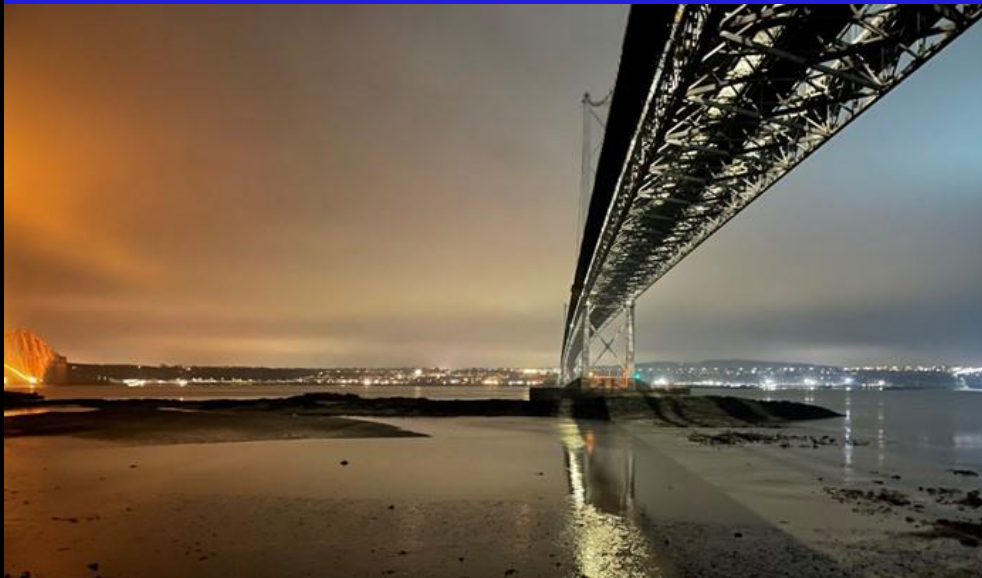


Forth Road Bridge Ten-Year Marine Licence Habitats Regulations Appraisal

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BEAR Scotland

Forth Road Bridge Ten-Year Marine Licence
December 2025



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Contents

Acronyms and abbreviations	v
1. Introduction	6
1.2 The Bern Convention, Habitats Directive, Habitats Regulations and European/Ramsar Sites	7
1.3 The HRA Process.....	8
Stage One: Screening.....	9
Stage Two: Appropriate Assessment (AA).....	9
Stage Three: Alternative Solutions.....	10
Stage Four: Imperative Reasons of Overriding Public Importance (IROPI)	10
1.4 Guidance.....	10
1.5 Structure of this Report	10
1.6 Consultation and Desk Study	11
2. The Proposed Works	12
2.1 Existing Conditions	12
2.2 Examples of Disturbance Events and Recent Breeding Success/Failure	13
2.3 Programme of Works.....	14
3. Stage One (Screening)	17
3.1 Introduction.....	17
3.2 European Sites with Potential Effects from the Scheme	17
3.3 Screening.....	18
3.4 Screening Conclusion	24
4. Stage Two (Report to Inform an Appropriate Assessment)	25
4.1 Introduction.....	25
4.2 Embedded mitigation.....	25
4.3 Likely Significant Effect: Disturbance	26
Assessment Tables: Firth of Forth SPA/Ramsar.....	35
Assessment Tables: Forth Islands SPA	41
4.4 Likely Significant Effect: Direct Mortality.....	54
Assessment: Firth of Forth SPA/Ramsar	54
Assessment: Forth Islands SPA.....	54
4.5 Report to Inform an Appropriate Assessment Conclusion	54
5. In-Combination Assessment	55
5.1 Introduction.....	55
5.2 Approach to Assessment.....	55
5.3 Assessment of the Firth of Forth SPA, Firth of Forth Ramsar and Forth Islands SPA	66
6. Summary and Conclusions	67
6.1 Screening Assessment	67
6.2 Report to Inform an Appropriate Assessment.....	67

7. References68

Acronyms and abbreviations

Acronym	Definition
AA	Appropriate Assessment
AESI	Adverse Effects on Site Integrity
BTO	British Trust for Ornithology
CNMP	Construction Noise Management Plan
ECoW	Ecological Clerk of Works
FID	Flight Initiation Distance
FRB	Forth Road Bridge
GPP	Guidance for Pollution Protection
HRA	Habitats Regulation Appraisal
LCI	Long Craig Island
LSE	Likely Significant Effects
MAD	Minimum Approach Distance
QC	Queensferry Crossing
RIAA	Report to Inform an Appropriate Assessment
RSPB	Royal Society of the Protection of Birds
SAC	Special Area of Conservation
SEMP	Site Environmental Management Plan
SMP	Species Management Plan
SNCB	Statutory Nature Conservation Body
SPA	Special Protected Area
WDMT	Waterbird Disturbance Mitigation Toolkit
WeBS	Wetland Bird Survey
ZoI	Zone of Influence

1. Introduction

- 1.1.1 Since 16 August 2020, BEAR Scotland have held the Network Management Contract for the South East Trunk Road Unit. As such BEAR Scotland is responsible for the management and maintenance of trunk road assets in the south east of Scotland, including the A9000 Forth Road Bridge, until at least 2028. Should the Operating Company change during the ten-year period of the licence, the licence would be transferred over to the new Operating Company who would continue to adhere to all conditions and mitigation strategies contained within this HRA and associated appendices.
- 1.1.2 The Forth Road Bridge (FRB) (Photograph 1) is a long span suspension bridge which carries the A9000 over the Firth of Forth approximately 15km west of Edinburgh. The structure supports a dual two-lane carriageway without hard shoulders or strips and has a separate footway/cycle track on either side. The FRB was opened in September 1964 and is a Category A listed structure. The bridge has a main span of 1006m and the side spans are each 408m long.
- 1.1.3 The FRB spans the Firth of Forth, which is a tidal/marine waterbody, and therefore engineering works being undertaken within this environment fall under the jurisdiction of the Marine Directorate. In order to provide and deliver the management and maintenance of the FRB, BEAR Scotland require a Marine Licence to allow existing and future maintenance and improvement projects to be progressed.
- 1.1.4 The existing Marine Licence is valid from 1 October 2021 to 30 September 2026, however it is proposed that the new Licence will commence from 1 May 2026. As part of the previous Marine Licence application, the following relevant additional documentation was submitted: Habitats Regulations Appraisal (HRA), Construction Noise Management Plan (CNMP), Tern Species Management Plan (SMP). The licence issued on 30 September 2021 (00009/38/0) was later subject to an administrative alteration changing the licence holder from Transport Scotland to BEAR, which saw a new licence (00010/16/4) issued on 12 April 2023.
- 1.1.5 Prior to 2020, Amey held the contract for the South East Unit, and Licence Number 05568/15/0 was in place between October 2015 and 2020, with two short-term extensions granted to cover the period October 2020 to September 2021.
- 1.1.6 Jacobs have been commissioned by BEAR Scotland, on behalf of Transport Scotland, to undertake a Habitats Regulations Appraisal (HRA) in respect of ongoing and future maintenance works, as part of a new ten-year Marine Licence application. This is required in order to comply with legislation detailed in the following Section 1.2.



Photograph 1: View of the Forth Road Bridge from the north east looking towards South Queensferry, with the Queensferry Crossing visible in the background.

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 Directive¹) 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 Special Protection Areas (SPAs) (classified under the Birds Directive) and Special Areas of Conservation (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 Network², 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, the Competent Authority will be Transport Scotland and Marine Directorate on behalf

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.

of Scottish Ministers, with their Statutory Nature Conservation Body (SNCB) for consultation being NatureScot³.

- 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 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, 2025a).
- 1.2.7 A programme of works has been provided by BEAR Scotland to inform this HRA, setting out the works expected to be undertaken during the ten-year period (Appendix A). The Proposed Works are classified as either schemes (one-off engineering works) or routine works (regular maintenance). It details the expected activities, timing, duration/frequency, and equipment required. The Report to Inform an Appropriate Assessment (RIAA) provided in this HRA is based on this programme of works. As such, if the Operating Company or Contractor changes the programme of works (excluding changes to routine maintenance where the activities are generally covered within the routine maintenance section) the changes will have to undergo an HRA process to demonstrate there are no additional likely significant effects which could lead to adverse effect on site integrity 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.

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.

Stage One: Screening

- 1.3.5 Screening identifies the potential effects on a European/Ramsar site from a project or plan, either alone or in combination with other projects or plans, and considers whether these effects are likely to be significant.
- 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, 2025b). 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 coherence of the site's ecological structure and function across its whole area, or the habitats, complex of habitats or populations of species for which the site is or will be classified*" (European Commission, 2000a). 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 2000a, 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 2000a, 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 The assessment progresses to Stage Three when an adverse effect on site integrity (AESI) 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"* (European Commission, 2007).

1.4 Guidance

- 1.4.1 In undertaking this HRA the following guidance was referred to:
- Assessing Connectivity with Special Protection Areas (SPAs) (SNH, 2016a);
 - Habitats Regulations Appraisal (HRA) on the Firth of Forth: A Guide for developers and regulators (SNH, 2016b);
 - Managing Natura 2000 Sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (European Commission, 2000a);
 - Communication from the Commission on the Precautionary Principle (European Commission, 2000b);
 - 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);
 - 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);
 - Managing Natura 2000 sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (European Commission, 2018);
 - Habitats Regulations Appraisal of Plans: Guidance for Plan-making Bodies in Scotland, Version 3.0 January 2015 (David Tyldesley and Associates, 2015);
 - NatureScot Website: Habitats Regulations Appraisal (HRA) (NatureScot, 2025b); 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 (Report to Inform an 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 preliminary investigations reach negative conclusions and consent from the competent authority is still sought.
- 1.5.2 An assessment of the Scheme in combination with other plans and projects is provided in Section 5 (In-Combination Assessment).
- 1.5.3 Data which has been used to inform the assessment is presented in Appendix B (Baseline Data).

- 1.5.4 The following figures have been prepared to support this HRA, as follows:
- Figure 1 - Overview of European/Ramsar sites;
 - Figure 2 - Location of Proposed Works and Adjacent European/Ramsar sites; and
 - Figure 3 - British Trust for Ornithology Wetland Bird Survey Data Areas.

1.6 Consultation and Desk Study

- 1.6.1 Consultation undertaken with NatureScot and Marine Scotland (now Marine Directorate) in October 2020 confirmed that an HRA would be required for Proposed Works at that time, and as such an updated HRA has also been prepared for the upcoming ten-year licence application.
- 1.6.2 Since the time of the previous application and as part of the mitigation required by that Marine Licence, ECoW monitoring of the tern colony on Long Craig Island has taken place in 2021, 2023 and 2025. Additionally, surveys of Port Edgar were undertaken in 2025. The dataset built up through these activities has been used to refine the assessment undertaken for the previous HRA, due to the improved understanding of the colony's ecology, and the birds' response to works taking place on the bridge. This HRA is therefore informed by data from the following sources:
- data relating to the common tern colony on Long Craig Island for the period 1981-2020 provided by the Scottish Wildlife Trust from the roseate tern LIFE project and Royal Society for the Protection of Birds (RSPB) (Appendix B);
 - tern ECoW monitoring data of Long Craig Island collected by Jacobs in 2021, 2023 and 2025 (Appendix B and monthly memos issued to BEAR Scotland);
 - tern survey data for Port Edgar collected by Jacobs in 2025 (Appendix B);
 - Wetland Bird Survey (WeBS) data provided by the British Trust for Ornithology (BTO). The data relates to two WeBS survey areas: Hound Point to South Queensferry and Forth Cult Ness for the survey years 2019/2020 to 2023/2024 (Figure 3);
 - the Forth Islands Tern Warden's Season Reports (Knowles, 2017, 2018, 2019); and
 - Long Craig Island tern count data from the RSPB's LIFE-funded Roseate Tern Recovery Project which ran from 2015 to 2020 (Appendix B).
- 1.6.3 In addition, relevant historic literature and data was reviewed to inform this assessment, including:
- Jacobs Arup (on behalf of Transport Scotland) (2009a). Forth Replacement Crossing Report to Inform an Appropriate Assessment for the Firth of Forth SPA;
 - Jacobs Arup (on behalf of Transport Scotland) (2009b). Forth Replacement Crossing Report to Inform an Appropriate Assessment for the Forth Islands and Imperial Dock Lock, Leith SPAs; and
 - Jacobs Arup (on behalf of Transport Scotland) (2018). Forth Replacement Crossing End of Project Report on Estuarine Bird Ecology: 2008 to 2017.
- 1.6.4 The Scottish Wildlife Trust East Central reserves team were contacted for information relating to Long Craig Island on 29 May, 10 June and 1 September 2025 but no response was received.
- 1.6.5 A draft copy of this HRA and accompanying appendices were provided to NatureScot in October 2025. Feedback provided in November 2025 included the following comments: *"Overall, we consider this to be a very good quality HRA. We broadly support the scope of the HRA, the assessment of impacts on qualifying interests, and the proposed mitigation measures. Based on the evidence presented within the documents, and the planned mitigation measures, we are in agreement that there will be no adverse impacts on site integrity for the relevant SPAs."*

2. The Proposed Works

2.1 Existing Conditions

- 2.1.1 The Forth is the most substantial estuary on the east coast of Scotland (SNH, 2016b). It stretches approximately 55 miles from the floodplain around Stirling and Kincardine to the open sea. The adjacent land is characterised by a wide range of contrasting uses including areas of dense population, heavy industry, as well as rural and arable habitats. The Forth comprises a complex mosaic of habitats on a range of rocky, shingle, sand and mud substrates. The diversity of habitats present supports a correspondingly wide diversity of plant and animal species, notably including seabirds, marine mammals and fish species. The abundance of prey in the form of fish and invertebrates, and the diversity of opportunities for loafing, roosting and foraging habitats at low and high tide contribute to supporting internationally important populations of birds.
- 2.1.2 In 2017 a new bridge to the west of the existing FRB, the Queensferry Crossing (QC), was opened and replaced the FRB as the main crossing point over the Firth of Forth. Prior to construction, this was referred to as the Forth Replacement Crossing (FRC).
- 2.1.3 Following completion of the Queensferry Crossing, the FRB now functions as a dedicated public transport corridor for buses, taxis, pedestrians and cyclists. As such it still requires ongoing maintenance works to keep it functional and safe. The FRB remains a key resilience route as it provides an alternative crossing point in the event of closures on the Queensferry Crossing due to bad weather or planned works.
- 2.1.4 The FRB passes directly over three European/Ramsar sites. The Firth of Forth SPA and the Firth of Forth Ramsar site cover the same areas and are designated for internationally important overwintering populations, assemblages and passage migrant birds of wildfowl, wader and seabirds. The Forth Islands SPA covers a series of islands, one of which is Long Craig Island, and is designated for breeding bird populations. The FRB passes directly over Long Craig Island, which supports a breeding tern colony. Details of the sites considered within this HRA are provided in Section 3.2, Appendix C, and shown on Figures 1 and 2.
- 2.1.5 SNH’s publication Habitats Regulations Appraisal (HRA) on the Firth of Forth: A Guide for developers and regulators (SNH, 2016b) reports Arctic and common tern species as typically arriving in the UK from mid-April onwards, with most birds back by early to mid-May. Roseate terns are reported as arriving between late April and early June, whilst Sandwich terns build in large numbers in July and August. NatureScot consultation advice in 2021 (NatureScot, 2021) identified 1 May to 15 August inclusive to be the sensitive period for breeding common terns. Jacobs’ ECoW monitoring data broadly corroborates this arrival date (Table 1), with arrival in the first week of May in 2021, 2023 and 2025. The only year for which complete fledging data is available is 2025, and in this year all tern chicks had fledged or nests failed by 22 August. In 2021, between 5 and 18 chicks had fledged by the time of the abandonment on 22 July, and no chicks had fledged by the time of the abandonment in 2023, on 17 July. In both years eggs and unfledged chicks remained at the time of abandonment. As such, it is considered that the end of the sensitive period should be considered whenever all chicks have fledged, which may extend beyond 15 August.
- 2.1.6 It should be noted that some birds will remain in the Firth of Forth beyond the date when all chicks fledge as fledged birds may continue to be dependent on their parents for some time and are likely to remain near the nesting location (Jennings, 2012) for two to three months.

Table 1: Key observations of terns in the Firth of Forth at LCI based on 2021-2025 monitoring

Activity	2021 date	2023 date	2025 date
Arrival of common terns at LCI / Firth of Forth	03/05	02/05	01/05
Courtship behaviours first observed	07/05	10/05	09/05

Activity	2021 date	2023 date	2025 date
Terns observed loafing, courtship displays and courtship feeding on LCI	10/05	22/05	13/05
Mating observed on LCI	12/05	22/05	03/06
Nest scraping observed on LCI	13/05	18/05	05/06
Roseate x common tern hybrids first recorded	18/05	26/06	10/07
Territorial behaviour towards other terns on LCI first observed (calling, chasing, etc.)	25/05	22/05	05/06
First nest occupation recorded (laying/incubating)	01/06	30/05	10/06
First Sandwich tern observed in Firth of Forth	02/06	28/06	10/07
First chick recorded on LCI	21/06	19/06	03/07
First fledged chick recorded on LCI	15/07	N/A	23/07
Colony abandoned	22/07	17/07	N/A
All chicks fledged. Parental dependence ongoing.	N/A	N/A	22/08

2.2 Examples of Disturbance Events and Recent Breeding Success/Failure

- 2.2.1 Prior to BEAR Taking over the responsibility for the FRB in mid-August 2020, a different Operating company, Amey, were responsible for the management and maintenance of the FRB on behalf of Transport Scotland. A log of disturbances and potential disturbances dating back to Autumn 2016 is presented in the 5-year report produced by the tern ECoW who monitored the island until 2020 (Knowles, 2021). In July 2018 incidents resulting in disturbance to the breeding tern colony on LCI were recorded and reported to SNH (Amey, 2018, Knowles, 2021). The colony was recorded as failing that year, with just five chicks fledging (Knowles, 2018). Following the reports of disturbance, works were temporarily ceased and SNH advised that further consultation would be required if any works likely to cause disturbance were to be carried out during the tern breeding season. In December 2019, Amey issued a further RIAA, which then included details of additional mitigation implemented during the 2019 breeding season (Amey, 2019).
- 2.2.2 During early to mid-August 2020, further incidents perceived as causing disturbance to terns on Long Craig Island occurred. One such incident on 5 August saw part of the colony circling above the island in an unusual manner, apparently in response to two contractors working below the bridge above the island, who were using a loud power-tool intermittently, described as an electric spanner/wrench (Knowles, 2021). On a visit a few days later, the ECoW noted that it was clear that further work had continued on the section of bridge under the island, and that new debris was visible on the island that appeared to be associated with this work (Knowles, 2021).
- On 14 August 2020, contractors brought a small boat over the submerged part of the island to the east of FRB to retrieve a hard hat, although no disturbance was noted. Following this visit, a metal cage was observed being lowered down from the bridge onto a submerged area of the island, where it was collected by boat. The adult terns dived and did not return to their chicks until 5-10 minutes after the boat left again (Knowles, 2021).
- 2.2.3 On both 30 July 2018 and 5 August 2020 (as above), an electric spanner/wrench tool used to tighten bolts on the bridge is reported as having caused disturbance to the terns from its loud banging noise (Knowles, 2021).

- 2.2.4 In 2021, disturbance from an unknown source on 22 August resulted in the colony dreading and abandoning the island which still had a number of eggs and unfledged chicks present. The source of the disturbance could not be determined though no noisy works were taking place on the Forth Road Bridge nor the works compound at the time of the disturbance. An ECoW had been present daily on site during noisy works within 400m of the island, and on that day had completed two watches covering the period 08:40 to 10:26. Upon commencing a third watch at 11.07 they found that the birds had flown up and ultimately abandoned the island over the course of the early afternoon.
- 2.2.5 In 2023, disturbance from an unknown source between 14 and 17 July resulted in the colony abandoning the island and no chicks are thought to have fledged. Again, an ECoW had been present daily on site during noisy works within 400m of the island. The source of the disturbance remains unclear, though no works were taking place on the Forth Road Bridge nor at the works compound at the time of the disturbance. It was considered possible that poor weather on the weekend of 3 and 4 July contributed to the abandonment of the colony with declines in peak counts, including chicks, recorded after these dates.
- 2.2.6 No noisy works were programmed within 400m of LCI during 2022 or 2024 and as such no monitoring of the colony by BEAR or Jacobs took place.
- 2.2.7 In 2025, the colony was successful in fledging an estimated 17-24 chicks. It should be noted that although planned, no noisy or visually disturbing works took place on the bridge during the 2025 tern breeding season other than installation of scaffolding and netting, however an ECoW was present.

2.3 Programme of Works

- 2.3.1 A ten-year programme of works, including descriptions of the works is included in Appendix A. An overview of the Proposed Works is outlined in Table 2 below.

Table 2: Overview of 10 Year Programme of Works: Schemes

Name of Scheme	Estimated Construction Period
Suspended Span Painting Works	2026-2036
Suspended Span Truss Strengthening Works	2026-2036
Suspended Span Resurfacing	2030-2034
Footpath Resurfacing	2027-2032
Suspended Span Under Deck Access (SSUDA)	2026-2028
Footpath Elastomeric Bearing Replacement	2026-2036
Main Tower Lateral Thrust Bearing Replacement	2026-2028
Side Tower Rocker Replacement	2026-2028
Main Cable Intrusive Investigation	2031-2032
Pedestrian Balustrade Strengthening	2028-2033
Runway Beam Bracket Replacement and New Suspended Span Underdeck Access Gantry	2026-2030
Vehicle Restraint Barrier/Grillage Refurbishment	2026-2036
Suspended Span Half Joint Replacement	2026-2032
Suspended Span Carriageway Concrete Deck	2026-2027

- 2.3.2 In addition to the main planned works (schemes) there will be ongoing routine maintenance activities (routine orks) throughout the full works period, including those set out in Table 3.

