



Transport Scotland  
North West Unit

Statement to Inform Appropriate Assessment



## A9 Cromarty Bridge 5 Year Maintenance Programme

### Statement to Inform Appropriate Assessment

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Distribution		
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# 1. Habitats Regulations Appraisal Proforma

## APPRAISAL IN RELATION TO REGULATION 48 OF THE CONSERVATION (NATURAL HABITATS, &C.) REGULATIONS 1994 AS AMENDED<sup>1</sup> (HABITATS REGULATIONS APPRAISAL)

### NATURA SITE DETAILS

#### Name of Natura site(s) potentially affected:

1. Cromarty Firth SPA (UK9001623)
2. Cromarty Firth Ramsar (UK13009)
3. Inner Moray Firth SPA (UK9001624)
4. Inner Moray Firth Ramsar (UK13025)
5. Dornoch Firth and Loch Fleet Ramsar (UK13011)
6. Dornoch Firth and Loch Fleet SPA (UK9001622)
7. Dornoch Firth and Morrich More SAC (UK0019806)
8. Moray Firth SAC (UK0019808)
9. Moray Firth pSPA (not assigned)

#### Name of component SSSI if relevant:

##### Cromarty Firth SPA

- Lower River Conon SSSI
- Cromarty Firth SSSI
- Rosemarkie to Shandwick SSSI

##### Inner Moray Firth SPA

- Beaully Firth SSSI
- Longman & Castle Stuart Bays SSSI
- Munloch Bay SSSI
- Whiteness Head SSSI

#### Natura qualifying interest(s) & whether priority/non-priority:

##### 1.Cromarty Firth SPA

- Bar-tailed godwit (*Limosa lapponica*), non-breeding, Favourable Maintained
- Common tern (*Sterna hirundo*), breeding, Unfavourable Declining
- Curlew (*Numenius arquata*), non-breeding \*, Favourable Maintained
- Dunlin (*Calidris alpina alpina*), non-breeding\*, Favourable Maintained
- Greylag goose (*Anser anser*), non-breeding, Favourable Maintained
- Knot (*Calidris canutus*), non-breeding\*, Favourable Maintained
- Osprey (*Pandion haliaetus*), breeding, Favourable Maintained
- Oystercatcher (*Haematopus ostralegus*), non-breeding\*, Favourable Maintained
- Pintail (*Anas acuta*), non-breeding\*, Favourable Maintained
- Red-breasted merganser (*Mergus serrator*), non-breeding\*, Favourable Maintained
- Redshank (*Tringa totanus*), non-breeding\*, Favourable Maintained
- Scaup (*Aythya marila*), non-breeding\*, Unfavourable No Change
- Whooper swan (*Cygnus cygnus*), non-breeding Unfavourable No Change
- Wigeon (*Anas penelope*), non-breeding\*, Favourable Maintained
- Waterfowl assemblage, non-breeding, Favourable Maintained

\* Indicates assemblage qualifier only

##### 2.Cromarty Firth Ramsar

- Bar-tailed godwit (*Limosa lapponica*), non-breeding, Favourable Maintained
- Greylag goose (*Anser anser*), non-breeding Favourable Maintained

<sup>1</sup> Or, where relevant, under regulation 61 of The Conservation of Habitats and Species Regulations 2010 as amended, or regulation 25 of The Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2007 as amended.

- Intertidal mudflats and sandflats, Favourable Maintained
- Waterfowl assemblage, non-breeding Favourable Maintained

### 3. Inner Moray Firth SPA

- Bar-tailed godwit (*Limosa lapponica*), non-breeding; Favourable Maintained
- Common tern (*Sterna hirundo*), breeding; Unfavourable No Change
- Cormorant (*Phalacrocorax carbo*), non-breeding; \*Unfavourable No Change
- Curlew (*Numenius arquata*), non-breeding; \* Favourable Maintained
- Goldeneye (*Bucephala clangula*), non-breeding; \* Favourable Maintained
- Goosander (*Mergus merganser*), non-breeding; \* Unfavourable No Change
- Greylag goose (*Anser anser*), non-breeding; Favourable Maintained
- Osprey (*Pandion haliaetus*), breeding; Favourable Maintained
- Oystercatcher (*Haematopus ostralegus*), non-breeding; \* Favourable Maintained
- Red-breasted merganser (*Mergus serrator*), non-breeding; Unfavourable No Change
- Redshank (*Tringa totanus*), non-breeding; Favourable Maintained
- Scaup (*Aythya marila*), non-breeding; Favourable Maintained
- Teal (*Anas crecca*), non-breeding; \* Favourable Maintained
- Wigeon (*Anas penelope*), non-breeding; Favourable Maintained
- Waterfowl assemblage, non-breeding; Favourable Maintained

\* Indicates assemblage qualifier only

### 4. Inner Moray Firth Ramsar

- Bar-tailed godwit (*Limosa lapponica*), non-breeding, Favourable Maintained
- Greylag goose (*Anser anser*), non-breeding; Favourable Maintained
- Intertidal mudflats and sandflats Favourable Maintained
- Red-breasted merganser (*Mergus serrator*), non-breeding; Unfavourable No Change
- Redshank (*Tringa totanus*), non-breeding; Favourable Maintained
- Saltmarsh; Favourable Maintained
- Sand dunes; Favourable Maintained
- Shingle; Favourable Maintained
- Waterfowl assemblage, non-breeding; Favourable Maintained

### 5. The Dornoch Firth and Loch Fleet Ramsar

- Bar-tailed godwit (*Limosa lapponica*), non-breeding, Favourable Maintained
- Curlew (*Numenius arquata*), non-breeding, Not Assessed
- Dunlin (*Calidris alpina alpina*), non-breeding, Not Assessed
- Greylag goose (*Anser anser*), non-breeding, Favourable Maintained
- Harbour seal (*Phoca vitulina*), Not Assessed
- Intertidal mudflats and sandflats, Favourable Maintained
- Invertebrate assemblage, Not Assessed
- Osprey (*Pandion haliaetus*), breeding Not Assessed
- Otter (*Lutra lutra*) Not Assessed
- Oystercatcher (*Haematopus ostralegus*), non-breeding Not Assessed
- Redshank (*Tringa totanus*), non-breeding Not Assessed
- Saltmarsh, Favourable Maintained
- Sand dunes, Unfavourable Declining
- Scaup (*Aythya marila*), non-breeding Not Assessed
- Teal (*Anas crecca*), non-breeding Not Assessed
- Vascular plant assemblage, Not Assessed
- Waterfowl assemblage, non-breeding Favourable Maintained
- Wet woodland, Unfavourable Declining
- Wigeon (*Anas penelope*), non-breeding Favourable Maintained

### 6. Dornoch Firth and Loch Fleet SPA

- Bar-tailed godwit (*Limosa lapponica*), non-breeding, Favourable Maintained
- Curlew (*Numenius arquata*), non-breeding, Not Assessed
- Dunlin (*Calidris alpina alpina*), non-breeding, Not Assessed
- Greylag goose (*Anser anser*), non-breeding, Favourable Maintained
- Osprey (*Pandion haliaetus*), breeding, Favourable Maintained
- Osprey (*Pandion haliaetus*), foraging, Not Assessed
- Oystercatcher (*Haematopus ostralegus*), non-breeding, Favourable Maintained

- Redshank (*Tringa totanus*), non-breeding Not Assessed
- Scaup (*Aythya marila*), non-breeding Not Assessed
- Teal (*Anas crecca*), non-breeding Favourable Maintained
- Waterfowl assemblage, non-breeding Favourable Maintained
- Wigeon (*Anas penelope*), non-breeding Favourable Maintained

#### 7. Dornoch Firth and Morrich More SAC

Annex I habitats that are a primary reason for selection

- Atlantic salt meadows, Favourable Maintained;
- Humid dune slacks, Favourable Maintained;
- Intertidal mudflats and sandflats, Favourable Maintained;
- Estuaries, Not Assessed;
- Glasswort and other annuals colonising mud and sand, Favourable Maintained;
- Shifting dunes, Favourable Maintained;
- Shifting dunes with marram, Favourable Maintained;
- Subtidal sandbanks, Favourable Maintained.
- Coastal dune heathland, Unfavourable No Change; *\*priority habitat*
- Dune grassland, Unfavourable No Change; *\*priority habitat*
- Dunes with juniper thickets, Unfavourable Recovering; *\*priority habitat*
- Lime-deficient dune heathland with crowberry, Unfavourable No Change; *\*priority habitat*

Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site:

- Reefs, Favourable Maintained;
- Subtidal sandbanks, Favourable Maintained.

Annex II species that are a primary reason for selection of this site:

- Otter (*Lutra lutra*), Favourable Maintained;
- Harbour seal (*Phoca vitulina*), Unfavourable Declining;

#### 8. Moray Firth SAC

Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site:

- Subtidal sandbanks, Favourable Maintained

Annex II species that are a primary reason for selection of this site:

- Bottlenose dolphin (*Tursiops truncatus*), Favourable Recovered

#### 9. Moray Firth pSPA

Annex I species

- Great northern diver (*Gavia immer*) non-breeding;
- Red-throated diver (*Gavia stellata*) non-breeding;
- Slavonian grebe (*Podiceps auratus*) non-breeding;

Migratory species

- Shag (*Phalacrocorax aristotelis*) breeding;
- Common scoter (*Melanitta nigra*) non-breeding;
- Eider (*Somateria mollissima*) non-breeding;
- Goldeneye (*Bucephala clangula*) non-breeding;
- Long-tailed duck (*Clangula hyemalis*) non-breeding;
- Red-breasted merganser (*Mergus serrator*) non-breeding;
- Scaup (*Aythya marila*) non-breeding;
- Shag (*Phalacrocorax aristotelis*) non-breeding;
- Velvet scoter (*Melanitta fusca*) non-breeding.

## Conservation objectives for qualifying interests:

### 1.Cromarty Firth SPA

To avoid deterioration of the habitats of the qualifying species (listed above) or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and

To ensure for the qualifying species that the following are maintained in the long term:

- 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
- Structure, function and supporting processes of habitats supporting the species
- No significant disturbance of the species

### 2.Cromarty Firth Ramsar

As there are no specific conservation objectives or management measures for the Cromarty Firth Ramsar (Ramsar information sheet: UK13009, JNCC, 2008) the conservation objectives for the Cromarty Firth SPA have been considered due to these sites occupying the same location. Hence, the conservation objectives for the qualifying species (listed above) of the Cromarty Firth Ramsar are as follows:

To avoid deterioration of the habitats of the qualifying species (listed above) or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and

To ensure for the qualifying species that the following are maintained in the long term:

- 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
- Structure, function and supporting processes of habitats supporting the species
- No significant disturbance of the species

In relation to the habitats that are qualifying features of the Ramsar it is assumed that the conservation objectives for intertidal mudflats and sandflats as defined for the Dornoch Firth and Morrich More SAC would be appropriate:

To avoid deterioration of the qualifying habitats (listed above) ensuring that the integrity of the site is maintained, and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and

To ensure for the qualifying habitats that the following are maintained in the long term:

- Extent of the habitat on site
- Distribution of the habitat within site
- Structure and function of the habitat
- Processes supporting the habitat
- Distribution of typical species of the habitat
- Viability of typical species as components of the habitat
- No significant disturbance of typical species of the habitat

### 3.Inner Moray Firth SPA

To avoid deterioration of the habitats of the qualifying species (listed above) or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and to ensure for the qualifying species that the following are maintained in the long term:

- 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
- Structure, function and supporting processes of habitats supporting the species
- No significant disturbance of the species

#### 4. Inner Moray Firth Ramsar

As there are no specific conservation objectives or management measures for the Inner Moray Firth Ramsar (Ramsar information sheet: UK13025, JNCC, 2008) the conservation objectives for the Inner Moray Firth SPA have been considered and would be appropriate due to the sites occupying the same location, these are given above.

#### 5. Dornoch Firth and Morrich More SAC

##### *Qualifying Habitats*

To avoid deterioration of the qualifying habitats (listed above) thus ensuring that the integrity of the site is maintained, and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and to ensure for the qualifying habitats that the following are maintained in the long term:

- Extent of the habitat on site
- Distribution of the habitat within site
- Structure and function of the habitat
- Processes supporting the habitat
- Distribution of typical species of the habitat
- Viability of typical species as components of the habitat
- No significant disturbance of typical species of the habitat

##### *Qualifying Species*

To avoid deterioration of the habitats of the qualifying species (listed above) or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained, and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and to ensure for the qualifying species that the following are maintained in the long term:

- Population of the species a viable component of the site
- Distribution of the species within site
- Distribution and extent of habitats supporting the species
- Structure, function and supporting processes of habitats supporting the species
- No significant disturbance of the species

#### 6. The Dornoch Firth and Loch Fleet Ramsar

As there are no specific conservation objectives or management measures for the Dornoch Firth and Loch Fleet Ramsar (Ramsar information sheet: UK13011, JNCC, 2008) the conservation objectives for the Dornoch Firth and Loch Fleet SPA have been considered. Hence, the conservation objectives for the qualifying species (listed above) of the Dornoch Firth and Loch Fleet Ramsar are as follows:

To avoid deterioration of the habitats of the qualifying species (listed above) or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and to ensure for the qualifying species that the following are maintained in the long term:

- 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
- Structure, function and supporting processes of habitats supporting the species
- No significant disturbance of the species

In relation to the habitats that are qualifying features of the Ramsar it is assumed that the conservation objectives of the Dornoch Firth and Morrich More SAC would be appropriate, these are given above.

## 7. Dornoch Firth and Loch Fleet SPA

To avoid deterioration of the habitats of the qualifying species (listed above) or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and to ensure for the qualifying species that the following are maintained in the long term:

- 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
- Structure, function and supporting processes of habitats supporting the species
- No significant disturbance of the species

## 8. Moray Firth SAC

### *Qualifying Habitat*

To avoid deterioration of the qualifying habitat (listed above) thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and to ensure for the qualifying habitat that the following are maintained in the long term:

- Extent of the habitat on site
- Distribution of the habitat within site
- Structure and function of the habitat
- Processes supporting the habitat
- Distribution of typical species of the habitat
- Viability of typical species as components of the habitat
- No significant disturbance of typical species of the habitat

### *Qualifying Species*

To avoid deterioration of the habitats of the qualifying species (listed above) or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained, and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and to ensure for the qualifying species that the following are established then maintained in the long term:

- 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
- Structure, function and supporting processes of habitats supporting the species
- No significant disturbance of the species

## 9. Moray Firth pSPA

The pSPA is still at the consultation stage, therefore, draft conservation objectives have been set and they are detailed below. They will be finalised once the site is classified.

The draft conservation objectives for the proposed qualifying features (as listed above) of the Moray Firth proposed SPA are:

To avoid deterioration of the habitats of the qualifying species or significant disturbance to the proposed qualifying species, subject to natural change, thus ensuring that the integrity of the site is maintained in the long-term and it continues to make an appropriate contribution to achieving the aims of the Birds Directive for each of the qualifying species.

This contribution will be achieved through delivering the following objectives for each of the site's proposed qualifying features:

- Avoid significant mortality, injury and disturbance of the qualifying features, so that the distribution of the species and ability to use the site are maintained in the long-term;
- To maintain the habitats and food resources of the qualifying features in favourable condition.

