TRANSPORT SCOTLAND
CÒMHDHAIL ALBA

North East Trunk Road Unit

M90 Friarton Bridge – 5 Year Marine Licence

HABITATS REGULATIONS APPRAISAL
June 2022

Prepared for BEAR Scotland by Jacobs

experience that delivers

BEAR SCOTLAND

CONTENTS

1 Introduction

1.1 Background

1.1.1 The Friarton Bridge is a 831m long road bridge which carries the M90 over the River Tay, directly south east of the city of Perth (Diagram 1). The Friarton Bridge was constructed in 1978 and consists of steel box girders supporting a concrete deck, with nine separate spans across its length. Approximately 160m of the Friarton Bridge spans the Mean High Water Springs (MHWS) of the River Tay, which is tidal at this location.

1.1.2 The Friarton Bridge, owned by Transport Scotland, forms part of the Fourth Generation Term Maintenance Contract (TMC) for the North East Trunk Road Unit manged by BEAR Scotland as the Operating Company. From August 2022, Amey will become the Operating Company for the North East New Maintenance Contract (NMC) which sees them responsible for the management and maintenance of trunk road assets in the north-east of Scotland. In order to provide and deliver the management and maintenance of the Bridge, BEAR Scotland/Amey require marine licensing to be in place.

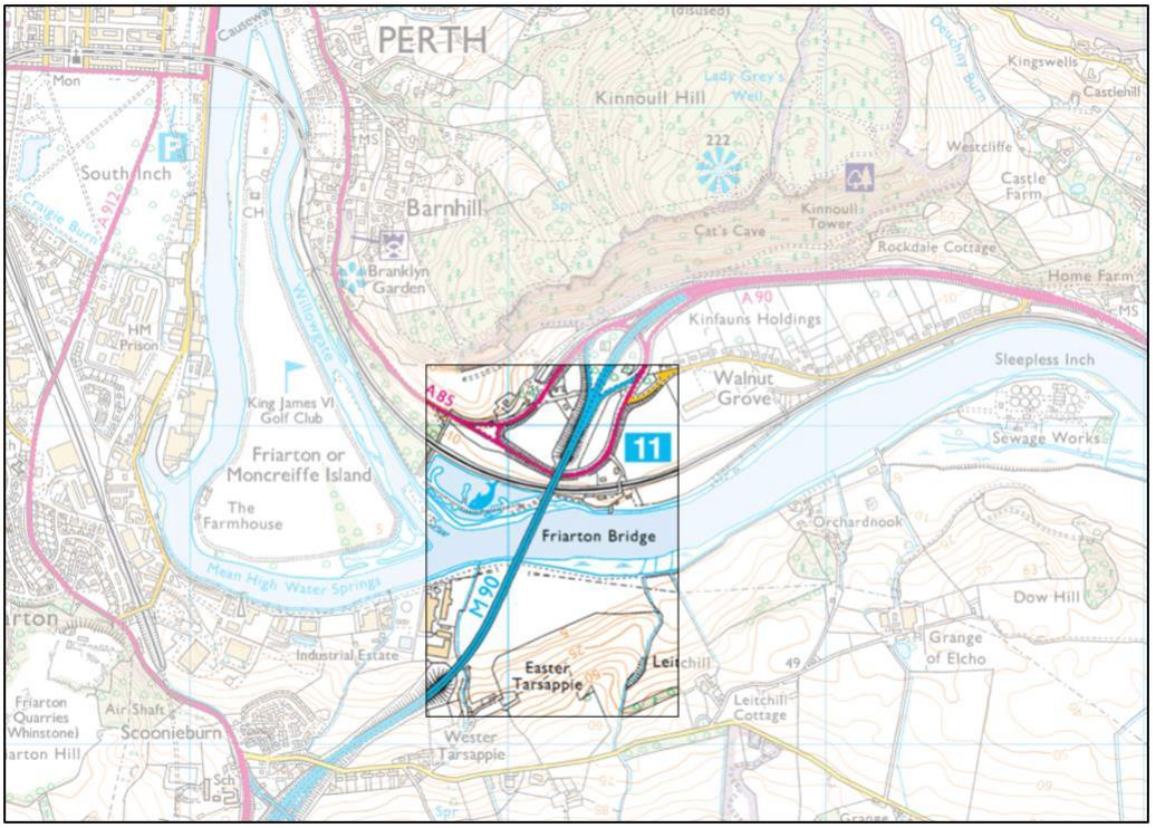

Diagram 1: Location of Friarton Bridge

1.1.3 The Friarton Bridge crosses the River Tay Special Area of Conservation (SAC), and is located upstream of the Firth of Tay and Eden Estuary SAC, Firth of Tay and Eden Special Protection Area (SPA) and the Firth of Tay and Eden Ramsar.

1.2 The Bern Convention, Habitats Directive, Habitats Regulations and European/Ramsar Sites

1.2.1 The Habitats Regulations (Conservation (Natural Habitats, &c.) Regulations 1994) translated the European Union Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (the Habitats Directive[1]) into UK legislation to protect sites that are internationally important for threatened habitats and species (European Sites), and to create a legal framework for species requiring strict protection.

1.2.2 The Habitats Regulations have been amended in Scotland; most recently in 2019 as a result of the UK leaving the EU (Conservation (Natural Habitats, &c.) (EU Exit) (Scotland) (Amendment) Regulations 2019). This latest amendment ensures that the requirements of the Habitats Directive and the Birds Directive (European Union Council Directive 2009/147/EC) continue to be relevant to the management of European sites, so that the sites are both protected and that they continue to operate as originally intended.

1.2.3 European Sites are SPAs (classified under the Birds Directive) and SACs (classified under the Habitats Directive) and form part of an international network of protected sites. Prior to leaving the EU, Scotland's sites contributed to the Natura network and now form part of the Emerald Network[2], spanning Europe and into Africa.

1.2.4 This HRA is presented under the aegis of Regulation 48 of the Habitats Regulations, which transposes the requirements of Article 6(3) of the Habitats Directive.

1.2.5 The Habitats Regulations continue to require that an Appropriate Assessment (AA) be undertaken by a Competent Authority where any plan or project not directly connected with or necessary to the management of the European/Ramsar site (i.e. a SAC or SPA, or candidate or potential SAC/SPA, or a Ramsar site), is likely to have a significant effect either individually or in combination with other plans or projects. HRA refers to the process that provides the Competent Authority with the information to enable them to make an AA determination. The HRA provides data concerning site integrity, and the AA must be undertaken 'in view of the site's conservation objectives'. With respect to this HRA for these maintenance works, the Competent Authority will be Transport Scotland, with their Statutory Nature Conservation Body (SNCB) for consultation being NatureScot[3].

1.2.6 Whilst not a European site designation, wetland sites designated under the Convention on Wetlands of International Importance, known as Ramsar sites, are also relevant as they are afforded the same level of protection as European sites under domestic policy and

[1] The Habitats Directive was adopted in 1992 by the European Community (as was) as the Community's response to the Convention on the Conservation of European Wildlife and Natural Habitats (the Bern Convention).

[2] The Emerald Network was launched by the Council of Europe as part of its work under the Bern Convention.

[3] Note that Scotland's nature agency, NatureScot, was known as Scottish Natural Heritage (SNH) prior to August 2020. Within this document, all references to the organisation in the text and documents cited are provided with the name appropriate to the time at which the document was published or communication received, however the organisations are one and the same.

treated in the same way as the UK site network. Most Ramsar sites in Scotland are either designated SPAs or SACs although not always sharing the same qualifying interests (NatureScot, 2020a).

1.2.7 A description of the Proposed Works has been provided by BEAR Scotland to inform this HRA (Section 2.2). It details the expected activities, timing, duration/frequency, and equipment required. If there are changes to the Proposed Works as assessed within this HRA it will be necessary to demonstrate there are no additional likely significant effects which could lead to an Adverse Effect on Site Integrity (AESI) of European/Ramsar sites from the changes, and that the conclusion of this HRA is still valid.

1.3 The HRA Process

1.3.1 The HRA process establishes whether the proposal:

- is directly connected with or necessary for site management for nature conservation;
- is likely to have a significant effect on the site; and
- will adversely affect the site's integrity.

1.3.2 If the assessment cannot ascertain that the proposal would not adversely affect site integrity and yet the Competent Authority still wish to consent the proposal, a consideration of alternative solutions is required. If no alternative solutions are available, a proposal may be carried out for Imperative Reasons of Overriding Public Interest as indicated by Article 49 of the Habitats Regulations. As stated in Article 53 of the Habitats Regulations, where this is the case the Secretary of State "*shall secure that any necessary compensatory measures are taken to ensure that the overall coherence of Natura 2000 is protected*" (The Conservation (Natural Habitats, &c.) Regulations 1994).

1.3.3 The four stages of the HRA process are as follows:

- Stage One – Screening (should be undertaken in all cases).
- Stage Two – Appropriate Assessment.
- Stage Three – Alternative Solutions.
- Stage Four – Imperative Reasons of Overriding Public Importance (IROPI) and including, in certain circumstances, compensatory measures.

1.3.4 It should be noted that not all stages may be necessary in the HRA process. If the screening stage determines that a plan or project is unlikely to have significant effects on a European/Ramsar site, subsequent stages are not required.

