



Brough Harbour Improvement

Environmental Report

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1 Introduction

This Environmental Report has been produced on behalf of the Brough Bay Association (BBA) to understand the potential environmental impacts associated with the Brough Harbour Improvements and identify mitigation measures to minimise potential adverse effects. This Environmental Report will be submitted as a supporting document to the Planning and Marine Licence application for the proposed Brough Bay Harbour Improvements.

The purpose of this report is to ensure that an appropriate level of information is provided to allow the licences to be determined whilst demonstrating compliance with the legal framework and planning policies in Scotland.

The report covers all planned activities, including a number which do not require a consent but have been included for transparency and to allow mitigation to be identified for all works related to the project.

The report provides a description of:

- The location of the proposed development;
- The proposed development and construction techniques;
- The Statutory Context in terms of both Marine and Terrestrial legislation, and the Planning for both Marine and Terrestrial development;
- Known Sensitivities;
- Environmental aspects; and
- Mitigation proposed to minimise adverse effects.

2 Projection Background

According to the Highland Historic Environment Record the slipway (Monument MHG223) at Brough Harbour was constructed in 1830 by the Northern Lighthouse Board to serve as a landing place for stores for Dunnet Head Lighthouse. The slipway was constructed from sandstone blocks and rubble core, tied together by steel bars. While the structure is largely the original slipway material, a section of the south wall was destroyed by a storm c1978. Repairs were done utilising similar material to the original material. The slipway is 75m in length and 5.8m wide (Highland Historic Environment Record, 2021). In 2011 restoration work to the slipway was undertaken comprising injection pointing, placement of concrete below undermined sections and installation of additional tie bars (Highland Historic Environment Record, 2021).

BBA are a membership community group dedicated to maintaining and improving the facilities at Brough Harbour. They were gifted the harbour and surrounding 7.5 acres and are a registered Charity. The BBA are planning a number of improvements which include:

Marine elements:

- Repair to the existing slipway.

Terrestrial Elements:

- Installing drainage on the uphill side of the existing access track;
- Protection works at the toe of the existing sea wall (~80m);
- Reconstruction of approximately 5m length of collapsed sea wall;

- Adding drainage in the slope behind the existing bothy / store; and
- Extend existing turning area to the east of the slipway to create a parking area.

2.1 Location

Brough is a small village in Caithness in the far north of Scotland. The small harbour lies within a small bay north of the village (Grid Reference: ND 2210 7401) and overlooks the rock stack, Little Clett. Brough is located on the B855, approximately 3.5km southeast of Dunnet Head, the most northerly point on the British mainland. Refer to Drawing 1943-902 for the location of Brough Harbour.

2.2 Project Elements

As the project will be constructed on behalf of the BBA, the construction of the project elements are reliant on the availability of funding. As such, elements will be constructed as funding becomes available and will therefore, not all happen at once. For each contract mobilisation to site will take approximately 3 days and a further 5 days for snagging/demobilisation from site for each contract is pessimistically assumed.

2.2.1 Major Slipway Repairs

A 15m long section of the existing slipway is currently in a poor state of repair, giving rise to a uneven top surface which makes the launching of boats difficult and poses a significant trip hazard to visitors. As shown on Drawing 1943-102, the repairs to the slipway are required to an area between MLWS and MHWS.

The repair works entail the breakout of the damaged area of surfacing (approximately 15m x 5m) on the slipway using a vehicle mounted breaker with existing fill material being excavated to rockhead, and then backfilled with mass concrete fill in layers dowelled into the masonry slipway walls. A reinforced concrete surface slab will be laid over the fill material with dowels into the masonry walls and adjacent slab.

Any material removed from the slipway during the repairs will either be used as aggregate for the Harbour Improvement works or will be sent for recycling / disposal. Concrete will be delivered to the top of the access track and transported to the slipway by a dumper truck and poured in-situ. The repair work to the slipway will be carried out when tide levels are below the works to avoid in-water working. They will take approximately 3 weeks to complete.

2.2.2 Parking Area

To facilitate use of the Slipway and to accommodate visitors to the harbour, there is a need to provide a suitable area for parking. There is an existing turning area to the east of the slipway this will be extended. It is recognised that cars with boat trailers will utilise the area for parking and turning as such the intent is not to formally mark out parking spaces. The space could accommodate up to 9 cars, but it is not thought likely that there would be a regular need for this number of vehicles.

The parking area will be constructed to a height of between +7.3 and +8m CD (9.49m to 10.19m Ordinance Datum (OD)) by extending the existing turning area to the west of the slipway, creating an area of approximately 300m². As shown in Drawing 1943-102 all of the area is currently above MHWS.

The existing rock armour will be removed and the beach area cleared of debris and unsuitable material. The surface of the existing turning area will be trimmed to the required profile. The beach area will be compacted in order to receive backfill for reclamation. Infilling will be undertaken by laying the geotextile membrane and building up the backfill in fully compacted layers off approximately 50mm to the required formation level for the surfacing slab. Blinding of the whole area will be undertaken using a 50mm layer of blinding. The slab edge profile shutters will then be installed along with the slab reinforcement to allow the surface slab to be cast. The concrete surfacing slab will be 250mm thick and be cast by in situ pouring, and brushed finish to provide texture to help prevent slipping. Concrete will be delivered to the top of the access track and transported the parking area by a dumper truck.

The sloping face of the reclaimed area will be trimmed, a toe will be excavated, geotextiles laid and finally a single layer of rock armour (0.5t or 600mm diameter stones) placed to protect the newly reclaimed area. The parking area is expected to take approximately 5 weeks to complete, this includes the concrete stairs as discussed in Section 2.2.3.

2.2.3 Concrete Stairs

Concrete stairs will be installed to provide access from the parking area to the beach, these will be located adjacent to the eastern edge of the slipway as shown in Drawing 1943-102.

Once the parking area has been constructed the surface of the parking area at the location where the stairs will be constructed will need to be excavated to the level required as per the designs. Shutters will then be installed and concrete poured to cast the stairs. The side wall will then be cast by installing shuttering and pouring concrete. Once set a handrail will be bolted onto the side wall.

2.2.4 Protection works at the Toe of the Sea Wall

The Harbour has an existing masonry sea wall to prevent erosion which runs along the seaward side of the access road all the way along the shore from the slipway, ending just after the existing bothy. In order to further protect the toe of the sea wall, erosion prevention measures will be required on approximately 80m of the sea wall toe, as shown on Drawing 1943-102.

The protection of the toe of the sea wall will require the bottom of the sea wall to be excavated using an excavator working from the land side or beach side of the wall as appropriate. Shuttering will then be installed and concrete poured as underpinning. Work will progress in sections at low tide and will take approximately 6 weeks to complete.

2.2.5 Reconstruction of Collapsed Sea Wall

A 5m section of the sea wall, located just in front of the existing store has collapsed with the stone lying across the beach in front of the wall. In order for the sea wall to sufficiently protect the area from erosion, the section of wall needs to be reconstructed.

The construction of will require the original stone to be retrieved from the beach and then rebuilt to match the profile of the original masonry sea wall. This will take approximately 1 week to complete.

2.2.6 Drainage in the Slope behind the existing Bothy / Store

The bothy and store were donated to the BBA, they sit in a low lying grassed area under the slope on which the access track has been established (see Drawing 1943-102). Currently, the area behind the bothy does not have any drainage, causing damp conditions and ultimately affecting the integrity of the building. It is therefore proposed that drainage be installed to channel the water away from the bothy and existing store through filtered drainage and discharge through an outfall to be located just in front of the store. The outfall will allow the clean surface water to disperse onto the top of the beach.

In order to install the drainage behind the bothy and store, a digger will excavate into the slope above the bothy and install a filter drain with drainage pipe (150mm in diameter and perforated on the top) running along the gully at the bottom of the existing slope wall, before making a left turn to reach the access track, which runs in front of the store and bothy. A trench will be dug across the access track to the buildings, where a slot within the sea wall will be made in order to create the outfall. Once the outfall is in place, the sea wall will be reconstructed around the outfall pipeline and the trench across the track will be backfilled. The trench running along the gully to the building access track will be backfilled with type A filter material and topsoil. The drainage behind the bothy will take approximately 2 weeks to complete.

2.2.7 Drainage along the Access Track

The access track is 250m in length and runs from the B855 down the slope where it forms a T-Junction. The left junction runs in front of the store and bothy and the right goes to the slipway. In order to prevent further deterioration to the road being caused by surface water running down it, drainage needs to be installed with an outfall to discharge the water onto the foreshore.

The proposed access track drainage will be installed mainly on the uphill side of the track, starting at the point where the existing hard surfacing stops (approximately 30-40m from the start of the access track). The drainage will be a closed drainage system with approximately 9 manholes. A trench (500mm deep and 300mm wide) will be dug using a digger, along the side of the access track. A pipe with an approximate diameter of 225mm and perforated on the top half of the pipe, will be laid in the trench, and 9 manholes installed. At each manhole, slots running across the track will be excavated in order to install corrugated barrier sections bedded on and anchored into concrete to form transverse drainage across the track. The drainage on the landward side will flow into a manhole chamber from where the drainage will be routed across the access track to a final manhole chamber, located near the start of the sea wall next to the slipway. A slot will be created through the sea wall and a new outfall (approximately 300mm in diameter) will be installed, to allow the clean surface water to disperse onto the top of the beach. The section of seawall which will be affected by the installation of the outfall will be reconstructed around the outfall. The trench across the access track will be backfilled and a 1.5m x 1.0m x 0.2m fibre concrete scour slab will be laid in the area under the outfall. The installation of the drainage along the access track will take approximately 4 weeks to complete.