## STEP 1: WHAT IS THE PLAN OR PROJECT?

### Proposal title:

A9 Cromarty Bridge 5 Year Maintenance Programme

### Name of consultee:

BEAR Scotland

### Name of competent authority:

Transport Scotland and Marine Scotland

### Details of proposal (inc. location, timing, methods):

BEAR Scotland have been commissioned by Transport Scotland to apply for a Marine Licence to cover a 5-year programme of maintenance works on the A9 Cromarty Bridge. The maintenance activities are broken down into 'scheme' and 'cyclic maintenance'. 'Scheme' represents those works that will be required over the next 5 years, whilst 'cyclic maintenance' represents those works which may be required over the same timeframe. Inspections will also be carried out to identify the degree of maintenance activity required.

The maintenance activities encompass:

#### Scheme

- Scour repairs – scour protection around pier pile caps, it is anticipated that 18 no. piers will require repairs throughout the five-year period and that a maximum of six piers would be repaired in any one year.

#### Cyclic Maintenance

- Resurfacing
- Concrete repairs – minor repair to superstructure and substructure (some work to piers may be below MHWS) some hydro demolition.
- Drainage cleaning
- Parapet repairs
- Bird guano removal
- Pavix CC100 treatment on the pre-stressed beams
- Cathodic protection maintenance (some work to piers may be below MHWS)

All activities are highly localised and will take place within the immediate vicinity of the bridge. In most cases activity duration is likely to be less than a few weeks and, in all cases, less than three months in any given year. All maintenance works are considered temporary and are unlikely to be carried out simultaneously with any other activity. It is not desirable to programme more than one activity on the bridge at any one time. This is due to the traffic management and multiple subcontractor requirements increasing complexity of programming and delivery of these projects, as such it is not expected that there will be any overlap of the scheme activity 'scour repairs' with cyclic maintenance activities.

To access the soffit of the bridge deck or piers, an underbridge access unit is required to complete maintenance or inspections underneath the bridge. The underbridge platforms will either be lorry-mounted underbridge platforms or fixed platforms suspended from the bridge. In line with health and safety requirements any work being carried out beneath the bridge will require an adequate working platform and railing to prevent any workers from falling. In line with good practice, around this platform and railing containment will be achieved by the attachment of either debris netting or thickened sheets to prevent materials falling from the platform.

Some of the cyclic maintenance activities will take place from the bridge deck only, including resurfacing and drainage cleaning. Other activities will require access beneath the bridge deck and these include bird guano removal and pavix treatment of the pre-stressed beams. Only the scour repairs and limited repairs to the cathodic protection system (only installed in spans 1-8) will take place in the subtidal zone.

Further detail for each of the maintenance activities is contained below. A range of good practice and management measures will be adopted by the successful contractor. These are detailed for each activity; however, the following good practice and management measures will also be adopted throughout the maintenance programme irrespective of the activity:



- The site supervisor will give appropriate toolbox talks prior to work commencing. These talks will highlight any sensitive features, including the designated sites and their qualifying features.
- In line with good practice, the contractor will follow the updated and relevant Guidance for Pollution Prevention (GPPs) including GPP 5 (Works and maintenance in or near water). Pollution Prevention Guidance (PPGs) will be followed if no corresponding GPP is available.
- Oils, fuels and chemicals will be stored in fully bunded areas.
- Spill kits will be available on site (including jack-up barges) and workers trained in their use.
- The contractor will produce a contingency plan for dealing with spills or environmental incidents.
- Any waste generated will be removed from site and either recycled or disposed of in compliance with Waste Management Regulations.

### **Scour repairs**

The existing scour protection has partially eroded at some of the pile caps. Scour repairs will therefore be required at a number of piers (each pier consists of two reinforced concrete columns). In 2016 six piers were remediated with rock armour, with approximately 300m<sup>3</sup> of material excavated at each pier. The substrata consisted of muddy sediments which were sidecast by the excavator during the works. Scour repairs were carried out sequentially with one excavator working off a jack up barge to place scour protection (usually large rocks) around the pier pile caps before moving on to the next pier.

It is expected that a further 18 piers will require remediation over this five-year maintenance programme with a maximum of six piers being repaired in any one year (over a two to three-month period). It is likely that the same methodology will be incorporated for the proposed scour repair activity during this five-year maintenance programme as was done in 2016; however, it is possible that two jack-up barges with excavators could be used at each pier in unison, thereby significantly reducing the duration of the works in any given year.

Excavated material will be sidecast at each pier, hence material will be redistributed in a similar location on the seabed during the activity. Following excavation, geotextile will be installed around the specific pile cap. Rock armour will then be placed around the pier pile caps with backfill of voids between armour achieved by infilling of granular material (sand and gravel).

The scour repair activity will take place at sequential piers across the bridge; therefore, the activity of scour repair will be limited to the immediate area around each pier at any one time. During the scour repair the material will be removed by an excavator mounted on a jack-up barge. Around the base of the piers (pile caps) the area affected by the excavation and then rock placement would be unlikely to exceed beyond a 5m radius. The area of each foot of the jack-up barge will be less than 2m<sup>2</sup>.

The works will be highly localised and are not expected to take more than 3-10 days per pier (depending on the level of scour repairs required). Hence, the total duration of scour repairs in any given year is not expected to exceed 90 days. Note that this duration is based on a single excavator working from a single jack up barge, consequently the duration would be reduced if a second excavator and jack up barge were mobilised.

Scour repairs will not overlap with any other maintenance activities.

#### Summary methodology

- Install jack up barge to required pier location
- Excavate superficial sediments (sands and muds) around pier(s)
- Side cast sediments
- Install geotextile
- Place rock armour around piers and infill with granular material
- Demobilise from site

In addition to the good practice and management measures already listed the following will be adopted: Production and implementation of a Biosecurity Management Plan (which will be appended to the SEMP when finalised) during the construction phase.

- Prior and during the construction phase, appropriate staff will be informed of relevant marine Invasive Non-Native Species (INNS). These staff will receive a copy of the Biosecurity Management Plan and understand how to implement the management measures. These staff will also be cognisant of guidance produced by SNH for the prevention of introduction of non-native species (Payne *et al.*, 2014).

- The Contractor will produce a Ballast Water Management Plan<sup>2</sup> (if relevant) to prevent the risk of introducing invasive non-native species.
- All rock armour will be washed and cleaned prior to immersion to ensure that no contaminants are brought into contact with the marine environment.
- All equipment to be washed down and cleaned prior to immersion.

### **Resurfacing**

Resurfacing will be completed as required to repair potholes and large-scale resurfacing to restore the surfacing condition. Removal of mastic waterproofing material would be carried out as part of large scale resurfacing, this would be carried out by either mechanical hand tools or grit blasting. The maximum duration of any single resurfacing scheme would not exceed four weeks.

#### Summary methodology

- Establish traffic management as required
- Excavate or plane off surfacing and remove waterproofing
- Complete concrete repairs on bridge deck as required
- Apply waterproofing if required
- Lay binder and surface course
- Demobilise traffic management

The following good practice measures will also be adopted:

- Ensure that all milling works are carried out during suitable periods of weather to ensure that waste material is not blown or washed in the water.
- Debris netting is to be installed around the area being milled as required.

### **Concrete repairs**

Minor concrete repairs to both the superstructure and substructure may be required following inspections. This may include work on the piers below the mean high water level (but above mean low water). Works will require the use of hydro demolition for large repairs and hand tools for smaller repairs. The duration of these works will vary depending on the extent of the repairs, which will be identified during the inspection(s). However, the maximum duration of the repair work is approximately 2 to 3 weeks.

Where works are required beneath the bridge they will be facilitated by an underbridge unit. In line with health and safety requirements, any work being carried out beneath the bridge will require an adequate working platform and railing to prevent any workers from falling. In line with good practice, around this platform and railing, containment will be achieved by the attachment of either debris netting (if small repairs only) or thickened sheets (if hydro demolition). If hydro demolition is being carried out, then the floor of the platform will be layered with materials to fully contain the water and debris e.g. Terram and Visquine layers.

Concrete fragments that land on the access system floor, during large or small repair works will be cleaned up, taken to the surface of the bridge and removed from site by licensed waste carriers. The water generated during the hydro demolition will either be pumped back up to the bridge deck, where it will then be collected and removed from site by licensed waste carriers; or, the water will be filtered, and pH reduced before discharging in to the marine environment. The contractor will ensure that the conditions of a SEPA CAR licence are adhered to, should one be required for the discharge.

As noted above, there may be a requirement to access areas of the bridge that lie between mean high-water spring and mean low water spring, specifically on the piers. This will be facilitated by either a fixed platform, that at certain states of the tide will be immersed or, as is more likely, and as previously done at Cromarty Bridge, by a platform that is raised/lowered accordingly and will thus always remain above the water. If a fixed platform is used then workers will ensure that all debris, material and work water is removed from the platform, before immersion, with this material then removed from the site by licensed waste carriers; or, filtered and pH reduced before discharging in to the marine environment (as above).

<sup>2</sup> <http://www.imo.org/en/OurWork/Environment/BallastWaterManagement/Pages/Default.aspx>

On the deck of the bridge, debris netting or sheeting will be applied around the working area to prevent materials and/or works water from entering the marine environment. Material will be collected in the same manner as described above and removed from the site by licensed waste carriers or, in the case of water, potentially discharged into the marine environment, ensuring that the conditions of a SEPA CAR licence are adhered to, should one be required.

Summary methodology:

Large repair

- Establish traffic management.
- Hammer survey area
- Hydro Demolition of damaged concrete.
- Clean steelwork and prepare surface.
- Install new concrete.
- Demobilise from site.

Small repair

- Establish traffic management.
- Hammer survey area
- Break out damaged concrete.
- Clean steelwork and prepare surface.
- Install new concrete.
- Demobilise from site.

The following good practice measures will also be adopted:

Large repair

- Hydro demolition will be contained using protective sheeting and a sump pit to catch run off water.
- Debris material and work water will be pumped back up to the bridge deck, where it will then be collected and removed from site by licensed waste carriers; or, the water will be filtered, and pH reduced before discharging in to the marine environment.
- Fresh concrete will be poured in such a manner that no concrete is lost or can enter the marine environment.
- All waste concrete will be removed from site by licenced waste carriers.

Small repair

- Debris netting to be installed around the area being broken out
- Containment of the working platform using the debris netting and flooring layers.
- All waste concrete will be removed from site by licensed waste carriers
- Fresh concrete will be poured in such a manner that no concrete is lost or can enter the marine environment

### **Drainage cleaning**

The drainage gullies and pipes on the bridge require periodic maintenance to ensure they are effective for draining water from the carriageway. This activity would take place up to a maximum of one week to complete. These works will be carried out on the surface of the bridge.

Summary methodology

- Establish traffic management as required.
- Open kerb gully.
- Clean debris from gulley using vacuum truck or hand tools.

The following good practice measure will also be adopted:

- Vacuum trucks will be emptied at licensed facilities.

### **Parapet repairs**

The bridge parapet was renewed in 2016; however, accidental vehicle damage or defects to the parapet may require repair. These works will be carried out above MHWS and would take a maximum duration of one week to complete for any single repair.

Summary methodology:

- Establish traffic management
- Install safety barrier around damaged areas

- Remove existing damaged parapet sections
- Install new parapet sections
- Remove safety barrier
- Demobilise from site

The following good practice measures will also be adopted:

- Edge protection to be installed to ensure material can't be knocked over the edge of the bridge
- Debris netting to be used to stop waste and small items falling over the side

### **Bird guano removal**

Bird guano on the crosshead beams requires periodic cleaning and removal to prevent build up. This activity will be carried out below the bridge deck and will take a maximum of 2 to 3 weeks to complete.

Summary methodology

- Establish traffic management as required.
- Establish underbridge access unit (lorry mounted or fixed).
- Clean bearing shelves using hand tools.

The following good practice measures will also be adopted:

- Bird guano will need to be double-bagged to prevent spillage.
- Guano will be taken to a licensed facility for disposal.

### **Pavix CC100 treatment on the pre-stressed beams**

To seal cracking on the pre-stressed beams caused by alkali silica reaction (ASR), Pavix CC100 will be sprayed onto the beams after cleaning the beams. The maximum duration for these works is expected to be 4 weeks.

Summary methodology:

- Establish traffic management as required
- Establish underbridge access unit (lorry mounted or fixed)
- Clean pre-stressed beam using brushes and vacuum cleaners
- Apply Pavix CC100 using hand held spray or brush
- Demobilise underbridge unit and traffic management

The following good practice measures will also be adopted:

- Debris netting and containment will be installed around the working area to prevent entry of any materials into the marine environment
- All debris removed during the cleaning process will be taken off site by a licenced waste carrier.
- Application and treatment will take place during suitable weather conditions.

### **Cathodic Protection Maintenance**

Cathodic protection components on the bridge may require maintenance to ensure the system remains functional. Currently cathodic protection on the bridge is only installed between spans 1 to 8. There may be a limited element of subtidal works associated with the cathodic protection repairs with only minor repairs to the galvanic anodes required (drilling into concrete piers, fixing cables and replacing broken components etc). There may be cathodic protection works within the intertidal zone, this would consist of repairs to the discrete anode cathodic protection system. Reference electrodes, cabling and titanium anode mesh may require repairing which may involve more intrusive repairs such as hydro-demolition, sprayed concrete, drilling and installing new electronic components. Works within the intertidal zone will be carried out during low tides in order for the works to be carried out in the dry, this is feasible due to the quick curing capabilities of sprayed concrete. Cathodic protection works will also include installation of cable tray and electrical wiring on west cantilever of bridge, these works will take place underneath the bridge.

Both the intertidal and the subtidal repairs will be completed using an lorry mounted underbridge unit access system for minor repairs. If major repairs are required (such as hydro-demolition), an underbridge access system will be required. If hydro demolition is being carried out, then the floor of the platform will be layered with materials to fully contain the water and debris e.g. Terram and Visquine layers. The water generated during hydro demolition will either be pumped back up to the bridge deck, where it will then be collected and removed from site by licensed waste carriers; or, the water will be filtered, and pH reduced before discharging in to the marine environment. The contractor will ensure that the conditions of a SEPA CAR licence are adhered to, should one be required for the discharge.

Summary methodology:

- Establish traffic management as required
- Establish underbridge access unit (lorry mounted or fixed)
- Lay additional cabling as required
- Change out components as required
- Possible, drilling, grinding, welding, hydro-demolition and concrete repairs will be required to access components within the structure or to establish new components.
- Demobilise underbridge unit and traffic management.

