Nigg Energy Park East Quay
EIA Scoping Report

February 2019

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1 INTRODUCTION

1.1 Background

EnviroCentre Ltd has been appointed by Global Energy Nigg Ltd ('the Applicant') in respect of providing a Scoping Request and subsequent Environmental Impact Assessment (EIA) in relation to a proposed new development, comprising the construction and formation of a new East Quay and associated laydown area, situated at Nigg Energy Park approximately 1.5km north of Cromarty (as demonstrated within Figure 1: Site Location within Appendix A). The proposed development is further set out within section 2.

Given the proposed development contains both marine and terrestrial elements, this Scoping Report has been prepared under the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 ('the TCPA EIA Regulations') and The Marine Works (Environmental Impact Assessment (Scotland) Regulations 2017 ('the Marine EIA Regulations'), and accordingly is submitted to both Marine Scotland Licencing Operations Team (MSLOT) and the Highland Council ('the Council').

The proposed development application falls within Schedule 1 of both the TCPA EIA Regulations and the Marine EIA Regulations by virtue of regulation 8(b) which stipulates that *"Trading ports, piers for loading and unloading connected to land and outside ports (excluding ferry piers) which can take vessels over 1350 tonnes"* require an EIA to be undertaken. This was confirmed during a pre-consultation meeting between the Applicant and the Council (18/01549/PREAPP), with a pre-application advice pack issued on 30th April 2018.

Accordingly, this Scoping Report has been laid out as follows:

- Section 1 introduces the applicant, and the regulatory background to which this Scoping Request is made;
- Section 2 sets out a description of the proposed development upon which to base potentially significant environmental effects upon. This development description will evolve as engineering design progresses;
- Section 3 sets out the approach to EIA based upon the legislative context introduced within section 1;
- Section 4 discusses potentially significant environmental effects on a topic by topic basis, and offers methodologies for the assessment of those environmental topics;
- Section 5 discusses the content and structure of any potential EIA, based upon the findings of section 4; and
- Section 6 concludes the findings of the Scoping Report.

This Scoping Report is also accompanied by two appendices:

- Appendix A: Figures; and
- Appendix B: Phase 1 Habitat and Protected Species Survey Report.

1.2 The Applicant

Global Energy Group is an Inverness and Aberdeen-based energy sector service group who operate worldwide. Global Energy Group Limited acquired Nigg Fabrication Yard and Complex, aiming to be a 'multi-sector, multi-user asset' in port and fabrication operations. Adapting expertise and experience gained from Scotland's 40-year involvement with oil and gas production, the Applicant has developed sector-leading services in integrity and maintenance solutions for the offshore market.

The primary function of the Nigg Energy Park is the provision of facilities and services to support the oil and gas and renewables sectors. The Applicant has since successfully diversified to satisfy current market needs in the

north of Scotland. A typical day may include the repair of drilling rigs, fabricating subsea manifolds, berthing vessels or marshalling offshore wind components.

Also contained within Nigg Energy Park is the "not-for-profit" business - Nigg Skills Academy (NSA). The independent business was set up to support black trade skills (Welding, fabrication and pipe fitting) for local employees in partnership with North Highland College and is now diversifying into running courses for other industries.

1.3 Project Team

This Scoping Report has been prepared by EnviroCentre Ltd with input from other organisations shown in Table 1.1.

Table 1.1: The Project Team

Topic	Specialist
Project Management, EIA Coordination, Marine Ecology, Terrestrial Ecology, Water Environment, Airborne Noise, Other Issues, Sediment and Best Practicable Environmental Option Advice (BPEO).	EnviroCentre Limited
Cultural Heritage and Archaeology	Headland Archaeology
Landscape and Visual	Douglas Harman Landscape Planning
Traffic and Transport	SYSTRA
Engineering Input	Arch Henderson LLP
Planning and Consultation	GH Johnston
Underwater Noise	Irwin Carr Consulting

1.4 Planning History and Need for the Proposed Development

The Nigg fabrication yard was established in 1972 and consists of approximately 70 hectares (ha) of land reclaimed from the eastern edge of Nigg Bay. Nigg Oil Terminal was subsequently established to support the Beatrice oilfield development in the mid-1970s. The yard was operational from 1972 until 2001, providing fabrication services to the North Sea oil and gas industry. During peak operation, the facility employed around 5,500 personnel and supported a wider supply chain. Following sector-wide operational difficulty at the turn of the Millennium, approximately 5,000 jobs were lost along with the supply chain benefits. Following a period of instability, Global Energy purchased the facility in 2011 and have been operational since.

Following this, the Applicant is continuing to create an internationally competitive industrial multi-user facility providing fabrication and support service to the energy sector as outlined within the Nigg Development Masterplan[1] which was adopted by the Council in March 2013.

In May 2013, an application to MSLOT and the Council (reference 13/01825/FUL and amended by 13/04695/FUL) was submitted regarding an extension to the south quay harbour and berthing facilities at Nigg Energy Park, to accommodate large rig structures and floating production, storage and offloading vessels (FPSOs). The South Quay development was subject to a full EIA and was duly approved. Construction was completed in 2015 and the facility is now fully constructed and fully utilised, and in great demand with the Applicant's North Sea oil and energy sector clients.

[1] The Highland Council (2013) – Nigg Development Masterplan Supplementary Guidance

Subsequent applications have come forward in the intervening period between May 2013 and time of writing in January 2019, including:

- Extension of Assembly Shop 7 (17/05176/FUL);
- Extension to Assembly Shop 4 to join Fabrication Shop 7 including erection of new buildings (17/03411/FUL); and
- Installation of hardstanding, compound area and welfare area, fuel tanks and delivery pipes (15/02216/FUL), as amended by 15/03325/FUL.

Offshore energy represents a key opportunity for sustainable economic growth in Scotland, with around 25% of all of Europe's wind energy crossing the seas around Scotland. Confidence in the offshore sector is growing since Electricity Market Reform, with several high profile offshore windfarms being consented in waters around Scotland in the last 5 years. According to the Scottish Government's Sectoral Marine Plan for Offshore Wind Energy[2], in the last two years Scottish Ministers have given consent to several demonstration scale projects in Scottish Waters (including offshore installations such as Hywind Scotland Pilot Park off Peterhead, Kincardine Offshore Wind Farm off the Aberdeen coast, and Dounraey demonstration project off the Caithness coast. It is intended that construction and operation of these projects would occur over the next few years.

Given that as of May 2018, Scotland had 217 Megawatts (MW) of installed offshore wind capacity but with a further 4.2 Gigawatts (GW) in construction or awaiting construction, it is clear that facilities such as Nigg Energy Park has a bright future in servicing this pipeline of development. The proposed development aims to address the current lack of suitable berths at Nigg to service both the Applicant's North Sea oil sector clients, whilst the wider Energy Park would service their current and potential clients in the rapidly growing offshore renewables sector.

To address this shortfall in suitable berths, Global has considered the east quay expansion for some time but the potential was limited due to the lack of available land to the east of the present site. However, with the purchase of Dunskeath House and associated land, the proposed development is now viable at a time when it is urgently needed in order to grasp the opportunities currently arising and likely to arise over the next decade.

Extending Nigg Energy Park to include the contiguous Dunskeath lands is regarded as a practical and safe option for handling and storing renewables and North Sea oil components, which would arrive, be assembled and ultimately leave by sea. The alternative considered was to expand into vacant land to the east on the other side of the B9175 public road but this was ultimately rejected in favour of the current proposal.

The applicant was aware also that the concept of an East Quay was identified within the Nigg Masterplan as a potential access option to the sea

1.5 Scoping under the EIA Regulations

As the proposed development (as fully discussed within section 2.2 of this Scoping Report) contains elements which are both above Mean High Water Springs (MHWS) and below Mean Low Water Springs (MLWS), consents will be required from both the Council and MSLOT. Accordingly the EIA Report and related statutory consultation will be undertaken in line with both regulatory regimes.

As discussed, by virtue of its nature, size and location, the proposed development could potentially have (if unmitigated) significant adverse effects on the environment. Accordingly, in recognition of the size and potential impacts generated by the proposed development, the Applicant is committed to providing an EIA in line with the pre-application advice summarised within section 1.7.

[2] The Scottish Government (2018) – Sectoral Marine Plan for Offshore Wind Energy (encompassing Deep Water Plan Options Context Report

The purpose of EIA Scoping is to:

- *"Identify the key issues to be considered;*
- *Identify those matters which can be either be scoped out or which need not be addressed in detail; and*
- *Discuss and agree appropriate methods of impact assessment, including survey methodology, where relevant".*

In accordance with the EIA Regulations, this Scoping Report is submitted to Highland Council and Marine Scotland Licensing and Operations Team (MSLOT) with the intention that it should form the basis of their Scoping Opinion. Other statutory consultees, local people and organisations and other stakeholders, are invited to comment on the potential environmental effects to be included within the EIA and the assessment methodologies to be used. As such, it should be noted that this document does not seek to assess the environmental effects of the proposed development as this is the purpose of the EIA which will be carried out once the design has been fully evolved including design-led mitigation as required.

2 THE PROPOSED DEVELOPMENT

2.1 Site and the Surrounding Area

2.1.1 The Site

The site is situated south east of the Nigg Energy Park at an elevation of 5m above sea level and is centred at Ordnance Survey Grid Reference (OSGR) NH 79527 69016. The proposed entirety of the site boundary is approximately 11.27ha and is comprised of coastal waters and land of the former Dunskeath House, with derelict buildings associated with the former Dunskeath House situated within the site. The area above Mean Low Water Springs within the site boundary comprises approximately 4.78ha.

The site is dominated by bare ground with areas of dense and scattered scrub, grassland, tall ruderal vegetation and broadleaved trees. Sand and shingle above the high tide mark are also present in the south of the site and a sea wall exists in the west.

The Nigg Oil Terminal is located to the immediate north of Nigg Energy Park, with the B9175 and Fearn Peninsula to the east, the area where the Cromarty Firth meets the Moray Firth to the south (known as 'The Sutors') to the south, and Nigg Bay to the west (also part of the Cromarty Firth). Adjacent to the south-east of the site, the Cromarty Ferry crosses the entrance to the firth to the west of The Sutors in the summer season from May to September. Access to the facility can be gained from via the B9715.

The site is underlain by sandstone of the Raddery Formation, formed in a fluvial or estuary setting during the Devonian Period (383 – 393 million years ago). Coastal outcrops of the Devonian Period Cromarty Fish Bed Limestone are present to the west of the site. Further west metamorphic rocks (psammite and pelite) from the Moine Supergroup are present, these rocks were formed during the Neoproterozoic Era (541 – 1,000 million years ago).

Coastal superficial deposits in the vicinity of the site take the form of marine beach deposits, gravel, sand and silt formed up to 3 million years ago during the Quaternary Period. Immediately inland wind-blown sand deposits are present, also of the Quaternary Period, with glacial till present further inland.

2.1.2 The Surrounding Area

Nigg Energy Park is situated to the immediate north of the proposed development. A dry dock, extensive laydown and some 900m of heavy load bearing quayside (with depths of up to 12m) ensure versatility of services. Technical services currently provided by Nigg Energy Park include;

- Large scale and complex fabrication projects for subsea and offshore equipment;
- Shot blasting and painting of infrastructure;
- Specialist diving (i.e. anode replacement, subsea solutions);
- Survey and engineering;
- Architectural repair and refurbishment of offshore rigs;
- Specialist rig access and inspection; in addition to
- Construction and decommission of offshore and subsea infrastructure.

The surrounding area contains several designations within a 5km radius, as illustrated within Figure 3 of this Scoping Report. These include the following:

- Cromarty Firth Site of Special Scientific Interest (SSSI), situated approximately 0.59km to the west of the site, designated for intertidal mudflats and sandflats;
- Cromarty Firth Special Protection Area (SPA), situated approximately 0.59km west of the site, designated for a range of non-breeding birds;
- Cromarty Firth Ramsar Site, situated approximately 0.59km west of the site, designated for intertidal mudflats and sandflats and waterfowl assemblage;
- Rosemarkle to Shandwick Coast SSSI, situated approximately 0.76km east of the site, designated for maritime cliffs, geological features and breeding birds;
- Moray Firth Special Area of Conservation (SAC), situated adjacent to the east of the site and designated for bottlenose dolphin;

There are other designations at greater distance, for example the Dornoch Firth and Morroch More SAC, which are relevant to the marine ecology assessment but not in the immediate vicinity of the site (see section 4.4).

Nearby settlements include the hamlets of Balnabruich and Balnapaling to the immediate north, with Castlecraig approximately 1.5km east, Nigg approximately 2km north and in the wider area, Arabella Ankerville, Ballintore and the A9 are further north.

The Port of Cromarty Firth (POCF) is the existing statutory harbour authority for the Cromarty Firth under the Cromarty Firth Port Order of Confirmation 1973 Act as amended. The POCF has the authority to grant licences for marine works and dredging operations in the firth and manages the allocated dredge disposal site at the Sutors. The Applicant are consequently required to seek these licences prior to the commencement of any marine works. Being a Trust Port, the POCF are designed to reflect local needs and markets. Invergordon Port lies approximately 8.5km west of Nigg Port and is governed by POCF. Invergordon Port is central to Highland economy and is equipped to maintain, inspect and repair vessels and subsea infrastructure. POCF maintain overall control and management of shipping and vessel access/ egress from Nigg and the wider Cromarty Firth area. Northern European Cruise ships frequently make use of the extensive berthing at Invergordon, where several liners can be anchored simultaneously.

There is currently a Phase 4 development and marine licence approval for Invergordon Service base, relating to the construction of 215m new quayside and land reclamation of 6.27ha, including rock revetment and steel-piled quay walls. This construction licence is valid until 31st March 2020. Invergordon Port has also received approved permits for the handling of hazardous wastes.

Oil fields that are serviceable by Nigg Energy Park are located in the Moray Firth, Fladen, Fortes, East and West Shetland; renewables fields including Firth of Forth, Moray Firth and Maygen are also in the vicinity and serviced by Nigg Energy Park. The Beatrice sub sea oil pipeline connects to oil storage facilities at Nigg Energy Park and traverses east across the Fearn Peninsula for 22km to the Beatrice Oil Field, which no longer produces oil. All oil field infrastructure including pipeline is scheduled for decommissioning from 2020-2024.

The Inner Moray Firth is considered to be part of the Ross-shire Growth corridor within the Inner Moray Firth Local Development Plan (2015), which sets out projected development objectives for the surrounding populations of Nigg, Alness, Evanton, Dingwall, Inverness and Invergordon which are well-placed to benefit from North Sea renewables and infrastructure investment such as the proposed development.

2.2 The Proposed Development

2.2.1 Outline Description

The proposed development contains the following:

- A proposed east quay of plan area 250m by 50m (0.88ha) constructed using perimeter piling to retain locally dredged material as infill
- Associated fendering and rock armouring;
- Dredging (method to be determined) of approximately 140,000m^3 to achieve a minimum sea bed level at the main west facing berth of 12m below chart datum to facilitate the proposed development;
- High level lighting to quayside in accordance with Port Regulations
- Sea water extraction for fire-fighting capability
- Re-use of approximately 70,000m^3 of dredged materials within the quay structure (quantities to be determined and material characterisation and sampling to be agreed with MSLOT);
- Disposal of excess suitable dredged material (approximately 70,000m^3) within The Sutors licenced disposal site;
- Demolition and removal of buildings on site associated with the former Dunskeath House;
- Preparatory groundwork and associated landscaping for provision of a laydown area for handling and temporary storage of plant and renewable energy components;
- Access provision from the B1975; and
- Security lighting and fencing associated with the laydown area.

2.2.2 Dredging

Ongoing ground investigations will determine the suitability of material for re-use. Following completion of sampling and sediment characterisation, a Best Practicable Environmental Option (BPEO) report will be prepared by EnviroCentre justifying the uses of material. Detailed construction methodology is under consideration taking due account of the need to protect the environment by restricting the underwater noise generated and ensuring only dredged material acceptable to MSLOT is deposited at the Sutors. The output from this exercise will be included within the BPEO assessment.

A dredged depth of -10m CD is known to be achievable for the main west facing berth although -12m CD may prove viable following the further ground investigation proposed. The dredge depth elsewhere will gradually decrease towards the east, the depth being restricted by the achievable bed slope and the desire not to interfere with the intertidal zone. Quantities would be confirmed at engineering design freeze but at this stage it is anticipated that approximately 140,000m^3 would require to be dredged with an estimated 70,000m^3 to be re-used.

2.2.3 Piling

The engineering options for forming the piled perimeter of the proposed berths are currently under review and a favoured option will not be decided until the results of the current ground investigation are received. The engineering consultants recognise the sensitivity of the environment and in particular the need to avoid impact pile driving wherever feasible. One option would be to use tubular piles as the main king piles in a combi wall. Here the tubes would be driven at 2m spacing approx. around the berthing perimeter of the quay. The tubes would be tied back to a rear sheet pile anchor wall with sheet piles used to infill the gap between the tube king piles. The tubes would be driven using a vibro pile hammer to restrict underwater noise generation. Should very stiff material be encountered preventing a pile reaching the design depth, an auger could be inserted into the tube and the material inside loosened to allow driving to proceed.

All steelwork installed in the marine environment will be protected by the installation of cathodic protection.

2.2.4 Quay Surfacing and Lighting

The new quay area will have a top layer of compacted crushed rock which would be graded to a suitable slope towards the land and away from the sea perimeter. As for the south quay this surface will allow rainwater to effectively drain into the subsoil and allow for the quay infill to gradually settle over time. It may prove desirable in due course to construct a concrete slab finish over the quay area. At that time a positive surface water drainage system would be designed for acceptance by SEPA prior to implementation. Area lighting of the quay would be provided using LED high level towers similar to those used successfully on the south quay development and in accordance with the required lighting levels for the safe operation of docks and harbours. Floating fenders would be deployed, and additional floating fenders would be purchased as part of the construction contract.

2.2.5 Access

Road access to construct the quay would be limited as, apart from the concrete for the cope and the final crushed rock topping, the materials would probably arrive at the site by sea. The existing access would also be used by construction plant involved in preparing the Dunskeath land for the storage and handling of future components which would also involve importing crushed rock material. It is noted however that the preferred source for the crushed rock is Castlecraig quarry which is located very close to the site so that impact on traffic using the B9175 public road should be minimal. The proposed development will result in an increase in the secure area of Nigg Energy Park and the Applicant proposes to erect a chain link security fence around the revised perimeter. Whilst a gated access on to the B9175 would be retained at the existing location, the Applicant does not envisage this being a recognised point of controlled entry however, so that the gates would be locked at all times.

2.2.6 Demolition of Structures and Preparation of the Laydown Area

Following Building Warrant approval the existing buildings and stonework walls would be demolished and unsuitable materials would be removed off site to an approved disposal site. The large majority of the existing stonework consists of badly weathered sandstone which is likely to break up and disintegrate into rubble during demolition operations so may be used as infill below access routes and hardstandings. However where practical selected stone walling may be set aside for reuse possibly to form stone feature pillars at the future secure gated access point.

The laydown area would be formed on the Dunskeath land now under the control of the Applicant as well as on the land under leased agreement from the Wakelyn Trust. The laydown area would consist of defined access routes to and from the proposed quay to levelled hardstanding areas to be used for storage of components. All routes and hardstandings would be formed by removing organic material, compacting the subsoil to a predetermined load bearing capacity before placing a layer of compacted crushed rock to form the final surface. It is anticipated that all such surfaces would allow rain water to permeate into the subsoil but where ponding proves evident, local french drains may have to be provided consisting of a trench filled with clean crushed rock filter material and surrounded in geotextile. The access routes and hardstanding areas will potentially be operational 24/7 and will therefore require to be adequately lit in terms of operational safety. A lighting plan would be prepared for approval by the Local Authority's Lighting Department. Topsoil removed as part of the site preparation works would be stored on site and may be used to provide screening should this be considered appropriate.

2.3 Marine Licencing and Sediments

Construction work below MLWS would require a marine construction licence from MSLOT, whilst the proposed dredging referred to in section 2.2.2 would require a dredge and disposal licence. In order to provide the requisite information to MSLOT in relation to a dredge and disposal licence, the Applicant is required to provide evidence that the material in situ is suitable for re-use. In order to do this, the Applicant is currently undertaking sampling

and characterisation of sediments via a Ground Investigation, in accordance with Marine Scotland guidance[3]. Having undertaken a similar ground investigation in 2014 at the east quay site when no contamination was detected, the Applicant envisages that all the material proposed to be dredged will prove acceptable for the intended use.

Once confirmed, the BPEO Report would be finalised for submission along with the application(s).

[3] Marine Scotland (2017): Pre-disposal Sampling Guidance Version 2: November 2017

3 APPROACH TO EIA

3.1 Introduction

The objectives of an EIA are to:

- Establish the availability of the baseline data;
- Request that statutory consultees provide any relevant environmental information relating to the site and the surrounding area;
- Define a survey and assessment framework from which a comprehensive overall assessment can be produced; and
- Provide a focus for the consenting authorities and the consultees' considerations – in terms of:
    - Potential impacts to be assessed;
    - Assessment methodologies to be used;
    - Other areas that should be considered; and
    - Any other environmental issues of perceived concern.

The aim of the Scoping Report is to assist MSLOT, Highland Council and consultees to form an opinion as to the likely effects of the proposed development. It describes the proposed development and provides information with regard to the environment.

It seeks to identify potential environmental impacts of the proposed development and most importantly to reach agreement on which of the impacts could lead to significant environmental effects. The EIA will be focussed on assessing the potentially significant effects and propose mitigation measures to reduce the residual effects on the environment. The scoping process will should also identify those environmental issues which do not require further consideration.

3.2 General Approach to Assessment

The project team benefits from significant experience and technical expertise in environmental assessment and development of such projects and will ensure that the EIA will be carried out in accordance with the EIA Regulations.

The potential environmental impacts during construction, operation and decommissioning will be identified and assessed in the EIA Report, based upon the recommendations of the technical EIA team, consultation with statutory consultees, other interested parties and local communities. Topic assessments will be undertaken using best practice methodology, following industry guidelines whenever appropriate and carried out by specialists with relevant professional experience.

Schedule 4 of the EIA Regulations states the information to be included within the EIA. Each assessment will consider these criteria and assess them whenever appropriate to the proposed development. This also highlights that the emphasis of the EIA process should be on assessing likely significant effects, rather than every environmental effect associated with a development.

Impartial professional consultants (as set out in Table 1.1) will assess the likely significant environmental effects identified. These specialist assessments will generally incorporate:

- Site visits;
- Collection of baseline data regarding the site and surroundings;
- Identification of the likely significant effects of the proposed development; and

- Recommendations on how these effects could be avoided or reduced.

For each topic the proposed methodology to be used within technical topics is set out within Section 4 of this Scoping Report. Cumulative effects will be assessed within each EIA Report chapter as appropriate, at a scale appropriate to that subject and in line with best practice guidance currently available.

It is essential that the methodology used for assessing the significance of environmental effects is set out clearly and transparently within an EIA Report and is justifiable. Significance is generally determined through a combination of the sensitivity of a receptor or resource to an effect and the magnitude of the change resulting from the proposed development, however where this differs the full methodology is explained within the relevant section as appropriate.

Significant effects are more likely to be predicted where important resources, or numerous or sensitive receptors, could be subject to impacts of considerable magnitude. Effects are unlikely to be significant where low value or non-sensitive resources, or a small number of receptors, are subject to minor impacts. The assessment of significance of an environmental effect resulting from the proposed development will have regard to the following:

- Sensitivity, importance or value of the resource or receptor;
- Extent and magnitude of the effect;
- Duration of the effect;
- Nature of the effect;
- Performance against environmental quality standards; and
- Compatibility with environmental policies.

The methods for predicting the nature and magnitude of any potential impacts vary according to the subject area. Quantitative methods of assessment can predict values that can be compared against published thresholds and indicative criteria in Government guidance and standards. However, it is not always possible to ascribe values to environmental assessments and thus qualitative assessments are used. Such assessments rely on previous experience and professional judgement. The methodologies used for assessing each topic area will be described within the individual chapters of the EIA Report and will follow best practice guidelines where applicable.

3.3 Mitigation

The EIA Regulations state that the EIA Report must contain a "*description of the measures envisaged in order to prevent, reduce and where possible, offset any significant adverse effects on the environment*."

As outlined in PAN 1/2017 there is a widely accepted strategy for mitigation which will be followed when considering the environmental effects of the proposed development. This comprises (in order of preference): avoidance, reduction, compensation and remediation. In addition, consideration will be given to providing the opportunity for enhancement. Mitigation and, if appropriate, monitoring proposals, will be described clearly within the ES. The mitigation will be achievable and will be delivered through appropriate mechanisms.

3.4 Requirements of the EIA Regulations

In addition to those items explained above, the EIA Report will either include discussion of, or scope out via section 4 of this Scoping Report, the following items:

- A description of the development, including description of the location, its physical characteristics, land-use requirements during construction and operation, a description of characteristics of the operational phase, and an estimate of the types and quantities of expected residues and emissions;

- A description of reasonable alternatives, including development design, size, scale, and a justification of the project choices made;
- A description of the baseline environmental situation and an outline of the likely evolution thereof without implementation of the proposed development;
- An assessment of the environmental baseline for each environmental topic scoped into the EIA, with reference to those items specified within Schedule 4 (5) of the EIA Regulations;
- A description of mitigation and monitoring measures (where applicable); and
- A description of any expected adverse impacts in relation to the vulnerability of the proposed development to risks of major accidents and/or disasters which are relevant to the project.

3.5 Consultation and Stakeholders

The Applicant recognises the importance of consultation and community involvement throughout the project development process in line with "PAN 3/2010 Community Engagement"[4]. PAN 1/2017: Environmental Impact Assessment Regulations[5] also reinforces the importance of public involvement in the Scoping process and makes it clear that the EIA process is intended to ensure that consultation bodies and the public have opportunity to express their opinion on both the proposed development and the EIA Report. Similarly, MSLOT's 'Guidance on Marine Licensable Activities subject to Pre-Application Consultation'[6] sets out the importance of consultation along with the statutory requirements.

The Applicant has held informal pre-application discussions with several bodies including a formal pre-application consultation meeting with Highland Council culminating in an Advice Pack dated 30th April 2018, alongside a separate meeting with Highland Council on 8th November 2018. EnviroCentre have also held pre-Scoping discussions with SNH and Highland Council Environmental Health. A summary of discussions is contained in Table 3.1 below:

Table 3.1: Summary of pre-Scoping discussions

Organisation	Topic	Comments
Highland Council	Environmental Health	• A construction noise assessment is required should work be undertaken outside of daytime hours, or where noise levels are likely to exceed 75dB(A) for short term works or 55dB(A) for long term works. • If this is required, it should be carried out in accordance with BS5228-1:2009. • An updated operational noise assessment would be required including existing activities and background levels. It may be more practicable to look at noise from the site as a whole rather than compare predicted levels to historic or baseline levels.
	Contaminated Land	• Site investigation for potential contamination is not required.

[4] The Scottish Government (2010): Planning Advice Note 3/2010: Community Engagement
[5] The Scottish Government (2017): Planning Circular 1/2017: Environmental Impact Assessment Regulations
[6] Marine Scotland (2014): Guidance on Marine Licensable Activities subject to Pre-Application Consultation

Organisation	Topic	Comments
	Flood Risk	• The proposed development is considered a 'water compatible use' • A drainage layout drawing should be provided to demonstrate surface water drainage into coastal waters • The risk of increasing flood risk should be assessed
	Historic Environment	• Elements of historic assets should be retained and relocated as opposed to demolished • Recording should take place before construction • Evaluation of open ground is required to assess the potential for buried remains to survive
	Traffic and Transport	• A Transport Statement or EIA chapter is required • A Construction Traffic Management Plan is needed, along with an Operational Traffic Management Plan
MSLOT	Marine based guidance	• Habitats Regulations Appraisal is required • European Protected Species Licence is required • Water Framework Directive assessment is required • Predisposal sampling and analysis is required • Cumulatively, the Applicant should consider Invergordon Phase IV as well as any other relative developments • Notification to marine statutory consultees is required as part of the pre-application consultation process.
SNH	Terrestrial and marine ecology	• Consideration should be given to impacts upon designations including Moray Firth SAC (dolphins and subtidal sandbanks), Dornoch Firth and Morrich More SAC (common seal), Cromarty Firth SPA and Ramsar site (birds), Proposed Moray Firth SPA, Cromarty Firth SSSI • Assessment should be undertaken of impacts upon cetaceans in relation to marine works including sediment transportation, underwater noise and piling. • Assessment should be undertaken in relation to the loss of buildings as part of the Dunskeath Estate • Consideration should be given to dredge and disposal options • Consideration of vessel movements, cumulatively

Organisation	Topic	Comments
SEPA	Water environment	• The proposed development should incorporate SUDS and adequate space should be provided • Proposed development should meet CIRIA C753
Transport Scotland	Traffic and Transport	• In the absence of detailed information, a Transport Assessment is sought • A threshold assessment of the A9 trunk road is also requested.

Where applicable, these points have been addressed within the scope of work outlined below, and where the proposed scope varies from what has been suggested by regulators, this has been justified as appropriate.

4 POTENTIAL FOR SIGNIFICANT ENVIRONMENTAL EFFECTS

4.1 Introduction

This section discusses potentially significant effects. Each of the environmental topics discussed within this section could have the potential to be impacted by the proposed development. By establishing the extent of potential impacts and subsequent effects, the topic can be scoped into the EIA Report, or scoped out as appropriate.

