level. Hand excavation is often used to locate, expose and detail existing foundations, features or services. In general, it is difficult to extend pits significantly below the water table in predominantly granular soils, where flows can cause instability. Unless otherwise stated, the trial pits will not have been provided with temporary side support during their construction. Under such circumstances, entrance into the pit is not permitted and hence observations will have been made from the ground surface and samples taken from the excavator bucket.

Where access for personnel is required to allow close observation of the exposed strata, the taking of samples and the carrying out of in situ tests, the sides of the trial pits (Observation Pits in BS 5930:2015) will be made safe using temporary supports or the sides battered back to a stable angle. Some limited access to such Trial Pits (Observation Pits) at depths less than 1m may be allowed in stable conditions or where the sides are benched or battered back to a safe angle.

Trends in strata type, level and thickness can be determined, shear surfaces identified and the behaviour of plant, excavation sides and excavated materials can be related to the construction process. They are particularly valuable in land slip investigations. Some types of in situ test can be undertaken in such pits and large disturbed or block samples obtained.

CABLE PERCUSSION BORING

The light Cable Percussion technique of soft ground boring, typically at a diameter of 150mm, is a well-established simple and flexible method of boring vertical holes and generally allows data to be obtained in respect of strata conditions other than rock. A tubular cutter (for cohesive soils) or shell with a flap valve (for granular soils) is repeatedly lifted and dropped using a winch and rope operating from an "A" frame. Soil which enters these tools is regularly removed and either sampled for subsequent examination or test, or laid to one side for later removal off site and licensed disposal or, if permitted by the Client, use as backfill. Steel casing will have been used to prevent collapse of the borehole sides where necessary. A degree of disturbance of soil and mixing of layers is inevitable and the presence of very thin layers of different soils within a particular stratum may not be identified. Changes in strata type can only be detected on recognition of a change in soil samples at the surface, after the interface has been passed. For the foregoing reasons, depth measurements should not be considered to be more accurate than 0.10 metre. The technique can determine ground conditions to depths in excess of 30 metres under suitable circumstances and usually causes less surface disturbance than trial pitting.

In cohesive soils cylindrical samples are retrieved by driving or pushing in 100mm nominal diameter tubes. In soft soils, piston sampling or vane testing may be undertaken. In granular soils and often in cohesive materials, in situ Standard Penetration Tests (SPT's) are performed. The SPT records the number of standard blows required to drive a 50mm diameter open or cone ended probe for 300mm after an initial 150mm penetration. A modified method of recording is used in denser strata. Small disturbed samples are obtained throughout.

ROTARY DRILLING

Rotary Drilling to produce cores by rotating an annular diamond-impregnated tube or barrel into the ground is the technique most appropriate to the forming of site investigation boreholes through rock or other hard strata. It has the advantage of being able to be used vertically or at an angle. Core diameters of less than 100mm are most common for site investigation purposes. Core is normally retrieved in plastic lining tubes. A flushing fluid such as air, water or foam is used to cool the bit and carry cuttings to the surface. Depths in excess of 60 metres can be achieved under suitable circumstances using rotary techniques, with minimal surface disturbance.

Examination of cores allows detailed rock description and generally enables angled discontinuity surfaces to be observed. However, vertical holes do not necessarily reveal the presence of vertical or near-vertical fissures or joint discontinuities. The core type and/or techniques used will depend on the ground conditions. Where open hole rotary drilling is employed, descriptions of strata result from examination at the surface of small particles ejected from the borehole in the flushing medium. In consequence, no indication of fissuring, bedding, consistency or degree of weathering can be obtained.

DYNAMIC SAMPLING

This technique involves the driving of an open-ended tube into the ground and retrieval of the soil which enters the tube. It was previously called window or windowless sampling. The term "window sample" arose from the original device which had a "window" or slot cut into the side of the tube through which samples were taken. This was superseded by the use of a thin-walled plastic liner to retrieve the soil sample from within a sampler (windowless sampling) which has a solid wall. Line diameters range from 36 to 86mm. Such samples can be used for qualitative logging, selection of samples for classification and chemical analysis and for obtaining a rudimentary assessment of strength.

Driving devices can be hand-held or machine mounted and the drive tubes are typically in 1m lengths. Depending on the type of rig used, the hole formed can be cased to prevent collapse of the borehole sides. Where the type of rig does not allow the insertion of casing, the success of this technique can be limited when soils and groundwater conditions are such that the sides of the hole collapse on withdrawal of the sampler. Obstructions within the ground, the density of the material or its strength can also limit the depth and rate of penetration of this light-weight investigation technique. Nevertheless, it is a valuable tool where access is constrained such as within buildings or on embankments. Depths of up to 10m can be achieved in suitable circumstances depending on the rig type but depths of 5m to 6m are more common.

EXPLORATORY HOLE RECORDS

The data obtained by these techniques are generally presented on Trial Pit, Borehole, Drillhole or Dynamic Sample Records. The descriptions of strata result from information gathered from a number of sources which may include published geological data, preliminary field observations and descriptions, in situ test results, laboratory test results and specimen descriptions. A key to the symbols and abbreviations used accompanies the records. The descriptions on the exploratory hole records accommodate but may not necessarily be identical to those on any preliminary records or the laboratory summaries.

The records show ground conditions at the exploratory hole locations. The degree to which they can be used to represent conditions between or beyond such holes, however, is a matter for geological interpretation rather than factual reporting and the associated uncertainties must be recognised.