2.2.8 Notice Board

As part of the development, it is proposed that a notice board is erected on the new parking area. It is likely to be situated along the back of the car park where it is less exposed to the elements. The notice board will be free standing and up to 2m height and 2.5m in width, it will

be cemented into position. It will be utilised to provide relevant information to slipway users and visitors to the harbour.

2.2.9 Material Storage

Due to limited space within the Harbour area, a laydown space has been identified approximately 140m south from the start of the access track, on the seaward side of the B855. The laydown area will only be utilised during periods of construction for material storage, as required. All materials will be removed from the laydown area during demobilisation from site.

3 Statutory Context

This section provides a summary of the statutory requirements for the proposed Brough Harbour improvements.

3.1 Legislation

The proposed improvement works include both onshore and intertidal elements, and as such is subject to legislation relating to both marine and onshore (terrestrial) environments.

3.1.1 Marine Licensing

Under the Marine (Scotland) Act 2010 activities listed in Part 4, Section 21 of the Act require a Marine Licence issued by the Marine Scotland Licensing Operations Team (MS-LOT). This includes any activity where the project intends to do any of the following below Mean High Water Springs (MHWS):

- Deposit or remove substances or objects in the sea either on or under the seabed;
- Construct/alter/improve any works in or over the sea or on or under the seabed;
- Remove substances or objects from the seabed; or
- Dredging activity.

Accordingly, the slipway repair (Described in Sections 2.2.1) will require a Marine Construction Licence.

3.1.2 Planning Consent

Under the Town and Country Planning (Scotland) Act 1997, any type of new development, i.e. carrying out of building, engineering, mining or other operations in, on, over or under land, or making of any material changes in the use of any buildings or other land will require Planning Permission, in this case from the Highland Council. This refers to development above MLWS.

It is understood that planning is applicable for the construction of the Parking Area and associated staircase, the notice board, the protection of the sea wall and as described in Sections 2.2.3, 2.2.4, 2.2.9, and 2.2.5 respectively. The drainage installation works although on land are not classed as a 'development' under the Act in accordance with Section 26(2A).

3.1.3 The Habitats Directive

The European Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora, also referred to as the 'Habitats Directive' (European Commission, 1992). The primary aim of the Habitats Directive is to maintain biodiversity within the Member States and is transposed into Scottish law by a combination of the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended in Scotland), commonly known and the 'Habitat Regulations'

together with the Conservation of Habitats and Species Regulations 2010 (in relation to reserved matters).

The Habitats Regulations identify several habitats or species whose conservation interest requires the designation of Special Areas of Conservation (SACs), which form the Natura 2000 network of protected sites, in conjunction with Special Protection Areas (SPA).

In addition, the Regulations make it an offence (subject to exceptions) to deliberately capture, kill, disturb, or trade in the animals listed in Schedule 2, or pick, collect, cut, uproot, destroy, or trade in the plants listed in Schedule 4. However, these actions can be made lawful through the granting of licenses by the appropriate authorities. These species are commonly termed European Protected Species (EPS) and include all cetaceans in Scottish waters.

3.1.3.1 Habitats Regulations Appraisal

When the project may have a likely significant effect (LSE) on a Natura Site (SAC or SPA), a Habitats Regulation Appraisal (HRA) and, if it is concluded that a LSE will occur an Appropriate Appraisal (AA) needs to be completed by the competent authority. The legislative context for carrying out an HRA is based on the Habitats Directive (92/43/EEC), in particular Article 6(3), and Habitat Regulations.

Information the competent authority requires in order to carry out an HRA and AA has been provided within this Environmental Report. Appendix 1 provides a Habitats Regulations Appraisal Pre-Screening Report, produced to aid the competent authorities assessment of the designated sites which may have their qualifying interest potentially affected by the proposed development.

3.1.4 European Protected Species Licence

If it is determined that the construction activities associated with the Proposed Project will likely affect European Protected Species (EPS) listed under the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended); which includes dolphins, harbour porpoises and European otters; an EPS Licence will be required. It is recognised that an EPS licence will only be granted if it is proved that:

- 1) The project is on Imperative Reasons of Overriding Public Interest;
- 2) There are not satisfactory alternatives; and
- 3) The proposed action must not be detrimental to the maintenance of the species at 'favourable conservation status'.

Should any couch layup or holt be found within the immediate vicinity of the construction works, an EPS licence may be required.

3.1.5 Bathing Water Directive (2006/7/EC)

The Bathing Water Directive (76/160/EC) came into force in 1975 and is a further piece of European legislation that should be considered. The main objective of the directive is to protect public health and that of the aquatic environment including coastal and inland areas, which include rivers and lakes, from pollution. It placed a mandatory duty upon member states to conduct regular monitoring of designated bathing sites which must comply with specific standards set out within the Directive. In 2006 the Directive was revised (2006/7/EC),

introducing higher standards but simplifying classifications of designated bathing sites by only considering two measurements (19 laboratory tests previously), intestinal enterococci and *Escherichia coli* (Mansilha et al., 2009). New compliance categories which included excellent, good, sufficient and poor were also introduced while placing a duty upon the member state to ensure all bathing waters meet the criteria categorised as sufficient, in addition to taking action to increase numbers of designated sites to categories of excellent and good. In Scotland, the revised Directive was transposed into law through the Bathing Waters (Sampling & Analysis) Direction 2008 and the Bathing Waters Regulations 2008.

3.1.6 Shellfish Waters Directive

Shellfish water protected areas are locations in which waters are designated in line with the Shellfish Waters Directive (2006/113/EC) by the Scottish Government under The Water Environment (Shellfish Water Protected Areas: Designation) (Scotland) Order 2013. Shellfish waters are used for commercial cultivation and water quality in designated areas is regularly monitored by Scottish Environmental protection Agency (SEPA).

3.1.7 Wildlife & Countryside Act 1981

All wild birds are protected during the breeding season under the Wildlife & Countryside Act 1981 (as amended), and it is an offence to:

- Kill, injure or take a bird;
- Take, damage, destroy or interfere with a nest of any bird while it is in use or being built;
- Obstruct or prevent any bird from using its nest; and
- Take or destroy an egg of any bird.

In addition, certain bird species are classed as Schedule 1 under the Wildlife & Countryside Act 1981 (as amended) and afforded additional protection at any time of year. Schedule 1 listing also makes it an offence to intentionally harass a bird or interfere with its nest, even outside the breeding season, as well as to disturb their dependent young.

3.2 Policy Context

As previously noted, this development is sited within both the marine and terrestrial environments. Accordingly, it will be subject to both marine planning policy and the tiered onshore planning principles framework in Scotland.

3.2.1 Scotland's National Marine Plan

As the project is partly below MHWS and within 12 nautical miles (nm) of the Scottish Coastline it falls within the remit of the Marine (Scotland) Act 2010. The 2015 Scottish National Marine Plan (NMP) covering inshore waters is a requirement of the Act. The NMP lays out the Scottish Minister's policies for the sustainable development of Scotland's seas and provides General Planning Principles (GENs), some of which apply to this development.

Many GENs are specific to environmental topics; these are identified in Table 3.2.1 below, along with the considerations made during design development to meet the requirements.

Table 3.2.1: Applicable Scottish National Marine Plan GENs

General Planning Principles	Requirements	Brough Harbour Improvements Considerations
GEN 3: Social Benefit	Sustainable development and use which provides social benefits is encouraged when consistent with the objectives and policies of this Plan.	The improvements to Brough Harbour ensure the existing offering is kept in good repair for continued use and improves the offerings at the Harbour for the local community by providing a safe parking area and with ability to launch boats at lower tides.
GEN 5: Climate change	Marine planners and decision makers must act in the way best calculated to mitigate, and adapt to, climate change.	Climate change adaption has been considered in the design of the parking area. The parking area has been constructed up to a height of between +7.3 and +8mm CD to take into account rising sea levels and storm events. Repairs and additional protection for the seawall is included to help protect the buildings from storm events and coastal erosion associated with climate change.
GEN 7: Landscape / seascape	Marine planners and decision makers should ensure that development and use of the marine environment take seascape, landscape and visual impacts into account.	The project comprises improvements to the existing Harbour. these improvements will not visually change the character of the Harbour.
GEN 8: Coastal process and flooding	Developments and activities in the marine environment should be resilient to coastal change and flooding, and not have unacceptable adverse impact on coastal processes or contribute to coastal flooding.	Coastal change and flooding have been considered in the design of the parking area. The parking area is constructed above MHWS to a height of between +7.3 and +8mm CD to take into account rising sea levels and flooding. Repairs and additional protection for the seawall is included to help protect the buildings from storm events and coastal erosion.
GEN 9: Natural heritage:	Development and use of the marine environment must: (a) Comply with legal requirements for protected areas and protected species. (b) Not result in significant impact on the national status	This report has considered protected species within the North Caithness Cliffs SPA, which is adjacent to the site (see Section 4.2.4). In addition, Section 4.2.1, Benthic Ecology, identified that there

	of Priority Marine Features. (c) Protect and, where appropriate, enhance the health of the marine area.	are no Priority Marine Features (PMF's) within the vicinity of the Harbour.
GEN 12: Water quality and resource	Developments and activities should not result in a deterioration of the quality of waters to which the Water Framework Directive, Marine Strategy Framework Directive or other related Directives apply.	Potential sources of litter and measures to prevent it entering the marine environment have been identified in Section 5 and Section 6 respectively.
GEN 13: Noise	Development and use in the marine environment should avoid significant adverse effects of man-made noise and vibration, especially on species sensitive to such effects.	No significant noise sources associated with the development in the marine environment.

