Fife Council

Leven Bridge

Habitats Regulations Assessment, Screening Report

2483005

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EXPERTS IN ECOLOGY

RSK GENERAL NOTES

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EXECUTIVE SUMMARY

This statement to inform a Habitats Regulations Assessment (HRA) Screening Report has been prepared in relation to the proposed remedial works due to be undertaken on Leven Railway Bridge and Bawbee Bridge in Leven, Fife, KY8 3BA. The works will include replacement of the deck of Leven Railway Bridge and works to the bridge deck and concrete repairs of Bawbee Bridge. In order to maintain traffic flow, a temporary bridge will be constructed over the River Leven to accommodate diverted traffic. This report comprises Stage 1 (screening) of the HRA process.

The proposed development lies within 10 km of three internationally designated sites. These are: The Firth of Forth Ramsar and Special Protection Area (SPA) and The Outer Firth of Forth and St Andrews Bay Complex SPA. The Firth of Forth is also designated as a Site of Special Scientific Interest (SSSI). Although some of the qualifying species of the SPAs and Ramsar may use the site, it is not considered that this will be in significant numbers or that disturbance will be significant.

A conclusion of No Likely Significant Effects can therefore be determined, and no further HRA will be required.

CONTENTS

1.0 INTRODUCTION

1.1 Purpose of this report

1.1.1 This report has been produced by RSK Biocensus on behalf of Fife Council as part of their application for remedial works on two bridges; Leven Railway Bridge and Bawbee Bridge in Leven, Fife, KY 8 3BA, hereafter referred to as the 'proposed development'. In addition, a temporary road bridge over the River Leven will be constructed.

1.1.2 The report comprises Stage 1 of the Habitats Regulations Assessment (HRA) process - the initial screening of the project proposals. The HRA process is aimed at establishing whether the proposed development is likely to have a significant effect on the qualifying features of the following internationally designated sites within 10 km of the proposed development:

- Firth of Forth Special Area of Protection (SPA) and Ramsar site. This site is also a Site of Special Scientific Interest (SSSI).
- Outer Firth of Forth and St Andrews Bay Complex SPA.

1.1.3 Further details of the HRA process are provided in Section 3 below. Further details of the qualifying features and reasons for designation of the above listed sites are provided in Tables 1-2 in Section 4 of this report.

1.2 Background

1.2.1 A preliminary ecological appraisal (PEA) of the site was initially undertaken by RSK Biocensus in July 2018 (RSK Biocensus, 2021). Due to a delay in the planning application being submitted, an updated PEA was undertaken in October 2021. The results of these surveys, combined with a desk-based study, have been used to inform this report.

1.2.2 NatureScot (Scottish Natural Heritage at that time) were contacted by RSK in June 2018 regarding the scope of ecological survey works required for the proposed works. They confirmed that a PEA was sufficient and that bird surveys were not required because the scale and location of the work is unlikely to have a significant effect on the Firth of Forth SPA/SSSI bird features.

2.0 THE SCHEME

2.1 The site

2.1.1 The proposed development is located in Leven, Fife to the east of Glenrothes. The PEA included a phase 1 habitat survey which identified the following habitats on the proposed development site and within a 30 m buffer: coniferous plantation, scrub, scattered broadleaved and coniferous trees, neutral unimproved grassland, tall ruderal, wet dwarf shrub heath, standing water, ephemeral/short perennial and bare ground (RSK Biocenus, 2021). In the wider area the site is surrounded by urban infrastructure with industrial areas including the Banbeath industrial estate located to the north, farmland with residential housing is also present. The Bawbee Bridge carries the A955 over the River Leven which flows into the ocean just east of the bridge.

2.1.2 The proposed development site and location is shown in Figure 1.

2.2 Development proposals

2.2.1 The proposed development will include the replacement of the deck of Leven Railway Bridge and repair works to the adjoining Bawbee Bridge. A temporary bridge will be constructed to carry diverted traffic during the remedial works across the River Leven. Bridge pillars or headers will not be used during construction and therefore it is not considered that the new bridge will affect the integrity of the riverbanks or watercourse.

2.2.2 The remedial works will include concrete repairs to the concrete arch, at the junction between the north abutment and concrete arch on Bawbee Bridge and Leven Railway Bridge and covers an area of *c.*2 m^2. The concrete repairs will take place above the tide height and only the access equipment, such as scaffolding, will be resting on the riverbed. The bridge will be completely closed during construction and therefore, a temporary bridge will be constructed from South Street to the main roundabout to the north in order to accommodate redirected traffic from Leven Railway Bridge and Bawbee Bridge. The temporary bridge will be *c.*55 m long.