Stage One: Screening

1.3.5 Screening identifies the potential effects on a European/Ramsar site from a project or plan and considers whether these effects are likely to be significant, either alone or in combination with other projects or plans.

1.3.6 The screening assessment is a test of the 'likelihood' of effects occurring rather than a 'certainty' of effects occurring. Following the UK's departure from the European Union, rulings from the European Court of Justice remain in force as though made by the Supreme Court (NatureScot, 2021a). On that basis, in accordance with the Waddenzee Judgement (European Court of Justice case C-127/02), a likely significant effect is one that cannot be ruled out on the basis of objective information. This is underpinned by the precautionary principle which is enshrined in law in the Habitats Directive, and the test of something as being "*beyond reasonable scientific doubt*", as presented in the Waddenzee Judgement. Paragraph 49 of the same judgement adds *"…where a plan or project… is likely to undermine the site's conservation objectives, it must be considered likely to have a significant effect on that site. The assessment of that risk must be made in the light inter alia of the characteristics and specific environmental conditions of the site concerned by such a plan or project*". The Sweetman case (European Court of Justice C-258/11) reinforced and further refined the Waddenzee Judgement ruling that 'the question is simply whether the plan or project concerned is capable of having an effect. It is in that sense that the English 'likely to' should be understood.'

1.3.7 The People Over Wind Judgement (European Court of Justice C-323/17) clarifies the stage in the HRA process when mitigation measures can be taken into account when assessing impacts on a European site. The ruling is that: "…*in order to determine whether it is necessary to carry out, subsequently, an appropriate assessment of the implications, for a site concerned, of a plan or project, it is not appropriate, at the screening stage, to take account of the measures intended to avoid or reduce the harmful effects of the plan or project on that site*."

Stage Two: Appropriate Assessment (AA)

1.3.8 If the Stage One Screening process determines that the project or plan (either solely or in combination) is associated with impacts which are likely to have a significant effect upon a European/Ramsar site, the HRA proceeds to Stage Two.

1.3.9 An AA considers the effect of the project or plan, either alone or in combination with other projects or plans, on the integrity of the European/Ramsar site, with respect to the site's structure and function, and its conservation objectives. Under the provisions of Article 48 of the Habitats Regulations the objective is to ascertain that the integrity of the site will not be adversely affected.

1.3.10 Site integrity is defined as "*the coherent sum of the site's ecological structure, function and ecological processes, across its whole area, which enables it to sustain the habitats, complex of habitats and/or populations of species for which the site is designated*" (European Commission, 2018). The decision as to whether a site is not adversely affected focuses on and is limited to the conservation objectives for the site (European Commission, 2018).

1.3.11 In carrying out an AA, mitigation measures, aimed at minimising or avoiding the negative effect of a plan or project during its operation or after its completion, may be considered as

an integral part of the plan or project (European Commission, 2018). The Competent Authority has to be certain that the mitigation proposed would remove/avoid the negative effects of the plan or project. It must be clear, therefore, what the mitigation measures are, how they would reduce or avoid the effects, and the details of how and by whom they would be implemented/managed, and the timescale involved. In addition, the mitigation measures would require monitoring and enforcement, and procedures to rectify effects where measures have not been successful.

Stage Three: Alternative Solutions

1.3.12 Stage Three is when an AESI integrity cannot be ruled out. It examines alternative ways of achieving the objectives of the project or plan, that may avoid an AESI on the European/Ramsar site. Guidance (European Commission, 2007) indicates that all alternatives have to be analysed. This could involve alternative locations or routes, different scales or designs of development, or alternative processes.

Stage Four: Imperative Reasons of Overriding Public Importance (IROPI)

1.3.13 Where no alternative solutions exist and where adverse effects remain, an assessment is undertaken of the IROPI to determine whether a project or plan should proceed. Where it is determined that there are IROPI it would be necessary to design, implement, manage and monitor compensation measures "*to offset the negative impact of a project and to provide compensation corresponding precisely to the negative effects*".

1.4 Guidance

1.4.1 In undertaking this HRA the following guidance was referred to:

- Advice to developers when considering new projects which could affect the River Tay Special Area of Conservation (NatureScot et al., 2020).
- Assessing Connectivity with Special Protection Areas (SPAs) (Scottish Natural Heritage (SNH), 2016);
- Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC (European Commission, 2001);
- Communication from the Commission on the Precautionary Principle (European Commission, 2000);
- Guidelines on the Implementation of the Birds and Habitats Directives in Estuaries and Coastal Zones with particular attention port development and dredging (European Commission, 2011);
- Habitats Regulations Appraisal of Plans: Guidance for Plan-making Bodies in Scotland, Version 3.0 January 2015 (David Tyldesley and Associates, 2015);
- Managing Natura 2000 sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (European Commission, 2018);

- NatureScot Website: Habitats Regulations Appraisal (HRA) (NatureScot, 2020b); and
- Policy Note on The Conservation (Natural Habitats, &c.) (EU Exit) (Scotland) (Amendment) Regulations 2019 (Scottish Government, 2019).

1.5 Structure of this Report

1.5.1 This HRA fulfils the requirements of Article 48 of the Habitats Regulations and covers the first two stages of the HRA process: Stage One (Screening) and Stage Two (Appropriate Assessment). The other stages of the HRA process (Alternative Solutions or IROPI) are briefly described in Section 1.3 (The HRA Process). These stages are required under Article 49 of the Habitats Regulations where there is a negative assessment of the implications for the site but consent from the Competent Authority is still sought.

1.5.2 An assessment of the Proposed Works in combination with other plans and projects is provided in Section 5 (In-Combination Assessment).

1.6 Consultation, Desk Study and Field Survey

1.6.1 A consultation request was sent to the Tay District Salmon Fisheries Board (TDSFB) on 15 October 2021. At the time of writing, no response had been received.

1.6.2 A desk study was undertaken to determine which designated sites could potentially be affected by the Proposed Works. The following online resources were used to inform the desk study:

- NatureScot Sitelink[4]; and
- Marine Scotland National Marine Plan Interactive map[5]

1.6.3 A field survey was undertaken by Jacobs ecologists on 22 October 2021 up to a distance of 200m from Friarton Bridge taking notes of habitats and species observed. The results of this survey were used to inform the assessment of potential effects on qualifying habitats and species.

[4] https://sitelink.nature.scot/home
[5] https://marinescotland.atkinsgeospatial.com/nmpi/

2 The Proposed Works

2.1 Existing Conditions

2.1.1 The Friarton Bridge (hereafter "the Bridge"), located between the approximate grid references NO 1279 2118 and NO 1319 2191, crosses the River Tay, south east of the city of Perth (Photograph 1). The Bridge carries the M90 trunk road over the River Tay via a dual carriageway.

2.1.2 The Bridge is an 831m-long, nine span steel box girder structure with a concrete deck. Span number 7 (numbered from south to north) forms the 174m clear span crossing of the River Tay. As stated in Section 1.1, the Friarton Bridge (hereafter "the Bridge") carries the M90 trunk road over the River Tay (Photograph 1).

2.1.3 The River Tay SAC encompasses the River Tay upstream of the confluence of the River Earn, which lies downstream of the Bridge, and as such includes the river and bank habitat under and adjacent to the Bridge.

Photograph 1: View of Friarton Bridge where it crosses the River Tay.

2.2 Proposed Works

2.2.1 The 5-year maintenance programme covers a variety of works anticipated to be undertaken between 2023 and 2028. A description of each of the Proposed Works is given below.

Edge beam repair and parapet upgrade

2.2.2 The existing edge beam has spalling due to corrosion of the reinforcement, which has begun to expose the anchor supports for the parapet. Works are to replace the damaged concrete with new concrete. Following this, the aluminium parapet is to be upgraded to a steel proprietary system. The existing footway surfacing will also be replaced. The works will be undertaken using a Fast Beam access platform which connects to the bridge deck,

and break-out of existing concrete will be done using hand-held power tools. Twenty-four hour working will be required for these works and regular lane closures will be needed during night-time shifts. Works are provisionally programmed for spring/summer 2023, with a duration of approximately four years.

Maintenance painting

2.2.3 The paint system on the bridge box girders is deteriorating in localised areas. This work is required to undertake repairs and repaint these damaged areas of steel on the bridge to restore durability. These works will be undertaken from a fully encapsulated access platform suspended from the bridge deck. The method of removal of the existing paintwork will be determined on further investigation. Works will be undertaken during daylight hours, however some night-time works may be needed to install the access platform. Minor repairs works are programmed for 2023 with the main works programmed 2025-27.

Gully and general drainage maintenance

2.2.4 The existing drainage gullies are corroded and past their serviceable life. It is the intention to remove these expired gullies and install new cast iron/steel gullies on top of the bridge deck. Additional maintenance will be undertaken to repair and/or replace any connections or pipe lengths that are loose or broken on the main carrier pipes which are located below the bridge deck. Works to the suspended drainage will be undertaken from a suspended access platform or the existing gantry rails. These works will be undertaken at night-time. Works are provisionally programmed for 2023-24 with a duration of approximately four weeks.