DYNAMIC PROBING

This technique typically measures the number of blows of a standard weight falling over a standard height to advance a cone-ended rod over sequential standard distances (typically 100mm). Some devices measure the penetration of the probe per standard blow. It is essentially a profiling tool and is best used in conjunction with other investigation techniques where site-specific correlation can be used to delineate the distribution of soft or loose soils or the upper horizon of a dense or strong layer such as rock.

Both machine-driven and hand-driven equipment is available, the selection depending upon access restrictions and the depth of penetration required. It is particularly useful where access for larger equipment is not available, disturbance is to be minimised or where there are cost constraints. No samples are recovered and some techniques leave a sacrificial cone head in the ground. As with other lightweight techniques, progress is limited in strong or dense soils. The results are presented both numerically and graphically. Depths of up to 10m are commonly achieved in suitable circumstances.

The hand-driven DCP probing device has been calibrated by the Highways Agency to provide a profile of CBR values over a range of depths.

INSTRUMENTATION

The most common form of instrument used in site investigation is either the standpipe or else the standpipe piezometer which can be installed in investigation holes. They are used to facilitate monitoring of groundwater levels and water sampling over a period of time following site work. Normally a standpipe would be formed using rigid plastic tubing which has been perforated or slotted over much of its length whilst a standpipe piezometer would have a filter tip which would be placed at a selected level and the hole sealed above and sometimes below to isolate the zone of interest. Groundwater levels are determined using an electronic "dip meter" to measure the depth to the water surface from ground level. Piezometers can also be used to measure permeability. They are simple and inexpensive instruments for long term monitoring but response times can limit their use in tidal areas and access to the ground surface at each instrument is necessary. Remote reading requires more sophisticated hydraulic, electronic or pneumatic equipment.

Settlement can be monitored using surface or buried target plates whilst lateral movement over a range of depths is monitored using slip indicator or inclinometer equipment.

1. The report is prepared for the exclusive use of the Client named in the document and copyright subsists with Geotechnics Limited. Prior written permission must be obtained to reproduce all or part of the report. It is prepared on the understanding that its contents are only disclosed to parties directly involved in the current investigation, preparation and development of the site.
2. Further copies may be obtained with the Client's written permission, from Geotechnics Limited with whom the master copy of the document will be retained.
3. The report and/or opinion is prepared for the specific purpose stated in the document and in relation to the nature and extent of proposals made available to Geotechnics Limited at that time. Re-consideration will be necessary should those details change. The recommendations should not be used for other schemes on or adjacent to the site without further reference to Geotechnics Limited.
4. The assessment of the significance of the factual data, where called for, is provided to assist the Client and their Engineer and/or Advisers in the preparation of their designs.
5. The report is based on the ground conditions encountered in the exploratory holes together with the results of field and laboratory testing in the context of the proposed development. The data from any commissioned desk study and site reconnaissance are also drawn upon. There may be special conditions appertaining to the site, however, which are not revealed by the investigation and which may not be taken into account in the report.
6. Methods of construction and/or design other than those proposed by the designers or referred to in the report may require consideration during the evolution of the proposals and further assessment of the geotechnical and any geoenvironmental data would be required to provide discussion and evaluations appropriate to these methods.
7. The accuracy of results reported depends upon the technique of measurement, investigation and test used and these values should not be regarded necessarily as characteristics of the strata as a whole (see accompanying notes on Investigation Techniques). Where such measurements are critical, the technique of investigation will need to be reviewed and supplementary investigation undertaken in accordance with the advice of the Company where necessary.
8. The samples selected for laboratory test are prepared and tested in accordance with the relevant Clauses and Parts of BS EN ISO 17892 and BS 1377 Parts 1 to 8, where appropriate, in Geotechnics Limited's UKAS accredited Laboratory, where possible. A list of tests is given.
9. Tests requiring the use of another laboratory having UKAS accreditation where possible are identified.
10. Any unavoidable variations from specified procedures are identified in the report.
11. Specimens are cut vertically, where this is relevant and can be identified, unless otherwise stated
12. All the data required by the test procedures are recorded on individual test sheets but the results in the report are presented in summary form to aid understanding and assimilation for design purposes. Where all details are required, these can be made available.
13. Whilst the report may express an opinion on possible configurations of strata between or beyond exploratory holes, or on the possible presence of features based on either visual, verbal, written, cartographical, photographic or published evidence, this is for guidance only and no liability can be accepted for its accuracy.
14. The Code of Practice for Ground Investigations – BS 5930:2015 calls for man-made soils to be described as Anthropogenic Ground with soils placed in an un-controlled manner classified as Made Ground and soils placed in a controlled manner as Fill. In view of the difficulty in always accurately determining the origin of man-made soils in exploratory holes, Geotechnics Limited classify such materials as Made Ground. Where soils can be clearly identified as being placed in a controlled manner then further classification of the soils as Fill has been added to the Exploratory Hole Records.
15. Classification of man-made soils is based on the inspection of retrieved samples or exposed excavations. Where it is obvious that foreign matter such as paper, plastic or metal is present, classification is clear. Frequently, however, for man-made soils that arise from the adjacent ground or from the backfilling of excavations, their visual characteristics can closely resemble those of undisturbed ground. Other evidence such as site history, exploratory hole location or other tests may need to be drawn upon to provide clarification. For these reasons, classification of soils on the exploratory hole records as either Made Ground or naturally occurring strata, the boundary between them and any interpretation that this gives rise to should be regarded as provisional and subject to re-evaluation in the light of further data.
16. The classification of materials as Topsoil is generally based on visual description and should not be interpreted to mean that the material so described complies with the criteria for Topsoil used in BS 3882:2015. Specific testing would be necessary where such a definition is a requirement.
17. Ground conditions should be monitored during the construction of the works and the report should be re-evaluated in the light of these data by the supervising geotechnical engineers.
18. Any comments on groundwater conditions are based on observations made at the time of the investigation, unless specifically stated otherwise. It should be noted, however, that the observations are subject to the method and speed of boring, drilling or excavation and that groundwater levels will vary due to seasonal or other effects.
19. Any bearing capacities for conventional spread foundations which are given in the report and interpreted from the investigation are for bases at a minimum depth of 1m below finished ground level in naturally occurring strata and at broadly similar levels throughout individual structures, unless otherwise stated. Typically they are based on serviceability criteria taking account of an assessment of the shear strength and/or density data obtained by the investigation. The foundations should be designed in accordance with the good practice embodied in BS 8004:2015 - Foundations, supplemented for housing by NHBC Standards. Foundation design is an iterative process and bearing pressures may need adjustment or other measures may need to be taken in the context of final layouts and levels prior to finalisation of proposals.
20. Unless specifically stated, the investigation does not take account of the possible effects of mineral extraction or of gases from fill or natural sources within, below or outside the site.
21. The costs or economic viability of the proposals referred to in the report, or of the solutions put forward to any problems encountered, will depend on very many factors in addition to geotechnical or geoenvironmental considerations and hence their evaluation is outside the scope of the report.