3.3 Planning Policy

It is appropriate that the planning policy context is set out in relation to both marine and terrestrial landscapes, as the proposed development construction works are necessary both on land and in the marine environment.

The development plan system in Scotland which provides the framework for considering planning applications is made up of four main documents:

- The National Planning Framework (NPF);
- Scottish Planning Policy (SPP);
- Strategic Development Plans (SDPs) produced for the Scotland's four largest cities; and
- Local Development Plans (LDPs) produced for each council area.

The Scottish Government provides advice and technical planning information in the form of Planning Advice Notes (PANs), to support the implementation of the policy.

3.3.1 The National Planning Framework

The NPF is a requirement of the Planning (Scotland) Act 2006 and sets out the strategy for long-term development within Scotland. The third NPF (NPF3), was published in 2014 and sets out the strategy for development for the next 20 to 30 years (Scottish Government, 2014a).

Section 4.29 of the NPF3 states *"the environment of our coastal areas, on land and at sea, is an outstanding, internationally important resource. These natural assets support quality of life and underpin important economic sectors like tourism, outdoor recreation and food and drink."*

NPF3 does not identify any national developments in the Brough area.

All SPP was consolidated into one overall policy document in February 2010. The SPP is also subject to regular updates, and a revised version was published in 2014 (Scottish Government, 2014b). With regard to 'Promoting Rural Development, the SPP identified policy principles that the planning system should support patterns of development which:

- in all rural and island areas promote a pattern of development that is appropriate to the character of the particular rural area and the challenges it faces;
- encourage rural development that supports prosperous and sustainable communities and businesses whilst protecting and enhancing environmental quality; and
- support an integrated approach to coastal planning.

The improvements to Brough Harbour will not change the character of the area as they aim to allow for continued and improved use of the Harbour by repairing infrastructure, providing improved parking for Harbour users and the general public and allowing boats to be launched during low tide.

3.3.2 Regional

In addition to the development plan system in Scotland, the Highlands & Islands region has its own strategic development plan which supports the National Strategic Plan and the Scottish Government's Economic Action Plan. The Highlands & Islands Enterprise (HIE) 2019-2022 Strategy identifies how industries in the region will contribute significantly to Scotland's economic development through opportunities presented by the unique natural capital of the region, which can sustainably deliver significant economic and social impacts. These

contributions are anticipated by creating and maintaining valuable economic opportunities to industries such as the energy sector, tourism and wider marine economy (Highlands and Islands Enterprise, 2019).

Brough Harbour is located in an area popular with tourists (see Section 4.5), keeping the infrastructure of harbour in a state of good repair, with suitable parking for visitors, contributes to maintaining the attractiveness of the area to visitors. The project therefore aligns with the HIE 2019-2022 strategies for the tourism sector.

3.3.2.1 Local

Brough Bay falls within the area of the Caithness and Sutherland Local Development Plan (CaSPlan). While the CaSPlan mainly focuses growth on larger settlements, it also supports growth of smaller settlements that is gradual and is in keeping with the character of the area, in order to help strengthen those communities and support sustainable rural and community-led development.

While the CaSPlan does not set out priorities for Brough, the Harbour improvements are in keeping with the character of the area and therefore aligns with the CaSPlan.

4 Known Sensitivities

4.1 Designated Sites

Table 4.1.1 details the Statutory Nature Conservation Designated Sites namely Sites of Special Scientific Interest (SSSI), SPA's, and Ramsar sites within 10km of the Harbour. There are no SAC, Marine Protection Areas (MPA) or Nature Reserves within 10km.

Table 4.1.1: Statutory Nature Designated Sites relevant to the Harbour Improvements

Site	Designation	Distance Direction	Feature Category/Feature	Requires Consideration
SPA	North Caithness Cliffs	Adjacent to (SPA is below MLWS)	Fulmar (<i>Fulmarus glacialis</i>), breeding; Guillemot (<i>Uria aalge</i>), breeding; Kittiwake (<i>Rissa tridactyla</i>), breeding; Peregrine (<i>Falco peregrinus</i>), breeding; Puffin (<i>Fratercula arctica</i>), breeding; Razorbill (<i>Alca torda</i>), breeding; Seabird assemblage.	The construction activities associated with the Harbour Improvements will be undertaken adjacent to the SPA and therefore needs to be considered.
RAMSAR/ SPA/ SSSI	Caithness Lochs	4.5km E & 6km SE	Greenland white-fronted goose (<i>anser albifrons flavirostris</i>) non-breeding; Greylag goose (<i>Anser anser</i>), non-breeding; and Whooper swan (<i>Cygnus cygnus</i>), non-breeding.	While the qualifying features of the SPA are mobile, they are not likely to be found on coastal habitats. as such there is no connectivity with the Caithness Lochs SPA and the Brough Harbour Site and hence is not considered further.

SSSI	Dunnet Head	1.2km NNW	Maritime Cliff (Vegetation); Fulmar (<i>Fulmarus glacialis</i>), breeding; Guillemot (<i>Uria aalge</i>), breeding; Kittiwake (<i>Rissa tridactyla</i>), breeding; Peregrine (<i>Falco peregrinus</i>), breeding; Puffin (<i>Fratercula arctica</i>), breeding; Razorbill (<i>Alca torda</i>), breeding; Seabird assemblage.	As the vegetation is an immobile feature it will not need to be considered, however, the mobile features will need to be considered.
SSSI	Loch of Mey	4.5km E	Transition grassland; breeding bird assemblages, Greenland white-fronted goose (non-breeding), Greylag goose (non-breeding); Whooper swan (non-breeding).	As the vegetation is an immobile feature it will not need to be considered. In addition, the mobile species are not likely to be found on coastal habitat and therefore will not need to be considered further.
SSSI	Dunnet Links	3.3Km S	Coastal geomorphology of Scotland; Sand dunes (vegetation).	The features of the SSSI are immobile features with no connectivity to the site of the Harbour.
SSSI	Loch Heilen	6Km SE	Mesotrophic loch (a loch with a moderate level of nutrients); Greenland white-fronted goose (<i>Anser albifrons flavirostris</i>), non-breeding; Greylag goose (<i>Anser anser</i>), non-breeding; Whooper swan (<i>Cygnus cygnus</i>) non-breeding	As the loch is an immobile feature it will not need to be considered. In addition, the mobile species are not likely to be found on coastal habitat and therefore will not need to be considered further.
SSSI	Loch of Durran	8Km SSE	Transition grassland; Vascular plant assemblage.	The features of the SSSI are immobile features with no connectivity to the site of the Harbour.
SSSI	Phillips Mains Mire	8.7Km SE	Blanket bog.	The features of the SSSI are immobile features with no connectivity to the site of the Harbour.

4.2 Biodiversity

4.2.1 Benthic Ecology

According to National Marine Plan Interactive (NMPI's) (Marine Scotland, 2021), there are no known records of any Primary Marine Feature's (PMF's) within the vicinity of the Harbour.

4.2.2 Marine Mammals

The waters around Caithness are inhabited by numerous marine mammal species, including both cetaceans and seals. All cetacean species found in Scottish territorial waters are classed as EPS and are afforded protection under the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended). Seals, both grey (*Halichoerus grypus*) and common (*Phoca vitulina*) are protected under the Marine (Scotland) Act 2010 from killing, injury and taking. In addition, the Conservation (Natural Habitats, &c.) Regulations 1994 as amended, prohibits certain methods of catching or killing seals and The Protection of Seals, Designation of Haul-Out Sites (Scotland) Order 2014, protects seals at significant haul-out sites.

Species regularly encountered in coastal waters include short-beaked common dolphin (*Delphinus delphis*), harbour porpoise (*Phocoena phocoena*), minke whale (*Balaenoptera acutorostrata*), bottlenose dolphin (*Tursiops truncatus*), Risso's dolphin (*Grampus griseus*), white-beaked dolphin (*Lagenorhynchus albirostris*) and killer whale (*Orcinus orca*) (NatureScot, 2020a). A search of the National Biodiversity Network (NBN) within 10km of the site revealed records for minke whale, common dolphin, harbour porpoise, killer whale, grey and harbour seals, and [REDACTED]. A search for designated seal haul-out sites within 20km of the proposed development using the National Marine Plan Interactive (Marine Scotland, 2020) revealed two sites, Stroma located 12km northeast and Gills Bay located 10km west of the Harbour, designated for breeding of both grey and harbour seals.

4.2.3 Terrestrial Ecology

4.2.3.1 Vegetation and Habitat

The vegetation surrounding the Harbour is semi – improved grassland, which is widely distributed throughout the wider area. It is unlikely that there will be habitat types which are highly dependent on ground water, as the topography surrounding the Harbour comprises steep slopes which drain freely towards the sea.

4.2.3.2 Otters

Otter (*Lutra lutra*) are a European Protected Species and as such are of international importance. [REDACTED]

4.2.4 Ornithology

The cliffs adjacent to the Harbour designated for a variety of breeding seabird species including Fulmar, Guillemot, Kittiwake, Peregrine Puffin and Razorbill. These bird species start breeding between March and April and end between August and early October. According to NatureScot's Sitelink, the nearest nesting area is approximately 1.2km north of the site towards Dunnet Head.

These bird species, with the exception of the peregrine, utilise the coastal waters within the SPA, and further offshore to catch fish, squid, crustaceans, sand-eel and plankton. Peregrine feed almost exclusively on other bird species.