The following good practice measures will also be adopted:

- Thickened sheets will be installed around the area being broken out.
- If working from a platform beneath the bridge, the floor will be layered with materials (see above) to fully contain the water and drill and grinding dust from entering the marine environment.
- Hydro demolition will be contained using protective sheeting and a sump pit to catch run off water.
- Debris material and work water will be pumped back up to the bridge deck, where it will then be collected and removed from site by licensed waste carriers; or, the water will be filtered, and pH reduced before discharging in to the marine environment.
- Fresh concrete will be sprayed in such a manner that no concrete is lost or can enter the marine environment.
- All waste concrete will be removed from site by licenced waste carriers

## **STEP 2: IS THE PLAN OR PROJECT DIRECTLY CONNECTED WITH OR NECESSARY TO SITE MANAGEMENT FOR NATURE CONSERVATION?**

*The following points should be considered:*

*i) Has the effect on all qualifying interests been considered?*

*ii) Is the proposal part of a fully assessed and agreed management plan?*

*iii) Is there a clear rationale to justify the connection with the conservation objectives?*

*iv) If there is a clear connection with the conservation objectives will any benefits arising from the proposal outweigh any negative effects?*

*v) Have any alternative methods of implementing the proposal been explored to demonstrate that this is the least damaging option?*

*vi) Give a YES/NO conclusion in terms of whether the plan or project is considered directly connected with or necessary to site management for nature conservation.*

*- If **YES** for all elements of a plan or project, for all the Natura qualifying interests (preferably as part of a fully assessed and agreed management plan), then consent can be issued. The rationale should be detailed below and no further appraisal is required (no need to proceed to stage 3 or 4).*

*- If **No** for all Natura qualifying interests then proceed to stage 3.*

*- If a plan has multiple elements (e.g. a range of policies or management objectives), elements of the plan considered directly connected with or necessary to site management for nature conservation should be discussed below and a rationale given for this conclusion. No further appraisal is then required for those elements. All other elements of the plan must proceed to stage 3.*

No, none of the activities are directly connected with or necessary to site management for nature conservation.

**STEP 3: IS THE PLAN OR PROJECT (EITHER ALONE OR IN COMBINATION WITH OTHER PLANS OR PROJECTS) LIKELY TO HAVE A SIGNIFICANT EFFECT ON THE SITE?**

Each qualifying interest should be considered in relation to their conservation objectives. The following points should be considered:

- i) Briefly indicate which qualifying interest could be affected by the proposal and how; if none, provide a brief justification for this decision, and then proceed to v), otherwise continue;
  - ii) refer to other plans/projects with similar effects/other relevant evidence;
  - iii) consider the nature, scale, location, longevity, and reversibility of effects;
  - iv) consider whether the proposal contributes to cumulative or incremental impacts in combination with other plans or projects completed, underway or proposed;
  - v) Where the impacts of a proposal are the same for different qualifying interests these can be considered together however a clear conclusion should be given for each interest
  - vi) give Yes/No conclusion for each interest.
- **If yes, or in cases of doubt, continue to step 4.**  
 - **If potential significant effects can easily be avoided, record modifications required below.**  
 - **If no for all features, a consent or non-objection response can be given and recorded below (although if there are other features of national interest only, the effect on these should be considered separately). There is no need to then proceed to step 4.**

Following initial discussion with SNH [Redacted] ,6th April 2018), at the environmental screening stage of assessment for the maintenance programme, SNH were in general agreement with initial conclusions of the HRA screening (see Appendix A, Appendix B) regarding the proposed maintenance activities at Cromarty Bridge. This has led to the screening out of a number of qualifying features, including all features of the Dornoch Firth and Loch Fleet SPA.

SNH agreed that the proposal could lead to a potential Likely Significant Effect (LSE) on a number of qualifying features of the designated conservation sites (Appendix A and B). A summary of these are provided in Table 1.

**Table 1: Qualifying (broad) features with potential for a likely significant effect from the proposed works at Cromarty Bridge**

Broad Feature	Associated Designated Sites
Harbour seal	Dornoch Firth and Loch Fleet Ramsar, Dornoch Firth and Morrich More SAC
Bottlenose dolphin	Moray Firth SAC
Breeding birds	Inner Moray Firth SPA, Inner Moray Firth Ramsar, Cromarty Firth SPA, Moray Firth pSPA
Intertidal mudflats and sandflats	Cromarty Firth Ramsar
Wintering birds	Cromarty Firth Ramsar, Cromarty Firth SPA, Moray Firth pSPA, Inner Moray Firth SPA and Inner Moray Firth Ramsar

Since April 2018, further detail has been provided on the good practice and management measures that will be adopted (see step 1), specifically to prevent the loss of materials and/or pollution in the marine environment. These measures are acknowledged within Step 3.

**Cromarty Firth SPA, Cromarty Firth Ramsar, Inner Moray Firth SPA, Inner Moray Firth Ramsar**

Wintering birds - The maintenance programme activities, specifically scour repairs, have the potential to have a direct disturbance effect on overwintering birds due to the increased presence of vessels, machinery and lighting over and above the existing levels of disturbance caused by traffic and vessels. Indirect effects would include pollution effects. Consultation with SNH confirmed that there would be a potential for a LSE on the overwintering bird interests of the Cromarty Firth and Inner Moray Firth SPA. See Appendix A for consultation responses.

Since the initial consultation with SNH, additional detail has been provided on the good practice and management measures that will be adopted by the contractor (see Step 1) which will prevent loss of materials and/or pollutants from entering the marine environment. With implementation of these good practice and management measures it is concluded that there would be no potential for LSE from pollution on habitats of the qualifying species or the qualifying species themselves.

### Breeding tern

If works are carried out between April and July inclusive the maintenance programme activities, specifically scour repairs, have the potential to have a direct disturbance effect on nesting tern due to the increased presence of vessels, machinery and lighting over and above the existing levels of disturbance caused by traffic and vessels,. A tern colony is known to be present at Arduilie, at the northern end of the Cromarty Bridge. Consultation with SNH confirmed that there would be potential for a likely significant effect on the breeding tern in the Cromarty Firth and Inner Moray Firth SPA. See Appendix A for consultation responses.

Since the initial consultation with SNH, additional detail has been provided on the good practice and management measures that will be adopted by the contractor (see step 1) which will prevent loss of materials and/or pollutants from entering the marine environment. With implementation of these good practice and management measures it is concluded that there would be no potential for a LSE from pollution on habitats of the qualifying species or the qualifying species themselves.

### Breeding osprey

Since the initial consultation with SNH, additional detail has been provided on the good practice and management measures that will be adopted by the contractor (see step 1) which will prevent loss of materials and/or pollutants from entering the marine environment. With implementation of these good practice and management measures it is concluded that there would be no potential for a LSE from pollution on habitats of the qualifying species or the qualifying species themselves.

Given the above, the proposed maintenance activities are unlikely to have the potential for a LSE on breeding osprey. Small flat fish are an important part of their diet in this area and research suggests that these fish are particularly important for feeding chicks within the nest. Osprey nest in the wider surrounding area, including to the east of the A9 on the Black Isle and inland from Beaulie. The osprey make regular feeding trips over significant distances in search of fish. Ospreys hunt for fish mainly along the edges/shallow areas of the Firth and forage over large areas, rather than concentrating on one specific area. As a result, any loss of feeding opportunity as a consequence of the proposed works would be minimal, with no significant effects on the osprey population.

### Cromarty Firth Ramsar habitats (intertidal mudflats and sandflats)

During the scour repair activity there is the potential for an increase in sedimentation associated with the excavation and sidelaying of superficial sediments (sands and mud). The scour repairs will entail the side-casting of approximately 300m<sup>3</sup> of sandy mud at each bridge pier. It is assumed that work will be carried out at up to six piers in any given year. Consultation with SNH confirmed there is potential for a LSE on the qualifying interests 'intertidal mudflats' and 'sandflats' of the Cromarty Firth Ramsar (Appendix A).

### In-combination effects

#### *Intra*

Considering the scope of the works and the very limited potential for any overlap of activities it is concluded that there would be no in-combination effects from the proposed works on the qualifying features of the Inner Moray Firth SPA, Inner Moray Firth Ramsar, Cromarty Firth SPA and Cromarty Firth Ramsar.

#### *Inter*

Over the same timescale as the proposed works at Cromarty, there are proposed maintenance works likely to occur at Dornoch Bridge and Kessock Bridge. However, given the scope and nature of the works at Dornoch Bridge, and as Dornoch Bridge is more than 10km away from Cromarty Firth SPA and Ramsar, and more than 30km away from the Inner Moray Firth SPA, it is concluded that the proposed works at Dornoch Bridge would not have potential for an in-combination LSE on the qualifying features of the Cromarty Firth SPA, Cromarty Firth Ramsar and Inner Moray Firth SPA.

The Kessock Bridge is located more than 10km away from the Cromarty Firth Ramsar and SPA. Correspondence with SNH (4<sup>th</sup> April 2018) confirmed that the proposed works at Kessock Bridge did not need to consider the Cromarty Firth Ramsar and SPA. With consideration of the proposed works at Kessock Bridge it is concluded that these works would not have

potential for an in-combination LSE, with the works at Cromarty Bridge, on the qualifying features of the Cromarty Firth SPA and Ramsar.

Kessock Bridge is located less than 5km from the nearest point of the Inner Moray Firth SPA. Due to the requirement for fender replacement and potential for scour repair at Kessock Bridge and as the bridge is less than 5km from the Inner Moray Firth SPA and Ramsar, it is considered that there is potential for an in-combination LSE from disturbance on the broad qualifying feature 'wintering birds' of the Inner Moray Firth SPA, in conjunction with the proposed works at Cromarty Bridge. This is considered further in step 4.

The nearest tern colony to Kessock Bridge is at Avoch, more than 8km away from the Kessock Bridge, whilst osprey nest in woodland to the north of Kessock Bridge. It is concluded that there is no potential LSE from the works at Kessock on either the tern or osprey qualifying features of the Inner Moray Firth SPA. Hence, there is no potential for an in-combination LSE, with the works at Cromarty Bridge, on the tern or osprey features of the Inner Moray Firth SPA.

### **Dornoch Firth and Morrich More SAC, Dornoch Firth and Loch Fleet Ramsar**

#### Harbour seal

Following initial consultation with SNH (6th April 2018) it was agreed that there was potential for a LSE on harbour seal, a qualifying feature of the Dornoch Firth and Morrich More SAC and the Dornoch Firth and Loch Fleet Ramsar (Appendix A and B). The initial conclusions of the HRA screening (see Appendix B), concluded that a potential LSE could occur on harbour seal as a result of disturbance (noise, visual and light) or pollution effects. This as a result of the connectivity between harbour seals in the Dornoch Firth and Cromarty Firth.

In line with the initial conclusions of the HRA screening (see Appendix B), SNH did not advise that there was any potential for a LSE on any other qualifying feature (habitats and species) of the Dornoch Firth and Morrich More SAC or the Dornoch Firth and Loch Fleet Ramsar from the proposed works at Cromarty Bridge.

Although there may be some requirement for subtidal work during the cathodic protection activity this will be minimal and highly temporary. The greatest potential for a LSE on the harbour seal would be as a consequence of the scour repairs. The scour repair is a short-term activity (maximum of three months in a given year), with any disturbance effects considered temporary and reversible. Further consideration to the potential LSE from disturbance on harbour seal is detailed in Step 4.

Since the initial consultation with SNH, additional detail has been provided on the good practice and management measures that will be adopted by the successful contractor (see step 1) which will prevent loss of materials and/or pollution into the marine environment. With implementation of these good practice and management measures it is concluded that there would be no potential for LSE, from pollution, on populations of harbour seal.

#### In-combination effects

##### *Intra*

There will be no overlap between the proposed maintenance activities at Cromarty Bridge. Hence, there is no potential for a LSE as a result of 'intra' in-combination effects.

##### *Inter*

Over the same timescale as the proposed works at Cromarty, there are proposed maintenance works likely to occur at Dornoch Bridge and Kessock Bridge. Unlike Cromarty Bridge, there is no requirement for any maintenance activities at Dornoch Bridge to take place in the subtidal environment and considering the nature of the works at Dornoch Bridge it is concluded that there is no potential for a LSE as a result of 'inter' in-combination effects on any of the qualifying features of the Dornoch Firth and Morrich More SAC and Dornoch Firth and Loch Fleet Ramsar.

The harbour seals using the Beaully Firth, just west of the Kessock Bridge, are within 50 km of the Dornoch Firth and Morrich More SAC and Dornoch Firth and Loch Fleet Ramsar so there is potential connectivity between these sites. As part of the proposed Kessock Bridge maintenance programme there is a requirement for fender replacement (scheme) and potentially scour repair (cyclic). These activities have the potential for a LSE on harbour seal as a result of disturbance.



Therefore, it is concluded that the fender replacement and any scour repairs at Kessock could result in an in-combination disturbance effect on harbour seal with those activities at Cromarty (scour repair) which have the potential to cause disturbance on this qualifying feature. This is considered further in Step 4.

### **Moray Firth SAC**

Following consultation with SNH (6<sup>th</sup> April 2018) it was advised that there was potential for a LSE on bottlenose dolphins, a qualifying feature of the Moray Firth SAC. SNH agreed that the reasons for this potential LSE were as provided in the HRA screening spreadsheet (see Appendix A and B). In line with the initial conclusions of the HRA screening (see Appendix B), SNH did not advise that there was any potential for a LSE on the subtidal sandbank qualifying feature.

In relation to bottlenose dolphin, the cause for a potential LSE were a result of disturbance effects, mainly as a result of underwater noise, and/or pollution (see Appendix B). Although there may be some requirement for subtidal work during the cathodic protection activity this will be minimal and highly temporary. The greatest potential for a LSE on the bottlenose dolphins would be as a consequence of the scour repairs. However, the scour repair is short-term (maximum of three months in a given year), with any disturbance effects considered temporary and reversible. Further consideration to the potential LSE from disturbance on bottlenose dolphin is detailed in step 4.

Since the initial consultation with SNH (6<sup>th</sup> April 2018), additional detail has been provided on the good practice and management measures that will be adopted by the successful contractor (see Step 1) which will prevent loss of materials and/or pollution to the marine environment. With implementation of these good practice and management measures it is concluded that there would be no potential for a LSE from pollution on populations of bottlenose dolphins.

### **In-combination effects**

#### *Intra*

There will be no overlap between the proposed maintenance activities at Cromarty Bridge. Hence, there is no potential for a LSE as a result of 'intra' in-combination effects.

#### *Inter*

Other than the proposed maintenance works at Kessock Bridge, there are no marine projects currently planned or recently completed that have the potential to contribute to in-combination effects on the qualifying features of the SAC; nor were any persisting impacts from past projects identified or advised during consultation [Redacted] , 6<sup>th</sup> April 2018).

The requirement for fender replacement and possible scour repair work at Kessock Bridge has the potential for a LSE on bottlenose dolphin as a result of disturbance. Therefore, it is concluded that the fender replacement and any scour repairs at Kessock could result in an in-combination disturbance effect on bottlenose dolphins with the proposed scour repair at Cromarty. As there is potential for a LSE on this qualifying feature further consideration is given in Step 4.

### **Moray Firth pSPA**

Although SNH did not specifically advise that the Moray Firth pSPA be scoped in (6<sup>th</sup> April 2018); further consideration has been given to SNHs consultation response for Kessock Bridge ie requesting that the pSPA was scoped in for the proposed works at Kessock Bridge and furthermore the proximity of Cromarty Bridge to the pSPA (circa 12km).

A potential LSE on the qualifying features could occur as a result of either disturbance (noise, visual and light) or pollution effects. Since the initial consultation with SNH, additional detail has been provided on the good practice and management measures that will be adopted by the successful contractor (see step 1); these will prevent loss of materials and/or pollutants from entering the marine environment. With implementation of these good practice and management measures it is concluded that there would be no potential for LSE from pollution on habitats of the qualifying species or the qualifying species themselves.

The scour repair and cathodic protection activities both require work in or on the water, and it is these activities which have the greatest potential for a disturbance effect on the qualifying features. Both these activities are temporary and short-term events (less than one year), with any disturbance effect considered fully reversible following cessation of the activity.

