

# TOBIN

## Proposed Social & Affordable Housing Scheme at Cappagh Road, Galway

## Site Investigation Scope of Works and Pricing Document



BUILT ON KNOWLEDGE

| Document Control Sheet |                                                          |
|------------------------|----------------------------------------------------------|
| Document Reference     | Site Investigation - Scope of Works and Pricing Document |
| Client:                | Galway City Council                                      |
| Project Reference      | 12031                                                    |

| Rev | Description | Author | Date       | Reviewer | Date       | Approval | Date       |
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| A   | First Issue | GM     | 04/10/2024 | RB       | 04/10/2024 | RB       | 04/10/2024 |
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## 1. SPECIFICATION FOR GROUND INVESTIGATION

The specification shall be the Specification for Ground Investigation 2<sup>nd</sup> Edition, published by The Institution of Engineers of Ireland (2016) with information, amendments, and additions as described in the Schedules.

|            |                                            |
|------------|--------------------------------------------|
| Schedule 1 | Information and site-specific requirements |
| Schedule 2 | Exploratory holes                          |
| Schedule 3 | Investigation Supervisor's facilities      |
| Schedule 4 | Specification amendments                   |
| Schedule 5 | Specification additions                    |

## 2. SCHEDULES

### 2.1 SCHEDULE 1: INFORMATION AND SITE-SPECIFIC REQUIREMENTS

#### S 1.1 *Name of Contract.*

Proposed Social & Affordable Housing Scheme at Cappagh Road, Galway

#### S 1.2 *Investigation Supervisor*

The Investigation Supervisor for this ground investigation is TOBIN.

#### S 1.3 *Description of the Site*

The site investigation works are proposed on two sites with two distinct boundaries namely site A and site B. site A is located to the South and site B is located to the North of site A, as indicated in drawings appended in this document. The proposed sites are located at Cappagh Road, Galway adjacent to An Cimin Mor and encloses a residential property whose entrance is located on the eastern boundary along Cappagh Road (locations indicated on the attached drawing, 12031-2000).

#### S 1.4 *Main Works Proposed and Purpose of the Contract.*

The Main works proposed is the construction of a Social & Affordable Housing Scheme and associated services at Cappagh Road, Galway. The purpose of the contract is to determine the ground conditions and rock levels on the site, ground water conditions and the nature and properties of the soil strata on the site for the design of buildings, pavements and associated services.

### Site A Scope of Investigation

#### S 1.5 *Scope of Investigation*

It is required to excavate **4 No. boreholes** by Cable Percussion using a tripod rig (Shell and Auger) (locations indicated on the attached drawing, 12031-2001). The casing shall be 200mm diameter. The boreholes shall be taken to refusal. Where refusal is met, rotary drilling with core recovery shall be used until a depth of penetration into rock of 3m is achieved.

It is also required to excavate **2 No. trial pits, to a minimum depth of 2.5m but not more than 3m** at the locations indicated on drawing 12031-2001 Site A Investigation Plan. Contractor to allow for temporary structural supports if the ground appears unstable to reach the 1.5-3m depth required. Trial Pits are to be carried out in accordance with BRE 365 as indicated on drawing 12031-2001.

It is also required to carry out Waste Acceptance Criteria (**WAC**) testing of soil to Suites H and I. Soil samples are to be taken from each borehole and trial pit at depths 1m intervals or change of strata. Waste Classification to include category A to D categorisation.

Sampling and testing as outlined below will be required. The scope of the investigation may be changed as ground conditions are determined. It is envisaged that no laboratory tests will be required.

It is also required to carry out **1 No.** soak-away test, in accordance with BRE 365, in one location as indicated on the drawing. The depth to invert shall be taken as **1.5m** below the existing ground level.

**When pricing the works the contractor shall make an allowance for the completion of excavations for archaeological surveys.**

**S 1.6 *Geology and Ground Conditions***

Geological Survey Ireland Spatial Resources mapping describes the bedrock as predominately Megacrystic pink/grey monzogranite characterized by pink to very pale grey adamellite with pink megacrysts of K-feldspar and of greenish saussurite

**S 1.7 *Schedules of Drawings(s) and Documents***

A Site Location drawing is included with this document indicating the location of the site and proposed investigation locations.