2.2.3 A marine license has been applied for by Fife Council in relation to the proposed works. Marine Scotland were first approached by Fife Council in May 2018 and were advised that the works were considered to be small in scale and of negligible environmental impact.

2.2.4 Preventive mitigation will be utilized throughout the temporary works. The contractor will use a combination of light handheld pneumatic/electric percussive tools and hydro demolition to expose the sound concrete of the bridges. A crash deck will be installed using a scaffolding system to collect all water and debris, in addition to watertight guttering implemented to prevent pollution entering the River Leven. The wastewater will be pumped into a pH adjust tank to reduce the pH of the water to below pH9 before it will be pumped back into the water.

2.2.5 It is expected that the works will take four weeks to complete.

3.0 HRA PROCESS

3.1 Background

3.1.1 Under the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) (more commonly referred to as the 'Habitats Regulations'), a network of sites has been designated across Scotland and its marine environment for the purposes of nature conservation. These sites are known as Natura 2000 sites, and they form a network of areas designated to conserve natural habitats and species that are rare, endangered, vulnerable or endemic within the European Community. This includes Special Areas of Conservation (SACs) (designated under the Habitats Directive) and Special Protection Areas (SPAs) (classified under Directive 2009/147/EC on the Conservation of Wild Birds; the 'Birds Directive').

3.1.2 SACs are designated for the protection of habitats and non-avian animal species of conservation concern. SPAs are designated to protect rare or vulnerable species of bird, as well as all regularly occurring migratory bird species. Scotland's SACs and SPAs are part of a wider European network of such sites, and they are consequently referred to as 'European sites'.

3.1.3 In addition to fully designated European sites, the Habitats Regulations also apply to those sites in the earlier stages of the designation process, including: Sites of Community Interest (SCI), Candidate Special Areas of Conservation (cSAC), possible / proposed SACs (pSAC); and potential / proposed SPAs (pSPA). In addition, and as a matter of Scottish Government policy, HRA also needs to include consideration of Wetlands of International Importance (more commonly known as 'Ramsar sites').

3.1.4 The Habitats Regulations require that any plan or project which is not directly connected with or necessary to the conservation of a European site, and which is likely to have a significant effect on such a site, must be subject to an 'appropriate assessment' of the implications for the conservation objectives of that site. This assessment is known as a Habitats Regulations Assessment (HRA). Generally, such plans or projects may only be approved if the 'competent authority' has ascertained, by means of an appropriate assessment, that there will be no adverse effect on the integrity of the European site(s).

3.2 HRA stages

3.2.1 The aim of an HRA is to determine, in view of a European site's conservation objectives and qualifying features, whether a project (either alone and/or in combination), would have a significant adverse effect on the site. The four distinct stages of the HRA process are summarised below:

1. **Stage 1: Screening** is the first stage of the process and identifies the likely impacts upon a European site of a project (either alone or in combination). Mitigation cannot be taken into consideration at this stage of the HRA. If the screening exercise concludes that Likely Significant Effects (LSE) cannot be ruled out, then Appropriate Assessment (Stage 2 of the process, see below) must be undertaken. It is important to note that the burden of evidence is to demonstrate, on the basis of objective

information, that there will be no significant effect; if the effect may be significant, or is not known, that would trigger the need for an Appropriate Assessment.

2. **Stage 2: Appropriate Assessment** looks at the implications of the effects of the proposals for the site's conservation objectives (alone and in combination). At this stage, it needs to be determined, *beyond reasonable scientific doubt,* whether or not there will be adverse effects on the integrity of the site. This stage also includes the development of mitigation measures to avoid or reduce any possible impacts.
3. **Stage 3: Assessment of alternative solutions** is the process which examines alternative ways of achieving the objectives of the project that would avoid adverse impacts on the integrity of a European site, should the avoidance or mitigation measures detailed at the Appropriate Assessment stage be insufficient to cancel out adverse effects.
4. **Stage 4: Assessment where no alternative solutions exist and where adverse impacts remain.** An assessment is made as to whether or not the development is necessary for Imperative Reasons of Overriding Public Interest (IROPI). If it is, this stage also involves detailed assessment of the compensatory measures needed to protect and maintain the overall coherence of the Natura 2000 network.

3.3 Conservation Objectives

3.3.1 The conservation objectives for a Natura 2000 site are intended to represent the aims of the Habitats and Birds Directive in relation to that site. Measures taken under the Habitats Directive should be designed to maintain or restore habitats and species of European importance at favourable conservation status (FCS). The conservation objectives of a site set the standards that must be met if the features of the site (habitats and species) are to be at FCS.