Foraging areas for breeding and non-breeding shag are located near Brora, to the north, and Portsoy to the east (SNH, 2016); both of which are more than 30km from Cromarty Bridge. Therefore, there is no reasonable pathway to effect the main foraging habitats used by shag (breeding and non-breeding). Consequently, it is concluded that there is no potential for LSE on the qualifying feature 'foraging habitat used by breeding shag'.

As the maintenance activities at Cromarty Bridge have the potential to disturb the non-breeding qualifying features of the pSPA it is concluded that there is potential for a LSE on these species, and the areas used by them, from disturbance. Further consideration is provided in Step 4.

#### In-combination effects

##### *Intra*

There will be no overlap between the proposed maintenance activities at Cromarty Bridge. Hence, there is no potential for a LSE as a result of 'intra' in-combination effects.

##### *Inter*

Over the same timescale as the proposed works at Cromarty, there are proposed maintenance works likely to occur at Dornoch Bridge and Kessock Bridge. However, the scope of the proposed works at Dornoch does not include any subtidal activities. Furthermore, correspondence with SNH considered it unlikely that any of the qualifying features (bird species) of the Moray Firth pSPA would occur in significant numbers to the proposed works at Dornoch Bridge [Redacted] , 21<sup>st</sup> June 2018). It is concluded that maintenance works at Dornoch would not have the potential for an in-combination effect, with the works at Cromarty Bridge, on the qualifying features of the Moray Firth pSPA.

The Kessock Bridge lies within the Moray Firth pSPA and it is considered that there is potential for a LSE on the qualifying features from the proposed works at Kessock Bridge. It is concluded that maintenance works at Kessock could lead to an in-combination effect with the works at Cromarty Bridge, and thus a potential LSE on the qualifying features of the Moray Firth pSPA. This is considered further in step 4.

#### Next Steps

In recognition that the potential for LSE has been determined for several of the qualifying interests of the designated sites (see Table 1), Step 4 will be considered.

**Mitigation or modifications required to avoid a likely significant effect & reasons for these:**

Where there is a potential LSE for a given feature then consideration of mitigation (additional measures) specific to that feature are provided in step 4 where appropriate.

**STEP 4: UNDERTAKE AN APPROPRIATE ASSESSMENT OF THE IMPLICATIONS FOR THE SITE IN VIEW OF ITS CONSERVATION OBJECTIVES**

(It is the responsibility of the competent authority to carry out the appropriate assessment. The competent authority must consult SNH for the purposes of carrying out the appropriate assessment. SNH can provide advice on what issues should be considered in the appropriate assessment, what information is required to carry out the assessment, in some circumstances carry out an appraisal to inform an appropriate assessment and/or provide comments on an assessment carried out. Where we are providing advice to a competent authority our appraisal of the proposal should be recorded here.)

*The following points should be considered:*

- i) Describe for each qualifying interest the potential impacts of the proposal detailing which aspects or effects of the proposal could impact upon them and their conservation objectives.*
- ii) Evaluate the potential impacts, e.g. whether short/long term, reversible or irreversible, and in relation to the proportion/importance of the interest affected, and the overall effect on the site's conservation objectives. This should be in sufficient detail to ensure all impacts have been considered and sufficiently appraised. Record if additional survey information or specialist advice has been obtained.*
- iii) Each conservation objective should be considered and a decision reached as to whether the proposal will affect achievement of this objective i.e. whether the conservation objective will still be met if the proposal is consented to.*

**Baseline Environment**

The Cromarty Bridge carries the A9 trunk road north over the Cromarty Firth and is an important connection for commercial, domestic and tourist traffic. The Department for Transport traffic count (count point ID 10810) south of the Cromarty Bridge has recorded Average Annual Daily Flow (AADF) in 2017 of 11,711 vehicles of which 954 were HGVs (8.15%). An increase of approximately 1,700 vehicles from the last active count in 2014.

The Cromarty Bridge consists of 67 piers (each made up of a pair of reinforced concrete pillars) making it unnavigable by all but the smallest vessels. Headquartered at Invergordon, the Port of Cromarty Firth is home to six largemarine facilities. These facilities include Highland Deephaven Industrial Estate and Spoolbase, Admiralty Pier, Saltburn Pier, Nigg Oil Terminal, Nigg Energy Park and Invergordon Service Base.

The Cromarty Bridge lies approximately 25km south west of the Cromarty Firth. The Nigg Energy Park lies at the Mouth of the Cromarty Firth which is 1.3km at the narrowest point. The Nigg Energy Park is the largest port facility in the Moray Firth containing a dry dock and >900m of deepwater quayside. The Port of Nigg is used for maintenance of drilling rigs, mobilisation and demobilisation of subsea construction vessels and a key hub for supporting renewable energy industries. A continuous ferry link runs between Nigg and Cromarty in the summer months.

The waters at the mouth of the Cromarty Firth form part of a busy navigation channel with 50 to 150 vessel transits per week between 2012 and 2015 (National Marine Plan interactive (NMPI), 2018). In 2017, 620 commercial vessel arrivals (and 620 departures) were recorded by the Port of Cromarty Firth. This does not include small leisure craft, local fishing vessels or the internal movement of small commercial craft. Additionally, the Cromarty Firth supports high levels of recreational use such as sailing and kayaking with a boating club present in Invergordon.

It is reasonable to assume that animals that use the areas adjacent to the bridge are habituated to the regular and continual movement of motor vehicles, marine vessels and human traffic and also used to the noise and artificial light generated by ongoing activities. Sutors of Cromarty is one of the best locations to view bottlenose dolphin after Chanonry Point in the area. The dolphins are seen almost on a daily basis, particularly in the summer months when they tend to move inshore and can be seen hunting salmon. As with the bottlenose dolphin, harbour seals are commonly seen in the Cromarty Firth.

Throughout the Moray Firth are extensive areas of intertidal habitat that provide important foraging areas for wintering birds. Cromarty Firth is located in north-eastern Scotland and is one of the major firths along this coastline. It contains a range of coastal habitats including extensive intertidal mudflats and shingle bordered locally by areas of saltmarsh, as well as reedbeds around Dingwall. As advised by SNH ([Redacted] 6th April 2018), the wintering period for these birds runs from October to March, and therefore the overwintering birds would be expected in significant numbers during this period.

### **Cromarty Firth SPA, Cromarty Firth Ramsar, Inner Moray Firth SPA and Ramsar**

#### Wintering birds

A potential LSE was identified on wintering birds from disturbance due to increased noise, light and visual stimuli. The key source will be from the proposed scour repair as this activity will take place within the subtidal environment, is the greatest in scope and longest in duration.

The works will be constrained to the bridge itself and therefore there would be limited overlap of the works beyond a highly localised area. The scour repair activity requires sequential work at piers along the bridge, therefore at any one time during this activity, work will be localised to a specific pier. During the scour repair, a high proportion of the channel under the bridge would remain unaffected with no obstruction to passage, by the qualifying species, under the bridge.

The scour repairs are short-term (less than three months in any one year) with disturbance effects being temporary, only existing over the duration of the activity and fully reversible; with a complete return to baseline levels following cessation of the activity.

The greatest amount of noise will be generated during excavation of the coarse material from the base of the pier (during the scour repair activity). Excavation would be intermittent rather than continuous; however, it is assumed that vessels facilitating the work would generate a continuous, albeit low level, noise from their engines. As excavation occurs the noise generated from this work, in tandem with the vessel noise, would be slightly higher than that of the vessel noise when no excavation is occurring.

Commercial vessels regularly transit through the Cromarty Firth and there are a number of industrial facilities around the coastline. The sound generated by the proposed excavation activity (including the vessel noise) would be comparable to the engine noise of the commercial vessels expected in the general area. However, the noise generated by the excavation activity would remain at a specific location, unlike the noise generated by the commercial and recreational vessels navigating through the waters of the Firth.

It is likely that birds will be habituated to a certain level of disturbance from traffic on the bridge and also the commercial and recreational usage of the Firth.

A number of adopted good practice and management measures have already been detailed for the proposed maintenance activities, including scour repair (see step 1). The following represents additional measures that will be implemented and will reduce the potential for a LSE from disturbance on the overwintering birds:

- Normal working operations of the scour repair activities will take place between the hours of 07:00 to 19:00, unless there is an urgent need to extend operations.
- The scour repair activity will be preceded by a 'soft start' in general activities, thus allowing a 'ramping-up' of noise levels.
- Following daily cessation of scour repair activity in the bird overwintering period (October to March), works lighting will be directed away from the water and intertidal areas, as much as practicable.
- During the overwintering period (October to March) lighting will be kept to a minimum
- Works will be progressive e.g. should avoid lighting the whole bridge at the same time.
- Vessels used for the works are to maintain constant speed and direction when transiting between working areas and berth point, unless otherwise required for reasons of safe navigation.
- Vessels used for the works will adhere to set routes (in accordance with the general requirements of the Port of Cromarty Firth) for transit between working areas and berth point.
- Vessels used for the works will adhere to the general principles in the Scottish Marine Wildlife Watching Code.
- If works are required to be carried out overnight the most disruptive activities will be scheduled for the earlier part of the evening.

- Where reasonably practicable, workers will avoid accessing the intertidal shores around the bridge at all times of the year.

Conclusion

The scour repair activities are short-term (less than three months in any one year) and highly localised. Scour repair activity will generate the greatest potential for disturbance of wintering bird species, this being a result of the underwater and air noise from the excavation task and the vessel noise from the working platform.

Given the above and acknowledging the additional measures that would be adopted to reduce effects from disturbance it is concluded that all conservation objectives would be maintained in the long-term:

- 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
- Structure, function and supporting processes of habitats supporting the species
- No significant disturbance of the species

Consideration is also given to the potential for LSE from disturbance as a result of an ‘inter’ in-combination effect, from the proposed scour repair at Cromarty Bridge with fender replacement and/or scour repair at Kessock Bridge. The proposed activities at Kessock (scour repair and fender replacement) also requiring work within the subtidal environment.

However, following review of detailed bathymetric data obtained in August 2018, BEAR Scotland now anticipate that scour repairs at Kessock Bridge are unlikely to be required within the next five years. Hence, in the unlikely event of any scour repair work taking place within the next 5 years at Kessock, it would be significantly reduced in scope and duration from that which was originally discussed with SNH (April, 2018). Given the findings of the bathymetric data, the scour repair at Kessock is now considered a cyclic maintenance activity (it may be required in the next five years) with a maximum duration of three months. The scour repairs at Cromarty are also anticipated to be a maximum of three months, in any one year.

Following consideration of the proposed subtidal activities (fender replacement and scour repairs) at Kessock and Cromarty bridges, a worst case programme is presented in table 4.1.

Table 4.1: Programme of subtidal activities as worst case scenario

Year	Year 1	Year 2	Year 3	Year 4	Year 5
Activities	Cromarty scour	Kessock scour and Cromarty scour carried out consecutively	Kessock fender and Cromarty scour carried out consecutively	No works	No works
Duration of combined activities (months)	3/12	6/12	5/12		

Although there is potential for the scour repair works at Cromarty and Kessock to be carried out within the same 12-month period, the works would not be carried out simultaneously. Furthermore, there would be a short break in operations between the scour repairs taking place at each bridge i.e. works would not be continuous.

Similarly, fender replacement works at Kessock will not take place simultaneously with scour repair at Cromarty. Neither will fender replacement works at Kessock take place within the same 12-month period as scour repairs at Kessock. However, there is potential for scour repair at Cromarty to be consecutive with fender replacement at Kessock.

It is concluded that within a single 12-month period the worst case scenario would be if scour repairs took place at both bridges, amounting to a maximum of six months of subtidal works, with several weeks break between operations after three months (Year 2, table 4.1). Following completion of the subtidal works in Year 2, there would be approximately six months where no subtidal works (fender replacement or scour repairs) would take place.

Given the implementation of good practice and management measures (see step 1), additional measures specific to reducing the potential for disturbance on this feature (see above) and the scope and nature of the works; there would be no LSE from disturbance on wintering birds as a result of an 'inter' in-combination effect. It is concluded that all conservation objectives of the Cromarty Firth SPA, Cromarty Firth Ramsar and Inner Moray Firth SPA and Ramsar would be maintained in the long-term.

#### Breeding common tern

Impacts on breeding tern near the bridge will be from direct disturbance effects from increased presence of vehicles, plant, personnel and lighting of the bridge structure if any significant works i.e. scour repair are carried out within 250m of the tern colony (at the north end of the bridge, Ardullie) between April 1st and July 31st inclusive. It is likely that birds will be habituated to a certain level of disturbance from traffic on the bridge. Even so, noise and light generated during maintenance works, specifically scour repairs, are likely to be over and above the existing disturbance levels.

The maintenance works will be constrained to the bridge itself and therefore there would be limited overlap of the works with the designated sites beyond a highly localised area. The scour repair activity requires sequential work at piers along the bridge, therefore at any one time during this activity, work will be localised to a specific pier. During the scour repair, a high proportion of the channel under the bridge would remain unaffected with no obstruction to passage or foraging, by the qualifying species, under the bridge.

The scour repairs are short-term (less than three months in any one year) with disturbance effects being temporary, only existing over the duration of the activity and fully reversible, with a complete return to baseline levels following cessation of the activity. All other activities are shorter in duration than the scour repairs.

The greatest amount of noise will be generated during excavation of the coarse material from the base of the pier (during the scour repair activity). Excavation would be intermittent rather than continuous; however, it is assumed that vessels facilitating the work would generate a continuous, albeit low level, noise from their engines. As excavation occurs the noise generated from this work, in tandem with the vessel noise, would be slightly higher than that of the vessel noise when no excavation is occurring.

A number of adopted good practice and management measures have already been detailed for the proposed maintenance activities, including scour repair (see step 1). Recognition is also given to those measures which will be implemented for wintering birds (see above). The following represents additional measures that will be implemented and will reduce the potential for a LSE from disturbance on the breeding terns:

- No significant works i.e. scour repairs will take place within a 250 m exclusion zone around the common tern breeding colony (at the northern end of the bridge) between April 1<sup>st</sup> and July 31<sup>st</sup> inclusive.

#### Conclusion

The works are temporary and highly localised, with all works due to take place within the immediate vicinity of Cromarty Bridge. There is already a degree of noise, visual and light disturbance that occurs along and in the vicinity of the bridge throughout the year.

Given the above and acknowledging the additional measures that would be adopted to reduce effects from disturbance it is concluded that all conservation objectives would be maintained in the long-term:

- 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
- Structure, function and supporting processes of habitats supporting the species
- No significant disturbance of the species

No intra or inter specific in-combination effects were identified on breeding tern.

#### Cromarty Firth Ramsar habitats (intertidal mudflats and sandflats)

The scour repairs will entail the side-casting of approximately 300m<sup>3</sup> of sandy mud at each bridge pier. It is assumed that work will be carried out at up to six piers in any given year, amounting to a maximum of 1800m<sup>3</sup> of muddy sediment that will be sidecast back into the immediate environment over the duration of the works (two to three months if one jack-up barge; one month to six weeks if two jack-up barges). The accumulation of a predominantly muddy substratum around the bridge suggests that settlement of fine material takes place under baseline conditions; however, assuming that all the excavated material would be dispersed and end up on the surrounding intertidal mudflats and/or sandflats the level of sedimentation would be undetectable from background. It is also considered that subsequent tides would remobilise much of the fine material deposited on the intertidal zone.