4.3 Water Quality & Coastal Processes

4.3.1 Waterbody Status

The coastal water surrounding Brough Harbour is Dunnet Head to Duncansby Bay Head coastal water body (200225) covering an area of 178.9 km². The condition of the waterbody within this zone was classified as 'good' overall in 2014 (SEAP, 2021a).

The closest notable river body is Burn of Ham which flows out of Loch Heilen (20630), located approximately 2km east of Brough Harbour, in the Thurso coastal catchment of the Scotland River basin. The main stem is approximately 5.8km in length, entering the sea at Ham Harbour.

4.3.2 Bathing Waters

There are no designated bathing waters in the vicinity of Brough Harbour. The nearest SEPA monitored bathing water is located just over 3km south at Dunnet Bay (SEPA, 2021b). This site is however, on the opposite side of the Dunnet Head peninsula and hence, is approximately 13km by sea, too far away to be affected by the Harbour Improvements activities.

4.3.3 Shellfish Waters

There are no designated shellfish waters within the vicinity of Brough Harbour. The closest shellfish waters are Bay of Firth, Orkney, approximately 50km north of Brough and Kyle of Tongue located approximately 64km west of Brough (SEPA, 2021c). Both sites are located too far away to be impacted by the proposed Harbour Improvements.

4.3.4 Flooding

As with any coastal area, low lying areas adjacent to the sea are likely to be inundated with seawater during storm events especially when coupled with high tides. The existing bothy and store are situated at around +8.2m CD and are not known to flood. The village of Brough is set above the harbour area with all the houses being above 20m OD and hence not subject to coastal flooding.

4.4 Traffic, Access and Navigation

4.4.1 Traffic and Access

Access to Brough Harbour is via a single carriage access track off the B855. The B855 connects Dunnet in the south to Dunnet Head in the north where the road runs out. It passes through the village of Brough. The access track joins the B855, on a 90° bend. Visibility out of the access track onto the B855 is good in both directions (Figure 4.4.1), whereas visibility around the bend when travelling north or south on the B855 is obscured by a house and trees as can be seen in Figures 4.4.2 and 4.4.3.



Figure 4.4.1: View from Access Road onto B855 (source: Google Earth)



Figure 4.4.2: View Heading South on the B855 (source: Google Earth)



Figure 4.4.3: View Heading North on B855 (source: Google Earth)

4.4.2 Navigation

Launching and hauling out of boats is currently done utilising the slipway during high to mid tide. There are currently no berthing facilities within the Harbour and therefore the Harbour is used purely for launching and hauling out activities.

4.5 Population and Human Health

The closest residential area is the village of Brough, the closest residential properties from the harbour are approximately 100m away but sit above the Harbour at approximately 30m OD. Figure 4.5.1 shows the location of the residential properties in the vicinity of the Harbour. The village of Brough (Figure 4.5.1) has a campsite, this is located on the cliffs to the south of the Harbour, there is also a café, Bed & Breakfast and self-catering accommodation in the village.



Figure 4.5.1: Location of the Harbour in relation to Brough Village (source: Google Earth)

Dunnet Head at the north end of the B855 has a lighthouse and is a Royal Society for the Protection of Birds (RSPB) nature reserve.

The North Coast 500 (NC500) is a 516 mile route which starts and finishes in the city of Inverness, it is routed through Torridon and Ullapool before heading around the north coastline, passing through Durness, Tongue, Thurso, Castletown, Mey and John o' Groats, before continuing down the east coast back to Inverness. While the NC500 does not pass directly through Brough (Figure 4.5.2), those wanting to detour to Dunnet Head or to stay in Brough will utilise the B855.

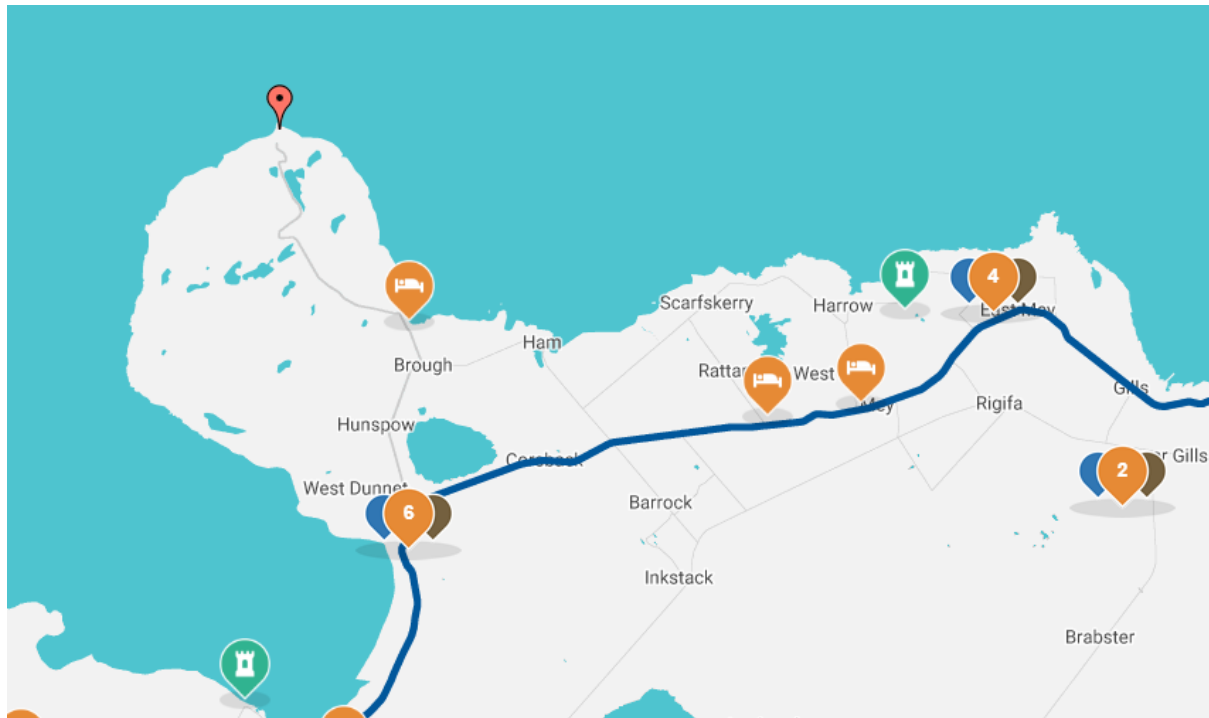


Figure 4.5.2: The NC500 route passed Brough (source: NC500 Interactive Map)

5 Potential Impacts

Table 5.0.1 and Table 5.0.2 identify where there is a potential for environmental effects associated with the construction and operational activities for the Brough Harbour Improvements. Mitigation to minimise adverse effects have been identified and discussed where necessary.

Table 5.0.1: Construction Sensitivities and Effects

Aspect	Source	Sensitivities	Effect	Any Mitigation Measures
Use of Land	Reclamation for the parking area and associated stairs	Terrestrial Ecology (Vegetation and Habitat)	The areas above MHWS to be constructed upon does not provide high quality or unique habitat. Relatively small areas (400m ²) of habitat will be lost with minimal impact.	Minimised through design.
Use of Land	Excavation activities for the installation of drainage behind the bothy and the along the access track.	Terrestrial Ecology (Vegetation and habitat)	The excavation activities will result in the disturbance of a very small area of semi-improved grassland. This will be short term and will naturally regenerate once construction has been completed.	Refer to Section 6.1.1. for proposed mitigation.
General Construction Activities	Movement of vehicles, machinery and people associated with all construction activities.	Terrestrial Ecology (Otters) Marine Mammals (Seals)	Potential to cause disturbance due to additional activity including the presence of people and noise of works. Interaction with plant or machinery if it were to occur could cause harm. Construction completed over short periods of time. Both species have large ranges and hence avoidance of this area will not be detrimental to them long term.	Basic mitigation required to protect from harm. Refer to Section 6.1.2. for proposed mitigation.
General Construction Activities	Movement of vehicles, machinery and people associated with all construction activities.	Terrestrial Ecology (Ornithology)	The increased activity associated with the construction could cause disturbance of birds in the immediate vicinity of the works.	See Section 6.1.3 for proposed mitigation.
General Construction Activities.	Slipway repairs	Navigation	There will be restricted access to the slipway during certain short periods of the construction phase.	Refer to Section 6.1.6. for proposed mitigation

Aspect	Source	Sensitivities	Effect	Any Mitigation Measures
General Construction Activities	Movement of vehicles and use of machinery associated with all construction activities.	Population and human health	The use of plant and equipment during construction will give rise to noise. Due to the proximity of the houses to the Harbour, this is discussed in Section 5.1.	Refer to Section 6.1.5. for proposed mitigation.
Resource Usage	Delivery of materials to site - loading / offloading activities	Traffic and Access	The access track is not suitable for large vehicles likely to be required for deliveries. As such alternative arrangements are required to receive the approximately 700t of materials required. Potential for congestion or collision if not appropriately managed.	Refer to Section 6.1.6. for proposed mitigation.
Resource Usage	Risk of unplanned release of pollutants from, i.e. <ul style="list-style-type: none"> • Waste material • Oil/fuel storage and handling • Plant/machinery fault 	Terrestrial Ecology, Marine Mammals, Benthic Ecology, Ornithology and Water Quality	Unplanned emissions or release of pollutants into the marine environment have the potential to decrease water quality affecting marine marines and benthic ecology. Unplanned emissions or release of pollutants on land could potentially run into the sea, seep into the soil and ground water. Quantities of materials on site will not be large, limiting the scale of any issue.	Refer to Section 6.1.4. for proposed mitigation.