**S 1.8 *Particular Contract Restrictions***

The Contractor shall examine the job site and familiarise themselves with all existing conditions. The contractor shall be responsible for any damage to services caused by the execution of the Contract. Where necessary to avoid services trial pits and boreholes shall be changed to new positions agreed with the Engineer.

The Contractor shall secure right of access to the work site through the Investigation Supervisor and confine their operation to the minimum of ground required for the works and access to the works. The Contractor shall secure all necessary permits before the work is started.

The programme for the execution of the field work and the date of submission of the report are to be agreed with the Engineer however the following shall apply:

Field Work shall commence within 15 working days of notification of the award of contract. Borehole and rotary core logs shall be submitted to the Engineer within 1 working day of completion of the works site works.

A completed report shall be submitted to the Engineer within 15 working days of the completion of the site works,

**S 1.9 *General Requirements (Specification Section 3)***

The Contractor shall be competent, experienced, and qualified to perform the service required. Professional attendance by a Chartered Geotechnical Engineer/ Engineering Geologist on site shall be such as to ensure the proper execution of the work in accordance with the specification and relevant codes of practice, to ensure that accurate geotechnical information is obtained, and information is reported to the Engineer as required.

The Contractor shall confine their operation to the minimum area of ground required. On completion of the works all surplus material shall be removed from the site. Turf and topsoil shall be stripped at the site of each exploratory hole and be stockpiled and used to complete the backfilling of the hole.



Should the Contractor, during the investigation become aware of contaminated land or notifiable and/or invasive weeds, work must cease immediately in the affected area and the Investigation Supervisor must be notified immediately.

**S 1.10 Percussion boring (Specification Section 4). Particular requirements**

It is required to excavate a total of **4 No. boreholes** by cable percussion (Shell and Auger) within the site boundaries with the locations indicated on award of contract. The boreholes shall be taken 200mm diameter, to refusal. Ground level at each borehole location shall be given in relation to Malin Head (OD).

**S 1.11 Rotary Drilling Requirements (Section 4)**

Where refusal is met using cable percussion (Shell and Auger), then rotary drilling with core recovery shall be used until a depth of penetration into rock of 3m is achieved at the boreholes. Ground level at each rotary drilling location shall be given in relation to Malin Head (OD). Rotary drilling is to follow on from boreholes in same holes.

**S 1.12 Pitting and Trench Requirements (Section 6)**

It is required to excavate **2 No. trial pits** at the locations indicated on the drawing to a depth of 2.5m unless rock is encountered. Trial pits shall be done where possible in advance of the percussion boring.

**1 No.** of soakaway tests will be carried out as set out on drawing 12031-2001. The soakaway test shall be carried out in accordance with BRE Digest 365

**S 1.13 Sampling and monitoring during intrusive investigations (Section 7)**

Not required

**S 1.14 Probing and cone penetration testing (Section 8)**

No Standard penetration tests (SPT) required.

CBR testing is required for all Trial Pits at 500mm below the existing ground level

**S 1.15 Geophysical Surveying (Section 9)**

Not required

**S 1.16 In situ testing (Section 10)**

The following in situ tests shall be carried out and reported in accordance with the current appropriate standards.

1. Plate bearing test in accordance with NRA SRW CL 642. Provide report with load settlement plot and calculation of K's and CBR values to HD 25-26/10

**S 1.17 Instrumentation (Section 11)**

There are no specific requirements regarding instrumentation.

**S 1.18 Installation, monitoring and sampling (Section 12)**

- No groundwater monitoring is required.
- No gas monitoring is required
- Groundwater samples are required

**S 1.19 Daily Records (Section 13)**

Daily records taken on site shall be submitted to the Investigation Supervisor by email on the following day.

**S 1.20 *Geotechnical laboratory testing (Section 14)***

The following geotechnical laboratory testing may be required.

- Moisture content
- Atterburg limits
- Particle size distribution
- SO<sub>3</sub> acid and water soluble
- PH
- Organic
- Oedometer
- Shear box residual
- Large shear box 300
- Triaxial single
- Unconfined Compressive strength testing (UCS)
- Point Load tests

**S 1.21 *Geoenvironmental laboratory testing (Section 15)***

Waste Acceptance Criteria (**WAC**) testing of soils to Suites H and I is required, and a separate waste classification report is to be produced. Waste Classification to include category A to D categorisation.