The characteristic communities of intertidal mud and sandflats are tolerant of sediment deposition and would not be affected by such minimal quantities of deposition over such a prolonged timescale.

During the works, temporary disturbance to the intertidal mudflats and sandflats may occur for example from the feet of the jack-up barge when working at the northern or southern ends of the bridge. Such disturbances to the habitat would be highly temporary and in most cases measured over days rather than weeks. Following removal of the source of disturbance to intertidal mudflats and sandflats the area and community affect would recover rapidly and be undetectable from baseline within the short-term. It is therefore concluded that there would be no net loss of these habitats (intertidal mudflats and sandflats), nor would there be any significant effects on the structure or function of the features or their overall distribution.

#### Conclusion

The works are temporary and highly localised, with all works due to take place within the immediate vicinity of Cromarty Bridge. Given the above and acknowledging the good practice and management measures that would be adopted to reduce the potential for effects from pollution and introduction of invasive species (step 1) it is concluded that all conservation objectives would be maintained in the long-term:

- Extent of the habitat on site
- Distribution of the habitat within site
- Structure and function of the habitat
- Processes supporting the habitat
- Distribution of typical species of the habitat
- Viability of typical species as components of the habitat
- No significant disturbance of typical species of the habitat

There is no potential for in-combination effects on the intertidal mudflats and sandflats.

#### **Dornoch Firth and Loch Fleet Ramsar and Dornoch Firth and Morrich More SAC**

##### Harbour seal

A potential likely significant effect on harbour seal was identified as a result of disturbance effects from the subtidal activity scour repairs. These works will increase activity under the bridge with a consequential increase in human presence, underwater noise and lighting.

The works will be constrained to the bridge itself and therefore there will be no overlap of the works with the SAC, which is located more than 30km north-east of the bridge. However, as the harbour seals using the Cromarty Firth are within 50 km of the Dornoch Firth and Morrich More SAC and the Dornoch Firth and Loch Fleet Ramsar, there is potential connectivity between these sites. There is a designated seal haul-out site within the Cromarty Firth, which is located approximately 1km northeast of Cromarty Bridge at its nearest point.

The scour repair activities require sequential work at piers along the bridge, therefore at any one time during this activity, work will be localised to a specific pier. Therefore, a high proportion of the channel under the bridge would remain unaffected, with no obstruction to passage under the bridge while work is ongoing.

The scour repairs are short-term (less than three months in any one year) with disturbance effects being temporary and only existing over the duration of the activity.

The greatest amount of noise will be generated during excavation of the coarse material from the base of the pier (during the scour repair activity). Excavation would be intermittent rather than continuous; however, it is assumed that vessels facilitating the work would generate a continuous, albeit low level, noise from their engines. As excavation occurs the noise generated from this work, in tandem with the vessel noise, would be slightly higher than that of the vessel noise when no excavation is occurring.

Commercial vessels regularly transit through the Cromarty Firth and there are a number of industrial facilities around the coastline. The sound generated by the proposed excavation activity (including the vessel noise) would be comparable to the engine noise of the commercial vessels expected in the general area. However, the noise generated by the excavation activity would remain at a specific location, unlike the noise generated by the commercial and recreational vessels navigating through the waters of the Firth.

Following excavation, rock armour will be placed carefully at the base of the piers and then the granular infill inserted to ensure that voids between the rock armour are filled.

A number of adopted good practice and management measures have already been detailed for the proposed maintenance activities, including scour repair (see step 1). The following represents additional measures that would reduce the potential for a LSE from disturbance on harbour seal:

- Scour repair works will be programmed, where feasible, to take place outside the summer months (June to August inclusive) to avoid the harbour seal breeding season.
- Normal working operations of the scour repair activities will take place between the hours of 07:00 to 19:00, unless there is an urgent need to extend operations.
- The scour repair activity will be preceded by a 'soft start' in general activities, thus allowing a 'ramping-up' of noise levels.
- Following cessation of scour repair activities on any given day, works lighting will be directed away from the water, as much as practicable.
- Vessels used for the works are to maintain constant speed and direction when transiting between working areas and berth point, unless otherwise required for reasons of safe navigation.
- Vessels used for the works will adhere to set routes (in accordance with the general requirements of the Port of Cromarty Firth) for transit between working areas and berth point.
- Vessels used for the works will adhere to the general principles in the Scottish Marine Wildlife Watching Code.

### Conclusions

All the proposed maintenance activities are short-term and highly localised, including scour repair. The scour repairs will generate the greatest potential for disturbance of harbour seal, this being a result of the underwater noise from the excavation task and vessel noise of the working platform; however, the total noise generated is comparable to the vessel noise from large commercial vessels that regularly transit through the Moray Firth and Cromarty Firth.

The harbour seals are likely habituated to the underwater noise generated by marine traffic, the presence of marine vessels throughout the Moray Firth and Cromarty Firth and the presence of humans along the shores adjacent to the bridge. It is also noted that harbour seals are regularly seen around the shore at the Storehouse of Foulis and there is a layby and viewing area south of here on the A9.

Given the above and acknowledging the additional measures that would be adopted to reduce the potential for a LSE from disturbance, it is concluded that all conservation objectives would be maintained in the long-term:

- 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
- Structure, function and supporting processes of habitats supporting the species
- No significant disturbance of the species

There will be no overlap between the proposed maintenance activities at Cromarty Bridge. Hence, there is no potential for a LSE as a result of 'intra' in-combination effects.



Consideration is also given to the potential for LSE from disturbance as a result of an 'inter' in-combination effect, from the proposed scour repair at Cromarty Bridge with fender replacement and/or scour repair at Kessock Bridge. The proposed activities at Kessock (scour repair and fender replacement) also requiring work within the subtidal environment.

However, following review of detailed bathymetric data obtained in August 2018, BEAR Scotland now anticipate that scour repairs at Kessock Bridge are unlikely to be required within the next 5 years. Hence, in the unlikely event of any scour repair work taking place within the next 5 years at Kessock, it would be significantly reduced in scope and duration from that which was originally discussed with SNH (April, 2018). Given the findings of the bathymetric data, the scour repair at Kessock is now considered a cyclic maintenance activity with a maximum duration of three months. The scour repairs at Cromarty are also anticipated to be a maximum of three months, in any one year.

Following consideration of the proposed subtidal activities (fender replacement and scour repairs) at Kessock and Cromarty bridges, a worst case programme is presented in table 4.1.

Although there is potential for the scour repair works at Cromarty and Kessock to be carried out within the same 12-month period, the works would not be carried out simultaneously. Furthermore, there would be a short break in operations between the scour repairs taking place at each bridge i.e. works would not be continuous.

Similarly, fender replacement works at Kessock will not take place simultaneously with scour repair at Cromarty. Neither will fender replacement works at Kessock take place within the same 12-month period as scour repairs at Kessock. However, there is potential for scour repair at Cromarty to be consecutive with fender replacement at Kessock.

It is concluded that within a single 12-month period the worst case scenario would be if scour repairs took place at both bridges, amounting to a maximum of six months of subtidal works, with several weeks break between operations after three months (Year 2, table 4.1). Following completion of the subtidal works in Year 2, there would be approximately six months where no subtidal works (fender replacement or scour repairs) would take place.

Given the implementation of good practice and management measures (see step 1), additional measures specific to reducing the potential for disturbance on this feature (see above) and the scope and nature of the works; there would be no LSE from disturbance on harbour seal as a result of an 'inter' in-combination effect. It is concluded that all conservation objectives of the Dornoch Firth and Loch Fleet Ramsar and Dornoch Firth and Morrich More SAC\_would be maintained in the long-term.

### **Moray Firth SAC**

#### **Bottlenose dolphin**

The population of bottlenose dolphins in the Moray Firth SAC is in Favourable Recovered condition (SNH Site Condition Monitoring, 2010) and numbers are stable and increasing on the east coast (SNH, 2016).

A potential likely significant effect on bottlenose dolphin was identified as a result of disturbance effects from the subtidal activity of scour repair. These works will increase activity under the bridge with a consequential increase in human presence, underwater noise and lighting.

The works will be constrained to the bridge itself and therefore there would be no overlap of the works with the SAC. The scour repair activities require sequential work at piers along the bridge, therefore at any one time during this activity, work will be localised to a specific pier. Therefore, a high proportion of the channel under the bridge would remain unaffected, with no obstruction to passage by dolphins under the bridge while work is ongoing.

The scour repairs are short-term (less than three months in any one year) with disturbance effects being temporary and only existing over the duration of the activity.

The greatest amount of noise will be generated during excavation of the coarse material from the base of the pier (during the scour repair activity). Excavation would be intermittent rather than continuous; however, it is assumed that vessels facilitating the work would generate a continuous, albeit low level, noise from their engines. As excavation occurs the noise generated from this work, in tandem with the vessel noise, would be slightly higher than that of the vessel noise when no excavation is occurring.

Commercial vessels regularly transit through the Cromarty Firth and there are a number of industrial facilities around the coastline. The sound generated by the proposed excavation activity (including the vessel noise) would be comparable to the engine noise of the commercial vessels expected in the general area. However, the noise generated by the excavation activity would remain at a specific location, unlike the noise generated by the commercial and recreational vessels navigating through the waters of the Firth.

Following excavation, rock armour will be placed carefully at the base of the piers and then the granular infill inserted to ensure that voids between the rock armour are filled.

A number of adopted good practice and management measures have already been detailed for the proposed maintenance activities, including scour repair (see step 1). The following represents additional measures that would reduce the potential for a likely significant effect from disturbance on the bottlenose dolphin population:

The following mitigation measures will be implemented on site to reduce the potential for impacts from disturbance:

- Scour repair works will be programmed, where feasible, to take place outside the summer months (June to August inclusive) to avoid the bottlenose dolphin breeding season.
- Normal working operations of the scour repair activities will take place between the hours of 07:00 to 19:00, unless there is an urgent need to extend operations.
- The scour repair activity will be preceded by a 'soft start' in general activities, thus allowing a 'ramping-up' of noise levels.
- Following cessation of scour repair activities on any given day, works lighting will be directed away from the water, as much as practicable.
- Vessels used for the works are to maintain constant speed and direction when transiting between working areas and berth point, unless otherwise required for reasons of safe navigation.
- Vessels used for the works will adhere to set routes (in accordance with the general requirements of the Port of Cromarty Firth) for transit between working areas and berth point.
- Vessels used for the works will adhere to the general principles in the Scottish Marine Wildlife Watching Code.

### Conclusions

All the proposed maintenance activities are short-term and highly localised, including scour repair. The scour repairs will generate the greatest potential for disturbance of harbour seal, this being a result of the underwater noise from the excavation task and vessel noise of the working platform; however, the total noise generated is comparable to the vessel noise from large commercial vessels that regularly transit through the Moray Firth and Cromarty Firth.

The bottlenose dolphins are likely habituated to the underwater noise generated by marine traffic, the presence of marine vessels throughout the Moray Firth and the presence of humans along the shores, such as at Chanonry Point.

Given the above and acknowledging the additional measures that would be adopted to reduce effects from disturbance it is concluded that all conservation objectives would be maintained in the long-term:

- 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
- Structure, function and supporting processes of habitats supporting the species
- No significant disturbance of the species

There will be no overlap between the proposed maintenance activities at Cromarty Bridge. Hence, there is no potential for a LSE as a result of 'intra' in-combination effects.

Consideration is also given to the potential for LSE from disturbance as a result of an 'inter' in-combination effect, from the proposed scour repair at Cromarty Bridge with fender replacement and/or scour repair at Kessock Bridge. The proposed activities at Kessock (scour repair and fender replacement) also requiring work within the subtidal environment.

However, following review of detailed bathymetric data obtained in August 2018, BEAR Scotland now anticipate that scour repairs at Kessock Bridge are unlikely to be required within the next 5 years. Hence, in the unlikely event of any scour repair

work taking place within the next 5 years at Kessock, it would be significantly reduced in scope and duration from that which was originally discussed with SNH (April, 2018). Given the findings of the bathymetric data, the scour repair at Kessock is now considered a cyclic maintenance activity with a maximum duration of three months. The scour repairs at Cromarty are also anticipated to be a maximum of three months, in any one year.

Following consideration of the proposed subtidal activities (fender replacement and scour repairs) at Kessock and Cromarty bridges, a worst case programme is presented in table 4.1.

Although there is potential for the scour repair works at Cromarty and Kessock to be carried out within the same 12-month period, the works would not be carried out simultaneously. Furthermore, there would be a short break in operations between the scour repairs taking place at each bridge i.e. works would not be continuous.

Similarly, fender replacement works at Kessock will not take place simultaneously with scour repair at Cromarty. Neither will fender replacement works at Kessock take place within the same 12-month period as scour repairs at Kessock. However, there is potential for scour repair at Cromarty to be consecutive with fender replacement at Kessock.

It is concluded that within a single 12-month period the worst case scenario would be if scour repairs took place at both bridges, amounting to a maximum of six months of subtidal works, with several weeks break between operations after three months (Year 2, table 4.1). Following completion of the subtidal works in Year 2, there would be approximately six months where no subtidal works (fender replacement or scour repairs) would take place.

Given the implementation of good practice and management measures (see step 1), additional measures specific to reducing the potential for disturbance on this feature (see above) and the scope and nature of the works; there would be no LSE from disturbance on bottlenose dolphin as a result of an 'inter' in-combination effect. It is concluded that all conservation objectives of the Moray Firth SAC would be maintained in the long-term.

### **Moray Firth pSPA**

A potential LSE on the non-breeding qualifying species of the Moray Firth pSPA was identified as a result of potential disturbance effects from the subtidal activities, specifically scour repair. These works will increase activity under the bridge with a consequential increase in human presence, underwater noise and lighting. The maintenance activities will be constrained to the bridge itself and therefore there would be no overlap of the works with the pSPA. The scour repair activities require sequential work at piers along the bridge, therefore at any one time during this activity, work will be localised to a specific pier. Therefore, a high proportion of the channel under the bridge would remain unaffected, with no obstruction to passage by birds under the bridge.

The scour repairs are short-term (less than three months in any one year) with disturbance effects being temporary and only existing over the duration of the activity.

The greatest amount of noise will be generated during excavation of the coarse material from the base of the pier (during the scour repair activity). Excavation would be intermittent rather than continuous; however, it is assumed that vessels facilitating the work would generate a continuous, albeit low level, noise from their engines. As excavation occurs the noise generated from this work, in tandem with the vessel noise, would be slightly higher than that of the vessel noise when no excavation is occurring.

A number of adopted good practice and management measures have already been detailed for the proposed maintenance activities, including scour repair (see step 1). The following represents additional measures that would reduce the potential for a LSE from disturbance on the non-breeding birds:

- Normal working operations of the scour repair activities will take place between the hours of 07:00 to 19:00, unless there is an urgent need to extend operations.
- The scour repair activity will be preceded by a 'soft start' in general activities, thus allowing a 'ramping-up' of noise levels.
- Following daily cessation of fender replacement or scour repair activity in the bird overwintering period (October to March), works lighting will be directed away from the water and intertidal areas, as much as practicable.
- During the overwintering period (October to March) lighting will be kept to a minimum
- Works will be progressive e.g. should avoid lighting the whole bridge at the same time.