Table 5.0.2: Operational Sensitivities and effects

Aspect	Source	Sensitivities	Effect	Any Mitigation Measures
General Use	Increased activity at the Harbour by vehicles, vessels and people	Ornithology (seabirds)	Improved facilities will increase user numbers, activities will remain similar to those currently carried out. Human presence could cause disturbance of birds in the immediate vicinity of the harbour. Breeding areas are on the cliffs 1.2km from the site, effects on the birds breeding success is unlikely.	Refer to Section 6.2.1. for proposed mitigation.
General Use	Harbour users / general public littering	Water quality	Marine litter poses a variety of short and long term adverse environmental impacts such as loss of biodiversity and degradation of ecosystem function (Potts & Hastings, 2011).	Refer to Section 6.2.2. for proposed mitigation.
General Use of Upgraded Facilities	Improved parking facilities	Traffic and Access	Once the construction of the parking area has been completed, more cars can be parked at the slipway hence less chance of vehicles being parked on the B855. Giving rise to a beneficial effect.	Not required.
General use of Facilities	Longer slipway in better condition	Navigation	The longer slipway allows for boats to be launched at lower tides, increasing the operating window of the harbour. Increase in accessibility is a benefit to marine users.	Not required.
Adverse Weather	Storms or adverse weather conditions giving rise to high tides or significant waves.	People Parking Area	The parking area has been constructed to a level of between +7.3 and +8m CD which is well above MHWS and the majority of storm events. Rock armour in place to protect parking area from wave erosion. People unlikely to be present in storm conditions that may threaten to flood the parking area. Flooding of the parking area would not damage it.	Minimised through design.

Aspect	Source	Sensitivities	Effect	Any Mitigation Measures
Adverse Weather	Protection works to sea wall protecting the onshore infrastructure from erosion.	Sea wall	The protection works to the toe of the sea wall and rebuilding of the collapsed section of the wall will provided improved protection of onshore infrastructure from erosion caused by storm events.	No specific mitigation required.
Adverse Weather	Heavy rain, long periods of wet weather.	Access Road Bothy and Store	The inclusion of drainage uphill of the access track will reduce the chance of water running down the road causing it to erode. It will also protect the bothy and store from damp conditions which over time may cause deterioration to the buildings. Hence the inclusion of drainage is beneficial to the existing infrastructure.	No specific mitigation required.

5.1 Construction Noise

Due to the proximity of the houses to the Harbour (Approximately 100m to closest), the effect of noise associated with construction related activities have been considered further. Table 5.1.1 provides a list of the plants to be utilised during all construction activities, and the associated sound pressure levels at 10m as detailed in BS5228-1:2009: Code of Practice for noise and vibration control on construction and open sites (BS228-1:2009) (British Standards Institute, 2009).

Table 5.1.1: Potential Plant and Source Noise Level from BSS228 (British Standards Institute, 2009)

Plant Item	A-weighted sound pressure level (L_{Aeq}) at 10m
13t Excavator	77
9t Dumper Truck	76
6t Dumper Truck	79
2t Roller	73
Hiab lorry with a grab or 18t wheeled 360 excavator	66
Combined noise level	83

Assuming all the equipment is utilised at once close to each other then they would have a combined noise level at 10m of 83dB(A). At 100m noise levels based on hemispheric dissipation would be 63dB(A). However due to the vertical orientation of the harbour in relation to the residential properties the hillside would act as a sound barrier, hence noise levels would be significantly less at residential properties. In accordance with BS5228-1:2009, the threshold for significant effects at Category A dwellings (the most sensitive) during daytime is 65dB(A). As such noise is unlikely to cause disturbance at residential properties during construction.

6 Mitigation

6.1 Construction Mitigation

6.1.1 General

Construction guidance will be followed to minimise potential negative effects of the project, this is likely to include:

- Pollution Prevention Guidance 6 (PPG6) – for Working at Construction and Demolition Sites (Environmental Agency et al., 2012)
- Coastal and Marine Environmental Site Guide: C584 (Budd, John, Simm, & Wilkinson, 2003)
- Guidance for Pollution Prevention 8 (GPP8) – Safe storage and disposal of used oils (SEPA, Natural Resources Wales, & NIEA, 2017)
- Pollution Prevention Guidance 7 (PPG7) – The safe operation of refuelling facilities (Environment and Heritage Service, SEPA, & Environment Agency, 2011) and
- Guidance for Pollution Prevention 5 (GPP5) – Works and maintenance in or near water (NIEA, 2017)

6.1.2 Terrestrial Ecology

During excavation activities, turfing techniques are to be utilised, where practicable, to facilitate prompt reinstatement of the vegetation.

6.1.3 Otters

Several general mitigation measures are proposed to limit the potential impact of the construction of the project on these protected species, which include:

- Works being carried out in daylight hours where practicable;
- The use of artificial lighting should be minimised where possible, and directed away from bodies of water and towards the works area if required;
- Measures to prevent entrapment such as capping pipes/tubes or storing upright, ensuring excavations are suitably fenced off, covered and ramp exits provided;
- All machinery, stockpiles, and equipment should be checked thoroughly, with a torch if required, for any mammals and birds prior to initial use each day;
- Any temporary buildings and waste control areas should be secured to prevent access by mammals and other wildlife;
- Speed limits of 10mph should be implemented and adhered to, to minimise the chance of collision; and
- Noise sources should be minimised where possible.

6.1.4 Ornithology

If construction works are to take place during the bird breeding season (March – September inclusive), then a breeding bird check will therefore need to be completed prior to the works. If any nests are found on or near the construction areas, they will require exclusion zones to be employed to prevent disturbance, the size of exclusion zones will depend on the species in question, as such expert advice will be sought. The exclusion zones will remain in place until chicks have fledged and/or the birds have stopped using the nest.

If it is suspected that a new bird nest has been established in the vicinity of the site during construction, then works around the nest will be stopped immediately and the adult bird(s) will be allowed to return to the nest if they have been flushed. The activity will not resume until appropriate mitigation measures have been agreed and implemented.

Note mitigation identified in Section 6.1.3 namely:

- Works being carried out in daylight hours where practicable; and
- The use of artificial lighting should be minimised where possible and directed away from bodies of water and towards the works area if required.

Will also help to minimise disturbance to birds.

6.1.5 Pollution Prevention

A review of the pollution risks associated with each stage of construction will be completed to inform the need for spill kits and the development of an emergency response plan. It is however assumed that there will be fuels and potentially small volumes of hazardous materials associated with construction.

6.1.5.1 Fuel/Oil

Where fuel is stored and plant is refuelled the following will apply:

- Fuel storage should be under strict management controls and compliant with SEPA's Generally Binding Rules (GBRs) 26 and 28.
- A suitable double skinned bowser or tank (or bunded tank) will be utilised for fuel storage.
- Where oil is stored in a container, the container must be of sufficient strength and structural integrity, and, installed so as to ensure that it is unlikely to burst or leak in its ordinary use.
- Containers must be situated within a secondary containment system which have a capacity of not less than 110% of the container's storage capacity, or if there is more than one container within the system, of not less than 110% of the largest container's storage capacity.
- The bowser, tank or container will be situated at least 10m from a watercourse or drain, on level ground, and protected from collision risks.
- The distribution hose of the bowser or tank will be fitted with a shut off type filling nozzle.
- The filling nozzle will be fitted with a security lock to prevent unauthorised use and storage will be locked when not in use.
- A drip tray will be provided below the distribution hose and nozzle when not in use.
- A fuel accountancy system will be employed.
- All refuelling will be carried out in accordance with site procedures by trained personnel in a designated area.
- Where practicable bio-degradable hydraulic fluids will be utilised in machinery during construction.

6.1.5.2 Hazardous Materials

Where hazardous material is stored on site, the following rules will apply:

- All oils and chemicals will be subject to Control of Substances Hazardous to Health (COSHH) assessments under the COSHH Regulations 2002.
- COSHH assessments will include a section of the environment to highlight any specific precaution or mitigation requirements relevant to the site.
- Storage cabinets for COSHH items will be appropriately bunded.
- The COSHH store will be locked, access will be controlled, and an inventory of materials stored will be maintained.

6.1.6 Noise

As discussed in Section 5.1 construction noise is unlikely to give rise to disturbance at residential properties. However, it is still appropriate to minimise construction noise to minimise ecological disturbance. Quiet plant should be selected where appropriate. All equipment on site should be maintained, including maintenance related to noise emissions. All ancillary plant such as generators and pumps should be positioned so as to cause minimum noise disturbance to local residents and wildlife. Works should follow the guidance, as noted in Section 2, BS EN 5228- 1:3009 + A1 2014: Code of Practice for Noise and Vibration Control on Construction and Open Sites (British Standards Institute, 2014).

In addition, the BBA will ensure the community is aware of planned works and the programme and have a contact to raise any concerns with during the construction works.

6.1.7 Traffic, Access and Navigation

During the loading and offloading activities, the following mitigation will need to be implemented to minimise any adverse impacts associated with the construction activities:

- During the works signage will be erected in both directions as per Traffic Signs Manual Chapter 8, by a trained person to make public road users aware of construction vehicle movements in the area.
- The entrance at the top of the access track will have signs advising there will be limited access to site by agreed times with BBA and the Contractor.
- All lorries will be reversed fully off the public road with the assistance of a banksman. Once in position temporary barriers will be erected across the entrance to the access track to allow for safe offloading.
- Checks will be made to ensure that visitors to the Harbour will not be hindered by these operations.
- Materials delivered by road will be appropriately contained for transport, and dust covers should be used if required. Local sourcing of material is preferred to minimise greenhouse gas emissions associated with their transfer.
- Engines should be switched off when not in use, including plant and smaller vehicles.
- Construction staff will be encouraged to car share, use organised company transport or public transport should this be allowed under current Government guidance and safe to do so.