Table 3: Overview of 10 Year Programme of Works: Routine Works

Name of Routine Works Activity
Use of bridge access systems
Hanger painting
Hanger replacement
Weld repairs
Bolt replacement
Kingpost replacement (bottom lateral supports)
Pier defences painting
Billet repair (half joint repairs)
Edge trimmer replacement/strengthening (suspended span)
Upper front staging installation (underdeck access staging)
Removal of lead-based paint
Maintenance painting
Repair of cathodic protection systems
Replacement of structural health monitoring sensors
Electrical infrastructure
Lighting infrastructure
CCTV infrastructure
Bridge signage
Surfacing repairs
Road markings and studs
Vehicle restraint repairs (grillage)
Main cable dehumidification
Suspended span drainage
Expansion joints
Bearings
Routine cleaning
Concrete repairs
Offsite repairs / refurbishment
Investigation works

- 2.3.3 Standard construction hours for the works will be Monday to Friday (although works on a Saturday are contractually permitted) 07:30-18:00, however the first half hour and last half hour are likely to be site setup and clearing. Emergency works may be required to be undertaken outwith these hours.
- 2.3.4 There is limited requirement for night working however, overnight closures of the carriageway will be required for the surfacing works (see Appendix A) and may also be required for any emergency works. Additionally, work during the hours of darkness may be required, particularly during the winter. Weekend working may be required for works packages that require carriageway closure, or as part of emergency works.
- 2.3.5 The timing of some packages of work is constrained by the traffic management embargo period imposed by Transport Scotland due to the FRB being a diversion route for the Queensferry Crossing between 1 November and 31 March, and/or by the higher wind period, generally considered to be

autumn to spring. Appendix A: Programme of Works details which schemes will be informed by this restriction.

- 2.3.6 The RIAA provided is based on the above information and as such, if the Operating Company deviates from any of these, the changes have to be subject to an HRA process, including the AA, to establish whether any change has any adverse effect on the site integrity of European/Ramsar sites and to demonstrate the conclusions of this HRA are still valid.

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 Scheme

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. Nine sites were identified to be considered within the HRA screening assessment namely:

- Firth of Forth SPA (NatureScot Site Code 8499, EU Site Code UK9004411);
- Firth of Forth Ramsar (NatureScot Site Code 8424, EU Site Code UK13017);
- Forth Islands SPA (NatureScot Site Code 8500, EU Site Code UK9004171);
- Outer Firth of Forth and St Andrews Bay Complex SPA (NatureScot Site Code 10478, EU Site Code UK9020316);
- Imperial Dock Lock, Leith SPA (NatureScot Site Code 8668, EU Site Code UK9004451);
- Loch Leven SPA (NatureScot Site Code 8530; EU Site Code UK9004111);
- Loch Leven Ramsar (NatureScot Site Code 8436; EU Site Code UK13033);
- River Teith SPA (NatureScot Site Code 8367, EU Site Code UK0030263); and
- Isle of May SAC (NatureScot Site Code 8278, EU Site Code UK0030172).

3.2.2 The location of these sites relative to the FRB is shown in Figure 1. Other designated sites not relevant to this assessment are shown greyed out on Figure 1, for completeness. Site qualifying interests, conservation objectives and identified feature pressures, as identified by NatureScot's Sitelink tool are presented in Appendix C, along with the species scientific names. Common names are used within this HRA main text.

3.3 Screening

- 3.3.1 The Proposed Works could result in a variety of likely significant effects (LSEs) which could directly or indirectly affect European/Ramsar sites.
- 3.3.2 No activities that form part of the works programme, including routine maintenance activities, could result in loss of habitat to any designated site, since all works are confined to the bridge structure itself. As such, there are no likely significant effects for temporary or permanent habitat loss and so habitat loss is not considered further within this HRA.
- 3.3.3 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).
- 3.3.4 Potential changes in water quality from pollution events (e.g. release of lead-based paint, paint removal chemicals, grit-blasting debris, accidental spillage and runoff) during works have the potential to have an indirect effect on the Firth of Forth. Deterioration of intertidal habitat could degrade the feeding resource for bird species. For migratory fish species, increased siltation or a higher incidence of suspended solids could disrupt feeding behaviour, and increase of suspended solids or introduction of harmful chemicals could impact gill physiology and reduce oxygen uptake. However, best practice construction methods (CIRIA, 2015) will be implemented to protect the wider environment, including the use of appropriate pollution controls (i.e. Guidance for Pollution Prevention (GPPs)), such as a strict re-fuelling protocol and removal of all loose materials from the intertidal area. These measures are embedded in the construction methodology via the Site Environmental Management Plan (SEMP) and are a legal obligation to be employed irrespective of the European designation of the site, and are not specifically required to avoid LSE.
- 3.3.5 Table 4 provides the screening of European/Ramsar sites, recognising LSE from the Proposed Works where they have been identified.

Table 4: Screening

Conservation Objectives	Connectivity to the Proposed Works	Qualifying Interests (* species also an assemblage qualifier)	Likely Significant Effects	Screening Conclusion
Firth of Forth SPA (NatureScot, 2025c)				
<p>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</p> <p>To ensure for the qualifying interests that the following are maintained in the long term:</p> <ul style="list-style-type: none"> • 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. 	<p>The FRB is located directly above the Firth of Forth SPA. As such, the maintenance works described in Section 2.3 and Appendix A being undertaken from the bridge structure over the ten-year period collectively have potential implications on the surrounding environment, including on qualifying interests of the SPA.</p>	<ul style="list-style-type: none"> • bar-tailed godwit*, non-breeding • golden plover*, non-breeding • knot*, non-breeding • pink-footed goose*, non-breeding • red-throated diver*, non-breeding • redshank*, non-breeding • Sandwich tern, passage • shelduck*, non-breeding • Slavonian grebe*, non-breeding • turnstone*, non-breeding <p>waterfowl assemblage (non-breeding):</p> <ul style="list-style-type: none"> • common scoter • cormorant • curlew • dunlin • eider • goldeneye • great crested grebe • grey plover • lapwing • long-tailed duck • mallard • oystercatcher • red-breasted merganser • ringed plover • scaup • velvet scoter • wigeon 	<p><u>Disturbance (noise, vibration, movement and lighting)</u></p> <p>There is potential for disturbance to qualifying interests of the SPA which are found within the inner Forth during the Proposed Works from increased noise, vibration, human activity, vehicle and vessel movements, and temporary lighting. Disturbance could result in birds relocating from habitats used as high-tide roosts and feeding resources.</p> <p><u>Direct Mortality</u></p> <p>Although improbable due to embedded mitigation (Section 4.2), if items such as tools or other materials were to be dropped from works taking place directly above Long Craig Island on the bridge, direct mortality of birds on the island or foraging around it could occur.</p>	<p>LSEs identified. Requirement to progress to AA (HRA Stage 2).</p> <p>LSEs identified. Requirement to progress to AA (HRA Stage 2).</p>

Conservation Objectives	Connectivity to the Proposed Works	Qualifying Interests (* species also an assemblage qualifier)	Likely Significant Effects	Screening Conclusion
Firth of Forth Ramsar (NatureScot, 2025d)				
<p>The Ramsar Convention's mission is <i>'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'</i>.</p> <p>The site qualifies under the following Ramsar criteria: Criterion 2 - <i>A wetland should be considered internationally important if it supports vulnerable, endangered, or critically endangered species or threatened ecological communities.</i> Criterion 4 - <i>A wetland should be considered internationally important if it supports plant and/or animal species at a critical stage in their life cycles, or provides refuge during adverse conditions.</i> Criterion 5 - <i>A wetland should be considered internationally important if it regularly supports 20,000 or more waterbirds.</i> Criterion 6 - <i>A wetland should be considered internationally important if it regularly supports 1% of the individuals in a population of one species or subspecies of waterbird.</i></p>	<p>The FRB is located directly above the Firth of Forth Ramsar. As such, the maintenance works described in Section 2.3 and Appendix A being undertaken from the bridge structure over the ten-year period collectively have potential implications on the surrounding environment, including on qualifying interests of the Ramsar.</p>	<ul style="list-style-type: none"> • bar-tailed godwit, nonbreeding • common scoter, non-breeding • cormorant, non-breeding • curlew, non-breeding • dunlin, non-breeding • eider, non-breeding • goldeneye, non-breeding- • golden plover, non-breeding • great-crested grebe, non-breeding • grey plover, non-breeding • knot, non-breeding • lapwing, non-breeding • long-tailed duck, non-breeding • mallard, non-breeding • oystercatcher, non-breeding • pink-footed goose, non-breeding • redshank, non-breeding • red-breasted merganser, non-breeding • red-throated diver, non-breeding • ringed plover, non-breeding • Sandwich tern, passage • scaup, non-breeding • shelduck, non-breeding • Slavonian grebe, non-breeding • turnstone, non-breeding • velvet scoter, non-breeding • wigeon, non-breeding • waterfowl assemblage, non-breeding 	<p><u>Disturbance (noise, vibration, movement and lighting)</u></p> <p>There is potential for disturbance to qualifying interests of the Ramsar which are found within the inner Forth, during the Proposed Works from increased noise, vibration, human activity, vehicle and vessel movements, and temporary lighting. Disturbance could result in birds relocating from habitats used as high-tide roosts and feeding resources.</p> <p><u>Direct Mortality</u></p> <p>Although improbable due to embedded mitigation (Section 4.2), if items such as tools or other materials were to be dropped from works taking place directly above Long Craig Island on the bridge, direct mortality of birds on the island or foraging around it could occur.</p>	<p>LSEs identified. Requirement to progress to AA (HRA Stage 2).</p> <p>LSEs identified. Requirement to progress to AA (HRA Stage 2).</p>
Forth Islands SPA (NatureScot, 2025e; NatureScot, 2024)				
<ol style="list-style-type: none"> 1. To ensure that the qualifying features are in favourable condition and make an appropriate contribution to achieving Favourable Conservation Status. 2. To ensure that the integrity of the site is restored in the context of environmental changes by meeting the following objectives for each qualifying feature: <ul style="list-style-type: none"> • the populations of the qualifying features are viable components of the site; • the distribution of the qualifying features is maintained throughout the site by avoiding significant disturbance of the species; and • the supporting habitats and processes relevant to qualifying features and their prey resources are maintained, or where appropriate restored at the site. 	<p>The FRB is directly above Long Craig Island which is part of the Forth Islands SPA. As such, the maintenance works described in Section 2.3 and Appendix A being undertaken from the bridge structure over the ten-year period collectively have potential implications on the surrounding environment, including on qualifying interests of the SPA.</p>	<ul style="list-style-type: none"> • Arctic tern, breeding* • common tern, breeding* • cormorant, breeding • gannet, breeding* • guillemot, breeding • herring gull, breeding • kittiwake, breeding • lesser black-backed gull, breeding* • puffin, breeding* • razorbill, breeding • roseate tern, breeding* • Sandwich tern, breeding* • shag, breeding* 	<p><u>Disturbance (noise, vibration, movement and lighting)</u></p> <p>The nearest island of the SPA (Long Craig Island) is located directly below the FRB. Therefore, there is potential for disturbance to qualifying interests of the SPA during the Proposed Works from increased noise, vibration, human activity, vehicle and vessel movements, and temporary lighting, in particular in relation to terns nesting on Long Craig Island. Although improbable due to embedded mitigation (Section 4.2) there is potential for tools or construction materials to be dropped onto the island from height. These disturbances could result in increased instances of fly ups (whereby birds lift off nests) or dreading, which is when the whole colony or a large part of it takes silent flight, often followed by high levels of calling as the birds begin to settle (Jennings, 2012). These would potentially result in increased predation of chicks and/or eggs and associated energetic costs, and thus reduction in colony size.</p> <p>NatureScot's Conservation and Management Advice for Forth Islands SPA (NatureScot, 2024) includes specific mention of disturbance associated with maintenance of the Forth Road Bridge as an activity considered capable of affecting the protected features, with particular relevance to terns nesting on Long Craig Island.</p>	<p>LSEs identified. Requirement to progress to AA (HRA Stage 2).</p>

Conservation Objectives	Connectivity to the Proposed Works	Qualifying Interests (* species also an assemblage qualifier)	Likely Significant Effects	Screening Conclusion
			<p><u>Direct Mortality</u></p> <p>Although improbable due to embedded mitigation (Section 4.2), if items such as tools or other materials were to be dropped from works taking place directly above Long Craig Island on the bridge, direct mortality of adult or juvenile terns or destruction of their nests could occur.</p>	LSEs identified. Requirement to progress to AA (HRA Stage 2).
Outer Firth of Forth and St Andrews Bay Complex SPA (NatureScot, 2025f)				
<p>1. To ensure that the qualifying features of the site are in favourable condition and make an appropriate contribution to achieving Favourable Conservation Status.</p> <p>2. To ensure that the integrity of the site is restored in the context of environmental changes by meeting the following objectives for each qualifying feature:</p> <ul style="list-style-type: none"> the populations of the qualifying features are viable components of the site the distribution of the qualifying features is maintained throughout the site by avoiding significant disturbance of the species; and the supporting habitats and processes relevant to qualifying features and their prey resources are maintained, or where appropriate restored, at the site. 	<p>The SPA is located approximately 2.5km to the east of the FRB. Qualifying bird species of the SPA may use the Firth of Forth in the vicinity of the bridge for foraging.</p>	<ul style="list-style-type: none"> common tern, breeding red-throated diver, non-breeding Slavonian grebe, non-breeding black-headed gull, non-breeding common gull, non-breeding common scoter, non-breeding eider, non-breeding gannet, breeding goldeneye, non-breeding guillemot, breeding and non-breeding herring gull, breeding and non-breeding kittiwake, breeding and non-breeding long-tailed duck, non-breeding puffin, breeding razorbill, non-breeding red-breasted merganser, non-breeding shag, breeding and non-breeding velvet scoter, non-breeding Arctic tern, breeding little gull, non-breeding Manx shearwater, breeding <p>The species above also contribute to:</p> <ul style="list-style-type: none"> breeding season seabird assemblage non-breeding season seabird assemblage non-breeding season waterfowl assemblage 	<p><u>Disturbance (noise, vibration, movement and lighting)</u></p> <p>Individuals of the qualifying species of the SPA could be disturbed should they forage in the open waters near the FRB, with potential effects on feeding rate and fitness. However, the Firth of Forth is the most substantial estuary on the east coast of Scotland (see Section 2.1). Given the size of the Outer Firth of Forth and St Andrews Bay Complex SPA (272,068ha), and the extensive and diverse alternative habitat available to the qualifying species within the estuary (that is comparable with that adjacent to the FRB but away from potential sources of disturbance), the Proposed Works are unlikely to cause significant disturbance or change the distribution of the species within the SPA.</p>	No potential for LSE. AA (HRA Stage 2) is not required.
Imperial Dock Lock, Leith SPA (NatureScot, 2025g)				
<p>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</p> <p>To ensure for the qualifying species that the following are maintained in the long term:</p> <ul style="list-style-type: none"> 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. 	<p>The SPA is located approximately 14.5km in a straight line, and 15.4km following the hydrological connection, east and downstream of the FRB.</p> <p>Qualifying bird species of the SPA (common tern) may use the Firth of Forth in the vicinity of the works for foraging.</p>	<ul style="list-style-type: none"> common tern, breeding 	<p><u>Disturbance (Noise, vibration, movement and lighting)</u></p> <p>The SPA is designated for supporting the largest nesting colony of common tern in the Forth. The man-made structure utilised by common tern within the Imperial Dock Lock, Leith, is 14.5km from the Proposed Works. The qualifying species will therefore not be disturbed as a result of the Proposed Works whilst breeding on the structure.</p> <p>Should individuals from the tern breeding colony at Imperial Dock Lock, Leith, forage in the open waters near the FRB, there is a small potential for them to experience disturbance, with potential knock-on effects on fitness and thus breeding success. Given the Firth of Forth is the most substantial estuary on the east coast of Scotland and the wide availability and diversity of alternative foraging habitats in the Forth Estuary away from disturbances (see Section 2.1), however, this possibility is considered remote.</p>	No potential for LSE. AA (HRA Stage 2) is not required.
Loch Leven SPA (NatureScot, 2025h)				
<p>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</p> <p>To ensure for the qualifying species that the following are maintained in the long term:</p>	<p>The SPA is located approximately 19km north of the FRB. Cormorant from Loch Leven are known to travel to the Firth of Forth (Wright, 2003).</p> <p>The River Leven flows from Loch Leven to the Firth of Forth, downstream of the FRB, at Leven.</p>	<ul style="list-style-type: none"> whooper swan, non-breeding pink-footed goose, non-breeding cormorant, non-breeding gadwall, non-breeding goldeneye, non-breeding pochard, non-breeding 	<p><u>Disturbance (Noise, vibration, movement and lighting)</u></p> <p>The SPA is designated for supporting important numbers of wintering birds. None of the qualifying species will be disturbed as a result of the Proposed Works whilst wintering on Loch Leven. Whilst cormorant may visit the Firth of Forth from Loch Leven, based on the number of birds (SPA population 391 as at March 2000) and the size of the extensive Firth of Forth estuary, the</p>	No potential for LSE. AA (HRA Stage 2) is not required.

Conservation Objectives	Connectivity to the Proposed Works	Qualifying Interests (* species also an assemblage qualifier)	Likely Significant Effects	Screening Conclusion
<ul style="list-style-type: none"> 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. 		<ul style="list-style-type: none"> shoveler, non-breeding teal, non-breeding tufted duck, non-breeding waterfowl assemblage, non-breeding 	<p>potential for them to be present within the vicinity of the FRB is considered negligible. No other individuals of the qualifying species of Loch Leven SPA are known to travel between Loch Leven and the Firth of Forth.</p>	
Loch Leven Ramsar, 1,611ha (NatureScot, 2025i)				
<p><i>Eutrophic loch:</i> To avoid deterioration of the qualifying habitat thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for the qualifying feature; and</p> <ul style="list-style-type: none"> To ensure for the qualifying habitat that the following are maintained in the long term: Extent and distribution of the habitat on site Structure and function and supporting process of the habitat Distribution and viability of typical species of the habitat <p><i>Bird species:</i> 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</p> <p>To ensure for the qualifying species that the following are maintained in the long term:</p> <ul style="list-style-type: none"> 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. 	<p>The Ramsar is located approximately 19km north of the FRB. Cormorant from Loch Leven are known to travel to the Firth of Forth (Wright, 2003).</p> <p>The River Leven flows from Loch Leven to the Firth of Forth, downstream of the FRB, at Leven.</p>	<ul style="list-style-type: none"> whooper swan, non-breeding pink-footed goose, non-breeding cormorant, non-breeding gadwall, non-breeding goldeneye, non-breeding pochard, non-breeding shoveler, non-breeding teal, non-breeding tufted duck, non-breeding waterfowl assemblage, non-breeding eutrophic loch 	<p><u>Disturbance (Noise, vibration, movement and lighting)</u> The Ramsar is designated for supporting important numbers of wintering birds, and the eutrophic loch. None of the qualifying bird species will be disturbed as a result of the Proposed Works whilst wintering on Loch Leven. Whilst cormorant may visit the Firth of Forth from Loch Leven, based on the number of birds (Ramsar population 391 as at March 2000) and the size of the extensive Firth of Forth estuary, the potential for them to be present within the vicinity of the FRB is considered negligible. No other individuals of the qualifying species of Loch Leven SPA are known to travel between Loch Leven and the Firth of Forth.</p>	<p>No potential for LSE. AA (HRA Stage 2) is not required.</p>
River Teith SAC (NatureScot, 2025j)				
<p>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</p> <ul style="list-style-type: none"> to ensure for the qualifying species that the following are maintained in the long term: population of the species, including range of genetic types for salmon, 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. 	<p>The SAC is located approximately 35.8km in a straight line, and 49.3km following the hydrological connection, upstream of the FRB.</p> <p>Qualifying species of the SAC will migrate through the Firth of Forth.</p>	<ul style="list-style-type: none"> Atlantic salmon brook lamprey river lamprey sea lamprey 	<p><u>Disturbance (Noise, vibration, movement and lighting)</u> The FRB is located approximately 35.8km in a straight line, and 49.3km following the hydrological connection, downstream of the SAC, however lamprey species and Atlantic salmon will migrate through the Firth of Forth. The Firth of Forth is a wide estuary and all Proposed Works are localised to the bridge itself with the exception of a small number of barge movements associated with two packages of works (Runway Beam Bracket Replacement and New Suspended Span Underdeck Access Gantry and Repair of Cathodic Protection Systems) and some diving operations. At all times, a sufficient migratory corridor would therefore be maintained during works.</p>	<p>No potential for LSE. AA (HRA Stage 2) is not required.</p>
Isle of May SAC (NatureScot, 2025k)				
<p>To avoid deterioration of the qualifying habitat thus ensuring that the integrity of the site is maintained and the</p>	<p>The SAC is located approximately 55km downstream of the FRB.</p>	<ul style="list-style-type: none"> reefs 	<p><u>Disturbance (Noise, vibration, movement and lighting)</u></p>	<p>No potential for LSE. AA (HRA Stage 2) is not required.</p>

<p>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"> • 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. <p>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</p> <p>To ensure for the qualifying species that the following are maintained in the long term:</p> <ul style="list-style-type: none"> • population of the species as a viable component of the site • distribution of the species within site • distribution and extent of habitats supporting the species; and • structure, function and supporting processes of habitats supporting the species; • no significant disturbance of the species. 		<ul style="list-style-type: none"> • grey seal 	<p>The SAC is designated for grey seal and reef habitats and is located approximately 55km from the Proposed Works. Due to the distance and wide availability of alternative habitat, grey seal will not be disturbed as a result of the Proposed Works whilst breeding in or near the SAC. Grey seal could potentially be disturbed if they were to forage or otherwise pass near to the bridge. However, seals are principally sensitive to disturbance at haul out sites. No designated haul out sites or pupping sites are located near the Proposed Works area, with the closest designated sites 8km and 16km east respectively. The closest records of summer counts made by the Sea Mammal Research Unit between 2011 and 2015 were 5km east (Marine Directorate, 2025). Whilst individual seals occasionally haul out at Port Edgar and North Queensferry, grey seals generally favour more exposed coasts and islands closest to the open sea (NatureScot, 2025), where prey is most abundant, and disturbance from vessels that pass through the estuary is lower. There are extensive areas suitable for hauling out both locally to the FRB and within the extensive wider Firth of Forth. There is no potential for effects on reefs.</p>	
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3.4 Screening Conclusion

- 3.4.1 The Proposed Works have the potential for LSEs on Firth of Forth SPA and Ramsar sites, and Forth Islands SPA as identified from the screening in Table 4 and therefore a Report to Inform an Appropriate Assessment (HRA Stage Two) is required for these sites.
- 3.4.2 No LSEs were identified on the Outer Firth of Forth and St Andrews Bay Complex SPA, Imperial Dock Lock, Leith SPA, Loch Leven SPA, Loch Leven Ramsar, River Teith SAC and Isle of May SAC 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 (Report to Inform an Appropriate Assessment)

4.1 Introduction

- 4.1.1 This section forms the Stage Two (RIAA) of the HRA process which was identified as required in Stage One (Screening). The RIAA 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 RIAA examines the implications from the Proposed Works for the conservation objectives of three sites based on the LSE identified in Stage One (Screening) and, where applicable, details the measures required to protect the conservation objectives and integrity of these sites.
- 4.1.3 Information on the distribution and abundance of bird species within the Firth of Forth was compiled through the sources identified in Section 1.6 Consultation and Desk Study. Within the HRA for the existing Marine Licence, data collected by Jacobs as part of the Environmental Impact Assessment (EIA) for what is now the Queensferry Crossing, between 2007 and 2009 were used to supplement the available WeBS data where appropriate. The dataset was considered to remain relevant due to the fact that the habitats in the vicinity of the bridges were largely unchanged. Absolute numbers were, however, generally omitted, in recognition of the time elapsed and national trends in bird populations due to global factors such as climate change. With the dataset now 16-18 years old, it is still considered to provide useful historic context but is not relied upon as a primary data source.
- 4.1.4 It should be noted that within the WeBS methodology, counting of gulls and terns is optional. Within the Hound Point to South Queensferry and the Forth Cult Ness survey areas, cover was generally noted as 'good' for visits relating to these species. With the use of supplementary data from ECoW monitoring, it is considered that a robust assessment can be made.