- Vessels used for the works are to maintain constant speed and direction when transiting between working areas and berth point, unless otherwise required for reasons of safe navigation.
- Vessels used for the works will adhere to set routes (in accordance with the general requirements of the Port of Cromarty Firth) for transit between working areas and berth point.
- Vessels used for the works will adhere to the general principles in the Scottish Marine Wildlife Watching Code.
- If works are required to be carried out overnight, the most disruptive activities will be scheduled for the earlier part of the evening.
- Where reasonably practicable, workers will avoid accessing the intertidal shores around the bridge at all times of the year.

### Conclusion

The scour repair activities are short-term (less than three months in any one year) and highly localised. Scour repair activity will generate the greatest potential for disturbance of non-breeding birds, this being a result of the underwater and air noise from the excavation task and the vessel noise from the working platform.

Given the above and acknowledging the additional measures that would be adopted to reduce effects from disturbance, it is concluded that all the draft conservation objectives would be maintained in the long-term:

- a) Avoid significant mortality, injury and disturbance of the qualifying features, so that the distribution of the species and ability to use the site are maintained in the long-term;
- b) To maintain the habitats and food resources of the qualifying features in favourable condition.

There will be no overlap between the proposed maintenance activities at Cromarty Bridge. Hence, there is no potential for a LSE as a result of 'intra' in-combination effects.

Consideration is also given to the potential for LSE from disturbance as a result of an 'inter' in-combination effect, from the proposed scour repair at Cromarty Bridge with fender replacement and/or scour repair at Kessock Bridge. The proposed activities at Kessock (scour repair and fender replacement) also requiring work within the subtidal environment.

However, following review of detailed bathymetric data obtained in August 2018, BEAR Scotland now anticipate that scour repairs at Kessock Bridge are unlikely to be required within the next 5 years. Hence, in the unlikely event of any scour repair work taking place within the next 5 years at Kessock, it would be significantly reduced in scope and duration from that which was originally discussed with SNH (April, 2018). Given the findings of the bathymetric data, the scour repair at Kessock is now considered a cyclic maintenance activity with a maximum duration of three months. The scour repairs at Cromarty are also anticipated to be a maximum of three months, in any one year.

Following consideration of the proposed subtidal activities (fender replacement and scour repairs) at Kessock and Cromarty bridges, a worst case programme is presented in table 4.1.

Although there is potential for the scour repair works at Cromarty and Kessock to be carried out within the same 12-month period, the works would not be carried out simultaneously. Furthermore, there would be a short break in operations between the scour repairs taking place at each bridge i.e. works would not be continuous.

Similarly, fender replacement works at Kessock will not take place simultaneously with scour repair at Cromarty. Neither will fender replacement works at Kessock take place within the same 12-month period as scour repairs at Kessock. However, there is potential for scour repair at Cromarty to be consecutive with fender replacement at Kessock.

It is concluded that within a single 12-month period the worst case scenario would be if scour repairs took place at both bridges, amounting to a maximum of six months of subtidal works, with several weeks break between operations after three months (Year 2, table 4.1). Following completion of the subtidal works in Year 2, there would be approximately six months where no subtidal works (fender replacement or scour repairs) would take place.

Given the implementation of good practice and management measures (see step 1), additional measures specific to reducing the potential for disturbance on this feature (see above) and the scope and nature of the works; there would be no LSE from disturbance on non-breeding qualifying species of the Moray Firth pSPA as a result of an 'inter' in-combination effect. It is concluded that all draft conservation objectives of the Moray Firth pSPA would be maintained in the long-term.

**STEP 5: CAN IT BE ASCERTAINED THAT THE PROPOSAL WILL NOT ADVERSELY AFFECT THE INTEGRITY OF THE SITE?**

*In the light of the appraisal, ascertain whether the proposal will not adversely affect the integrity of the site for the qualifying interests. Conclusions should be reached beyond reasonable scientific doubt. If more than one SAC and/or SPA is involved, give separate conclusions. If mitigation or modifications are required, detail these below.*

**Cromarty Firth SPA**

Acknowledging the implementation of mitigation (additional measures) specific to reducing the potential for effects on wintering birds and breeding birds it is concluded that the works will not lead to an adverse effect on site integrity of the Cromarty Firth SPA. Consideration has been given to the proposal either alone or in-combination with other activities, projects or plans, with respect to the site's structure, function and conservation objectives.

As none of the conservation objectives of the site would be adversely affected by the proposal, the integrity of the Cromarty Firth SPA would thus be maintained and not adversely affected.

**Inner Moray Firth SPA**

Acknowledging the implementation of mitigation (additional measures) specific to reducing the potential for effects on wintering and breeding birds it is concluded that the works will not lead to an adverse effect on site integrity of the Inner Moray Firth SPA. Consideration has been given to the proposal either alone or in-combination with other activities, projects or plans, with respect to the site's structure, function and conservation objectives.

As none of the conservation objectives of the site would be adversely affected by the proposal, the integrity of the Inner Moray Firth SPA would thus be maintained and not adversely affected.

**Inner Moray Firth Ramsar**

Acknowledging the implementation of mitigation (additional measures) specific to reducing the potential for effects on wintering birds it is concluded that the works will not lead to an adverse effect on site integrity of the Inner Moray Firth Ramsar. Consideration has been given to the proposal either alone or in-combination with other activities, projects or plans, with respect to the site's structure, function and conservation objectives.

As none of the conservation objectives of the site would be adversely affected by the proposal, the integrity of the Inner Moray Firth Ramsar would thus be maintained and not adversely affected.

**Cromarty Firth Ramsar**

Acknowledging the implementation of mitigation (additional measures) specific to reducing the potential for effects on wintering birds and intertidal mudflats and sandflats it is concluded that the works will not lead to an adverse effect on site integrity of the Cromarty Firth Ramsar. Consideration has been given to the proposal either alone or in-combination with other activities, projects or plans, with respect to the site's structure, function and conservation objectives.

As none of the conservation objectives of the site would be adversely affected by the proposal, the integrity of the Cromarty Firth Ramsar would thus be maintained and not adversely affected.

**Dornoch Firth and Morrich More SAC**

Acknowledging the implementation of mitigation (additional measures) specific to reducing the potential for effects on harbour seal, it is concluded that the works will not lead to an adverse effect on site integrity of the Dornoch Firth and Morrich More SAC. Consideration has been given to the proposal either alone or in-combination with other activities, projects or plans, with respect to the site's structure, function and conservation objectives.

As none of the conservation objectives of the site would be adversely affected by the proposal, the integrity of the Dornoch Firth and Morrich More SAC would thus be maintained and not adversely affected.

**Moray Firth SAC**

Acknowledging the implementation of mitigation (additional measures) specific to reducing the potential for effects on bottlenose dolphins, it is concluded that the works will not lead to an adverse effect on site integrity of the Moray Firth SAC. Consideration has been given to the proposal either alone or in-combination with other activities, projects or plans, with respect to the site's structure, function and conservation objectives.

As none of the conservation objectives of the site would be adversely affected by the proposal, the integrity of the Moray Firth SAC would thus be maintained and not adversely affected.

**Dornoch Firth and Loch Fleet Ramsar**

Acknowledging the implementation of mitigation (additional measures) specific to reducing the potential for effects on harbour seal, it is concluded that the works will not lead to an adverse effect on site integrity of the Dornoch Firth and Loch Fleet Ramsar. Consideration has been given to the proposal either alone or in-combination with other activities, projects or plans, with respect to the site's structure, function and conservation objectives.

As none of the conservation objectives of the site would be adversely affected by the proposal, the integrity of the Dornoch Firth and Loch Fleet Ramsar would thus be maintained and not adversely affected.

**Moray Firth pSPA**

Acknowledging the implementation of mitigation (additional measures) specific to reducing the potential for effects on wintering birds, it is concluded that the works will not lead to an adverse effect on site integrity of the Moray Firth pSPA. Consideration has been given to the proposal either alone or in-combination with other activities, projects or plans, with respect to the site's structure, function and conservation objectives.

As none of the draft conservation objectives of the site would be adversely affected by the proposal, the integrity of the Moray Firth pSPA would thus be maintained and not adversely affected.

**Mitigation or modifications required to ensure adverse effects are avoided, & reasons for these.**

<i>Mitigation:</i>	<i>Reason:</i>
<p><b><u>Cromarty Firth SPA, Inner Moray Firth SPA and Ramsar, Cromarty Firth Ramsar (wintering birds)</u></b></p> <ul style="list-style-type: none"> <li>• Normal working operations of the scour repair activities will take place between the hours of 07:00 to 19:00, unless there is an urgent need to extend operations.</li> <li>• The scour repair activity will be preceded by a 'soft start' in general activities, thus allowing a 'ramping-up' of noise levels.</li> <li>• Following daily cessation of fender replacement or scour repair activity in the bird overwintering period (October to March), works lighting will be directed away from the water and intertidal areas, as much as practicable.</li> <li>• During the overwintering period (October to March) lighting will be kept to a minimum</li> <li>• Works will be progressive e.g. should avoid lighting the whole bridge at the same time.</li> <li>• Vessels used for the works are to maintain constant speed and direction when transiting between working areas and berth point, unless otherwise required for reasons of safe navigation.</li> <li>• Vessels used for the works will adhere to set routes (in accordance with the general requirements of the Port of Inverness) for transit between working areas and berth point.</li> <li>• Vessels used for the works will adhere to the general principles in the Scottish Marine Wildlife Watching Code.</li> <li>• If works are required to be carried out overnight the most disruptive activities will be scheduled for the earlier part of the evening.</li> <li>• Where reasonably practicable, workers will avoid accessing the intertidal shores around the bridge at all times of the year.</li> </ul>	<p>The Conservation Objectives for the qualifying feature (wintering birds) are as follows:</p> <p>To avoid deterioration of the habitats of the qualifying species (listed above) or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and</p> <p>To ensure for the qualifying species that the following are maintained in the long term:</p> <ul style="list-style-type: none"> <li>• Population of the species as a viable component of the site</li> <li>• Distribution of the species within site</li> <li>• Distribution and extent of habitats supporting the species</li> <li>• Structure, function and supporting processes of habitats supporting the species</li> <li>• No significant disturbance of the species</li> </ul>
<p><b><u>Cromarty Firth SPA, Inner Moray Firth SPA (common tern, breeding)</u></b></p> <ul style="list-style-type: none"> <li>• No significant works i.e. scour repairs will take place within 250m exclusion zone around the common tern breeding colony (at the north end of the bridge) between April 1<sup>st</sup> and July 31<sup>st</sup> inclusive.</li> </ul>	<p>The Conservation Objectives for the qualifying feature (common tern, breeding) are as follows:</p> <p>To avoid deterioration of the habitats of the qualifying species (listed above) or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and</p> <p>To ensure for the qualifying species that the following are maintained in the long term:</p>

	<ul style="list-style-type: none"> <li>• Population of the species as a viable component of the site</li> <li>• Distribution of the species within site</li> <li>• Distribution and extent of habitats supporting the species</li> <li>• Structure, function and supporting processes of habitats supporting the species</li> <li>• No significant disturbance of the species</li> </ul>
<p><b><u>Dornoch Firth and Morrich More SAC and Dornoch Firth and Loch Fleet Ramsar (harbour seal)</u></b></p> <ul style="list-style-type: none"> <li>• Scour repair works will be programmed, where feasible, to take place outside the summer months (June to August inclusive) to avoid the harbour seal breeding season.</li> <li>• Normal working operations of the scour repair activities will take place between the hours of 07:00 to 19:00, unless there is an urgent need to extend operations.</li> <li>• The scour repair activity will be preceded by a 'soft start' in general activities, thus allowing a 'ramping-up' of noise levels.</li> <li>• Following cessation of scour repair activities on any given day, works lighting will be directed away from the water, as much as practicable.</li> <li>• Vessels used for the works are to maintain constant speed and direction when transiting between working areas and berth point, unless otherwise required for reasons of safe navigation.</li> <li>• Vessels used for the works will adhere to set routes (in accordance with the general requirements of the Port of Cromarty Firth) for transit between working areas and berth point.</li> <li>• Vessels used for the works will adhere to the general principles in the Scottish Marine Wildlife Watching Code.</li> </ul>	<p>The Conservation Objectives for the qualifying feature (harbour seal) are as follows:</p> <p>To avoid deterioration of the habitats of the qualifying species (listed above) or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and</p> <p>To ensure for the qualifying species that the following are maintained in the long term:</p> <ul style="list-style-type: none"> <li>• Population of the species as a viable component of the site</li> <li>• Distribution of the species within site</li> <li>• Distribution and extent of habitats supporting the species</li> <li>• Structure, function and supporting processes of habitats supporting the species</li> <li>• No significant disturbance of the species</li> </ul>
<p><b><u>Moray Firth SAC (bottlenose dolphin)</u></b></p> <ul style="list-style-type: none"> <li>• Scour repair works will be programmed, where feasible, to take place outside the summer months (June to August inclusive) to avoid the bottlenose dolphin breeding season.</li> <li>• Normal working operations of the scour repair activities will take place between the hours of 07:00 to 19:00, unless there is an urgent need to extend operations.</li> <li>• The scour repair activity will be preceded by a 'soft start' in general activities, thus allowing a 'ramping-up' of noise levels.</li> </ul>	<p>The Conservation Objectives for the qualifying feature (bottlenose dolphin) are as follows:</p> <p>To avoid deterioration of the qualifying habitat (listed above) thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and</p> <p>To ensure for the qualifying habitat that the following are maintained in the long term:</p> <ul style="list-style-type: none"> <li>• Extent of the habitat on site</li> <li>• Distribution of the habitat within site</li> <li>• Structure and function of the habitat</li> <li>• Processes supporting the habitat</li> </ul>



<ul style="list-style-type: none"> <li>• Following cessation of scour repair activities on any given day, works lighting will be directed away from the water, as much as practicable.</li> <li>• Vessels used for the works are to maintain constant speed and direction when transiting between working areas and berth point, unless otherwise required for reasons of safe navigation.</li> <li>• Vessels used for the works will adhere to set routes (in accordance with the general requirements of the Port of Cromarty Firth) for transit between working areas and berth point.</li> <li>• Vessels used for the works will adhere to the general principles in the Scottish Marine Wildlife Watching Code.</li> </ul>	<ul style="list-style-type: none"> <li>• Distribution of typical species of the habitat</li> <li>• Viability of typical species as components of the habitat</li> <li>• No significant disturbance of typical species of the habitat</li> </ul>
<p><b><u>Moray Firth pSPA (breeding and non-breeding birds)</u></b></p> <ul style="list-style-type: none"> <li>• Normal working operations of the scour repair activities will take place between the hours of 07:00 to 19:00, unless there is an urgent need to extend operations.</li> <li>• The scour repair activity will be preceded by a 'soft start' in general activities, thus allowing a 'ramping-up' of noise levels.</li> <li>• Following daily cessation of fender replacement or scour repair activity in the bird overwintering period (October to March), works lighting will be directed away from the water and intertidal areas, as much as practicable.</li> <li>• During the overwintering period (October to March) lighting will be kept to a minimum</li> <li>• Works will be progressive e.g. should avoid lighting the whole bridge at the same time.</li> <li>• Vessels used for the works are to maintain constant speed and direction when transiting between working areas and berth point, unless otherwise required for reasons of safe navigation.</li> <li>• Vessels used for the works will adhere to set routes (in accordance with the general requirements of the Port of Inverness) for transit between working areas and berth point.</li> <li>• Vessels used for the works will adhere to the general principles in the Scottish Marine Wildlife Watching Code.</li> <li>• If works are required to be carried out overnight the most disruptive activities</li> </ul>	<p>To ensure the draft Conservation Objectives for the proposed qualifying features of the Moray Firth pSPA, specifically wintering bird populations, are maintained:</p> <p>To avoid deterioration of the habitats of the qualifying species or significant disturbance to the qualifying species, subject to natural change, thus ensuring that the integrity of the site is maintained in the long-term and it continues to make an appropriate contribution to achieving the aims of the Birds Directive for each of the qualifying species.</p> <p>This contribution will be achieved through delivering the following objectives for each of the site's qualifying features:</p> <ol style="list-style-type: none"> <li>a) Avoid significant mortality, injury and disturbance of the qualifying features, so that the distribution of the species and ability to use the site are maintained in the long-term;</li> <li>b) To maintain the habitats and food resources of the qualifying features in favourable condition.</li> </ol>

will be scheduled for the earlier part of the evening.