4.2 Landscape and Visual

4.2.1 Introduction

This section addresses the potential significant adverse effects of the proposed development on the landscape and visual interests of the site and surrounding area. These are defined respectively within paragraph 3.21 of the *Guidelines for Landscape and Visual Impact Assessment* (GLVIA)[7] as:

> "*…the constituent elements of the landscape, its specific aesthetic or perceptual qualities and the character of the landscape*"

and

> "*…the people who will be affected by changes in views or visual amenity at different places*".

To help determine the need for, and to ascertain the potential scope of a Landscape and Visual Impact Assessment (LVIA) as part of an EIA, an initial landscape and visual appraisal has been undertaken, informed by a site visit, to identify the following:

- the landscape character of the site and surrounding area;
- the seascape character of the site and surrounding area;
- the coverage of any landscape designations across the site and surrounding area;
- important views and viewpoints towards the site from the surrounding landscape/seascape;
- any potentially significant landscape and visual effects during construction and post-completion;
- recommendations for mitigating any potentially significant adverse effects; and
- recommendations for further study.

4.2.2 Baseline Conditions

The purpose of this baseline assessment is to identify the existing landscape and visual resource of the site and surrounding landscape, against which any potential significant effects of the proposed development are predicted. Although any potential significant effects are very unlikely to be experienced beyond 5 km from the site, the assessment of the following landscape and visual receptors has been identified within an indicative study area of 15 km:

- the site and its setting;
- landscape character;

[7] Landscape Institute and Institute of Environmental Assessment (2013). *Guidelines for Landscape and Visual Impact Assessment.* Third edition.

- seascape character;
- landscape designations; and
- key views and visual receptors.

The Site and its Setting

As detailed in Section 2.1 of this Report, the Site is located on the south-western shore of the Fearn Peninsula that in association with the Cromarty peninsula to the south, separate the inner and outer waters of the Cromarty Firth. The inner firth stretches 25 km from Conon Bridge to Cromarty and Nigg where the Cromarty Ferry crosses the entrance to the firth during the summer season.

The Nigg Energy Park occupies a substantial area of reclaimed land accommodates several large industrial fabrication buildings, open lay- down areas, the graving dock (dry dock) and an extended berth fronting onto the Cromarty Frith at the south quay. Historically, many of the largest North Sea oil and gas production platforms were constructed at Nigg and at present, large oil and gas exploration rigs are berthed at Nigg for inspection, repair, and maintenance (IRM) services. The industrial setting at Nigg is reflected a little further to the west at Invergordon service yard, where IRM services are also carried out on oil and gas exploration rigs, and rig supply vessels. Often, these oil and gas exploration rigs, and rig supply vessels anchor within the Cromarty Firth awaiting access into Nigg or Invergordon.

The site is comprised of made ground, with intertidal and estuarine littoral rocks and sediments to the north, and agricultural improved grasslands comprising of 'Hill of Nigg' to the east. Hinterland consists of extensive coniferous woodlands of the Balnagowan Estates north-west of the enclosed estuary. Access can be gained from Inverness via the A9 and the Cromarty Bridge and subsequent B9175 route around the northern Fearn Peninsula.

The hamlets of Balnabruaich and Balnapaling lie in quite close proximity to the north and a single dwelling (Dunskeath House) to the immediate south-east of the site. Cromarty Lighthouse lies adjacent to the south, on the opposing northern tip of the headland that accommodates the village of Cromarty.

Landscape character

As detailed in the Landscape Character Assessment[8] (LCA), the site of the proposed development is located within the *Enclosed Firth* landscape character type (LCT) and as noted in the LCA, the LCT extends from where the firth is narrowed by sand bars or rocky headlands, inland to where the inter-tidal zone dramatically narrows in response to a more a prominent slope at the mouth of the Cromarty Firth.

In close proximity to the east of the site, the character of the Fearn Peninsula is represented by the *Open Framed Slopes* LCT, and separated by Nigg Bay to the west; the *Enclosed Farmed Landscapes* LCT is viewed against a backdrop of extensive coniferous forest on higher ground. Beyond the *Hard Coastal Shore* LCT that extends the mouth of the inner firth, the opposing peninsula is also characterised by the *Open Framed Slopes* LCT.

Although information on landscape character provides a useful framework in which to describe the landscape and predict potential effects, the information provided in the landscape character assessment is relatively broad brush and in some instances, it does not always provide an understanding of variations at the local level. In understanding the sensitivity of the landscape to the proposed development therefore, it important to consider the following factors:

- Nigg Energy Park occupies a substantial area of reclaimed land from the adjacent Nigg Bay and currently accommodates several large industrial fabrication buildings and lower rise office blocks;
- large areas of open hard standing are present along the graving dock and south quayside for temporary storage during loading and off-loading operations to and from vessels and barges;

[8] Scottish Natural Heritage (1998). *Inner Moray Firth Landscape Character Assessment*.

- the open pastoral farmed slopes of the Hill of Nigg are influenced by several disused quarries and gravel pits on its slopes; and
- the settlements on the south-west slopes of the Hill of Nigg (Nigg and the tightly grouped Pitcalzean House and Pitcalzean Mains found midway down the lower slopes) are partially enclosed by mature deciduous woodland.

Seascape character

Considering the coastal location of the site, the character of the seascape is also an important factor to consider. Seascape character is made up of physical characteristics of hinterland, coast and sea plus a range of perceptual responses to the seascape, as well as visual aspects. Although no explicit deatiled sescape characrer assessment has been underatken for the study area, the *Inner Moray Firth Landscape Character Assessment* extends across areas of open water, as characterised by the *Inner Firth* and *Hard Coastal Shore* LCTs.

A regional/national coastal character assessment was underatken in support of a study on the sensitivity and capacity of the Scottish seascape in relation to windfarms[9]. As detailed within this study, the site of the proposed development is located within the *Moray Firth* seascape character area (SCT) and in assessing the sensitivity to wind farms, the following factors, as detailed in the report, are relevant to the proposed development:

- generally a modified seascape with a well settled coastal edge in places, including the village of Cromarty at the mouth of the inner firth;
- some isolated but large scale industry e.g. oil platforms and Nigg oil terminal within the Cromarty Firth;
- illumination of settlements around coastal fringes but generally sparse lighting in the Outer Firth. Oil platforms lit at night in Cromarty Firth; and
- it is common to see oil platforms being towed fairly close to Moray coast to and from Cromarty Firth.

In taking into account the factors outlined in this section, particularly concerning the industrial character of the site's locality, the sensitivity of landscape/seascape character to the proposed development is assessed as **medium**.

Nationally Important Landscape Designations

There are no National Parks within the study area and the closest National Scenic Area is located at the Dornoch Firth, some 15km to the north of Nigg. As detailed in T*he Inventory of Gardens and Designed Landscapes* (GDLs), there are 3 GDLs within the study area and considering their national importance, these are assessed as having a **high** sensitivity to change. These are:

- Cromarty House;
- Balnagown Castle; and
- Tarbat House.

Locally Important Landscape Designations

As detailed in Highland Council's citation[10], the *Sutors of Cromarty, Rosemarkie and Fort George* Special Landscape Area (SLA) is located in quite close proximity to the east and south-east of the site. It is a coastal area of intersecting firths and pointed headlands stretches from Port An Righ (just south of Shandwick) across the Sutors at the mouth of the Cromarty Firth, along the north-eastern edge of the Black Isle to take in Chanonry Point, then across the inner Moray Firth to take in Fort George, and Whiteness Head.

This SLA encompasses some of the key landscape features of the Inner Moray Firth. It is an area of contrasts which forms the gateway between the open coast and expansive waters of the Moray Firth and the intimate

[9] Scottish Natural Heritage (2005). *An assessment of the sensitivity and capacity of the Scottish seascape in relation to windfarms*.
[10] Highland Council (1998). *Assessment of Highland Special Landscape Areas*.

landscapes of the Cromarty and Inverness Firths. The twin headlands at North and South Sutor which stand guard over the entrance to the Cromarty Firth are another key feature, visible from a considerable distance.

As a locally important landscape designation, its sensitivity to change is assessed as **medium-high**.

Key views and visual receptors

Although no detailed analysis of the zone of theoretical visibility has been undertaken at this stage, it is evident that views from the site are focused on surrounding coastal areas of the inner firth. Looking south, there are views over open water towards the relatively nearby Cromarty peninsula and its associated village and lighthouse. Looking west, there are medium-range views over Nigg Bay towards the settlement of Invergordon, beyond which the inner firth narrows. Views to the east are short range, curtailed by rising ground.

Key visual receptors to be considered include:

- road users travelling along the B9175 and A9 – medium sensitivity;
- passengers on the Nigg Ferry – high sensitivity;
- residents in close proximity to the site including Dunskeath House, Balnabruaich, Balnapaling and Pitcalzean Mains – high sensitivity;
- residents in the larger settlements of Cromarty and Invergordon – high or medium sensitivity respectively; and
- recreational users at Cromarty viewpoint – high sensitivity.

4.2.3 Potentially Significant Effects during Construction

In considering the preceding assessment of Baseline Conditions, this section identifies any potential significant effects predicted during the construction phase, without any landscape related mitigation.

Landscape and Seascape Character

Taking into account the existing industrial use of the site and its immediate setting, and the associated prominent land and sea based activity taking place such as loading and off-loading operations to and from vessels and barges, including oil platforms being towed, any construction activity would generally be experienced within this context. Although any activity associated with the construction of the proposed development would be very noticeable from some nearby areas, this would be characteristic to its immediate setting. Consequently, the magnitude of landscape and seascape effect would be relatively limited and considering the medium sensitivity of the *Enclosed Firth* LCT, effects are very likely to be **not significant** on its integrity.

Nationally Important Landscape Designations

Tarbat House

As noted in the GDL inventory, Tarbat House is located on high ground on the north shore of the Cromarty Firth at Nigg Bay and there are views south over the Cromarty Firth and the Sutors of Cromarty. Although some construction activity could be visible amongst intervening built development at the quay, as the designation is located approximately 5 km from the site, effects are very likely to be **not significant** at this distance.

Cromarty House GDL

As noted in the GDL inventory, the parkland is enclosed by woodlands, which screen the town and the Firth from view. As such, it is unlikely that any construction activity would be visible, resulting in **not significant** effects.

Balnagown Castle

As noted in the GDL inventory, the designation commands fine views to the south-west and east over the coastal flats and therefore, it is possible that some construction activity could be visible although intervening built development at the quay is likely to provide some screening. Nonetheless, as the designation is located approximately 7 km from the site, effects are very likely to be **not significant** at this distance.

Sutors of Cromarty, Rosemarkie and Fort George SLA

Although the western boundary of the designation lies in quite close proximity to the site, the large majority of the SLA would not experience any views of construction activity due to the screening effects of intervening landform. From those parts near to Cromarty where activity would be visible, it would be experienced in context of other activity taking place in and around the industrial setting of the quay and as such, the effect on the special qualities of the designation would be very limited. Consequently, effects are predicted to be **not significant.**

Road users travelling along the B9175 and A9

Considering the screening effect of intervening trees and built development along these routes, particularly some large buildings and other infrastructure at the quay, effects on those travelling the B9175 and A9 are very likely to be **not significant**.

Passengers on the Nigg Ferry

When travelling north, passengers would experience some very noticeable views of constructions activity and although this would be in the context of other surrounding industrial land use and activity, short-term effects could be **significant.**

Settlement

From those relatively nearby settlements of Balnabruaich, Balnapaling and Pitcalzean Mains, it is very unlikely that due to the screening effect of intervening trees and built development, including the large buildings and other infrastructure at the quay, residents would not experience any open views of the site. Consequently, effects are very likely to be **not significant**.

From the settlements of Invergordon and Cromarty, including those undertaking recreational activity at Cromarty viewpoint, some construction activity is very likely to be visible although considering this would be experienced in a context of other activity taking place in and around the industrial setting of the quay, effects are very likely to be **not significant** at this distance.

4.2.4 Potentially Significant Effects post-Completion

As the operational effects of the proposed development would result in a smaller magnitude of effect than those predicted during the construction phase, it is likely that all long-term effects on the relevant landscape and visual receptors in the study area would be **not significant**. To avoid unnecessary duplication of the factors in support of this (as set out in the preceding section of construction effects), no detailed justification is provided although in general, it is clearly evident that the existing industrial land uses and activity taking place in and around the quay would significantly limit the magnitude of all landscape and visual effects.

4.2.5 Design and Mitigation

As no long-term significant effects are predicted, it not considered necessary at this stage to embed any landscape related mitigation measure in the design process. Nonetheless, it is important that any subsequent assessment of effects considers landscape design measures to ensure any adverse effects are mitigated as far as possible.

4.2.6 Inclusion or Exclusion from EIA

Based on the assumption that any potential significant adverse effects predicted during the construction phase would be limited to passengers on the Nigg Ferry, and more importantly, that no long-term significant effects are likely to be experienced during the operational phase, it recommended that landscape and visual interests should not be subject to assessment as part of an EIA.

Nonetheless, it is proposed that a Landscape and Visual Appraisal would be undertaken and submitted as Supplementary Environmental Information as part of the Planning Application. This would be undertaken in accordance with *Guidelines for Landscape and Visual Impact Assessment 3* and although not necessarily as detailed as an EIA LVIA would be, it would however provide a proportionate examination of effects to a very similar scope.

4.2.7 Assessment Methodology

Based on the assumption that a LVIA would not be required as part of an EIA, the following approach would underpin the production of Landscape and Visual Appraisal (LVA), to be undertaken by a Chartered Member of Landscape Institute. The LVA would be based on the following methodology.

Evaluation of the Existing Environment – the Baseline

The baseline review for the landscape and visual resource has three elements:

1. Description – a systematic review of existing information and policy relating to the existing landscape and visual resource;
2. Classification – analysis of the data to subdivide the landscape/seascape resource into discrete areas of recognisable character and identification of the visual receptors; and
3. Evaluation – Use of professional judgement to apply sensitivity criteria to a landscape/seascape or visual resource with reference to specified criteria.

The baseline review is undertaken through desk-based data review followed by a site survey to verify the findings, and then analysis of the data. This process is described in detail in the following paragraphs.

Desk Based Data Review

Existing mapping, legislation, policy documents and other written, graphic and digital data relating to the proposal and broader study area is reviewed. This includes the following documents:

- Highland-Wide Local Development Plan (2012);
- Inner Moray Firth Landscape Character Assessment (1998);
- Assessment of Highland Special Landscape Areas (2010);
- Ordnance Survey maps; and
- Digital sources of mapping and aerial photography.

The desk study also establishes the main users of the area, key viewpoints and key features, thus defining the visual baseline which requires to be verified on site. The potential visual receptors are identified and classified according to their associated use (settlements, footpaths, roads etc.). The aim of the baseline review of visual resources is to ensure that an appropriate range of viewpoints is included in the visual assessment. The potential extent of visibility of the proposed development as identified in the preliminary Zone of Theoretical Visibility (ZTV) provides the basis upon which the potential visual receptors are initially identified.

The desk study informs subsequent site work, which allows the confirmation of the Landscape/Seascape Character Types (LCTs/SCTs) and Landscape/Seascape Character Areas (LCAs/SCAs) where applicable.

Site Survey

Field survey work is carried out to verify and, if required, refine the landscape/seascape character types identified within the study area, and to gain a full appreciation of the relationship between the proposed development, and the landscape.

The baseline visual resource is verified during the survey work and at this time, the validity of the list of representative viewpoints used in the LVIA. Since the ZTV is based on a 1:50,000 digital terrain model, it does not capture local landform. There are times when a viewpoint selected from analysis of the ZTV does not actually have any views to the proposed development. In some instances, this can be remedied by slight adjustments of the grid references, although the location must remain relevant to the particular receptor(s) for which the viewpoint was selected. It is also important to ensure that the viewpoints remain a representative selection of views.

Data Analysis

Analysis and reporting of the baseline resource takes place after the completion of the desk and field surveys. The baseline landscape and visual review provides a description, classification, and evaluation of the landscape and visual resource of the study area.

The baseline review provides a robust description of the landscape and visual resource from which to assess the landscape and visual effects of the proposed development and to advice, in landscape and visual terms, on the development's acceptability in principle and upon its siting, layout and design. This involves identification of all the landscape and visual receptors and analysis of the sensitivity of each of these receptors to the proposed development.

Extent of the Study Area and Viewpoint Selection

Maps of Zone of theoretical visibility (ZTVs) are prepared using digital terrain models based on a maximum height of the proposed development. These represent the 'worst case' area of theoretical visibility where the proposed development may theoretically be seen. The ZTVs are based entirely on topographic factors and do not account for any screening effects provided by vegetation, buildings or minor variations in landform or the orientation of view. Therefore, the extent of any ZTVs tends to be greater than actual visibility and does not take account of climatic factors such as light conditions.

The ZTV for the proposed development is then used as a basis for the further assessment and evaluation of the magnitude of visual impacts.

Through the initial stages of the desk study, viewpoints are selected to represent views experienced from a variety of receptors, within different landscape character types and at a variety distances from the proposed development where the view may be apparent.

A study area centred on a likely 5 km radius from the proposed development will be used for the study of landscape and visual effects. Given the relative scale of the development and the character of the landscape, significant effects are very unlikely to be experienced at distances over 5 km.

Landscape/seascape Susceptibility and Value

The GLVIA indicates that landscape receptors need to be assessed firstly in terms of their sensitivity, combining judgements of their susceptibility to the type of proposal and the value attached to the landscape.

Landscape Susceptibility

This LVA includes an assessment of factors affecting the susceptibility of the landscape to the changes brought about by the proposed development, in order to identify any variation at the local scale.

Factors affecting landscape/seascape susceptibility

Landscape Value

The assessment takes as its starting point the recognised value of the landscape, for example, as identified by landscape designations.

In addition, the assessment considers the following factors, in order to identify how the relative landscape value may vary at the local scale.

Sensitivity of Visual Receptors

The sensitivity of each visual receptor is assessed in terms of susceptibility to change in views or visual amenity as well as the value attached to particular views.

Susceptibility to Change

People generally have differing responses to views and visual amenity depending on the context (e.g. location, time of day, degree of exposure), and their purpose for being in a particular place (e.g. whether for recreation, travelling through the area, residence or employment). Susceptibility to change is therefore a function of:

- The occupation or activity of people experiencing the view or visual amenity; and
- The extent to which their attention or interest may be focused on the landscape around them.

Value attached to particular views

Judgments are also be made about the value attached to views, based on the following considerations:

- Recognised value – such as views from heritage assets or designated landscapes;
- Inclusion in guidebooks or on tourist maps, the facilities provided for visitors or references to the view in literature or art; and
- The relative number of people who are likely to experience the view.

People that are more susceptible to change at viewpoints of recognised value are more likely to be significantly affected by any given change.

Assessing Effects

The impact assessment aims to identify all the potential landscape and visual effects of the development taking account of any proposed mitigation measures. This is carried out by:

- Assessing the magnitude of change brought about by the proposed development on each of the receptors identified in the baseline review;
- The effect is then predicted by combining the sensitivity and importance of the receptor (as identified in the baseline review) with the magnitude of change; and
- Lastly, the significance of the predicted effect is assessed in a logical and well-reasoned analysis.

The assessment aims to describe the changes in the character and the landscape resources that are expected to result from the proposed development. It covers both landscape effects (changes in the fabric, character and key defining characteristics of the landscape); and the visual effects (changes in available views of the landscape and the significance of those changes on people).

Magnitude of Landscape Change

Each effect on landscape receptors is also assessed in terms of its size or scale, the geographical extent of the area influenced and its duration and reversibility.

Geographical Extent of Effect

The geographical area over which the landscape effects would be experienced (regional, local or restricted to the site) is also taken into account. This is distinct from the scale of the change. For example, a small change to the landscape over a large geographical area could be comparable to a very large change affecting a much more localised area.

Magnitude of Visual Effect

Visual effects result from the changes in the content or character of views and visual amenity, due to changes in the landscape. The assessment of visual effects takes account of both the sensitivity of the visual receptors (individuals or groups of people) and the magnitude of the change on their views and visual amenity.

The magnitude of the visual effect resulting from the Proposed Development is evaluated in terms of size or scale, geographical extent, duration and reversibility.

Size or Scale of Effect

This is based on the interpretation of a combination of a range of factors. Some of these are largely quantifiable and include:

- Distance and direction of the viewpoint from the Proposed Development;
- Extent of the Proposed Development visible from the viewpoint
- Scale of the change in the view, including the proportion of the field of view occupied by the Proposed Development;
- Degree of contrast with the existing landscape elements and characteristics in terms of background, form, pattern, scale, movement, colour, texture, mass, line or height;
- The relative amount of time during which the effect would be experienced and whether views would be full, partial or glimpses; and
- Orientation of receptors in relation to the Proposed Development, e.g. whether views are oblique or

Geographical Extent

The extent over which the changes would be visible is also taken into account.

The magnitude of visual change arising from the Development is described as High, Medium, Low or Negligible based on the overall extent of visibility. For individual viewpoints it will depend upon the combination of a range of factors:

- The distance of the viewpoint from the development;
- The duration of effect;
- Extent of the development visible from the viewpoint;
- The angle of view in relation to main receptor activity;
- The proportion of the field of view occupied by the development;
- The background to the development; and
- The extent of other built development visible.

Other factors may also influence the visual effect. These relate to both human perception and to the physical environment itself. Factors which tend to reduce the apparent magnitude include the following:

- An absence of visual clues;
- A complex and varied scene; and
- Low relative elevation of view

Factors which tend to increase the apparent magnitude include the following:

- Visual clues;
- A simple scene; and
- High relative elevation of view.

Sequential Visual Effects

Sequential visual effects typically occur when moving along a linear route, as the observer moves from one point to another and gains views of other developments or a different view of the same development.

Significance of Effects on Landscape and Visual Receptors

The assessment of significance is based on professional judgement, considering both the sensitivity of the receptor and the predicted magnitude of effect resulting from the proposed development.

Major loss of landscape features or characteristics across an extensive area that are important to the integrity of a nationally valued landscape are likely to be of greatest significance. Short-term effects on landscape features or characteristics over a restricted part of a landscape of lower value are likely to be of least significance

The degree of significance of effects on visual receptors is determined from a combined evaluation of the sensitivity of the visual receptor and the magnitude of the visual effect.

Effects are more likely to be significant on people who are particularly sensitive to changes in views and visual amenity, or who experience effects at recognised and important viewpoints, or from recognised scenic routes. Large scale changes which introduce new, discordant or intrusive elements into the view are also more likely to be significant than small changes or changes involving features already present within the view.

The significance of any identified landscape or visual effect is assessed as Major, Moderate, Minor or Negligible effect. These categories have been determined by consideration of viewpoint or landscape sensitivity and predicted magnitude of change as described above, with the table below used as a guide to correlating sensitivity and magnitude to determine significance of effects. It should be noted that this is a guide only, and there will be times when the combination of sensitivity and magnitude yield a slightly different result from that predicted by the table. Where this discrepancy leads to prediction of significant effect, it is explained in the text.

Table 4.1: Assessment of significance of landscape and visual effects

Magnitude of Change				
Sensitivity	***High***	***Medium***	***Low***	***Negligible***
High	Major	Major to moderate	Moderate	Moderate to minor
Medium	Major to moderate	Moderate	Moderate to minor	Minor
Low	Moderate	Moderate to minor	Minor	Minor to none
Negligible	Moderate to minor	Minor	Minor to none	None

Where overall effects are predicted to be *major* (shaded dark grey) these are considered to be equivalent to significant effects. Overall effects of moderate to major (shaded light grey) may be significant if experienced over an extensive proportion of a receptor, area or route. Changes of moderate or less are not likely to result in significant effects.

4.3 Terrestrial Ecology

4.3.1 Introduction

The assessment of terrestrial ecology will consider the geographical area potentially affected by the proposed development. Particular attention will be given to protected habitats and species. The proposed development has the potential to affect ecology in the development footprint in terms of direct habitat losses. It is also envisaged that a range of other effects on ecology in the wider area could occur.

4.3.2 Baseline Conditions

Statutory Designated Sites

No statutory designated sites are present within the site boundary. However, three designated sites are present within a 5km radius of the site as detailed in Table 4- which are relevant to terrestrial ecology and should be read in conjunction with Table 4.7 within the Marine Ecology section.

Table 4-2: Statutory Designated Sites

Site Name	Designation[11]	Distance and Orientation	Features	Ecologically Connected to the Site
Moray Firth	SAC	Adjacent to site	Subtidal sandbanks	Via the marine environment
Cromarty Firth	SSSI/ RAMSAR	Approx. 0.59km west	Intertidal mudflats and sandflats	Via the marine environment
Rosemarkie to Shandwick Coast	SSSI	Approx. 0.76km east	Maritime cliffs, geological features	Via the marine environment

Non-Statutory Designated Sites

No non-statutory designated sites exist within the site boundary, or within a 5km radius of the site.

Ancient Woodland Inventory Sites

No areas of ancient woodland are present within the site. However, three areas are present within a 2km radius of the site boundary as detailed in Table 4-:

Table 4-3: Ancient Woodland Inventory

Site name	Distance and Orientation	Designation[12] (Ancient Woodland Categories)

[11] SAC (Special Area of Conservation), SPA (Special Protection Area), RAMSAR (Wetlands of International Importance), SSSI (Site of Special Scientific Interest), NNR (National Nature Reserve)

[12] Definition of antiquity categories, available from: http://www.snh.org.uk/publications/on-line/advisorynotes/95/95.html. ASNO: Sites shown as woodland on all available map sources from 1750 onwards and as semi-natural woodland on the 1750 'Roy' maps. LEPO: Sites

Unnamed Woodland	Approx. 0.74km north	Long-Established (of Plantation Origin) (LEPO)
Unnamed Woodland	Approx. 1.5km south	Ancient (of Semi-Natural Origin) (ASNO)
Unnamed Woodland	Approx. 1.5km south	LEPO

Local Records

The following is a summary of the notable local records returned from Highland Biological Recording Group (HBRG):

Table 4-4: Local Biodiversity Records

Species	Latin Name	Number of Records	Location (Approx.)	Date
Mammals				
West European hedgehog	*Erinaceus europaeus*	One	Lower Pitcalzean	2001
Brown Hare	*Lepus europaeus*	One	Nigg	2002
Otter	*Lutra lutra*	Two	North Suttor Nigg	2001 and 2014
Herpetofauna				
Common lizard	*Zootoca vivipara*	Three	NH8000689 and NH804689	2015 and 2016

Biodiversity Action Plan and SBL Species and Habitats

The site is within the Highland Council area, which considers wider ecosystems within the Highland Biodiversity Action Plan (HBAP) and therefore does not highlight specific species and habitats of importance. The Ross and Cromarty (East) Biodiversity Action Plan (RCBAP) covers the area the site is situated and targets specific species and priority habitats. tentially relevant to the site:

Table 4-4-5below presents the species and habitats listed on the RCBAP, UKBAP and SBL that are potentially relevant to the site:

Table 4-5: Biodiversity Action Plan and SBL Species and Habitats

Species	RCBAP	UKBAP	SBL
Mammals			
Badger (*Meles meles*)	✓		
Brown long-eared bat (*Plecotus auritus)*	✓		
Common pipistrelle (*Pipistrellus pipistrellus)*	✓	✓	✓
Soprano pipistrelle (*Pipistrellus pygmaeus*)	✓	✓	✓
Daubenton's bat (*Myotis daubentonii)*	✓	✓	✓
Natterer's bat (*Myotis nattereri*)	✓	✓	✓
Brown hare (*Lepus europaeus*)	✓		✓
West European hedgehog (*Erinaceus europaeus*)	✓	✓	✓
Otter	✓	✓	✓
Minke whale (*Balaenoptera acutorostrata*)	✓	✓	✓
Harbour porpoise (*Phoecoena phocoena*)	✓	✓	✓
Bottlenosed dolphin	✓	✓	✓
Grey seal (*Halichoerus grypus*)	✓		
Common (Harbour) seal	✓		
Birds*	**RCBAP**	**UKBAP**	**SBL**

shown as plantation woodland in c.1860 but not shown as woodland at all in 1750 or shown as plantation on these maps. These are woods that were apparently planted before 1860

Species	RCBAP	UKBAP	SBL
Skylark (*Alauda arvensis*)	✓	✓	✓
Wigeon (*Anas penelope*)	✓		
Twite (*Acanthis clavirostris*)	✓		
House Sparrow (*Passer domesticus)*	✓		
Swallow (*Hirundo rustica)*	✓	✓	✓
Tree Sparrow (*Passer montanus)*	✓	✓	✓
Fish	**RCBAP**	**UKBAP**	**SBL**
Salmon (*Salmo salar*)	✓	✓	✓
Brown trout (*Salmo trutta*)	✓	✓	✓
Cod (*Gadus morhua*)	✓	✓	✓
Herring (*Clupea harengus*)	✓	✓	✓
Mackerel (*Scomber scombus*)	✓	✓	✓
Habitats	**RCBAP**	**UKBAP**	**SBL**
Sea and Coast	✓	✓	✓

*Marine mammals and birds are covered in further detail in the other reports which focus solely on these species.

NBN Atlas

The following is a summary of reported sightings of species potentially relevant to the site, within a 2km radius:

Table 4-6: Species records from NBN Atlas

Species*	Orientation	Date	Comments
Brown hare	One sighting (north of site)	08/07/2002	No information
West European hedgehog	One sighting (north of site)	23/09/2001	No information
Otter	Two sightings (east and south)	05/2014	Field evidence (spraint) and actual sighting

Habitat Types

During the Phase 1 Habitat Survey (full details within Appendix B), a total of 17 Phase 1 habitat types including buildings were recorded on the site:

- A2.1 Dense Scrub;
- A2.2 Scattered Scrub;
- A3.1 Broadleaved Parkland/Scattered Trees;
- B2.2 Semi-Improved Neutral Grassland;
- B4 Improved Grassland;
- C3.1 Tall Ruderal Vegetation;
- H1.1 Intertidal Mud/Sand;
- H3 Shingle/Gravel Above High-Tide Mark;
- H6.5 Dune Grassland;
- H6.8 Open Dune;
- J1.3 Ephemeral/Short Perennial;
- J2.4 Fence;
- J2.5 Wall;
- J3.5 Sea Wall;
- J3.6 Buildings;
- J4 Bare Ground; and

- J5 Other Habitat.