4.2 Embedded mitigation

- 4.2.1 All mitigation measures for the programme of works which are relevant to ecological receptors are presented within Appendix D: Tern SMP. This includes embedded mitigation detailed below, standard best practice construction mitigation measures (also included in Appendix A: Programme of Works), and mitigation identified as necessary within this HRA.
- 4.2.2 This section sets out mitigation that is required to safeguard the environment (including ecological receptors) and is part of the design of the Proposed Works – the embedded mitigation would be implemented regardless of the findings of this HRA.
- 4.2.3 A Site Environmental Management Plan (SEMP) will be developed by the Contractor for each scheme which will detail mitigation relevant to that activity or package of works. It will set out the responsibilities of site staff and provide a complete list of mitigation and working methods required to safeguard the local environment and meet compliance with environmental legislation and relevant consents. It should act as a benchmark for best practice and covers all phases of scheme construction, including mobilisation and demobilisation. It will include topics such as pollution control, incident reporting, site inductions, waste management and drainage.
- 4.2.4 Plant and personnel will be constrained to the minimum required working area. This will comprise only the bridge structure itself, with two exceptions for two schemes where barge/boats are required: the Runway Beam Bracket Replacement and New Suspended Span Underdeck Access Gantry and the Repair of Cathodic Protection Systems, as well as some diving operations. Additional mitigation relating to these works packages is detailed in Table 9 and Section 4.3.34. In addition, a safety boat is required to be available whenever activities requiring work outside of the carriageway and walkways are programmed. The boat is moored at Port Edgar Marina when not in use and is on standby throughout day shifts. It mobilises whenever required or if there is a welfare concern.

- 4.2.5 As mentioned in Section 2.3.3, standard working hours will be 07:30-18:00 (Monday to Friday, although works on a Saturday are contractually permitted), with occasional weekend working. Due to limited daylight length, some working during the hours of darkness will likely be unavoidable during winter, and there is a requirement for night working associated with some overnight closures of the carriageway. This will be limited as far as practicable.
- 4.2.6 Standard work practices implemented to minimise environmental effects which are relevant to bird qualifying interests will include the use of tool tethers when working from suspended areas.
- 4.2.7 Wherever feasible and relevant to do so (due to potential pollution, dropping of tools, or other disturbance), appropriate mitigation measures will be employed to: provide a degree of visual screening; to contain the works and prevent any materials or tools dropped from falling onto areas below the bridge; and to contain waste arisings such as dust and paint flakes. Appropriate mitigation will be developed on a scheme-by-scheme basis following environmental screening, and may include (but not be limited to) measures such as: full encapsulation of the works area, use of tool tethers, installation of boarding, netting, and sheeting, etc.

4.3 Likely Significant Effect: Disturbance

- 4.3.1 Disturbance was identified through Stage 1 Screening as an LSE that might compromise the conservation objectives for both the Firth of Forth SPA/Ramsar and Forth Islands SPA and cause an AESI. Since all the qualifying interests for the sites are birds and there is significant overlap in the suite of species for each, this section provides information relevant to all the sites under consideration collectively.
- 4.3.2 Noise (including vibration), visual (including lighting, human activity) and movement (vehicles/vessels, presence on Long Craig Island, and items being dropped from above) disturbance from routine and non-routine maintenance works has the potential to disturb qualifying bird species of the SPA and Ramsar sites. This could lead to displacement of birds from areas used for foraging, loafing and roosting, and subsequently additional energy expenditure and loss of condition. Disturbance could also result in the requirement for compensatory feeding at night, and increased associated energetic costs.
- 4.3.3 For breeding species, disturbance could additionally lead to displacement of birds from areas used for breeding, up to and including abandonment of a breeding colony. It could also result in increased instances of fly ups and associated increased predation of chicks and/or eggs and associated energetic costs, and thus reduction in colony size. Consequently, there is potential for adverse effects in relation to the maintenance in the long term of the population of the species as a viable component of the site.
- 4.3.4 Noisy activities associated with the Proposed Works are expected to include: grinding; welding; grit-blasting; impact wrenches; pneumatic concrete breaking; high pressure water jets; hydrodemolition; road planers; road paver; non-vibratory roller, floor scrapers; angle grinders; and magnetic drills. Noisy activities are typically defined as any construction activity that would result in an increase of $\geq 3\text{dB(A)}$ in the ambient noise level (dBLAeq) at sensitive receptors. Vibratory works are expected to include use of pneumatic concrete breakers (Appendix A: Programme of Works).
- 4.3.5 For wetland birds, generally auditory disturbance of more than 70dB (as experienced by the bird) has the potential to elicit a high-level disturbance effect (Cutts *et al.*, 2013). However, variation in species' tolerance, the nature of the disturbance (for example sudden/gradual, intermittent/continuous) and the level of background noise can determine the behavioural response of birds to noise disturbance. Noise from some activities that are required as part of the Proposed Works are expected to be greater than 70dB at source, however, attenuation can be achieved over a relatively short distance (Diagram 1). It is therefore likely that any potential for significant disturbance from noise will be limited to birds within close proximity of the works area, with the distance at which this occurs varying by species (Cutts *et al.*, 2013).

4.3.6 Visual stimuli associated with the Proposed Works include human activity, lighting, and movements of vehicles and vessels. Visual stimuli can elicit a high-level disturbance response from wetland birds before noise starts, however, as with noise disturbances, there is interspecies variation. Roost sites can be particularly susceptible to visual disturbance as a flight response from one individual can cause all birds to be flushed from the area despite some species having a higher tolerance threshold (Cutts *et al.*, 2013). It should be noted that noise and visual stimuli are likely to be concurrent during the works.

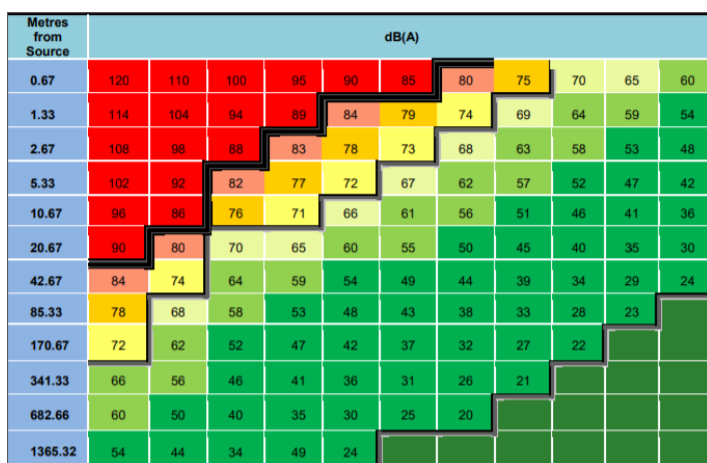


Diagram 1: Standard Distance Decay Rates for Noise from Source (Cutts *et al.*, 2013)

4.3.7 The Zone of Influence (Zoi) for noise and visual disturbance demarcates the area within which birds could be disturbed/displaced. The bridge is elevated above the Firth of Forth (approximately 50m to road level and approximately 44m to the underside of the walkway). The distance to birds on the surface of the water would be slightly greater and as such this represents a precautionary assessment.

4.3.8 In order to establish a Zoi around visual and noise disturbances and potential impacts to qualifying species of the Firth of Forth SPA and Ramsar site, an understanding of potential disturbance distances for each affected species is required. The Waterbird Disturbance Mitigation Toolkit (Cutts *et al.*, 2013) suggests a 300m Zoi for noise and visual disturbances for wintering waterbirds. As part of the ornithological investigation for this HRA, the suitability of this 300m Zoi distance has been tested for each of the qualifying species that occurred within the five-year WeBS data for the two sectors which cover the FRB. This was done by investigating available literature, including consideration of the NatureScot commissioned Research Report 1283 – Disturbance Distances Review: An updated literature review of disturbance distances of selected bird species (Goodship and Furness, 2022). A summary of the review conducted for this HRA, and the disturbance distance thresholds for each qualifying species based on a range of academic literature and professional judgement, can be found in Table 5. Species for which no records were made within five years of WeBS data (2019/2020 – 2023/2024) within the Forth Cult Ness or Hound Point to South Queensferry sectors are not included within Table 5 since they are not considered to use the area to an extent that would make them at risk of impacts. For Firth of Forth SPA/Ramsar these species were: bar-tailed godwit; common scoter; golden plover; grey plover; knot; long-tailed duck; pink-footed goose; ringed plover; scaup; Slavonian grebe; and velvet scoter. For Forth Islands SPA these comprise: Arctic tern, gannet; guillemot; kittiwake; puffin; razorbill; roseate tern; and shag. Whilst roseate tern was not recorded within the WeBS data they have been included in the assessment as they have previously bred at LCI and, as they are known to nest in multi-species colonies with common tern (and Arctic tern where present), the welfare of the other terns in the Forth is key if roseate terns are to return to the area as a breeding species. Therefore, disturbance during the Proposed Works has the potential to negatively impact the conservation objectives for roseate tern within the Forth Islands SPA.

- 4.3.9 Standard mitigation measures (see Appendix A: Programme of Works) including boarding and debris netting, and encapsulation of working activities where there is a risk of loss of material (e.g. during painting, grit blasting, hydro-demolition, intrusive investigation), will also further reduce visibility of construction works. This baseline has been considered when applying an appropriate Zol for each qualifying interest. However, any specific mitigation measures identified within this HRA to reduce or avoid any adverse effects to European sites have not been considered at this stage and did not inform Table 5.
- 4.3.10 As noted in Section 2.3.5, any works which require traffic management will not typically take place between 1 November and 31 March each year. Therefore, the potential for disturbance to qualifying interests during the non-breeding season is considerably reduced.
- 4.3.11 Information on bird use in the vicinity of the FRB, including BTO WeBS data and surveyor observations, has also been used to inform the suggested Zol. More details on site use by each species are provided within Tables 6 to 11.
- 4.3.12 In order to facilitate the assessment, for the majority of species a single Zol has been proposed, which as a result is precautionary for some species as shown in Table 5 and should be considered a maximum value.
- 4.3.13 It should be noted that terms used within Table 4 are sourced from the literature referenced. These terms have been kept as per the original source of the research. Terms may change per species, however for the purposes of this document the following terms are interchangeable: Flight Initiation Distance (FID), Minimum Approach Distance (MAD), Alert Distance and Escape Distance.

Table 5: Disturbance distances and suggested Zol for qualifying species of the Firth of Forth SPA/Ramsar site and Forth Islands SPA

Species	Qualifying Interest of Firth of Forth SPA/ Ramsar	Qualifying Interest of Forth Islands SPA	Discussion	Proposed Zol
Common tern	N	Y Breeding	<p>Common tern are summer visitors to the UK. Whilst they breed in both coastal and inland areas, they primarily breed in coastal areas in Scotland. They are known to nest on Long Craig Island below the FRB.</p> <p>During the breeding season, Goodship and Furness (2022) note a maximum FID of 400m has been recorded in response to a pedestrian and a maximum FID of 122m in response to a drone.</p> <p>Common tern are deemed to have a medium to high sensitivity to disturbance at breeding colonies and Goodship and Furness (2022) suggest a breeding season buffer of 200m–400m to protect colonies from pedestrian disturbance. Sensitivity is likely to be low away from breeding grounds.</p> <p>A 300m Zol for common tern is considered suitable in the context of the Proposed Works.</p>	300m
Cormorant	Y Non-breeding	Y Breeding	<p>Cormorant are widely distributed within Britain and Ireland, with the highest densities of wintering birds found around major estuaries and major lowland river systems. They make use of regular roosting sites and individuals can demonstrate high fidelity to these sites (BTO, 2025a). Cormorant feed on a wide range of small fish by diving in shallow water, generally less than 20m deep (SNH, 2016b).</p> <p>At a disturbed site for seaweed harvesting during the non-breeding season, cormorant have been shown to have a mean FID range of 74m–77.9m to pedestrians and 7.7m–23.5m to a car. Where there have been unobstructed views to the cause of disturbance, they have also been shown to have escape distances with a mean of 193m (Bregnballe <i>et al.</i>, 2009).</p> <p>Other literature has identified that cormorant tolerate high levels of activity and the presence of artificial structures, so are less vulnerable to noise and visual disturbance.</p> <p>Cormorant was not assessed in the Goodship and Furness (2022) paper, however the available literature indicates that they have a low sensitivity to disturbance. A 300m Zol for cormorant is considered suitable in the context of the Proposed Works.</p>	300m
Curlew	Y Non-breeding	N	<p>Curlew utilise intertidal sand and mudflats for foraging and also utilise grasslands for both foraging and roosting. They are territorial foragers and tend to occur widely spaced from each other to avoid competitive conflicts. Curlew are usually well dispersed across the estuary while feeding, but generally roost communally, usually along salt marshes and sand banks (Berg, 1993). These birds are considered to have a high site fidelity and are reliant on the site (intertidal mud and sandflats) but highly likely to utilise alternative habitats at certain times (e.g., during high tide).</p> <p>During the non-breeding season, surveyors walking over mudflats in Scotland caused a mean FID of 235.16m (Dwyer, 2010) for curlew, with other mean FIDs recorded as 88m (Brett, 2012) to surveyors walking in an estuary and 340.3m (Collop <i>et al.</i>, 2016) to surveyors walking a shoreline in England. In Denmark, FIDs in the range of 58m–650m FID has been recorded for surveyors walking along mudflats, with the mean FID being 298m (Laurson <i>et al.</i>, 2005).</p> <p>Agricultural activities and motorised vehicles caused a mean FID of 129m and 188m respectively (Smit and Visser, 1993). A 200m MAD has also been noted to pedestrians running along footpaths close to intertidal areas in England (Burton <i>et al.</i>, 2002).</p> <p>Curlew have been assessed to have a high sensitivity to human disturbance, with Goodship and Furness (2022) suggesting a breeding season buffer of 200m–300m and a non-breeding season buffer of 200m–650m. A 300m Zol for curlew is considered suitable in the context of the Proposed Works.</p>	300m

Species	Qualifying Interest of Firth of Forth SPA/ Ramsar	Qualifying Interest of Forth Islands SPA	Discussion	Proposed Zol
Dunlin	Y Non-breeding	N	<p>Dunlin feed predominantly on small invertebrates of estuarine mudflats, particularly polychaete worms and small gastropods. Dunlin feed in flocks, in the muddier sections of the estuaries and close to the tide edge. Dunlin are considered to have a high site fidelity and are totally reliant on wetland habitats.</p> <p>During the non-breeding season, minimum and maximum FIDs for dunlin have been recorded from 5m to 450m in response to pedestrians (Collop <i>et al.</i>, 2016; Laursen <i>et al.</i>, 2005).</p> <p>A mean FID of 52m has been recorded to motorized watercraft, with a minimum and maximum FID of 9m and 175m respectively (Scarton, 2018).</p> <p>Goodship and Furness (2022) have assessed dunlin as having a medium sensitivity to disturbance, with a suggested disturbance buffer of 100m-200m during the breeding season and 150m-300m during the non-breeding season. A 300m Zol for dunlin is considered suitable in the context of the Proposed Works.</p>	300m
Eider	Y Non-breeding	N	<p>All year round, eider feed (primarily on molluscs and crustaceans) close to the coast in water up to 3m deep, but they roost on open water (Goodship and Furness, 2022). Frequent flights are made between roost and feeding sites. Eider form large flocks during July and August when birds undergo a moult and are flightless for several weeks (NatureScot, 2025b). Pressures include nest predation by mammals and recreational disturbance by walkers and dogs.</p> <p>There is limited research available for eider, however the available literature identifies that during the non-breeding season FIDs range from 0m to 3200m in response to large commercial fishing ships, with a median FID of 208m (Schwemmer <i>et al.</i>, 2011).</p> <p>Maximum alert distances to surveyors in a motorboat approaching moulting eiders were recorded at 600m, and for smaller motorized watercraft, FIDs range from 30m-400m (Dehnhard <i>et al.</i>, 2020).</p> <p>Goodship and Furness (2022) note that eider are able to habituate to some types of human activity (e.g. pedestrians and aircraft) and this species can tolerate relatively high levels of human disturbance. However, they are more sensitive to motorized watercraft. Overall, eider have been assessed as having a medium/high sensitivity to disturbance in Goodship and Furness (2022), with a suggested disturbance buffer of 100m-200m during the breeding season and 200m-500m during the non-breeding season.</p> <p>As large vessels regularly travel under the FRB, eider in the vicinity are likely to be habituated to the presence of large boats. A 300m Zol for eider is considered suitable in the context of the Proposed Works.</p>	300m
Goldeneye	Y Non-breeding	N	<p>Goldeneye feed by diving in shallow waters and are primarily associated with the sub-tidal area during the winter months.</p> <p>During the non-breeding season, FIDs for goldeneye to pedestrians have been shown to be a minimum and maximum of 75m to 150m respectively (Liley <i>et al.</i>, 2010), with other records showing a maximum of up to 200m (Hume, 1976). Maximum FIDs to motorized watercraft (jet-ski) have been recorded for goldeneye up to 830m (Laursen <i>et al.</i>, 2017), with smaller FIDs to non-motorised watercraft ranging from 300m-400m (Laursen <i>et al.</i>, 2017).</p> <p>Goldeneye have been assessed as having a high sensitivity to disturbance in Goodship and Furness (2022). A buffer zone of 150m-800m is suggested for the non-breeding season. The larger FIDs for goldeneye are based on watercraft, with pedestrian-based disturbance unlikely at a distance over 150m. A 300m Zol for goldeneye is considered suitable in the context of the Proposed Works.</p>	300m