Pier 7 scour protection

2.2.5 The embankment has been eroding away due to the tidal water/wave action, moving the edge of the riverbank towards the pier. This has given rise to concerns that it will expose the foundations and present a risk to the bridge. The Proposed Works would install rock armour along the riverbank in front of the pier to prevent further erosion. Works will include reprofiling the riverbank to install rock armour protection above and below MHWS. A land-based excavator will be used to re-profile the bank prior to the installation of rock armour. The method of delivery for rock armour (i.e. barge or truck) is yet to be determined. The width of the scour protection is expected to be approximately 50m wide, between the slipway and the jetty. All works are anticipated to be undertaken during daytime hours. Works are provisionally programmed for 2025/26, with a duration of approximately three weeks.

Northbound carriageway resurfacing

2.2.6 By the end of the licenced period, sections of the northbound carriageway surfacing will be coming to the end of their working life, including the surface above Span 7. The material is a typical bitumen-bound material.

2.2.7 The work will involve the removal of life expired material (down to 40mm) and relaying with new bituminous material to the same depth. The works will require both daytime and night-time working and will require a contraflow traffic management to be installed on the southbound carriageway. Surfacing works will be completed once the edge beam repairs noted above have been completed.

Routine maintenance activities

Inner edge beam assessment

2.2.8 Assessment of the condition of the inner edge beam is required to ensure safety of those who work/live/pass below the bridge and must be done as and when required. As with the outer edge beam which is programmed to be repaired as described above, the inner edge beams are is also deteriorating and concrete may become loose in the future. It is intended that its condition will be monitored regularly and concrete will be removed manually as and when required on a reactive basis. Monitoring will be undertaken at night-time.

Maintenance of parapets and central reserve vehicle safety barrier

2.2.9 Reactive maintenance of essential safety components including replacement of damaged components and the routine tightening and replacement of the bolts and fixings is required to ensure the barriers and parapets operates effectively. All works will be carried out on the bridge deck using hand tools.

Principal, general and safety inspections

2.2.10 Routine inspections of the bridge to identify defects on the bridge requiring repair are to be undertaken as follows:

- Principal Inspections (every 6 years);
- General Inspections (every 2 years); and
- Safety Inspections (every 6 months).

2.2.11 Inspections will be undertaken from the bridge deck and using an underbridge unit to inspect the soffits. Inspections will be completed during both daytime and night-time.

Cyclic maintenance

2.2.12 Every six months the bridge undergoes a cleaning of the deck to remove build-up of debris. The gullies along the bridge are cleaned and built-up material removed to allow runoff to drain away. These works are undertaken from the bridge deck using street sweepers, hand-held leaf blowers and gully tankers.

Embedded Environmental Protection

2.2.13 In addition to adherence to general best practice, including Guidance for Pollution Prevention (GPPs), a number of measures are built into the working method to protect the environment. These include:

- production of and compliance with a Site Environment Management Plan (SEMP);
- use of debris netting or full encapsulation around working platforms;
- daily removal of broken out concrete from the bridge deck;
- fuel to be stored off the bridge and away from the watercourse;
- use of plant nappies for equipment containing hazardous materials;
- removal of mobile plant from the bridge deck when not in use; and
- silt netting will be installed during scour protection works to prevent fines entering the watercourse.

3 Stage One (Screening)

3.1 Introduction

3.1.1 This section details the Stage One Screening of the HRA process.

3.1.2 The Proposed Works are not directly connected with or essential for the management of any European or Ramsar site.

3.2 European Sites with Potential Effects from the Proposed Works

3.2.1 Guidance dictates that all European/Ramsar sites which have the potential to be affected by a plan or project should be considered as part of the HRA process. For the assessment of the Proposed Works, relevant European and Ramsar sites were identified by looking for ecological connectivity and potential source-receptor pathways. Four sites were identified to be considered within the HRA screening assessment namely:

- River Tay SAC (NatureScot Site Code 8366, EU Site Code UK0030312);
- Firth of Tay and Eden Estuary SAC (NatureScot Site Code 8257, EU Site Code UK0030311);
- Firth of Tay and Eden Estuary SPA (NatureScot Site Code 8501, EU Site Code UK9004121); and
- Firth of Tay and Eden Estuary Ramsar

3.2.2 The location of these sites relative to the Bridge is shown in Figure 1.

3.2.3 Qualifying interests, conservation objectives and site vulnerabilities are presented in **Error! Reference source not found.**

Table 1: European Sites with Potential for Likely Significant Effects (LSE) from the Proposed Works

Area (ha)	Qualifying Interest (QI)	Conservation Objectives	Identified Feature Pressures
UK0030312 / 8366 River Tay SAC (NatureScot, 2021b)			
9461.63	The site is designated for the following QIs: • Atlantic salmon (*Salmo salar*) • Brook lamprey (*Lampetra planeri*) • River lamprey (*L. fluviatilis*) • Sea lamprey (*Petromyzon marinus*) • Otter (*Lutra lutra*) • Clear-water lakes or lochs with aquatic vegetation and poor to moderate nutrient levels	For the QI habitat: • to ensure that the qualifying feature of the River Tay SAC is in favourable condition and makes an appropriate contribution to achieving favourable conservation status; • maintain the extent and distribution of clear-water lakes or lochs with aquatic vegetation and poor to moderate nutrient levels within the site; • maintain the structure, function and supporting processes of clear-water lakes or lochs with aquatic vegetation and poor to moderate nutrient levels; and • maintain the distribution and viability of typical species of clear-water lakes or lochs with aquatic vegetation and poor to moderate nutrient levels. For the QI species: • to ensure that the qualifying features of River Tay SAC are in favourable condition and make an appropriate contribution to achieving favourable conservation status; • maintain the population of the lamprey species' as viable components of the site; • maintain the population of Atlantic salmon, including range of genetic types, as a viable component of the site; • maintain the population of otter as a viable component of the site; • maintain the distribution of the QI species throughout the site; and	• Extraction • Game or fisheries management • Invasive species • Water management • Water quality • Development • Agricultural operations • Recreation/disturbance

		• maintain the habitats supporting the QI species within the site, and availability of food.	
UK0030311 / 8257 Firth of Tay and Eden Estuary SAC (NatureScot, 2021c)			
15441.63	The site is designated for the following QIs: • Estuaries • Harbour seal (*Phoca vitulina*) • Intertidal mudflats and sandflats • Subtidal sandbanks	To avoid deterioration of the qualifying habitats 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; and • no significant disturbance of typical species of the habitat To avoid deterioration of the habitats of the qualifying species 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 as a viable component of the site; • distribution of the species within site;	• Recreation/disturbance • Game or fisheries management

		• distribution and extent of habitats supporting the species; • structure, function and supporting processes of habitats supporting the species; and • no significant disturbance of the species.	
UK9004121 / 8501 Firth of Tay and Eden Estuary SPA (NatureScot, 2021d)			
6947.62	The site qualifies under Article 4.1 of the Directive populations of European importance of the following Annex 1 species: • Marsh harrier (*Circus aeruginosus*), breeding [redacted] • Bar-tailed godwit (*Limosa lapponica*), non-breeding The site qualifies under Article 4.2 of the Directive by regularly supporting populations of European importance of the following migratory species: • Pink-footed goose (*Anser brachyrhynchus*) • Redshank (*Tringa totanus*) • Greylag goose (*Anser anser*) The site qualifies under Article 4.2 of the Directive by regularly supporting in excess of 20,000 individual waterfowl including nationally important populations of the following species: • Velvet scoter (*Melanitta fusca*), non-breeding	To avoid deterioration of the habitats of the qualifying interests or significant disturbance to the qualifying interests, thus ensuring that the integrity of the site is maintained; and To ensure for the qualifying interests 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; and • no significant disturbance of the species.	• Recreation/disturbance • Natural event • Water management • Climate change • Invasive species

	• Pink-footed goose, non-breeding • Redshank, non-breeding • Greylag goose, non-breeding • Cormorant (*Phalacrocorax carbo*), non-breeding • Shelduck (*Tadorna tadorna*), non-breeding • Eider (*Somateria mollissima*), non-breeding • Bar-tailed godwit, non-breeding • Common scoter (*Melanitta nigra*), non-breeding • Black-tailed godwit (*Limosa limosa islandica*), non-breeding • Goldeneye (*Bucephala clangula*), non-breeding • Red-breasted merganser (*Mergus serrator*), non-breeding • Goosander (*Mergus merganser*), non-breeding • Oystercatcher (*Haematopus ostralegus*), non-breeding • Grey plover (*Pluvialis squatarola*) • Sanderling (*Calidris alba*), non-breeding • Dunlin (*Calidris alpina alpina*), non-breeding • Long-tailed duck (*Clangula hyemalis*), non-breeding • Waterfowl assemblage, non-breeding		

UK13081 / 8425 Firth of Tay and Eden Estuary Ramsar (NatureScot, 2021e)			
6947.62	The site qualifies under Ramsar Criterion 6 by regularly supporting 1% or more of the individuals in a population of waterbirds: • Bar-tailed godwit*, non-breeding • Pink-footed goose*, non-breeding • Greylag goose*, non-breeding, • Redshank*, non-breeding The site qualifies under Ramsar Criterion 2 by supporting: [redacted] • Marsh harrier, breeding The site qualifies under Ramsar Criterion 4 by supporting the following species at critical stages in their life cycles: • Common scoter (*Melanitta nigra*), non-breeding • Cormorant (*Phalacrocorax carbo*), non-breeding • Dunlin, non-breeding • Eider, non-breeding • Goldeneye, non-breeding • Goosander, non-breeding • Grey plover, non-breeding • Black-tailed godwit, non-breeding • Long-tailed duck, non-breeding • Oystercatcher, non-breeding • Red-breasted merganser, non-breeding	The Ramsar Convention's mission is '*the conservation and wise use of all wetlands through local and national actions and international cooperation, as a contribution towards achieving sustainable development throughout the world*'.	• Recreation/disturbance • Natural event • Invasive species • Climate change

	• Sanderling, non-breeding • Shelduck, non-breeding • Velvet scoter, non-breeding The site qualifies under Ramsar Criterion 5 by regularly supporting waterbirds in numbers of 20,000 individuals or more. * Species also assemblage qualifiers.		