The BBA will communicate the community regarding any access restrictions to the Harbour area or on the use of the slipway prior to and during periods of construction.

6.2 Operational Mitigation

6.2.1 Ornithology

Provide information to visitors with regard to birds especially breeding birds and the legal protection of nests. This could be done utilising the notice board on site.

6.2.2 Litter

Signage prohibiting litter must be placed on site, encouraging people to take their litter home with them. This could be done utilising the notice board on site.

7 Summary

In order for Brough Harbour to remain functional, improvements are required to ensure the infrastructure will be usable for the foreseeable future. Currently the slipway is damaged, and portions of the sea wall have collapsed or are being eroded.

The improvement works, will ensure that the community will have a place to continue to launch boats and enjoy the scenery of Brough Bay.

Potential environmental effects associated with the construction associated with the improvements and the operation of the Harbour area once construction has been completed, have been considered. No negative significant effects on receptors or designated sites were

identified. Good construction practices will minimise pollution risks and basic mitigation will minimise disturbance to the local ecology.

Appendix A provides the HRA Pre-Screening Report Assessments, with water pollution and outdoor sports and recreation identified as likely significant effects (LSE), however, with the implementation of mitigation measures discussed in Section 6 of this report, there is unlikely to be a disturbance to nesting birds or an impact on the SPA's site integrity.

8 References

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9 Glossary

Acronym	Definition
2006/113/EC	Shellfish Waters Directive
76/160/EC	Bathing Water Directive
AA	Appropriate Appraisal
BBA	Brough Bay Association
CaSPlan	Caithness and Sutherland Local Development Plan
CD	Chart Datum
dB(A)	A-weighted decibels
E	East
EPS	European Protected Species
GENs	General Planning Principles
HIE	Highlands & Islands Enterprise
HRA	Habitats Regulation Appraisal
km	Kilometres
LDPs	Local Development Plans
LSE	likely significant effect
m	metres
MHWS	Mean High Water Springs
MLWS	Mean Low Water Springs
mm	Millimetre
MPA	Marine Protected Areas
NBN	National Biodiversity Network
NC500	North Coast 500
nm	Nautical miles
NMP	National Marine Plan
NMPI	National Marine Plan Interactive
NNW	North northwest
NPF	National Planning Framework
NPF3	Third National Planning Framework
OD	Ordinance Datum
PMF's	Primary Marine Feature's
PPG	Pollution Prevention Guidance
S	South
SAC	Special Areas of Conservation
SDP's	Strategic Development Plans
SE	Southeast
SEPA	Scottish Environmental Protection Agency
SPA	Special Protection Areas
SPP	Scottish Planning Policy
SSE	South southeast
SSSI	Sites of Special Scientific Interest
t	Tonnes

Appendix 1: Habitat Regulations Appraisal Pre-Screening Report



Brough Bay Harbour Improvements

Habitat Regulations Appraisal Pre- Screening Report



Date: 13/10/2021

Revision 2

Document Control

	Name	Title	Date
Author	Bronwyn Fisher	Senior Consultant	30/08/2021
Reviewer	Ewan Beveridge	Consultant	31/08/2021
Authoriser	Fiona Henderson	Managing Director	31/08/2021

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Revision No:	Signature	Comments	Date
1		For Issue	31/08/21
2		Update to remove extension of slipway	13/10/21

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1 Introduction

In support of the Marine Licence and Planning Application for the proposed Brough Bay Harbour Improvements, this Habitats Regulations Appraisal (HRA) Pre-Screening Report provides information required for the competent authorities to carry out an HRA, and, where required, an Appropriate Assessment (AA).

This report is designed to be read in conjunction with the Environmental Report and directs the reader to the section of the Environmental Report, which discusses the project elements and mitigation measures in further detail.

1.1 Legislative Basis

A HRA is required for this development due to its proximity to multiple Natura 2000 sites. These include Special Areas of Conservation (SACs) and Special Protection Areas (SPAs). The legislative context for this requirement is based on Article 6(3) of the Habitats Directive (92/43/EEC), Article 4(4) of the Birds Directive (2009/147/EC), and is implemented in Scotland through The Conservation (Natural Habitats, &c Regulations 1994) (the Habitats Regulations).

In Scotland, the Scottish Planning Policy document ensures that Ramsar sites, which are normally included in an HRA assessment, overlap with Natura sites and are therefore protected under the same legislation. Therefore, Ramsar sites do not need considered separately as part of this HRA Screening report.

If a likely significant effect is predicted on a Natura Site at the first stage of the HRA, then an Appropriate Assessment (AA) must then be carried out. The AA must demonstrate that the proposal will not adversely affect the integrity of the site (NatureScot, 2021).

It is the responsibility of the competent authority to carry out the HRA based on robust, scientific information provided by the project developer about the Proposed Project. It is not the role of the developer to make an assessment on whether the proposal will have an adverse effect on any associated Natura sites.

1.2 Terminology

The terminology employed as part of the HRA process relates to likely significant effects (LSEs). In this HRA Pre-Screening report, the use of the word 'significant' relates to potential ecological connectivity.

Assessment of LSEs take a precautionary approach and ask whether a project may have an effect, or have the possibility of having an effect, on a Natura site (NatureScot, 2021). A project component is said to have an LSE on a designated site if there is ecological connectivity with the site's qualifying interests, or there is the potential for the conservation objectives of the designated site to be undermined. Where an LSE "*cannot be excluded, on the basis of objective information*" an AA is required. The conservation objectives of the site provide the framework for considering the potential for LSEs.

1.3 Objectives

The objectives of this HRA Pre-Screening report are to summarise:

- The proposed development details;
- The Natura 2000 sites considered, with reference to the Brough Bay, along with these sites' qualifying interests and conservation objectives;
- Details on the qualifying interests for each of the scoped-in Natura sites.

This information will aid the competent authority in carrying out an HRA. This HRA Pre-Screening Report provides a reference as to where the relevant information required to complete the HRA is located within the Environmental Report, and as such should be read in conjunction with it and not as a stand-alone document. An indication of whether LSEs are expected is given for each designated site, but it is ultimately up to the competent authority carrying out the HRA to ascertain whether LSEs are present, and therefore whether an AA is needed for each designated site.

2 Project Summary

Brough Harbour is located within the small village of Brough, Caithness, situated in the far north of Scotland (Grid Reference: ND 2210 7401). The Brough Bay Association (BBA) are a membership community group dedicated to maintaining and improving the facilities at Brough Harbour, they are proposing to repair the existing slipway.

In addition, the BBA are planning to create a parking area to the east of the slipway, by extending the existing turning area, installing drainage along the existing access track and behind the existing bothy, undertaking protection works at the toe of the existing sea wall and rebuilding a small section of the sea wall which has collapsed.

Further details on the project description, including the details of each individual element, can be found in Section 2.2. Project Elements of the Brough Harbour Improvements Environmental Report.

Due to the development's proximity to Natura 2000 sites and the potential for aspects of the construction process to have some degree of connectivity with the qualifying features of Natura 2000 sites, a HRA is required. Information on the designated sites and qualifying features relevant to the development and therefore taken into consideration, can be found in Section 3: Designated Sites of this report.

3 Designated Sites

3.1 Identification of Designated Sites

The designated sites and their qualifying interests relevant to the development are shown in Table 3.1. The sites specifically considered and included within Table 3.1 are those within 20km of the development (irrespective of qualifying interest). Due to the nature and scale of the development designations further from the site are highly unlikely to have any connectivity. There is a lack of connectivity with marine designated sites even those with mobile features for example the Moray Firth SAC, as the works are entirely above MLWS limiting their influence on the marine environment.

The sites, or species within the sites, are scoped in or out depending on the level of ecological connectivity to the proposed works. A reduced list of designated sites and features is then taken forward for further assessment. Explanations for why certain sites or qualifying features are excluded is laid out in Table 3.1.

Only Special Areas of Conservation (SACs) and Special Protections Areas (SPAs) are considered, as together, they make up the Natura 2000 Network.

Table 3.1: Designated Sites Relevant to the Proposed Brough Harbour Improvements

Designation	Site	Distance	Features	In/Out	Comments
SPA/ RAMSAR	Caithness Lochs	4.5km E & 6Km SE	Greenland white-fronted goose (<i>anser albifrons flavirostris</i>) non-breeding; Greylag goose (<i>Anser anser</i>), non-breeding; and Whooper swan (<i>Cygnus cygnus</i>), non-breeding.	Out	While the qualifying features of the SPA are mobile, they are not likely to be found on coastal habitats. As such there is no connectivity with the Caithness Lochs SPA and the Brough Harbour Site and hence is not considered further.
SPA	North Caithness Cliffs	Adjacent to the Site (SPA is below MLWS adjacent to the site)	Fulmar (<i>Fulmarus glacialis</i>), breeding; Guillemot (<i>Uria aalge</i>), breeding; Kittiwake (<i>Rissa tridactyla</i>), breeding; Peregrine (<i>Falco peregrinus</i>), breeding; Puffin (<i>Fratercula arctica</i>), breeding; Razorbill (<i>Alca torda</i>), breeding; Seabird assemblage	In	The qualifying features of the SPA are mobile and are found within the cliffs surrounding the harbour. Therefore, needs to be considered further.