- Where reasonably practicable, workers will avoid accessing the intertidal shores around the bridge at all times of the year.

## Appendix A

Consultation with SNH, [Redacted] 6<sup>th</sup> April 2018

**From:** [Redacted]

**Sent:** 06 April 2018 16:46

**To:** [Redacted]

**Subject:** RE: A9 Cromarty Bridge 5yr Marine Licence - pre application HRA consultation

Dear [Reda

Many thanks for your e-mail below.

We offer the following advice:

- In general we agree with the analysis and conclusions of the HRA spreadsheet
- HRA spreadsheet – row 5: we consider that the osprey and common tern interests of the Inner Moray Firth SPA would be picked up through the Cromarty Firth SPA interests and as such do not need to be separately screened in.
- HRA spreadsheet – row 11: Cromarty Firth SPA - non breeding birds – you seek our view on whether we consider there to be potential of LSE on the non-breeding bird interests of the SPA. We consider that some elements of the work may have a LSE depending on timing, location on the bridge. However we advise that with the following measures, impacts on the integrity of the SPA can be avoided:
  - Works should be progressive e.g. from north to south to avoid lighting the whole bridge at the same time.
  - Direct lighting away from the water as far as possible.
  - Avoid pointing lighting towards the sky or land at either side of the firth.
  - Plant and equipment to be chosen to minimise noise generation.
  - Schedule the most disruptive activities for earlier in the evening.
  - Movement of plant onto and around the site to have regard to minimising noise – avoid running equipment if not required for immediate use.
  - Consider deploying acoustic screens around compressors and generators.
- HRA spreadsheet – row 12: Cromarty Firth SPA - breeding birds: this section primarily focuses on the osprey interest however the main potential impact is to the breeding common terns. Specifically, adverse impacts on the integrity of the SPA common tern interest can be avoided as long as no works take place within a 250 metre exclusion zone around the common tern breeding colony at the north end of the bridge during the period from 1<sup>st</sup> April 2016 to 31<sup>st</sup> July 2016 (inclusive).

### Additional comments

- Otter – whilst otter are not a qualifying interest of any of the designated sites in the vicinity of the A9 Cromarty Bridge, they are known to occur at the southern end of the bridge. An EPS licence will therefore be required for works in this area.
- We recommend that you consult the Cromarty District Salmon Fishery Board on future proposals. Whilst Atlantic salmon are not a qualifying interest of any of the designated features, this species will pass underneath the bridge to access the River Conon, which is an important fishery. The Fishery Board will be able to advise about

any issues they may have any how to mitigate them. Contact: [Redacted]

[Redacted]

- Please note error in the e-mail below.

I hope these comments are helpful but if you have any questions then please contact me.

Best regards,

[Redacted]

[Redacted] | **Operations Officer**

Scottish Natural Heritage | Dingwall | Fodderty Way | Dingwall Business Park | Dingwall | IV15 9XB | t:

[Redacted] | cisco: 7001613

Inbhir Pheofharain | Slighe Fhodhraitidh | Pàirc Gnothachais | Inbhir Pheofharain | Inbhir Pheofharain | IV15 9XB

[nature.scot](http://nature.scot) – Connecting People and Nature in Scotland – [@nature\\_scot](https://twitter.com/nature_scot)

**From:** [Redacted]

**Sent:** 21 March 2018 11:04

**To:** SOUTH\_HIGHLAND

**Cc:** [Redacted]

**Subject:** A9 Cromarty Bridge 5yr Marine Licence - pre application HRA consultation

Good morning,

BEAR Scotland have been commissioned by Transport Scotland to apply for a 5 year Marine Licence to cover a 5 year programme of maintenance works on the A9 Cromarty Bridge. My colleagues Julie Bhatti and Stuart Anderson have recently submitted pre-application HRA consultation for Dornoch and Kessock Bridges 5yr Marine Licences.

The Cromarty Bridge spans and has potential connectivity with several Natura 2000 sites and Ramsar Sites, listed below. As part of the pre-application process, a LSE screening has been carried out to determine whether any of the activities planned could have a likely significant effect on any of the qualifying features of the relevant sites, please find attached (HRA A9 Cromarty Bridge 5yr Marine Licence).

### Location of the Site



## Description of Works

Various maintenance activities will take place over the next 5 years with potential to be carried out at all times of the year with some work possibly required during night-time hours; these are summarised below and detailed further in the attached programme (5YML Application – Cromarty Bridge Rev 1).

- Scour repairs around abutments and piers
- Cyclic maintenance including resurfacing and under bridge access
- Concrete repairs
- Gully cleaning
- Parapet repairs
- Bird guano removal
- Pre-stressed beam treatment
- Cathodic protection
- Inspections

While we would always aim to plan works to avoid sensitive times of the year for any features of Natura sites; due to the fluid nature of the programme and the element of uncertainty our assessment is based on the possibility that works will not avoid sensitive times of the year.

## Designated Sites

The following sites have all been considered as part of our LSE screening:

- Conon Islands SAC
- Cromarty Firth Ramsar and SAC – to note: Cromarty Firth is not an SAC
- Dornoch Firth and Loch fleet Ramsar and SPA
- Dornoch Firth and Morrich More SAC
- Inner Moray Firth Ramsar and SPA
- Moray and Nairn Coast Ramsar and SPA
- Moray Firth SAC and pSPA

Please find attached a spreadsheet to show the screening stage for 'likely significant effect' for the above qualifying interests. I would appreciate it if you could confirm whether SNH are in agreement with our assumptions, in some instances we seek SNH's view for the potential of LSE on some of the features of the designated sites.

For information, the environment team at BEAR Scotland will produce a Statement to Inform Appropriate Assessment on behalf of Transport Scotland as the competent authority for roads projects.

As you will be aware my colleagues [Redacted] have recently submitted pre-application HRA consultation for Dornoch and Kessock Bridges 5yr Marine Licences. We are happy to receive communication for these as a package and we can, from now on, create a co-ordinated response from BEAR on any queries.

If you need to discuss further, please do not hesitate to contact me on the number below. I look forward to hearing from you in due course.

Kind regards,  
[Redacted]

[Redacted]  
**Environmental Specialist**  
**BEAR Scotland | North West Unit**  
[Redacted]

Consultation with Fisheries Trust Simon Mckelvey

[Redacted]

**Sent:** 15 June 2018 15:55

[Redacted]

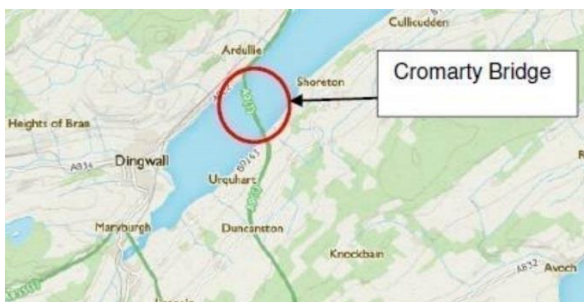
[Redacted]

**Subject:** A9 Cromarty Bridge 5 Year Maintenance Programme and Marine Licence Application

Good afternoon [Redacted]

BEAR Scotland have been commissioned by Transport Scotland to apply for a 5 year Marine Licence to cover a 5 year programme of maintenance works on the A9 Cromarty Bridge.

**Location of the Site**



**Description of Works**

Various maintenance activities will take place over the next 5 years with potential to be carried out at all times of the year with some work possibly required during night-time hours. Different activities will take place above and below MHWS with some required to be carried out in the sub-tidal zone, specifically scour repair. The specific activities are as follows:

- Scour repairs around abutments and piers below (**works below MHWS**)
- Cyclic maintenance including resurfacing and under bridge access
- Concrete repairs (**some works below MHWS**)
- Gully cleaning

- Parapet repairs
- Bird guano removal
- Pre-stressed beam treatment
- Cathodic protection (**some works below MHWS**)
- Inspections

Scour repair works will entail excavating and side-casting sea bed material around the piers and placing rock in these locations to maintain the bed integrity. BEAR are applying for a 5 year Marine Licence to authorise these works and we are also in consultation with SNH regarding a Habitats Regulations Appraisal.

Programme details for the scour works are not currently known, but every effort will be made to programme these works to avoid the main salmon smolt run period. We understand that the salmon smolt run will vary regionally, could you please advise on when the most sensitive period is in the Cromarty Firth so that we can try to programme in-stream works outwith this period.

Please do not hesitate to contact me with any further concerns/comments from a fisheries perspective and I'll feed these back to our engineers so that we can plan for minimal impact on migratory salmonids.

Many thanks

[Red

[Redacted]

**Environmental Specialist**

**BEAR Scotland | North West Unit**

[Redacted]

## Appendix B

Table 2: Likely Significant Effect screening matrix

Natura Site	Distance from site	Feature Category	Feature	Feature potentially impacted	Nature of impact	LSE?	Screen in?	Comments	Potential in-combination effects from future projects/plans
Moray Firth SAC	15km (straight line distance)	Marine (including marine mammals)	Bottlenose dolphin ( <i>Tursiops truncatus</i> )	Bottlenose dolphin ( <i>Tursiops truncatus</i> )	Disturbance from underwater noise as a result of scour and concrete repairs to bridge piers and presence of barges and other vessels. Possible pollution issues from debris and concrete wash out.	Uncertain	Yes	The presence of dolphins around the Cromarty Bridge is not well understood however there is anecdotal evidence that dolphins access the Cromarty Firth on occasion. Unlikely to have LSE but screened in as a precaution. Potential pollution of the marine environment during grit-blasting, pressure washing and painting the bridge and disturbance due to underwater noise and marine vessels however mitigation will be put in place to reduce the likelihood of incidents.	Dornoch Bridge (minor works potential for slightly elevated background disturbance) and Kessock Bridge (underwater works and piling) therefore potential for in-combination effects.
		Marine (including marine mammals)	Subtidal sandbanks		Pollution.	No	No	No LSE due to distance from the SAC site and the non-motile nature of the features and dilution factor of any pollution events.	None known
Inner Moray Firth SPA	10km (straight line distance)	Birds, non-breeding	Bar-tailed godwit ( <i>Limosa lapponica</i> ), Cormorant ( <i>Phalacrocorax carbo</i> ), Curlew ( <i>Numenius arquata</i> ), Goldeneye ( <i>Bucephala clangula</i> ), Goosander ( <i>Mergus merganser</i> ), Greylag goose ( <i>Anser anser</i> ), Oystercatcher ( <i>Haematopus ostralegus</i> ), Red-breasted merganser ( <i>Mergus serrator</i> ), Redshank ( <i>Tringa totanus</i> ), Scaup ( <i>Aythya marila</i> ), Teal ( <i>Anas crecca</i> ), Wigeon ( <i>Anas penelope</i> ), Waterfowl assemblage	Bar-tailed godwit ( <i>Limosa lapponica</i> ), Cormorant ( <i>Phalacrocorax carbo</i> ), Curlew ( <i>Numenius arquata</i> ), Goldeneye ( <i>Bucephala clangula</i> ), Goosander ( <i>Mergus merganser</i> ), Greylag goose ( <i>Anser anser</i> ), Oystercatcher ( <i>Haematopus ostralegus</i> ), Red-breasted merganser ( <i>Mergus serrator</i> ), Redshank ( <i>Tringa totanus</i> ), Scaup ( <i>Aythya marila</i> ), Teal ( <i>Anas crecca</i> ), Wigeon ( <i>Anas penelope</i> ), Waterfowl assemblage	Disturbance from noise and proximity of people, machinery, vessels. Pollution.	No	No	Maintenance programme will include painting, grit-blasting and pressure-washing the bridge. Containment measures will be used to prevent pollution reaching the aquatic environment and sediments. Likelihood that birds will be accustomed to existing level of disturbance from traffic on the trunk road and they won't be displaced from the extensive foraging areas. We would seek SNH's view on the potential for LSE on birds, non-breeding features of SPA's distant from the Cromarty Bridge.	None Known
		Birds, breeding	Common tern ( <i>Sterna hirundo</i> ), Osprey ( <i>Pandion haliaetus</i> )	Common tern ( <i>Sterna hirundo</i> ),	Disturbance from noise, proximity of people, machinery, vessels. Pollution.	Uncertain	Yes	Maintenance programme will potentially take place at all times of year for 5 years. Ospreys are unlikely to be breeding in the immediate surroundings of the Firth, more likely to be in locations on the Black Isle but they have been observed feeding in the Firth previously. Likelihood that birds will be accustomed to existing level of disturbance from traffic on the trunk road however potential for disturbance of	Unlikely to be any in-combination effect from the Dornoch or Kessock Bridges due to the distance of these bridges to the SPA and the lack of suitable habitats at Kessock Bridge.



								breeding tern associated with the Inner Moray Firth SPA.	
Inner Moray Firth Ramsar Site	10km (straight line distance)	Birds, non-breeding	Bar-tailed godwit ( <i>Limosa lapponica</i> ), Greylag goose ( <i>Anser anser</i> ), Red-breasted merganser ( <i>Mergus serrator</i> ), Redshank ( <i>Tringa totanus</i> ), Waterfowl assemblage	Bar-tailed godwit ( <i>Limosa lapponica</i> ), Greylag goose ( <i>Anser anser</i> ), Red-breasted merganser ( <i>Mergus serrator</i> ), Redshank ( <i>Tringa totanus</i> ), Waterfowl assemblage	Pollution.	No	No	Maintenance programme will include painting, grit-blasting and pressure-washing the bridge. Containment measures will be used to prevent pollution reaching the aquatic environment and sediments. Likelihood that birds will be accustomed to existing level of disturbance from traffic on the trunk road and they won't be displaced from the extensive foraging areas. We would seek SNH's view on the potential for LSE on birds, non-breeding features of SPA's distant from the Cromary Bridge.	None known.
		Marine (including marine mammals)	Intertidal mudflats and sandflats	Intertidal mudflats and sandflats	Pollution.	No	No	No LSE due to distance from the Ramsar site and the non-motile nature of the features and dilution factor of any pollution events.	None known.
		Coast	Saltmarsh, sand dune, shingle	Saltmarsh, sand dune, shingle	Pollution.	No	No	No LSE due to distance from the Ramsar site and the motile nature of the features and dilution factor of any pollution events	None known.
Dornoch Firth and Morrich More SAC	30km (straight line distance)	Marine (including marine mammals)	Common (Harbour) seal ( <i>Phoca vitulina</i> )	Common (Harbour) seal ( <i>Phoca vitulina</i> )	Disturbance from underwater noise, disturbance at haul out site, presence of barges and other vessels. Pollution.	Yes	Yes	The seals using the Cromarty Firth are within 50km of the Dornoch Firth and Morrich More SAC there is considered to be connectivity. There is a designated haul out site for seals in the Cromarty Firth and the Cromarty Bridge lies within this site.	Dornoch Bridge (minor works potential for slightly elevated background disturbance) and Kessock Bridge (underwater works and piling) therefore potential for in-combination effects.
		Habitats	Atlantic salt meadows, subtidal sandbanks, reefs		Pollution.	No	No	No LSE due to distance from the SAC site and the non-motile nature of the features and dilution factor of any pollution events	None known.