The main habitats are described in Appendix B and detailed in Figure 4.

Bats

Bat species are European Protected Species (EPS). No records of bats within a 2km radius of the site were returned from the desk study (see Appendix B).

During the Potential Roost Features Assessment (PRF) undertaken in December 2018, two sycamore (*Acer pseudoplatanus*) trees with PRFs were recorded within the site, located at NH79528 68907 and NH 79561 68905. Tree 1 was classified as offering negligible potential for roosting bats and Tree 2 as having low potential for roosting bats.

Six buildings are present within the site boundary. The roughcast building with the red corrugated metal roof is to be retained, therefore only the remaining five buildings were subject to an external inspection. Based on this survey, the buildings were considered to offer potential for summer roosting bats but, despite the presence of PRFs, were classified as offering low suitability due to their isolated coastal location and limited connecting terrestrial habitat. All five buildings were considered to offer low potential for hibernating bats as they could provide constant cool temperatures during the hibernating season (as reported within Appendix B: Phase 1 Habitat and Protected Species Survey) . During ongoing bat work outlined in section 4.3.4 below, an internal inspection of the buildings was undertaken on 17th January 2019, which resulted in one of the buildings being re-categorised as offering moderate potential for roosting bats. Bat droppings and evidence of bat foraging (butterfly wings) were also identified.

The site has no tree lines, hedgerows or woodland edges that connect to adjacent features out-with the site, therefore the site is assessed as offering low potential for commuting and foraging bats.

Otter

Two records of otter were returned from the desk study, east and south east of the site boundary. Spraint was identified along the Cromarty Firth coast and an observational sighting was reported in grassland adjacent to a quarry. No evidence of otter was identified during the survey (see Appendix B).

The marine environment of the Moray Firth and Cromarty Firth provide suitable commuting and foraging habitat for otter, where they could obtain varied foraging resources such as Atlantic salmon (*Salmon salar*), brown trout (*Salmo trutta*), flatfish and eels, crustaceans and occasionally wading birds. Otters that inhabit coastal habitats utilise inshore areas which are shallow, for foraging and commuting.

In general, coastal otter habitats range from open, low-lying coastal habitat to sheltered wooded inlets. The dense scrub, within the site, adjacent to the shore, provides opportunities for rest sites and sheltered commuting. Otters will also utilise terrestrial habitats, including rough grassland, for resting and breeding holts. Otters may also utilise other mammal species' burrows for resting sites. Multiple burrows were present within the dense scrub, likely attributed to rabbit (*Oryctolagus cuniculus*), due to their small size, lack of spoil heaps and circular shapes, which otter could utilise for resting.

Overall the site has some suitable habitat for commuting, foraging and resting otter, however, the site is highly frequented by members of the public and dog walkers, which reduces its suitability.

Badger

No records of badger were returned from the desk study and no evidence of badger was identified during the survey (see Appendix B).

Suitable habitat for sett creation is lacking due to the site predominantly consisting of bare ground.

The semi-improved grassland and berry producing scrub habitats within the site offer secondary foraging resources and the small area of improved grassland offers a limited primary foraging habitat as a source of earthworms, which comprise the majority of badgers' diet. Broadleaved woodland, arable fields and short mown grassland are present in the wider area which provide a primary foraging resource for badger.

Fragmented habitat is present within the site in the form of dense scrub and scattered scrub which provide some connecting habitat to the wider landscape.

Other Observations

Multiple rabbit (*Oryctolagus cuniculus*) burrows are present within the dense scrub on the site.

4.3.3 Potentially Significant Effects during Construction

Based on our current understanding of the proposed development, potentially significant effects on terrestrial ecology could be incurred by the loss of buildings during the construction process. Suitable habitat has been identified within the site for roosting bats and further targeted surveys will be undertaken in 2019 and any impacts on bats species will be addressed via the Scottish Natural Heritage (SNH) licensing process with appropriate mitigation outlined in a Species Protection Plan (SPP).

Good practice measures detailed in the baseline report will above will minimise effects on habitats and species in the vicinity of the site.

4.3.4 Potentially Significant Effects post-Completion

Based on our current understanding of the proposed development it is not anticipated that there will be any significant effects on terrestrial ecology post-completion.

4.3.5 Design and Mitigation

Impacts on terrestrial habitat will be mitigated by design. The following good practice measures are recommended to minimise impacts effects on terrestrial species and habitats:

- The development design should seek to retain and enhance open dune, trees and scrub habitats wherever possible.
- All site contractors should be made aware of the potential presence of protected species in the locale, and in the event that a protected species is discovered on site, all work in that area must stop immediately and a suitably qualified ecologist contacted.
- Any required vegetation removal should be undertaken outside the nesting bird season (March - August).
- If Tree 2 is to be felled or subjected to arboricultural operations to facilitate development, an elevated inspection to search for roosting bats will be required prior to works commencing.
- If works do not commence prior to December 2020, pre-works check for otter, badger and birds should be undertaken by a suitably qualified ecologist or Ecological Clerk of Works (ECoW) prior to the commencement of any works.
- Temporary lights used during construction must be fitted with shades to prevent light spillage outside the working area. Temporary lights must not illuminate scrub, scattered trees and hedgerows as lighting can affect commuting and foraging success of mammals and other species.

- Any trenches or pits made during construction must be covered when unattended or a shallow angled plank inserted to allow animals to escape, should they become trapped inside them. The ends of any pipeline must be capped when unattended, or at the end of each working day to prevent animal access.
- Site compounds/materials or plant storage areas would be located away from trees to avoid damage to the tree limbs and infringement of rooting areas.
- All site staff should be aware of the need for careful working practices to avoid environmental damage.

4.3.6 Inclusion or Exclusion from EIA

Based on the baseline data gathered from the ecological survey and desk study terrestrial ecology will be scoped out of the EIA process. Impacts on terrestrial habitat will be mitigated by design. Further targeted assessments detailed below will be undertaken for bats, included as standalone reporting with the summary held within the EIA 'Other Issues' chapter.

Reporting will be contained within a standalone bat report which would accompany the application to the Council, however based on the recent baseline survey, a full EIA for terrestrial ecology is not required.

4.3.7 Assessment Methodology

During the external PRF inspection undertaken in December, the five buildings assessed within the site boundary were classified as providing low potential for summer roosting bats and low potential for hibernating bats. Based on the detailed internal inspection of the buildings undertaken on 17th January 2019, further suitable habitat for summer roosting bats was identified in one of the buildings and as such this building was re-classified as offering moderate habitat for roosting bats.

Hibernation surveys of the five buildings within the site will be completed, consisting of a two visits, one in mid-January (which was undertaken on 17th January 2019) and one in mid-February, including a detailed internal inspection up to ladder height of any PRFs which may provide hibernating opportunities for bats. During the first hibernation survey, no roosting bats were identified but bat droppings and evidence of foraging bats (butterfly wings) were recorded. As part of the on-going bat work, these droppings will be sent for DNA analysis to identify the species.

One bat activity survey will be carried out on each building, in the bat activity season (May-August) to determine the presence/absence of summer roosting bats. A second bat activity survey will be carried out on the building offering moderate potential for roosting bats after a period of two weeks following the first survey.

If during the hibernation surveys and/or bat activity survey a roost/evidence of bats is identified or bat activity suggests that a roost may be present, further surveys will be required.

4.4 Marine Ecology

4.4.1 Introduction

The assessment of marine ecology will consider the geographical area potentially affected by the proposed development. Particular attention will be given to cetaceans and seals, fish and intertidal and benthic ecology.

The proposals have the potential to affect marine ecology in the immediate vicinity of the development footprint in terms of habitat loss; and in the wider area in terms of underwater noise via impact piling, vibratory piling and dredging; and increased vessel movement. It is also envisaged that a range of other effects on marine ecology in the wider area could occur. These include, but are not limited to, those related to changes in the hydrodynamic

regime, physical disturbance during construction and operation of the port, and pollution arising from construction activities. These areas will all be considered in the assessment. Impact of the development on the water environment including hydrology, hydrogeology, water quality and coastal processes will be considered in the Water Environment and Coastal Processes section of the EIA (see section 4.8).

4.4.2 Baseline Conditions

Table 4-7 details statutory designated sites that are considered to be ecologically connected to the site in terms of marine ecology, and should be read in conjunction with Table 4.2 within the Terrestrial Ecology section.

Table 4-7: Marine Designated Sites

Site Name	Designation	Distance and Orientation	Comment
Moray Firth	Special Area of Conservation (SAC)	Adjacent to the site	Designated for bottlenose dolphin *(Tursiops truncatus)* and subtidal sandbanks.
Cromarty Firth	Special Protection Area (SPA), SSSI and Ramsar	Approximately 0.59km west	**SPA:** Waterfowl assemblage: Bar-tailed godwit *(Limosa lapponica)*, Common tern *(Sterna hirundo),* Curlew *(Numenius arquata)*, Dunlin *(Calidris alpina alpina),* Greylag goose *(Anser anser)*, Knot *(Calidris canutus),* Osprey *(Pandion haliaetus),* Oystercatcher *(Haematopus ostralegus),* Pintail *(Anas acuta),* Red-breasted merganser *(Mergus serrator)*, Redshank *(Tringa totanus)*, Scaup *(Aythya marila)*, Whooper swan *(Cygnus cygnus)*, Wigeon *(Anas penelope)*. **Ramsar:** Intertidal mudflats and sandflats, waterfowl assemblage: Bar-tailed godwit, Greylag goose. **SSSI:** mudflats, saltmarsh, sandflats and waterfowl: Bar-tailed godwit, red-breasted merganser, redshank, whooper swan, wigeon
Rosemarkie to Shandwick Coast	Site of Special Scientific Interest (SSSI)	Approximately 0.76km east	Designated for Cormorant *(Phalacrocorax carbo)*, maritime cliff, mesozoic palaeobotany, earth sciences, vascular plants, sand dunes and upland birch woodland.
Ardersier (MF-001[13])	Seal haul-out site	Approximately 12km south	Key site based on August breeding survey counts
Cromarty Firth (MF-005)	Seal haul-out site	Approximately 13km west	Key site based on August breeding survey counts
Findhorn (MF-003)	Seal haul-out site	Approximately 25km south east	Key site based on August breeding survey counts
Dornoch Firth and Morrich More SAC	SAC	Approximately 36km north east	Harbour seal (*Phoca vitulina*), otter, reefs, dune grassland,
Beauly (MF-002)	Seal haul-out site	Approximately 42km south west	Key site based on August breeding survey counts

[13] Moray Firth (MF) 001 – List of Seal Haul-out sites across Scotland available at: https://www2.gov.scot/Topics/marine/marine-environment/species/19887/20814/haulouts/list last accessed 29/01/2019

Marine Mammals (Cetaceans and Seals)

Monitoring is undertaken to determine the condition of the bottlenose dolphin (*Tursiops truncatus*) feature of the Moray Firth SAC. This feature is currently in Favourable condition according to the last assessment in 2010[14].

The monitoring used timing porpoise detectors (T-PODs[15]) to assess the baseline activity of cetaceans. T-POD sampling locations were positioned to the north and north east of Whiteness Head (entrance to Cromarty Firth, Lossiemouth, and Outer Moray Firth). During these studies differing densities of bottlenose dolphin and harbour porpoise were determined, and generally speaking dolphins were detected regularly at the entrance to Cromarty Firth, only rarely in the outer Moray Firth, and at an intermediate level at Lossiemouth. The entrance to Cromarty Firth is within 1.5km of the site.

Cheney *et al*[16] conducted photo-identification surveys and Passive Acoustic Monitoring (PAM) studies in core sampling areas within the Moray Firth SAC during the summers (May to September) of 2008 to 2010. Mark-recapture analysis of photographs collected during photo-identification surveys indicated that an estimated 68 individual dolphins used the SAC during the summer of 2008, 102 in 2009 and 114 in 2010. This indicates that the number of dolphins using the SAC between 1990 and 2010 appears to be stable; and at least 60% of the population have been seen within the SAC in 16 of the 21 years of photo-identification effort. Mark-recapture analysis of photographs collected during surveys in the summer of 2016 indicated that the estimated number of individual dolphins using the SAC was 103 (95% confidence interval: 93-115).

T-PODs deployed to the west, north and north east of Whiteness Head (2008-2010), approximately 14km south of Nigg East Quay, and survey transects identified bottlenose dolphin (with varying densities) within the deep water channel immediately adjacent/north of Whiteness Head; highlighting this as an important area for bottlenose dolphin. There were group encounters here in 2008, 2009 and 2010, particularly during the months of May to September.

Chanonry Point, approximately 17km south west of the proposed development, is a well-known bottlenose dolphin hotspot. PAM is ongoing in this area to monitor the status of the SAC feature. Between 2011 and 2016, during the summer months (May – September), the percentage of days that dolphins were detected was over 90%.

Harbour porpoise *(Phocoena phocoena)* were detected regularly during the T-POD monitoring in the outer Moray Firth, only rarely Lossiemouth, and at an intermediate level at the entrance to the Cromarty Firth.

Two harbour porpoise were observed by EnviroCentre ecologists during the first bat hibernation survey on 17th January 2019, approximately 1km south of the site in the Cromarty Firth (off Cromarty).

Minke whale *(Balaenoptera acutorostrata)* is the most commonly seen baleen whale in Scotland and sightings are frequent and widespread from May to October, peaking in July. The southern and Outer Moray Firth are thought to be particularly important areas for minke whale. The closest recently recorded sightings of minke whale, to the site, were from Burghead, Moray, approximately 32km south east of the proposed development; in November 2018.

In August 2017, a pod of 30 long-finned pilot whale (*Globicephala melas*) travelled up the Moray Firth to North Kessock, approximately 32km south west of the proposed development. The sighting was extremely rare,

[14] Scottish Natural Heritage Research Report No. 1021 Site Condition Monitoring of bottlenose dolphins within the Moray Firth Special Area of Conservation: 2014-2016.
[15] T-PODS are autonomous data recorders for detecting cetacean echolocation clicks and potentially provide cost-impactive opportunities for monitoring cetacean activity.
[16] Cheney, B., Corkrey, R., Quick, N.J., Janik, V.M., Islas-Villanueva, V., Hammond, P.S. & Thompson, P.M. (2012). Site Condition Monitoring of bottlenose dolphins within the Moray Firth Special Area of Conservation: 2008-2010. Scottish Natural Heritage Commissioned Report No. 512.

however important to note, as if they become stressed, entire pods of pilot whales are known to beach themselves.

Two orca (*Orcinus orca*) were identified near Chanonry Point (approximately 17km south west of the proposed development site) in January 2019. A pod of six orca were identified in the Moray Firth in 2016, approximately 11km north west of Findhorn (and approximately 20km south east of the proposed development). Orca may occur in coastal regions to feed on breeding seals.

Humpback whale (*Megaptera novaeangilea*) was observed in the Moray Firth in 2016 and 2017. In 2016, one individual was identified from Sutors of Cromarty, approximately 2.5km south east of the proposed development; and in 2017 two individuals were observed from between Hopeman and Burghead, approximately 32km south east along the Moray coast.

The Dornoch Firth and Morrich More SAC is designated for its population of harbour seal (also known as common seal) which is currently classed as 'Unfavourable – declining' (2013)[17]. The development lies approximately 36km north of the SAC, which is within the range of observed harbour seal movements between haulout areas (the locations on land where seals come ashore to rest) and also well within the 'normal' range of foraging trips.

There is a designated haulout site at Ardersier, approximately 12km south of the proposed development site. This site holds 20% of the Moray Firth population of common seal and is seen as the most important haulout for this species not only in the Moray Firth but on the east coast of Scotland. The average moult counts (during August) are around 200 animals and this has been steady since 1992. The location is also used for pupping with a count undertaken in June 2011 having 216 adult harbour seal and 28 mean number of pups (56 pups was higher figure). The location is also used by large numbers of grey seal *(Halichoerus grypus)*; 204 animals during the June count in 2011 and 297 during the August count 2010.

All species of dolphin, porpoise and whale are European Protected Species (EPS). Marine mammal species (including seals) are included in the Scottish Biodiversity List (SBL) and the UK Biodiversity Action Plan (UKBAP) are listed in Table 4-8. All of the species listed can be found in UK waters and therefore have the potential to be present in the vicinity of Nigg East Quay.

Table 4-8: Marine mammal SBL and UKBAP species

Species name	SBL	UKBAP	Marine (Scotland) Act 2010/The Protection of Seals (Designation of Haul-Out Sites) (Scotland) Order 2014
Harbour porpoise	✓	✓	
Northern right whale (*Balaena glacialis*)	✓	✓	
Minke whale	✓	✓	
Sei whale (*Balaenoptera borealis*)	✓	✓	
Blue whale (*Balaenoptera musculus*)	✓	✓	
Fin whale (*Balaenoptera physalus*)	✓	✓	
Humpback whale	✓	✓	
Bottlenose dolphin	✓	✓	
Risso's dolphin (*Grampus griseus*)	✓	✓	
White-beaked dolphin (*Lagenorhynchus albirostris*)	✓	✓	
Atlantic White-sided dolphin (*Lagenorhynchus acutus*)	✓	✓	
Common dolphin (*Delphinus delphis*)	✓	✓	
Striped dolphin (*Stenella coeruleoalba*)	✓	✓	
Northern bottlenose whale (*Hyperodoon ampullatus*)	✓	✓	

[17] Site details for Dornoch Firth and Morrich More SAC available at: https://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa_code=8242#features last accessed 25/01/2019

Species name	SBL	UKBAP	Marine (Scotland) Act 2010/The Protection of Seals (Designation of Haul-Out Sites) (Scotland) Order 2014
Cuvier's beaked whale (*Ziphius cavirostris*)	✓	✓	
Sowerby's beaked whale (*Mesoplodon bidens*)	✓	✓	
True's Beaked Whale (*Mesoplodon mirus*)	✓	✓	
Orca	✓	✓	
False Killer Whale (*Pseudorca crassidens*)	✓		
Long-finned Pilot Whale	✓	✓	
Sperm Whale (*Physeter macrocephalus (P. catodon*)	✓	✓	
Harbour seal	✓	✓	✓
Grey Seal (*Halichoerus grypus*)			✓

Fish

Several rivers (Alness, Balnagowan, Conon, Glass and Peffery) flow into the Cromarty Firth, all of which support populations of migratory Atlantic Salmon (*Salmo salar*) and Sea Trout (*Salmo trutta trutta*) that return to the river annually. The nearest of these rivers, the Balnagowan, is 4km from the proposed development.

Marine Scotland (MS) data shows that Salmon primarily run into local rivers between April and September, with a separate Grilse run arriving in the river from June to September. Data obtained from the Cromarty District Salmon Fisheries Board (DSFB) states that the emigration of juvenile Salmon (Smolts) in the local area is between May and early June annually. The same MS data also shows that Sea Trout migrate into local rivers between June and September, peaking between July and August.

Other diadromous species of conservation interest, specifically European Eel (*Anguilla anguilla*), Sea Lamprey (*Petromyzon marinus*) and River Lamprey (*Lampetra fluviatilis*) are known to migrate through the Cromarty Firth both from and to connected rivers.

With regard to marine fish, there is potential for local marine fish species to utilise the area around the vicinity of the proposed development as nursery or spawning ground. This may in turn provide a source of food for bird and marine mammal species.

Intertidal and Benthic ecology

The intertidal habitats within the site include intertidal mud/sand and shingle/gravel above high-tide mark; both of which are Annex 1 habitats. A description and the location of these habitats can be found in Appendix B: Phase 1 Habitat and Protected Species Survey. Due to the high level of disturbance as a result of historic and current developments in the vicinity of the proposed development; and the small areas the habitats cover; these habitats are assessed to be of low ecological value.

Desktop assessment of benthic ecology has been previously undertaken to inform an Environmental Statement, relating to the extension of Nigg South Quay[18]. It was assessed that due to extensive dredging and disturbance both in the past and presently, to maintain approach channels, the benthic ecology would be in poor condition as a result.

[18] Grontmij (2013) South Quayside Extention, Nigg Energy Park, Nigg

4.4.3 Potentially Significant Effects during Construction

It is anticipated that the proposed development will comprise activities with the potential to impact on marine ecology in the area during construction as follows:

- Direct loss of tidal, intertidal and subtidal habitats in the footprint of the development;
- Underwater noise which could cause lethal or sub-lethal effects on bottlenose dolphin which are a qualifying feature of the Moray Firth SAC;
- Underwater noise which could cause lethal or sub-lethal impacts on marine mammals and fish;
- Underwater noise or above ground noise disturbance to harbour seals which are a qualifying feature of the Dornoch Firth and Morrich More SAC;
- Cumulative impacts from other ongoing developments (primarily underwater noise) causing lethal or sub-lethal impacts on marine mammals and fish;
- Cumulative impacts from other ongoing developments (above ground noise) causing disturbance to seals using haul-out sites in the vicinity;
- Light disturbance to marine mammals and fish during the hours of darkness through the use of artificial lighting;
- Increases in suspended sediment and/or deposition from dredging and construction activities creating physical disturbance to marine mammals and fish;
- Release of contaminants from disturbed sediments;
- Pollution from fuels, oils etc. into the marine environment;
- Changes to coastal processes including tidal flows, local current and sediment movement; and
- Impacts on marine habitats and the associated intertidal and benthic communities during dredging and disposal operations.

4.4.4 Potentially Significant Effects post-Completion

It is anticipated that the proposed development will comprise activities with the potential to impact on marine ecology in the area post-completion as follows:

- The increase in vessel movement occurring throughout the Moray Firth SAC and the known range of bottlenose dolphin;
- The increase in vessel movement occurring in proximity to the Dornoch Firth and Morrich More SAC and seal haul-out sites in the vicinity of the proposed development site; and
- Increased vessel numbers post construction causing disturbance and/or potentially death or injury to marine mammals.

4.4.5 Design and Mitigation

Upon confirmation of detailed construction methodology and underwater noise modelling, further targeted assessments will be made to design out as many potential significant effects on marine ecology as possible. Mitigation will be designed to be site and species specific, according to environmental receptors, the species of concern and additional noise producing activities occurring in the Moray Firth.

The Joint Nature Conservation Committee (JNCC) *Statutory nature conservation agency protocol for minimising the risk of injury to marine mammals from piling noise* (2010)[19] will be consulted to design a site specific

[19] JNCC Statutory nature conservation agency protocol for minimising the risk of injury to marine mammals from piling noise (2010) available online: http://jncc.defra.gov.uk/pdf/JNCC_Guidelines_Piling%20protocol_August%202010.pdf last accessed 29/01/2019

mitigation protocol, involving the use of Marine Mammal Observers (MMOs) and Passive Acoustic Monitoring (PAM).

Mitigation proposals will be agreed through discussion with SNH and Marine Scotland to ensure they provide the appropriate protection for marine mammals during construction.

Scientific papers produced by Aberdeen University, regarding their monitoring of the Moray Firth (SAC) bottlenose dolphin population, will be consulted; this will assist in developing an assessment of the impacts of other construction activities within the Moray Firth that will be ongoing during the construction of Nigg East Quay. The integrity of the Moray Firth SAC will also be fully considered within a HRA.

4.4.6 . Inclusion or Exclusion from EIA

Designated Sites

The Moray Firth SAC, designated for bottlenose dolphins; and the Dornoch Firth and Morrich More SAC; designated for harbour seal, will be considered during the assessment of marine ecology and will be scoped into the EIA. A Habitats Regulation Assessment (HRA) will be undertaken of the designated sites in proximity to the proposed development; which will be presented as a technical appendix to the EIA.

Marine Mammals

The Moray Firth, which is designated for bottlenose dolphin, is adjacent to the site boundary; and in-combination effects of additional developments underway in the Moray Firth (and further afield) have the potential to impact bottlenose dolphin and other species of marine mammal utilising the Moray Firth. Therefore marine mammals will be scoped into the EIA.

Fish

Given that the proposed development lies directly on a potential migratory pathway to and from several local rivers for Atlantic Salmon, which are listed in Annexes IIa and Va of the EC Habitats and Species Directive, as well as Sea Trout, which are listed as a Priority Species on the UK Biodiversity Action Plan (UK BAP), these two species will be scoped into the EIA.

Given that the proposed development lies within the potential migratory pathway of European Eel (Classified as Critically Endangered on the IUCN Red List and listed as a priority species on the UK BAP), Sea Lamprey and River Lamprey (Both listed as a Priority Species on the UK BAP) these three species will be scoped into the EIA.

Any occurrence of spawning or utilisation of benthic habitat in the vicinity of the proposed development as a nursery ground by marine fish species is envisaged to be small and of low importance. Furthermore, there are no known species of marine fish resident within the Cromarty Firth that are currently classified as rare, or afforded any legal protection at either International or National level. Marine fish species will therefore be scoped out of the EIA.

Intertidal and Benthic ecology

Based on the baseline data gathered from the desk study, intertidal and benthic ecology will be scoped out of the EIA process.

4.4.7 EIA Assessment Methodology

Marine Mammals

The Chartered Institute of Ecology and Environmental Management (CIEEM) guidelines for Ecological Impact Assessment[20] will be followed in order to evaluate receptors and form an impact assessment to determine the significance of effects. This will include further desktop study to review the existing literature and data sets for marine mammals present in the local area to identify the species' present in the vicinity of the development and their behaviours; and in turn the species of most concern.

Upon receipt of detailed construction proposals, site specific underwater noise modelling will be completed and mitigation requirements will be identified. Underwater noise modelling will be carried out by Irwin Carr, which will involve modelling representative scenarios taking into account environmental variables and animals' hearing capabilities, in order to identify the risk zones for each group of marine mammal species.

The way in which noise affects marine mammals is dependent on several factors, including the type of noise generated, the noise level, the species of marine mammal and the distance between the animal and the source of the noise. The National Oceanic and Atmospheric Administration (NOAA) describes how different groups of marine mammals hear and are affected by sounds, which can be found in the *'Guidance for Assesing the Effects of Anthropogenic Sound on Marine Mammal Hearing'*[21]. The effects can be described as either a Permanent Threshold Shift (PTS), where an animal experiences irreversible damage to their hearing which can in turn affect their ability to forage and reproduce and in extreme circumstances result in death; or a Temporary Threshold Shift (TTS) which an animal can recover from, but may experience 'masking' which reduces its ability to communicate with other animals and locate prey, resulting in fatigue[22]. The outputs of the underwater noise modelling include maps highlighting the PTS/TTS risk zones of each group of marine mammals and will form the marine mammal mitigation zone.

Cumulative interactions will require to be considered and are set out within section 4.10 of this Scoping Report.

It is anticipated that a Marine Mammal Observation Protocol (MMOP) will be required so that the proposed construction works, particularly piling, dredging and disposal, do not cause unnecessary disturbance to marine mammals (cetaceans and seals). This is likely to incorporate the use of suitably qualified MMOs and/or PAM operators, competent in the identification of marine mammals, being present during construction. The MMOs will undertake observation for marine mammals during high sound producing activities (piling and heavy engineering activities), and during dredging and disposal operations. The PAM Operators will set up monitoring stations/transects and listen for the presence of marine mammals within the mitigation zone before and during high sound producing activities. It is likely that a MMOP will be incorporated into a Marine Mammal Protection Plan (MMPP).

It is envisaged that it will be necessary to apply for an EPS licence from the licensing authority, Marine Scotland prior to commencing construction works.

Fish

Atlantic Salmon, Sea Trout and other diadromous species of conservation interest (European Eel, Sea Lamprey and River Lamprey) will be included within the EIA. CIEEM EcIA Guidance will be followed for the evaluation of receptors and the impact assessment to determine the significance of effects, with regard to these species.

[20] CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland available online: https://www.cieem.net/data/files/Guidelines_for_Ecological_Impact_Assessment_in_the_UK_and_Ireland_2018.pdf last accessed 28/01/2019
[21] NOAA guidance available at: http://www.nmfs.noaa.gov/pr/acoustics/guidelines.htm last accessed 29/01/2019
[22] JNCC UK Marine Noise Registry: Information Document available at: http://jncc.defra.gov.uk/pdf/MNR__Draft_InfoDoc_V1_20160808.pdf last accessed 29/01/2019

Available data on fish movements in the Cromarty Firth and local rivers connected to the Firth will be collated. It is considered that no additional fisheries surveys are required to assess direct impacts upon these rivers.

4.5 Ornithology

4.5.1 Introduction

The assessment of ornithology will consider the geographical area potentially affected by the proposed development.

This section discusses potentially significant effects on ornithology.

4.5.2 Baseline Conditions

Designated Sites

The proposed development lies approximately 600m east of the Cromarty Firth SPA which qualifies under Article 4.1 by regularly supporting populations of European importance of the Annex 1 species: Osprey (*Pandion haliaetus*) forage throughout the SPA (2008 to 2012, five year mean of up to 25 territories within feeding range, 12.5% of the GB population, with 1 pair breeding within the site, 1% of the GB population); Common Tern (*Sterna hirundo*) (1989 to 1993 mean of 294 pairs; 2% of the GB population); Whooper Swan (*Cygnus cygnus*) (1992/93 to 1996/97 winter peak mean of 64 individuals, 1% of the GB population) and Bar-tailed Godwit (*Limosa lapponica*) (1,355 wintering individuals, 3% of the GB population).