3.3 Screening

3.3.1 The Proposed Works could result in a variety of Likely Significant Effects (LSE) which could directly or indirectly affect European/Ramsar sites. The identification of LSEs on the European/Ramsar sites in terms of their conservation objectives from the Proposed Works considered:

- potential for effects pathways between the site and the Proposed Works;
- the ecological characteristics of the qualifying interests, taking into consideration the sites' conservation objectives; and
- potential for in-combination effects with other plans and projects (Section 5: In-combination Assessment).

3.3.2 Table 1 provides the screening of European/Ramsar sites, recognising LSE from the Proposed Works where they have been identified. Measures embedded into the working method (see Section 2) and required by law regardless of the presence of European sites have been considered in this screening.

Table 1: Screening Assessment

Qualifying Interests (QIs)	Connectivity to the Proposed Works	Likely Significant Effects	Screening Conclusion
River Tay SAC (NatureScot, 2021b)			
• Atlantic salmon • Brook lamprey • River lamprey • Sea lamprey • Otter • Clear-water lakes or lochs with aquatic vegetation and poor to moderate nutrient levels	The Friarton Bridge crosses the River Tay SAC.	<u>Disturbance</u> The use of construction lighting or works which produce excessive noise and vibration could result in the disturbance of the QI species. <u>Habitat Fragmentation</u> The QI species of the SAC commute/migrate under the Friarton Bridge. Any works which block or deter species from passing under the bridge, such as working areas that directly block the area or lighting or noise/vibration that cause behavioural barriers, can result in fragmentation of habitat. <u>Habitat Loss</u> The River Tay SAC includes the banks and river under the Friarton Bridge. Therefore, any temporary structures (such as scaffolding) or permanent structures, such as scour protection, will result in habitat loss. <u>Mortality</u> The presence of construction plant and materials has the potential to result in mortality of otter if they become	**LSEs identified**. Requirement to progress to AA (HRA Stage 2)

		trapped or come into contact with moving machinery. Any in-stream works or placement of materials in stream have the potential to result in directly mortality of fish. However, any mortality of otter or fish as a result of the works would affect only a small number of individuals and would not result on an effect on the populations of the River Tay SAC.	
Firth of Tay and Eden Estuary SAC (NatureScot, 2021c)			
• Estuaries • Harbour seal • Intertidal mudflats and sandflats • Subtidal sandbanks	The Friarton Bridge is located approximately 7.9km upstream of the SAC.	<u>Disturbance</u> Harbour seal are sensitive to noise and visual disturbance, however at a distance of almost 8km from the Proposed Works, it is considered that there is no potential for visual disturbance, and the Proposed Works are not predicted to create excessive noise that would disturb seals within the SAC. Harbour seal usage of the upper reaches and upstream of the SAC is low (Marine Scotland, 2017) and therefore disturbance of this QI outside the SAC is not anticipated. <u>Habitat Loss/Fragmentation</u> The Friarton Bridge is outside the SAC boundary and habitat supporting the SAC QIs. There is no potential for loss or fragmentation of habitat from the Proposed Works.	**No LSEs identified**. No requirement to progress to AA (HRA Stage 2).
Firth of Tay and Eden Estuary SPA (NatureScot, 2021d)			

The site qualifies under Article 4.1 of the Directive populations of European importance of the following Annex 1 species: • Marsh harrier, breeding [redacted] • Bar-tailed godwit, non-breeding The site qualifies under Article 4.2 of the Directive by regularly supporting populations of European importance of the following migratory species: • Pink-footed goose • Redshank • Greylag goose The site qualifies under Article 4.2 of the Directive by regularly supporting in excess of 20,000 individual waterfowl. • Velvet scoter, non-breeding • Pink-footed goose, non-breeding • Redshank, non-breeding	The Friarton Bridge is located 7.9km upstream of the SPA.	<u>Disturbance</u> The Proposed Works have the potential to cause noise and visual disturbance, however these impacts are likely to be minor and localised to the bridge and immediate adjacent area. The Proposed Works are almost 8km from the SPA therefore it is considered that there will be no disturbance to QIs within the SPA. Furthermore, suitable habitats for breeding QIs are absent from the area around the Bridge and there is very limited supporting habitat for non-breeding QIs. Therefore, it is also considered that there will be no potential for significant disturbance to QIs utilising habitats outwith the SPA. <u>Habitat Loss/Fragmentation</u> The Friarton Bridge is outside the SPA boundary and habitat supporting the SPA QIs. There is no potential for loss or fragmentation of habitat from the Proposed Works.	**No LSEs identified**. No requirement to progress to AA (HRA Stage 2).
Firth of Tay and Eden Estuary Ramsar (NatureScot, 2021e)			
• Bar-tailed godwit, non-breeding • Pink-footed goose, non-breeding • Greylag goose, non-breeding, • Redshank, non-breeding [redacted] • Marsh harrier, breeding • Common scoter, non-breeding	The Friarton Bridge is located 7.9km upstream of the Ramsar.	<u>Disturbance</u> The Proposed Works have the potential to cause noise and visual disturbance, however these impacts are likely to be minor and localised to the bridge and immediate adjacent area.	**No LSEs identified**. No requirement to progress to AA (HRA Stage 2).

• Cormorant, non-breeding • Dunlin, non-breeding • Eider, non-breeding • Goldeneye, non-breeding • Goosander, non-breeding • Grey plover, non-breeding • Black-tailed godwit, non-breeding • Long-tailed duck, non-breeding • Oystercatcher, non-breeding • Red-breasted merganser, non-breeding • Sanderling, non-breeding • Shelduck, non-breeding • Velvet scoter, non-breeding • Waterfowl assemblage, non-breeding		The Proposed Works are almost 8km from the Ramsar therefore it is considered that there will be no disturbance to QIs within the Ramsar site. Furthermore, there is very limited supporting habitat for non-breeding QIs in the immediate vicinity of the bridge, therefore, it is also considered that there will be no potential for significant disturbance to QIs utilising habitats outwith the Ramsar. <u>Habitat Loss/Fragmentation</u> The Friarton Bridge is outside the Ramsar boundary and habitat supporting the Ramsar QIs. There is no potential for loss or fragmentation of habitat from the Proposed Works.	

3.4 Screening Conclusion

3.4.1 The Proposed Works have the potential for LSEs on the River Tay SAC as identified from the screening in Table 1 and therefore an Appropriate Assessment (HRA Stage Two) is required for this site. An assessment of the Proposed Works in combination with other plans and projects is provided in Section 5 (In-Combination Assessment).

3.4.2 No LSEs were identified on the Firth of Tay and Eden Estuary SAC, SPA and Ramsar site and therefore there is no requirement for further assessment for these designated sites, including any assessment of in-combination effects with other plans and projects.

4 Stage Two (Appropriate Assessment)

4.1 Introduction

4.1.1 This section forms the Stage Two (Appropriate Assessment (AA)) of the HRA process which was identified as required in Stage One (Screening). The AA considers the effect of the project or plan, either alone or in combination with other projects or plans, on the integrity of the European/Ramsar sites, with respect to the sites' structure and function, and their conservation objectives.

4.1.2 This HRA examines the implications from the Proposed Works for the conservation objectives of the River Tay SAC based on the LSEs identified in Stage One (Screening) and, where applicable, details the measures required to protect the conservation objectives and integrity of the site.

4.1.3 The assessment of the Proposed Works alone is summarised in Table 3.

4.2 River Tay SAC

4.2.1 The River Tay SAC encompasses much of the River Tay catchment from source to where it flows out into the Firth of Tay. The qualifying habitat of the site, clear-water lakes or lochs with aquatic vegetation and poor to moderate nutrient levels, is present at 13 locations throughout the catchment, including Loch Tay, Loch Dochart and Loch Rannoch. None of the locations lie downstream of the Bridge. The habitat was most recently assessed as being in favourable maintained condition. There is no effects pathway to any of the recorded locations of this habitat type, therefore this QI is not considered further in this assessment.

4.2.2 The River Tay SAC is an important area for otters and the site has been identified as potentially supporting otters at carrying capacity; 98.8% of survey sites assessed in 2003-2004 showed evidence of otter (Strachan, 2007) while surveys in 2012 indicated otter presence at 92.4% of 79 surveyed sites within the River Tay catchment (Findlay et al., 2015). The condition of otter within the River Tay SAC was recorded as favourable maintained at the last assessment (September 2012) (NatureScot, 2021b). A field survey undertaken in October 2021 recorded signs of otter on the northern bank upstream of the bridge, but no holts or couches were observed within 200m of the structure. Visibility of the southern bank was limited due to steep rock armour, dense vegetation including invasive species, and industrial debris. As a result, the survey along the southern bank was limited to the area directly under the Friarton Bridge and immediately adjacent upstream and downstream along the rock armour. These preliminary results suggest that otter may travel under Friarton Bridge but that there are no particularly sensitive habitats in the vicinity.