Species	Qualifying Interest of Firth of Forth SPA/ Ramsar	Qualifying Interest of Forth Islands SPA	Discussion	Proposed Zol
Great crested grebe	Y Non-breeding	N	<p>Great crested grebe feed predominantly on fish, insects, crustaceans, and molluscs. Wintering great crested grebe occur on lowland lakes, estuaries and on shallow sea coasts (BTO, 2025b).</p> <p>During the non-breeding season, great-crested grebe FIDs range from 70m for a large land-based vehicle (McLeod <i>et al.</i>, 2013) to a mean FID of 340m in response to non-motorised watercraft (Laursen <i>et al.</i>, 2017). In response to pedestrians along the shoreline in England, great crested grebe have shown minimum and maximum FID's of 20m-100m (Liley <i>et al.</i>, 2010).</p> <p>Great crested grebe has been assessed as having medium sensitivity to disturbance in Goodship and Furness (2022), however a non-breeding season buffer is not provided. A 300m Zol for disturbance is considered suitable for great crested grebe in the context of the Proposed Works.</p>	300m
Grey plover	Y Non-breeding	N	<p>Grey plover is found on estuaries and lagoons during winter, feeding inter-tidally on marine polychaete worms, molluscs and crustaceans in mudflats and joining mixed wader roosts at the shore or inland at high tide.</p> <p>During the non-breeding season, most maximum FIDs in response to pedestrians noted in Goodship and Furness (2022) are less than 300m, with many less than 100m. However, Laursen <i>et al.</i>, (2005) recorded a maximum FID of 400m in response to pedestrians on mudflats in Denmark. The minimum FID has been recorded as 32m (Mikula <i>et al.</i>, 2018). Grey plover has been assessed as having medium sensitivity to disturbance in Goodship and Furness (2022). A 150m-350m buffer zone is suggested during the non-breeding season and no breeding season buffer is provided. A 300m Zol for disturbance is considered suitable for grey plover in the context of the Proposed Works.</p>	300m
Herring gull	N	Y Breeding	<p>In the UK, herring gull can be found throughout the year in both coastal and inland areas, although numbers increase over winter. They are opportunistic, omnivorous feeders.</p> <p>Herring gull has not been assessed in Goodship and Furness (2022), but Goodship and Furness (2019) note that they have a low sensitivity to disturbance. The maximum FID recorded is 29m in response to pedestrian disturbance during the breeding season. A 50m Zol for disturbance is considered suitable for herring gull in the context of the Proposed Works.</p>	50m
Lapwing	Y Non-breeding	N	<p>Lapwing feeds mainly on pasture, wet meadows, and arable farmland in winter with roosts in fields or on saltmarshes. Estuarine sites can become important in cold weather when other sites freeze. Gillings and Fuller (1999) suggest that flocks will feed on cultivated land during the early part of the winter and then may switch to grassland during late to mid-winter in response to cold weather.</p> <p>Laursen <i>et al.</i> (2005) has shown lapwing as having an escape distance of a minimum of 45m and maximum of 450m. The Waterbird Disturbance Mitigation Toolkit (WDMT) (Cutts <i>et al.</i>, 2013) states that lapwing show no response to visual disturbance at 300m-400m.</p> <p>Lapwing has not been assessed in Goodship and Furness (2022), but the WDMT (Cutts <i>et al.</i>, 2013) has classed lapwing as medium sensitivity to disturbance. A 300m Zol for disturbance is considered suitable for lapwing in the context of the Proposed Works.</p>	300m
Lesser black-backed gull	N	Y Breeding	<p>Lesser black-backed gull are present around the UK coastline throughout the year. Lesser black-backed gull has not been assessed in Goodship and Furness (2022), but Goodship and Furness (2019) note that they have a low sensitivity to disturbance. The maximum FID recorded is 25m in response to pedestrian disturbance during the breeding season.</p>	50m

Species	Qualifying Interest of Firth of Forth SPA/ Ramsar	Qualifying Interest of Forth Islands SPA	Discussion	Proposed Zol
			A 50m Zol for disturbance is considered suitable for lesser black-backed gull in the context of the Proposed Works.	
Mallard	Y Non-breeding	N	<p>Mallard feed predominantly by dabbling in shallow water or upending in slightly deeper water during the day and occasionally by night (SNH, 2016a). Birds will eat both plant and animal matter and may occasionally graze ashore. Mallard are often tolerant of humans, especially in urban areas, however localised disturbances can impact birds.</p> <p>Dwyer (2010) recorded a mean FID of 162.5m in response to a surveyor walking over mudflats in Scotland during the non-breeding season. The majority of studies referenced in Goodship and Furness (2022) note FIDs of less than 100m during the non-breeding season in response to pedestrians and watercraft, with the minimum FID recorded as 10m. Some higher FIDs have been in Denmark in response to wind surfers (280m) (Laursen <i>et al.</i>, 2017) and surveyors walking over mudflats (400m) (Laursen <i>et al.</i>, 2005).</p> <p>Mallard has been assessed as having a low to medium level of sensitivity to disturbance in Goodship and Furness (2022). A buffer of 50m-100m is suggested during the breeding season and $\geq 100m$ is suggested during the non-breeding season. A 300m Zol for disturbance is considered suitable for mallard in the context of the Proposed Works.</p>	300m
Oystercatcher	Y Non-breeding	N	<p>Oystercatcher feed on shellfish, especially large cockles and mussels, ragworms (<i>Nereidae</i> species) and lugworms (<i>Arenicola</i> species) on mudflats, and are considered to be highly site faithful in winter.</p> <p>Oystercatcher is considered less sensitive to disturbances than other wader species (Woodward <i>et al.</i>, 2015). During the non-breeding season, a range of FIDs for oystercatcher has been recorded, with a minimum FID of 10m and maximum FID of 200m recorded for pedestrian activities by Liley <i>et al.</i> (2010). Azaki and Cresswell (2021) recorded a minimum FID of 18m and maximum FID of 68m in response to a surveyor walking along the shoreline in Scotland. They noted the FID was less in areas with more human activity. A mean FID of 137m has been recorded by Dwyer (2010) in response to surveyors walking over mudflats in Scotland. Mean FIDs for non-motorized watercraft in nearshore waters off Denmark ranged from 60m to 160m (Laursen <i>et al.</i>, 2017).</p> <p>Oystercatcher has been assessed as having a medium sensitivity to disturbance in Goodship and Furness (2022). A buffer of 50m-100m is suggested during the breeding season and a buffer of 150m-300m is suggested during the non-breeding season. A 300m Zol for disturbance is considered suitable for oystercatcher in the context of the Proposed Works.</p>	300m
Red-breasted merganser	Y Non-breeding	N	<p>Red-breasted merganser are associated with the sub-tidal area of the Firth of Forth and rarely come ashore during the winter months. Therefore, they are not sensitive to increased use/disturbance of the shoreline, although they would be sensitive to water-based recreation (Gillingwater, 2018).</p> <p>For pedestrian disturbance, there is evidence that red-breasted mergansers are tolerant between 30m-150m (Goodship and Furness, 2019). FID distances for marine traffic show that 90% of red-breasted merganser are flushed at a distance of 250m (Gittings and O'Donoghue, 2016) and this species is very likely to take flight at 200m-300m from a passing ferry (Goodship and Furness, 2019).</p> <p>Red-breasted merganser have not been assessed in Goodship and Furness (2022), however, Goodship and Furness (2019) assessed a medium sensitivity to disturbance from hand-harvesting seaweed. A 300m Zol for disturbance is considered suitable for red-breasted merganser in the context of the Proposed Works.</p>	300m

Species	Qualifying Interest of Firth of Forth SPA/ Ramsar	Qualifying Interest of Forth Islands SPA	Discussion	Proposed Zol
Redshank	Y Non-breeding	N	<p>Redshank feed on invertebrates, including annelid worms, molluscs and crustaceans (especially amphipods) along the coasts, mudflats and tidal estuaries. These birds are considered to be highly site faithful in winter. Redshank are susceptible to harsh winter weather and prolonged cold spells.</p> <p>During the non-breeding season, multiple FIDs have been recorded in response to pedestrians along the shoreline and mudflats. The mean FIDs in response to a surveyor walking over mudflats in Scotland and Denmark were 149.9m (Dwyer, 2010) and 137m (Laursen <i>et al.</i>, 2005) respectively and the mean FID in response to walking along a shoreline in England was 79.8m (Collop <i>et al.</i>, 2016). Laursen <i>et al.</i> (2017) recorded mean FIDs of 175m and 260m in response to non-motorized watercraft in nearshore waters off Denmark.</p> <p>Redshank has been assessed as a medium sensitivity to disturbance in Goodship and Furness (2022) and a buffer of 200m-300m has been suggested for the non-breeding season. A 300m Zol for disturbance is considered suitable for redshank in the context of the Proposed Works.</p>	300m
Red-throated diver	Y Non-breeding	N	<p>Red-throated diver is principally a marine species in winter, occurring on sheltered inshore waters above soft substrates and sometimes in large numbers further offshore.</p> <p>During the non-breeding season, a mean FID of 1200m has been noted in response to motorized watercraft and a maximum FID of 1400m has been recorded in response to non-motorised watercraft (Laursen <i>et al.</i>, 2017). Red-throated diver are very likely to take flight in the 200m-300m distance band from a passing ferry (Jarrett <i>et al.</i>, 2018).</p> <p>Red-throated diver has been assessed as having a high sensitivity to human disturbance. A buffer of ≤ 1000m during the non-breeding season is recommended (Goodship and Furness, 2022). However, this recommendation is related to disturbance by shipping vessels and watercraft. A 500m Zol for disturbance is considered suitable for red-throated diver in the context of the Proposed Works.</p>	500m
Sandwich tern	Y Passage	Y Breeding	<p>In the UK, Sandwich terns are generally present in the summer and are passage migrants in the spring and autumn (BTO, 2025c). Birds often roost in estuaries at low tide and on coastal lagoons. The species is potentially displaced from colonies by disturbance, predation and increasing gull colonies (Woodward <i>et al.</i>, 2015).</p> <p>There is a lack of quantitative disturbance distances available for Sandwich tern. Goodship and Furness (2019) notes the disturbance distance for nesting Sandwich terns may be 50m from the colony edge (but this is likely to be influenced by conditions affecting the colony) and that Sandwich terns foraging or commuting over the sea do not appear to be disturbed by the presence of people.</p> <p>Goodship and Furness (2022) has assessed Sandwich tern as having a high sensitivity to human disturbance during the breeding season, with a buffer of ≥ 200m suggested. However, they also note that sensitivity is considered to be low away from breeding grounds and Goodship and Furness (2019) assessed Sandwich tern as having a low sensitivity to human disturbance away from breeding colonies.</p> <p>As Sandwich tern do not breed on Long Craig Island or in the vicinity of the Proposed Works, their sensitivity to human disturbance will be low. Therefore, a Zol of 50m is considered suitable in the context of the Proposed Works.</p>	50m

Species	Qualifying Interest of Firth of Forth SPA/ Ramsar	Qualifying Interest of Forth Islands SPA	Discussion	Proposed Zol
Shelduck	Y Non-breeding	N	<p>The diet of shelduck consists predominantly of salt-water molluscs, primarily mudsnail which is present in almost all estuaries, and often in large numbers. Spatial distribution is strongly influenced by the behaviour of this prey, particularly in relation to water depth. Shelduck is considered to have high site fidelity.</p> <p>FID observations for shelduck during the non-breeding season included: a mean FID of 178.4m was recorded in response to surveyors walking over mudflats in Scotland (Dwyer, 2010) and mean FIDs of 48.6m (Møller, 2008) and 36.3m (Møller and Erritzøe, 2010) were recorded in response to surveyors walking in Europe. In response to a surveyor walking over mudflats in Denmark, a minimum and maximum FID of 55m and 700m was recorded, with a mean FID of 225m (Laursen <i>et al.</i>, 2005).</p> <p>Shelduck has been assessed as having a high sensitivity to disturbance in Goodship and Furness (2022). They also exhibit a high degree of habituation to visual disturbance (Cutts <i>et al.</i>, 2013). A buffer zone of 100m-400m has been suggested for the non-breeding season. A Zol of 300m is considered suitable for shelduck in the context of the Proposed Works.</p>	300m
Turnstone	Y Non-breeding	N	<p>Turnstone is primarily a winter visitor to the UK and can be found along most coastal areas. They locate food by sight, often by turning over pebbles or seaweed. Birds are highly site faithful, both within and between winters, often remaining in flocks with the same individuals but will mix with other waders when roosting. Birds are found along rocky or stony shores, but also on mudflats or sandy shores.</p> <p>Turnstone are very tolerant to all forms of disturbance. Goodship and Furness (2019) note a range mean FIDs of 125m – 31.5m and 39m in response to a pedestrian walking/running and 36.4m in response to motorized watercraft. Moving trucks resulted in turnstone being flushed at 100m (Cutts <i>et al.</i>, 2009; Cutts <i>et al.</i>, 2013).</p> <p>Turnstone have not been assessed by Goodship and Furness (2022), however they have been assessed as having medium sensitivity to disturbance during the non-breeding season in response to hand harvesting seaweed in Goodship and Furness (2019).</p> <p>A Zol of 300m is considered suitable for turnstone in the context of the Proposed Works.</p>	300m
Wigeon	Y Non-breeding	N	<p>Wigeon primarily winter in the UK (there is a small breeding population in northern Scotland and along the Pennine chain in England) (BTO, 2025d). They feed predominantly on leaves, seeds, stems and root bulbs of pond weeds, fine grasses horsetails and eelgrass, as well as algae (Owen and Thomas, 1979). Wigeon are gregarious, forming large flocks and can feed at night. Wigeon feed close to the water's edge and when disturbed flocks will fly to the safety of open water and take a while to come back to feed (Woodward <i>et al.</i>, 2015).</p> <p>Maximum FIDs of 100m have been recorded in response to pedestrians along the shoreline in England (Liley <i>et al.</i>, 2010; Liley <i>et al.</i>, 2011) and a mean FID of 151m has been recorded in response to a surveyor walking over mudflats in Scotland (Dwyer, 2010). Goodship and Furness (2022) note that generally mean FID values in response to pedestrians are less than 200m. Mean FIDs are larger in response to non-motorized watercraft, with Laursen <i>et al.</i> (2017) recording mean FIDs between 230m and 500m in nearshore waters off Denmark.</p> <p>Wigeon has been assessed as having a high sensitivity to human disturbance in Goodship and Furness (2022) and a buffer zone of 200m-500m has been suggested for the non-breeding season. A 300m Zol is considered suitable for wigeon in the context of the Proposed Works.</p>	300m

- 4.3.14 The 300m Zol that has been identified for all species (except Sandwich tern, herring gull and lesser black-backed gull (50m) and red-throated diver (500m)) extends on the southern side of the FRB from the western breakwater of Port Edgar to the area known as the Binks. On the northern side, the Zol falls a little way short of the north extent of the Queensferry Crossing to the west, and extends into the western extent of North Queensferry harbour to the east. The habitats present within the 300m Zol comprise rocky shoreline, much of which has been modified by development, such as the harbours and breakwaters at Port Edgar and North Queensferry, and sections of retaining walls and reinforced coastline. At low tide areas of mudflats are exposed. The functionally important habitats within the 50m buffer for Sandwich tern and the gull species are considered to be Long Craig Island itself and surrounding low tide mudflats. The 500m buffer for red-throated diver on the south side of the estuary includes Port Edgar up to the edge of South Queensferry harbour. On the north side, it covers the whole of the Queensferry Crossing, and to the east, the majority of North Queensferry Harbour.

Assessment Tables: Firth of Forth SPA/Ramsar

- 4.3.15 The tables in the following section provide the detailed assessment of disturbance of Firth of Forth SPA/Ramsar qualifying interests, as follows:
- Table 6: HRA Stage Two (AA) for Disturbance of Qualifying Interests of the Firth of Forth SPA/Ramsar Individually Cited Species;
 - Table 7: HRA Stage Two (AA) for Disturbance of Qualifying Interests of the Firth of Forth SPA/Ramsar Passage Species; and
 - Table 8: HRA Stage Two (AA) for Disturbance of Qualifying Interests of the Firth of Forth SPA/Ramsar Waterfowl Assemblage Only Species
- 4.3.16 Each individually cited qualifying interest of the SPA and Ramsar site (listed below) has been assessed against the relevant conservation objectives separately (Tables 6 and 7), whilst those that are assemblage qualifiers only are assessed as a group (Table 8). With the exception of Sandwich tern, all are also assemblage qualifiers of the SPA and Ramsar site. With the exception of Sandwich tern which is designated as a passage species at both sites, all are designated as non-breeding interests.
- 4.3.17 The individually cited species are as follows:
- bar-tailed godwit;
 - golden plover;
 - knot;
 - pink-footed goose;
 - redshank;
 - red-throated diver;
 - Sandwich tern;
 - shelduck;
 - Slavonian grebe; and
 - turnstone.
- 4.3.18 As detailed in Tables 6 to 8, although some qualifying species of the Firth of Forth SPA and Ramsar sites use habitats within the Zol of the Proposed Works, there will be no AESI from the Proposed Works for over-wintering species. This is due to the nature of the works which comprise discrete works packages with a limited-duration maintenance period (albeit some may continue over several

years), restricted works during the winter months, the infrequent use of the habitats, and/or the very low numbers of birds using these areas.

Table 6: HRA Stage Two (AA) for Disturbance of Qualifying Interests of the Firth of Forth SPA/Ramsar Individually Cited Species

LSE	Conservation Objectives Potentially Affected	Commentary	Avoidance and Mitigation	Conclusion of AESI test
<p>Disturbance as a result of noise, vibration, movement and visual stimuli from the Proposed Works which could deter species from the area adjacent to the bridge</p>	<p>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</p> <p>To ensure for the qualifying interests that the following are maintained in the long term:</p> <ul style="list-style-type: none"> • distribution of the species within site; and • no significant disturbance of the species. 	<p><u>Bar-tailed godwit, golden plover, knot, pink-footed goose and Slavonian grebe</u></p> <p>Of the individually cited species, bar-tailed godwit, golden plover, knot, pink-footed goose and Slavonian grebe were not recorded in five years' of WeBS counts of the Forth Cult Ness or Hound Point to South Queensferry sectors. As these species do not utilise habitat within the vicinity of the FRB, they will not be disturbed by the Proposed Works.</p>	<p>No mitigation is required</p>	<p>No adverse effect on site integrity</p>
		<p><u>Redshank</u></p> <p>Redshank was recorded in both WeBS sectors, with a peak count of 68 in the Forth Cult Ness sector in September 2020, and a peak count of 25 in the Hound Point to South Queensferry sector. 68 individuals represents 1.6% of the SPA population and 0.05% of the Eastern Atlantic population as at the time of designation.</p> <p>Tern ECoW in 2021, 2023 and 2025 noted occasional presence of redshank on LCI and foraging on the surrounding mudflats at low tide. QC EIA data identify several key loafing, foraging and roosting sites close to the FRB including Port Edgar, North Queensferry Harbour, both of which are partially within the Zol, and also Inverkeithing Bay and Hopetoun Bank. At Port Edgar groups of birds were identified both on the floating breakwater and tern rafts (which were subsequently replaced in 2018) within Port Edgar, as well as foraging on the mudflats within the marina. The floating breakwater and tern raft are outwith the Zol.</p> <p>Any redshank that are displaced from Port Edgar or North Queensferry Harbour during works are likely to relocate to other nearby areas such as Inverkeithing Bay, Hopetoun Bank and Limekilns, and the displacement would likely be for the short time period required to relocate locally to areas not affected.</p> <p>Other important habitats at Limekilns, Hopetoun Bank and Inverkeithing Bay would not be impacted, therefore disturbance is unlikely to have a significant effect on the species or on its distribution within the SPA/Ramsar. Displacement out of the SPA is not predicted given the availability of alternative feeding and roost site.</p> <p>On this basis, any disturbance caused by the works is unlikely to result in significant disturbance to redshank or change their distribution within the SPA, therefore no AESI is predicted.</p>	<p>No mitigation is required</p>	<p>No adverse effect on site integrity</p>
		<p><u>Red-throated diver</u></p> <p>Peak counts of one red-throated diver was recorded in Forth Cult Ness sector, in January 2022 and November 2023. The species was not recorded in the Hound Point to South Queensferry sector. 1 individual represents around 1.1% of the SPA population and 0.02% of the GB population as at the time of designation.</p> <p>A small number of records were identified in the QC EIA data, primarily downstream of the Forth Rail Bridge. Whilst the species has a high sensitivity to disturbance, red-throated diver are unlikely to be present within the vicinity of the scheme as they primarily forage in deeper water further offshore and roost only on water.</p> <p>On this basis, any disturbance caused by the works is unlikely to result in significant disturbance to red-throated diver or change their distribution within the SPA, therefore no AESI is predicted.</p>	<p>No mitigation is required</p>	<p>No adverse effect on site integrity</p>
		<p><u>Shelduck</u></p> <p>An annual peak count of 17 shelduck was recorded in February 2024 in the Forth Cult Ness sector, and a peak count of 2 birds was recorded in the Hound Point to South Queensferry sector. 17 individuals represents around 0.4% of the SPA population and 0.01% of the NW European biogeographic population as at the time of designation. QC EIA data included regular observations in small numbers between May 2008 and April 2009. Peak observations within the wider area were recorded at Limekilns and Inverkeithing Bay.</p> <p>Shelduck present in late summer are likely to be moulting birds and juveniles and may be flightless (individual birds are flightless for about one month during moult), which means that any relocation behaviour during that period would require swimming. However, if birds were displaced it would likely be a small number and for the short time period required to relocate locally to the alternative suitable habitat nearby, for example at Limekilns and Inverkeithing Bay.</p> <p>On this basis, any disturbance caused by the works is unlikely to result in significant disturbance to redshank or change their distribution within the SPA, therefore no AESI is predicted.</p>	<p>No mitigation is required</p>	<p>No adverse effect on site integrity</p>
		<p><u>Turnstone</u></p> <p>An annual peak of 35 turnstone was recorded in the Hound Point to South Queensferry sector in February 2024, and a peak count of 6 was recorded in the Forth Cult Ness sector. 35 individuals represents around 4.1% of the SPA population and 0.04% of the Western Palearctic population as at the time of designation. They are considered scarce within the inner Forth (SNH, 2016b). Turnstone were identified in QC EIA data, with key locations for foraging and roosting near the bridges identified as Dalgety Bay and Limekilns, both outside the Zol. Small numbers of turnstone were also found to use the floating breakwater in Port Edgar marina, which is also outside the Zol, and along adjacent areas. There is potential for small numbers of birds to be within the Zol.</p> <p>If feeding turnstone were displaced, it would likely be limited to a small number of birds within very close proximity of the works area only. The species also has a very wide diet, including invertebrates and carrion, found in habitat types present throughout the SPA such as rocky shores, mudflats, sandy shores and on tide wrack.</p> <p>Disturbance is therefore unlikely to have a significant effect on the species or on its distribution within the SPA/Ramsar. Displacement out of the SPA is not predicted given the availability of alternative feeding and roost sites.</p> <p>On this basis, any disturbance caused by the works is unlikely to result in significant disturbance to turnstone or change their distribution within the SPA, therefore no AESI is predicted.</p>	<p>No mitigation is required</p>	<p>No adverse effect on site integrity</p>

Table 7: HRA Stage Two (AA) for Disturbance of Qualifying Interests of the Firth of Forth SPA/Ramsar Passage Species

