



Geological Survey Ireland

Screening for Appropriate Assessment
in line with the requirements of Article 6(3) and (4) of the
Habitats Directive 92/43/EEC

Borehole Drilling in Carnagh East, Co. Roscommon

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Rialtas na hÉireann
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Geological Survey
Suirbhéireacht Gheolaíochta
Ireland | Éireann

1. Introduction

Geological Survey Ireland (GSI: a division of the Department of Communications, Climate Action and Environment) is conducting borehole drilling at selected sites over a large area of the northwest midlands (Counties Roscommon, Longford, Galway) in order to improve our geological understanding of the bedrock geology of the region. A site at Carnagh East (Figure 1) has been selected as a potential target of this work. The site is at the edge of the Lough Ree SAC.

This Screening for Appropriate Assessment has been carried out in accordance with relevant guidance documents:

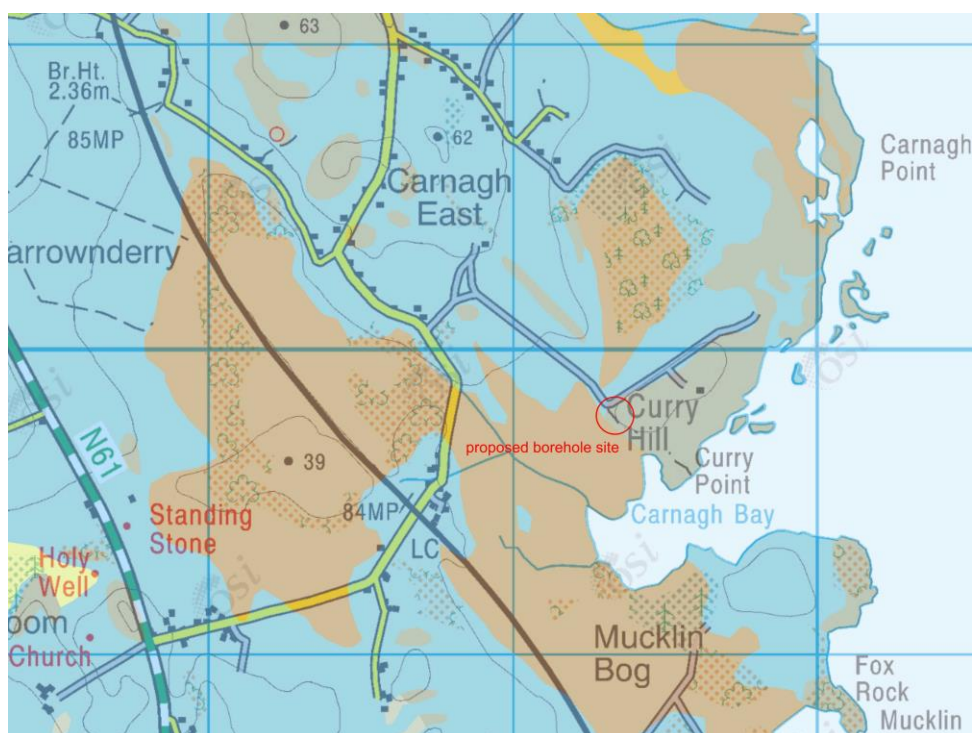
- EC (2002) 'Assessment of Plans and Projects Significantly Affecting Natura 2000 Sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC'
- DEHLG (2009) Appropriate Assessment of Plans & Projects - Guidance for Planning Authorities
- NPWS (2010) Circular Letter NPWS 1/10: 'Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities'
- NPWS (2008) Circular Letter SEA 1/08 and NPWS 1/08: 'Appropriate Assessment of Land Use Plans'



2. Site description

The target site at Carnagh East lies within D/Defence lands on the western shore of Lough Ree. The proposed drilling site is on the edge of the Lough Ree SAC; whether it will be within or just outside depends on the exact logistics and access constraints of setting up the drilling rig. It is also close to the Lough Ree SPA.

The site comprises wooded lake shore, rough grazing and drained bog. The site is used for military activity including a firing range. Limestone bedrock occurs at surface in part of the site area, or with a thin cover of glacial till or peat (Figure 2). There are no geological heritage sites in the site area; an area of mushroom rocks is known near the lake shore 1.7 km to the south.