ANNEX D

COLEMANS SOIL ANALYTICAL RESULTS,
24-008234



Englobe
Columbus House
Greenmeadow Springs
Cardiff
CF15 7NE

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404

f: 01923 237404

e: reception@i2analytical.com

e: david.skinner@englobecorp.com

Analytical Report Number : 24-008234

| | | | |
|-----------------------------|------------------|--|------------|
| Project / Site name: | Newport Colemans | Samples received on: | 12/03/2024 |
| Your job number: | XXXX | Samples instructed on/ Analysis started on: | 12/03/2024 |
| Your order number: | 64620 | Analysis completed by: | 18/03/2024 |
| Report Issue Number: | 1 | Report issued on: | 18/03/2024 |
| Samples Analysed: | 8 soil samples | | |

Signed:

Joanna Szwagrak
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 24-008234
Project / Site name: Newport Colemans
Your Order No: 64620

| Lab Sample Number | | | | 141453 | 141454 | 141455 | 141456 | 141457 |
|---|--|--|--|---------------|--------------------|----------------------|---------------|---------------|
| Sample Reference | | | | Eng-B4-S1 | Eng-B4-S2 | Eng-B4-S3 | Eng-B4-S4 | Eng-B4-S5 |
| Sample Number | | | | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| Depth (m) | | | | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| Date Sampled | | | | 08/03/2024 | 08/03/2024 | 08/03/2024 | 08/03/2024 | 08/03/2024 |
| Time Taken | | | | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| Analytical Parameter (Soil Analysis) | | | | Units | Limit of detection | Accreditation Status | | |

| | | | | | | | | |
|-------------------------------|----|------|------|------|-------|-------|-------|------|
| Stone Content | % | 0.1 | NONE | 41.7 | < 0.1 | < 0.1 | < 0.1 | 74.8 |
| Moisture Content | % | 0.01 | NONE | 6.9 | 8.1 | 8.8 | 9.9 | 8.2 |
| Total mass of sample received | kg | 0.1 | NONE | 0.8 | 0.8 | 0.8 | 0.9 | 1.1 |

Asbestos

| Asbestos in Soil Detected/Not Detected | Type | N/A | ISO 17025 | Detected | Not-detected | Not-detected | Detected | Not-detected |
|--|------|-----|-----------|--------------|--------------|--------------|--------------|--------------|
| Asbestos Analyst ID | N/A | N/A | N/A | KSZ | KSZ | KSZ | KSZ | DBU |
| Actinolite detected | Type | N/A | ISO 17025 | Not-detected | - | - | Not-detected | - |
| Amosite detected | Type | N/A | ISO 17025 | Not-detected | - | - | Not-detected | - |
| Anthophyllite detected | Type | N/A | ISO 17025 | Not-detected | - | - | Not-detected | - |
| Chrysotile detected | Type | N/A | ISO 17025 | Detected | - | - | Detected | - |
| Crocidolite detected | Type | N/A | ISO 17025 | Not-detected | - | - | Not-detected | - |
| Tremolite detected | Type | N/A | ISO 17025 | Not-detected | - | - | Not-detected | - |

| | | | | | | | | |
|-------------------------------------|---|-------|-----------|---------|---|---|-------|---|
| Asbestos % by hand picking/weighing | % | 0.001 | ISO 17025 | < 0.001 | - | - | 0.003 | - |
|-------------------------------------|---|-------|-----------|---------|---|---|-------|---|

| | | | | | | | | |
|---|------|-----|-----------|--------------|---|---|--------------|---|
| Asbestos Containing Material Types Detected (ACM) | Type | N/A | ISO 17025 | Loose Fibres | - | - | Loose Fibres | - |
|---|------|-----|-----------|--------------|---|---|--------------|---|