LSE	Conservation Objectives Potentially Affected	Commentary	Avoidance and Mitigation	AA Determination after Mitigation
<p>Disturbance as a result of noise, vibration, movement and visual stimuli from the Proposed Works which could deter species from the area adjacent to the bridge</p>	<p>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</p> <p>To ensure for the qualifying interests that the following are maintained in the long term:</p> <ul style="list-style-type: none"> • distribution of the species within site; and • no significant disturbance of the species. 	<p>Sandwich tern will roost across a range of habitats including offshore islands, rocks, estuaries and coastal lagoons, and can be displaced from roost sites due to disturbance, predation and gull colony presence.</p> <p>The species was recorded in both WeBS sectors⁴, with a peak count of 50 birds recorded in August 2020 in the Hound Point to South Queensferry sector, and a peak count of 16 birds in the Forth Cult Ness sector. 50 individuals represents around 3.1% of the SPA population and 0.03% of the GB population as at the time of designation.</p> <p>The peak being in August corresponds with the main passage season (July to September) where this species is found in the Firth of Forth prior to migration (SNH, 2016b). Whilst historically they may have bred in the inner Forth (NatureScot, 2024), their breeding sites within the SPA are now restricted to a small population on the Isle of May.</p> <p>QC EIA data found Sandwich tern frequently foraged throughout the wider area around the bridges, and that flocks loafed and roosted around Port Edgar marina, especially the floating breakwater at the entrance of the harbour and the purpose-built tern raft. They were also recorded at Long Craig Island where they were reported to roost with other tern species. In 2007 and 2008, peak overnight numbers identified across the two locations combined were 596 and 429 birds respectively, which is over a quarter of the population cited SPA population. Daytime surveys undertaken in 2025 however, identified much smaller numbers, with a peak of 18 adults on 1 September and a peak of 52 juveniles on 29 August. The species was identified on four consecutive weekly surveys between 21 August and 8 September.</p> <p>Sandwich tern also regularly use Long Craig Island and were identified during ECoW monitoring in 2021, 2023 and 2025. In 2025 they were recorded between early July and early September, with a peak count of 49 individuals on 11 August.</p> <p>In an update from the previous Marine Licence application, a revised ZoI of 50m has been proposed within this assessment, based on the scientific literature which shows Sandwich tern as having a low sensitivity to disturbance away from breeding grounds.</p> <p>The floating breakwater and purpose-built tern raft at Port Edgar are both outwith the 50m ZoI, and thus Long Craig Island is the only habitat used by the species within the ZoI. Birds on Long Craig Island could be disturbed by noise, vibration and visual disturbance from the Proposed Works.</p> <p>In respect of vessel movements, such as those required for the Runway Beam Bracket Replacement and New Suspended Span Underdeck Access Gantry and the Repair of Cathodic Protection Systems works packages, whilst boat traffic in the northern shipping channel 500m away from Long Craig Island is regular, larger boats do not normally pass close to the island because the waters are shallow.</p> <p>Given the size of the barge required for the Runway Beam Bracket Replacement and New Suspended Span Underdeck Access Gantry activity and the likelihood of its sustained presence, rather than simply passing by, there is potential for disturbance to Sandwich tern on Long Craig Island.</p> <p>Where Proposed Works are taking place on the bridge within 50m of Long Craig Island and during the two to three months during which Sandwich tern are present there is potential for disturbance. If birds were to be disturbed and/or displaced it would likely be a small number, up to approximately 1% of the SPA population based on data from 2025. Disturbance/displacement would likely be for the short time period required to relocate locally to other suitable habitat outwith the ZoI, for example at Port Edgar and potentially to further afield at Limekilns, Rosyth, Inverkeithing Bay and North Queensferry Harbour. Moreover the birds are not breeding when using Long Craig Island and so the implications of short-term relocation are lower than for a breeding qualifying interest. The majority of works-related sources of disturbance would be on the bridge itself which is 44-50m above the island and thus close to the limits of the ZoI. Nonetheless, disturbance during the Proposed Works has the potential to negatively impact the conservation objectives for Sandwich tern in the Firth of Forth SPA.</p>	<p>A package of mitigation measures is presented to minimise disturbance effects on common and roseate tern as set out in Table 9. These measures will additionally act to ensure that the conservation objectives for Sandwich tern are not compromised during the period of overlap between the breeding tern season and the Sandwich tern passage period (namely July and mid/late August). It is acknowledged that there is likely to be a period in mid- to late-August and September where these measures are not in place and where Sandwich tern are present within 50m of potentially disturbing works on the bridge, or from vessels associated with the Proposed Works.</p> <p>It is considered that no additional mitigation is required specifically for Sandwich tern in August/September for the reasons noted within the Commentary; in particular their low numbers, the availability of suitable alternative habitat nearby, and the fact they are non-breeding. However, should the ECoW identify evidence of disturbance to the Sandwich terns at the end of the common tern breeding period, additional mitigation may be required. Additionally, if the breeding tern colony abandons, the ECoW would be consulted, and NatureScot would be notified prior to these measures being curtailed in relation to common terns. Consideration should be given to the need for mitigation specifically for Sandwich tern, based on the numbers, distribution and behaviour of birds that year, and the upcoming programme of Works within 50m of LCI during the passage period of July to September.</p> <p>As part of the Runway Beam Bracket Replacement and New Suspended Span Underdeck Access Gantry activity, at least one maintenance gantry requires installation on one of the three suspended spans, and the remaining two suspended spans may have gantries installed subsequently. This activity requires use of a barge to raise the gantry to the underside of the bridge using two cranes at road level. Works need to be undertaken outwith the November to March traffic management embargo. Due to the size of the barge required and the likelihood of its sustained presence, rather than simply passing by, it is considered that this activity has potential to be significantly disturbing to breeding terns if undertaken close to LCI within the breeding season. BEAR have advised that should a gantry be installed on the main span, that this can be lifted adjacent to the south main tower which is over 1000m away from LCI. An ECoW should be present for this operation. If a gantry were needed to be lifted onto the north side span, this activity should be undertaken outwith the tern breeding season, passage and post-fledging period. Thus it is recommended this activity takes place during April or October. In addition, Forth Ports implements speed limits on all vessels, including barges and other vessels required for the works, which would be strictly adhered to.</p> <p>Boat movements may also be required as part of the Repair of Cathodic Protection Systems activity and boat access to the pierhead may be required at any time if a failure were to occur. The pier defences are on the main span side (south) of the North Main Tower, and therefore there is visual screening provided by the pier itself and North Main Tower.</p>	<p>No adverse effect on site integrity</p>

⁴ As noted in 4.1.4 gulls and terns are only optionally recorded within WeBS data and as such may be under-represented.

Table 8: HRA Stage Two (AA) for Disturbance of Waterfowl Assemblage-Only Qualifying Interests of the Firth of Forth SPA/Ramsar,

LSE	Conservation Objectives Potentially Affected	Commentary	Avoidance and Mitigation	AA Determination after Mitigation
<p>Disturbance as a result of noise, vibration, movement and visual stimuli from the Proposed Works which could deter species from the area adjacent to the bridge</p>	<p>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</p> <p>To ensure for the qualifying interests that the following are maintained in the long term:</p> <ul style="list-style-type: none"> • distribution of the species within site; and • no significant disturbance of the species. 	<p><u>Common scoter, grey plover, long-tailed duck, ringed plover, scaup, and velvet scoter</u> Of the waterfowl assemblage-only species, these species were not recorded in five years' of WeBS counts of Fort Cult Ness and Hound Point to South Queensferry. As these species do not utilise habitat within the vicinity of the FRB, they will not be disturbed by the Proposed Works.</p> <p><u>Cormorant</u> The peak count of cormorant in the WeBS data was 16 in November 2020 in the Forth Cult Ness sector, and 6 in Hound Point to South Queensferry in October 2023. 16 individuals represents around 2.3% of the SPA population and 0.12% of the GB population as at the time of designation. Important areas for the species within the vicinity of the bridges, as identified through QC EIA data, were Inch Garvie Island and Hound Point, both outwith the ZoI. Some limited suitable habitat for cormorant does exist within the 300m ZoI and individuals were occasionally noted on LCI by the tern ECoW.</p> <p><u>Curlew</u> The peak count of curlew was 234 in March 2024, in the Hound Point to South Queensferry sector. Curlew was also recorded in the Forth Cult Ness WeBS sector but in much lower numbers, with a peak of 17 individuals. 234 individuals represents around 12.1% of the SPA population and 0.24% of the GB population as at the time of designation. The record of 234 curlew in March 2024 is considered a notable outlier, with peaks for the other years in that sector for the five-year period not exceeding 10. QC EIA data identified Limekilns, Rosyth, Hopetoun Bank and Abercorn Point as key areas within the vicinity of the bridges, all of which are outwith the ZoI. It is considered likely that the majority of the birds within the Hound Point to South Queensferry sector would be associated with Hound Point and Peatdraught Bay where sandy beaches with mudflats and rocky outcrops are available. Some limited mudflats exist within the ZoI and individuals were occasionally noted by the tern ECoW foraging around LCI at low tide.</p> <p><u>Dunlin</u> The peak count of dunlin was 9 in December 2022, in the Forth Cult Ness WeBS sector. Dunlin was not recorded in the Hound Point to South Queensferry sector. 9 individuals represents 0.1% of the SPA population, and <0.01% of the GB population as at the time of designation. QC EIA data identified Port Edgar as important areas for the species within the ZoI, and Inverkeithing Bay, Hopetoun Bank and Limekilns further afield.</p> <p><u>Eider</u> Eider was recorded in both WeBS sectors, with a peak count of 55 recorded in March 2024 in the Hound Point to South Queensferry sector, and a peak of 29 in Fort Cult Ness. 55 individuals represents 0.6% of the SPA population and 0.08% of the GB population as at the time of designation. QC EIA data identified Inch Garvie Island and Hound Point as important areas for the species within the QC EIA study area, both of which are outwith the ZoI.</p> <p><u>Goldeneye</u> Goldeneye was recorded in low numbers in the Hound Point to South Queensferry sector, with a peak count of 5 in December 2021. The species was not recorded in the Forth Cult Ness WeBS sector. 5 individuals represents 0.2% of the SPA population, and <0.01% of the north-west and central European biogeographic population, as at the time of designation. QC EIA identified very low numbers of the species within the vicinity of the bridges.</p> <p><u>Great crested grebe</u> Great crested grebe was recorded in very low numbers in both sectors with a peak of 2 in the Hound Point to South Queensferry sector in January 2023, and a peak count of 1 in the Forth Cult Ness sector. 2 individuals represents 0.3% of the SPA population and 0.02% of the GB population as at the time of designation. QC EIA data recorded the species throughout the survey period, peaking during the winter months but only small numbers were observed within the vicinity of the bridges.</p> <p><u>Lapwing</u> A peak count of 3 lapwing was recorded in the Hound Point to South Queensferry sector in March 2024. It was not recorded in the Forth Cult Ness sector. 3 individuals represents 0.1% of the SPA population and <0.01% of the GB population as at the time of designation. Within QC EIA data, Limekilns and Inverkeithing Bay were identified as key roosting locations, which are outwith the ZoI.</p> <p><u>Mallard</u> A peak count of 10 mallard was recorded in March 2022 in the Forth Cult Ness sector, and in December 2023 in the Hound Point to South Queensferry sector. 10 individuals represents 0.4% of the SPA population and <0.01% of the GB population as at the time of designation. QC EIA data identified mallard mainly in large flocks at Limekilns, at some distance from the bridges, with few birds observed within 1km.</p> <p><u>Oystercatcher</u> Oystercatcher was recorded in both WeBS sectors, with a peak count of 82 in the Hound Point to South Queensferry sector and a peak count of 19 in the Fort Cult Ness sector. 82 individuals represents 1% of the SPA population and 0.02% of the GB population as at the time of designation. QC EIA data indicated the species loafing, roosting and foraging in numerous locations including on Long Craig Island and within or partially within the ZoI, as well other locations within the wider area (Inverkeithing Bay, Rosyth, Hound Point, Abercorn Point and South Queensferry harbour).</p>	<p>No mitigation is required.</p>	<p>No adverse effect on site integrity</p>

LSE	Conservation Objectives Potentially Affected	Commentary	Avoidance and Mitigation	AA Determination after Mitigation
		<p>Whilst it is likely that some roosting, loafing and foraging oystercatcher at Long Craig Island will be disturbed due to the Proposed Works, the magnitude of this effect in terms of the conservation objectives is considered negligible. This is based on the fact that birds are less sensitive to disturbance than other waders and any birds which are displaced are likely to be able to redistribute to other locations nearby, including those identified above. The fact that oystercatchers were roosting on Long Craig Island whilst the FRB was the main route for all traffic indicates that this species habituates to regular disturbance from a consistent noise source.</p> <p><u>Red-breasted merganser</u> Red-breasted merganser was recorded in both WeBS sectors, with a peak count of 19 in January 2021 in the Forth Cult Ness sector, and 7 in Hound Point to South Queensferry. 19 individuals represents 2.8% of the SPA population and 0.2% of the GB population as at the time of designation. QC EIA data recorded observations throughout most of the area studied but more frequently on the northern shoreline outwith the Zol. The species generally winters at sea on secluded bays or estuaries but at high tide uses intertidal mud areas. It is considered widespread but uncommon in the inner Forth.</p> <p><u>Wigeon</u> Wigeon was recorded in the Hound Point to South Queensferry WeBS sector, with a peak count of 6 in February 2023. The species was not recorded in the Forth Cult Ness sector. 6 individuals represents 0.3% of the SPA population and <0.01% of the GB population as at the time of designation. Wigeon numbers in the Firth of Forth typically peak between November and February. QC EIA data identified Limekilns and Abercorn Point as key locations for the species both outwith the Zol. Important habitat for the species is not located in within the Zol however SNH (2016b) notes that when disturbed, flocks fly to the safety of open water and take a while to come back to feed affecting their ability to forage if ongoing disturbance occurs.</p> <p><u>Summary</u> The total waterfowl assemblage SPA population size (including individually cited species detailed in Table 6) was 2,139 individuals, 0.78% of the GB population at the time of designation. It is likely that some roosting, loafing and foraging individuals of the species considered above, particularly cormorant, curlew and redshank, may use habitats within the 300m Zol including Long Craig Island. Some of these individuals may on occasion experience disturbance due to the Proposed Works. Any birds which are displaced are likely to be able to redistribute to other locations nearby, due to the wide availability of alternative suitable habitat for over-wintering species. Additionally, the assemblage which uses habitats within the Zol have been subject to general traffic on the bridge, passing seacraft, and ongoing maintenance works which are broadly comparable with those proposed for the 10 years covered by the licence application. They are therefore considered likely to show a degree of habituation to these activities. The magnitude of the disturbance effect in terms of the conservation objectives, being the distribution of the species within site and no significant disturbance of the species, is considered negligible.</p> <p>On the basis of the above, the LSE on the waterfowl assemblage resulting from disturbance will not compromise the conservation objectives for the species and therefore no AESI are predicted, as these species either do not use the Zol on a regular basis, or have alternative suitable habitat within the immediate vicinity of the bridge.</p>		

Assessment Tables: Forth Islands SPA

- 4.3.19 The majority of qualifying interests of the Forth Islands SPA do not breed within the vicinity of the FRB, for example the seabird species whose breeding sites are on other constituent islands of the designation, which are some distance away in the wider outer Forth. Common tern do find breeding habitat on Long Craig Island, and other tern species have the potential to be able to breed there but do not currently. To a much lesser extent, gull species may also nest on rooftops within the vicinity of the FRB within the Zol. On this basis, and since the tern species have far more restricted breeding sites than the gull species, the RIAA and determination of the Zol for this LSE focuses on tern species.
- 4.3.20 The tables in the following section provide the detailed assessment of disturbance of Forth Islands SPA qualifying interests as follows:
- Table 9: HRA Stage Two (AA) for Disturbance of Forth Islands SPA Tern Species;
 - Table 10: HRA Stage Two (AA) for Disturbance of Forth Islands SPA Other Individually Cited Species; and
 - Table 11: HRA Stage Two (AA) for Disturbance of Forth Islands SPA Seabird Assemblage.
- 4.3.21 All qualifying interests are designated as breeding interests.
- 4.3.22 Each individually cited qualifying interest of the SPA (listed below) has been assessed against the relevant conservation objectives separately (Tables 9 and 10), whilst those that are assemblage qualifiers only are assessed as a group (Table 11). All are designated as breeding interests.
- 4.3.23 The individually cited species are as follows:
- Arctic tern
 - common tern
 - roseate tern
 - Sandwich tern
 - gannet
 - lesser black-backed gull
 - puffin
 - shag
- 4.3.24 As detailed in Tables 9 to 11, for the majority of qualifying species of the Forth Islands SPA there will be no AESI from the Proposed Works. This is due to the lack of suitable breeding habitat within the vicinity of the FRB, not using the adjacent habitats to a material degree, or the very small numbers of birds using these areas. For breeding common tern, avoidance and mitigation measures are required to be able to conclude no AESI. Mitigation proposed primarily for common tern is also intended to ensure no AESI on roseate tern which, whilst not currently breeding in the vicinity of the FRB, has potential to do so based on relatively recent historic breeding data.

Table 9: HRA Stage Two (AA) for Disturbance of Forth Islands SPA Tern Species

LSE	Conservation Objectives Potentially Affected	Commentary	Avoidance and Mitigation	AA Determination after Mitigation
<p>Disturbance as a result of noise, vibration, movement, and visual stimuli from the Proposed Works deterring tern species from feeding in the open water adjacent to the FRB and successfully breeding on Long Craig Island</p>	<p>To ensure that the qualifying features are in favourable condition and make an appropriate contribution to achieving Favourable Conservation Status; and</p> <p>To ensure that the integrity of the site is restored in the context of environmental changes by meeting the following objectives for each qualifying feature:</p> <ul style="list-style-type: none"> the populations of the qualifying features are viable components of the site; and the distribution of the qualifying features is maintained throughout the site by avoiding significant disturbance of the species. 	<p>Long Craig Island is the only area of the Forth Islands SPA that falls within the Zol and the only suitable habitat for breeding terns within the Zol. Long Craig Island is only considered key supporting habitat for common and roseate terns. Additionally, Arctic tern and roseate tern were not recorded in five-year WeBS counts within the Forth Cult Ness or Hound Point to South Queensferry sectors. As these species do not utilise habitat within the vicinity of the FRB, they will not be disturbed by the Proposed Works. On a precautionary basis, however, they have been included in this assessment.</p> <p><u>Common tern</u></p> <p>Common tern are the primary species known to nest on Long Craig Island and the site has long been considered one of the most important for common tern within the Forth Islands SPA (Knowles, 2019).</p> <p>Appendix B: Bird Data presents data relating to the common tern colony on LCI for the period 1981-2020, together with data from with Jacobs ECoW monitoring for the period 2021-2025. Within the dataset recorded by the tern ECoW for 2021, 2023 and 2025, the peak number of adult terns recorded on and around Long Craig Island was 195 in 2025 (although the peak count of birds on the island itself was 85 in 2025), whilst peak number of nests was 63 (2021), and peak number of chicks fledged was estimated 17-24 (2025). Census data for the period 1981 to 2020 appears to indicate a broad trend of stable but highly fluctuating numbers of breeding pairs/adults on nests. Productivity has been consistently low in recent years; in seven out of the eight most recent years in which productivity was recorded, the figure was less than one chick per nest, albeit 2019 saw the highest number of chicks since 2003.</p> <p>The WeBS data recorded common terns throughout the breeding season each year; with a five-year peak count of 161 in August 2019 in the Forth Cult Ness sector and a peak of 11 in the Hound Point to South Queensferry sector. 161 individuals represents 42% of the SPA population and 1.5% of the GB population as at the time of designation. The peak number of terns noted in ECoW data in 2025 would represent 58% of the</p>	<p>To ensure that the conservation objectives for common and roseate tern are not compromised, the following avoidance/mitigation measures will be required. The measures will prevent significant disturbance to the breeding colony at Long Craig Island.</p> <ul style="list-style-type: none"> Wherever possible, the timing of noisy and otherwise disturbing works has been restricted to take place outwith the tern breeding season and/or to take place during the breeding season only at locations beyond 300m from Long Craig Island (i.e. at the southern end of the bridge only). For further details refer to paragraphs 4.3.27 to 4.3.31. A tern Species Management Plan (SMP) has been developed and will form part of the contract documents to consolidate mitigation relating to terns and provide additional information on monitoring and compliance. The tern SMP is provided in Appendix D. As part of the Runway Beam Bracket Replacement and New Suspended Span Underdeck Access Gantry activity, at least one maintenance gantry requires installation on one of the three suspended spans, and the remaining two suspended spans may have gantries installed subsequently. This activity requires use of a barge to raise the gantry to the underside of the bridge using two cranes at road level. Works need to be undertaken outwith the November to March traffic management embargo. Due to the size of the barge required and the likelihood of its sustained presence, rather than simply passing by, it is considered that this activity has potential to be significantly disturbing to breeding terns if 	<p>No adverse effect on site integrity</p>

LSE	Conservation Objectives Potentially Affected	Commentary	Avoidance and Mitigation	AA Determination after Mitigation
		<p>SPA population size; this may be due to birds from other populations being in the area of Long Craig Island, and/or an increase in the SPA population size.</p> <p>The common tern colony on LCI has experienced a decline in breeding success. This has coincided with an observed increase in the frequency of extreme weather events such as storms, with waves and winds that can lead to nest and chick destruction, which may in part be a result of global climate change trends. This is thought to have been a factor in the colony failure in 2023. Another likely contributor is highly pathogenic avian influenza (HPAI) which has significantly impacted UK wild bird populations since 2021, coinciding with when ECoW monitoring of the colony began. Whilst the colony is less productive than in previous years, it remains an important site within the Forth, as demonstrated by the regular return of birds, despite repeated colony failures.</p> <p>As detailed in Table 5, common terns are considered to be relatively resilient to human disturbance. Research undertaken on the nearby common tern population at the Imperial Dock Lock, Leith SPA found the terns to be habituated to regular human activity, with only high-level disturbance events having an adverse effect, and also exacerbating the effect of opportunistic predators (Jennings, 2012). Furthermore, the presence of gulls and other predatory bird species was shown to be far more likely to cause a disturbance event than anthropogenic noise. Data collected during tern ECoW monitoring 2021-2025 found that 58% of potential disturbance events from any source experienced by the colony did not result in a response from the birds. Furthermore, 97% of activities that did result in a response from the birds were not linked to works. Of the 97% of non-works related disturbances to the birds, the cause could not be identified in 62% of cases. Nevertheless, some works related disturbances were observed during the monitoring period, and even where not the primary disturbing factor, the Proposed Works have the potential to exacerbate stress and time away from the colony when other sources of disturbance are at play.</p> <p>During the breeding period disturbance events could have a significant impact on productivity due to increased chick/egg predation and</p>	<p>undertaken close to LCI within the breeding season. BEAR have advised that should a gantry be installed on the main span, that this can be lifted adjacent to the south main tower which is over 1000m away from LCI. An ECoW should be present for this operation. If a gantry were needed to be lifted onto the north side span, this activity should be undertaken outwith the tern breeding season, passage and post-fledging period. Thus it is recommended this activity takes place during April or October. In addition, Forth Ports implements speed limits on all vessels, including barges and other vessels required for the works, which would be strictly adhered to.</p> <ul style="list-style-type: none"> Boat movements may also be required as part of the Repair of Cathodic Protection Systems activity, and boat access to the pierhead may be required at any time if a failure were to occur. The pier defences are on the main span side (south) of the North Main Tower, and therefore there is visual screening provided by the pier itself and North Main Tower. Where not emergency works, boat access within 300m of LCI should be undertaken outwith the tern breeding season. When a safety boat is required, it is anchored in a suitable location as to be able to provide a safe and effective rescue service. During the tern breeding and passage period, the safety boat will not anchor within 300m of LCI unless for essential time-critical repairs or for welfare reasons and will take relevant and appropriate measures to minimise any potential disturbance to LCI, for example it will not leave the engine idling and an ECoW will be present. 	