4.2.3 The River Tay SAC supports a significant population of Atlantic salmon. It is consistently one of the top salmon rivers in Scotland (JNCC, undated) and was last assessed as being

in favourable maintained condition (September 2011) (NatureScot, 2021b). Atlantic salmon are migratory, hatching and spending their juvenile years in freshwater, heading out into the marine environment to mature, before returning to their natal freshwater rivers as adults to spawn. The salmon in the Tay are not just part of one simple population but comprise number of different populations with different traits. This results in salmon entering the Tay catchment year-round with the first significant run starting in late February to early March and a number of peaks throughout the year and even a few very late salmon reported to enter the catchment in January and February (TDSFB, 2016). On the Tay, the proliferation of small-scale hydro schemes, non-native species, such as the North American signal crayfish (*Pacifastacus leniusculus*) and diffuse pollution from agriculture have been identified as having a notable impact on the Atlantic salmon population within the site (NatureScot, undated).

4.2.4 All three species of lamprey are QIs of the River Tay SAC. While brook lamprey undertake only limited migrations within the freshwater reaches of a catchment, both river and sea lamprey are migratory. River lamprey migrate from their coastal feeding grounds into freshwater during the autumn and spring. Autumn migrants are sexually undeveloped, while spring migrants enter from the sea in spawning condition. River lamprey migrate upstream at night and rest in cover during the day before spawning in pebble and gravel in freshwater in April and May. Adult sea lamprey migrate up rivers in the spring and early summer, spawning from May to July in areas of pebble and cobble substrate in freshwater (NatureScot, 2020c).

4.2.5 All three species of lamprey are currently assessed as being in favourable condition. The main issues affecting lamprey in the River Tay are obstructions to passage, diffuse pollution and river engineering (NatureScot, undated).

4.2.6 The Friarton Bridge is approximately 6km downstream of the upper tidal limit on the River Tay, meaning that the river is brackish at the location of the works. This means that the QI fish species will use the area around the Friarton Bridge predominantly as a migratory corridor only. Brook lamprey will not use the area at all and have no potential to be impacted by the Proposed Works, and therefore are not considered further in this assessment. No habitat for spawning or juvenile fish is present in the vicinity of the bridge.

4.3 Likely Significant Effects

4.3.1 LSEs were identified at Stage One (Screening) that might compromise the conservation objectives of the River Tay SAC and cause an AESI, namely disturbance (noise and visual), habitat fragmentation and habitat damage/loss.

Disturbance

4.3.2 Increased levels of activity, personnel and lighting around the Friarton Bridge have the potential to cause disturbance to otter, deterring them from using the area. This may result in increased energy expenditure as otter actively avoid the area and look for new foraging

areas. While this is unlikely to significantly affect the population of otter within the SAC, it does contradict the conservation objective of maintaining the distribution of otter throughout the site and avoiding significant disturbance of the species.

4.3.3 Noise, vibration and lighting from the works which transmit into the watercourse have the potential to cause disturbance and deter fish species from the area around the Friarton Bridge. Disturbance to migrating fish can result in additional energy expenditure while actively avoiding the area and waiting to continue migrating past the disturbance. Many adult salmon and lamprey do not feed while undertaking upstream migrations and therefore have limited energy supplies to complete their migration. Any additional energy usage risks the ability of fish to complete their upward migration.

Habitat Loss

4.3.4 Any temporary or permanent structures within or adjacent to the SAC could result in loss of habitat for the QI species. It is thought that otter use the habitat around the Friarton Bridge for commuting and foraging, with no resting places recorded during a survey in October 2021. Provided that any structures do not obstruct the bank and prevent movement of otters (discussed below), there is no anticipated loss of habitat that would affect the otter population within the SAC.

4.3.5 The proposed scour protection may result in loss of river habitat. As discussed above, this reach of the River Tay is used primarily as a migration route by the QI fish species and therefore as long as the scour protection does not obstruct passage of fish it will not result in loss of functional habitat.

Habitat Fragmentation

4.3.6 Habitat fragmentation could result directly through the placement of structures or machinery blocking the commuting route of otters or migration route of fish, or indirectly through deterring these species from travelling under the bridge due to increased noise, vibration, lighting or activity. Fragmentation of habitat could result in otter not being able to reach important habitats such as foraging areas or resting places and could prevent the upstream and downstream migration of fish, meaning they are unable to complete their lifecycle.

4.4 Mitigation

4.4.1 This section sets out mitigation that is required to safeguard the environment including ecological receptors.

4.4.2 Mitigation measures aimed at avoiding or reducing the effects of the Proposed Works in order to avoid AESI are detailed below and summarised in Table 2.

4.4.3 A pre-construction otter survey will be conducted up to 200m from the Proposed Works to identify any otter rest sites within and adjacent to the footprint of the Proposed Works. Any otter rest sites likely to be disturbed by the Proposed Works, if found, will require a derogation licence from NatureScot.

4.4.4 The footprint of the working area will be minimised as far as possible and vehicles, plant and personnel will be constrained to this area through the use of temporary barriers to minimise the damage to habitats located within and adjacent to this footprint.

4.4.5 Night-time works will be avoided where possible; however, as discussed in Section 2.2 night-time working will be required for a number of the maintenance works/inspections. Any lighting required during night-time activities will be directional, fitted with a cowl where necessary, and angled away from the watercourse and riverbanks to avoid illuminating sensitive habitats.

4.4.6 A suitably qualified Ecological Clerk of Works (ECoW) will be appointed and will provide ecological support during the Proposed Works, specifically Pier 7 Scour Protection, any night-time works and compound set ups. The requirement for ECoW presence during other works will be determined on a case-by-case basis. The ECoW will be responsible for ensuring that all mitigation required to protect the environment is in place, as well as delivering toolbox talks in advance of works commencing. Full-time ECoW site presence may not be required (determined by the nature of the works and ecological data), however the requirements will be discussed in advance.

Table 2: HRA Stage Two (AA) Assessment Table for the River Tay SAC

LSE	Conservation Objectives Potentially Affected	Commentary	Avoidance and Mitigation	AA Determination after Mitigation
Disturbance	Maintain the distribution of the QI species throughout the site.	Increased levels of noise, lighting and general activity around the site have the potential to disturb any otter in the vicinity of Friarton Bridge. A survey undertaken in October 2021 recorded signs of otter activity in the area but did not record any resting places. Any disturbance caused by the works may temporarily displace a small number of individual otters but will not affect the long-term distribution of otter within the SAC. Noise, vibration and lighting as a result of the works have the potential to disturb fish species migrating under the Friarton Bridge. Of the works that are proposed the only one with the potential to transmit significant amounts of noise or vibration into the watercourse is the scour protection works. The details of these works in terms of duration and delivery method for rock armour, is currently unconfirmed, however it is assumed that the rock armour will be delivered by road. As the works are on one bank of the river only, no piling is required and the river is approximately 100m wide at this location it is considered that disturbance would be minimal and any temporary displacement of fish species would not result in an adverse effect on the populations of the QI fish species.	To ensure that the conservation objectives for the qualifying interests of the River Tay SAC are not compromised, the following avoidance/mitigation measures will be undertaken. • The footprint of the working area will be minimised as far as possible and vehicles, plant and personnel will be constrained to this area through the use of temporary barriers to minimise the damage to habitats located within and adjacent to this footprint. • Night-time works will be avoided where possible; however, night-time working will be required for a number of the maintenance works/inspections. Any lighting required during night-time activities will be directional, fitted with a cowl where	No adverse effect on site integrity

LSE	Conservation Objectives Potentially Affected	Commentary	Avoidance and Mitigation	AA Determination after Mitigation
			necessary, and angled away from the watercourse and riverbanks to avoid illuminating sensitive habitats. • "Soft-start" techniques to all noisy activity will be used to avoid sudden and unexpected disturbance during construction.	
Habitat loss/damage	Maintain the habitats supporting the QI species within the site, and availability of food.	The majority of works will be undertaken from the bridge deck or from a suspended working platform, therefore the only habitat loss anticipated from the works would be from permanent loss under the footprint of the scour works (approximately 50m in width) and temporary loss of the area under the construction footprint. As the area under the Friarton Bridge is used primarily as a migratory route by Atlantic salmon, river lamprey and sea lamprey and the existing northern bank does not provide much in the way of cover for resting fish, the loss of a thin strip of habitat along this section of bank will not adversely affect the QI fish populations of the SAC. As no otter resting places were recorded in the vicinity of the bridge is not anticipated that any supporting habitat for otter outside the SAC will be lost under the footprint of any construction compound adjacent to the bridge.	To ensure that the conservation objectives for the qualifying interests of the River Tay SAC are not compromised, the following avoidance/mitigation measures will be undertaken. • The footprint of the working area will be minimised as far as possible and vehicles, plant and personnel will be constrained to this area through the use of temporary barriers to minimise the damage to habitats located within and adjacent to this footprint.	No adverse effect on site integrity