General Inorganics

| | | | | | | | | |
|---|----------|------|--------|------|------|------|------|------|
| pH (L099) | pH Units | N/A | MCERTS | 11.7 | 10.1 | 10.3 | 11.3 | 6.9 |
| Total Sulphate as SO4 | mg/kg | 50 | MCERTS | 3700 | 1100 | 1900 | 3000 | 160 |
| Water Soluble Sulphate as SO4 16hr extraction (2:1) | mg/kg | 2.5 | MCERTS | 180 | 290 | 450 | 520 | 43 |
| Water Soluble SO4 16hr extraction (2:1) | mg/l | 1.25 | MCERTS | 88.2 | 147 | 225 | 262 | 21.5 |
| Total Organic Carbon (TOC) - Automated | % | 0.1 | MCERTS | 0.6 | 0.3 | 0.9 | 0.7 | 0.5 |
| Loss on Ignition @ 450oC | % | 0.2 | MCERTS | 4.5 | 2.5 | 2.8 | 4.5 | 2 |

Total Phenols

| | | | | | | | | |
|----------------------------|-------|---|--------|-------|-------|-------|-------|-------|
| Total Phenols (monohydric) | mg/kg | 1 | MCERTS | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
|----------------------------|-------|---|--------|-------|-------|-------|-------|-------|

Speciated PAHs

| | | | | | | | | |
|------------------------|-------|------|-----------|--------|--------|--------|--------|--------|
| Naphthalene | mg/kg | 0.05 | MCERTS | < 0.05 | 0.05 | 0.07 | < 0.05 | 0.13 |
| Acenaphthylene | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| Acenaphthene | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| Fluorene | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| Phenanthrene | mg/kg | 0.05 | MCERTS | 0.27 | < 0.05 | 0.25 | 0.21 | < 0.05 |
| Anthracene | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | 0.05 | < 0.05 | < 0.05 |
| Fluoranthene | mg/kg | 0.05 | MCERTS | 0.41 | < 0.05 | 0.26 | 0.28 | < 0.05 |
| Pyrene | mg/kg | 0.05 | MCERTS | 0.3 | < 0.05 | 0.22 | 0.23 | < 0.05 |
| Benzo(a)anthracene | mg/kg | 0.05 | MCERTS | 0.16 | < 0.05 | 0.12 | 0.11 | < 0.05 |
| Chrysene | mg/kg | 0.05 | MCERTS | 0.22 | < 0.05 | 0.21 | 0.22 | < 0.05 |
| Benzo(b)fluoranthene | mg/kg | 0.05 | ISO 17025 | 0.25 | < 0.05 | < 0.05 | 0.21 | < 0.05 |
| Benzo(k)fluoranthene | mg/kg | 0.05 | ISO 17025 | 0.13 | < 0.05 | < 0.05 | 0.1 | < 0.05 |
| Benzo(a)pyrene | mg/kg | 0.05 | MCERTS | 0.15 | < 0.05 | 0.14 | 0.08 | < 0.05 |
| Indeno(1,2,3-cd)pyrene | mg/kg | 0.05 | MCERTS | 0.11 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| Dibenz(a,h)anthracene | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| Benzo(ghi)perylene | mg/kg | 0.05 | MCERTS | 0.12 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |

Total PAH

| | | | | | | | | |
|-----------------------------|-------|-----|-----------|------|--------|------|------|--------|
| Speciated Total EPA-16 PAHs | mg/kg | 0.8 | ISO 17025 | 2.12 | < 0.80 | 1.32 | 1.44 | < 0.80 |
|-----------------------------|-------|-----|-----------|------|--------|------|------|--------|

Analytical Report Number: 24-008234
Project / Site name: Newport Colemans
Your Order No: 64620

| Lab Sample Number | | | | 141453 | 141454 | 141455 | 141456 | 141457 |
|---|-------|--------------------|-------------------------|---------------|---------------|---------------|---------------|---------------|
| Sample Reference | | | | Eng-B4-S1 | Eng-B4-S2 | Eng-B4-S3 | Eng-B4-S4 | Eng-B4-S5 |
| Sample Number | | | | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| Depth (m) | | | | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| Date Sampled | | | | 08/03/2024 | 08/03/2024 | 08/03/2024 | 08/03/2024 | 08/03/2024 |
| Time Taken | | | | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| Analytical Parameter (Soil Analysis) | Units | Limit of detection | Accreditation Status | | | | | |

Heavy Metals / Metalloids

| | | | | | | | | |
|-----------------------------------|-------|-----|--------|-------|-------|-------|-------|-------|
| Arsenic (aqua regia extractable) | mg/kg | 1 | MCERTS | 7.5 | 6.7 | 6.7 | 6.7 | 7.9 |
| Boron (water soluble) | mg/kg | 0.2 | MCERTS | 23 | 2 | 6.2 | 14 | 0.5 |
| Cadmium (aqua regia extractable) | mg/kg | 0.2 | MCERTS | 2.9 | 0.2 | 0.8 | 2.4 | < 0.2 |
| Chromium (hexavalent) | mg/kg | 1.8 | MCERTS | 3.3 | < 1.8 | < 1.8 | < 1.8 | < 1.8 |
| Chromium (III) | mg/kg | 1 | NONE | 960 | 29 | 110 | 370 | 22 |
| Chromium (aqua regia extractable) | mg/kg | 1 | MCERTS | 960 | 29 | 110 | 370 | 22 |
| Copper (aqua regia extractable) | mg/kg | 1 | MCERTS | 210 | 12 | 34 | 87 | 9.9 |
| Lead (aqua regia extractable) | mg/kg | 1 | MCERTS | 200 | 14 | 54 | 170 | 15 |
| Mercury (aqua regia extractable) | mg/kg | 0.3 | MCERTS | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 |
| Nickel (aqua regia extractable) | mg/kg | 1 | MCERTS | 160 | 26 | 46 | 350 | 27 |
| Selenium (aqua regia extractable) | mg/kg | 1 | MCERTS | 10 | < 1.0 | < 1.0 | 5.1 | < 1.0 |
| Zinc (aqua regia extractable) | mg/kg | 1 | MCERTS | 1000 | 79 | 270 | 820 | 69 |