Cromarty Firth SPA further qualifies under Article 4.2 by regularly supporting a population of European importance of the migratory species: Greylag Goose (*Anser anser*) (1992/93 to 1996/97 winter peak mean of 1,782 individuals; 2% of the Iceland/UK/Ireland biogeographic population).

Cromarty Firth SPA also qualifies under Article 4.2 by regularly supporting in excess of 20,000 individual waterfowl. In the five-year period 1992/93 to 1996/97, a winter peak mean of 30,200 individual waterfowl was recorded, comprising 14,800 wildfowl and 15,400 waders including nationally important populations of the following species: Redshank (*Tringa totanus*) (1,149 individuals, 1% of the GB population); Curlew (*Numenius arquata*) (1,313 individuals, 1% of the GB population); Knot (*Calidris canutus*) (4,312 individuals, 1% of the GB population); Red-breasted Merganser (*Mergus serrator*) (204 individuals, 2% of the GB population); Scaup (*Aythya marila*) (295 individuals, 3% of the GB population); Pintail (*Anas acuta*) (319 individuals, 1% of the GB population); Wigeon (*Anas penelope*) (9,204 individuals, 3% of the GB population); Greylag Goose (1,782 individuals, 2% of the GB population); Bar-tailed Godwit (1,355 individuals) and Whooper Swan (64 individuals). In the five-year period 1991/92 to 1995/96, a winter peak mean of 34,847 individual waterfowl was recorded with the assemblage additionally including nationally important populations greater than 2,000 individuals of: Dunlin (*Calidris alpina alpina*) (3,384 individuals, 0.6% of the GB population) and Oystercatcher (*Haematopus ostralegus*) (2004/5 to 2009/10, 2,702 individuals, 0.8% of the GB population.

Approximately 2km east of the proposed development is the Moray Firth Proposed Special Protection Area (pSPA), with the proposed qualifying species being:

- Breeding and Non-breeding
    - European Shag (*Phalacrocorax aristotelis*)
- Non-breeding
    - Common Eider (*Somateria mollissima*);
    - Common Goldeneye (*Clangula bucephela*);
    - Common Scoter (*Melanitta nigra*);

- Great Northern Diver (*Gavia immer*);
- Greater Scaup;
- Long-tailed Duck (*Clangula hyemalis*);
- Red-breasted Merganser;
- Red-throated Diver (*Gavia stellata*);
- Slavonian Grebe (*Podiceps auritus*); and
- Velvet Scoter (*Melanitta fusca*).

Although the proposed development lies approximately 600m from the SPA boundary, there is the potential for SPA qualifying species to be present, either foraging or roosting.

Baseline Data

Wetland Bird Survey (WeBS) data obtained from the British Trust for Ornithology (BTO) from within the Nigg Ferry count sector (which the proposed development lies within) shows that small numbers of birds are present in the area. These are recorded within Table 4.9 and 4.10 respectively and includes foraging and roosting waders and waterfowl offshore. None of the species recorded comprise significant numbers against the overall populations of the Cromarty Firth SPA:

- Red-breasted Merganser – Peak count of 4 and mean peak of 2 (between 2012 and 2017), comprising 2% and 1% of the SPA population respectively;
- Bar-tailed Godwit – Peak count of 3 and a mean peak of 2 (between 2012 and 2017), comprising 0.2% and 0.1% of the SPA population respectively;
- Curlew – Peak count of 32 and a mean peak of 13 (between 2012 and 2017), comprising 2.4% and 1% of the SPA population respectively;
- Redshank – Peak count of 12 and mean peak of 6 (between 2012 and 2017), comprising 1% and 0.5% of the SPA population respectively; and
- Oystercatcher – Peak count of 122 and a mean peak of 72 (between 2012 and 2017), comprising 4.5% and 2.6% of the SPA population respectively.

Table 4-9: BTO Wetland Bird Survey Data: Five-year peak monthly counts for each species

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Eider	N/C	N/C	N/C	4	N/C	71	35	20	N/C	N/C	N/C	N/C
Long-tailed Duck	N/C	N/C	N/C	50	N/C	16	8	10	N/C	N/C	N/C	N/C
Common Scoter	N/C	N/C	N/C	0	N/C	1	0	0	N/C	N/C	N/C	N/C
Goldeneye	N/C	N/C	N/C	0	N/C	0	2	0	N/C	N/C	N/C	N/C
Red-breasted Merganser	N/C	N/C	N/C	2	N/C	4	2	2	N/C	N/C	N/C	N/C
Red-throated Diver	N/C	N/C	N/C	0	N/C	0	0	1	N/C	N/C	N/C	N/C
Cormorant	N/C	N/C	N/C	3	N/C	0	0	5	N/C	N/C	N/C	N/C
Shag	N/C	N/C	N/C	7	N/C	0	1	0	N/C	N/C	N/C	N/C
Grey Heron	N/C	N/C	N/C	4	N/C	8	2	6	N/C	N/C	N/C	N/C
Oystercatcher	N/C	N/C	N/C	67	N/C	84	122	48	N/C	N/C	N/C	N/C
Bar-tailed Godwit	N/C	N/C	N/C	0	N/C	3	3	3	N/C	N/C	N/C	N/C
Curlew	N/C	N/C	N/C	18	N/C	6	6	32	N/C	N/C	N/C	N/C
Redshank	N/C	N/C	N/C	30	N/C	12	6	7	N/C	N/C	N/C	N/C

Table 4-10: BTO Wetland Bird Survey Data: Five-year winter peak counts, and month in which this was recorded, of each species

Species	2012/2013	2013/2014	2014/2015	2015/2016	2016/2017	Mean Peak
Eider	71 (DEC)	1 (JAN)	35 (JAN)	19 (DEC)	27 (JAN)	31
Long-tailed Duck	2 (JAN)	10 (FEB)	2 (DEC)	16 (DEC)	8 (JAN)	8
Common Scoter	1 (DEC)	0	0	0	0	0
Goldeneye	2 (JAN)	0	0	0	0	0
Red-breasted Merganser	4 (DEC)	0	0	2 (FEB)	2 (JAN)	2
Red-throated Diver	0	0	1 (FEB)	0	0	0
Cormorant	0	0	5 (FEB)	0	0	1
Shag	0	1 (JAN)	0	0	0	0
Grey Heron	1 (FEB)	7 (DEC)	8 (DEC)	1 (DEC)	6 (FEB)	5
Oystercatcher	43 (FEB)	84 (DEC)	122 (JAN)	55 (DEC)	57 (DEC)	72
Bar-tailed Godwit	3 (DEC)	3 (FEB)	1 (DEC)	2 (DEC)	2 (FEB)	2
Curlew	8 (FEB)	12 (FEB)	6 (JAN)	5 (DEC)	32 (FEB)	13
Redshank	7 (FEB)	4 (DEC)	6 (DEC)	2 (DEC)	12 (DEC)	6

The SNH Commissioned Report No.252: Moray Firth Wildfowl and Wader Roosts[23] identified a small wader roost east of the Nigg Ferry terminal, located approximately 1.2km from the proposed development. This roost site is relatively undisturbed and numbers have been stable since 1994. There are four major wader roost sites within Nigg Bay, all of which are at least 4.5km from the proposed development site.

The Environmental Impact Assessment undertaken for the Nigg Energy Park[24] established that there are no breeding Osprey within 5km of the proposed development.

Nigg Oil Terminal used to historically support a population of breeding Common and Arctic Terns. However, this was been abandoned since 2004[5]. Nesting Arctic terns have been using the western side of Nigg Energy Park (outside of the site boundary) between the existing finger quay and the Nigg Oil Terminal. Nesting terns are also present at the quaysides at Invergordon, approximately 8km to the west.

Within the terrestrial habitats on site, the following species were recorded during the Phase 1 Habitat Survey: Wren (*Troglodytes troglodytes*), Great Tit (*Parus major*), Robin (*Erithacus rubecula*), Jackdaw (*Corvus monedula*), Herring Gull (*Larus argentatus*) and Black-headed Gull (*Chroicocephalus ridibundus*).

Wren, Great Tit, Robin and Jackdaw are listed on the BOCC Green List.

Black-headed Gull feature on the BOCC Amber List and Herring Gull on the BOCC Red List.

[23] Bob Swann. North of Scotland Ornithological Services (2007). Moray Firth Wildfowl & Wader Roosts. Scottish Natural Heritage Commissioned Report No.252 (ROAME No. F098LG02)
[24] Eco-Fish Consultants (2013). Ecological Impact Assessment (Marine), South Quayside Development, Nigg Energy Park, Nigg.

4.5.3 Potentially Significant Effects during Construction

There are two potential effects to birds during the construction phase of the proposed development – disturbance and displacement.

- Disturbance may be caused by startling noise or visual stimuli (including lighting) to the birds in the area from construction vehicles, construction personnel, or from construction activity.
- Displacement may be caused when construction (including dredging and disposal) activity leads birds to abandon their preferred areas of foraging or roosting in order to settle in a suboptimal location.

Both effects could occur during piling, dredging (and disposal) or general construction works for species present in the area, including duck, grebes and waterfowl offshore.

From the data obtained, the proposed development is considered unlikely to cause significant effects on any individual bird species, and it is unlikely to significantly impact the qualifying species of the nearby SPA and pSPA. Therefore, the integrity of these designations will remain intact. There is a long history of construction activities within Nigg Bay, with no evidence of either bird fatalities or disturbance to/displacement of local bird populations.

The proposed development site has the potential to support small numbers of breeding birds, within the limited scrub habitat and derelict buildings. However, the species likely to be present will be birds that are common and widespread in the area and the loss of these habitats is unlikely to have a significant effect on the local populations of these species.

4.5.4 Potentially Significant Effects post-Completion

Post-completion, there may be minor disturbance and displacement incidents during periods of high activity within the quay which may affect roosting or foraging birds, or birds offshore.

As with previous applications, it has been noted that the proposed development could coincide with flight paths that are regularly used by birds moving between foraging and roosting sites. However, structures and vessels present within the quay post-construction will be similar to other structures and vessels already present on site and will not provide a barrier to movement. In addition, the use of directional lighting will prevent disorientation of commuting birds through lighting glare.

There is a long history of operation/fabrication activities within Nigg Bay, with no evidence of either bird fatalities or disturbance to/displacement of local bird populations.

No significant effects are considered likely.

4.5.5 Design and Mitigation

Applying appropriate mitigation such as timing of works (vegetation clearance and building demolition) out with the nesting season will be sufficient to avoid any impact on breeding birds. Bird dissuasion methods (including regular inspections by an Ecological Clerk of Works (ECoW) and artificial deterrents) to discourage ground nesting birds on site during construction and operation phases can be incorporated into any Environmental Management Plans. Dissuasion methods will be further discussed for nesting terns and will include discouraging terns nesting on site.

4.5.6 Inclusion or Exclusion from EIA

Given the baseline conditions detailed in 4.5.2 and by applying the mitigation measures detailed in 4.5.5 it is not considered likely that there would be any significant effects on the bird populations as a result of the proposed development. Therefore, it is considered that ornithology does not require to be assessed further in the EIA.

As part of the Habitat Regulations Appraisal (HRA), the Cromarty Firth SPA and Moray Firth pSPA (and its qualifying species) will be assessed to ensure that none of the designations or their qualifying species would be negatively impacted by the proposed development.

4.5.7 Assessment Methodology

Although no significant effects upon ornithology are predicted, and an HRA will be carried out to understand potential impacts upon the integrity of the relevant designations within the area, a desk-top assessment will be undertaken. This will incorporate WeBS data, consultation with relevant stakeholders (SNH and Highland Raptor Study Group) and provide sufficient information to inform the HRA process. This will take the format of a technical appendix to the Other Issues chapter and be summarised within that chapter.

4.6 Cultural Heritage and Archaeology

4.6.1 Introduction

This section of the EIA Scoping Report summarises the baseline archaeological and cultural heritage conditions at the site and considers the likely significant potential effects from the proposed development on heritage assets.

4.6.2 Baseline Conditions

There are two known heritage assets within the Site (Table 4.11, and Figure 6 within Appendix B). These comprise the remains of Dunskeath House and the site of a WW2 Depot. Both are non-designated and considered to be of Low importance. Canmore Maritime records note three wrecks in the general area of the Cromarty Firth, but none of them appear to be within the Site boundary.

Table 4.11: Heritage Assets within the Site Boundary

Asset	Description	NGR
MHG21540	Dunskeath House, Nigg Ferry	NH 79515 68909
MHG52973	Concrete Hut Bases, Submarine Mine Depot, Nigg	NH 79594 68899

Dunskeath House (MHG21540) is recorded on the Highland Council Historic Environment Record (HER) as a former country house that burnt down in the 1960s and has since been demolished – the servants' quarters survive as a range of upstanding buildings, along with some garden buildings and walls.

The WW2 Depot (MHG52973) comprises the concrete bases of at least three huts relating to the Submarine Mine Depot built as part of the Cromarty Firth's wartime defences.

Within 2km of the Site boundary there is one Scheduled Monument (SM), one Inventory Garden and Designed Landscape (IGDL), two Listed Buildings (LB) and one Conservation Area (CA) and approximately 160 non-designated heritage assets recorded on Pastmap and the Canmore database.

Dunskeath Castle (SM3319) is the site of a 12th century castle on a promontory overlooking the Firth 1km east of the Site. The two Listed Buildings are 1.3 km north-east and consist of one Category B (LB14049; the early nineteenth century Pitcalzean House) and one Category C (LB14050; the Coach House at Pitcalzean House). The IGDL comprising the grounds of Cromarty House (GDL00120) is located 1.4 km away on the south bank of the Firth and there are five LBs within the IGDL – including two Category A listed buildings. The CA encompasses the historic fishing village of Cromarty, 1 km south-west of the Site, and includes 185 LBs.

4.6.3 Potentially Significant Effects during Construction

Groundworks comprising onshore excavation and offshore dredging and land reclamation required for the proposed development have the potential to impact directly upon known heritage assets present within the Site. Impacts will potentially be of high magnitude as they could result in the complete destruction and removal of archaeological remains. Both heritage assets within the Site boundary are potentially subject to direct impacts.

In addition to possible impacts upon known heritage assets, possible impacts upon hitherto unknown buried archaeological remains should also be considered. The level of effect will be dependent upon the finalised design and construction methods associated with the proposed development. However, due to previous development and ground-levelling the Site is considered to be of low archaeological potential – meaning that it is possible, but unlikely, that undiscovered archaeological deposits survive.

4.6.4 Potentially Significant Effects post-Completion

The proposed development has the potential to affect the settings of designated heritage assets including Scheduled Monuments, Listed Buildings, a Conservation Area and an Inventory Garden and Designed Landscape.

Designated heritage assets up to 2 km distant from the Site have been identified. However, given the local topography and the character of the heritage assets, it is unlikely that significant setting effects will occur.

4.6.5 Design and Mitigation

Where potential adverse effects are identified in the Desk Based Assessment (DBA), further works may be required. The Highland Council Historic Environment Team (HC:HET) and Historic Environment Scotland (HES) would be consulted in order to establish appropriate design responses or mitigation measures required to avoid, minimise or offset significant effects.

4.6.6 Inclusion or Exclusion from EIA

As the Site is considered to be of low archaeological potential, and no significant effects are anticipated upon any designated heritage assets it is considered that cultural heritage and archaeology can be scoped out of the EIA Report.

A desk-based assessment (DBA) of archaeology and cultural heritage, informed by a site walkover and setting visits, will be undertaken and provided as a Technical Appendix to the EIAR and summarised within the Other Issues chapter.

The DBA will consider the potential for direct effects upon heritage assets within the Site. The methodology to be employed in identifying direct effects is outlined below in section 4.5.7.

4.6.7 Assessment Methodology

The DBA will aim to identify all known heritage assets potentially affected by the proposed development, and to estimate the potential for currently unknown heritage assets. The DBA will be based on a study of all readily available documentary sources, following the CIfA Standards and Guidance (CIfA 2014), and will also be informed by a walkover survey of the Site and setting visits to particular heritage assets in the wider Study Area.

The DBA will aim to identify any impacts which will affect the cultural significance of an asset, particularly where special/key characteristics will be affected. The DBA will also identify any areas of uncertainty, where potential effects cannot be predicted, including effects on currently unknown assets. Where areas of uncertainty are identified, the DBA will propose further works that may help to resolve this uncertainty.

A heritage asset is defined as any element of the historic environment which has cultural significance. Both discrete features, and extensive landscapes defined by a specific historic event, process or theme, can be defined as heritage assets; and assets may overlap or be nested within one another. Some heritage assets are designated as Scheduled Monuments, Listed Buildings, World Heritage Sites, Conservation Areas, Inventory Gardens and Designed Landscapes, Inventory Historic Battlefields, Historic Marine Protected Areas, or locally designated through policies in the Local Plan. Undesignated assets may be recorded in the NRHE or Historic Environment Records, while many other assets are currently unrecorded.

Heritage assets are assessed in terms of their cultural significance and importance. Cultural significance is a quality that applies to all heritage assets and is defined in 'Historic Environment Scotland Policy Statement 2016'. The importance of a heritage asset is the overall value assigned to it based on its cultural significance, reflecting its statutory designation or, in the case of undesignated assets, the professional judgement of the assessor.

Archaeological features are often impossible to identify through desk-based assessment. The likelihood that significant undiscovered heritage assets may be present within the Site is referred to as archaeological potential. Overall levels of potential will be assigned to different landscape zones, following criteria to be determined in the DBA, while recognising that the archaeological potential of any zone will relate to particular historical periods and types of evidence. The following factors are to be considered in assessing archaeological potential:

- The distribution and character of known archaeological remains in the vicinity, based principally on an appraisal of data in the HER;
- The history of archaeological fieldwork and research in the surrounding area, which may give an indication of the reliability and completeness of existing records;
- Environmental factors such as geology, topography and soil quality, which would have influenced land-use in the past and can therefore be used to predict the distribution of archaeological remains;
- Land-use factors affecting the survival of archaeological remains, such as ploughing or commercial forestry planting; and

- Factors affecting the visibility of archaeological remains, which may relate to both environment and land-use, such as soils and geology (which may be more or less conducive to formation of cropmarks), arable cultivation (which has potential to show cropmarks and create surface artefact scatters), vegetation, which can conceal upstanding features, and superficial deposits such as peat and alluvium which can mask archaeological features.

4.7 Airborne Noise

4.7.1 Introduction

The noise assessment will consider the potential for noise generated by the proposed development to impact upon existing residential receptors during the construction and operational phases. The significance of any noise impact will also be predicted. The effects of construction noise on marine life shall be considered as part of the ecological scope of works as discussed in Section 4.4.

4.7.2 Baseline Conditions

A number of existing residential properties are located in the surrounding areas, within the hamlets of Balnabruaich and Balnapaling to the East, and the town of Cromarty situated approximately 1.5km to the south. The closest existing residential properties within Balnabruaich are located circa 25m to the west of the site boundary. The hamlet of Balnapaling is located to the east of the proposed laydown area, in which the Nigg Ferry Hotel is the closest property, approximately 100m from the site boundary.

The current baseline noise environment in the area surrounding the proposed development contains components of noise generated by existing operations within Nigg Energy Park site boundary. This is most significant at existing noise sensitive receptors located closest to the existing operations in Balnabruaich and Balnapaling. Current existing noise generating operations at Nigg Energy Park include the following;

- Ship berthing, pilotage and mooring of client assets;
- Movement of materials between ships and laydown areas;
- Fabrication of subsea and offshore equipment;
- Construction and decommissioning of offshore and subsea infrastructure;
- Architectural repair and refurbishment of offshore rigs; and
- Shot blasting and painting of infrastructure.

Existing operations at Nigg Energy Park are carried out over a 24 hour period, therefore certain of the above noise generating activities are carried out at sensitive times when background noise is typically low.

Current noise generating activities in the surrounding area outside of the site boundary include;

- Industrial activities within RepsolSinopec's premises to the north of Nigg Energy Park;
- Road traffic on local road network;
- Marine vessels passing in the Cromarty Firth;
- The Cromarty Ferry arriving/departing from the slipways in Nigg and Cromarty between the months of May and September;
- Industrial / commercial activities within Cromarty.

Previously Reported (2013) Baseline

As part of the planning application for South Quay in 2013, a construction noise assessment was carried out by New Acoustics (dated 9th April 2013). As part of the assessment the existing day and night-time baseline noise (including operational activities) were measured. It was noted by Environmental Health at Highland Council at the time that the measured existing baseline noise levels were high at some of the closest existing receptors. It was also noted that complaints had been received from Cromarty residents regarding night-time operations at Nigg Energy Park. No operational noise assessment was carried out as part of the application.

As part of the planning application in 2017 for site extension and refurbishment works at Nigg Energy Park, a construction noise assessment was carried out by Atmos Consulting (dated 9th October 2017). The assessment used the baseline noise measurements carried out by New Acoustics in 2013. No operational noise assessment was carried out as it was argued that the proposed development would enable continuation of existing site processes through upgrading with no new noise sources added which would change the character or nature of noise experienced by receivers.

The baseline environment is anticipated to have changed since that measured by New Acoustics in 2013, as a result of the proposed extension to the south quayside and further extension and refurbishment works. That previous baseline noise levels were noted to be high at some of the closest residential receptors, it is anticipated that this may still be the case in 2019.

4.7.3 Potentially Significant Effects during Construction

The noise from certain construction activities has the potential to impact upon existing noise sensitive receptors. Construction details have not been finalised at this stage. The degree of impact during each phasing stage will depend upon:

- The nature of construction activities being carried out; this includes the type and size of machinery/plant involved, combinations of activities occurring simultaneously and HGV routes in and around the site;
- Location of construction activities relative to the closest noise sensitive receptors;
- Duration of proposed activities;
- Construction site operating times; and
- Extent of noise mitigation measures in place.

Noise generating activities during the construction phase are understood to include;

- Dredging of area around proposed quay;
- Piling of structure for quay wall;
- Delivery and tipping of materials; and
- HGV and plant movements in and around the site.

These elements have the potential to impact upon noise sensitive receptors within Balnabruaich and Balnapaling to the east, and Cromarty to the south if unmitigated.

4.7.4 Potentially Significant Effects post-Completion

During the operational phase, new proposed noise generating activities have the potential to increase the day and night-time existing baseline (including current operational activities) noise levels at surrounding noise sensitive receptors. The proposed East Quay development will also bring noise generating sources into closer proximity to residential receptors in Balnapaling than current operations, therefore there is the potential for a significant adverse effect at this location. A potential increase in noise levels at receptors in Balnabruaich and Cromarty is also possible.

Noise generating activities which shall be carried out during the operational phase include;

- Ship berthing and mooring;
- Ship loading / unloading activities; including operation of cranes;
- Movement of materials between ships and laydown area;
- Plant and HGV movements within quay and laydown area;
- Loading / unloading of HGVs; and
- Maintenance activities.

4.7.5 Design and Mitigation

There is the potential for adverse impacts from noise generating activities during both the construction and operational phases at surrounding residential receptors, therefore noise mitigation shall be employed to address this.

Details of phasing along with associated construction activities have not been finalised at this stage, and in accordance with standard industry practice, the specifications, locations and durations of potentially noise plant and equipment will be determined upon the appointment of a contractor post-consent. When this information is known a construction noise assessment shall be carried out as part of the EIA, the results of which will be used to inform a construction noise management plan.

Similarly, the post-completion operational noise impact assessment shall identify potential adverse impacts, which shall be used to inform mitigation measures to be employed at the site. There are current operational noise management/mitigation measures carried out at Nigg Energy Park, which if required, can be updated to address any additional impact as a result of the proposed development.

4.7.6 Inclusion or Exclusion from EIA

Both construction and operational noise assessments shall be carried out as part of the EIA.

4.7.7 EIA Assessment Methodology

Baseline Noise Monitoring

It is proposed to carry out existing baseline noise monitoring, the results of which shall be used alongside calculated predicted levels in the assessment of construction and operational activities. Noise sensitive receptors to be used within the assessments shall be located at the residential properties located closest to the proposed noise monitoring locations.

The existing baseline noise monitoring shall comprise of the following stages:

- Measurement of existing baseline environment (including current operations at Nigg Energy Park) at a sample of 5 areas representative of the most exposed noise sensitive receptors surrounding the site; the location of the proposed monitoring locations are shown in Figure 7 within Appendix A;
- The monitoring shall be carried out during week days at each position for a duration of 1 hour during the daytime, and 0.5 hours during the night-time;
- The monitoring shall be repeated at each position (i.e two rounds of monitoring will be carried out).

Construction Noise

Noise from construction activities shall be predicted at the most exposed residential receptors following guidance provided in *BS5228-1:2009; Code of Practice for Noise and Vibration Control on Construction and Open Sites*. Baseline noise surveys pre-construction shall be carried out to determine the existing noise climate.

Predicted increases in levels above baseline shall be assessed in order to determine the significance of effects. As discussed in section 4.7.5, the results of the assessment can be used to inform a construction noise management plan, to help mitigate any effects at the most exposed sensitive receptors.

The construction noise assessment sites shall comprise of the following stages;

- Review of construction activities, locations and noise data;
- Calculation and assessment of construction noise at the most exposed sensitive receptors, following the ABC Method provided in BS5228-1:2009; Code of Practice for Noise and Vibration on Construction and Open Sites. A combination of calculation and 3D computer noise modelling using CadnaA software shall be used in the calculation of construction noise at sensitive receptors;
- Only significant noise generating construction stages shall be considered within the above assessment; and
- If required, recommend mitigation measures to reduce construction noise impact at existing residential receptors and to inform construction noise management plan.

Operational Noise

Operational noise shall be predicted and assessed at the most exposed residential receptors following guidance provided in the Scottish Government Publication *TAN 2011: Technical Advice Note: Assessment of Noise*, and *BS4142:2014 Methods for Rating and Assessing Industrial and Commercial Sound*. Baseline noise surveys pre-construction shall be carried out to determine the existing noise climate. Predicted increases in levels above baseline shall be assessed in order to determine the significance of effects. As discussed in Section 4.6.5, the results of the assessment can be used to inform operational noise mitigation measures to be employed at the site.

The operational noise assessment shall comprise of the following stages;

- Review of proposed operational activities, locations and noise data;
- Prediction of operational noise from proposed East Quay Development using CadnaA 3D noise modelling software at location of most exposed sensitive receptors;
- Carry out PAN 1/2011 (using principles defined in BS4142:2014) assessment of change in operational noise levels, comparing existing operations (before) to existing and proposed operations (after). The noise criteria to be applied is summarised in Table 4.12, where moderate effects or above would be classed as significant;
- If required, make recommendations on mitigation measures required to reduce noise impact at existing residential receptors and to inform operational noise management plan.

Table 4.12: Significance of Effects

Magnitude of Impact (After – Before) L_{AeqT} dB	**Sensitivity of Receptor Based on Likelihood of Complaint X = (Rating ($L_{Ar,Tr}$) – Background ($L_{A90,T}$)) dB**		
	Low (x < 5)	**Medium (5 ≤ x < 10)**	**High (x ≥ 10)**
Major (≥ 5)	Slight / Moderate	Moderate / Large	Large / Very Large
Moderate (3 to 4.9)	Slight	Moderate	Moderate / Large
Minor (1 to 2.9)	Neutral	Slight	Slight / Moderate
Negligible (0.1 to 0.9)	Neutral / Slight	Neutral / Slight	Slight

Magnitude of Impact (After – Before) L_{AeqT} dB	Sensitivity of Receptor Based on Likelihood of Complaint X = (Rating ($L_{Ar,Tr}$) – Background ($L_{A90,T}$)) dB		
	Low (x < 5)	Medium (5 ≤ x < 10)	High (x ≥ 10)
No Change (0)	Neutral	Neutral	Neutral

4.8 Water Environment and Coastal Processes

4.8.1 Introduction

The water environment is considered to encompass hydrology, hydrogeology and water quality, whilst coastal processes are considered to encompass tides, waves and sediment transport processes. This section of the Scoping Reportwill therefore address all of these subject areas, in addition to geology. The associated interactions between the water environment, ecology and fisheries will be considered within the ecology section of this document.

The Water Framework Directive (WFD) (Council Directive 2000/60/EC) aims to protect and enhance water bodies within Europe and covers all estuarine and coastal waters out to 1 nautical mile. This requires that there is no deterioration in the quality of surface or groundwater bodies and aims to achieve good ecological status or potential. The implications of the WFD must be considered when assessing this project and the details of how compliance will be achieved provided in the EIA.

The development proposals for construction of a new quay, and associated dredging, have the potential to cause changes to the baseline hydro(geo)logical conditions and the ongoing coastal processes at the site, and in the wider area. Given the importance of water as a valued resource, coastal processes to the surrounding environment, and of ensuring sustainable development, an initial assessment of the water environment and coastal processes is considered essential.

4.8.2 Baseline Conditions

The proposed development site is situated at Nigg Energy Park, located on the northern shore at the mouth of the Cromarty Firth. The Cromarty Firth extends over 28km in length, and around 12km in width at its widest point. At the mouth, near the development site, the firth is around 1.5km in width. In total the firth covers an area in excess of 78km^2.

Geology

The site is underlain by sandstone of the Raddery Formation, formed in a fluvial or estuary setting during the Devonian Period (383 – 393 million years ago). Coastal outcrops of the Devonian Period Cromarty Fish Bed Limestone are present to the west of the site. Further west metamorphic rocks (psammite and pelite) from the Moine Supergroup are present, these rocks were formed during the Neoproterozoic Era (541 – 1,000 million years ago).