3.3.2 The conservation status of natural habitats is defined in Article 1 of the Habitats Directive as follows (European Commission, 2000):

"The sum of influences acting on a natural habitat and its typical species that may affect its long-term natural distribution, structure and functions as well as the long-term survival of its typical species.

The conservation status of natural habitats will be taken as favourable when:

- *Its natural range and areas it covers within that range are stable or increasing;*
- *The species structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future;*
- *The conservation status of its typical species is favourable as defined in Article 1."*

3.3.3 The conservation status of species is defined in Article 1 of the Habitats Directive as follows (European Commission, 2000):

"The sum of the influences acting on the species concerned that may affect the long-term distribution and abundance of its population.

The conservation status of species will be taken as favourable when:

- *Population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats;*
- *The natural range of the species is neither being reduced for the foreseeable future;*
- *There is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long term basis."*

3.3.4 In order to meet the conservation objectives of a site, the integrity of the site must be maintained. Deterioration or disturbance is assessed against the conservation status of species and habitats concerned. The integrity of a site is the coherence of its ecological structure and the functioning of its ecological systems, the features for which the site is designated (habitats and/or species) and the ability of the site to meet its conservation objectives. An adverse effect is therefore defined as something that impacts the site features, either directly or indirectly, and results in disruption or harm to the ecological structure and functioning of the site and/or affects the ability of the site to meet its conservation objectives across all parts of the site.

3.3.5 The HRA will demonstrate whether or not there will be an adverse effect on the integrity of a European site, in light of its conservation objectives. The following sections provide a summary of relevant information that may be used by the competent authority to determine whether a significant adverse effect on a qualifying site is likely, and therefore whether a statement to inform an appropriate assessment is required.

4.0 HRA SCREENING

4.1 General

4.1.1 There are three Natura 2000 sites which lie within 10 km of the proposed development. These are Firth of Forth SPA and Ramsar site and Outer Firth of Forth and St Andrews Bay Complex SPA. It is considered that Natura 2000 sites further than 10 km are highly unlikely to be directly or indirectly affected by the proposed development. Therefore, a 10 km radius is considered a robust and suitable Zone of Influence.

4.1.2 The Firth of Forth Ramsar lies *c.*10 m to the east of the proposed development and the SPA and SSSI lie *c.*15 m just beyond the Ramsar. The Outer Firth of Forth and St Andrews Bay Complex SPA lies *c.*380 m to the east of the development site.

4.1.3 The location of the proposed development in relation to the Natura 2000 sites is shown in Figure 1.

4.1.4 Details of the Natura 2000 sites included within this screening assessment are provided below and Tables 1 – 2 show the HRA screening of these sites.

4.1.5 The following paragraphs present the conservation objectives for each European site and the potential impact pathways by which the proposals could in theory affect the site. The potential for the development proposals to realistically affect the European sites is considered in the assessment tables following the text relating to the conservation objectives.

4.2 Firth of Forth SSSI, SPA and Ramsar

4.2.1 The Firth of Forth qualifies as a SSSI and is designated for a variety of geological and geomorphological features, coastal and terrestrial habitats, vascular plants, invertebrates, breeding, passage and wintering birds. The SSSI partially overlaps with the Outer Firth of Forth and St Andrews Bay Complex SPA. The boundary of the SPA mostly follows that of the Firth of Forth SSSI and slightly overlaps with Forth Islands SPA[1].

4.2.2 The Firth of Forth SPA qualifies under **Article 4.1** by regularly supporting populations of European importance of the **Annex 1** species: red-throated diver (*Gavia stellata),* Slavonian grebe (*Podiceps auratus*), golden plover (*Pluvialis apricaria)*, sandwich tern (*Sterna sandvicensis*) and bar-tailed godwit (*Limosa lapponica)*[2].

4.2.3 The Firth of Forth SPA further qualifies under **Article 4.2** by regularly supporting populations of European importance of the **migratory** species: pink-footed goose (*Anser brachyrhynchus*), shelduck (*Tadorna tadorna*), knot (*Calidris canutus*), redshank (*Tringa tetanus*) and turnstone (*Arenaria interpres*).