LSE	Conservation Objectives Potentially Affected	Commentary	Avoidance and Mitigation	AA Determination after Mitigation
		<p>associated energetic costs. This would constitute an impact on the population of the species as a viable component of the site. It should be noted that, since terns do not breed until three or four years old (BTO, 2025c), the limited breeding success of the LCI tern colony in at least two of the last five years can reasonably be expected to be reflected in a reduction in colony size emerging over the next few years, irrespective of future disturbance, tides or weather.</p> <p>In addition, due to the tendency of roseate terns to nest in multi-species colonies with the more aggressive and numerous common tern (and where present Arctic tern), the welfare of the other terns in the Forth is key if roseate terns are to return to the area as a breeding species. (SNH, 2011).</p> <p>Disturbance during the Proposed Works has the potential to negatively impact the conservation objectives for common tern in the Forth Islands SPA.</p> <p><u>Roseate tern</u> Roseate tern is the rarest breeding seabird in the UK and the species is 'red-listed' in the Birds of Conservation Concern (NatureScot, 2024). In addition to its European designation, LCI is designated as a Site of Special Scientific Interest (SSSI) for roseate tern. The birds first bred there in 1981, and numbers peaked in 1991 with 21 pairs (NatureScot, 2011). However, this species has not been recorded breeding on the island since 2009 (Knowles, 2019). Roseate terns visiting the Firth of Forth area since 2009 are considered likely to be from colonies in Northumberland (Scottish Natural Heritage (SNH, now NatureScot, 2016b).</p> <p>It is reported that a common x roseate hybrid pair successfully fledged a chick in 2019. What is likely the same pair were present but did not breed successfully in 2020 (Knowles 2020). One suspected hybrid common x roseate individual was recorded sitting on a nest on LCI in 2023 but the colony failed that year. A suspected hybrid common x roseate tern was also observed on LCI on two days in July 2025. There are no roseate tern records contained in WeBS data from 2014/2015 to 2023/2024; however, such surveys typically represent a limited snapshot in time.</p>	<p>For any works taking place during the tern breeding season and within 300m of Long Craig Island, the following additional mitigation measures are required to be implemented.</p> <ul style="list-style-type: none"> • Prior to works commencing, a suitably qualified ECoW will be appointed by BEAR Scotland and will be responsible for advising on the effective implementation of this SMP and CNMP (Appendix E). During the tern breeding season the ECoW will: undertake targeted in-person monitoring as set out in the SMP; provide ecological advice as required; ensure any advance mitigation measures as committed within this HRA and associated SMP are implemented; and monitor the implementation of the mitigation measures to ensure compliance with environmental legislation and relevant consents. • To supplement the ECoW presence, the use of cameras has been recommended to monitor the island when the ECoW is not present. This is proposed on a trial basis. The arrangements for ECoW presence and camera use during the initial period are set out in Appendix D. The ongoing requirement for the ECoW and camera will be reviewed and agreed with NatureScot after the first year of the licence, or earlier if relevant data become available. Changes agreed with NatureScot will be reflected in updates to the SMP. • Due to the complexity of the works programme and potential requirement for emergency works, the requirement for multiple maintenance packages to be undertaken concurrently cannot be precluded. Where this is the case, and where safe and practicable to do so, noisy or otherwise 	

LSE	Conservation Objectives Potentially Affected	Commentary	Avoidance and Mitigation	AA Determination after Mitigation
		<p>Further back, QC EIA data recorded roseate terns rarely flying and foraging from Port Edgar, over Inch Garvie Island and between the rail bridge and FRB. They were also observed loafing on Long Craig Island. In addition, in 2007 at least two pairs were recorded displaying at Long Craig Island early in the breeding season, and in 2008 one to two pairs were regularly observed there. The Forth Islands Tern Warden Season Report from 2018 noted that a single adult roseate tern was observed on several occasions in July 2018 loafing in the location that the last pair mated in 2008/9, however, no courtship behaviour or attempts at mating with common terns was observed.</p> <p>As noted previously, roseate tern rely on the protection of the more aggressive and numerous common (and where present Arctic) tern at nesting sites. Sandwich tern are known to outcompete roseate tern for nesting habitat, making colonies of only common tern ideal for roseate terns. As a result, the welfare of the other terns in the Forth is vital if roseate terns are successfully to reclaim their historic nesting areas. NatureScot had previously identified Long Craig Island as essential to the recolonisation of the Firth of Forth by roseate tern. Any impact on the common tern population at Long Craig Island should be considered, by extension, to also have an impact on the conservation objectives for roseate tern.</p> <p>Disturbance during the Proposed Works has the potential to negatively impact the conservation objectives for roseate tern in the Forth Islands SPA.</p>	<p>disturbing works will be timed so as not to coincide.</p> <ul style="list-style-type: none"> • No access beyond mean low water springs (MLWS) of Long Craig Island will be permitted under any circumstance during the tern breeding season without written agreement of the ECoW and NatureScot. The sole exception to this would be access by the safety boat or rescue operatives if required during an emergency rescue. • 'Soft-start' techniques will be used for all noisy activities to avoid sudden and unexpected disturbance during construction. For any such activities, each time the activity is started up after a period of inactivity, the noise levels will be gradually increased over a period of 30 minutes to allow birds to move away from the disturbance. • Measures contained within the CNMP will reduce construction noise. • Should monitoring identify significant (see Appendix D) changes in the distribution or number of birds as a result of works, then works will be stopped immediately until further mitigation is identified and implemented. NatureScot would be notified of any such significant changes or extended stop works instructions having been issued. Such mitigation could include extension or expansion of the measures noted in this section, including: restrictions to the types or timing of noisy works; extending the 'soft-start' process; amendments to lighting plans; and changes to visual and noise screening. It may also be appropriate to review noise monitoring data as works restart. Additional noise mitigation could include the use of noise barriers or noise damping materials 	

LSE	Conservation Objectives Potentially Affected	Commentary	Avoidance and Mitigation	AA Determination after Mitigation
			<p>being installed within the encapsulation. The locations of screening or barriers should be agreed with an acoustics specialist prior to works, and checked periodically throughout the programme of works.</p> <ul style="list-style-type: none"> In the rare instances where emergency repairs are required at short notice within 300m of LCI during the tern breeding season, the implementation of certain additional mitigation measures as identified above may not be possible due to length of time required to put these measures in place. Emergency repairs would be defined as works identified at short notice that are required to prevent failure of the structure or to prevent a substantial risk to public health and safety. In such cases, NatureScot, Marine Directorate and Transport Scotland will generally be notified prior to the commencement of works. In addition, works will be discussed with and monitored by the ECoW. A written record will be kept of the justification for emergency repairs, what alternatives and mitigation was discussed and where proposed mitigation was agreed as being feasible, and what that mitigation was. A toolbox talk should be delivered to all site personnel as part of their induction. This should summarise the legal requirement to safeguard breeding terns and the reporting process in the event of disturbance caused by the works. Lighting is not expected to cause disturbance or avoidance by terns during breeding season due to long daylight hours during the breeding season. Additionally, most schemes that require temporary lighting are likely to also be encapsulated. However, control of lighting will benefit all bird species whenever lighting is 	

LSE	Conservation Objectives Potentially Affected	Commentary	Avoidance and Mitigation	AA Determination after Mitigation
			<p>required. Further details on recommended measures is provided at paragraph 4.3.32. As part of the bridge inspection regime, a dive survey is required to be undertaken every six years (next due 2028). This would typically be done in summer months due to calmer weather. It is recommended this is scheduled for April or October to minimise disturbance to breeding terns.</p>	
		<p><u>Arctic tern</u> Historically Arctic tern nested on several of the Forth Islands but since 1998 have only been recorded nesting on the Isle of May (SNH, 2016b) and Great Carr (Knowles, 2018). Arctic tern was not reported in the vicinity of FRB in the 2019 -2024 five-year WeBS data or in the previous 5-year dataset presented in the 5-year Marine Licence HRA. It was also not recorded during ECoW monitoring during 2021–2025 or surveys of Port Edgar undertaken during July to September 2025. QC EIA data did record small numbers of Arctic tern in the autumn/winter of 2007 and 2008, with a peak of 10 in October 2007 (Jacobs Arup, 2009a). In 2008, most records were from Port Edgar. They were described as rarely observed in the wider survey area for estuarine birds and as making very little use of the inner Forth estuary in the vicinity of the QC. Furthermore, Arctic terns are known to forage more frequently in the outer Forth (SNH, 2016b). Due to the fact there is regular and ongoing monitoring of the terns on and around Long Craig Island yet they have not been regularly recorded, it is considered unlikely that the ZoI is an important area for this species. LSE on Arctic tern resulting from disturbance will not compromise the conservation objectives for the species and therefore no AESI are predicted.</p>	<p>No mitigation is required.</p>	<p>No adverse effect on site integrity</p>

LSE	Conservation Objectives Potentially Affected	Commentary	Avoidance and Mitigation	AA Determination after Mitigation
		<p><u>Sandwich tern</u></p> <p>Sandwich tern was recorded in both WeBS sectors⁵ as detailed in Table 7. Daytime surveys of Port Edgar in 2025 recorded a peak count of 18 adults on 1 September and a peak of 52 juveniles on 29 August during the passage period. They were also recorded during the passage period at LCI during tern ECoW watches, with a peak count in 2025 of 49 individuals.</p> <p>In respect of breeding, however, Sandwich tern has not bred on Long Craig Island in recent years, with their breeding site within the SPA being restricted to a small population on the Isle of May (Knowles, 2017, 2018, 2019).</p> <p>Indeed since they are currently reported to be in unfavourable condition, the conservation objectives for this species within the Forth Islands SPA are not currently being met.</p> <p>LSE on Sandwich tern resulting from disturbance will not compromise the conservation objectives for the species and therefore no AESI are predicted.</p>	No mitigation is required.	No adverse effect on site integrity

Table 10: HRA Stage Two (AA) for Disturbance of Forth Islands SPA Other Individually Cited Species

LSE	Conservation Objectives Potentially Affected	Commentary	Avoidance and Mitigation	AA Determination after Mitigation
Disturbance as a result of noise, vibration, movement and visual stimuli from the Proposed Works	To ensure that the qualifying features are in favourable condition and make an appropriate contribution to	<p><u>Gannet, puffin, razorbill and shag</u></p> <p>Of the non-tern but individually cited species, gannet, puffin, razorbill and shag were not recorded in five years' of WeBS counts of the Forth Cult Ness or Hound Point to South Queensferry sectors and there is no suitable breeding habitat for them adjacent to the</p>	No mitigation is required.	No adverse effect on site integrity

⁵ As noted in 4.1.4 gulls and terns are only optionally recorded within WeBS data and as such may be under-represented.

LSE	Conservation Objectives Potentially Affected	Commentary	Avoidance and Mitigation	AA Determination after Mitigation
	<p>achieving Favourable Conservation Status; and To ensure that the integrity of the site is restored in the context of environmental changes by meeting the following objectives for each qualifying feature:</p> <ul style="list-style-type: none"> the populations of the qualifying features are viable components of the site; and the distribution of the qualifying features is maintained throughout the site by avoiding significant disturbance of the species. 	<p>FRB. As these species do not utilise habitat within the vicinity of the FRB, they will not be disturbed by the Proposed Works.</p> <p><u>Lesser black-backed gull</u></p> <p>Lesser black-backed gull was recorded in both WeBS⁶ sectors, with a peak count of 30 in the Hound Point to South Queensferry sector in June 2019, and a peak count of 5 in Forth Cult Ness sector. The SPA population was 1500 pairs at the time of designation.</p> <p>Large breeding colonies are found on many of the Forth islands and, in smaller numbers, on rooftops in urban areas surrounding the Forth (SNH, 2016b). The species is not recorded as nesting on Long Craig Island, however it is possible that some nesting pairs are present within the ZoI on building rooftops. They often breed in urban environments and have a low sensitivity to disturbance.</p> <p>It is considered likely that any individuals nesting in the ZoI are likely to be habituated to human disturbance as they will be on building rooftops, and in low numbers. Disturbance to loafing and roosting individuals is considered likely to only have an impact on the south side of the bridge, and it is considered that the birds will be able to use alternative suitable habitat nearby.</p> <p>NatureScot's Conservation and Management Advice for Forth Islands SPA (NatureScot, 2024) notes that disturbance associated with maintenance of the Forth Road Bridge is unlikely to affect lesser black-backed gull, amongst other species.</p> <p>On this basis, any disturbance caused by the Proposed Works will not compromise the conservation objectives for lesser black-backed full and therefore no AESI are predicted.</p>		

⁶ As noted in 4.1.4 gulls and terns are only optionally recorded within WeBS data and as such may be under-represented.

Table 11: HRA Stage Two (AA) for Forth Islands SPA Seabird Assemblage

LSE	Conservation Objectives Potentially Affected	Commentary	Avoidance and Mitigation	AA Determination after Mitigation
<p>Disturbance as a result of noise, vibration, movement and visual stimuli from the Proposed Works</p>	<p>To ensure that the qualifying features are in favourable condition and make an appropriate contribution to achieving Favourable Conservation Status; and</p> <p>To ensure that the integrity of the site is restored in the context of environmental changes by meeting the following objectives for each qualifying feature:</p> <ul style="list-style-type: none"> the populations of the qualifying features are viable components of the site; and the distribution of the qualifying features is maintained throughout the site by avoiding significant disturbance of the species 	<p><u>Guillemot, razorbill and kittiwake</u></p> <p>Of the assemblage-only cited species, guillemot, razorbill and kittiwake were not recorded in five years' of WeBS counts of the Forth Cult Ness or Hound Point to South Queensferry sectors and there is no suitable breeding habitat for them adjacent to the FRB. As these species do not utilise habitat within the vicinity of the FRB, they will not be disturbed by the Proposed Works.</p> <p>Screening identified the potential for disturbance to the breeding seabird assemblage of the SPA, following high-level review of the ecological requirements of the species and nature of the works activities. Noise, vibration, movement and visual disturbance related to the works could deter these species from feeding, loafing and roosting within the intertidal habitat adjacent to the bridge, however the species do not breed on Long Craig Island. They have been included in the AA on a precautionary basis due to the potential for disturbance to roosting, loafing and foraging birds.</p> <p><u>Cormorant</u></p> <p>The WeBS data indicates cormorants are present in the vicinity of the FRB in low numbers throughout the year. A peak count of 16 individuals was recorded in the Forth Cult Ness sector in November 2020, and a peak count of 6 individuals was recorded in the Hound Point to South Queensferry sector.</p> <p>QC EIA data identified Inch Garvie Island, Lamb, Craigleith, Inchkeith, Car Craig and Haystack as key nesting, roosting and loafing sites, all of which are outside the Zol.</p> <p>Cormorant are considered tolerant to high levels of human activity (SNH, 2016b), however numbers are declining in the Firth of Forth, matching national trends. Human disturbance is likely a factor driving this decline but primarily at nesting sites, where eggs and young are predated on by gulls when the adults are flushed off the nests (Gremillet, Schmid and Culik, 1995). While inland breeding populations do exist in the UK, resident cormorants in the Forth breed exclusively on island cliffs and stacks (SNH, 2016b).</p> <p>Due to the lack of suitable nesting habitat in the Zol, disturbance is predicted to be on small numbers of loafing and feeding individuals only. With the available data indicating this is not an important location for these activities, it is considered that the birds will be able to use alternative suitable habitat. NatureScot's Conservation and Management Advice for Forth Islands SPA (NatureScot, 2024) notes that disturbance associated with</p>	<p>No mitigation is required.</p>	<p>No adverse effect on site integrity</p>

LSE	Conservation Objectives Potentially Affected	Commentary	Avoidance and Mitigation	AA Determination after Mitigation
		<p>maintenance of the Forth Road Bridge is unlikely to affect cormorant, amongst other species.</p> <p><u>Herring gull</u></p> <p>The WeBS data⁷ indicate herring gulls are present in the vicinity of the FRB in relatively high numbers throughout the year, with a peak count of 250 individuals recorded in the Hound Point to South Queensferry sector in April 2022. A peak count of 217 individuals was recorded in the Forth Cult Ness sector. The SPA population was 6600 pairs at the time of designation.</p> <p>Large breeding colonies are found on many of the Forth islands, notably on Inch Garvie Island, 8km east of the FRB, and, in smaller numbers, on rooftops in urban areas surrounding the Forth (SNH, 2016b).</p> <p>The species is not recorded as nesting on Long Craig Island, however it is possible that some nesting pairs are present within the Zol on building rooftops.</p> <p>Herring gulls are known to be resilient to disturbance, often relying on humans for food which has led to habituation to human disturbance. NatureScot’s Conservation and Management Advice for Forth Islands SPA (NatureScot, 2024) notes that disturbance associated with maintenance of the Forth Road Bridge is unlikely to affect herring gull, amongst other species. Disturbance is therefore considered unlikely to impact any nesting pairs in the Zol.</p> <p>In summary, the assemblage-only qualifying interests of the seabird assemblage do not breed in the vicinity of the FRB, and either do not use the Zol on a regular basis for foraging, or have alternative suitable habitat within the immediate vicinity of the bridge. The LSE resulting from disturbance will therefore not compromise the conservation objectives for the species and therefore no AESI are predicted.</p>		

⁷ As noted in 4.1.4 gulls and terns are only optionally recorded within WeBS data and as such may be under-represented.

- 4.3.25 The following paragraphs provide additional information on avoidance and mitigation measures required in relation to disturbance of Forth Islands SPA tern species.
- 4.3.26 During consultation with NatureScot (Jacobs, 2020), they indicated that this exclusion zone should be 400m from Long Craig Island during the breeding season. As noted in Section 4.4, the Zol for breeding terns is identified as 300m. Whilst the 400m Zol was used in the previous iteration of the Marine Licence on a precautionary basis, an evidence-based approach has been used to refine this to 300m in this application. This is based on the limited response of the colony from works-related potential disturbances (Table 9), and the scientific literature also supporting the 300m Zol (Table 6).
- 4.3.27 As noted in Table 9, the primary means of avoidance of adverse effects has been to restrict the timing of the noisiest and otherwise most disturbing works to take place outwith the tern breeding season and/or to take place during the breeding season only at locations beyond an exclusion zone around Long Craig Island, i.e. on the southern section of the bridge only.
- 4.3.28 BEAR Scotland have reflected the 300m buffer in the works programme where possible. Based on Appendix A this has been implemented for two Schemes as shown in Table 12. These are either located outwith 300m of Long Craig Island (for example at the south end of the bridge) or, for works required within 300m of the island, these elements can be undertaken outwith the tern breeding season.