3.2 Designated Site Information

The Conservation Objectives of the designated site taken forward is provided below. Information on where the assessment for the qualifying features or species for the site is then provided. Reference to the relevant section of the Brough Harbour Improvements Environmental Report (Affric, 2021) are provided.

3.2.1 North Caithness Cliffs SPA

The conservation objectives for the Inner North Caithness Cliffs SPA are shown in Table 3.2 and the qualifying features are shown in Table 3.3.

A degree of connectivity has been identified between the North Caithness Cliffs SPA and the proposed improvements due to the highly mobile nature of the site's qualifying feature of

Fulmar, Guillemot, Kittiwake, Peregrine, Puffin, Razorbill and seabird assemblages. The construction area is above Mean Low Water Springs (MLWS) immediately adjacent to an area of sea within the designation which is below MLWS. This, combined with the techniques likely to be utilised during the construction phase, means that there is the potential for the works to have an LSE on the site. Therefore, it is likely an AA will be required.

Table 3.2: North Caithness Cliffs SPA

Conservation Objective of the Designated Site	Section of the Environmental Report to inform the assessment
<p>Overarching Conservation Objective: To ensure that the habitat of the qualifying species, or disturbance to the qualifying species, does not significantly deteriorate the condition of the site. The site must maintain an appropriate condition to achieve favourable conservation status.</p>	<p>Section 4.2.4, Ornithology Baseline, Section 5, Potential Impacts Sections 6.1.4, 6.1.5 and 6.2.1, for Mitigation.</p>
<p>Further Conservation Objective: To ensure for the qualifying species that the following are maintained in the long term:</p> <ul style="list-style-type: none"> No significant disturbance that can contribute to a decline in the ability of the qualifying feature's ability to survive; High density of species across the site; Population of the species as a viable component of the site; Distribution of the species within site; Distribution and extent of habitats supporting the species; and Structure, function and supporting processes of habitats supporting the species. 	

Table 3.3: North Caithness Cliffs SPA Qualifying Features

Qualifying Feature(s)	Summary of Assessment
<p>Fulmar (<i>Fulmarus glacialis</i>)</p> <p>Guillemot (<i>Uria aalge</i>)</p> <p>Kittiwake (<i>Rissa tridactyla</i>)</p> <p>Peregrine (<i>Falco peregrinus</i>)</p> <p>Puffin (<i>Fratercula arctica</i>)</p> <p>Razorbill (<i>Alca torda</i>)</p>	<p>The SPA is designated for the seabird species which breed within the cliffs approximately 1.2km North northwest from the Harbour area (see Drawing 81.01), extending 2km into the marine environment and running adjacent to the site below MLWS. Therefore, there is connectivity between the Harbour site and SPA.</p> <p>Fulmars begin breeding in April and lay their eggs in late May to early June in large colonies on ledges and among rocks. Young fledge at 49 to 58 days in early September, with the last young leaving their natal sites by early October (Dewey, 2009). Their diet comprises fish, squid and large zooplankton and they capture prey mainly at the surface but will occasionally dive as well. Fulmars are known to forage far out at sea even while breeding on the cliffs (Edwards <i>et al.</i>, 2013).</p> <p>The guillemot breeding season occurs between mid- April to early- August (Scottish Wildlife Trust, 2021a). With eggs being laid between May and June (Bennett, 2001). They usually nest on wide ledges near the top of cliffs, but will also nest on more gently sloping land, under boulders and in puffin</p>

burrows on islands free from mammalian predators (JNCC, 2021a). The guillemot's diet consists of a wide variety of fish, as well as crustaceans, marine worms and squid. They forage for food by diving from the sea surface and swimming underwater using their wings for propulsion (Scottish Wildlife Trust, 2021a). Like fulmars, guillemots are known to travel large distances whilst breeding to reach foraging patches (Chimienti *et al.*, 2017).

Kittiwake breed between late April and Late August (Scottish Wildlife Trust, 2021b). Outside of the breeding season they are essentially oceanic, however, during breeding colonies can be found on sheer cliffs (JNCC, 2021b). Kittiwakes are the only gulls that dive and swim underwater. They can dive or dip just below the surface to catch prey of marine invertebrates, sand-eels, plankton, and fish (Scottish Wildlife Fund, 2021b). Breeding kittiwakes have a mean foraging range of approximately 11km, although the distance they travel to foraging areas is greater during the egg incubation than the chick-rearing stage (Robertson *et al.*, 2014; Soanes *et al.*, 2016).

Peregrine (*Falco peregrinus*) breed between March and May, with females laying eggs in mid- May and hatch in mid-June. Average time to independence is 6 weeks (Potter, 2002). Peregrine falcons prey almost exclusively on birds, which make up 77% to 99% of prey items (Potter, 2002).

Razorbill populations are migratory and lead a predominantly aquatic lifestyle, only coming on land to breed from mid-March to early September (Scottish Wildlife Trust, 2021d). They breed mainly on small ledges or in cracks of rocky cliffs and in associated scree (JNCC, 2021c). Razorbills are offshore foragers, with a mean foraging range of approximately 54km (Soanes *et al.*, 2016). They forage by diving to catch small invertebrates or fish such as sand-eels, juvenile cod and herring (Scottish Wildlife Trust, 2021d).

During the breeding season puffins live in burrows in the short grass at the top of cliffs and feed on fish, such as Sandeels, which they catch at sea by diving beneath the surface and using their wings to swim in pursuit. For most of the year puffins are out at sea, returning to land to breed (Scottish Wildlife Trust, 2021c). Puffins breed between March and August (Street & Emily, 1999). Chicks are fed on very small fish. About 40 days after hatching the parents abandon them to return to sea (Street & Emily, 1998). Puffins have similar diving and foraging behaviours to Razorbills (Shoji *et al.*, 2015).

A review of the JNCC Standard Data Form for the North Caithness Cliffs SPA highlighted marine water pollution as medium threat to the SPA and its qualifying features. As there are construction activities occurring within and in close proximity to the coastal waters adjacent to the SPA, water pollution is a LSE. Due to the minor nature of the construction activities proposed (see Section 2.2: Project Elements in the Environmental Report) and with the implementation of the mitigation measures discussed in Section 6.1.5. of the Environmental Report, an accidental release of contaminants is unlikely to result in a decrease in the structure, function and supporting processes of habitats supporting the qualifying features, maintaining site integrity.

The closest nesting site within the SPA is located approximately 1.2km north northwest of the Harbour. The planned improvements are therefore not likely to displace the qualifying features. While the increased activity at the Harbour is likely to increase ambient noise levels over a short period, the distance to the Harbour from the nesting sites and the minor nature of the planned construction activities is unlikely to cause any disturbance to the birds on the nest.

As the Harbour is outwith the boundary of the SPA and is above MLWS, it is unlikely that the construction activities will inhibit the foraging success of the qualifying features as the bulk of their prey species will be located away from the intertidal area.

Once operational, the Harbour area will be able to accommodate more vehicles, likely attracting more people down to the Harbour area. Outdoor sports and leisure activities / recreational activities have been identified as a low threat to the SPA. LSE's to nesting seabirds arise due to the improved infrastructure providing better access to the waters within the SPA from the Harbour. Mitigation measures have been identified within Section 6.2.1 of the Brough Harbour Improvements Environmental Report, which if implemented will make people aware of the issue to allow them to minimise disturbance and the impact on nesting seabirds.

4 Cumulative and In-Combination Effects

Cumulative and in-combination effects of the development were considered as part of the HRA process. As there are no other projects planned in the Brough area, it is unlikely that there will be any cumulative or in-combination effects that could impact upon the qualifying species at a population level or the site integrity of the SPA.

5 Conclusion

The assessment of the likely effects of the proposed Brough Harbour improvements on the North Caithness Cliffs SPA, identified that water pollution during the construction phase and the potential increase in outdoor sports and recreation within the SPA during the operational phase are LSE's. However, with the implementation of the mitigation measures identified within Section 6, Mitigation, within the Environmental Report, there is unlikely to be any disturbance to nesting birds or a change to the structure, function and supporting processes of habitats supporting the qualifying features. The proposed Harbour improvements are therefore unlikely to impact on the site integrity of the North Caithness Cliffs SPA.