Petroleum Hydrocarbons

| | | | | | | | | |
|---|-------|------|--------|---------|---------|---------|---------|---------|
| TPHCWG - Aliphatic >C5 - C6 HS_1D_AL | mg/kg | 0.02 | NONE | < 0.020 | < 0.020 | < 0.020 | < 0.020 | < 0.020 |
| TPHCWG - Aliphatic >C6 - C8 HS_1D_AL | mg/kg | 0.02 | NONE | < 0.020 | < 0.020 | < 0.020 | < 0.020 | < 0.020 |
| TPHCWG - Aliphatic >C8 - C10 HS_1D_AL | mg/kg | 0.05 | NONE | < 0.050 | < 0.050 | < 0.050 | < 0.050 | < 0.050 |
| TPHCWG - Aliphatic >C10 - C12 EH_CU_1D_AL | mg/kg | 1 | MCERTS | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| TPHCWG - Aliphatic >C12 - C16 EH_CU_1D_AL | mg/kg | 2 | MCERTS | < 2.0 | < 2.0 | < 2.0 | < 2.0 | < 2.0 |
| TPHCWG - Aliphatic >C16 - C21 EH_CU_1D_AL | mg/kg | 8 | MCERTS | 13 | < 8.0 | < 8.0 | < 8.0 | < 8.0 |
| TPHCWG - Aliphatic >C21 - C35 EH_CU_1D_AL | mg/kg | 8 | MCERTS | 100 | 150 | 96 | 49 | < 8.0 |
| TPHCWG - Aliphatic >C5 - C35 EH_CU+HS_1D_AL | mg/kg | 10 | NONE | 120 | 150 | 96 | 49 | < 10 |

| | | | | | | | | |
|--|-------|------|--------|---------|---------|---------|---------|---------|
| TPHCWG - Aromatic >EC5 - EC7 HS_1D_AR | mg/kg | 0.01 | NONE | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| TPHCWG - Aromatic >EC7 - EC8 HS_1D_AR | mg/kg | 0.01 | NONE | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| TPHCWG - Aromatic >EC8 - EC10 HS_1D_AR | mg/kg | 0.05 | NONE | < 0.050 | < 0.050 | < 0.050 | < 0.050 | < 0.050 |
| TPHCWG - Aromatic >EC10 - EC12 EH_CU_1D_AR | mg/kg | 1 | MCERTS | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| TPHCWG - Aromatic >EC12 - EC16 EH_CU_1D_AR | mg/kg | 2 | MCERTS | < 2.0 | < 2.0 | 3.3 | < 2.0 | < 2.0 |
| TPHCWG - Aromatic >EC16 - EC21 EH_CU_1D_AR | mg/kg | 10 | MCERTS | < 10 | < 10 | < 10 | < 10 | < 10 |
| TPHCWG - Aromatic >EC21 - EC35 EH_CU_1D_AR | mg/kg | 10 | MCERTS | < 10 | < 10 | 140 | < 10 | < 10 |
| TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_1D_AR | mg/kg | 10 | NONE | < 10 | < 10 | 140 | < 10 | < 10 |

VOCs

| | | | | | | | | |
|------------------------------------|-------|---|--------|-------|-------|-------|-------|-------|
| MTBE (Methyl Tertiary Butyl Ether) | µg/kg | 5 | NONE | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 |
| Benzene | µg/kg | 5 | MCERTS | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 |
| Toluene | µg/kg | 5 | MCERTS | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 |
| Ethylbenzene | µg/kg | 5 | MCERTS | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 |
| p & m-Xylene | µg/kg | 5 | MCERTS | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 |
| o-Xylene | µg/kg | 5 | MCERTS | < 5.0 | < 5.0 | < 5.0 | < 5.0 | < 5.0 |

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 24-008234
Project / Site name: Newport Colemans
Your Order No: 64620

| | | | | | | |
|---|-------|--------------------|----------------------|---------------|---------------|---------------|
| Lab Sample Number | | | | 141458 | 141459 | 141460 |
| Sample Reference | | | | Eng-B4-S6 | Eng-B4-S7 | Eng-B4-S8 |
| Sample Number | | | | None Supplied | None Supplied | None Supplied |
| Depth (m) | | | | None Supplied | None Supplied | None Supplied |
| Date Sampled | | | | 08/03/2024 | 08/03/2024 | 08/03/2024 |
| Time Taken | | | | None Supplied | None Supplied | None Supplied |
| Analytical Parameter (Soil Analysis) | Units | Limit of detection | Accreditation Status | | | |
| | | | | | | |

| | | | | | | |
|-------------------------------|----|------|------|------|-------|------|
| Stone Content | % | 0.1 | NONE | 64.2 | < 0.1 | 54.3 |
| Moisture Content | % | 0.01 | NONE | 7.3 | 7.2 | 5.9 |
| Total mass of sample received | kg | 0.1 | NONE | 0.8 | 0.8 | 0.8 |