LSE	Conservation Objectives Potentially Affected	Commentary	Avoidance and Mitigation	AA Determination after Mitigation
Habitat fragmentation	Maintain the population of the lamprey species as viable components of the site. Maintain the population of Atlantic salmon, including range of genetic types, as a viable component of the site. Maintain the population of otter as a viable component of the site.	As the majority of works will be undertaken from the bridge deck or a suspended platform, physical habitat fragmentation is only considered likely during the scour protection works on the northern bank at which point otter may be prevented from commuting along the bank for the duration of the works. The scour protection works are limited to the northern bank and therefore will not result in direct fragmentation of habitat for the QI fish species. Indirect habitat fragmentation could result from increased noise, vibration, lighting and general activity from the works (see Disturbance LSE above). Given the height of the Friarton Bridge above the riverbanks and the existing busy road, it is considered that none of the works will produce sufficient noise or vibration to deter otter or fish from commuting under the bridge during works on the bridge deck. Therefore, construction lighting required for night-time works is the main pathway for indirect habitat fragmentation.	To ensure that the conservation objectives for the qualifying interests of the River Tay SAC are not compromised, the following avoidance/mitigation measures will be undertaken. • The footprint of the working area will be minimised as far as possible and vehicles, plant and personnel will be constrained to this area through the use of temporary barriers to minimise the damage to habitats located within and adjacent to this footprint. • Night-time works will be avoided where possible; however, night-time working will be required for a number of the maintenance works/inspections. Any lighting required during night-time activities will be directional, fitted with a cowl where necessary, and angled away	No adverse effect on site integrity

LSE	Conservation Objectives Potentially Affected	Commentary	Avoidance and Mitigation	AA Determination after Mitigation
	Maintain the distribution of the QI species throughout the site. Maintain the habitats supporting the QI species within the site, and availability of food.		from the watercourse and riverbanks to avoid illuminating sensitive habitats.	

4.5 Appropriate Assessment Conclusion

4.5.1 Assessment (Table 2) of the implications from the Proposed Works on the River Tay SAC concluded the conservation objectives of the sites would not be compromised and there would be no AESI if the required mitigation is implemented. If the programme of works changes beyond that which has been assessed in this document, an assessment of those changes against the conservation objectives of the site must be undertaken.

5 In-Combination Assessment

5.1 Introduction

5.1.1 Article 48 of the Habitats Regulations requires that Appropriate Assessments of projects include a consideration of other plans or projects which could affect site integrity in combination with the proposal under assessment.

5.1.2 During screening, LSEs from the Proposed Works were identified for the River Tay SAC. There is potential for adverse effects on the integrity of the River Tay SAC to accrue as a result of the Proposed Works in combination with other proposed developments or works within or adjacent to the area. Relevant developments might impact on the estuarine system and the qualifying species by causing disturbance, loss of habitat and/or introducing barriers to migration or normal ranging behaviour of the qualifying species within the estuarine catchment.

5.1.3 The in-combination assessment may identify developments which are themselves considered likely to have a significant effect on the River Tay SAC and which will also be required to undergo an Appropriate Assessment under Regulation 48 of the Conservation (Natural Habitats &c.) Regulations 1994 (as amended). There may also be plans or projects which, when considered individually, may not adversely affect a European site, but which may have an adverse effect when combined with the Proposed Works.

5.2 Approach to Assessment

5.2.1 The approach adopted for the in-combination assessment of the Proposed Works in relation to the River Tay SAC was firstly to identify a search area for plans or projects with the potential to cause in-combination adverse effects on the integrity of the site with the Proposed Works. Projects and plans within the Perth area that are scheduled to be under construction during the period 2023 to 2028, or completed plans or projects with ongoing negative effects, could feasibly act in-combination with the Proposed Works. Applications for developments that were set back from the estuary edge, which are therefore for screened from the River Tay, were excluded.

5.2.2 A search was undertaken on 12 November 2021, and updated on 9 June 2022, for projects and plans with the potential to have an in-combination effect within Perth and Kinross council area. The local authority's planning portal was searched for consented or pending applications within a two-year period of the search date. The following exclusions applied to the search to identify relevant proposals for inclusion within the assessment:

- householder applications for improvements/extensions;
- local commercial and business applications for minor improvement works and alterations;
- change of use (where external building work is not required);

- applications for advertisement consent;
- enforcement actions; and
- applications that have been withdrawn.

5.2.3 A search was undertaken on 12 November 2021, and updated on 9 June 2022, for any relevant Marine Licence Applications on the Scottish Government's website. Marine Licence applications within five years of the search date that related to projects in the Tay estuary were identified.

5.2.4 A review of documentation and information available for each proposal, including published HRAs, environmental impact assessments, consultation responses, decision notices or other relevant documentation were consulted to identify projects with potential for in-combination effects.

5.2.5 The findings of the search are presented in Table 3 below, along with a summary of the identified potential for in-combination effects.

Table 3: In-Combination Assessment

Project/Plan Application Name	Application / Reference Number	Approx. Distance from Friarton Bridge	Approx. Distance from River Tay SAC	Status or decision	Description of the Project/Plan and Potential for In-Combination Effects
Marine Licence - Construction of seawall and terrace steps - Broughty Ferry, Dundee - 07138	07138	35km via hydrological connection	27km via hydrological connection	Approved 09/12/2019.	The application is for Broughty Ferry Flood Protection Scheme which comprises interventions to protect a public footpath and private property. It will include excavation works, construction of foundations, concrete walls, a concrete terrace, concrete steps, concrete access ramp and the installation of storm water outfalls, scour protection and a temporary bund. Piling is required for the project. The site is located above and below MHWS in Broughty Ferry, Dundee. Works were proposed to commence in January 2020 with completion by December 2021. Dundee City Council website[6] indicates that site mobilisation commenced on 1 June 2020 and as such it is considered that construction may be concurrent with the Proposed Works. A Report to Inform Appropriate Assessment was submitted dated February 2018, which scoped out the River Tay SAC from the assessment on the basis of: no in-water piling; no new physical impedances in the outer Tay; no loss of inter-tidal or sub-tidal habitat used by any of the fish species for spawning or early development; and low levels of otter usage of the Port of Dundee combined with their tolerance of human activity. There is therefore no identified pathway for in-combination effects between this proposal and the Proposed Works. **No potential for in-combination effects.**

[6] https://www.dundeecity.gov.uk/service-area/city-development/broughty-ferry-flood-protection-scheme (Accessed June 2022)

Project/Plan Application Name	Application / Reference Number	Approx. Distance from Friarton Bridge	Approx. Distance from River Tay SAC	Status or decision	Description of the Project/Plan and Potential for In-Combination Effects
Marine Licence - Construction - Port of Dundee - 07283/00008483	00008483 07283 07283/00008483 MS EPS 23 2020 0/00008957 07288/00008485 00008958	32km via hydrological connection	24km	Approved 28/08/2020. Expires 30/06/2022.	Various applications relate to the redevelopment of Dundee East. The project entails the following activities: - the widening of the existing dredged berth associated with the Prince Charles Wharf - extension from 200m x 40m to 200m x 60m. The depth of the berth will increase to -10.0mCD; - slab thickening / strengthening to the existing Prince Charles Wharf, to increase quayside capacity; - the creation of a new suspended quay on land to the west of Prince Charles Wharf; and - the creation of a new 170m x 30m berth pocket to the south of the proposed suspended quay. Dredging works will be to a depth of -9.0mCD. The construction works for the suspended quay and the strengthening and repair work to the existing quays, will consist of the following: - installation of (tubular) piling and (sheet) piling (by vibro and / or hammer); - strengthening / repairs to steel pile through the installation of steel plating; - revetment, including general filling and placement of rock armour; - reinforced concrete slabbing / decking, including drilling and dowelling into existing slabs forming the existing quay / wharf; and - utility and lighting installations.

Project/Plan Application Name	Application / Reference Number	Approx. Distance from Friarton Bridge	Approx. Distance from River Tay SAC	Status or decision	Description of the Project/Plan and Potential for In-Combination Effects
					An application under reference 07288/00008485 was also consented permitting the applicant (Port of Dundee) to undertake capital dredging and deposit via bottom dumping of 90,000 wet tonnes of material. A European Protected Species (EPS) licence (00008957) for the disturbance of harbour porpoise, bottlenose dolphin, minke whale, white-beaked dolphin by impact piling and vibro piling was granted valid 8 October 2020 to 30 June 2022. A separate application (00008958) was also granted, citing IROPI. The HRA for the main application 07283 identifies LSE from disturbance (e.g. from impact piling and dredging) in relation to the migratory fish species which are a QI of the River Tay SAC. Mitigation proposed includes limiting piling to 4 hours within any 24 hour period and use of soft-starts. No adverse effect on the integrity of the SAC is identified by the HRA. No HRA is available for the capital dredging and deposit however the impacts are considered likely to be the same as those detailed above and in the HRA submitted for the main application 07283. There is potential for the project to be concurrent with the Proposed Works. No piling, to which fish species are more sensitive, is required as part of the Proposed Works. Although some noise and lighting disturbance will arise, the substantial width of the Tay Estuary at the location of this proposal (for which piling is required) being 2km, and the relatively low sensitivity of Atlantic salmon and lamprey species to noise