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7 Glossary

Acronym	Definition
2009/147/EC	Birds Directive
92/43/EEC	Habitats Directive
AA	Appropriate Assessment
BBA	Brough Bay Association
E	East
HRA	Habitats Regulations Appraisal
km	Kilometres
LSE	Likely significant effects
MLWS	Mean Low Water Springs
SAC	Special Areas of Conservation
SE	Southeast
SPA	Special Protection Areas

Drawings

0

5

10

15

20 km

N



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Title: 81.01 Brough Bay, Designated
Sites within 10Km

Projection: OSGB 1936/British National
Grid EPSG: 27700

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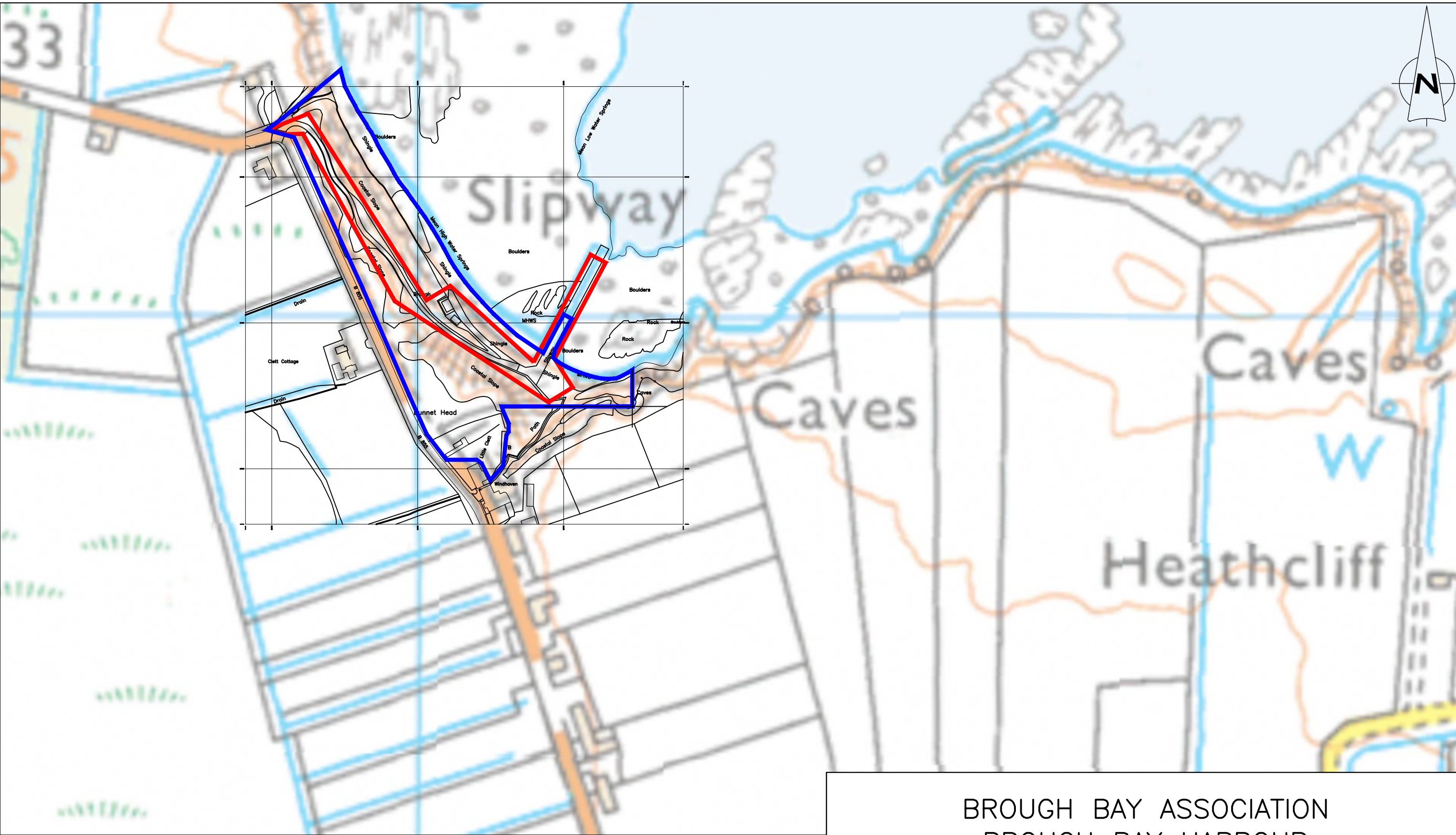
Page 1

Rev No: 1

Drawing Date:
15/07/2021

Legend

-  Brough Bay Location
-  10Km Buffer
-  Building
-  Foreshore
-  Fresh Water
-  Road
-  Tidal Water
-  Woodland
-  RAMSAR_SCOTLAND
-  SPA_SCOTLAND
-  SSSI



- LEGEND:**
- EXTENT OF WORKS BOUNDARY
 - LAND OWNERSHIP BOUNDARY

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BROUGH BAY ASSOCIATION
BROUGH BAY HARBOUR
LOCATION PLAN

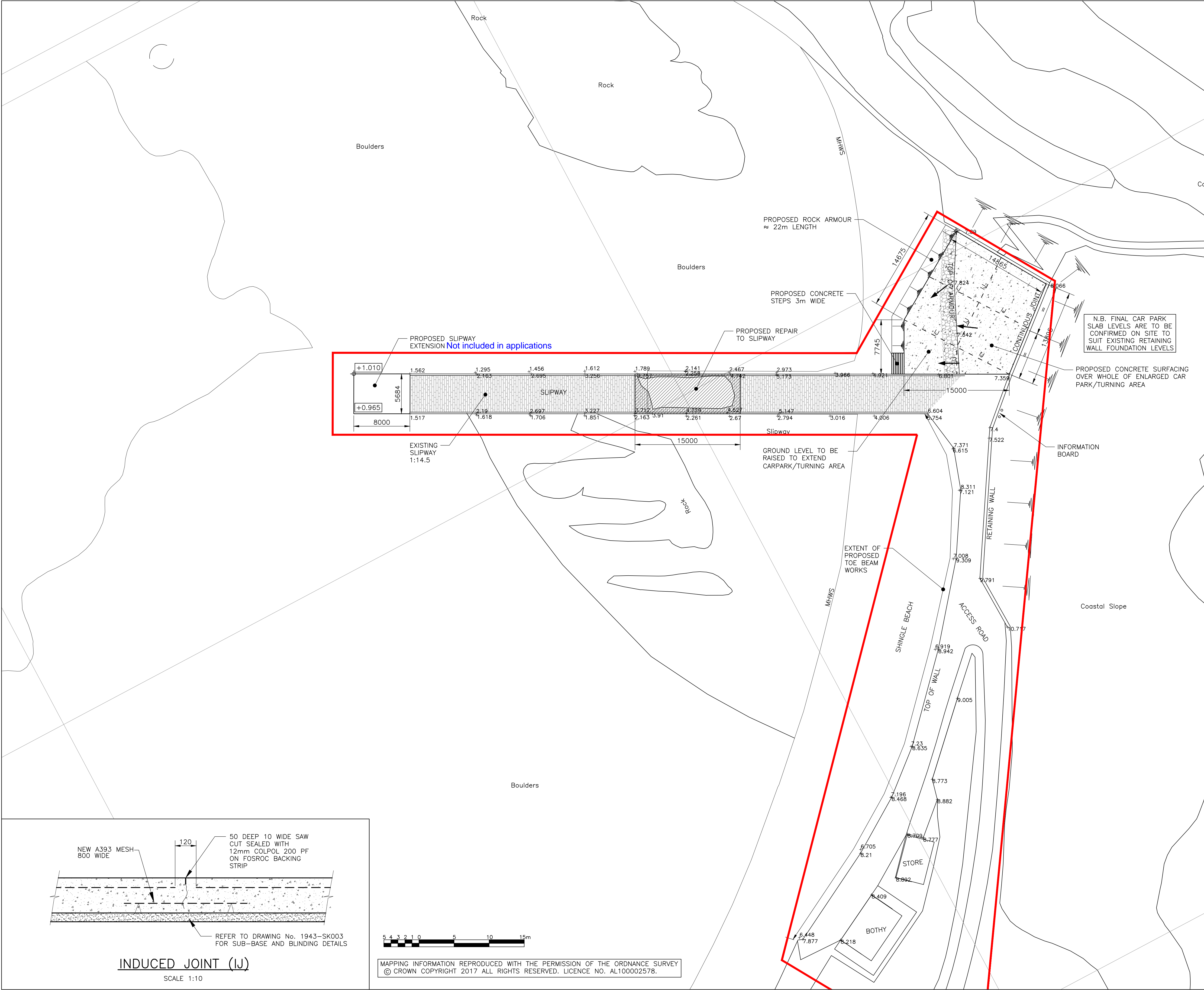
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DRAWN: PM	DATE DRAWN: 31.08.21
CHKD: RF	DATE CHKD: 31.08.21
APPRVD: TR	DATE APPRVD: 31.08.21
DRG NO. 1943-902	SCALE: 1:2500



GENERAL NOTES

- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
- ALL LEVELS ARE IN METRES AND RELATE TO CHART DATUM.
- CHART DATUM IS 2.19m BELOW ORDNANCE DATUM.
- TIDE DATA;

HAT	+4.7m	CD
MHWS	+4.2m	CD
MHWN	+3.5m	CD
OD	+2.19m	CD
MLWN	+2.0m	CD
MLWS	+1.0m	CD
LAT	+0.2m	CD

LEGEND:

	+7.40	- PROPOSED LEVELS
	+ 7.89	- EXISTING LEVELS
	IJ	- INDUCED JOINT

E	31.08.21	SLIPWAY EXTENSION AND SEAWALL REPAIRS ADDED	PM	RF	TR
D	26.02.21	BOTHY, DRAINAGE AND WAVE WALL REMOVED	PM	RF	TR
C	23.11.20	COMPOSTING TOILET REMOVED	LS	TR	TR
B	23.01.18	AMENDMENTS TO CAR PARKING AND BOTHY	JHG	RF	TR
A	18.08.17	GENERAL AMENDMENTS	JHG	RF	TR
REV	DATE	DETAILS	DRAWN	CHK'D	APP'D

AMENDMENTS

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DRAWING TITLE

PROPOSED REPAIRS AND IMPROVEMENTS

DRAWN	ADS	CHECKED	TR	APPROVED	TR
DATE	APR 2017	DATE	APR 2017	DATE	APR 2017

SCALE (A1)	1:250	STAGE	CONSENTS				
REVISION	A	B	C	D	E		

PROJECT No.	1943	DRAWING No.	102
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PROJECT No.	DRAWING No.
1943	901