Coastal superficial deposits in the vicinity of the site take the form of marine beach deposits, gravel, sand and silt formed up to 3 million years ago during the Quaternary Period. Immediately inland wind-blown sand deposits are present, also of the Quaternary Period, with glacial till present further inland[25].

Coastal Processes

The Cromarty Firth is a glacial valley formed during the last Ice Age and subsequently flooded as a result of post-glacial sea level rise. Significant sediment deposits are present within the firth as a result of post-glacial erosion and sedimentation processes, with present day sediment processes within the firth largely relating to the re-working of this material.

Review of historical mapping[26], as well as the Dynamic Coast National Coastal Change Assessment map[27] and associated reports[28], highlights the local changes to the coastline at the development site as a result of land reclamation and hard engineering during previous phases of development. It is also highlights that the coastline to the east of the development site, and on the opposite shore of the firth to the south, has remained relatively stable throughout the mapped record.

Tidal currents are low in the Inner Moray Firth, but increase in the constricted mouth of Cromarty Firth, adjacent to Nigg. A gyre exists across Nigg Bay, acting to circulate currents locally. Further west as the Cromarty Firth widens the tidal currents are generally low.

Within the Cromarty Firth the wave climate is heavily influenced by locally wind-generated waves, with south-westerly wind predominant. Some limited North Sea swell penetration into the Cromarty Firth from the Inner Moray Firth also occurs.

Previous assessments of sediment transport in the vicinity of the proposed development site indicate that sediment can move from sandbanks in the Inner Moray Firth to the Cromarty Firth episodically as a result of storm wave driven bedload transport. This material then subsequently becomes re-worked by wave action towards the shoreline, with resultant long-shore transport westwards. Average deposition rates within dredged areas in the vicinity of the development site are around 100mm/year[29].

Tidal Water Levels

The nearest standard port to the development site is Invergordon, situated around 8km further west within the Cromarty Firth. Tidal levels at Invergordon as presented within the Admiralty Tide Tables[30] are shown in Table . The mean tidal range at Invergordon is 3.6m during spring tides, and 1.7m during neap tides.

Table 4.13: Tidal Range at Invergordon

Tide Condition	Chart Datum (mCD)	Ordnance Datum (mOD)*
Highest Astronomical Tide (HAT)	5.0	2.9
Mean High Water Spring (MHWS)	4.3	2.2
Mean High Water Neap (MHWN)	3.3	1.2
Mean Low Water Neap (MLWN)	1.6	-0.5

[25] BGS Geology of Britain Viewer (http://mapapps.bgs.ac.uk/geologyofbritain/home.html)
[26] National Library of Scotland (https://maps.nls.uk/)
[27] The Scottish Government (2017). Dynamic Coast: Scotland's National Coastal Change Assessment. Retrieved from http://www.dynamiccoast.com/webmap.html
[28] Hansom, J.D., Rennie, A.F. & Fitton, J. M. (2017). Dynamic Coast - National Coastal Change Assessment: Cell 3 -
Cairnbulg Point to Duncansby Head. CREW.
[29] Royal Haskoning DHV (2013). Nigg Energy Park: Sedimentation and Wave Modelling. Global Energy Nigg Ltd.
[30] UKHO (2019). Admiralty Tide Tables Volume 1B: United Kingdom and Ireland (Excluding Isles of Scilly, English Channel to River Humber, Channel Islands and European Channel Ports) (Vol. 1).

Tide Condition	Chart Datum (mCD)	Ordnance Datum (mOD)*
Mean Low Water Spring (MLWS)	0.7	-1.4
Lowest Astronomical Tide (LAT)	0.0	-2.1

* Height of Chart Datum (m) relative to Ordnance Datum is -2.1mOD Newlyn

Extreme sea levels have been predicted around the whole UK coastline and published by the Environmental Agency/Department for Environmental Food and Rural Affairs report[31]. These extreme levels include the effects of both tides and storm surge but not the effect of amplification within estuaries or sea lochs. In order to provide better estimates around the Scottish coastline, SEPA have updated the original estimates[32]. The SEPA derived extreme sea levels, predicted at a point adjacent to Nigg, are 3.37m Above Ordnance Datum (AOD) for the 1 in 200 year return period event and 3.53mAOD for the 1 in 1,000 year return period event.

Hydrology

The three main watercourses discharging to the Outer Cromarty Firth are the Balnagown River, Pollo Burn, and Fearn Canal. The Balnagown River and Fearn Canal are larger watercourses with catchment areas in excess of 50km^2. All three are classified waterbodies under the Water Framework Directive (WFD) monitoring programme[33].

The River Conon represents the largest watercourse discharging to the wider Cromarty Firth, joining the firth near Dingwall at the western extremity, with a contributing catchment in excess of 1,000km^2.

Overall, the inflow of freshwater remains insignificant relative to the much larger volume of seawater exchanged within the Cromarty Firth embayment.

Water Quality

The waters of the Outer Cromarty Firth are classified under the WFD monitoring programme as a transitional waterbody. The waterbody is classified as being of overall 'Good' status in 2017, with a physico-chem status of 'High' and a hydromorphology status of 'Good'.

No designated EU bathing waters are present in proximity to the proposed development site or within the wider Cromarty Firth[34].

Flood Risk

The proposed development is situated within the 1 in 200 year return period coastal flood extent as shown on the SEPA flood map. As detailed above, the 1 in 200 year coastal flood level is 3.37mAOD.

4.8.3 Potentially Significant Effects during Construction

The proposed development will involve construction activities in and near the water environment, including construction of new quay wall, associated fendering and rock armouring, seabed dredging and disposal of dredged material. The key potential environmental impacts on the water environment and coastal processes during construction and operation have been identified and are outlined below:

[31] McMillan, A., Batstone, C., Worth, D., Tawn, J., Horsburgh, K. & Lawless, M. (2011). Coastal flood boundary conditions for UK mainland and islands; Project: SC060064/TR2: Design sea levels. Bristol: Environment Agency.
[32] SEPA (2014). Scottish Coastal Flood Boundary (CFB) Dataset.
[33] SEPA Water Classification Hub (https://www.sepa.org.uk/data-visualisation/water-classification-hub/)
[34] Scotland's Environment Map Viewer (https://map.environment.gov.scot/sewebmap/?layers=bathingWaterAreas)

- Potential changes in the local coastal processes, including tidal currents, wave climate and sediment transport;
- Potential changes in local drainage;
- Potential contamination of coastal water and sediments through spillages and/or sediment transfer (oil, fuels and suspended solids); and
- Potential interactions between water environment and coastal process impacts and associated ecology and environmental designations.

4.8.4 Potentially Significant Effects post-Completion

Potentially significant effects arising from the post-completion phase (i.e. once the development has been built) are likely to arise from the same potential impacts as highlighted above within section 4.7.3.

4.8.5 Design and Mitigation

Where any significant effects on the water environment or coastal processes are identified as part of the EIA process, recommendations for design alteration or mitigation which could avoid, reduce or remedy the adverse effects will be identified.

The proposed design has been developed in order to mitigate adverse effects. Development design levels and materials will be selected in order to mitigate flood risk as further outlined in section 4.7.6 below. Additionally materials and design of seaward facing components will be designed in order to mitigate any impacts on local wave climate. Dredged material will be re-used within the quay construction where suitable in order to reduce disposal requirement.

4.8.6 Inclusion or Exclusion from EIA

The nature of the proposed works, including new quay wall construction and capital dredge requirement, raises the potential for impacts on the local water environment and coastal processes, including tidal current, wave action, and associated sediment transport processes.

The proposed development represents a redevelopment and extension of the existing Nigg Energy Park, and is both similar in character, and in close proximity to, the recent South Quay extension and West Finger Jetty. As such, recent technical assessments of likely impact to coastal processes as a result of the South Quay extension are relevant to the future assessment of impact of the proposed development. It is proposed to scope in the qualitative assessment of impact to coastal processes including sediment transport, informed in part by the existing findings of technical assessments and modelling undertaken for the South Quay extension.

Assessment of the potential for particulate and chemical contamination of the water environment will be central to the EIA. The prevention of pollution during construction and operational phases will be a specific focus, and recommendations will be made for the adoption of good working practices, including suitable drainage measures in line with appropriate guidance. Details of existing and proposed drainage measures will be included within the EIA.

Review of site investigation within the proposed works area, particularly the dredge pocket, will determine the nature of the substrate, the likely implications for the project, and licencing requirements.

The EIA will consider the potential impacts of proposed dredging activities, and any related dredged material disposal and re-use proposals. The assessment of dredging and disposal impact will be informed by a Best Practicable Environmental Option (BPEO) assessment, as well as the existing findings of the previous technical assessment of dredging and disposal for the recent South Quay extension.

The EIA will include an assessment of impact to WFD status of the associated waterbodies, particularly the Outer Cromarty Firth.

Whilst the development is situated within the 1 in 200 year coastal flood extent as shown by the SEPA flood map, as noted in the SEPA pre-application response the development represents a water compatible use, and requires to be located within this flood zone for operational reasons.

As noted above and within the SEPA pre-application response, the estimated 1 in 200 year coastal flood level in the vicinity of the proposed development is 3.37mAOD. Finished development platform levels will therefore be as a minimum 3.97mAOD, allowing for a suitable 600mm freeboard to account for modelling uncertainties. Whilst the development will require some land reclamation as part of the quay construction, this volume is insignificant in terms of the much larger volume of the Cromarty and Moray Firth. It is therefore considered that the development will have negligible impact on coastal flood levels. In light of the above it is proposed to scope out further assessment of flood risk within the EIA.

4.8.7 EIA Assessment Methodology

The assessment will follow standard EIA procedures and will include:

- Desk based review of the design of the proposed development in relation to the local water environment and coastal processes;
- Consultation with key stakeholders to obtain relevant information to ensure their concerns are addressed within the study;
- Establishing the existing baseline conditions:
    - Review topography and ground conditions at the site and environs;
    - Review of hydrology, catchment characteristics, local drainage and water quality conditions;
    - Review of coastal processes including bathymetry, tidal levels, river and tidal flow currents, wave action, bed sediment type and distribution, sediment transport and deposition, geology;
    - Reporting of baseline conditions to provide a basis for assessment of the potential impact.
- Impact Assessment:
    - Identification of sensitive receptors and environmental constraints;
    - Identification of potential impacts;
    - Assessment of impact significance;
    - Identification and assessment of mitigation measures to reduce or avoid any potential impacts of the proposed development; and
    - Statement of residual impacts.

Potential impacts arising from the development will be predicted and evaluated by comparison with environmental quality standards, sediment quality standards, and water and sediment quality objectives. The observed baseline data will initially be used along with expert opinion to qualitatively assess the potential impacts and the significance to receptors.

4.9 Traffic and Transport

4.9.1 Introduction

This assessment will identify the preferred route(s) for access to the site and will consider the potential effects of traffic generated during the construction and operational stage of the proposed development.

The assessment will include identification of possible measures to mitigate any disruption to the local road network and receptors along the route(s). This scoping study and the access, traffic and transport assessment will be undertaken by SYSTRA Ltd.

The Access, Traffic and Transport EIA Chapter will be prepared taking cognisance of the relevant policy guidance, as follows:

- Scottish Planning Policy (2014);
- Institution of Highways and Transportation (IHT) (1994) "Guidelines for Traffic Impact Assessment";
- Institute of Environmental Assessment (IEA) now the Institute of Environmental Management and Assessment (IEMA) (1993) "Guidelines for the Environmental Assessment of Road Traffic";
- Transport Scotland (2012) "Transport Assessment Guidance";
- The Highland-wide Local Development Plan (HwLDP) (2012);
- Planning Advice Note 75: Planning for Transport (2005) Scottish Government; and
- Design Manual for Roads & Bridges (DMRB);

This scoping study has been informed by a site visit undertaken on 15th January 2019 and supported by a comprehensive desktop study.

4.9.2 Baseline Conditions

Site Access

Access to the current Nigg Energy Park facility is gained from the B9175, which travels in a north-west direction between Nigg Ferry Port and the A9 trunk road. During construction, the proposed East Quay development will be accessed from an existing priority controlled junction along the B9175 approximately 450m north–west of the Nigg Ferry Port (as the crow flies).

B9175

The B9175 is a single carriageway road generally of a good standard throughout and rural in nature. The B9175 has a derestricted speed limit (60mph) except for a small section of the road through the villages of Nigg Station and Arabella, whereby the speed limit is reduced to 40mph. There is street lighting within the villages and there are intermittent sections of footway along the length of the B9175.

A9 Trunk Road

The A9 connects to the B9175 via a four arm roundabout. The A9 in the vicinity of the B9175 is a good standard single carriageway with a derestricted speed limit (60mph). The A9 provides a link south to Inverness, the nearest city to the proposed development, and continues north from the roundabout with the B9175 to Thurso and Scrabster.

Study Area

The study area for the access, traffic and transport assessment will effectively be the public road network in the vicinity of the proposed East Quay and the route to the site from the wider strategic road network (the A9), i.e. the B9175.

4.9.3 Potentially Significant Effects

The IEMA guidelines set out a list of environmental effects which should be assessed for significance in relation to the transport resource (the identified thresholds are exceeded, i.e. 'Rule 1' or 'Rule 2' described below), as follows:

- Noise and vibrations;
- Air pollution;
- Severance;
- Driver delay;
- Pedestrian delay and amenity;
- Accidents and safety;
- Dust and dirt; and
- Hazardous loads.

The EIA would explore whether effects on these are likely to be significant based upon two tests contained within IEMA Guidelines. The guidelines suggest that, in order to determine the scale and extent of the assessment and the level of impact that the development will have on the surrounding road network, the following two 'rules' should be applied:

- Include highway links where flows are predicted to increase by more than 30% or where the number of HGVs is predicted to increase by more than 30%; and
- Include any other specifically sensitive areas where traffic flows are predicted to increase by 10% or more.

Whilst construction and operation of the proposed development will see an increase in current baseline traffic along the A9 and B9175, it is worth noting that the expected increase in traffic volumes associated with the proposals is considered to be minor in relation to historic operations at the existing Nigg facility. It is understood that when the Nigg facility formerly operated as an oil platform construction and fabrication yard (opened in 1972 and put up for sale in 2006), there were in the region of 3,000 – 5,000 staff employed at the facility, and therefore significantly more vehicle movements on the local road network than experienced at present and proposed through the East Quay development proposal.

4.9.4 Inclusion or Exclusion from EIA

Details of the expected traffic generation during the construction and operational phases has not been finalised at this stage. When this information is known, traffic generated as a result of the proposed development shall be assessed as part of the EIA. In order to demonstrate whether projected traffic exceeds the IEMA tests highlighted within section 4.9.5 below, traffic surveys would be deployed to understand baseline flows. It is unlikely that significant effects would be found however the assessment would be undertaken to demonstrate this. Therefore, traffic and transport would be scoped in as an EIA chapter, however it is expected that a full Transport Assessment is not required to support the proposed development, particularly given the significant traffic volumes experienced on the B9175 during historic operation of the fabrication yard.

4.9.5 EIA Assessment Methodology

Method of Baseline Data Collection

In order to establish the baseline traffic flows, new traffic surveys will be undertaken to supplement existing data and accident records will be sought for route within the study area. A review of the road capacities within the study area will also be undertaken by reference to the DMRB.

SYSTRA proposes to commission two automatic traffic counts (ATCs) along the B9175 and make use of publically available annual average daily traffic (AADT) flows from the Department for Transport (DfT) traffic counts and / or Transport Scotland traffic counters (along the trunk road network). The ATCs will record the traffic volumes, classifications and speeds during a neutral week for the road link(s) within the identified study area. The proposed locations for the ATC surveys are indicated by Figure 8 within Appendix A.

Evaluation Criteria

In accordance with the IEMA Guidelines, the method used for assessing environmental effects of increased traffic will be based on a comparison between predicted traffic flows on potentially affected roads (i.e. the study area) with and without development traffic, in percentage terms.

Criteria are applied to the percentage increases to establish whether significant environmental effects are likely. These criteria take into account the sensitivity of the receptors likely to be affected and the magnitude of the change which can be influenced by the composition of the traffic.

The significance of the effect of receptors will therefore be evaluated against the IEMA Guidelines. These criteria are subjective but take into account the numbers of receptors affected, their sensitivity, the length of the period for which they will be affected and professional judgement. A conclusion will then be drawn as to whether the effect is Significant or Not Significant for each criteria.

The IEMA Guidelines state that projected changes in base traffic levels of less than 10% create no discernible environmental impact, given that daily variations in background traffic flow may fluctuate by this amount.

Mitigation measures will be identified and incorporated into the development proposals where an effect is deemed to be Significant (prior to any mitigation).

Determining the Magnitude of the Impact

The magnitude of traffic effects is a function of existing traffic volumes, the percentage increase due to the proposals for the development, and changes in type of traffic. IEMA guidelines identify thresholds for determining the magnitude of the impact based on percentage changes in traffic levels. The magnitude of effects arising from the increase in traffic volumes is categorised as follows:

- Substantial: above 90% increase in existing traffic levels (or 70% at sensitive receptors);
- Moderate: between 60% and 90% increase in existing traffic levels (or between 40% an 70% at sensitive receptors);
- Slight: between 30% and 60% increase in existing traffic levels (or 10% and 40% at sensitive receptors); and
- Negligible: under 30% increase in existing traffic levels (or under 10% at sensitive receptors).

The determination of the magnitude of the effects will be undertaken by reviewing the characteristics of the proposed development, establishing the parameters of the road traffic that has the potential to cause an effect, and quantifying these effects against the criteria set out above.

Consideration is given to the composition of the traffic on the road network under both existing and predicted conditions. For example, cars and light goods vehicles (LGVs) have less effect on traffic and the road system than HGVs.

Determining the Sensitivity of the Receptor

The sensitivity of roads to increased severance of communities and pedestrian delay and intimidation is conventionally evaluated based on the proximity and size of residential populations to each road section, in accordance with the EIA guidelines.

The IEMA guidelines do not provide specific criteria for evaluating sensitivity, however, it states:

> *"For many effects there are no simple rules or formulae which define the thresholds of significance and there is, therefore, a need for interpretation and judgement on the part of the assessor, backed-up by data or quantified information wherever possible. Such judgements will include the assessment of the numbers of people experiencing a change in environmental impact as well as the assessment of the damage to various natural resources."*

For the purposes of this assessment, the sensitivity of the road links within the study area to changes in traffic levels will be evaluated on a scale of "low", "medium" and "high", based on their usage by pedestrians and cyclists and the size of communities through which the road section passes.

An EIA Chapter would then be prepared to report on all of the above.

4.10 Other Issues

4.10.1 Introduction

The Other Issues chapter within the EIA Report would incorporate those issues which are relevant to the proposed development however do not merit a full EIA chapter, or for those areas where a full EIA assessment has been scoped out, the chapter would summarise the 'sub-EIA' findings. Changes to the EIA Regulations in 2017 also included a requirement to incorporate considerations on population and human health, climate change and natural disasters

4.10.2 Population and Human Health

The 2017 EIA Regulations require an examination of population and human health to be considered within EIA projects. Given the proposed development adds to an existing facility at Nigg Energy Park and will assist the local economy, it is unlikely to create significant effects, either positive or adverse, on the integrity of local population numbers.

Human health is a loose and wide term for a number of components that influence public health including pollution, amenity and opportunities gained or lost by direct land-take. Given noise assessment is scoped in to the EIA and a landscape and visual appraisal will be carried out, it is considered that the impacts upon human health can be derived from the outcomes of these assessments, and that the overall health of the local population is not likely to be significantly affected by the proposed development.

Accordingly, population and human health is scoped out of the EIA.

4.10.3Climate Change

Climate change has taken a prominent position within policy and legislation at a national level, with the Climate Change (Scotland) Act 2009 creating a long-term framework for ensuring reduction in Scottish greenhouse gas emissions of 80% by 2050.

Under Schedule 4(4), the EIA Regulations require "*a description of the factors specified in 4(3) likely to be significant affected by the development…(including) climate (for example greenhouse gas emissions, impacts relevant to adaption)*". In addition, Schedule 4(5)(f) of the EIA Regulations requires a "*description of the likely significant effects of the development on the environment resulting from…the impact of the project on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the project to climate change"*.

It is considered at the Scoping stage that the proposed development would not result in a significant effect upon climate given the nature of the development. Any increase in emissions created during either construction or operation is likely to be negligible, and pollution and emissions control would be discussed within a detailed Construction Environmental Management Plan (CEMP). Discussion of the vulnerability of the project to climate change is primarily concerned with the water environment, including flood risk and wave overtopping due to increases in sea level. This would be covered within impact assessment within the Water Environment and Coastal Processes chapter.

It is therefore proposed that climate change is scoped out of the EIA.

4.10.4 Natural Disasters

The proposed development is not located within an area of significant seismic activity, nor are climatic factors prone to creating disasters such as tsunamis, hurricanes or catastrophic flooding. Accordingly, consideration of natural disasters is scoped out of the EIA.

4.10.5 Air Quality

A qualitative discussion of air quality would form part of the Other Issues chapter, with particular reference to dust and its management via Construction Environmental Management Plan.

4.10.6 Navigation and Vessel Movements

Discussion of navigation would be included within the Other Issues chapter including the impacts of dredging upon vessel movements, and protocol including notices to mariners, updates of admiralty charts and exclusion areas during construction would be incorporated.

Previous studies undertaken for the South Quay development associated with vessel movements would be consulted and an assessment made of the likelihood for increased impacts as a result of the development both during construction and operation. This would closely be linked to the proposed Marine Mammal Protection Plan which is discussed within section 4.4.

4.10.7 Summary of sub-EIA assessments

The Other Issues chapter would also include a summary discussion of those technical topics which are important to include within the application but are not anticipated to have significant effects upon them, such as landscape and visual, ornithology, terrestrial ecology (and in particular the ongoing bat work) and cultural heritage. Desk based reports and assessments would be provided as appendices.

4.11 Schedule of Mitigation and Draft CEMP

The EIA Report would conclude with two short chapters. The Schedule of Mitigation would highlight all mitigation that the Applicant has committed to, and often takes a tabular format for ease of reference and is split into the stage of development it is required. It is envisaged that the Schedule of Mitigation would subsequently inform a draft Construction Environmental Management Plan (CEMP) which would also be submitted alongside the application.

The draft CEMP would be closely linked to the Schedule of Mitigation and provide regulators with the site-specific details of how the mitigation measures would be implemented. Should the applications be approved, this would

then be cross-checked by the contractor and further detail added, and it is anticipated that a final CEMP would be secured by condition.

4.12 Cumulative Assessment

4.12.1 Introduction

It is acknowledged that there may be cumulative interactions with other terrestrial and marine based developments which are committed through the planning and marine licencing system. Planning consultants GH Johnston have advised that there are no terrestrial planning applications in the vicinity of the site that would be likely to have a cumulative interaction with the proposed development.

Three potential sites have been identified that may have cumulative interactions with the proposed development, with details as follows.

4.12.2 Ardersier

Ardersier port development is located on the former McDermott Fabrication Yard, 7.5km west of Nairn and approximately 15km south of Nigg. Sand dunes and tidal mudflats are extensive to the west of the site. Whiteness Head sand spit impinges upon port access, whereby a steel-piled retaining wall was previously established until the cessation of offshore infrastructure fabrication works in 2001.

Renewal of Planning Permission in Principle and associated Environmental Impact Assessment (18/04552/PIP) were submitted to MS-LOT and Transport Scotland in October 2018 for marine construction works and dredging associated with the creation of, (i) a sheet-piled quay wall and quayside facilities; (ii) capital dredging of access and inner channels for berthing; and (iii) main port activity areas (ie. pipe-spooling, admin buildings). The Port intends to be utilised by the North Sea renewables sector. The Marine Licence has not yet been approved by MS-LOT and subsequently, contractors have yet to be appointed. Dredging works are likely to over-lap with Invergordon and Ardersier. Assessment of the potential cumulative interactions with Nigg may include:

- Navigation and vessel movements in the waters of the adjoining Moray Firth waters (ie. operational shipping schedules pertaining to Invergordon, Nigg Energy Park and Ardersier Port due to their relative proximity, and anticipated size of vessels expected inc. cruise liners, Mobile Offshore Units);
- Habitat management strategies (i.e. provision for tern, bird roosts etc) will likely remain unaffected by the Nigg development.
- Piling is to be vibration only at Ardersier, however the timing of works and potential displacement of marine mammals in conjunction with other port developments has the potential to impact upon qualifying features of the Moray Firth SAC.

Accordingly, the Marine Ecology chapter will include discussion of cumulative impacts.

4.12.3 Invergordon Phase 4

Invergordon Service Base is located on the north shore of the Cromarty Firth, 11 km west of the Sutors at the mouth of the Firth. In its existing condition, the Service Base currently consists of 5 berths and Queens Dock providing 600m of berthing. The development, initiated by Cromarty Firth Port Authority (PoCF), seeks to balance the port's utility as a multi-user, multi-sector facility in keeping with the National Marine Plan (2015) objectives for the sustainable use of ports. The port has until now, been primarily been dependent upon the oil and gas sector, specifically in the Inspection, Repair and Maintenance (IRM) of Mobile Offshore Units (MOU) as well as a prominent stop on the British Isles and North Sea Cruising Circuits.

The Phase 4 project incorporates the reclamation of 4.5 ha of laydown with heavy-lift quay, which will allow for the bulk handling associated with renewables infrastructure (i.e. wind turbines and towers), multi-functioning as an onshore cruising reception and marshalling zone. The creation of Berth 6 will allow for a fully-fendered, 369m long combined quay face which will accommodate the largest liners, to the west of the base. Assessment of the potential cumulative interactions with Nigg, would likely include consideration of;

- Navigation and vessel movement in and around the firth (i.e. construction vehicles, vessels and plant and operational shipping movements);
- Water Quality and Coastal Processes (i.e. sedimentation, alteration to bathymetry, contamination from construction vessels);
- Benthic and Fish (i.e. sedimentation of sea bed and/or water column leading to potential smothering of benthic habitats, poor visibility and/or disturbance of foraging/migratory behaviour in fish);
- Marine Mammals (i.e piling during construction have the potential to produce sediment plumes and auditory injury from underwater noise); and
- Airborne Noise (i.e. cumulative impacts of concurrent construction works, specifically dredging and piling)

Consideration of these factors would be included within the appropriate EIA chapters.

4.12.4 Nigg Bay Aberdeen

Nigg Bay is located within the city of Aberdeen, on Scotland's east coast. The proposed new harbour facility will be south-east of the existing harbour at Bay of Nigg, Aberdeen. Aberdeen Harbour Trust Port have commissioned the harbour expansion in response to the case for growth in respect of increased size of offshore support vessels and anticipated opportunities in decom, increased cargo vessel size and general growth in the cargo sector; and demand for multi-user berthing and maintenance space. New components proposed include:

- dredging to 9m and 10.5m of existing bay and east quay
- provision of 1500m of new quay and associated support infrastructure (solid walls and suspended decks)
- reclaiming land from dredge uprisings
- construction development areas (i.e. for bulk commodities)

Works commenced in 2017 and are expected to be completed by 2020. Construction works are expected to impact upon navigation and vessel movements in and around the harbour. Anticipated piling, drilling and blasting have the potential to impact upon marine mammals in terms of displacing protected species of the Moray Firth SAC and therefore cumulative interactions would require to be considered in terms of marine mammal protection, including working protocols.

5 CONTENT AND STRUCTURE OF THE ENVIRONMENTAL IMPACT ASSESSMENT REPORT

5.1 Content and Structure

Following the rationale set out within the above sections, it is proposed that the final EIAR is set out within the following structure:

- Volume 1: EIA Report, containing:
    - Chapter 1: Introduction
    - Chapter 2: EIA Methodology and Scoping
    - Chapter 3: Proposed Development
    - Chapter 4: Marine Ecology
    - Chapter 5: Noise
    - Chapter 6: Water Environment and Coastal Processes
    - Chapter 7: Traffic and Transport
    - Chapter 8: Other Issues
    - Chapter 9: Schedule of Mitigation
    - Chapter 10: Conclusions
- Volume 2: Figures, containing relevant supplementary figures and drawings relevant to Volume 1 chapters;
- Volume 3: Technical Appendices, including reports and technical background documents which support the main assessments contained within Volume 1; and
- A standalone Non-Technical Summary (NTS).

6 CONCLUSIONS

It is anticipated that the proposed development as described will fall under Schedule 1 of both the TCPA EIA Regulations and the Marine EIA Regulations. Accordingly it is appropriate to request a Scoping Opinion from both the Highland Council and MSLOT under both Regulations. Sufficient baseline information has been provided regarding the proposed development and the surrounding and receiving environment upon which to base a decision.

The information and methodologies contained within this report allow the Council, MSLOT and other consultees to advise and approve the scope of work and add relevant information and guidance as required. We would be very grateful to receive a Scoping Opinion within the 35 day statutory period and are committed to working with all consultees to deliver a proportionate and robust EIA which benefits the area.