Table 12: Locations and Timings of Individual Schemes

Schemes	No works required within 300m of LCI OR works within 300m of LCI can be completed outwith breeding season	Some or all scheme activities required within 300m of LCI during breeding season
Footpath Elastomeric Bearing Replacements	X	
Footpath Resurfacing		X
Main Cable Intrusive Investigation		X
Main Tower Lateral Thrust Bearing Replacement		X
Pedestrian Balustrade Strengthening		X
Runway Beam Bracket Replacement and New Suspended Span Underdeck Access Gantry		X
Side Tower Rocker Replacement		X
Suspended Span Carriageway Concrete Deck		X
Suspended Span Half Joint Replacement		X
Suspended Span Painting Works		X
Suspended Span Resurfacing		X
Suspended Span Truss Strengthening Works		X
Suspended Span Under Deck Access (SSUDA)	X	
Vehicle Restraint Barrier/Grillage Refurbishment		X

- 4.3.29 FRB is designated as a key resilience route to provide an alternative crossing point to the Queensferry Crossing should this be required to close for planned works or during bad weather. To facilitate this, an embargo on traffic management is implemented on FRB between 01 November to 31 March. This means that works involving traffic management can only be undertaken 01 April to 31 October. Some of the works packages above require a sustained period of carriageway closure, including overnight works, in order to complete the works efficiently; others are not possible to undertake during winter from an engineering perspective, for example due to the requirement for waterproofing or exposure of cables to the elements.
- 4.3.30 In addition to the above schemes, some routine maintenance works, including emergency works may be required to be undertaken during the tern breeding season within 300m of Long Craig Island. The ECoW or BEAR Environmental Manager will be consulted in the first instance where this is the case.
- 4.3.31 Lighting is not expected to cause disturbance or avoidance by terns during breeding season due to long daylight hours during the breeding season. Control of lighting will however benefit both breeding and wintering qualifying interests and should be implemented whenever lighting is required, in particular in relation to qualifying interests of the Firth of Forth SPA/Ramsar. The following measures should therefore be implemented year-round in respect of lighting to protect qualifying interests of the SPA, based on information from the Institution of Lighting Professionals (2011), The Royal Commission on Environmental Pollution (2009) and Bat Conservation Trust and Institution of Lighting Professionals (2018).
- Avoid illuminating sensitive bird habitats below and adjacent to the works areas
 - Avoid white-blue spectrum and high UV emitting lighting during the hours of darkness, warm white should be adopted instead where necessary
 - Dark buffers should be used to separate habitats
 - Luminaires should lack UV elements.
 - Metal halide and fluorescent sources should not be used
 - LED lights should be used where possible
 - Luminaires should feature peak wavelength to avoid the component of light most disturbing to wildlife
 - Directional luminaries should be used to retain darkness above/below
 - Column heights should be carefully considered to minimise light spill
 - As a last resort, accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed
 - A competent light designer to provide recommendations
 - Where any of the above may not be possible/practical, the Contractor will seek permission for any exceptions with the ECoW or an environmental representative of BEAR Scotland.
- 4.3.32 Around the pier ship impact defences at the North Main Tower, at the time of writing there is lighting which includes a light directed towards Long Craig Island. As part of proposed works on the pier defences, it is proposed to reduce the number of lights and direct them away from Long Craig Island, removing the light from the north side of the North Main Tower pierhead, since large vessels do not pass through this span.
- 4.3.33 Diving may be required for the activities listed below, and is restricted to the North Main Tower and South Main Tower.
- Pier Defences Repairs. This is a routine works activity which can be planned outwith the tern breeding season for the North Main Tower.

- Repair of Cathodic Protection Systems. This is a routine works activity on the ship impact sheet piles but is undertaken reactively when issues arise with the cathodic protection systems that require underwater investigation or repairs occur. As such this may require diving at any time.
- Inspection regime. As part of the bridge inspection regime, a dive survey is required to be undertaken every six years (next due 2028). This would typically be done in summer months due to calmer weather. It is recommended this is scheduled for April or October.

4.4 Likely Significant Effect: Direct Mortality

- 4.4.1 In addition to disturbance, an additional LSE identified at Stage One (Screening) that might compromise the conservation objectives of the Firth of Forth SPA/Ramsar and the Forth Islands SPA leading to an AESI is direct mortality as a result of tools or other materials being dropped from the bridge.
- 4.4.2 The Zol for this LSE is the area directly under the bridge. The only habitat within the Zol where this LSE is considered to have potential to occur is on Long Craig Island.

Assessment: Firth of Forth SPA/Ramsar

- 4.4.3 Sandwich tern on Long Craig Island during the passage period, and to a lesser extent, loafing and foraging cormorant, curlew, oystercatcher and redshank are the only qualifying interests considered to spend sufficient time the area directly under the bridge to be at any risk of tools or other materials being dropped from works taking place directly above. Although improbable due to embedded mitigation, direct mortality of adult or juvenile terns could occur.
- 4.4.4 No known incidences of items being dropped have occurred since BEAR took over maintenance of the FRB on 16 August 2020. With the embedded mitigation in place of use of tool tethers when working from suspended areas, and use of netting where appropriate, the magnitude of this effect in terms of the conservation objectives is considered negligible and no mitigation is required to be able to conclude no AESI.

Assessment: Forth Islands SPA

- 4.4.5 Breeding common tern, and to a much lesser extent, cormorant, herring gull and lesser black-backed gull, are the only qualifying interests considered to spend sufficient time the area directly under the bridge to be at any risk of tools or other materials being dropped from works taking place directly above. Although improbable due to embedded mitigation, direct mortality of adults or juveniles, or destruction of their nests (terns only) could occur.
- 4.4.6 As above, this is not known to have occurred since BEAR took over maintenance of the FRB on 16 August 2020. As for Firth of Forth SPA/Ramsar, with embedded mitigation in place, the magnitude of this effect in terms of the conservation objectives is considered negligible and no mitigation is required to be able to conclude no AESI.

4.5 Report to Inform an Appropriate Assessment Conclusion

- 4.5.1 Detailed assessment (Tables 6 to 11) of the implications from the Proposed Works on the three SPAs and Ramsar site, namely Firth of Forth SPA, Firth of Forth Ramsar and Forth Islands SPA, concluded that their conservation objectives would not be compromised and there would be no AESI if the required mitigation is implemented.

5. In-Combination Assessment

5.1 Introduction

- 5.1.1 Following screening (Section 3: Stage One (Screening)), LSEs from the Proposed Works were identified for the Firth of Forth SPA, Firth of Forth Ramsar and Forth Islands SPA. This section of the report describes the in-combination assessment that has been undertaken to identify whether there are any other plans and projects which could affect the integrity of these European sites in combination with the Scheme.
- 5.1.2 Article 48 of the Habitats Regulations requires that Appropriate Assessments of projects should include a consideration of other plans or projects which could affect site integrity in combination with the proposal under assessment.
- 5.1.3 There is potential for adverse effects on the integrity of the Firth of Forth SPA, Firth of Forth Ramsar and Forth Islands SPA to accrue as a result of the Proposed Works in combination with other proposed developments or works on, adjacent to, or within the area. Relevant developments might impact on the estuarine system and the qualifying species by causing disturbance and/or loss of habitat and/or introducing barriers to migration or normal ranging behaviour of the qualifying species within the estuarine catchment.
- 5.1.4 In terms of the potential for in-combination effects with the maintenance works, the key issue, based on the assessment above, is considered to be the potential for other developments to result in an increase in disturbance (and therefore also displacement) within the Firth of Forth estuary, which may impact on the qualifying species of the three sites.
- 5.1.5 The in-combination assessment may identify developments which are themselves considered likely to have a significant effect on the Firth of Forth SPA, Firth of Forth Ramsar and Forth Islands SPA, 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 three sites 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 Firth of Forth SPA, Firth of Forth Ramsar or Forth Islands SPA with the Proposed Works. As the Firth of Forth SPA/Ramsar and Forth Islands SPA cover such large areas, it was considered appropriate that the search area captured all projects and plans within the Firth of Forth Catchment.
- 5.2.2 A search was undertaken on 15 September 2025 for any Marine Licence Applications within the Forth Estuary on the Scottish Government's website. Marine Licence applications within five years of the search date were identified.
- 5.2.3 A search was undertaken on 15 September 2025 for projects and plans with the potential to have an in-combination adverse effect within East Lothian Council, City of Edinburgh Council, Clackmannanshire Council, Falkirk Council, West Lothian and Fife Council. Each local authority's planning portal was searched for consented or pending applications within a three-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.

5.2.4 Applications for which no HRA was submitted were generally excluded on the basis that those projects are unlikely to be of a scale or nature to result in LSE.

5.2.5 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.

5.2.6 The findings of the search are presented in Table 13 and Table 14 below, along with a summary of the identified potential for in-combination effects.

Table 13: Notable Marine Licences Identified for Consideration of In-combination Effects with the Proposed Works

Description and application number(s)	Location	Approximate Distance from Proposed Works	Application Date and Status	Commentary and Potential for In Combination Effects	Conclusion
Maintenance and Capital Dredging and Sea Disposal – Port Babcock Rosyth, Dunfermline, Fife Marine Scotland 00010502	Rosyth, Fife	3.5km	Granted	The application is for the continuation of a licence for maintenance dredging of port approaches and disposal of the arisings at a recognised disposal site. The works are focussed within the port. Within this area, there is regular disturbance from the movement and operation of vessels and terrestrial plant as part of typical port activities. The licence will expire on 19 February 2027, so the timeline will overlap with the Proposed Works, The application documentation did not indicate that the proposals would results in any impacts or LSEs to European/Ramsar sites. The works are a continuation of an existing licence, and as such the proposals are part of the ongoing operation of the site. No in-combination effects are anticipated.	No in-combination effects. The proposal has no adverse or residual effects on any European/Ramsar site.
Granton Harbour Redevelopment, revetment reconstruction and extension and associated variation Marine Scotland 00009904 00009905 00011342	Firth of Forth at Granton Harbour, Edinburgh	12km	Granted	These works form part of the Granton Harbour Regeneration Development. In the west harbour, the revetment will be reconstructed and extended. The HRA conducted states ' <i>MS-LOT conclude that providing the conditions listed in section 12 are adhered to, there will be no adverse effect on the site integrity of the Firth of Forth SPA</i> ' (and six other European sites) ' <i>either in isolation or in-combination with other projects.</i> ' The licence will expire on 31 July 2026, so there will be limited overlap with the Proposed Works of three months. No in-combination effects are anticipated.	No in-combination effects. The proposal has no adverse or residual effects on any European/Ramsar site.
Port of Leith Outer Berth: Approach Channel Deepening and Dredging – Port of Leith Marine Scotland 00010662 00010663	Firth of Forth at Port of Leith, Edinburgh	14km	Granted June 2024	Forth Ports Limited is improving the Outer Berth at the Port of Leith to support the offshore renewable energy industry. Imperial Dock Lock, Leith SPA is designated for breeding common tern. The current applications relate to proposals to deepen and dredge the Leith approach channel to increase the frequency and length of the tidal window when deeper drafted vessels can access the Outer Berth. It is anticipated that the dredge and disposal activities would be completed within approximately four months. It also includes installation of a 45m sheet-piled retaining wall that would be installed by vibratory and percussive piling. To get access for a crane, there may be a requirement for some minor infilling, depending on the size of the crane to be used. The infill would either be removed following completion of piling or suitably protected with rock armour and left in-situ. The works are proposed between May 2024 and December 2026. A supplementary RIAA considered impacts including those on common tern, eider, shag, red-throated diver, Sandwich tern and roseate tern from an additional 800 vessel visits during dredging and found these not to be significant given the existing level of vessel activity, short-term and temporary nature of works and habituation of the birds to visual disturbance. It also considered sediment plumes arising from dredging and disposal of dredged arising and found these not to be significant. Finally it considered noise from piling works, and it was recommended that timing of construction activities avoid critical breeding and migration seasons In summary it concluded that with mitigation in place the construction phase does not have the potential to cause LSE to any of the 10 sites considered. No in-combination effects are anticipated.	No in-combination effects. No adverse or residual effects on any European/Ramsar site have been identified.
Inch Cape Offshore Windfarm (Revised Design) - Additional Landfall Works at Cockenzie Marine Scotland 00010546 00010672	Firth of Forth at Cockenzie, Prestonpans	27km	Granted (Awaiting decision for 00011083)	The marine licence is required for the proposed seawall and revetment works and East Lothian Council Outfall Diversion (the 'Additional Landfall Works') to facilitate the Offshore Export Cables installation for the Inch Cape Offshore Wind Farm. The works include sections of the existing sea defence wall at Cockenzie being temporarily removed and then reinstated on completion of the cable installation. NatureScot commented that ' <i>we do not support the proposed approach to HRA (section 4.5) which concludes that 'no LSE' arises from the additional works. We advise that there is connectivity from the additional works to several European sites, and that they generate likely</i>	No in-combination effects. No adverse or residual effects on any European/Ramsar site have been identified.

<p>00010690 00011083</p>				<p><i>significant effects upon those sites.'</i> However, NatureScot further stated that <i>'as the scale and magnitude of these effects fall within existing consented parameters, we advise that the previous HRA and appropriate assessment can be used in support of these additional works. In our view the previous conclusions of no adverse effects on site integrity on any European site apply to the current proposal.'</i></p> <p>Disturbance to birds was considered to be not significant as the area of the works is small in relation to the wider availability of habitat and is temporary in nature, and that there are large areas of sufficient alternative habitat available for all ornithological receptors.</p> <p>A request (00011083) was submitted on 10 February 2025 for a variation to licence 00010672. The proposed variation captures the following changes:</p> <ul style="list-style-type: none"> - removal and re-construction of the East Lothian Council outfall is no longer required; - minor changes to the layout and methods for the seawall removal and reinstatement; and - minor updates to temporary and permanent deposit of materials. <p>The changes mean that an offshore cofferdam, granted under marine licence 00010690, is no longer required. Instead, an onshore secant pile cofferdam will be installed, which is permitted through a separate planning permission. The licence application states that <i>'any impact arising from the revised proposed works have been considered to fall within the impacts originally assessed'</i>.</p> <p>It is proposed that the Additional Landfall Works will be undertaken between April 2025 and December 2028, including any backfilling activities after the cable protection systems are installed. The Inch Cape project website confirmed on 27/01/2025: <i>'Construction of the onshore substation and early landfall works are now underway in Cockenzie, East Lothian'</i> (Inch Cape Wind, 2025). No in-combination effects are anticipated.</p>	
<p>Inch Cape Offshore Windfarm (revised design), Firth of Forth – Boulder Clearance and UXO ID – Variation</p> <p>Marine Scotland 00011286 00011225 00011249 00010883</p>	<p>Firth of Forth at Cockenzie, Prestonpans</p>	<p>27km</p>	<p>00011286 - Awaiting decision 00011225 - Awaiting decision 00011249 – Awaiting decision 00010883 – Granted, expired June 2025</p>	<p>The Inch Cape Offshore Wind Farm is a planned project as noted above under the Scottish National Marine Plan. To advance with construction, UXO clearance is necessary. An RIAA was produced which considered seven SPAs and SACs.</p> <p>Inch Cape applied to undertake both boulder clearance and unexploded ordnance identification, and unexploded ordnance clearance, at the project's offshore wind farm site and export cable corridor, which extends to near Cockenzie.</p> <p>The scope of work is ongoing with this application to allow continuity of the licensed works beyond the end of August 2025.</p> <p>Vessel and noise disturbance, impacts on prey species, underwater noise, collision risks and physical disturbance to the seabed were considered.</p> <p>An examination of the identified LSEs for the sites concluded that there would be no adverse effects either alone or in combination with other plans and projects.</p> <p>No in-combination effects are anticipated.</p>	<p>No in combination effects. The proposal has no adverse or residual effects on any European/Ramsar site.</p>
<p>Forthwind Demonstration Project</p> <p>Marine Scotland 00009834</p>	<p>Firth of Forth at Methil, Leven</p>	<p>30km</p>	<p>Granted</p>	<p>The site is situated approximately 1.5km off the coast of Methil, Leven. The project will consist of a single test and demonstration turbine with an installed capacity of 20MW, and an operational life of 25 years. The licence extends from 2023 until 2049 or until the Works have been decommissioned.</p> <p>A temporary meteorological mast will also be installed, with a design life of 5 years. The HRA Appropriate Assessment states <i>'MS-LOT concludes that there will be no adverse effect on the site integrity of the... Firth of Forth SPA'</i> (and seven other European sites) <i>'from the Forthwind proposal either in isolation or in combination with other projects.'</i> Firth of Forth SPA qualifying species recorded at Forth Road Bridge are unlikely to travel to Methil, 30km from the Scheme, and any that did would be focussed on inshore foraging and roosting habitat.</p> <p>No in-combination effects are anticipated.</p>	<p>No in combination effects. The proposal has no adverse or residual effects on any European/Ramsar site.</p>
<p>A985 Kincardine Bridge Refurbishment</p> <p>Marine Scotland 00011221</p>	<p>Kincardine Bridge, Airth</p>	<p>22km</p>	<p>Awaiting decision</p>	<p>The licence application is proposed to cover planned maintenance works over a 7-year period, expected to commence in late 2025. The now-complete Southern Piled Viaduct (SPV) Replacement Scheme was completed under a separate Marine Licence (00011221) in 2025.</p> <p>The HRA within the application identifies the potential for likely significant effects, alone and in-combination, on Firth of Forth SPA, Firth of Forth Ramsar and River Teith SAC. The SPV Replacement Scheme rendered a portion of the saltmarsh that is part of the SPA unavailable. This area is used as a high-tide roost by qualifying interests of the SPA. As a result, a comprehensive set of mitigation</p>	<p>No in combination effects. The proposal has no adverse or residual effects on any European/Ramsar site.</p>

				<p>measures was developed as part of that project, including the implementation of a saltmarsh management plan.</p> <p>The maintenance schemes require access to the saltmarsh during some components of the maintenance works (repairs to the 50ft spans and Bearing Replacement). Whilst these works packages will be undertaken as early in the programme as possible, there is nonetheless an in-combination effect. Following Appropriate Assessment and the application of mitigation it was concluded the conservation objectives of the sites would not be compromised and that there would be no adverse effects on site integrity.</p> <p>Due to the distance between the bridges and the fact both schemes are ongoing maintenance and as such form part of the context and setting of the structures, no in-combination effects are anticipated. Whilst there will be a small area of saltmarsh unavailable at Kincardine Bridge, this is not considered to be material in the context of the Firth of Forth SPA.</p> <p>No in-combination effects are anticipated.</p>	
<p>Maintenance Dredging and Sea Disposal - Port of Newhaven</p> <p>Marine Scotland 00011198</p>	Port of Newhaven	<p>Dredge site 14km Disposal site 7km</p>	Awaiting decision	<p>The application is for maintenance dredging of the Port of Newhaven and approaches to maintain safe navigation, and disposal of sediment. Dredging operations are carried out when necessary, usually in the spring over the high-water periods for a period of approximately ten days per campaign, with one or two loads per tide. The licence is requested for a period of 3 years, from December 2025 to December 2028.</p> <p>The Best Practicable Environmental Option Report notes three potential effects of the disposal of dredge material at sea on seabirds; increased suspended solids, release of contaminated particulates and physical disturbance of birds by the dredging vessel, with potential impacts in reducing prey availability and disturbing bird behaviour and breeding patterns. The vessel used for disposal of the material will be travelling to and from Newhaven Harbour and Oxcars disposal site for up to 4 weeks per annum, a round trip of approximately 6nm. It is noted that the following SPAs support breeding seabirds which forage over a wide area: Firth of Forth, Forth Islands, and Outer Firth of Forth and St Andrews Bay complex. The disposal of the dredged material will result in localised increases in suspended sediment which may reduce the ability of fish-eating birds to forage around the spoil ground due to impaired visibility. However, the area affected is a small percentage of the total available foraging habitat, with alternative sources of prey available close by. Oxcars is an established and long-term disposal site that pre-dates the designation of the SPAs. Given that disposal was an existing activity and ongoing disposal is at a similar scale to previous disposal activities, it was considered that the proposals will not have significant effects on the qualifying interests of the SPAs.</p> <p>Small numbers of qualifying interests may be temporarily impacted by the proposed dredging and disposal but in the context of the wider SPA the impact is not considered significant.</p> <p>No in-combination effects are anticipated.</p>	No in combination effects. The proposal has no adverse or residual effects on any European/Ramsar site.

Table 14: Notable Plans and Projects Identified for Consideration of In-combination Effects with the Proposed Works

Description and application number(s)	Location	Approximate Distance from Proposed Works	Application Date and Status	Commentary and Potential for In Combination Effects	Conclusion
<p>Works to facilitate cable landfall associated with the Inch Cape offshore wind farm. Former Cockenzie Power Station Site Prestonpans East Lothian</p> <p>East Lothian Council 24/00076/P</p> <p>Approval of matters specified in condition 1 of planning permission in principle 21/01474/PPM - relating to the detailed layout, siting, design and external appearance of the onshore substation and onshore transmission works associated with the offshore Inch Cape wind farm</p> <p>East Lothian Council 22/00992/AMM</p>	Former Cockenzie Power Station Site Prestonpans East Lothian	27km	Granted Sept 2024	<p>Construction works on the onshore substation comprising part of planning permission 22/00992/AMM commenced in 2023 in accordance with that planning permission. This application presents revised proposals for landfall works forming part of the Inch Cape Onshore Transmission works approved under the original application. Detailed site investigation works identified it would not be possible to bring the wind farm export cables ashore under the sea wall by the method originally thought to be suitable and consented. Instead, it is now proposed that the cables will come ashore and travel across the foreshore area in stainless steel ducts through the existing seawall, under the John Muir Way and remain underground to the Onshore Substation. It will be necessary to remove sections of the sea wall to allow the export cables to pass through, and these sections would be rebuilt afterwards. To allow the removal and rebuilding of the seawall, it is proposed that a seaward flood defence (cofferdam) in the intertidal area and/or landward flood defences will temporarily be put in place for the duration of the construction works. It may additionally be required to relocate an outfall pipe owned by East Lothian Council that discharges into the sea.</p> <p>Although no HRA is available, professional opinion based on the limited information within the Non-Technical Summary of the Environmental Statements suggests it is unlikely that there would be any effects on qualifying interests of European/Ramsar Sites.</p> <p>No in combination effects are anticipated.</p>	No in combination effects. The proposal has no adverse or residual effects on any European/Ramsar site.
<p>Coal store bund removal including concrete structures, transportation of bund material, formation of haul route and access to B1348 and infilling of void at site of former Cockenzie Power Station (Major Development)</p> <p>East Lothian Council 23/00006/PAN</p>	Land to the north west and south of the B1348 and land to the west of the B6371, Cockenzie	27km	Granted November 2023	<p>The PAN (Proposal of Application Notice) is not a planning application but a notice to the council advising of how the developer intends to engage with the community about their proposal. Subsequent to this an application to the council may be submitted. There are currently no details of what impacts, if any, may occur nor how, where or when any effects of these possible impacts may be expressed.</p> <p>No in combination effects are anticipated.</p>	No in combination effects. The proposal has no adverse or residual effects on any European/Ramsar site.
<p>Enabling works comprising the relocation and regrading of materials from on-site earthwork bunds for the creation of developable platforms and associated works</p> <p>East Lothian Council 24/00324/PM</p>	Land at former Cockenzie Power Station Site Prestonpans East Lothian	27km	Granted July 2024	<p>Enabling works comprising the phased removal, translocation and regrading of materials from on-site earthwork bunds and associated structures for the creation of developable platforms on land at the former Cockenzie Power Station and associated coal store.</p> <p>An HRA was submitted for the project but is not available on the planning portal. A detailed Biodiversity Enhancement and Restoration Plan, bat Species Protection Plan and invertebrate survey were submitted as required by conditions. Due to the works being within the boundaries of the site and limited in scale, there is no anticipated potential for in-combination effects.</p> <p>No in-combination effects are anticipated.</p>	No in combination effects. The proposal has no adverse or residual effects on any European/Ramsar site.