3. Project description

The Geological Mapping programme of GSI creates maps and models that depict the rocks and sub-soils of Ireland for applications such as resource exploration and groundwater protection by GSI and external stakeholders. Collecting new data by borehole drilling, both bedrock coring and subsoils augering, is a major component of continually improving the accuracy and reliability of our mapping.

The proposed drilling works are to be carried out by GSI's own fulltime drilling team using a diamond drilling rig (see other documentation for details). The footprint of the drill site, including truck-mounted rig, personnel cabin and ancillary equipment will be approx. 20m by 10m. The borehole shall be 76 mm in diameter and drilled to a depth of approximately 500m. A core of rock 47mm in diameter will be extracted and used for various measurements and tests.

During the drilling process, the rig requires a constant supply of water (c. 10000 litre per day) in order to cool the drill bit and flush out rock cuttings from the hole. This water supply shall be sourced from Lough Ree by pumping from the lake shore to the drill site. Runoff from the drilling rig shall be controlled by the construction of a shallow channel to divert water into a natural soakaway. Depending on the rock and drilling conditions encountered, it may be necessary to add a polymer (Mudtech TK60) to the drilling water. This material is not classified as dangerous for the environment; it binds to dissolved organic carbon and inorganic sorbents such as clays and silts, such as will be available within the natural soakaway .

The drilling is expected to take about 8 weeks, depending on the nature of the rock encountered.

After the completion of drilling, a fibre-optic cable will be lowered down the hole to make groundwater temperature recordings. When measurements are complete, the boreholes shall be plugged with natural materials (limestone and soil as appropriate) and the drilling site remediated to its previous condition.

The rock core will be permanently stored in the GSI core store as part of the national repository for future reference.



4. Assessment of likely significant effects

Describe the individual elements of the project (either alone or in combination with other plans or projects) likely to give rise to impacts on the site:

A truck-mounted rig will drill a borehole up to 500m deep, circulating water through the drill bit and hole as coolant and to flush ground rock from the hole. A small pump will be positioned near the lake shore to pump water to the rig.

Drilling runoff, comprising water, ground rock and possibly a drilling polymer additive, will be channelled to a natural soakaway to filter rock particles and polymer from the water. Rock core will be removed for study.

Describe any likely direct, indirect or secondary impacts of the project (either alone or in combination with other plans or projects) on the site:

A hard stand site will be selected to ensure the heavy truck-mounted rig does not damage soft ground. The small water pump will be enclosed to prevent possible contamination from a fuel spill. Drilling polymer concentrate will be handled in an enclosed setting to prevent possible contamination from a spill.

There are no karst landforms or known groundwater connections in the area. There are no known water wells or springs in the area. It is the opinion of the GSI Groundwater Programme that the proposed drilling works shall not impact water quality in the Lough Ree SAC/SPA.

Noise from drilling operations will be within the range of normal agricultural activity, which should not cause any disturbance to wildlife.

Describe any likely significant changes to the site:

The project is not likely to cause any significant change to the site.

Describe any likely impacts on the site as a whole:

No element of the project is likely to result in interference with the structure and function of the Carnagh East site at the margin of the Lough Ree SCA/SPA, either alone or in combination with any other projects. No element of the proposed project will negatively impact the site in terms of habitat loss, fragmentation, disruption, disturbance or changes to key hydrological, ecological or hydrochemical characteristics of conservation value.

Describe from the above those elements of the project or plan, or combination of elements, where the above impacts are likely to be significant or where the scale or magnitude of impacts is not known:

It can be objectively concluded that there are not likely to be significant effects on the Carnagh East site as a result of the proposed works. No element of the deployment or operation phases of the proposed project is likely to result in significant change, cause a reduction in the area of any listed habitat within any Natura 2000 site or cause any direct or indirect damage to the physical quality of the environment within the site.

Consideration of potential cumulative impacts:

There are no known plans or projects proposed at or adjacent to the site and therefore the cumulative impact assessment outcome is the same as that for the project when assessed alone – no likely significant effects to the site are anticipated.



5. Conclusions and Statement

This Appropriate Assessment is considered to incorporate all of the relevant requirements of the EC DG Environment guidance document, 'Assessment of plans and projects significantly affecting Natura 2000 sites – Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC'. The nature and extent of the proposed works is minor and temporary in duration. It is considered that the proposed works do not include any element that has the potential to significantly alter the favourable conservation objectives associated with the species and habitats, or, interfere with the key relationships that define the structure or function of the site.