For the benefit of doubt, the environmental topics to be scoped in to the EIA Report are as follows:

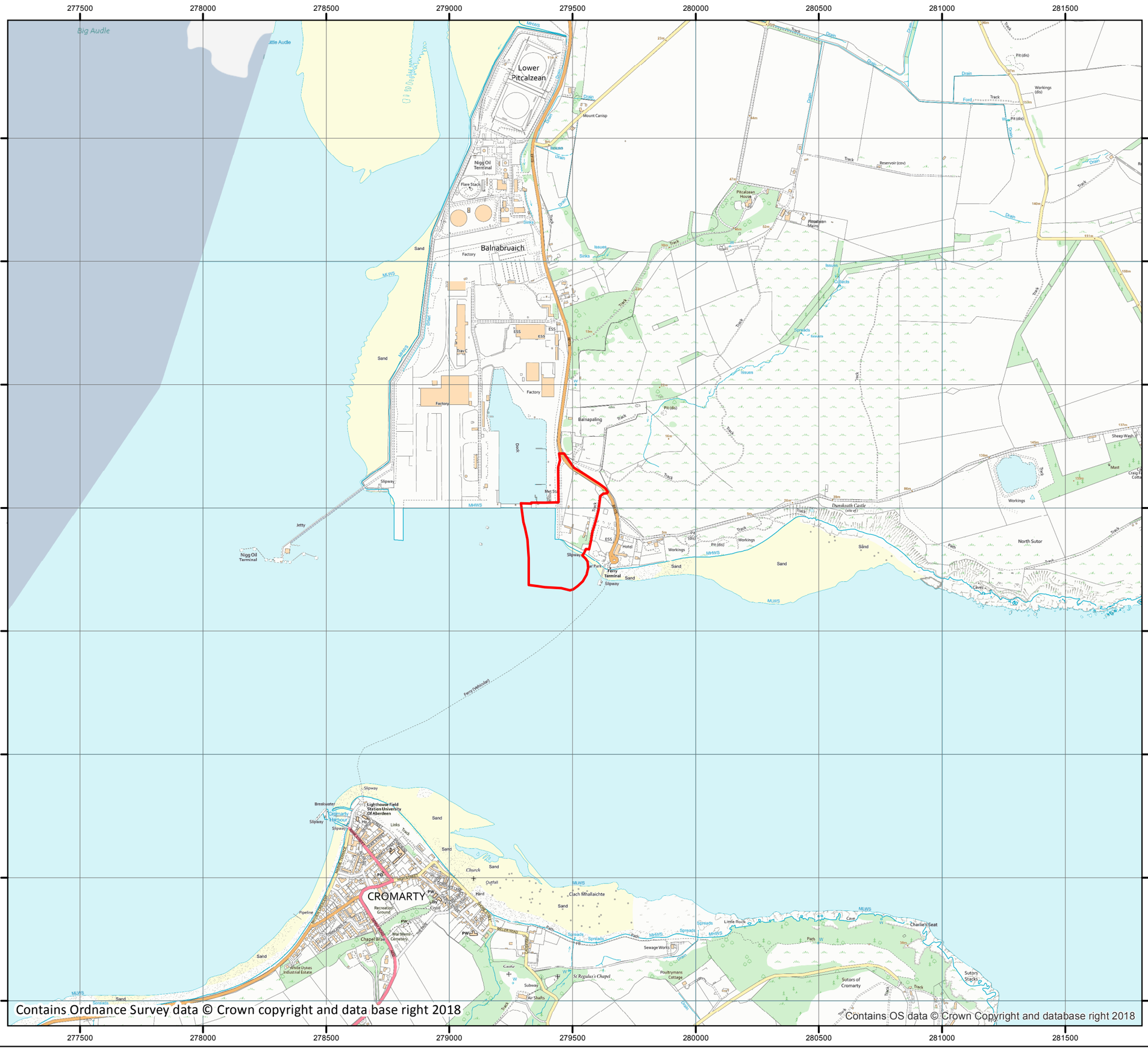
- Marine Ecology (including underwater noise);
- Airborne Noise;
- Water Environment and Coastal Processes;
- Traffic and Transport;
- Other Issues (including summaries of those elements scoped out but where sub-EIA work has been required, navigation and vessel movement); and
- Cumulative assessment as appropriate.

The environmental topics that are proposed to be scoped out of full EIA assessment are:

- Landscape and Visual – however a sub-EIA appraisal will be carried out and summarised within the Other Issues chapter (see section 4.4);
- Cultural Heritage and Archaeology – however a desk based assessment would be provided at a sub-EIA level and summarised within the Other Issues chapter (see section 4.5);
- Terrestrial Ecology – however a bat report will be submitted with the application and summarised within the Other Issues chapter;
- Ornithology – however a desktop assessment will be carried out and summarised within the EIA chapter;
- Air Quality; and
- Natural Disasters, Climate Change and Population and Human Health.

APPENDICES AND DRAWINGS

A FIGURES



Legend

Site Boundary

Do not scale this map

Client

Global Energy Nigg Limited

Project

Nigg East Quay

Title

Figure 1 - Site Location Plan

Status

FINAL

Drawing No.	Revision
671906-001	

Scale		Date
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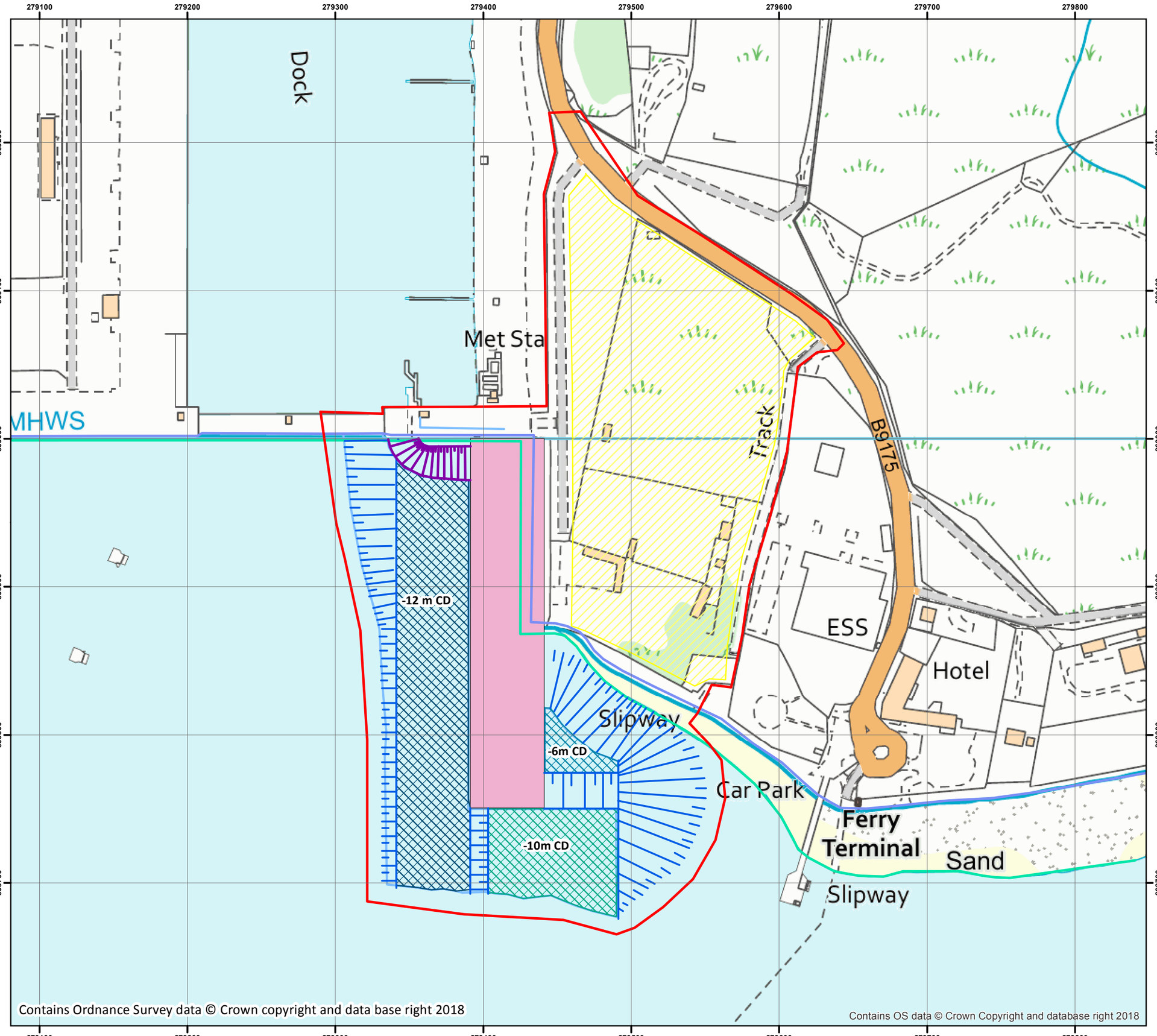

Legend

- Site Boundary
- Proposed East Quay
- Maximum Footprint of Proposed Laydown Area
- Dredge (-6m CD)
- Dredge (-10m CD)
- Dredge (-12m CD)
- Dredge Slope
- Bund Outline
- Bund with Rock Armoured Slope
- MHWS
- MLWS

Do not scale this map

Client: Global Energy Nigg Limited

Project: Nigg East Quay

Title: Site Layout Plan

Status: FINAL

Drawing No.: 671906-002

Revision:

Scale: 1:2,500

A3

Date: 12 Feb 2019

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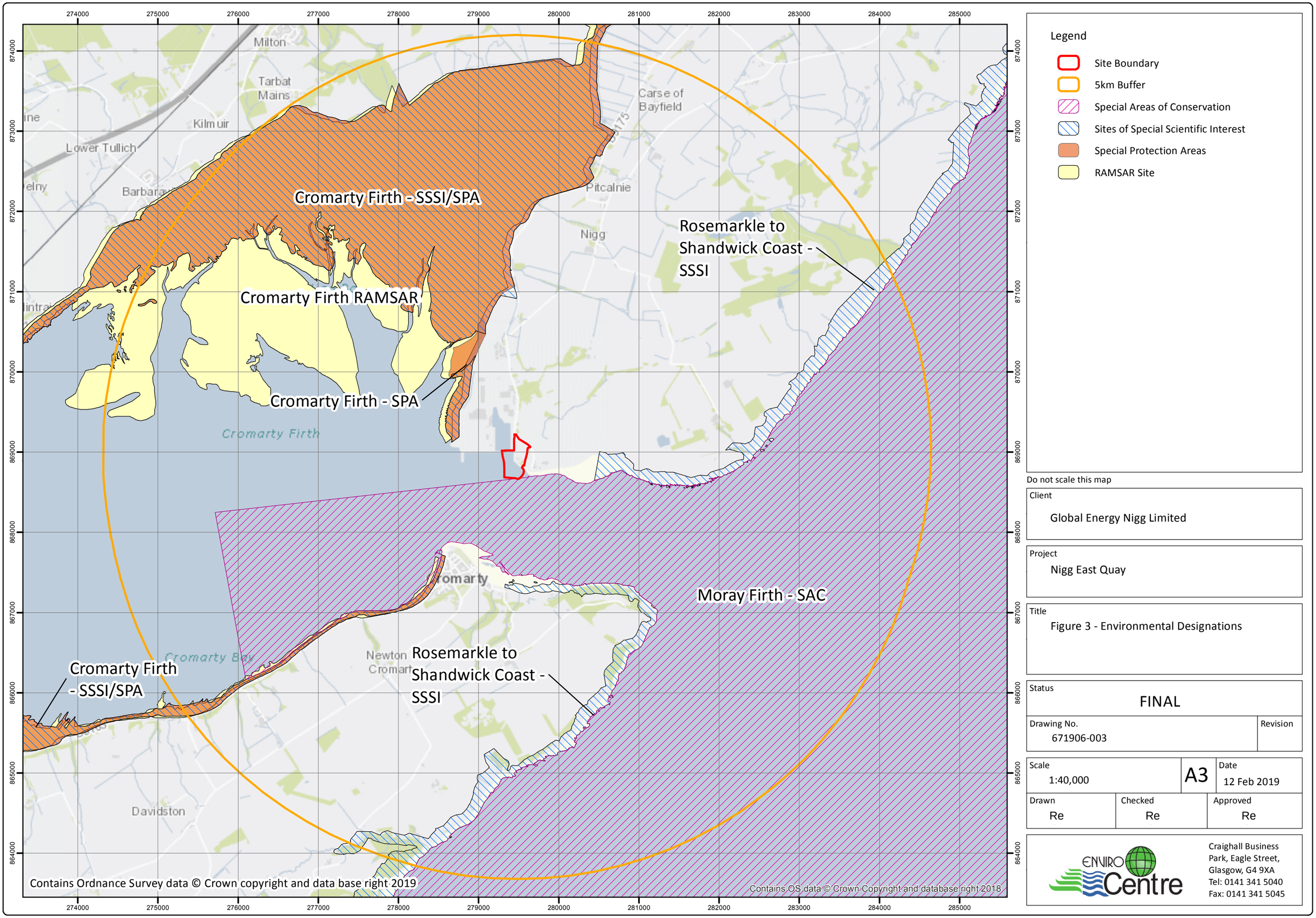

Legend

- Site Boundary
- 5km Buffer
- Special Areas of Conservation
- Sites of Special Scientific Interest
- Special Protection Areas
- RAMSAR Site

Do not scale this map

Client: Global Energy Nigg Limited

Project: Nigg East Quay

Title: Figure 3 - Environmental Designations

Status: FINAL

Drawing No.: 671906-003

Revision:

Scale: 1:40,000

A3

Date: 12 Feb 2019

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Legend

- Site Boundary
- TargetNote

JNCC Phase 1 Habitat Code

- A2.1 Dense/Continuous Scrub
- A2.2 Scattered Scrub
- A3.1 Parkland/Scattered Broad-leaved Trees
- B2.2 Neutral Semi-Improved Grassland
- B4 Improved Grassland
- C3.1 Tall Ruderal Vegetation
- H1.1 Intertidal Mud/Sand
- H3 Shingle above High Tide Mark
- H6.5 Dune Grassland
- H6.8 Open Dune - Grey Dune
- J1.3 Ephemeral/Short Perennial
- J2.4 Fence
- J2.5 Wall
- J3.5 Sea Wall
- J3.6 Building
- J4 Bare Ground
- J5 Other Habitat

Do not scale this map

Client: Global Energy Nigg Limited

Project: Nigg East Quay

Title: Figure 4 - Phase 1 Habitat Survey Map

Status: FINAL

Drawing No.: 671906-004

Revision:

Scale: 1:2,200

A3

Date: 12 Feb 2019

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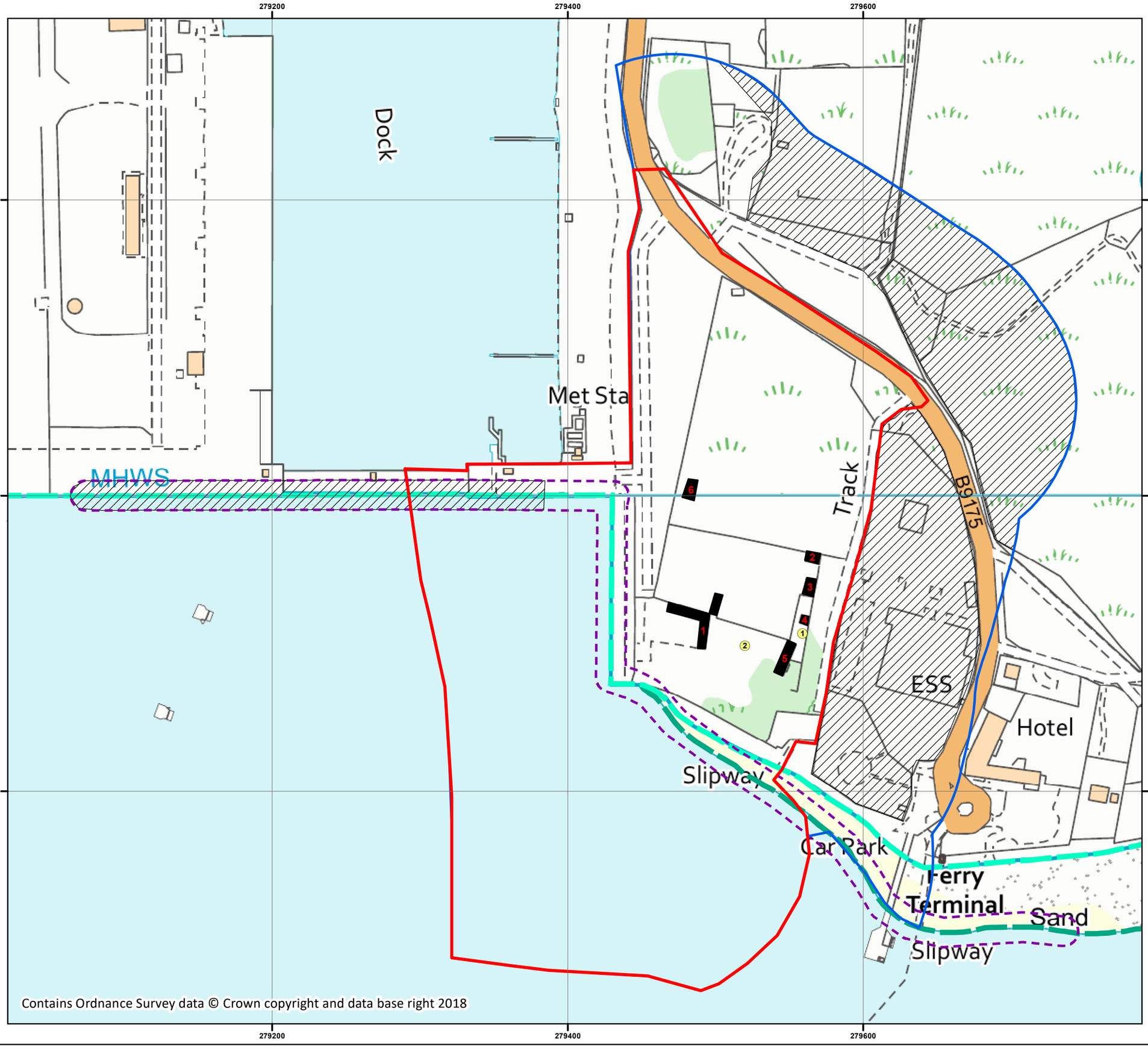

Legend

- Site Boundary
- 100m Survey Buffer
- 250m Survey Buffer
- Inaccessible Areas
- Buildings
- Trees With Potential Roost Features
- MHWS
- MLWS

Do not scale this map

Client: Global Energy Nigg Limited

Project: Nigg East Quay

Title: Figure 5 - Protected Species Survey Area

Status: FINAL

Drawing No.: 671906-005

Revision:

Scale: 1:2,500

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Date: 12 Feb 2019

Drawn: Re

Checked: Re

Approved: R

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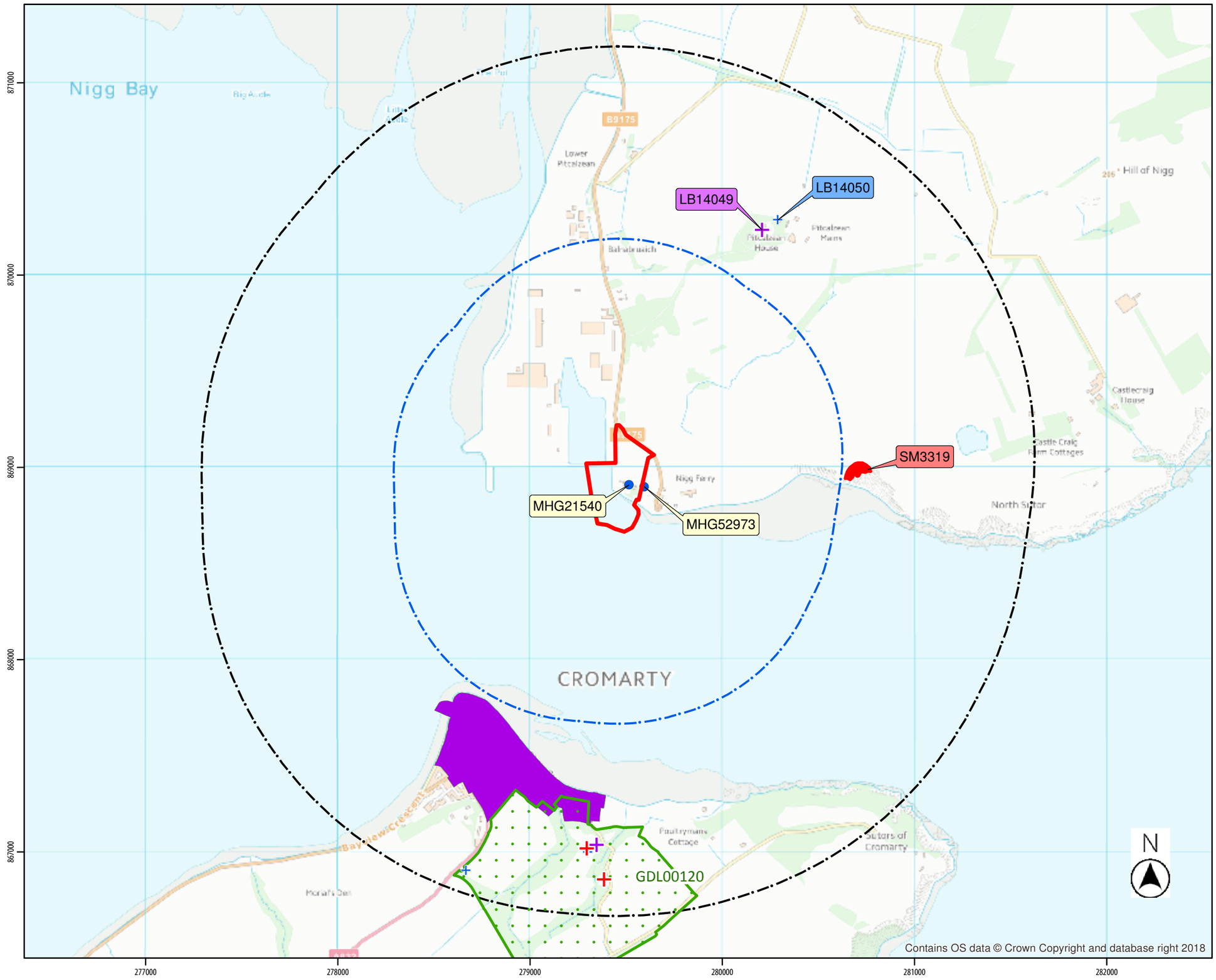

HEADLAND ARCHAEOLOGY
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KEY

- Site Boundary
- Non-Designated Heritage Asset
- Category A Listed Building
- Category B Listed Building
- Category C Listed Building
- Scheduled Monument
- Inventory Garden and Designed Landscape
- Conservation Area
- 2km Radius
- 1km Radius

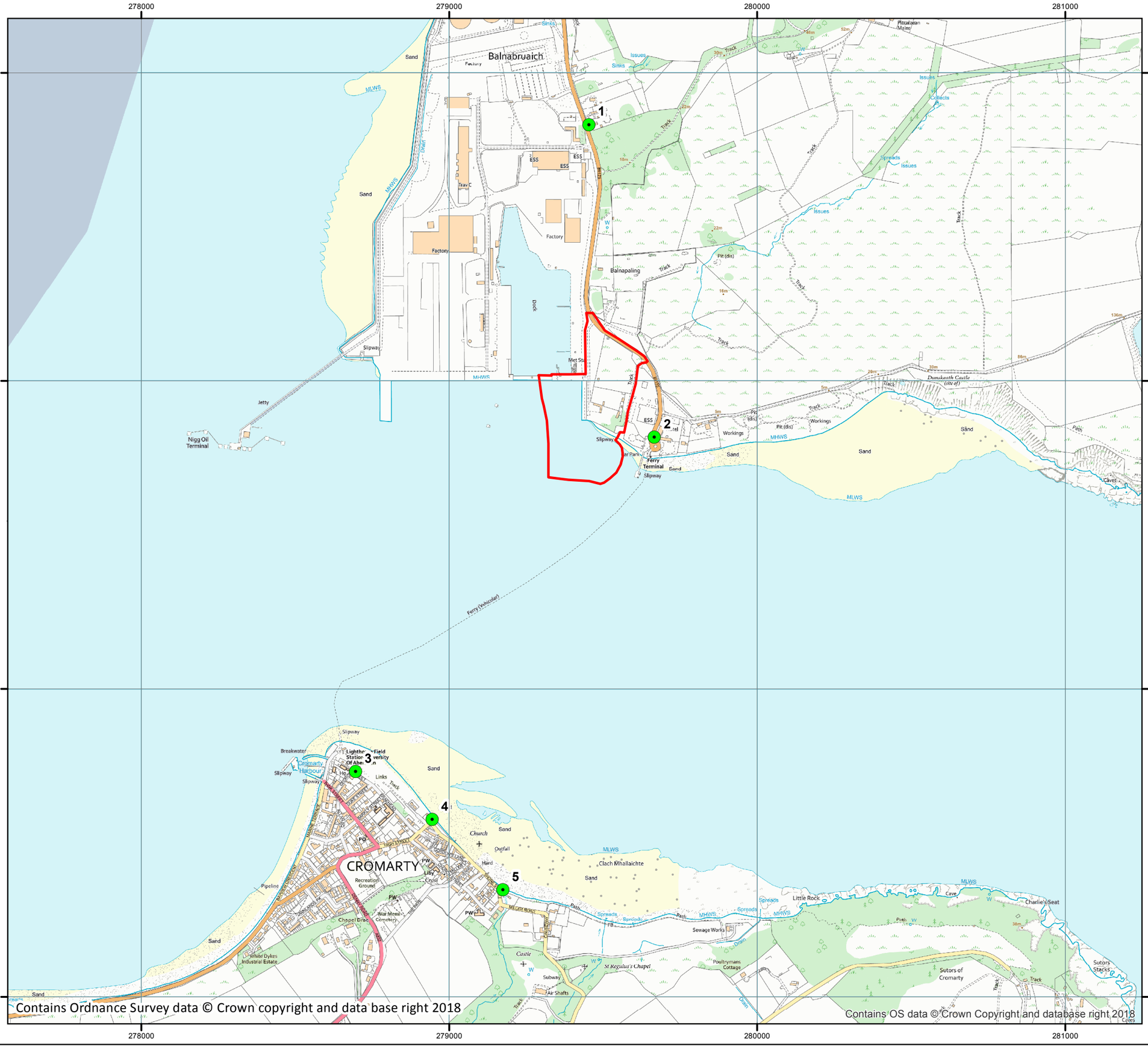
Non-designated heritage asset information derived from NRHE data via Pastmap website dated 2019 © Crown Copyright

Designations area information derived from Historic Environment Scotland data dated 8/1/19. © Crown Copyright. All rights reserved 2019.

1:20,000 @ A3

0 125 250 500 m

Figure 6
Heritage Assets within Site and Study Area



Legend

- Site Boundary
- Noise Monitoring Locations

Do not scale this map

Client

Global Energy Nigg Limited

Project

Nigg East Quay

Title

Figure 7 - Noise Monitoring Locations

Status

FINAL

Drawing No.

671906-007

Revision

Scale

1:12,000

A3

Date

12 Feb 2019

Drawn	Checked	Approved
R	R	R

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Key:

- ATC Locations

N

SYSTRA Ltd
124 St Vincent Street
Glasgow
G2 5HF

SYSTRA

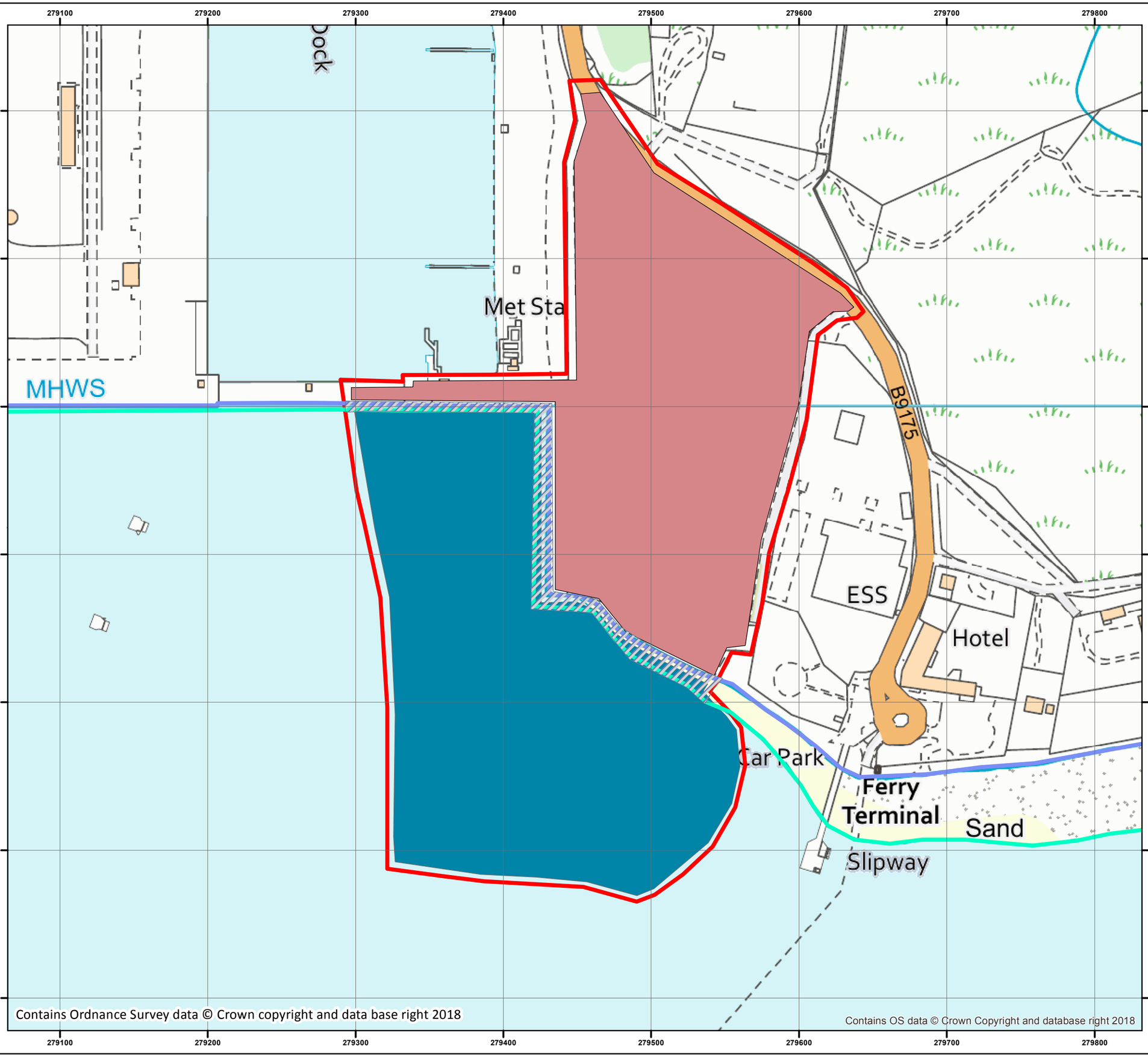
Project:

Nigg East Quay EIA Scoping Report

Figure 8: Proposed ATC Locations

Date:	Scale:	Drawn by:	Checked by:	Approved by:
Jan '19	N.T.S	R	R	R

DWG No:	Rev:
108490/I/ATC/001	A



- Site Boundary
- Town and Country Planning (above MLWS)
- Marine Scotland Licencing (below MHWS)
- Intertidal Zone (overlapping of consenting boundaries)
- MLWS
- MHWS

Do not scale this map

Client: Global Energy Nigg Limited

Project: Nigg East Quay

Title: Figure 8 - Consenting Plan

Status: FINAL

Drawing No.: 671906-009

Revision:

Scale: 1:2,500

A3

Date: 12 Feb 2019

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Approved: R

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B PHASE 1 HABITAT AND PROTECTED SPECIES SURVEY

Nigg East Quay
Appendix B: Phase 1 Habitat & Protected Species Survey

February 2019

Nigg East Quay
Appendix B: Phase 1 Habitat & Protected Species Survey

Client:	Global Energy Nigg Bay
Document number:	8527
Project number:	671906
Status:	Final
Author:	Redacted
Reviewer:	Redacted
Date of issue:	12 February 2019
Filename:	K:\671906 - Nigg East Quay EIA\300 - Ecology and Ornithology\340 - Ecology Reporting\Issued

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EXECUTIVE SUMMARY

EnviroCentre Limited was commissioned by Global Energy Nigg Limited to undertake a Phase 1 Habitat and Protected Species Surveys of Nigg East Quay located approximately 1.5km north of Cromarty in the town of Nigg, Cromarty Firth.