**S 1.22 *Reporting (Section 16)***

The Geotechnical Report shall contain two sections, the first being the factual report, reporting on findings and the second being the interpretative report. The interpretative report shall address the following:

- Site Conditions generally including the stability of excavations and presence of ground water.
- Appropriate foundation solution for the subsoil encountered.
- Likely formation levels of foundations, ground bearing slabs and road construction.

The report shall be submitted in digital format.

The WAC testing results shall be included in a separate waste classification report and shall include waste classification category A to D.

## Site B Scope of Investigation

### S 1.5 *Scope of Investigation*

It is required to excavate **6 No. boreholes** by Cable Percussion using a tripod rig (Shell and Auger) (locations indicated on the attached drawing, 12031-2002). The casing shall be 200mm diameter. The boreholes shall be taken to refusal. Where refusal is met, rotary drilling with core recovery shall be used until a depth of penetration into rock of 3m is achieved.

It is also required to excavate **5 No. trial pits, to a minimum depth of 2.5m but not more than 3m** at the locations indicated on drawing 12031-2002 Site A Investigation Plan. Contractor to allow for temporary structural supports if the ground appears unstable to reach the 1.5-3m depth required. Trial Pits are to be carried out in accordance with BRE 365 as indicated on drawing 12031-2002.

Soil samples are to be taken from each borehole and trial pit at depths 1m intervals or change of strata. Waste Classification to include category A to D categorisation.

Sampling and testing as outlined below will be required. The scope of the investigation may be changed as ground conditions are determined. It is envisaged that no laboratory tests will be required.

It is also required to carry out **2 No. soak-away test**, in accordance with BRE 365, in one location as indicated on drawing. The depth to invert shall be taken as **1.5m** below the existing ground level

**When pricing the works the contractor shall make an allowance for the completion of excavations for archaeological surveys.**

### S 1.6 *Geology and Ground Conditions*

Geological Survey Ireland Spatial Resources mapping describes the bedrock as predominately Megacrystic pink/grey monzogranite characterized by pink to very pale grey adamellite with pink megacrysts of K-feldspar and of greenish saussurite

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The Contractor shall secure right of access to the work site through the Investigation Supervisor and confine their operation to the minimum of ground required for the works and access to the works. The Contractor shall secure all necessary permits before the work is started.

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#### S 1.12 *Pitting and Trench Requirements (Section 6)*

It is required to excavate **5 No. trial pits** at the locations indicated on the drawing to a depth of 2.5m unless rock is encountered. Trial pits shall be done where possible in advance of the percussion boring.

**2 No.** of soakaway tests, will be carried out as indicated on drawing 12031-2002. The soakaway test shall be carried out in accordance with BRE Digest 365

#### S 1.13 *Sampling and monitoring during intrusive investigations (Section 7)*

Not required

#### S 1.14 *Probing and cone penetration testing (Section 8)*

No Standard penetration tests (SPT) required. CBR testing is required for all Trial Pits at 500mm below the existing ground level

S 1.15 *Geophysical Surveying (Section 9)*

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The report shall be submitted in digital format.

The WAC testing results shall be included in a separate waste classification report and shall include waste classification category A to D.

### 3. PRICING DOCUMENT

| Ground Investigation – Cappagh Road, Galway |                                                                                                                                                                  |      |          |      |           |
|---------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|----------|------|-----------|
| Pricing Document                            |                                                                                                                                                                  |      |          |      |           |
|                                             |                                                                                                                                                                  |      |          |      |           |
|                                             |                                                                                                                                                                  | Unit | Quantity | Rate | Total     |
| <b>A</b>                                    | <b>Preliminaries:</b> include for all insurances as required, performing the role of the PSCS and managing the Works including traffic management where required | Sum  |          |      |           |
| <b>B</b>                                    | <b>Shell &amp; Auger Boreholes</b>                                                                                                                               |      |          |      |           |
|                                             | Mobilise on site                                                                                                                                                 | nr   | 1        |      |           |
|                                             | Move to each Borehole                                                                                                                                            | nr   | 10       |      |           |
|                                             | 6m Borehole                                                                                                                                                      | m    | 60       |      |           |
|                                             | Borehole/m after 6m                                                                                                                                              | m    | 1        |      | Rate only |
| <b>C</b>                                    | <b>Rotary Core</b>                                                                                                                                               |      |          |      |           |
|                                             | Mobilise on site                                                                                                                                                 | nr   | 1        |      |           |
|                                             | Move to each location                                                                                                                                            | nr   | 10       |      |           |
|                                             | Rotary drill in hard strata (0-3m)                                                                                                                               | m    | 30       |      |           |
| <b>D</b>                                    | <b>Trial Pits/ Trenches</b>                                                                                                                                      |      |          |      |           |
|                                             | Mobilise on site                                                                                                                                                 | nr   | 1        |      |           |
|                                             | Move to each location                                                                                                                                            | nr   | 7        |      |           |
|                                             | Excavate to 3.0m and reinstate                                                                                                                                   | m    | 21       |      |           |
| <b>E</b>                                    | <b>Sampling</b>                                                                                                                                                  |      |          |      |           |