4.2.4 The site also qualifies under **Article 4.2** by regularly supporting **in excess of 20,000 individual waterfowl** including nationally important populations of the following species: scaup (*Aythya marila*), Slavonian grebe, golden plover, bar-tailed godwit, pink-footed

[1] https://sitelink.nature.scot/site/8163 accessed November 2021

[2] https://sitelink.nature.scot/site/8499 accessed November 2021

goose, shelduck, knot, redshank, turnstone, great crested grebe (*Podiceps cristatus*), cormorant (*Phalacrocorax carbo),* red-throated diver, curlew (*Numenius arquata*), eider (*Somateria mollissima),* long-tailed duck (*Clangula hyemalis),* common scoter (*Melanitta nigra*), velvet scoter (*Melanitta fusca*), goldeneye (*Bucephala clangula*), red-breasted merganser (*Mergus serrator*), oystercatcher (*Haematopus ostralegus*), ringed plover (*Charadrius hiaticula*), grey plover (*Pluvialis squatarola*), dunlin (*Calidris alpina alpina*), mallard (*Anas platyrhynchos*), lapwing (*Vanellus vanellus)* and wigeon (*Anas penelope*).

4.2.5 The Firth of Forth qualifies as a Ramsar under the Convention on Wetlands of International Importance[3]. The site qualifies primarily under Criterion 2 by supporting:

- red-throated diver (90 individuals, 2% of the GB population); and
- golden plover (2,949 individuals, 1% of the GB population).

4.2.6 The conservation objectives for this site are as follows:

1. 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.

2. To ensure for the qualifying species that the following are maintained in the long term:
    - Population of the species as a viable component of the site.
    - Distribution of the species within site.
    - Distribution and extent of habitats supporting the species.
    - Structure, function and supporting processes of habitats supporting the species.
    - No significant disturbance of the species.

4.2.7 There is the potential for any development works in close proximity of the SPA and Ramsar to affect the designated site by disturbance of its qualifying species, either within the designated site itself or within other sites used by these species.

4.2.8 *Table 1* below presents the impact screening for this European site.

4.3 The Outer Firth of Forth and St Andrews Bay Complex SPA

4.3.1 The Outer Firth of Forth and St Andrews Bay Complex SPA is a large estuarine/marine site on south-east coast of Scotland consisting of the two closely adjacent Firths of Forth and Tay. In the mid Firth of Forth a belt of mud-rich sediments lies between areas of sandy gravels and shell material on either side along the shore. As the estuary widens towards the outer firth, there are extensive areas of sandy and gravelly muds and fine sediments. In contrast St Andrews Bay contains clean sands and gravel with only small areas of muddy sediments. Water depth is variable but large areas, in both the Firth of Forth and St Andrews Bay, are shallow and less than 10 m deep. The area supports a wide variety of both pelagic and demersal fish, including sandeels, and crustaceans,

[3] https://sitelink.nature.scot/site/8424 accessed November 2021

molluscs and marine worms, all of which, especially sandeels, comprise the prey of the waterfowl species[4].

4.3.2 The site qualifies as an SPA under **Article 4.1** by regularly supporting a non-breeding population of European importance of the following **Annex 1** species red-throated diver, Slavonian grebe, little gull (*Hydrocoloeus minutus)*, common tern (*Sterna hirundo)* and Arctic tern (*Sterna paradisaea).* The site also qualifies under **Article 4.2** by regularly supporting populations of European importance of the following migratory waterfowl species: common eider, and by regularly supporting **in excess of 20,000 individual waterfowl** including long-tailed duck, common scoter, velvet scoter (*Melanitta fusca),* common goldeneye (*Bucephala clangula)* and red-breasted merganser.

4.3.3 The site further qualifies under **Article 4.2** by regularly supporting **in excess of 20,000 individual seabirds during the breeding season** including nationally important populations of the following species: Atlantic puffin (*Fratercula arctica*), black-legged kittiwake (*Rissa tridactyla*), Manx shearwater (*Puffinus puffinus*), common guillemot (*Uria aalge*) and herring gull (*Larus argentatus*).

4.3.4 The site further qualifies under **Article 4.2** by regularly supporting in excess of 20,000 individual seabirds during the non-breeding season including nationally important populations of the following species: black-headed gull (*Chroicocephalus ridibundus*), common gull, herring gull, common guillemot, European shag (*Phalacrocorax aristotelis*) and blacklegged kittiwake.

4.3.5 There is the potential for any development works in close proximity of the SPA and Ramsar to affect the designated site by disturbance of its qualifying species, either within the designated site itself or within other sites used by these species.

4.3.6 The conservation objectives for this site are as follows:

1. To ensure that the qualifying features of the Outer Firth of Forth and St Andrews Bay Complex SPA are in favourable condition and make an appropriate contribution to achieving Favourable Conservation Status.

2. To ensure that the integrity of the Outer Firth of Forth and St Andrews Bay Complex SPA is restored in the context of environmental changes by meeting objectives 2a, 2b and 2c for each qualifying feature:

   2a. The populations of qualifying features are viable components of the site.