Project/Plan Application Name	Application / Reference Number	Approx. Distance from Friarton Bridge	Approx. Distance from River Tay SAC	Status or decision	Description of the Project/Plan and Potential for In-Combination Effects
					disturbance[7] means that a sufficient migratory corridor will be maintained and disturbance effects will be minimal. The distance between the two schemes means that otter will not be affected by disturbance at both locations, and as such, no in-combination effects are predicted. **No potential for in-combination effects.**
Marine Licence - Maintenance Dredging - Port of Dundee - 00008912/00009072	00008912/00009072	32km via hydrological connection	24km	Approved 18/12/2020. Expiry 02/12/2023.	An application by Forth Ports Limited under reference 00008912 and variation under reference 00009072 was consented for the maintenance dredging of the Port of Dundee. It permits the deposition of 140,000 wet tonnes of maintenance dredge materials in each of the three periods December 2020 to 2021; December 2021 to 2022; and December 2022 to 2023. No HRA is available for the proposal. There is potential for the project to be concurrent with the Proposed Works. It is understood from the Best Practicable Environmental Option report dated 2019 that the port has been dredged regularly since at least the early 1980s (likely far longer) and that the Middle Bank (Tay) disposal site used since 2017 was identified as being appropriate through a BPEO and confirmed by NatureScot (then Scottish Natural Heritage). The Summary of Significance of Impacts within the BPEO reports no significant effects for any receptors. Further, no in-combination *de minimis* effects are identified, as neither scheme will materially affect the migratory corridor

[7] As reported in the proposal's HRA: https://marine.gov.scot/sites/default/files/hra_and_aa.pdf (Accessed November 2021)

Project/Plan Application Name	Application / Reference Number	Approx. Distance from Friarton Bridge	Approx. Distance from River Tay SAC	Status or decision	Description of the Project/Plan and Potential for In-Combination Effects
					for fish species due to the wide availability of alternative habitat and limited duration of works. **No potential for in-combination effects.**
Marine Licence - Maintenance Dredging and Sea Deposit - Tayport Harbour, Tayport - 00008795	00008795	37km via hydrological connection	28km	Approved 14/12/2020. Expiry 14/12/2021.	The proposal is for maintenance dredging and sea deposit to be undertaken between 15 December 2020 and 14 December 2021. Water Injection Dredging of 32,500 wet tonnes, using the ebbing tide to disperse the sediment into the main Tay River stream. There is no HRA or environmental assessment available for the project however likely impacts would be noise and v bration disturbance. Habitat loss would also result from the proposal; however, as the proposal is for maintenance dredging only and in the context of an operational harbour, the effect of this is considered limited. There is no potential for overlap of construction of this project and the Proposed Works. The completed dredging and sea deposit is not considered to share a pathway for effects with the Proposed Works. As such there is no potential for in-combination effects. **No potential for in-combination effects.**
Marine Licence - Bridge Repairs and Outfall Installation - M90 Friarton Bridge, Perth- 00009391	00009391	0km	0km	Approved 11/03/2022 Expiry 21/08/2022	Bridge repairs and outfall installation on M90 Friarton Bridge, Perth, as proposed by BEAR Scotland. The works comprise concrete repairs to pier 6 and 7 crossheads, and installation of new drainage at Pier 6 with outfall. The concrete repair works require installation of a scaffolding platform, removing damaged concrete, installing cathodic protection. The

Project/Plan Application Name	Application / Reference Number	Approx. Distance from Friarton Bridge	Approx. Distance from River Tay SAC	Status or decision	Description of the Project/Plan and Potential for In-Combination Effects
					drainage installation works include site clearance including cutting vegetation, removal of rock armour and installing the new drainage system. The application was submitted 15/09/21 and was issued in March 2022.. Works are proposed between 01/11/21 and 18/04/2022 and as such there is no potential for overlap of the works. **No potential for in-combination effects.**
Dredging - Perth Harbour - 00009709	00009709	1.2km	0km	Submitted 19 May 2022	A Marine Licence application has been submitted for dredging a bar of accumulated material at the harbour entrance. A plough mounted on a small tug will relocate material from the bar into deeper areas within the harbour, therefore no disposal is required. An HRA was undertaken and it was concluded that, with mitigation measures in place to minimise disturbance and the dispersion of silt, there will be no AESI of the River Tay SAC alone, or in combination with other projects. The Proposed Works will involve working within the River Tay, specifically to install scour protection, and there is the potential for the works to be undertaken at the same time as the dredging in the habour. The Proposed Works have embedded environmental protection measures, such as adherence to a SEMP and pollution prevention, therefore LSE as a result of pollution was screened out. As such is it concluded that there is no pathway for in-combination effects with the Perth Harbour dredging. **No potential for in-combination effects.**

Project/Plan Application Name	Application / Reference Number	Approx. Distance from Friarton Bridge	Approx. Distance from River Tay SAC	Status or decision	Description of the Project/Plan and Potential for In-Combination Effects
Willowgate Cafe Perth PH2 7JU. Extension to café and associated works.	20/00281/FLL	0km	0km	Approved 02/04/2020.	The proposal is for extension to facilitate a Class 3 use within the building, or for the provision and / or delivery of educational activities, until 31 July 2024. Prior to the expiry of that date, the extension and the rest of the building shall return to its former 'bothy' use. No ecological assessment is included within the application and the proposed timescale for works and their duration is unknown. The works are to extend an existing building and do not extend outwith an area that already experiences recreational disturbance. There are no conditions of the planning permission pertaining to ecology/biodiversity; however noise during the operational phase of the new building has been considered and on the receipt of a valid noise complaint, activities will cease until the source has been mitigated/resolved. Based on information available about the scale and nature of the works as described, there is no identified potential for in-combination effects. **No potential for in-combination effects.**
Caledonian House and land at west Kinfauns, Kinfauns Holdings, West Kinfauns	21/01855/IPM 21/00684/SCOP 21/00001/PAN	0.2km	0.1km	Awaiting decision Application Validated 29/10/2021	Application for planning permission in principle (PPiP) for a mixed use development comprising hotel, museum, holiday accommodation, retail and potential park and ride facility. Ecology was scoped out from a specific chapter within the Environmental Impact Assessment Report, and was covered under a PEA appendix. A consultation response from NatureScot requires that an HRA be undertaken for the planning application which would be required to include an in-combination assessment.

Project/Plan Application Name	Application / Reference Number	Approx. Distance from Friarton Bridge	Approx. Distance from River Tay SAC	Status or decision	Description of the Project/Plan and Potential for In-Combination Effects
					Should the PPiP be granted and a planning application follow, there is potential for temporal overlap of the works. An HRA for the development will be required prior to consent and it would be for this development to fully assess the potential for in-combination effects with other projects and plans. **No potential for in-combination effects.**
Land 150m south west of Sleepless Inch Waste Water Treatment Works Rhynd	20/00540/FLL	1.3km downstream of Friarton Bridge	<0.1km	Approved 08/09/2020.	Installation of a ground-mounted solar array, battery storage unit and associated works. The timescale for works is not known. A condition of permission is the production of a Construction Method Statement identifying measures to prevent harmful materials entering the River Tay SAC, which could reduce water quality and lead to a damaging impact on the Atlantic salmon, otter and lamprey interests. A noise limit is also imposed on all plant or equipment such that it shall not exceed Noise Rating 35 between 0700 and 2300 hours daily, or Noise Rating 25 between 2300 and 0700 hours daily. Whilst this control is implemented in relation to noise at human receptors, it will contribute to minimising noise and vibration experienced by otter and thereby also minimise the potential for in-combination disturbance effects, which are considered negligible. **No potential for in-combination effects.**

Project/Plan Application Name	Application / Reference Number	Approx. Distance from Friarton Bridge	Approx. Distance from River Tay SAC	Status or decision	Description of the Project/Plan and Potential for In-Combination Effects
Sleepless Inch Waste Water Treatment Works, Rhynd, Perth, PH2 8QJ. Installation of blowers, access platforms, air supply pipework, control kiosk, formation of access/hardstanding and associated works	21/02153/FLL	1.7km downstream of Friarton Bridge	<0.1km	Approved 27/04/2022	The proposal is approximately 50m from the River Tay SAC within the Sleepless Inch Waste Water Treatment Works site. An HRA for the proposal was undertaken, and it was concluded at Screening that the proposal is likely to have a significant impact on the qualifying interests of the SAC, in particular Atlantic salmon and lamprey species as a result of potential disturbance to the riverbed and from unmitigated pollution during construction. It is stated in the AA that the *"[d]evelopment shall not commence until a detailed Construction Method Statement (CMS) has been submitted to the Council as Planning Authority and agreed in consultation with Scottish Natural Heritage (SNH) and Scottish Environment Protection Agency (SEPA). The CMS must identify measures to prevent harmful materials entering the River Tay SAC, which could reduce water quality and lead to a damaging impact on the salmon, otter and lamprey interests."* It is concluded in the AA that, with the inclusion of the above as a condition on any planning consent, there are no adverse impacts on River Tay SAC. The Proposed Works have embedded environmental protection measures, such as adherence to a SEMP and pollution prevention, therefore LSE as a result of pollution was screened out. As such is it concluded that there is no pathway for in-combination effects with the proposal at the Waste Water Treatment facility. **No potential for in-combination effects.**
Tan International Friarton Road Perth PH2 8DG	21/00088/FLL	0.3km upstream of	<0.1km	Approved 13/03/2021.	Demolition and replacement of existing material storage industrial shed. The documentation submitted indicates that an EIAR and HRA were not