<p>West Links Golf Course Coastal Erosion Protection Phase 2</p> <p>East Lothian Council 25/00661/PM</p>	<p>West Links Golf Course Abbotsford Road North Berwick East Lothian</p>	<p>42km</p>	<p>Received June 2025 Validated July 2025 Awaiting decision</p>	<p>The application is for coastal reinforcement and protection works at West Links Golf Course, including installation of gabion baskets, mattresses, reinstatement of existing gabions, dune reinstatement and associated works. The proposals are estimated to take approximately 16 weeks, with the earliest start date on site October 2025.</p> <p>The HRA considers impacts on Firth of Forth SPA, Forth Islands SPA and Outer Firth of Forth and St Andrews Bay Complex SPA from: indirect injury/mortality as a result of pollution events, temporary loss of supporting habitats; and disturbance to the qualifying features.</p> <p>Mitigation proposed includes the presence of an ECOW to monitor bird activity, monitoring surveys, and measures to limit damage to habitat within the Firth of Forth SPA.</p> <p>No in-combination effects are anticipated.</p>	<p>No in combination effects. The proposal has no adverse or residual effects on any European/Ramsar site.</p>
<p>Erection of mixed-use development comprising residential and commercial uses, comprising Class 1, 2 and 3 uses, installation of padel court (Class 11), and creation of new public realm, with associated landscaping, infrastructure, and access arrangements.</p> <p>City of Edinburgh Council 22/05599/FUL</p>	<p>Ocean Terminal 98 Ocean Drive Edinburgh</p>	<p>15km</p>	<p>Granted June 2024</p>	<p>A full planning application was submitted for redevelopment of part of the Ocean Terminal area at Leith Docks. NatureScot commented that the proposal could affect internationally important natural heritage interests and that they therefore object to the proposal until further information is provided. The sites at risk were stated as being Imperial Dock Lock, Leith SPA; Firth of Forth SPA; Outer Firth of Forth and St Andrews Bay Complex SPA. Subsequent information (Development Management Sub-Committee Report, 10 January 2024) indicated that it had been possible to conclude 'no adverse effect on site integrity'.</p> <p>No in-combination effects are anticipated.</p>	<p>No in combination effects. The proposal has no adverse or residual effects on any European/Ramsar site.</p>
<p>Development north of Inchgarvie Lodge</p> <p>City of Edinburgh Council 22/02047/LBC 22/01987/SCR 22/01987/FUL 24/03383/FUL 22/01987/VARY</p>	<p>Society Road, Port Edgar, South Queensferry</p>	<p>750m</p>	<p>Granted March 2024, with subsequent variation granted April 2025</p>	<p>The application is for the conversion of existing listed buildings to 49 residential units, cafe /restaurant, and serviced apartment. NatureScot initially advised that the development was likely to have a significant effect on the Firth of Forth SPA, and that further information was required. Subsequent to this, NatureScot were able to advise that there would not be adverse effect on site integrity.</p> <p>An additional application was submitted and granted in 2024 to allow formation of a new site access; NatureScot had no comments to make.</p> <p>A subsequent variation was submitted to incorporate Scottish water pumping station and associated amended to roads, parking and pavements to meet technical requirements.</p> <p>No in-combination effects are anticipated.</p>	<p>No in combination effects. The proposal has no adverse or residual effects on any European/Ramsar site.</p>
<p>Mixed-use development of houses, flats (81 dwellings), commercial units, surrounding roads and public realm areas.</p> <p>City of Edinburgh 24/03097/FUL</p>	<p>Plot 35A Granton Harbour West Harbour Road Edinburgh</p>	<p>11km</p>	<p>Validated July 2024 Awaiting assessment</p>	<p>The application is a re-submission after planning application 21/06413/FUL was refused and the appeal was dismissed. The application concerns a plot within the Granton Harbour wider development area, a 15-year masterplan for which was granted. The proposed development in Plot 35a comprise commercial and residential buildings (flats and houses).</p> <p>NatureScot stated (August 2024) that a HRA screening, and if necessary, an AA, was required due to the proximity of the Firth of Forth SPA, and that once this information had been received, they would provide further comment. A HRA was produced in January 2024 which stated that with mitigation in place there would</p>	<p>No in combination effects. The proposal has no adverse or residual effects on any European/Ramsar site.</p>

				<p>be no adverse effects. The HRA did not include the River Teith SAC in its assessment.</p> <p>NatureScot confirmed in March 2025 that 'We are content with the conclusion of no adverse effect on site integrity for both SPAs [Outer Firth of Forth and St Andrew's Bay Complex SPA and Firth of Forth SPA], with the recommended mitigation measures in place'.</p> <p>No in-combination effects are anticipated.</p>	
<p>Erection of a 5,200sqm storage building</p> <p>West Lothian Council</p>	<p>Progress Rail Services Uk Ltd Headrig Road South Queensferry EH30 9SH</p>	1.9km	<p>Received 03 Jun 2025 Validated 27 Jun 2025 Awaiting decision</p>	<p>The application is for erection of lightweight storage building within curtilage of existing industrial unit. The application is not in proximity to the shoreline (200m) and is well-screened by vegetation. No supporting habitat for qualifying interests is present at the location of or immediately adjacent to the proposal.</p> <p>No in-combination effects are anticipated.</p>	No in combination effects. The proposal has no adverse or residual effects on any European/Ramsar site.
<p>Consultation on application to install battery energy storage system and associated infrastructure (342MW)</p> <p>Fife Council 24/03028/CON ECU00004987</p>	<p>Kincardine Power Station Site Kincardine Fife</p>	23km	<p>Granted July 2025</p>	<p>A planning application was submitted for the installation of a battery energy storage facility with a storage capacity of up to 342 megawatts (MW), substation, underground cabling, access track, landscaping, biodiversity enhancements and ancillary infrastructure & equipment to include security fence, CCTV & gates on west of Kincardine Substation, Alloa, FK10 4BJ. The facility includes two linked but standalone battery compounds (a 300MW capacity compound and a 42MW capacity compound) with associated ancillary infrastructure and a central 400MW substation.</p> <p>An HRA submitted as part of the application did not identify likely significant effects on qualifying interests of the Firth of Forth SPA/Ramsar. The site does not support any of the qualifying species, and disturbance effects on site are not anticipated.</p> <p>No in-combination effects are anticipated.</p>	No in combination effects. The proposal has no adverse or residual effects on any European/Ramsar site.
<p>EIA Screening for proposed wind turbine (up to 4.2MW) (149m to blade tip) with associated infrastructure</p> <p>Fife Council 23/00817/SCR</p>	<p>HM Naval Base, Rosyth</p>	3.5km	<p>Screening required April 2023</p>	<p>Babcock Marine (Rosyth) Ltd submitted a request for a screening opinion for a proposed development of a single wind turbine generator within the Rosyth Royal Dockyard. The screening report stated that a HRA screening would be prepared and submitted at the application stage due to the proximity of designated sites. Fife Council confirmed that an EIA would be required and that the size/diameter of the proposed turbine blades had the potential to give rise to significant environmental impacts including those associated with bird features of the designated sites. No full application has been submitted and no consultation has taken place, therefore it is not possible to undertake an in-combination assessment. The EIA screening opinion notes the proximity of the site to the Firth of Forth SPA/Ramsar and Outer Firth of Forth and St Andrews Bay complex SPA as well as two SSSIs. It notes '<i>Once operational, the proposed turbine blades could reach significant speeds depending on the wind speed which have the potential to disturb and cause injury and death to birds. It is considered that there is a high probability for the development to significantly impact on the ornithological and ecological interests of the site surroundings. These significant impacts must be considered through EIA. It is also considered that there is potential for residual impacts to occur following the removal of the turbine, with</i></p>	An in-combination assessment is not possible at this time. In-combination effects cannot be ruled out

				<p><i>it unlikely that the behaviour of bird species would automatically revert to the pre-construction phase.'</i></p> <p>Due to the lack for further information it is not possible to make any further assessment.</p> <p>Although in-combination effects are conceivable, an assessment is not possible at this time due to a lack of information on when, where and how any effects may occur.</p>	
<p>Erection of general Industrial building (Class 5) and installation of external service modules and associated drainage works</p> <p>Fife Council 24/00192/FULL</p>	HM Naval Base, Rosyth	3.5km	Granted with conditions May 2024	<p>The application concerns the construction of a large building within the dockyard area. The application area is approximately 2.3 ha for the erection of a 1265 m² building. Planning assessment did not raise any issues with respect to biodiversity and no conditions relating to this were applied other than drainage and the potential for existing contamination.</p> <p>No in-combination effects are anticipated.</p>	No in combination effects. The proposal has no adverse or residual effects on any European/Ramsar site.
<p>Certificate of lawfulness (proposed) for change of use of car park to form secure compound yard including erection of boundary wall/gates and associated drainage infrastructure.</p> <p>Fife Council 24/02001/CLP</p>	HM Naval Base, Rosyth	3.5km	Granted December 2024	<p>The application concerns the relocation of a car park with the dockyard area and the creation of a secure laydown area. However, given the works are within the existing built-up/developed area of the dockyard it is anticipated that there would be no effects on biodiversity including European/Ramsar sites.</p> <p>No in-combination effects are anticipated.</p>	No in combination effects. The proposal has no adverse or residual effects on any European/Ramsar site.
<p>Erection of a Well-Being Hub (Class 11) Including ...</p> <p>Clackmannanshire Council 24/00149/FULL</p>	Land At Alloa West Smithfield Loan Alloa	0.3km	Granted January 2025	<p>The application concerns the erection of a well-being hub (Class 11) including swimming pool, sports hall and external sports and play facilities and erection of additional support needs school with external play areas (Class 10), with electricity sub-station, landscaping, drainage, access and parking and sustainable urban drainage.</p> <p>NatureScot responded in August 2024 that the Firth of Forth SPA and Ramsar site could be affected because of a permanent loss of approximately 4ha of potential pink-footed goose foraging habitat, and also as a result of disturbance. However, NatureScot concluded that with the information provided there would be no adverse effect on site integrity.</p> <p>No in-combination effects are anticipated.</p>	No in combination effects. The proposal has no adverse or residual effects on any European/Ramsar site.
<p>Grangemouth Flood Protection Scheme</p> <p>Falkirk Council n/a</p>	Grangemouth, Falkirk.	16km	Awaiting Decision	<p>The flood protection scheme is being advanced as a formal flood protection scheme under the Flood Risk Management (Scotland) Act 2009. The environmental impact assessment has been completed and the statutory publication of the final scheme was in summer 2024. Falkirk Council made a preliminary decision in January 2025 to confirm the scheme without modifications and referred it to Scottish Ministers. Scottish Ministers confirmed they would not be 'calling-in' the scheme for consideration and that Falkirk Council would now hold a hearing to consider the issues raised. No date has yet been set for the hearing. However, the programme currently assumes advance works will start in 2026, with main construction activities also commencing in</p>	An in-combination assessment is not possible at this time. In-combination effects cannot be ruled out

				<p>2026; the scheme is intended to be completed in 2034 (Grangemouth Flood Protection Scheme, 2025).</p> <p>The flood protection scheme construction period may overlap with the Proposed Works. However, the flood protection scheme covers a large area (communities in Grangemouth, Wholeflats, Glensburgh, Langlees, Carron and Carronshire) with the majority of these areas set back away from the Firth of Forth. At this stage it is unknown how the construction will be phased for this scheme, but there is the potential for disturbing works at locations near the Firth of Forth to be concurrent with the Proposed Works. A detailed in-combination assessment cannot be undertaken at this stage.</p> <p>Although in-combination effects are conceivable, an assessment is not possible at this time due to a lack of information on when, where and how any effects may occur.</p>	
<p>Engineering Works To Form Piled Concrete Pad To Support Mobile Crane Within Existing Turning Circle on Access Road to South of Warehousing</p> <p>Clackmannanshire Council 22/00298/FULL</p>	Alloa	28km	Granted February 2023	<p>The proposal concerns an application to form a concrete pad with piled foundations within a large paved vehicle area. The site is adjacent to the River Forth. NatureScot had no objections saying that they were satisfied that the proposal would not have any LSE on the Firth of Forth SPA. In addition, there was to be a CEMP and also a Piling Risk Assessment.</p> <p>No in-combination effects are anticipated.</p>	No in combination effects. The proposal has no adverse or residual effects on any European/Ramsar site.
<p>Demolition of Existing Farm Buildings, Change of Use of Site From Agricultural Land, Erection of 7 No Bonded Warehouse Blocks for Storage and Distribution, Erection of Welfare Building and Associated Infrastructure.</p> <p>Clackmannanshire Council 18/00239/PAN 22/00015/FULL</p>	Cambus, Clackmannanshire	31km	Granted May 2024	<p>The proposal concerns the erection of storage warehouse buildings approximately 40m from the river and 60m from the Firth of Forth SPA /Ramsar, in Cambus. A Planning Application Notice was issued in 2018 (18/00239/PAN) and the proposal was subject to a scoping opinion.</p> <p>NatureScot stated that it had concerns about the potential to disturb or displace the qualifying species of the SPA or to reduce their foraging/roosting habitat and that an HRA would be required. An HRA was undertaken in September 2020 and LSE was identified on the Firth of Forth SPA/Ramsar. However, following the results of detailed ornithological surveys and desk study and consideration of the conservation objectives for the qualifying interests it was concluded that there would be no AESI in isolation or in-combination with other projects. NatureScot confirmed they were satisfied with the conclusions of the HRA in February 2022.</p> <p>As the development does not involve working within the estuary, and is set-back from the banks, no in-combination disturbance on qualifying interests of any other relevant SPA/Ramsar are anticipated.</p> <p>Based on the conclusions of the HRA for the proposal and the location of the proposal in relation to the Proposed Works, in-combination effects are considered unlikely for any of the sites.</p> <p>No in-combination effects are anticipated.</p>	No in combination effects. The proposal has no adverse or residual effects on any European/Ramsar site.
<p>Demolition Of Existing Farmhouse And Farm Buildings, Erection of 5 Bonded Warehouses (Class 6) containing 41 Cells, Ancillary Buildings (Workshop, Office, Fork Lift Charger Building), 2 No. Sprinkler Water Tanks And Pump House, Electricity Substation, Hardstanding for Cask/Pallet Storage, Vehicle And Pedestrian Accesses,</p>	Garvel Farm, Cambus, Clackmannanshire, FK10 2PG	31km	Granted July 2022 Granted June 2024	<p>The proposal is for the demolition of existing farmhouse and farm buildings and construction of five warehouses along with associated hardstanding and parking facilities. A SuDS pond, a wetland pond and tree planting is also proposed. NatureScot were consulted on the proposal and concluded that, based on the information available, it was unlikely for the proposal to result in AESI due to the development being outwith the SPA, there being no loss of intertidal habitat, and</p>	No in combination effects. The proposal has no adverse or residual effects on any European/Ramsar site.

<p>Parking, Landscaping, Drainage Including SUDS Pond, And Security Fencing</p> <p>Clackmannanshire Council 22/00072/FULL</p> <p>Installation of Telecommunication Mast With Broadband Signal Booster Equipment To Discharge the Requirements of Condition 1 k) of Planning Permission Ref 22/00072/FULL</p> <p>Clackmannanshire Council 24/00067/FULL</p>				<p>that construction disturbance will be localised and short-term, as well as operational disturbance being similar to the existing background disturbance in the industrialised area. As the development does not involve working within the estuary, and is set-back from the banks, no in-combination disturbance on qualifying interests of the relevant SPAs are anticipated.</p> <p>A subsequent application relates to the discharge of planning conditions and no information relating to biodiversity is available.</p> <p>Based on the consultation response from NatureScot, the nature of works and the location of the development in relation to the Proposed Works, in-combination effects are considered unlikely.</p> <p>No in-combination effects are anticipated.</p>	
<p>Demolition of existing buildings and erection of a 2850m² distillery building with access road, service buildings, landscaping and parking and conversion of Midhope Castle to provide visitor accommodation.</p> <p>West Lothian Council 0543/FUL/20</p> <p>Application under Section 42 to vary planning conditions of planning permission 0543/FUL/20 (erection of a distillery building and conversion of Midhope Castle to provide visitor accommodation) to allow for restoration works to be phased.</p> <p>West Lothian Council 0089/FUL/24</p>	<p>Midhope Castle Grounds, Abercorn, Newton, West Lothian, EH30 9SL</p>	<p>5km</p>	<p>Granted April 2021 Granted July 2024</p>	<p>The proposed development is for the demolition of existing buildings, the erection of distillery buildings and conversion of Midhope Castle for visitor accommodation. An Extended Phase 1 habitat survey was undertaken in March/April 2020 which noted the Firth of Forth SPA, Ramsar and SSSI being 580m north of the application site. In initial consultation in August 2020 NatureScot stated that LSE on the SPA (disturbance to birds that travel inland, and pollution/hydrological impacts) was likely and an AA will be needed.</p> <p>An HRA was undertaken for the development in September 2020, and updated in February 2021, and concluded no adverse effects on the integrity of the Firth of Forth SPA. NatureScot agreed with the conclusions of the HRA, although identified that the document used incorrect terminology and was inaccurate in places with regard to the HRA process. However, NatureScot considered that for intents and purposes the HRA could be used by the council to undertake AA as the competent authority.</p> <p>A subsequent application relates to the variation of conditions. The application includes a Biodiversity Enhancement Statement which notes no concerns relating to qualifying interests of the relevant European/Ramsar sites.</p> <p>Based on the conclusions of the HRA for the proposal and the location of the proposal in relation to the Proposed Works, in-combination effects are considered unlikely.</p> <p>No in-combination effects are anticipated.</p>	<p>No in combination effects. The proposal has no adverse or residual effects on any European/Ramsar site.</p>

5.3 Assessment of the Firth of Forth SPA, Firth of Forth Ramsar and Forth Islands SPA

- 5.3.1 No projects or plans were identified that have the potential to act in-combination with the maintenance works to result in a cumulative effect on the Firth of Forth SPA, Firth of Forth Ramsar site or Forth Islands SPA.
- 5.3.2 For two schemes it is not possible to undertake an assessment of in-combination effects due to lack of information, however the possibility for such effects to arise based on the information available, is considered minimal. Should the Marine Licence for the Proposed Works be approved by the time these projects undertake further assessment, they would be required to take account of the Proposed Works.
- 5.3.3 As a result, it is concluded that there are no in-combination effects on the three sites. It is acknowledged, however, that potential future proposals adjacent to the estuary may act in combination with the Proposed Works, but it would therefore be for these future developments to take into account the results of this assessment, especially if works are concurrent.

6. Summary and Conclusions

6.1 Screening Assessment

- 6.1.1 Relevant European and Ramsar sites were selected by identifying ecological connectivity and the potential effects pathways from the project, particularly with regards to disturbance and direct mortality. Following further assessment of potential effects pathways from the Proposed Works, and consultation with NatureScot, including advice provided in relation to other Firth of Forth HRAs, nine sites were identified to be considered within the screening: Firth of Forth SPA and Ramsar; Forth Islands SPA, Outer Firth of Forth and St Andrews Bay Complex SPA; Imperial Dock Lock, Leith SPA; Loch Leven SPA and Ramsar; River Teith SAC; and Isle of May SAC.
- 6.1.2 Following the screening, it was concluded that the Proposed Works have the potential to result in LSEs on some of the qualifying features of the Firth of Forth SPA and Ramsar site and Forth Islands SPA, therefore there was a requirement to progress to Stage Two (AA) for those three sites. No LSEs were identified on the remaining six designated sites, and therefore no requirement for further assessment of these sites.

6.2 Report to Inform an Appropriate Assessment

- 6.2.1 Implications for the Firth of Forth SPA and Ramsar and Forth Islands SPA's conservation objectives were avoided through design of the works programme and through application of mitigation measures. It is identified that mitigation to safeguard the conservation objectives of the breeding tern qualifying interests, through prevention of significant disturbance, will also contribute to safeguarding the conservation of other species of the SPAs and Ramsar sites.
- 6.2.2 Although a precautionary approach has been taken in relation to the anticipated programme and methods for the Proposed Works included in this HRA, the Contractor may identify requirements to amend these, for example due to bad weather delaying activities, or improved methods. If Proposed Works do change in nature or timing then a no worse environmental test will be undertaken by the Contractor to confirm the protection of European and Ramsar sites is assured and the conclusions of the HRA remain valid, following which NatureScot and/or the Marine Directorate (as appropriate) will be notified.
- 6.2.3 With mitigation in place it is concluded that there will be no implications for the conservation objectives of the Firth of Forth SPA and Ramsar sites and the Forth Islands SPA for the ten-year duration of the Proposed Works. There will therefore be no adverse effects on site integrity (AESI) for the sites, either alone or in combination with other plans and projects.

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