The key aim of this survey is to establish an ecological baseline for the site and to allow further ecological surveys required to be identified and appropriately designed.

No statutory designated site, non-statutory designated site or ancient woodland are present within the site.

A total of 17 Phase 1 Habitat types, including boundary features, were identified on the site and consist of habitats such as scrub, improved grassland, semi-improved grassland, dune grassland, open dune, ephemeral/short perennial, tall ruderal vegetation, intertidal sand, shingle, sea wall, bare ground, scattered trees, buildings and fencing. Commuting and foraging habitat was assessed as low due to isolated features which bats may utilise, that lack good connection to suitable habitat in the wider environment.

Two trees with Potential Roost Features (PRFs) were identified within the site and assessed as negligible and low for roosting bats. Six buildings exist within the site, however one is not involved in any works. The five buildings were assessed as low potential for hibernating and roosting bats due to PRFs and features.

No evidence of otter was identified during the survey, however suitable habitat exists within the site for otter and the desk study results highlight that they have been noted in the wider area.

No evidence of badger was identified and a lack of suitable habitat for foraging, commuting and sett creation is available.

Ecological data is considered valid for a period of 12 months. Providing that ground works commence before December 2019 then no further update to the baseline data in relation to these species is considered necessary other than pre-works checks. If the site boundary was to change, further survey work for these protected and notable species may be required.

Further surveys which are ongoing as part of the baseline ecological assessment include:

- Hibernation surveys of the five buildings within the site completed over two visits, one in mid-January and one in mid- February, which will also include a detailed internal inspection of PRFs.
- One bat activity survey carried out on each building, in the bat activity season (May-August) to determine the presence/absence of summer roosting bats.
- Elevated inspection of ivy covered tree if it is to be felled or subjected to arboricultural operations to facilitate development, prior to works commencing.

The requirement for a licence from Scottish Natural Heritage to disturb or destroy a bat roost will need to be re-assessed following the above surveys.

No building demolition or vegetation removal should be scheduled to occur during the bird breeding season (March-August), otherwise a nesting bird survey may need to be undertaken as suitable habitat exists for nesting birds.

Contents

Appendices

Tables

1 INTRODUCTION

1.1 Terms of Reference

EnviroCentre Limited was commissioned by Global Energy Nigg Limited to undertake Phase 1 Habitat and Protected Species Surveys of Nigg East Quay located approximately 1.5km north of Cromarty in the town of Nigg, Cromarty Firth. The proposal comprises the construction of a new quay and associated dredging in addition to the creation of an extensive laydown area from adjacent countryside at Dunskeath House.

The 'site' is defined as the area demarcated by the red line boundary as shown in Appendix A. The 'survey area' constitutes the area of the 'site' plus appropriate buffers.

The results and recommendations in this document relate to the site boundary as provided by the client in December 2018.

1.2 Scope of Report

The key aim of these surveys is to establish an ecological baseline for the site to inform further assessment and surveys for the development proposals.

The main objectives are as follows:

- Identify and map the broad habitats present on the site;
- Search for field evidence of a range of protected or notable faunal species which may frequent the survey area;
- Identify suitable habitat for protected or notable faunal species in the survey area; and
- Make recommendations for any further survey and/or species licensing requirements.

1.3 Site Description

The site is situated south east of the Nigg Energy Park at an elevation of 5m above sea level and is centred at Ordnance Survey Grid Reference (OSGR) NH 79527 69016. The site is dominated by bare ground with areas of dense and scattered scrub, grassland, tall ruderal vegetation and broadleaved trees. Sand and shingle above the high tide mark are also present in the south of the site and a sea wall exists in the west. The site extends into the Moray Firth which meets the Cromarty Firth south west of the site. The village of Nigg is located north of the site beyond arable and grassland fields, and the B9175 forms the northern site boundary. In the wider area woodland, grassland and scrub are located to the north and east, whilst the Moray Firth and Cromarty Firth are present to the south and west respectively.

On arrival at the site, it was noted that works had previously been undertaken within the site boundary, as a large proportion of the site was disturbed and covered in rubble and gravel.

1.4 Legislation, Policy and Guidance

European and national legislation and national and local policy relevant to this report includes:

- The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended);
- The Wildlife and Countryside Act 1981 (as amended) (WCA);

- The Nature Conservation (Scotland) Act 2004;
- The Wildlife and Natural Environment (Scotland) Act 2011 (WANE);
- Water Framework Directive (WFD) 2000/60/EC;
- The Protection of Badgers Act 1992 (as amended by the WANE Act 2011);
- British Standard BS 42020:2013 Biodiversity – Code of practice for planning and development;
- The Scottish Biodiversity Strategy;
- Scottish Planning Policy (2014);
- Highland Biodiversity Action Plan (HBAP) (2015);
- Highland-Wide Local Development Plan (HWLDP) (2012); and
- The Ross and Cromarty (East) Biodiversity Action Plan (RCBAP) (2004).

A summary of protected species legislation is provided in Appendix B.

1.5 Report Usage

The information and recommendations contained within this report have been prepared in the specific context stated above and should not be utilised in any other context without prior written permission from EnviroCentre.

If this report is to be submitted for regulatory approval more than 12 months following the report date, it is recommended that it is referred to EnviroCentre for review to ensure that any relevant changes in data, best practice, guidance or legislation in the intervening period are integrated into an updated version of the report.

2 METHODS

2.1 Desk Study

In order to anticipate the potential ecological sensitivities at the site, a desk study was conducted in advance of the field studies in December 2018. The following sources were checked:

- Scotland's Environment Web (SEW) (The Scottish Government, n.d.) and Scottish Natural Heritage (SNH) Sitelink website (SNH, n.d.) for statutory designated sites up to 5km from the site;
- The HWLDP (THC, 2012) (up to 2km from the site) for non-statutory designated sites up to 2km from the site;
- Ancient woodland and Scottish native woodland locations available through SEW (up to 2km from the site);
- The Highland Biological Recording Group (HBRG) (up to 2km from the site) for species records;
- The UK Biodiversity Action Plan (UKBAP) (JNCC, n.d.) for National (UK) Priority Habitats and Species;
- The Scottish Biodiversity List (SBL) (Scottish Government, 2013) for National (Scotland) Priority Habitats and Species;
- The HBAP (Highland Environmental Forum, 2015) and RCBAP (Ross & Cromarty (East) Biodiversity Group, 2004) for Local Priority Habitats and Species;
- National Biodiversity Network (NBN) Atlas (NBN Atlas Scotland Partnership, 2017) for records of species (up to 2km from the site); and
- Aerial imagery from Google Earth (Google, 2015).

2.2 Field Survey

Guided by the results from data searches, the following relevant species groups were focussed upon:

- Plants;
- Bats;
- Otter;
- Badger;
- West European hedgehog;
- Brown hare; and
- Birds.

All field survey work was undertaken by experienced and competent ecologists, who are members of the Chartered Institute of Ecology and Environmental Management (CIEEM). The surveys were designed using the guidelines endorsed by SNH and CIEEM (CIEEM, 2013a, 2013b, n.d.)). The surveys focussed on plants and habitats on the site and those faunal species that are most likely to be found in the habitats which make up the landscape in and around the site. The survey was undertaken on the 18th and 19th December 2018. For the duration of the survey the weather conditions were dry with a light easterly breeze. The Phase 1 Habitat and Bat Potential Roosting Feature (PRF) surveys were undertaken on 18th December 2018 when conditions were cloudy and overcast. The otter survey was undertaken on 19th December 2018 when conditions were dry and sunny. Visibility was good throughout all surveys and the air temperature was measured at 9°C.

This section provides details of the methods adopted in the survey areas described in Table 2-1.

Table 2-1: Survey Areas

Habitat/Species/Species Group	Survey Area
Phase 1 Habitat	Within site boundary
Bats	Site plus 50m survey buffer
Otter	Site plus 250m survey buffer upstream and downstream
Badger	Site plus 100m survey buffer
West European hedgehog	Site plus 50m survey buffer
Brown hare	Site plus 50m survey buffer
Birds	Within site boundary

2.2.1 Phase 1 Habitat Survey

A Phase 1 Habitat Survey is a method that rapidly records vegetation and wildlife habitat over large areas. The information is used to identify ecologically sensitive features, inform additional species surveys and, ultimately, recommend mitigation and enhancement measures in connection with a proposed development.

The Phase 1 Habitat Survey was undertaken according to the standard Joint Nature Conservation Committee method (JNCC, 2010) and was used to determine the presence of any Annex I habitat types included in the appropriate UK Biodiversity Action Plan (BAP) priority habitats.

2.2.2 Groundwater Dependent Terrestrial Ecosystems

The Functional Wetland Typology (SNIFFER, 2009) was used to aid identification of wetland habitats that derive their water from groundwater and surface water. This information is useful in identifying if and where further surveys are required to identify the presence and potential sensitivity of Groundwater Dependent Terrestrial Ecosystems (GWDTEs). To help assess ground water dependency, observations of local topography, underlying geology, and features such as springs, diffuse ground water emergence and floristic indicators of base enrichment were made.

2.3 Invasive Non-Native Species

The survey included a check for the presence of any invasive non-native species (INNS) including but not limited to the following:

- Japanese knotweed (*Fallopia japonica*);
- Giant hogweed (*Heracleum mantegazzianum*); and
- Himalayan balsam (*Impatiens glandulifera*).

2.3.1 Bats

A survey was undertaken in accordance with the criteria set out by the Bat Conservation Trust (BCT) (The Bat Conservation Trust, 2016). The suitability of roosting, commuting and foraging habitats was classified according to the criteria in Table 2-2.

Six buildings are present on the site. One of the buildings is being retained and will not undergo any renovation works, therefore no assessment has been undertaken of that building (see building 6 detailed in Appendix D).

Internal inspections were not completed on the buildings for health and safety reasons, due to uncertainties regarding their structural integrity and the presence of asbestos.

Table 2-2: Suitability Classification of Roosting, Commuting and Foraging Habitats for Bats

Suitability	Roosting Features	Foraging and Commuting Habitats
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.	Continuous high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edges. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. The site is close to and connected to known roosts.
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due their size, shelter, protection, conditions and/or surrounding habitat but unlikely to support a roost of high conservation status.	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis; or A tree of sufficient size and age to contain potential roost features but with none seen from the ground; or features seen with only very limited roosting potential.	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated. Suitable but isolated habitat that could be used by small numbers of foraging bats such as a lone tree or a patch of scrub.
Negligible	A structure or a tree with negligible features likely to be used by roosting bats.	Negligible habitat features likely to be used by foraging or commuting bats.

Potential Roosting Features (PRFs) in trees and structures commonly utilised by roosting bats are listed in 2-3 below.

Table 2-3: PRFs in Trees and Structures Frequently Used by Bats for Roosting

PRFs in trees frequently used as bat roosts	Access points in structures frequently used as bat roosts	Frequently used roosting locations in structures
Hollows and cavities from woodpecker, rot and knot holes	Gaps in windowsills and window panes	Top of chimney breasts, gable ends and dividing walls
Hazard beams and other vertical or horizontal cracks and splits in stems or branches	Underneath peeling paintwork or lifted rendering	All beams and roof beams (ridge, hip etc.)
Partially detached plated bark	Behind hanging tiles, weatherboarding, eaves, soffit boxes, fascias and lead flashing	Junction of timber joints, mortise and tenon joints
Cankers, included bark and compression forks with potential cavities	Under tiles and slates	Behind purlins
Partially detached ivy with stem diameters in excess of 50mm	Gaps in brickwork and stonework	Between tiles/slates and the roof lining
Bat or bird boxes	Gaps in rendering behind gutters	Under flat roof materials

2.3.2 Otter

The otter survey was undertaken along the Cromarty Firth, situated within the south of the site, plus a 250m buffer upstream and downstream, following best practice guidelines (Chanin, 2003), and aimed to identify suitable otter habitat and field signs, including:

- Spraints (otter faeces/droppings used as territorial signposts. Often located in prominent positions and can be placed on deliberate piles of soil or sand). Three categories are used for describing otter spraint: Dried fragmented (Df); Dried intact (Di); and Not fully dry (Nd);
- Footprints;
- Feeding remains (can often be a useful indication of otter presence);
- Paths/slides (otter can often leave a distinctive path from and into the watercourse);
- Holts (underground shelter) are generally found:
    - Within trees roots at the edge of the bank of a river;
    - Within hollowed out trees;
    - In naturally formed holes in the river banks that can be easily extended;
    - Or preferably in ready-made holes created by other large mammals such as badger setts, rabbit burrows or outlet pipes; and
- Couches/lay-ups (couches or lay-ups are places for lying up above ground are usually located near a watercourse, between rocks or boulders, under dense vegetation).

In order to assess their importance, the status of otter resting sites was assigned from Low to High according to Table 2-4 below (Bassett & Wynn, 2010).

Table 2-4: Status of Otter Resting Sites

Resting Site Status	Definition
Low	Feature with limited evidence of otter activity – low number of spraints, not all age classes present. Insufficient seclusion to be a breeding site or key resting site, unlikely to have links to the key otter requirements. Most likely to provide a temporary 'stop off' for otters when moving through their territory. Loss/disturbance of such a feature is unlikely to be significant in terms of the individual or population.

Resting Site Status	Definition
Moderate	Feature containing sprainting with a range of age classes, but not in significant quantities. Availability may be limited by season, tides or flow. Unlikely to be suitable as a breeding/natal site but will be a key resting site and may be linked to other important features within the territory. The impact arising from a loss or disturbance of such a feature will be determined by the availability of more suitable or well used sites within the otter's territory.
High	Feature has a high level of otter activity, including an abundance of sprainting of all age classes, large spraint mounds, well used grooming hollows, paths and slides. Affords a high degree of cover and is linked to key features such as fresh water and abundance of prey. May be suitable as a breeding area (spraints may be absent from natal holts). The site is usually available at all times of year and at high and low tide/flow. The loss/ disturbance of such as feature will often be considered significant in terms of the individual or population.

2.3.3 Badger

A badger survey was undertaken in suitable and accessible habitat within the site and a survey buffer of 100m, with reference to the methodology described by (Scottish Badgers, 2018). The Quay, west of the site and Cromarty/Moray Firth south of the site boundary are deemed unsuitable for badger and were therefore not surveyed for badger. The survey aimed to identify the following field evidence:

- Setts (any structure or place, which displays signs indicating current use by badger/located within an active badger territory as defined by the standard guidance);
- Day beds (above ground areas where badgers sleep, characterised by flattened vegetation or bundles of grass);
- Badger paths (network of paths generally linking setts to foraging habitat);
- Footprints;
- Guard hair;
- Foraging signs such as diggings or snuffle holes (badgers use their snout to turn over vegetation or soft soil to forage for bulbs and invertebrates);
- Scratching posts (marks on tree trunks/ fallen trees where badgers have left claw marks);
- Breach points (gaps in fences or crossing points over roads);
- Dung pit (single faeces deposit placed in a small excavation); and
- Latrines (collection of faecal deposits often used by badger clans to mark home range boundaries).

Setts were categorised as follows (Scottish Badgers, 2018):

- Main sett: Numerous entrances, large spoil heaps, active and with well-used paths. One per social group.
- Annex setts: Numerous entrances and well used paths leading to the main sett nearby. Not always in use.
- Subsidiary setts: Variable number of entrances not connected to other setts by obvious path. Not always used.
- Outlier setts: one or two entrances, no defined paths. Used sporadically.

Suitable foraging habitat was categorised with reference to SNH approved guidance (Scottish Badgers, 2018):

- Primary foraging habitat (short grazed or mown grassland and broadleaved woodlands); and
- Secondary foraging habitat (arable land, rough grassland, scrub and mixed woodland).

2.3.4 West European Hedgehog

The suitability of the habitats for hedgehog was assessed according to guidance (The Mammal Society, 2012) Suitable habitats include:

- Grazed pastureland separated into small fields by hedgerows;
- Deciduous woodland copses (oak, beech);
- Overgrown verges or margins; and
- Suburban gardens, woodpiles or parklands.

2.3.5 Brown Hare

Guidance (The Mammal Society, 2012) was used to identify direct evidence of brown hare and to assess the suitability of the habitat for brown hare as follows:

- Direct sightings;
- Suitable habitat: lowland, mixed arable, hayfields and pasture land with hedgerows and field margins;
- Forms (resting places): typically beside a tuft of grass or rushes or a shallow scrape in soil, on a gentle slope with a good view ahead; and
- Droppings: hard round or slightly flattened pellets, about 1cm across, usually straw to mid brown coloured, scattered in small quantities or singular.

2.3.6 Birds

Habitats within the survey area were assessed for their suitability to support breeding and over wintering birds. Observations of birds were noted during the survey.

2.4 Constraints

2.4.1 Desk Study

It should be noted that the desk study is limited by the reliability of third party information and the geographical availability of biological and/or ecological records and data. This emphasises the need to collate up-to-date, site-specific data based on field surveys by experienced surveyors. The absence of species from biological records cannot be taken to represent actual absence. Species distribution patterns should be interpreted with caution as they may reflect survey/reporting effort rather than actual distribution.

2.4.2 Field Study

The Phase 1 Habitat Survey was undertaken outside the main flowering plant season (May-September). This is unlikely to change the habitat assessment on site, however, some flowering species within these areas would not have been visible due to these constraints.

Sections of the 100m survey buffer, west of the site, could not be accessed due to security fencing around the quay making it inaccessible (see Appendix D). Sections of the 100m survey buffer north and east of the site could not be accessed due to the presence of livestock in fields and private residential buildings with associated gardens. Binoculars were used to survey inaccessible areas where possible, however, some field signs would not have been visible due to these constraints.

A section of the upstream 250m survey buffer for the otter survey could not be directly accessed due to the quay being inaccessible. Binoculars were utilised to search for any signs of otter, however, field signs would not have been visible due to these constraints

3 BASELINE ECOLOGICAL CONDITIONS

3.1 Statutory Designated Sites

No statutory designated sites are present within the site boundary. However, three designated sites are present within a 5km radius of the site as detailed in Table 3-1.

Table 3-1: Statutory Designated Sites

Site Name	Designation[1]	Distance and Orientation	Features	Ecologically Connected to the Site
Moray Firth	SAC	Adjacent to site	Subtidal sandbanks, bottlenose dolphin (*Tursiops truncatus*) and aggregations of non-breeding birds, including Common Scoter (*Melanitta nigra*), Eider (*Somateria mollisima*), Goldeneye (*Bucephala clangula*), Great Northern Diver (*Gavia immer*).	Via the marine environment
Cromarty Firth	RAMSAR/SSSI /SPA	Approx. 0.59km west	Intertidal mudflats and sandflats, non-breeding birds, including Bar-Tailed Godwit (*Limosa lapponica*), Greylag Goose (*Anser anser*), Red-Breasted Merganser (*Mergus serrator*), Redshank (*Tringa totanus*), Curlew (*Numenius arquata*), Dunlin (*Caladris alpina*) and other waterfowl assemblage and breeding birds including Common Tern (*Sterna hirundo*).	Via the marine environment
Rosemarkie to Shandwick Coast	SSSI	Approx. 0.76km east	Maritime cliffs, geological features and breeding birds, including Cormorant (*Phalacrocorax carbo*).	Via the marine environment

3.1.1 Non-Statutory Designated Sites

No non-statutory designated sites exist within the site boundary, or within a 5km radius of the site.

3.2 Habitats

3.2.1 Ancient Woodland Inventory Sites

No areas of ancient woodland are present within the site. However, three areas are present within a 2km radius of the site boundary as detailed in Table 3-2:

Table 3-2: Ancient Woodland Inventory Sites

Site name	Distance and Orientation	Designation[2] (Ancient Woodland Categories)
Unnamed Woodland	Approx. 0.74km north	Long-Established (of Plantation Origin) (LEPO)

[1] SAC (Special Area of Conservation), SPA (Special Protection Area), RAMSAR (Wetland of International Importance), SSSI (Site of Special Scientific Interest), NNR (National Nature Reserve)

[2] Definition of antiquity categories, available from: http://www.snh.org.uk/publications/on-line/advisorynotes/95/95.html. ASNO: Sites shown as woodland on all available map sources from 1750 onwards and as semi-natural woodland on the 1750 'Roy' maps. LEPO: Sites shown as plantation woodland in c.1860 but not shown as woodland at all in 1750 or shown as plantation on these maps. These are woods that were apparently planted before 1860

Site name	Distance and Orientation	Designation[2] (Ancient Woodland Categories)
Unnamed Woodland	Approx. 1.5km south	Ancient (of Semi-Natural Origin) (ASNO)
Unnamed Woodland	Approx. 1.5km south	LEPO

The Phase 1 Habitat Map can be found in Appendix C and Photographs in Appendix E.

The habitat types and boundary features within the site are:

3.2.2 Phase 1 Habitats

A total of 17 Phase 1 Habitat types, including boundary features, were identified on the site and are listed below.

- A2.1 Dense Scrub;
- A2.2 Scattered Scrub;
- A3.1 Broadleaved Parkland/Scattered Trees;
- B2.2 Semi-Improved Neutral Grassland;
- B4 Improved Grassland;
- C3.1 Tall Ruderal Vegetation;
- H1.1 Intertidal Mud/Sand;
- H3 Shingle/Gravel Above High-Tide Mark;
- H6.5 Dune Grassland;
- H6.8 Open Dune;
- J1.3 Ephemeral/Short Perennial;
- J2.4 Fence;
- J2.5 Wall;
- J3.5 Sea Wall;
- J3.6 Buildings;
- J4 Bare Ground; and
- J5 Other Habitat.

3.2.3 Dense Scrub

Scrub is seral or climax vegetation that is dominated by locally native shrubs, usually less than 5m tall and occasionally with a few scattered trees. Dense scrub is located in the south east of the site and consists of sea buckthorn (*Hippophae rhamnoides*), with marram grass (*Ammophila arenaria*) scattered along the southern aspect of the stand (Photograph 1).

3.2.4 Scattered Scrub

Scattered scrub is present along the northern and eastern boundaries of the site as well as within the east of the site. Species include dog rose (*Rosa canina*), broom (*Cytisus scoparius*), gorse (*Ulex europaeus*), sea buckthorn, elder (*Sambucus nigra*) and sycamore (*Acer pseudoplatanus)* saplings (Photograph 2).

3.2.5 Broadleaved Parkland/Scattered Trees

Broadleaved scattered trees comprise areas of trees where 10% or less of the canopy is coniferous and tree cover is less than 30% of the area. Several sycamore trees are present in the south east of the site and the specimens range from mature to semi-mature (Photograph 3).

3.2.6 Semi-Improved Neutral Grassland

Semi-improved grasslands are transition categories made up of grasslands which have been modified by artificial fertilisers, slurry, intensive grazing, herbicides or drainage, and consequently have a range of species which is less diverse and natural then unimproved grasslands. Neutral grasslands are those which are typically enclosed and usually more intensively managed. This habitat is present in the north and west of the site. Previous management, through commercial land use and grazing from browsing species, including rabbits and deer, is likely to have contributed to these areas being low in species diversity. The dominant grass species are cock'sfoot (*Dactylis glomerata*), false oat grass (*Arrhenatherum elatius*) and tufted hair grass (*Deschampsia cespitosa*), with common knapweed (*Centaurea nigra*), common ragwort (*Jacobaea vulgaris*) and creeping thistle frequently dispersed throughout the sward. Common nettle (*Urtica diocia*), creeping thistle (*Cirsium arvense*), creeping buttercup (*Ranunculus repens*) and spear thistle (*Cirsium vulgare*) are occasionally present. (Photograph 4).

3.2.7 Improved Grassland

Improved grasslands are those meadows and pastures which have been so affected by heavy grazing, drainage, or the application of herbicides, inorganic fertilisers, slurry or high doses of manure that they have lost many of the species expected in an unimproved sward. They have a limited range of grasses and a few common forbs. This habitat is present in the south east and west of the site, where it appears to have undergone regular disturbance via grazing animals. The dominant grass species are cock'sfoot, false oat grass and Yorkshire fog (*Holcus lanatus*). Common dandelion (*Taraxacum officinale*), creeping buttercup and common chickweed (*Stellaria media*) are occasional and common mouse-ear (*Cerastium fontanum*) and common field speedwell (*Veronica persica*) are rare (Photograph 1).

3.2.8 Tall Ruderal Vegetation

This category comprises stands of tall perennial or biennial dicotyledons, usually more than 25cm high. Tall ruderal vegetation is present in multiple areas within the site and species include common nettle, creeping thistle and umbellifer species (Photograph 5).

3.2.9 Intertidal Mud/Sand

There are small areas of sand within the east and west of the site and a band of sand along the southern boundary of the terrestrial habitat within the site where it meets the Cromarty Firth (Photograph 6).

Intertidal sand is classified as an Annex 1 type 1140 mudflats and sandflats not covered by seawater at low tide.

3.2.10 Shingle/Gravel Above High-Tide Mark

A band of shingle/gravel habitat is present within the south of the site (Photograph 7).

Shingle/gravel above the high-tide mark is classified as an Annex 1 type 1220 perennial vegetation of stony banks.

3.2.11 Dune Grassland

All grasslands occurring on consolidated and flattened dunes are classified under dune grassland habitat. This habitat is present in a small, isolated areas in the east of the site and is classified as an Annex 1 type 2130 fixed dunes with herbaceous vegetation ('grey dunes'). The dominant grass species are cock'sfoot (*Dactylis glomerata*), false oat grass (*Arrhenatherum elatius*) and tufted hair grass (*Deschampsia cespitosa*), with common knapweed (*Centaurea nigra*), common ragwort (*Jacobaea vulgaris*) and creeping thistle frequently dispersed throughout the sward. Common nettle (*Urtica diocia*), creeping thistle (*Cirsium arvense*), creeping buttercup (*Ranunculus repens*) and spear thistle (*Cirsium vulgare*) are occasionally present. Marram grass is scattered throughout the sward (Photograph 8).

3.2.12 Open Dune

This category comprises the three early successional phases of dune formation.

Fore dune: unstable, usually low ridges of sand on the foreshore, often with a very open plant cover. Marram grass may be present in small quantities but is not dominant.

Yellow dune: partially stabilised ridges of sand lying between fore and grey dunes, with a marked but incomplete plant cover, nearly always dominated by marram grass, although lyme grass (*Leymus arenarius*) may be common.

Grey dune: stable ridges of sand, almost completely vegetated. The vegetation is very variable in species composition; marram grass is usually present but not dominant, and mosses and lichens may be frequent. Grey dune is distinguished from fixed dune by being markedly hilly or undulating, and by the sand not being fully consolidated.

A small isolated section of open dune is present in the north east of the site and is classified as an Annex 1 type 2130 fixed dunes with herbaceous vegetation ('grey dunes'). It is predominantly grey dune, due to the high cover of vegetation and variation in cover of marram grass. The sand was not fully consolidated and was also hilly in nature. The dominant grass species was false oat grass, with glittering wood-moss (*Hylocomium splendens*) being abundant and sand sedge (*Carex arenaria*), red fescue (*Festuca rubra*), Yorkshire fog and neat feather moss (*Pseudoscleropodium purum*) being frequent. Cock'sfoot, yarrow, heath bedstraw *(Galium saxatile*), harebell (*Campanula rotundifolia*), mouse-ear hawkweed (*Hieracium pilosella*) and big shaggy moss (*Rhytidiadelphus triquestrus*) are occasional and thyme-leaved speedwell (*Veronica serpyllifolia*) is rare. Marram grass was also present, being more frequent in the southern section of this habitat (Photograph 9).