|          |                                                                          |    |    |  |  |
|----------|--------------------------------------------------------------------------|----|----|--|--|
|          | Allow for disturbed sampling at 1m intervals                             | nr | 60 |  |  |
|          | Environmental/ contamination samples<br>Suites H and I                   | nr | 10 |  |  |
| <b>H</b> | <b>Insitu Testing</b>                                                    |    |    |  |  |
|          | Plate bearing test in accordance with NRA<br>SRW CL 642, at 500mm depth. | nr | 10 |  |  |
| <b>I</b> | <b>Instrumentation</b>                                                   |    |    |  |  |
|          | Installation of groundwater monitoring<br>standpipes                     | nr | 0  |  |  |
| <b>J</b> | <b>Installation Monitoring and Sampling</b>                              |    |    |  |  |
|          | Reading taken once a month for 6 months                                  | nr | 0  |  |  |
|          |                                                                          |    |    |  |  |
|          | <i>Subtotal - Field Work</i>                                             |    |    |  |  |
|          | <i>Add Fieldwork VAT @ 13.5%</i>                                         |    |    |  |  |
|          | <b>Total Fieldwork</b>                                                   |    |    |  |  |
|          | <b>Reporting</b>                                                         |    |    |  |  |
| <b>K</b> | <b>Geotechnical Laboratory Testing</b>                                   |    |    |  |  |
|          | <i>Sulphate content of groundwater (1 sample<br/>from each borehole)</i> | nr | 10 |  |  |
|          | <i>PH Test (1 sample from each borehole)</i>                             | nr | 10 |  |  |
|          | <i>Moisture Content &amp; Atterburgs Limits</i>                          | nr | 20 |  |  |
|          | <i>PSD by wet/ dry sieve as appropriate</i>                              | nr | 20 |  |  |
|          | <i>Undrained Shear Strength Test</i>                                     | nr | 20 |  |  |
| <b>L</b> | <b>Geoenvironmental Laboratory Testing</b>                               |    |    |  |  |
|          | Test Suite H and I                                                       | nr | 18 |  |  |
| <b>M</b> | <b>Reporting</b>                                                         |    |    |  |  |

|                                                                     |                                                                                     |    |   |  |  |
|---------------------------------------------------------------------|-------------------------------------------------------------------------------------|----|---|--|--|
|                                                                     | <i>Geotechnical Report: Factual and Interpretative (digital copy and hard copy)</i> | nr | 1 |  |  |
|                                                                     | WAC testing- waste classification report                                            | nr | 1 |  |  |
|                                                                     | <i>Geo-environmental Report (digital copy and hard copy)</i>                        | nr | 1 |  |  |
|                                                                     |                                                                                     |    |   |  |  |
| <i>Subtotal - Laboratory/Reporting Work</i>                         |                                                                                     |    |   |  |  |
| <i>Add Laboratory/Reporting Work VAT @ 23%</i>                      |                                                                                     |    |   |  |  |
| <b>Total Laboratory/Reporting Work</b>                              |                                                                                     |    |   |  |  |
| <b>Total Tender (Fieldwork +Laboratory/Reporting) excluding VAT</b> |                                                                                     |    |   |  |  |

## Appendix A DRAWINGS

12031-2000 Site Location Map

12031-2001 Site A Site Investigation Plan

12031-2002 Site B Site Investigation Plan