Cromarty Firth SPA	Partly within	Birds, non-breeding	Bar-tailed godwit ( <i>Limosa lapponica</i> ), Curlew ( <i>Numenius arquata</i> ), Dunlin ( <i>Calidris alpina alpina</i> ), Greylag goose ( <i>Anser anser</i> ), Knot ( <i>Calidris canutus</i> ), Oystercatcher ( <i>Haematopus ostralegus</i> ), Pintail ( <i>Anas acuta</i> ), Red-breasted merganser ( <i>Mergus serrator</i> ), Redshank ( <i>Tringa totanus</i> ), Scaup ( <i>Aythya marila</i> ), waterfowl assemblage, Wigeon ( <i>Anas penelope</i> )	Bar-tailed godwit ( <i>Limosa lapponica</i> ), Curlew ( <i>Numenius arquata</i> ), Dunlin ( <i>Calidris alpina alpina</i> ), Greylag goose ( <i>Anser anser</i> ), Knot ( <i>Calidris canutus</i> ), Oystercatcher ( <i>Haematopus ostralegus</i> ), Pintail ( <i>Anas acuta</i> ), Red-breasted merganser ( <i>Mergus serrator</i> ), Redshank ( <i>Tringa totanus</i> ), Scaup ( <i>Aythya marila</i> ), waterfowl assemblage, Wigeon ( <i>Anas penelope</i> )	Disturbance from noise, proximity of people, machinery. Pollution.	Uncertain	Yes	Maintenance programme will include painting, grit-blasting and pressure-washing the bridge. Containment measures will be used to prevent pollution reaching the aquatic environment and sediments. Likelihood that birds will be accustomed to existing level of disturbance from traffic on the trunk road. We would seek SNH's view on whether they consider there to be potential of LSE on the non-breeding bird intrests of the SPA.	No in-combination effects anticipated from Kessock and Dornoch Bridges due to distance from the SPA.
		Birds, breeding	Common tern ( <i>Sterna hirundo</i> ), Osprey ( <i>Pandion haliaetus</i> )	Common tern ( <i>Sterna hirundo</i> )	Disturbance from noise, proximity of people, machinery. Pollution.	Yes	Yes	Maintenance programme will potentially take place at all times of year for 5 years. Ospreys are unlikely to be breeding in the immediate surroundings of the Firth, more likely to be in locations on the Black Isle but they have been observed feeding in the Firth previously. Likelihood that birds will be accustomed to existing level of disturbance from traffic on the trunk road however potential for distrubance of breeding tern.	No in-combination effects anticipated from Kessock and Dornoch Bridges due to distance from the SPA.
Connon Islands SAC	5km	Woodland	Alder woodland on floodplains		Pollution.	No	No	No likely significant effect due to the nature and scale of the works and distance from the SAC.	None Known
Cromarty Firth Ramsar	Partly within	Birds, non-breeding	Bar-tailed godwit ( <i>Limosa lapponica</i> ), Greylag goose ( <i>Anser anser</i> ), Waterfowl assemblage	Bar-tailed godwit ( <i>Limosa lapponica</i> ), Greylag goose ( <i>Anser anser</i> ), Waterfowl assemblage	Disturbance from noise and proximity of people, machinery, vehicles or barges	Uncertain	Yes	Maintenance programme will include painting, grit-blasting and pressure-washing the bridge. Containment measures will be used to prevent pollution reaching the aquatic environment and sediments. Likelihood that birds will be accustomed to existing level of disturbance from traffic on the trunk road. We would seek SNH's view on whether they consider there to be potential of LSE on the non-breeding bird intrests of the SPA.	No in-combination effects anticipated from Kessock and Dornoch Bridges due to distance from the Ramsar Site.
		Marine (including marine mammals)	Intertidal mudflats and sandflats	Intertidal mudflats and sandflats	Sedimentation and pollution.	Uncertain	Yes	Some potential due to the proximity of these habitats to the work location.	No in-combination effects anticipated from Kessock and Dornoch Bridges due to distance from the Ramsar Site.

Moray and Nairn Coast Ramsar	30km (straight line distance)	Birds, non-breeding	Greylag goose ( <i>Anser anser</i> ), Pink-footed goose ( <i>Anser brachyrhynchus</i> ), Redshank ( <i>Tringa totanus</i> ), Waterfowl assemblage	Greylag goose ( <i>Anser anser</i> ), Pink-footed goose ( <i>Anser brachyrhynchus</i> ), Redshank ( <i>Tringa totanus</i> ), Waterfowl assemblage	Disturbance from noise and proximity of people, machinery, vehicles or barges	No	No	Maintenance programme will include painting, grit-blasting and pressure-washing the bridge. Containment measures will be used to prevent pollution reaching the aquatic environment and sediments. Likelihood that birds will be accustomed to existing level of disturbance from traffic on the trunk road and they won't be displaced from the extensive foraging areas. We would seek SNH's view on the potential for LSE on birds, non-breeding features of SPA's distant from the Cromarty Bridge.	None known
		Marine (including marine mammals)	Intertidal mudflats and sandflats		Pollution.	No	No	No impacts predicted as these are non-motile features >30km distant from the Cromarty Bridge. Pollution of these habitats is not considered likely due to distance and dilution.	None known
		Coast	Saltmarsh, sand dune, shingle		Pollution.	No	No	No impacts predicted as these are non-motile features >30km distant from the Cromarty Bridge. Pollution of these habitats is not considered likely due to distance and dilution.	None known
		Woodland	Wet woodland		Pollution.	No	No	No impacts predicted as these are non-motile features >30km distant from the Cromarty Bridge. Pollution of these habitats is not considered likely due to distance and dilution.	None known
Dornoch Firth and Loch Fleet Ramsar	30km (straight line distance)	Birds, non-breeding	Bar-tailed godwit ( <i>Limosa lapponica</i> ), Greylag goose ( <i>Anser anser</i> ), Waterfowl assemblage, Wigeon ( <i>Anas penelope</i> )	Bar-tailed godwit ( <i>Limosa lapponica</i> ), Greylag goose ( <i>Anser anser</i> ), Waterfowl assemblage, Wigeon ( <i>Anas penelope</i> )	Disturbance from noise, proximity of people, machinery. Pollution.	No	No	Maintenance programme will include painting, grit-blasting and pressure-washing the bridge. Containment measures will be used to prevent pollution reaching the aquatic environment and sediments. Likelihood that birds will be accustomed to existing level of disturbance from traffic on the trunk road and they won't be displaced from the extensive foraging areas. We would seek SNH's view on the potential for LSE on birds, non-breeding features of SPA's distant from the Cromarty Bridge.	None known
		Marine (including marine mammals)	Harbour seal ( <i>Phoca vitulina</i> ), Intertidal mudflats and sandflats, Reefs	Harbour seal ( <i>Phoca vitulina</i> )	Disturbance from noise, proximity of people, machinery. Pollution.	Yes	Yes	The seals using the Cromarty Firth are within 50km of the Dornoch Firth and Morrich More SAC there is considered to be connectivity. There is a designated haul out site for seals in the Cromarty Firth and the Cromarty Bridge lies within this site.	Dornoch Bridge (minor works potential for slightly elevated background disturbance) and Kessock Bridge (underwater works and piling) therefore potential for in-combination effects.
		Invertebrates	Invertebrate assemblage		Pollution.	No	No	No impacts predicted as these are non-motile features >30km distant from the Cromarty Bridge. Pollution of these habitats is not considered likely due to distance and dilution	None known

		Mammals (except marine)	Otter ( <i>Lutra lutra</i> )		Disturbance from noise, proximity of people, machinery. Pollution.	No	No	Unlikely to be same population of otter due to distance	None known
		Coast	saltmarsh and sand dune		Pollution.	No	No	No impacts predicted as these are non-motile features >30km distant from the Cromarty Bridge. Pollution of these habitats is not considered likely due to distance and dilution	None known
		Vascular plants	Vascular plant assemblage		Pollution.	No	No	No impacts predicted as these are non-motile features >30km distant from the Cromarty Bridge. Pollution of these habitats is not considered likely due to distance and dilution	None known
		Woodland	Wet woodland		Pollution.	No	No	No impacts predicted as these are non-motile features >30km distant from the Cromarty Bridge. Pollution of these habitats is not considered likely due to distance and dilution	None known
Moray Firth pSPA	10km (straight line distance)	Birds, non-breeding	Common scoter ( <i>Melanitta nigra</i> ), Eider ( <i>Somateria mollissima</i> ), Goldeneye ( <i>Bucephala clangula</i> ), Great northern diver ( <i>Gavia immer</i> ), Long-tailed duck ( <i>Clangula hyemalis</i> ), Red-breasted merganser ( <i>Mergus serrator</i> ), Red-throated diver ( <i>Gavia stellata</i> ), Scaup ( <i>Aythya marila</i> ), Shag ( <i>Phalacrocorax aristotelis</i> ), Slavonian grebe ( <i>Podiceps auritus</i> ), Velvet scoter ( <i>Melanitta fusca</i> )	Common scoter ( <i>Melanitta nigra</i> ), Eider ( <i>Somateria mollissima</i> ), Goldeneye ( <i>Bucephala clangula</i> ), Great northern diver ( <i>Gavia immer</i> ), Long-tailed duck ( <i>Clangula hyemalis</i> ), Red-breasted merganser ( <i>Mergus serrator</i> ), Red-throated diver ( <i>Gavia stellata</i> ), Scaup ( <i>Aythya marila</i> ), Shag ( <i>Phalacrocorax aristotelis</i> ), Slavonian grebe ( <i>Podiceps auritus</i> ), Velvet scoter ( <i>Melanitta fusca</i> )	Disturbance from noise, proximity of people, machinery. Pollution.	No	No	Maintenance programme will include painting, grit-blasting and pressure-washing the bridge. Containment measures will be used to prevent pollution reaching the aquatic environment and sediments. Likelihood that birds will be accustomed to existing level of disturbance from traffic on the trunk road and they won't be displaced from the extensive foraging areas. We would seek SNH's view on the potential for LSE on birds, non-breeding features of SPA's distant from the Cromarty Bridge.	None known
		Birds, breeding	Shag ( <i>Phalacrocorax aristotelis</i> )	Shag ( <i>Phalacrocorax aristotelis</i> )	Disturbance from noise, proximity of people, machinery. Pollution.	No	No	Maintenance programme will potentially take place at all times of year for 5 years. Likelihood that birds will be accustomed to existing level of disturbance from traffic on the trunk road while foraging, with an abundance of suitable foraging habit away from the Bridge.	None known
Moray and Nairn Coast SPA	30km (straight line distance)	Birds, breeding	Osprey ( <i>Pandion haliaetus</i> ),		Disturbance from noise, proximity of people, machinery. Pollution.	No	No	Maintenance programme will potentially take place at all times of year for 5 years. Ospreys are unlikely to be breeding in the immediate surroundings of the Firth, more likely to be in locations on the Black Isle but they have been observed feeding in the Firth previously. Likelihood that birds will be accustomed to existing level of disturbance from traffic on the trunk road.	None known

		Birds, non-breeding	Bar-tailed godwit ( <i>Limosa lapponica</i> ), Common scoter ( <i>Melanitta nigra</i> ), Dunlin ( <i>Calidris alpina alpina</i> ), Greylag goose ( <i>Anser anser</i> ), Long-tailed duck ( <i>Clangula hyemalis</i> ), Oystercatcher ( <i>Haematopus ostralegus</i> ), Pink-footed goose ( <i>Anser brachyrhynchus</i> ), Red-breasted merganser ( <i>Mergus serrator</i> ), Redshank ( <i>Tringa totanus</i> ), Velvet scoter ( <i>Melanitta fusca</i> ), Waterfowl assemblage, Wigeon ( <i>Anas penelope</i> )	Bar-tailed godwit ( <i>Limosa lapponica</i> ), Common scoter ( <i>Melanitta nigra</i> ), Dunlin ( <i>Calidris alpina alpina</i> ), Greylag goose ( <i>Anser anser</i> ), Long-tailed duck ( <i>Clangula hyemalis</i> ), Oystercatcher ( <i>Haematopus ostralegus</i> ), Pink-footed goose ( <i>Anser brachyrhynchus</i> ), Red-breasted merganser ( <i>Mergus serrator</i> ), Redshank ( <i>Tringa totanus</i> ), Velvet scoter ( <i>Melanitta fusca</i> ), Waterfowl assemblage, Wigeon ( <i>Anas penelope</i> )	Disturbance from noise, proximity of people, machinery. Pollution.	No	No	Maintenance programme will include painting, grit-blasting and pressure-washing the bridge. Containment measures will be used to prevent pollution reaching the aquatic environment and sediments. Likelihood that birds will be accustomed to existing level of disturbance from traffic on the trunk road and they won't be displaced from the extensive foraging areas. We would seek SNH's view on the potential for LSE on birds, non-breeding features of SPA's distant from the Cromary Bridge.	None known
Dornoch Firth and Loch Fleet SPA	30km (straight line distance)	Birds, breeding	Osprey ( <i>Pandion haliaetus</i> )		Disturbance from noise and proximity of people, machinery. Pollution.	No	No	Maintenance programme will take place at all times of year for 5 years. Ospreys are unlikely to be breeding in the immediate surroundings of the Cromarty Firth. Likelihood that birds will be accustomed to existing level of disturbance from traffic on the trunk road. Any effects on foraging are not likely to be significant because of the large expanse of the Cromarty Firth which offers ample foraging opportunities away from the bridge.	None known
		Birds, non-breeding	Bar-tailed godwit ( <i>Limosa lapponica</i> ), Curlew ( <i>Numenius arquata</i> ), Dunlin ( <i>Calidris alpina alpina</i> ), Greylag goose ( <i>Anser anser</i> ), Oystercatcher ( <i>Haematopus ostralegus</i> ), Teal ( <i>Anas crecca</i> ), Waterfowl assemblage, Wigeon ( <i>Anas penelope</i> )	Bar-tailed godwit ( <i>Limosa lapponica</i> ), Curlew ( <i>Numenius arquata</i> ), Dunlin ( <i>Calidris alpina alpina</i> ), Greylag goose ( <i>Anser anser</i> ), Oystercatcher ( <i>Haematopus ostralegus</i> ), Teal ( <i>Anas crecca</i> ), Waterfowl assemblage, Wigeon ( <i>Anas penelope</i> )	Disturbance from noise, proximity of people, machinery. Pollution.	No	No	Maintenance programme will include parapet repairs, hydrodemolition and pressure-washing the bridge. Containment measures will be used to prevent pollution reaching the aquatic environment and sediments. Likelihood that birds will be accustomed to existing level of disturbance from traffic on the trunk road. We would seek SNH's view on the potential for LSE on birds, non-breeding features of SPA's distant from the Cromary Bridge.	None known