3.2.13 Ephemeral/Short Perennial

This habitat consists of short, patchy associations typical of derelict urban sites, quarries and railway ballast. Land is free draining and usually shallow stony soils are present. Vegetation lacks clear dominant species but consists of a mixture of low-growing plants often less than 25cm high. This habitat is present in multiple areas within the site and consists of species including springy turf moss (*Rhytidiadelphus squarrosus*), hairy bittercress (*Cardamine hirsuta*) and shining cranesbill (*Geranium lucidum*), which are dominant in places, with white clover (*Trifolium repens*), young common dandelion, young yarrow (*Achillea millefolium*) and spear thistle being abundant. Broadleaved dock (*Rumex obtusifolius*), glittering wood-moss and ribwort plantain (*Plantago lanceolata*) are frequent (Photograph 1).

3.2.14 Fence

A combination of fences are located within the site and along sections of the east and west boundaries, comprising of wooden post and wire, security fencing and chain-link and cement post fencing (Photograph 1).

3.2.15 Wall

A stone wall is present within the west of the site (Photograph 10) and along the coast where it connects with the sea wall (Photograph 11).

3.2.16 Sea Wall

A sea wall constructed from artificial materials, rocks, wood and corrugated metal is present in the west of the site and extends eastward where artificial materials have been enclosed in gabion baskets (Photograph 10).

3.2.17 Buildings

Six buildings are present within the site boundary. There is a two storey, tiled pitched roof sandstone building with an associated outbuilding (also comprising of sandstone and a pitched tiled roof) and a modern roughcast extension on the south east aspect. A one storey, roughcast and metal corrugated roofed building and two one storey sandstone buildings are also present, as well as a tiled pitched roof building and a one storey stone and metal corrugated pitched roof building. Detailed descriptions and photographs are provided in Appendix F.

3.2.18 Bare Ground

Bare ground dominates the site, consisting of tarmac, gravel and rubble. A large proportion of the site has been modified and previously existing walls demolished, resulting in a large volume of compacted rubble being left behind (Photographs 10 and 12).

3.2.19 Other Habitat

A pile of rubble and stones is present in the north of the site, where the remnants of a stone built structure are also present (Target Note 1) (Photograph 13).

3.3 Groundwater Dependent Terrestrial Ecosystems

No potential GWDTEs were recorded within the site boundary during the survey.

3.4 Invasive Non-Native Species

No invasive non-native species were identified during the survey.

3.5 Faunal Species and Species Groups

The Faunal Survey Results Map can be found in Appendix D and Photographs in Appendix E.

3.5.1 Disclaimer

Faunal species are transient and can move between favoured habitats regularly throughout and between years. This survey provides a snapshot of field signs present in the survey area in December 2018.

3.5.2 Local Records

The following is a summary of the notable local records returned from HBRG:

Table 3-3: Local Biodiversity Records

Species	Latin Name	Number of Records	Location (Approx.)	Date
Mammals				
West European hedgehog	*Erinaceus europaeus*	One	Approx. 1.7km north	2001
Brown hare	*Lepus europaeus*	One	Approx. 1.4km north	2002
Otter	*Lutra lutra*	Two – observation and evidence (spraint)	Approx. 1.3km and 1.4km east	2001 and 2014
Herpetofauna				
Common lizard	*Zootoca vivipara*	Three	Approx. 0.5km, 0.8km and 0.9km east	2015 and 2016

3.5.3 Biodiversity Action Plan and SBL Species and Habitats

The site is within the Highland Council area, which considers wider ecosystems within the HBAP and therefore does not highlight specific species and habitats of importance. The RCBAP covers the area the site is situated in and targets specific species and priority habitats. **Error! Reference source not found.** below presents the pecies and habitats listed on the RCBAP, UKBAP and SBL that are potentially relevant to the site:

Table 3-4: **Biodiversity Action Plan and SBL Species and Habitats**

Species	RCBAP	UKBAP	SBL
Mammals*			
Badger	✓		
Brown long-eared bat (*Plecotus auritus)*	✓		
Common pipistrelle (*Pipistrellus pipistrellus)*	✓	✓	✓
Soprano pipistrelle (*Pipistrellus pygmaeus*)	✓	✓	✓
Daubenton's bat (*Myotis daubentonii)*	✓	✓	✓
Natterer's bat (*Myotis nattereri*)	✓	✓	✓
Brown hare (*Lepus europaeus*)	✓		✓
West European hedgehog (*Erinaceus europaeus*)	✓	✓	✓
Otter	✓	✓	✓
Minke whale (*Balaenoptera acutorostrata*)	✓	✓	✓
Harbour porpoise (*Phoecoena phocoena*)	✓	✓	✓
Bottlenose dolphin	✓	✓	✓
Grey seal (*Halichoerus grypus*)	✓		
Common (harbour) seal	✓		
Birds*			
Skylark (*Alauda arvensis*)	✓	✓	✓
Wigeon (*Anas penelope*)	✓		
Twite (*Acanthis clavirostris*)	✓		
House Sparrow (*Passer domesticus)*	✓		
Swallow (*Hirundo rustica)*	✓	✓	✓

Species	RCBAP	UKBAP	SBL
Tree Sparrow (*Passer montanus)*	✓	✓	✓
Fish*	**RCBAP**	**UKBAP**	**SBL**
Atlantic salmon (*Salmo salar*)	✓	✓	✓
Brown trout (*Salmo trutta*)	✓	✓	✓
Cod (*Gadus morhua*)	✓		
Herring (*Clupea harengus*)	✓		
Mackerel (*Scomber scombus*)	✓		
Habitats	**RCBAP**	**UKBAP**	**SBL**
Sea and Coast	✓	✓	✓

*Marine mammals, fish and birds are covered in further detail in the scoping report.

3.5.4 NBN Atlas

A summary of reported sightings of species potentially relevant to the site within a 2km radius is provided in Table 3-5 below:

Table 3-5: Species Records from NBN Atlas

Species*	Orientation	Date	Comments
Brown hare	One sighting (north of site)	08/07/2002	No information
West European hedgehog	One sighting (north of site)	23/09/2001	No information
Otter	One sightings (east and south)	05/2014	Field evidence (spraint) and actual sighting

3.6 Protected Species

3.6.1 Bats

No records of bats within a 2km radius of the site were returned from the desk study.

Two sycamore trees with PRFs are present within the site and located at NH79528 68907 (tree 1; Photograph 14) and NH 79561 68905 (tree 2; Photograph 15). Tree 1 was classified as negligible in accordance with Table 2-2; storm damage has created PRFs, however, all of them are upward facing making them prone to filling with water and as such unsuitable for roosting bats. This tree is also isolated from other vegetation leaving it exposed and lacking connectivity. Tree 2 is an ivy (*Hedera helix*) covered sycamore which may provide some opportunities for individual roosting bats. As such tree 2 was assessed as having low potential for roosting bats in accordance with Table 2-2.

Six buildings are present within the site boundary. The roughcast building with the red corrugated metal roof is to be retained and will not to be included in any works, therefore only the remaining five buildings have been assessed.

The buildings within the site are considered to offer potential for summer roosting bats, as per Table 2-2, due to the presence of PRFs, via cracks in mortar between brickwork, gaps in lintels above doorframes, broken tiles, gaps under lead flashings, gaps behind boards covering windows, gaps being fascia boards, missing harling and rough cast above windows, cracks in chimney stacks, and ivy covered aspects. Despite the presence of PRFs, the buildings have been classified as offering low suitability for summer roosting bats due to their isolated

coastal location and limited connecting terrestrial habitat (see Table 2-1). The buildings do not offer habitat for maternity roosting bats, only opportunistic individuals, due to the size of the cavities present.

All five buildings are considered to offer low potential for hibernating bats as per Table 2-1, as they have features suitable for roosting, are derelict in nature and as such could provide constant cool temperatures during the hibernation season. A detailed description of each building with photographs is provided in Appendix F.

The site offers limited terrestrial habitat which connects to adjacent features out with the site, therefore the site is assessed as offering low potential for commuting and foraging bats. The dense scrub and scattered trees would provide limited foraging habitat which does not connect to the wider area.

3.6.2 Otter

Two records of otter were returned from the desk study, east and south east of the site boundary. Spraint was identified along the Cromarty Firth coast and an observational sighting was reported in grassland adjacent to a quarry. No evidence of otter was identified during the survey.

The marine environment of the Moray Firth and Cromarty Firth provide suitable commuting and foraging habitat for otter, where they could obtain varied foraging resources such as Atlantic salmon (*Salmon salar*), brown trout (*Salmo trutta*), flatfish and eels, crustaceans and occasionally wading birds. Otters that inhabit coastal habitats utilise inshore areas which are shallow, for foraging and commuting.

In general, coastal otter habitats range from open, low-lying coastal habitat to sheltered wooded inlets. The dense scrub, within the site, adjacent to the shore, provides opportunities for rest sites and sheltered commuting. Otters will also utilise terrestrial habitats, including rough grassland, for resting and breeding holts. Otters may also utilise other mammal species' burrows for resting sites. Multiple burrows were present within the dense scrub, likely attributed to rabbit (*Oryctolagus cuniculus*), due to their small size, lack of spoil heaps and circular shapes, which otter could utilise for resting.

Overall the site has some suitable habitat for commuting, foraging and resting otter, however, the site is highly frequented by members of the public and dog walkers, which reduces its suitability.

3.6.3 Badger

No records of badger were returned from the desk study and no evidence of badger was found during the survey.

Suitable habitat for sett creation is lacking due to the site predominantly consisting of bare ground. Gorse and sea buckthorn are known to provide opportunities for sett creation, however, due to the isolated nature of this vegetation it is not considered likely.

The semi-improved grassland and berry producing scrub habitats within the site offer secondary foraging resources and the small area of improved grassland offers a limited primary foraging habitat as a source of earthworms, which comprise the majority of badgers' diet. Broadleaved woodland, arable fields and short mown grassland are present in the wider area which provide a primary foraging resource for badger.

Fragmented habitat is present within the site in the form of dense scrub and scattered scrub which provide some connecting habitat to the wider landscape.

3.6.4 **Birds**

No birds' nests were identified during the survey.

Multiple bird species were observed while undertaking the survey, which included: Wren (*Troglodytes troglodytes*), Great Tit (*Parus major*), Robin (*Erithacus rubecula*), Jackdaw (*Corvus monedula*), Herring Gull (*Larus argentatus*) and Black-headed Gull (*Chroicocephalus ridibundus*).

The Birds of Conservation Concern (BOCC) is a list of species which have been assessed against a set of criteria to place each on one of three lists (green, amber and red) to indicate an increasing level of conservation concern.

Wren, Great Tit, Robin and Jackdaw are listed on the BOCC Green List.

Black-headed Gull feature on the BOCC Amber List and Herring Gull on the BOCC Red List.

4 FURTHER SURVEY AND LICENSING

4.1 Further Survey and Licensing

4.1.1 Habitats

Although the Phase 1 Habitat Survey was completed outside of the optimal survey period for vegetation, it is deemed unnecessary to undertake further surveys of Annex 1 habitats within the site. This is due to the Annex 1 habitats (intertidal sand/mud, shingle/gravel above high –tide mark, dune grassland and open dune habitat) identified on site not being classified as viable due to the very small areas which they extend and the fragmented/isolated nature of each. As such, no further habitat surveys are required.

4.1.2 Bats

The five buildings assessed within the site boundary are classified as providing low potential for summer roosting bats and low potential for hibernating bats.

Winter hibernation surveys of the buildings should be completed, consisting of two visits, one in mid-January and one in mid- February, including a detailed internal inspection up to ladder height of any PRFs which may provide hibernating opportunities for bats.

One bat activity survey is also required on each building, between May and August, to determine the presence/absence of summer roosting bats.

If during the hibernation surveys and/or bat activity survey a roost/evidence of bats is identified or bat activity suggests that a roost may be present, further surveys would be required.

If the ivy covered tree is to be felled or subjected to arboricultural operations to facilitate development, an elevated inspection to search for roosting bats will be required prior to works commencing.

The requirement for a licence from SNH to disturb or destroy a bat roost will need to be re- assessed following the above surveys.

4.1.3 Otter and Badger

No evidence of otter or badger was found during the survey. Limited suitable habitat is present for badger within the site, however suitable habitat exists within and adjacent to the site for otter.

Ecological data is considered valid for a period of 12 months. Providing that ground works commence before December 2019 then no further update to the baseline data in relation to these species is considered necessary other than pre-works checks for otter, to locate any resting sites that may require a licence to disturb. If the site boundary was to change, further survey work for these protected and notable species may be required.

4.1.4 Nesting Birds

As suitable habitat for nesting birds is present within the site, no building demolition or vegetation removal should be undertaken during the bird breeding season (March-August), otherwise a nesting bird survey will need to be undertaken immediately prior to the works.

If an active nest is discovered the building cannot be demolished or the vegetation removed until the young have fledged and the nest is no longer active.

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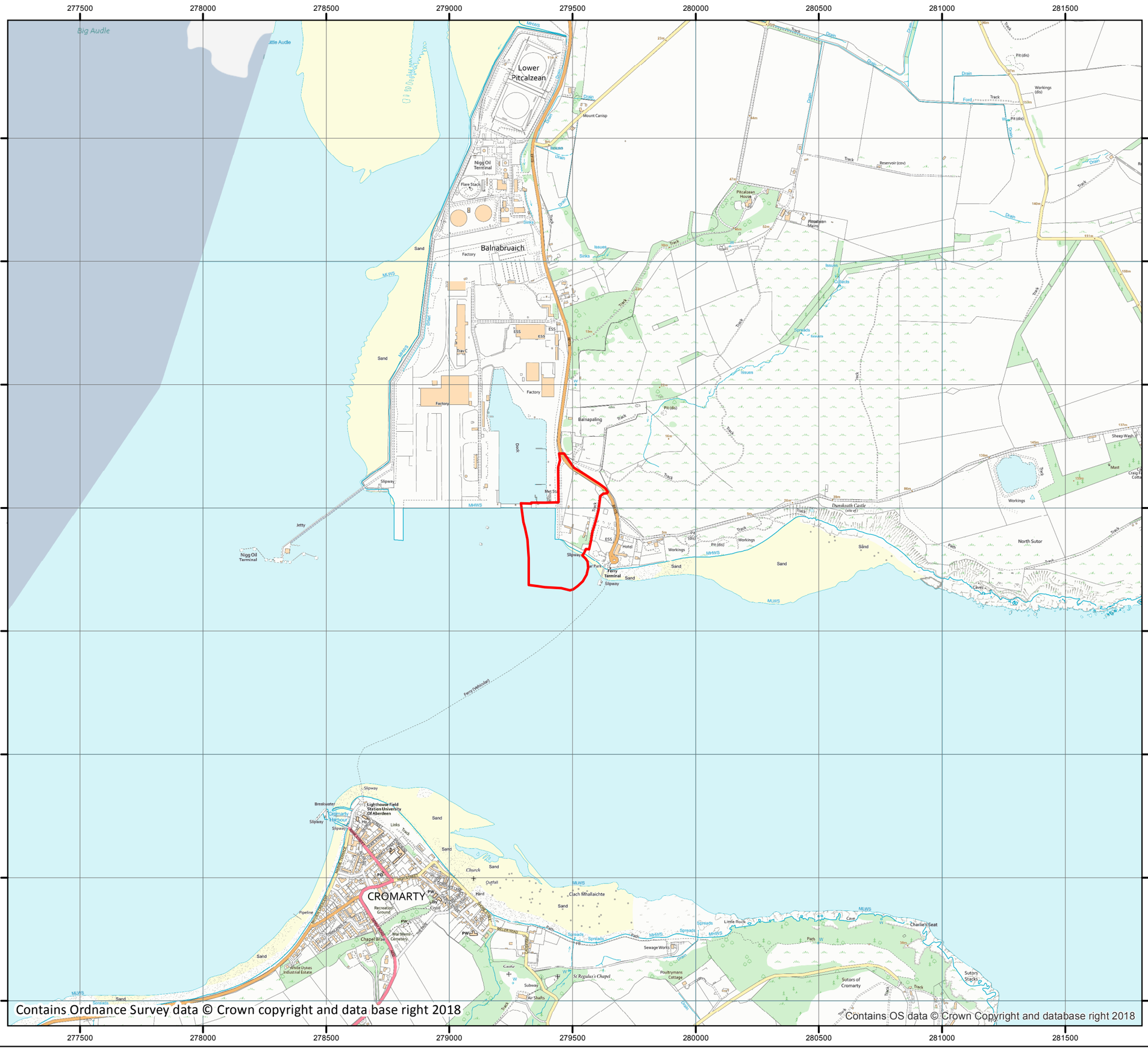
APPENDICES

A SITE LOCATION PLAN



Legend

Site Boundary

Do not scale this map

Client

Global Energy Nigg Limited

Project

Nigg East Quay

Title

Figure 1 - Site Location Plan

Status

FINAL

Drawing No.	Revision
671906-001	

Scale		Date
1:15,000	A3	12 Feb 2019

Drawn	Checked	Approved
Re	Re	Re

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B PROTECTED SPECIES LEGISLATION SUMMARY

Bats and Otter

A European Protected Species (EPS) is a species listed in the EC Directive (92/43) The Conservation of Natural Habitats and of Wild Flora and Fauna (the "Habitats Directive"), which is transposed into UK law through the Conservation (Natural Habitats &c.) Regulations 1994 (the "Habitat Regulations") as amended by The Conservation (Natural Habitats, &c.) Amendment (Scotland) Regulations 2007. Under this legislation an EPS (*e.g.* all bat species) are protected from:

(a) Deliberate or reckless capture, injuring or killing;
(b) deliberate or reckless
    (i) harassment of an animal or group of animals;
    (ii) disturbance of such an animal while it is occupying a structure or place which it uses for shelter or protection;
    (iii) disturbance of such an animal while it is rearing or otherwise caring for its young;
    (iv) obstructing access to a breeding site or resting place of such an animal, or otherwise denying the animal use of the breeding site or resting place;
    (v) disturbance of such an animal in a manner that is, or in circumstances which are, likely to significantly affect the local distribution or abundance of the species to which it belongs; or
    (vi) disturbing such an animal in a manner that is, or in circumstances which are, likely to impair its ability to survive, breed or reproduce, or rear or otherwise care for its young;
(c) deliberate or reckless taking or destroying the eggs of such an animal; or,
(d) damaging or destroying a breeding site or resting place of such an animal.
(e) any person:
    (i) possessing or controlling;
    (ii) transporting;
    (iii) selling or exchanging; or
    (iv) offering for sale or exchange,

any live or dead animal or part of an animal or anything derived from such an animal which has been taken from the wild and which is of a species or subspecies listed in Annex IV(a) to the Habitats Directive – unless the animal from which the part or the thing in question is derived, was lawfully taken from the wild (i.e. taken from the wild in the European Union without contravention of appropriate domestic legislation and before the implementation date of the Habitats Directive (in that Country e.g. 1994 in UK) or if it was taken from elsewhere).

European Protected Species Licensing

For a licence to be issued these three tests must be satisfied:

- That the development is 'in the interests of public health and public safety, or for other imperative reasons of overriding public interest, including those of a social or economic nature and beneficial consequences of primary importance for the environment';
- That there is 'no satisfactory alternative'; and
- That the derogation (i.e. any permission/licence granted) is 'not detrimental to the maintenance of the populations of the species concerned at a favourable conservation status in their natural range'.

To obtain a licence a Method Statement is required that identifies the activities to be undertaken, the location of all resting sites (*e.g.* bat roosts), the potential effects and details of the proposed mitigation.

Badger

Under the Protection of Badgers Act (1992), as amended by the Nature Conservation (Scotland) Act 2004, it is an offence to:

- Kill, injure or take a badger;
- Have in possession a dead badger or any part of a badger;
- Cruelly ill-treat a badger; and
- Damage, destroy, interfere or obstruct a badger sett or disturb a badger whilst it is occupying a sett.
-

Where an offence is committed the individual (as well as the body corporate, Scottish partnership or, as the case may be, unincorporated association) is guilty of the offence and is liable to be proceeded against and punished accordingly.

In some cases licenses may be issued by SNH to enable certain otherwise illegal activities to take place. With respect to development-related activities, licenses can be issued where there is likely to be damage or disturbance to a badger sett, for social, economic or environmental reasons. Licenses may only be issued for this purpose provided that:

- The activity authorised by the licence will contribute to significant social, economic or environmental benefit; and
- There is no other satisfactory solution.

General Breeding Birds

All wild bird species in the UK are protected from killing, injury and taking under the Wildlife and Countryside Act 1981, as amended. It an offence to take, damage or destroy a nest while in use or being built, and to take or destroy the eggs of any nesting bird.

Birds listed on Schedule 1 of the Act are provided additional protection. It is an offence, with certain exceptions, to:

- Intentionally kill, injure, or take (handle) any wild Schedule 1 bird;
- Intentionally take, damage or destroy any nest whilst in use or being “built” by a Schedule 1 bird;
- Intentionally take or destroy a wild Schedule 1 bird egg;
- Have in one’s possession or control a wild Schedule 1 bird (dead or alive), or egg, (unless one can show that it was obtained legally);
- Intentionally or recklessly disturb any wild Schedule 1 bird whilst “building” a nest or whilst in, on, or near a nest containing eggs or young; and
- Intentionally or recklessly disturb any dependent young of a Schedule 1 bird.

Licences can be granted by SNH to permit otherwise illegal acts; however licences cannot be issued for the removal of Schedule 1 birds to facilitate development.

Note: The above information constitutes a summary only. Please refer to original legislation for full information

C PHASE 1 HABITAT SURVEY MAP

Legend

- Site Boundary
- TargetNote

JNCC Phase 1 Habitat Code

- A2.1 Dense/Continuous Scrub
- A2.2 Scattered Scrub
- A3.1 Parkland/Scattered Broad-leaved Trees
- B2.2 Neutral Semi-Improved Grassland
- B4 Improved Grassland
- C3.1 Tall Ruderal Vegetation
- H1.1 Intertidal Mud/Sand
- H3 Shingle above High Tide Mark
- H6.5 Dune Grassland
- H6.8 Open Dune - Grey Dune
- J1.3 Ephemeral/Short Perennial
- J2.4 Fence
- J2.5 Wall
- J3.5 Sea Wall
- J3.6 Building
- J4 Bare Ground
- J5 Other Habitat

Do not scale this map

Client: Global Energy Nigg Limited

Project: Nigg East Quay

Title: Figure 4 - Phase 1 Habitat Survey Map

Status: FINAL

Drawing No.: 671906-004

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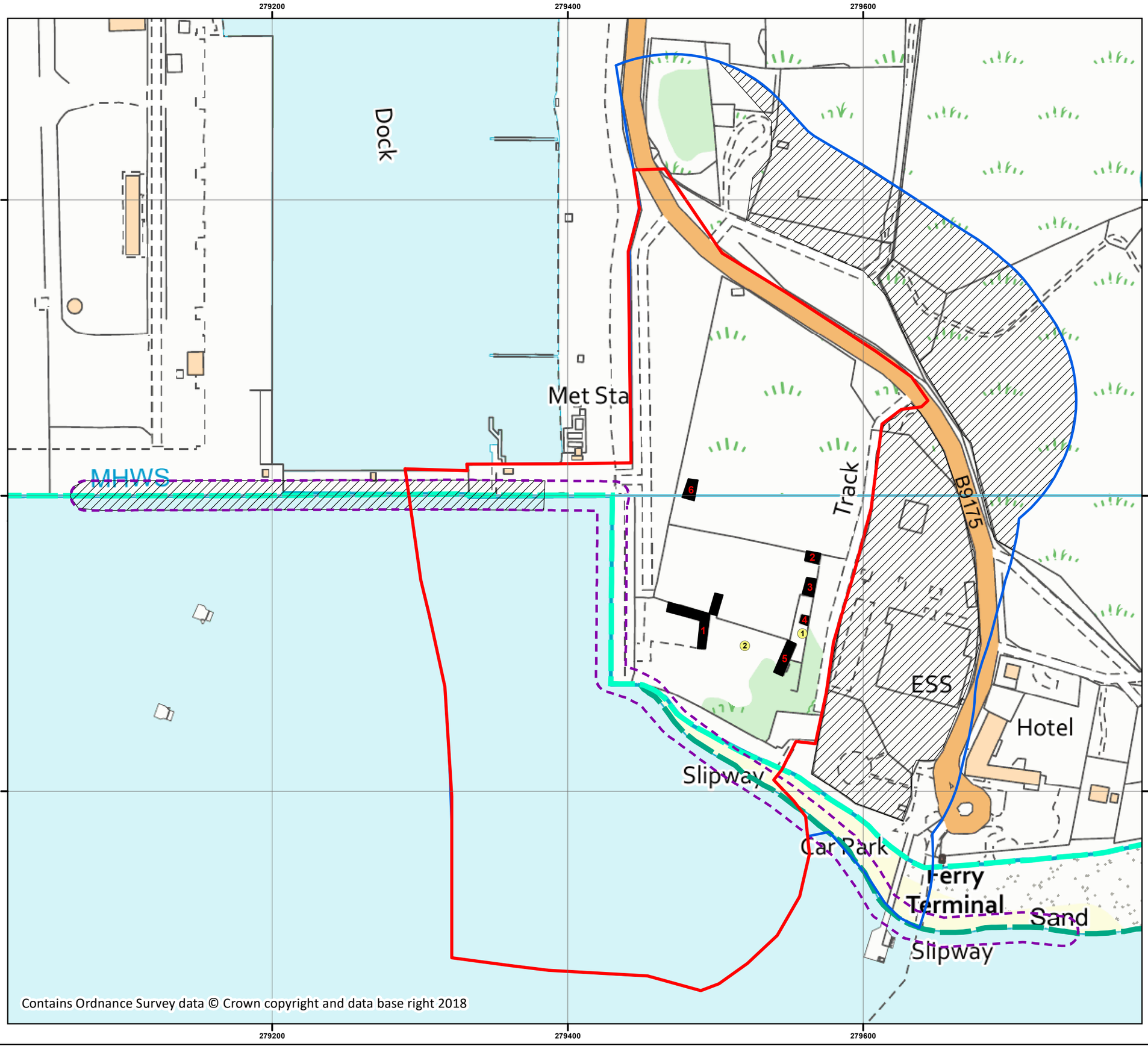
D PROTECTED SPECIES SURVEY RESULTS



Legend

- Site Boundary
- 100m Survey Buffer
- 250m Survey Buffer
- Inaccessible Areas
- Buildings
- Trees With Potential Roost Features
- MHWS
- MLWS

Do not scale this map

Client: Global Energy Nigg Limited

Project: Nigg East Quay

Title: Figure 5 - Protected Species Survey Area

Status: FINAL

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Approved: R

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E PHOTOGRAPHS

Photograph 1: Scattered scrub, ephemeral/short perennial habitat, improved grassland and fencing

Photograph 2: Dense scrub

Photograph 3: Scattered broadleaved trees

Photograph 4: Semi-improved neutral grassland

Photograph 5: Tall ruderal vegetation

Photograph 6: Intertidal sand

Photograph 7: Shingle above high tide mark

Photograph 8: Dune grassland

Photograph 9: Open dune (grey dune)

Photograph 10: Wall, sea wall, semi-improved grassland and bare ground

Photograph 11: Wall and intertidal sand

Photograph 12: Bare ground

Photograph 13: Stone pile

Photograph 14: Tree 1 – Sycamore with storm damage

Photograph 15: Tree 2 – Sycamore covered in ivy

F DETAILED BUILDING DESCRIPTIONS

Building No.		Description and PRFs	Roosting Bat Potential	Hibernation Potential
1		Two storey sandstone and mortar building, with a pitched tiled roof. A small flat roofed, roughcast extension is present on the south east aspect of the building. A one storey sandstone and pitched roofed outbuilding is attached to the north east of the building. A section of the roof in the outbuilding has collapsed. The roof of the west aspect is missing as are several of the window panes and doors leaving sections exposed. Some of the windows have been boarded up. PRFs include: missing tiles on roof, loose mortar between sandstone blocks, gaps behind boarded up windows, gaps under flashings, gaps behind fascia boards, missing harling/roughcast above windows, missing glass in windows.	Low	Low
2		Stone built structure with missing roof, windows and doors. The four walls of the structure are still in place, however are very exposed. PRFs include: gaps in mortar, gaps above wooden lintels above windows.	Low	Low

3		One storey sandstone and tiled pitched roof building. Glass is missing from windows and doors are missing. The compacted rubble present within the site reaches up to the top of the windows of the building. PRFs include: loose and missing tiles, gaps under tops of windows, cracks in chimney stack and under tiles and loose mortar between sandstone blocks.	Low	Low
4		One storey metal corrugated roofed stone building. A large hole is present in the roof and the doors are open on both the north and south aspects. PRFs include: gaps in lintel in doorframe and gaps in loose mortar.	Low	Low
5		One storey, sandstone building with a tiled pitched roof and harled north and south aspects. Three chimney stacks are present and glass in windows is missing as are the doors. The rubble adjacent reaches up to the roof of the building. Ivy covers the south aspect. Multiple areas of the roof have collapsed. PRFs include: missing harling, gaps in corner of roof where tiles missing and flashings broken, lifted and missing tiles, gaps in cracks in chimney stacks and within ivy growing on south aspect.	Low	Low