Asbestos

| | | | | | | |
|--|------|-----|-----------|--------------|--------------|--------------|
| Asbestos in Soil Detected/Not Detected | Type | N/A | ISO 17025 | Not-detected | Not-detected | Not-detected |
| Asbestos Analyst ID | N/A | N/A | N/A | DBU | MLO | MLO |
| Actinolite detected | Type | N/A | ISO 17025 | - | - | - |
| Amosite detected | Type | N/A | ISO 17025 | - | - | - |
| Anthophyllite detected | Type | N/A | ISO 17025 | - | - | - |
| Chrysotile detected | Type | N/A | ISO 17025 | - | - | - |
| Crocidolite detected | Type | N/A | ISO 17025 | - | - | - |
| Tremolite detected | Type | N/A | ISO 17025 | - | - | - |

| | | | | | | |
|-------------------------------------|---|-------|-----------|---|---|---|
| Asbestos % by hand picking/weighing | % | 0.001 | ISO 17025 | - | - | - |
|-------------------------------------|---|-------|-----------|---|---|---|

| | | | | | | |
|---|------|-----|-----------|---|---|---|
| Asbestos Containing Material Types Detected (ACM) | Type | N/A | ISO 17025 | - | - | - |
|---|------|-----|-----------|---|---|---|

General Inorganics

| | | | | | | |
|---|----------|------|--------|------|------|------|
| pH (L099) | pH Units | N/A | MCERTS | 8.2 | 10.8 | 10.9 |
| Total Sulphate as SO4 | mg/kg | 50 | MCERTS | 150 | 1500 | 1300 |
| Water Soluble Sulphate as SO4 16hr extraction (2:1) | mg/kg | 2.5 | MCERTS | 110 | 290 | 240 |
| Water Soluble SO4 16hr extraction (2:1) | mg/l | 1.25 | MCERTS | 53.1 | 146 | 122 |
| Total Organic Carbon (TOC) - Automated | % | 0.1 | MCERTS | 0.2 | 0.7 | 0.3 |
| Loss on Ignition @ 450oC | % | 0.2 | MCERTS | 1.2 | 2.7 | 1.7 |

Total Phenols

| | | | | | | |
|----------------------------|-------|---|--------|-------|-------|-------|
| Total Phenols (monohydric) | mg/kg | 1 | MCERTS | < 1.0 | < 1.0 | < 1.0 |
|----------------------------|-------|---|--------|-------|-------|-------|

Speciated PAHs

| | | | | | | |
|------------------------|-------|------|-----------|--------|--------|--------|
| Naphthalene | mg/kg | 0.05 | MCERTS | 0.09 | < 0.05 | < 0.05 |
| Acenaphthylene | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 |
| Acenaphthene | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 |
| Fluorene | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 |
| Phenanthrene | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | 0.07 |
| Anthracene | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 |
| Fluoranthene | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | 0.06 |
| Pyrene | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | 0.05 |
| Benzo(a)anthracene | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 |
| Chrysene | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 |
| Benzo(b)fluoranthene | mg/kg | 0.05 | ISO 17025 | < 0.05 | < 0.05 | < 0.05 |
| Benzo(k)fluoranthene | mg/kg | 0.05 | ISO 17025 | < 0.05 | < 0.05 | < 0.05 |
| Benzo(a)pyrene | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 |
| Indeno(1,2,3-cd)pyrene | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 |
| Dibenz(a,h)anthracene | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 |
| Benzo(ghi)perylene | mg/kg | 0.05 | MCERTS | < 0.05 | < 0.05 | < 0.05 |

Total PAH

| | | | | | | |
|-----------------------------|-------|-----|-----------|--------|--------|--------|
| Speciated Total EPA-16 PAHs | mg/kg | 0.8 | ISO 17025 | < 0.80 | < 0.80 | < 0.80 |
|-----------------------------|-------|-----|-----------|--------|--------|--------|

Analytical Report Number: 24-008234
Project / Site name: Newport Colemans
Your Order No: 64620

| Lab Sample Number | | | | 141458 | 141459 | 141460 |
|---|-------|--------------------|----------------------|---------------|---------------|---------------|
| Sample Reference | | | | Eng-B4-S6 | Eng-B4-S7 | Eng-B4-S8 |
| Sample Number | | | | None Supplied | None Supplied | None Supplied |
| Depth (m) | | | | None Supplied | None Supplied | None Supplied |
| Date Sampled | | | | 08/03/2024 | 08/03/2024 | 08/03/2024 |
| Time Taken | | | | None Supplied | None Supplied | None Supplied |
| Analytical Parameter (Soil Analysis) | Units | Limit of detection | Accreditation Status | | | |
| | | | | | | |

Heavy Metals / Metalloids

| | | | | | | |
|-----------------------------------|-------|-----|--------|-------|-------|-------|
| Arsenic (aqua regia extractable) | mg/kg | 1 | MCERTS | 8.1 | 9.4 | 6.4 |
| Boron (water soluble) | mg/kg | 0.2 | MCERTS | 1.2 | 0.8 | 5.7 |
| Cadmium (aqua regia extractable) | mg/kg | 0.2 | MCERTS | < 0.2 | 1.6 | 0.8 |
| Chromium (hexavalent) | mg/kg | 1.8 | MCERTS | < 1.8 | < 1.8 | < 1.8 |
| Chromium (III) | mg/kg | 1 | NONE | 20 | 34 | 170 |
| Chromium (aqua regia extractable) | mg/kg | 1 | MCERTS | 20 | 34 | 170 |
| Copper (aqua regia extractable) | mg/kg | 1 | MCERTS | 12 | 22 | 40 |
| Lead (aqua regia extractable) | mg/kg | 1 | MCERTS | 10 | 26 | 47 |
| Mercury (aqua regia extractable) | mg/kg | 0.3 | MCERTS | < 0.3 | < 0.3 | < 0.3 |
| Nickel (aqua regia extractable) | mg/kg | 1 | MCERTS | 28 | 26 | 48 |
| Selenium (aqua regia extractable) | mg/kg | 1 | MCERTS | < 1.0 | < 1.0 | 2.7 |
| Zinc (aqua regia extractable) | mg/kg | 1 | MCERTS | 67 | 120 | 270 |