Project/Plan Application Name	Application / Reference Number	Approx. Distance from Friarton Bridge	Approx. Distance from River Tay SAC	Status or decision	Description of the Project/Plan and Potential for In-Combination Effects
Erection of replacement storage shed		Friarton Bridge			required, indicating that LSEs were not deemed conceivable. Indeed, the timescale for works is not known but is likely to be of a short duration and a like-for-like replacement of an existing structure. All works will be undertaken within the existing industrial compound. Although the boundary of the property is 20m from the Tay Estuary, the location of the structure to be replaced is approximately 50m away from the MHWS, a distance over which considerable noise attenuation will occur. Based on the above factors, should works overlap there is not potential for in-combination effects with the Proposed Works. **No potential for in-combination effects.**
A9 Over the River Tay to the A93 and A94 North of Scone Cross Tay Link Road	19/01837/FLM 19/00004/PAN 18/01661/SCOP	8km by hydrological connection	0km	Approved 21/10/2021	A9/A94 Link/Cross Tay Link Road (CTLR) This project comprises a new crossing of the River Tay linking the A9 to the A94, north of Scone. It also includes a package of associated bus priority, cycle and pedestrian measures locking in the benefits to Perth city centre. Works are currently programmed to take place between 2021 and 2023. The Design Manual for Roads and Bridges Stage 3 HRA undertaken in 2019 assessed the approved route option against the conservation objectives for the River Tay SAC and the Firth of Tay and Eden Estuary SAC, SPA and Ramsar sites. It concluded that there were no LSEs on the Firth of Tay and Eden Estuary SAC, SPA and Ramsar sites and that with appropriate mitigation in place, there will be no AESI on the River Tay SAC. Planning permission was granted for the CTLR in October

Project/Plan Application Name	Application / Reference Number	Approx. Distance from Friarton Bridge	Approx. Distance from River Tay SAC	Status or decision	Description of the Project/Plan and Potential for In-Combination Effects
					2020. The current programme indicates that works will commence in late 2022[8]. Due to the distance between this project and the Proposed Works and the background levels of noise at both locations, disturbance is not considered to act in combination for otter. The width of the River Tay at the location of the CTLR proposal (120m) and the Proposed Works (135m) and the absence of piling and significant in-water works as part of the Proposed Works is considered sufficient to ensure that migratory passage for fish species is not impeded. No loss of SAC habitat is described for the CTLR proposal, with in-water works avoided. Mitigation described for the CTLR proposal also includes avoidance of percussive construction works in proximity to the river during sensitive salmon spawning periods (or where unavoidable, suitable site-level mitigation measures to be determined in consultation with NatureScot). As such, no pathway for in-combination effects is identified. **No potential for in-combination effects.**

[8] Cross Tay Link Road: https://perthtransportfutures.co.uk/cross-tay-link-road/ (Accessed November 2021)

5.3 Assessment for River Tay SAC

5.3.1 A total of twelve projects were identified for inclusion in the in-combination assessment (Table 4). With mitigation in place, no projects or plans were identified that have the potential to act in-combination with the Proposed Works to result in a cumulative effect on the River Tay SAC. It is therefore concluded that there are no in-combination effects on the River Tay SAC.

6 Summary and Conclusions

6.1 Screening

6.1.1 Relevant European and Ramsar sites were identified by looking for ecological connectivity and potential source-receptor pathways. Four sites were identified to be considered within the HRA screening assessment namely River Tay SAC, Firth of Tay and Eden Estuary SAC, Firth of Tay and Eden Estuary SPA, and Firth of Tay and Eden Estuary Ramsar.

6.1.2 Following the screening, it was concluded that LSEs could not be confidently discounted on the qualifying features of the River Tay SAC, therefore adopting the required precautionary approach to assessment, a requirement to progress to Stage Two (AA) was identified. No LSEs were identified on Firth of Tay and Eden Estuary SAC, Firth of Tay and Eden Estuary SPA, and Firth of Tay and Eden Estuary Ramsar and therefore there was no requirement for further assessment of these sites.

6.1.3 An assessment of the Proposed Works in combination with other plans and projects was undertaken. No projects or plans were identified that have the potential to act in-combination with the Proposed Works to result in a cumulative effect on the River Tay SAC.

6.2 Appropriate Assessment

6.2.1 Implications for the River Tay SAC site's conservation objectives were avoided through design or through application of mitigation measures. Mitigation implemented to safeguard the conservation objectives of some qualifying interests, such as sensitive use of lighting at night-time and the presence of an ECoW will also minimise effects on other sensitive ecological receptors.

6.2.2 With mitigation in place it is concluded that there will be no implications for the conservation objectives of the River Tay SAC. Therefore, there will be no AESI for the site either alone or in combination with other plans and projects.

7 References

CIRIA (2015). Coastal and marine environmental site guide (second edition).

David Tyldesley and Associates (2015). Habitats Regulations Appraisal of Plans: Guidance for Plan-making Bodies in Scotland. Version 3.0. January 2015.

European Commission (2000). Communication from the Commission on the Precautionary Principle.

European Commission (2001). Assessment of plans and projects significantly affecting Natura 2000 sites Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC.

European Commission (2007). Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC. Clarification of the Concepts of: Alternative Solutions, Imperative Reasons of Overriding Public Interest, Compensatory Measures, Overall Coherence, Opinion of the Commission. January 2007.

European Commission (2011). Guidelines on the Implementation of the Birds and Habitats Directives in Estuaries and Coastal Zones: With particular attention to port development and dredging. January 2011.

European Commission (2018). Managing Natura 2000 sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC. Office for Official Publications of the European Communities, Luxembourg.

Findlay, M., Alexander, L. and Macleod, C. (2015). Site condition monitoring for otters (*Lutra lutra*) in 2011-12. Scottish Natural Heritage Commissioned Report No. 521.

JNCC (undated). River Tay Designated Special Area of Conservation (SAC). Available at: https://sac.jncc.gov.uk/site/UK0030312 [Accessed October 2021].

Marine Scotland (2017). National Marine Plan interactive. Common/Harbour seal (*Phoca vitulina*) estimated at-sea usage (mean) – Seal usage maps 2017. Available from: https://marinescotland.atkinsgeospatial.com/nmpi/ [accessed October 2021].

NatureScot (undated). River Tay Special Area of Conservation, Conservation Advice Package.

NatureScot (2020a). Ramsar sites. Available from: https://www.nature.scot/professional-advice/protected-areas-and-species/international-designations/ramsar-sites. [Accessed October 2021].

NatureScot (2020b). Habitats Regulations Appraisal (HRA). Available from https://www.nature.scot/professional-advice/planning-and-development/environmental-assessment/habitats-regulations-appraisal-hra [Accessed October 2021].

NatureScot (2020c). Lamprey. Available from https://www.nature.scot/plants-animals-and-fungi/fish/freshwater-fish/lamprey [Accessed November 2021].

NatureScot (2021a). Habitats Regulations Appraisal (HRA): likely significant effects. Available at: https://www.nature.scot/professional-advice/planning-and-development/environmental-assessment/habitats-regulations-appraisal-hra/habitats-regulations-appraisal-hra-likely [Accessed October 2021].

NatureScot (2021b). River Tay SAC. Available at: https://sitelink.nature.scot/site/8366 [Accessed November 2021].

NatureScot (2021c). Firth of Tay and Eden Estuary SAC. Available at: https://sitelink.nature.scot/site/8257 [Accessed October 2021].

NatureScot (2021d). Firth of Tay and Eden Estuary SPA. Available at: https://sitelink.nature.scot/site/8501 [Accessed October 2021].

NatureScot (2021e). Firth of Tay and Eden Estuary Ramsar. Available at: https://sitelink.nature.scot/site/8425 [Accessed October 2021].

NatureScot, Perth and Kinross Council, SEPA and Angus Council (2020). Advice to developers when considering new projects which could affect the River Tay Special Area of Conservation. https://www.pkc.gov.uk/media/46816/River-Tay-SAC-Guidance-Adopted-2020/pdf/River_Tay_SAC_2020_Adopted.pdf?m=637426890920130000. [Accessed November 2021].

Scottish Government (2019). Policy Note: The Conservation (Natural Habitats, &c.) (EU Exit) (Scotland) (Amendment) Regulations 2019. Available at: https://www.legislation.gov.uk/ssi/2019/113/policy-note/contents [Accessed November 2021].

Scottish Natural Heritage (SNH) (2016). Guidance: Assessing Connectivity with Special Protection Areas (SPAs). Version 3 - June 2016.

Strachan, R. (2007). National Survey of Otter *Lutra lutra* Distribution in Scotland 2003 – 04. Scottish Natural Heritage Commissioned Report No.211 (ROAME No. F03AC309).

Tay District Salmon Fisheries Board (2016). The great diversity of the Tay system runs. Available from http://www.tdsfb.org/runtypes.html [Accessed November 2021].

Treaties, Directives and Legislation

Ramsar (1994). Convention on Wetlands of International Importance especially as Waterfowl Habitat.

European Union (1992). Directive 92/43/EEC on the Conservation of Natural Habitats and Wild Flora and Fauna [1992].

Birds Directive (2009). Directive 2009/147/EC on the conservation of wild birds (codified version of Directive 79/409/EEC) [2009]

Conservation (Natural Habitats, &c.) (EU Exit) (Scotland) (Amendment) Regulations 2019

Conservation (Natural Habitats &c.) Regulations 1994 (as amended).

8 Figures

Figure 1: European/Ramsar Sites