   2b. The distributions of the qualifying features throughout the site are maintained by avoiding significant disturbance of the species.

   2c. The supporting habitats and processes relevant to the qualifying features and their prey/food resources are maintained, or where appropriate restored, at the Outer Firth of Forth and St Andrews Bay Complex SPA.

4.3.7 *Table 2* below presents the impact screening for this European site.

[4] https://sitelink.nature.scot/site/10478 accessed November 2021

Table 1: Screening of Firth of Forth SSSI, SPA and Ramsar

Firth of Forth SSSI, SPA and Ramsar		
Qualifying Feature	**FCS/ Condition**	**Potential impact:**
SPA Article 4.1 – **Annex 1** bird species Article 4.2 – **Migratory** bird species Article 4.2 – **in excess of 20,000 individual waterfowl** **Ramsar** Bird assemblage	19 features favourable, 9 unfavourable[5]	There will be no direct habitat loss of the SSSI, SPA and Ramsar and works on the proposed development site will be temporary and confined to the site boundary in Figure 1. The Ramsar site is located within 10 m of the proposed development site and the SPA/SSSI within 15 m. However, there is not expected to be any significant disturbance on the qualifying species given that these species are not considered likely to use the areas surrounding the bridges in signific numbers. In addition, the works are temporary and will only last four weeks and any birds using this section of the River Leven will be used to ongoing disturbance from traffic already using the bridges. In addition, pollution control measures implemented as part of the works will ensure that the water of the River Leven is not negatively affected during the temporary works and therefore it is not considered that there will be any significant impact on the designated site in terms of water quality.
Overall Conclusion - Likely Significant Effects can be ruled out, no further AA required		

Table 2: Screening of the Outer Firth of Forth and St Andrews Bay Complex SPA

Outer Firth of Forth and St Andrews Bay Complex SPA		
Qualifying Feature	**FCS/ Condition**	**Potential impact:**
Article 4.1 – **Annex 1** bird species Article 4.2 – **in excess of 20,000 individual waterfowl** Article 4.2 - **in excess of 20,000 individual seabirds during the breeding season**	Not assessed[6]	There will be no direct habitat loss of the SSSI, SPA and Ramsar and works on the proposed development site will be temporary and confined to the site boundary in Figure 1. The designated site is located *c.*380 m of the proposed development site however, there is not expected to be any significant disturbance on the qualifying species given that these species are not considered likely to use the areas surrounding the bridges in signific numbers. In addition, the works are temporary and will only last four weeks and any birds using this section of the River Leven will be used to ongoing disturbance from traffic already using the bridges. In addition, pollution control measures implemented as part of the works will ensure that the water of the River Leven is not negatively affected during the temporary works and therefore it is not considered that there will be any significant impact on the designated site in terms of water quality.
Overall Conclusion - Likely Significant Effects can be ruled out, no further AA required		

[5] https://informatics.sepa.org.uk/ProtectedNatureSites/ accessed November 2021

[6] https://informatics.sepa.org.uk/ProtectedNatureSites/ accessed November 2021

5.0 CONCLUSIONS

5.1.1 This HRA Screening Report has been prepared as a requirement for a HRA to be undertaken in relation to a proposed remedial works due to be undertaken on Leven Railway Bridge and Bawbee Bridge in Leven, Fife, KY 8 3BA. It comprises Stage 1 (screening) of the HRA process.

5.1.2 The Screening Assessment concludes that although there is the potential for some disturbance associated with the construction phase, no likely significant effects on the qualifying species are anticipated.

5.1.3 A conclusion of No Likely Significant Effects can therefore be determined, and no further Habitats Regulations Assessment will be required.

6.0 FIGURES

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Firth of Forth Ramsar

Firth of Forth SSSI

Firth of Forth SPA

Outer Firth of Forth and St Andrews Bay Complex SPA

Leven

Innerleven

Leven Links

Aberhill Industrial Estate

River Leven

Methil Raven Road

Legend:

- Site Boundary
- Ramsar
- Special Protection Area (SPA)
- Site of Special Scientific Interest (SSSI)

Rev	Date	Description	Drn	Chk	App
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Leven Bridge

RSK biocensus EXPERTS IN ECOLOGY

TITLE: Figure 1:

Statutory Designated Sites

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Metres

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7.0 REFERENCES

RSK (2018), Leven Bridge, Preliminary Ecological Appraisal Report (unpublished)

RSK (2021), Leven Bridge, Preliminary Ecological Appraisal Report (unpublished)