Petroleum Hydrocarbons

| | | | | | | |
|---|-------|------|--------|---------|---------|---------|
| TPHCWG - Aliphatic >C5 - C6 HS_1D_AL | mg/kg | 0.02 | NONE | < 0.020 | < 0.020 | < 0.020 |
| TPHCWG - Aliphatic >C6 - C8 HS_1D_AL | mg/kg | 0.02 | NONE | < 0.020 | < 0.020 | < 0.020 |
| TPHCWG - Aliphatic >C8 - C10 HS_1D_AL | mg/kg | 0.05 | NONE | < 0.050 | < 0.050 | < 0.050 |
| TPHCWG - Aliphatic >C10 - C12 EH_CU_1D_AL | mg/kg | 1 | MCERTS | < 1.0 | < 1.0 | < 1.0 |
| TPHCWG - Aliphatic >C12 - C16 EH_CU_1D_AL | mg/kg | 2 | MCERTS | < 2.0 | < 2.0 | < 2.0 |
| TPHCWG - Aliphatic >C16 - C21 EH_CU_1D_AL | mg/kg | 8 | MCERTS | < 8.0 | < 8.0 | < 8.0 |
| TPHCWG - Aliphatic >C21 - C35 EH_CU_1D_AL | mg/kg | 8 | MCERTS | < 8.0 | < 8.0 | < 8.0 |
| TPHCWG - Aliphatic >C5 - C35 EH_CU+HS_1D_AL | mg/kg | 10 | NONE | < 10 | < 10 | < 10 |

| | | | | | | |
|--|-------|------|--------|---------|---------|---------|
| TPHCWG - Aromatic >EC5 - EC7 HS_1D_AR | mg/kg | 0.01 | NONE | < 0.010 | < 0.010 | < 0.010 |
| TPHCWG - Aromatic >EC7 - EC8 HS_1D_AR | mg/kg | 0.01 | NONE | < 0.010 | < 0.010 | < 0.010 |
| TPHCWG - Aromatic >EC8 - EC10 HS_1D_AR | mg/kg | 0.05 | NONE | < 0.050 | < 0.050 | < 0.050 |
| TPHCWG - Aromatic >EC10 - EC12 EH_CU_1D_AR | mg/kg | 1 | MCERTS | < 1.0 | < 1.0 | < 1.0 |
| TPHCWG - Aromatic >EC12 - EC16 EH_CU_1D_AR | mg/kg | 2 | MCERTS | < 2.0 | < 2.0 | < 2.0 |
| TPHCWG - Aromatic >EC16 - EC21 EH_CU_1D_AR | mg/kg | 10 | MCERTS | < 10 | < 10 | < 10 |
| TPHCWG - Aromatic >EC21 - EC35 EH_CU_1D_AR | mg/kg | 10 | MCERTS | < 10 | < 10 | < 10 |
| TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_1D_AR | mg/kg | 10 | NONE | < 10 | < 10 | < 10 |

VOCs

| | | | | | | |
|------------------------------------|-------|---|--------|-------|-------|-------|
| MTBE (Methyl Tertiary Butyl Ether) | µg/kg | 5 | NONE | < 5.0 | < 5.0 | < 5.0 |
| Benzene | µg/kg | 5 | MCERTS | < 5.0 | < 5.0 | < 5.0 |
| Toluene | µg/kg | 5 | MCERTS | < 5.0 | < 5.0 | < 5.0 |
| Ethylbenzene | µg/kg | 5 | MCERTS | < 5.0 | < 5.0 | < 5.0 |
| p & m-Xylene | µg/kg | 5 | MCERTS | < 5.0 | < 5.0 | < 5.0 |
| o-Xylene | µg/kg | 5 | MCERTS | < 5.0 | < 5.0 | < 5.0 |

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected



Analytical Report Number: 24-008234
Project / Site name: Newport Colemans
Your Order No: 64620

Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative Analysis

The analysis was carried out using our documented in-house method A006 based on HSE Contract Research Report No: 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies et al, 1996) and HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of each fraction, with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with caution.

Both Qualitative and Quantitative Analyses are UKAS accredited.

| Sample Number | Sample ID | Sample Depth (m) | Sample Weight (g) | Asbestos Containing Material Types Detected (ACM) | PLM Results | Asbestos by hand picking/weighing (%) | Total % Asbestos in Sample |
|---------------|-----------|------------------|-------------------|---|-------------|---------------------------------------|----------------------------|
| 141453 | Eng-B4-S1 | | 212 | Loose Fibres | Chrysotile | < 0.001 | < 0.001 |
| 141456 | Eng-B4-S4 | | 131 | Loose Fibres | Chrysotile | 0.003 | 0.003 |

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.



Analytical Report Number : 24-008234
Project / Site name: Newport Colemans

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

| Lab Sample Number | Sample Reference | Sample Number | Depth (m) | Sample Description * |
|-------------------|------------------|---------------|---------------|--|
| 141453 | Eng-B4-S1 | None Supplied | None Supplied | Brown sand with gravel and stones |
| 141454 | Eng-B4-S2 | None Supplied | None Supplied | Brown sand with gravel |
| 141455 | Eng-B4-S3 | None Supplied | None Supplied | Brown sand with gravel |
| 141456 | Eng-B4-S4 | None Supplied | None Supplied | Brown sand with gravel |
| 141457 | Eng-B4-S5 | None Supplied | None Supplied | Brown clay and sand with gravel and stones |
| 141458 | Eng-B4-S6 | None Supplied | None Supplied | Brown sand with gravel and stones |
| 141459 | Eng-B4-S7 | None Supplied | None Supplied | Brown sand with gravel |
| 141460 | Eng-B4-S8 | None Supplied | None Supplied | Brown sand with gravel and stones |

Analytical Report Number : 24-008234
Project / Site name: Newport Colemans

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

| Analytical Test Name | Analytical Method Description | Analytical Method Reference | Method number | Wet / Dry Analysis | Accreditation Status |
|---|---|--|---------------|--------------------|----------------------|
| Asbestos Identification in Soil | Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques | In-house method based on HSG 248, 2021 | A001B | D | ISO 17025 |
| Asbestos Quantification - Gravimetric | Asbestos quantification by gravimetric method - in house method based on references | HSE Report No. 83/1996, HSG 248 (2021), HSG 264 (2012) & SCA Blue Book (draft) | A006B | D | ISO 17025 |
| Total organic carbon (Automated) in soil | Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method) | In-house method | L009B | D | MCERTS |
| Moisture Content | Moisture content, determined gravimetrically (up to 30°C) | In-house method | L019B | W | NONE |
| Stones content of soil | Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight | In-house method based on British Standard Methods and MCERTS requirements. | L019B | D | NONE |
| Metals in soil by ICP-OES | Determination of metals in soil by aqua-regia digestion followed by ICP-OES | In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil | L038B | D | MCERTS |
| Boron, water soluble, in soil | Determination of water soluble boron in soil by hot water extract followed by ICP-OES | In-house method based on Second Site Properties version 3 | L038B | D | MCERTS |
| Total sulphate (as SO ₄ in soil) | Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES | In-house method | L038B | D | MCERTS |
| Sulphate, water soluble, in soil (16hr extraction) | Sulphate, water soluble, in soil (16hr extraction) | In-house method | L038B | D | MCERTS |
| Loss on ignition of soil @ 450°C | Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace | In-house method | L047 | D | MCERTS |
| Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in soil | Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS | In-house method based on USEPA 8270 | L064B | D | MCERTS |
| BTEX and/or Volatile organic compounds in soil | Determination of volatile organic compounds in soil by headspace GC-MS | In-house method based on USEPA 8260 | L073B | W | MCERTS |
| Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil | Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic | In-house method | L076B/L088 | D/W | MCERTS |
| Chromium III in soil | In-house method by calculation from total Cr and Cr VI | In-house method by calculation | L080 | W | NONE |
| Hexavalent chromium in soil | Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry | In-house method | L080 | W | MCERTS |
| Monohydric phenols in soil | Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry | In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton | L080 | W | MCERTS |

Analytical Report Number : 24-008234
Project / Site name: Newport Colemans

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

| Analytical Test Name | Analytical Method Description | Analytical Method Reference | Method number | Wet / Dry Analysis | Accreditation Status |
|------------------------|--|-----------------------------|---------------|--------------------|----------------------|
| pH in soil (automated) | Determination of pH in soil by addition of water followed by automated electrometric measurement | In-house method | L099 | D | MCERTS |

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

| Acronym | Descriptions |
|---------|--|
| HS | Headspace Analysis |
| MS | Mass spectrometry |
| FID | Flame Ionisation Detector |
| GC | Gas Chromatography |
| EH | Extractable Hydrocarbons (i.e. everything extracted by the solvent(s)) |
| CU | Clean-up - e.g. by Florisil®, silica gel |
| 1D | GC - Single coil/column gas chromatography |
| 2D | GC-GC - Double coil/column gas chromatography |
| Total | Aliphatics & Aromatics |
| AL | Aliphatics |
| AR | Aromatics |
| #1 | EH_2D_Total but with humics mathematically subtracted |
| #2 | EH_2D_Total but with fatty acids mathematically subtracted |
| - | Operator - understore to separate acronyms (exception for +) |
| + | Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total |



ERM HAS OVER 160 OFFICES ACROSS THE FOLLOWING
COUNTRIES AND TERRITORIES WORLDWIDE

| | |
|------------|-----------------|
| Argentina | The Netherlands |
| Australia | New Zealand |
| Belgium | Peru |
| Brazil | Poland |
| Canada | Portugal |
| China | Romania |
| Colombia | Senegal |
| France | Singapore |
| Germany | South Africa |
| Ghana | South Korea |
| Guyana | Spain |
| Hong Kong | Switzerland |
| India | Taiwan |
| Indonesia | Tanzania |
| Ireland | Thailand |
| Italy | UAE |
| Japan | UK |
| Kazakhstan | US |
| Kenya | Vietnam |
| Malaysia | |
| Mexico | |
| Mozambique | |

ERM's London Office

2nd Floor Exchequer Court
33 St Mary Axe
London
EC3A 8AA

www.erm.com