

21 Cumulative Impact Assessment

This chapter provides an overview of the cumulative impacts of the proposed scheme, including those of the proposed scheme and other major proposed developments.

Two potential cumulative impact 'hotspots' were identified: one at the north bridgehead and the other at the south bridgehead. At these locations a number of receptors may experience cumulative impacts, including noise, ecology, land use, visual, and cultural heritage.

Two national developments, at Rosyth and Grangemouth, may possibly proceed at some time in the future. If they do, they may potentially produce cumulative impacts with the proposed scheme, but an assessment of this can only be made at a later time, when more information on them becomes available.

21.1 Introduction

21.1.1 This chapter describes the potential cumulative impacts of the proposed scheme, during both the construction and operational phases.

21.1.2 European Commission guidelines (European Commission, 1999) define 'cumulative impacts' as follows:

'Impacts that result from incremental changes caused by other past, present or reasonably foreseeable actions together with the project'.

21.1.3 DMRB HA218/08 provides guidance on cumulative impact assessment (Highways Agency et al., 2008a) expands on the above definition, and advises that a cumulative impact from the proposed scheme may arise as the result of:

- the combined impact of a number of different environmental topic-specific impacts from the proposed scheme on a single receptor/resource; and
- the combined impact of a number of different projects within the vicinity (in combination with the proposed scheme) on a single receptor/resource.

21.1.4 This cumulative impact chapter therefore includes a consideration of both the impacts of the proposed scheme on receptors, and the impacts of other 'reasonably foreseeable' projects.

21.1.5 In accordance with DMRB HA205/08 (Highways Agency et al., 2008b) 'reasonably foreseeable', in the above definition has been interpreted to include other projects that are 'committed'. These include:

- trunk road and motorway projects which have been confirmed (i.e. gone through the statutory processes); and
- development projects with valid planning permissions as granted by the Local Planning Authority, and for which formal EIA is a requirement or for which non-statutory environmental impact assessment has been undertaken.

21.1.6 Traffic related impacts from other developments, including residential developments such as those at Winchburgh, have already been taken into account in this ES, as the TMfS:05A and Transport and Economic Landuse Model of Scotland (TELMoS) used in the assessment includes other relevant developments.

21.2 Approach and Methods

21.2.1 The previous chapters in this ES have described the baseline, potential impacts, proposed mitigation measures, and residual impacts for each environmental parameter addressed. The EIA (Scotland) Regulations 1999 (as amended) require consideration of the 'likely significant effects'. However the regulations do not provide a definition of what constitutes a significant environmental effect. This is because the significance of effect is determined according to the environmental

parameter under consideration, and in the context in which the relevant assessment is made. This cumulative impact assessment has considered all impacts, but has focussed on significant residual impacts, which for the purposes of this assessment were considered to be those of Moderate or greater significance.

- 21.2.2 A series of figures have been produced for the study area, indicating areas and/or receptors where significant residual impacts (for each of the environmental parameters reported in the ES) are predicted to remain. The figures also indicate areas and/or receptors potentially affected by other confirmed trunk road and motorway projects, and development projects with valid planning permissions. The extent of the proposed scheme study area has been based on the professional judgement and expertise of the relevant environmental specialists, taking into account the scale of proposed developments as described further below.
- 21.2.3 In-combination assessments have been undertaken as part of the Reports to Inform an Appropriate Assessment (RIAA) for the Forth Islands SPA (including Imperial Dock Lock, Leith SPA), the Firth of Forth SPA, and the River Teith SAC. These assessments have included a detailed review of other proposed developments in the area, and data collected for these, and their findings, have been referred to as appropriate for the cumulative impact assessment.
- 21.2.4 Areas and/or receptors where impacts overlap have been interpreted to indicate the potential for significant cumulative impacts to arise as a result of the proposed scheme. These areas and/or receptors have been examined by specialists to identify potential 'hotspots' for potential cumulative impact, based on professional judgement, and knowledge of the proposed scheme and receiving environment.
- 21.2.5 Concise narrative statements of these cumulative impact 'hotspots' are provided. The need for additional mitigation to address cumulative impacts is discussed.

Committed Developments

- 21.2.6 There are a number of planned and committed projects that are likely to take place within the vicinity of the proposed scheme or the connecting infrastructure. Some projects that are currently planned may already have been realised prior to the construction of the proposed scheme, some are likely to commence, or be under construction, during the construction phase of the proposed scheme and, finally, some may commence after the proposed scheme has been completed. The current economic climate creates great uncertainty regarding the phasing of some of the developments.
- 21.2.7 A number of committed developments were identified in the region, the locations of which are shown on Figure 21.1.
- 21.2.8 These were considered to have the potential to contribute to cumulative impacts with the proposed scheme, and further information on them is listed in Table 21.1. This, together with additional information from SEPA and SNH, where available, was considered by environmental and planning specialists. These specialists used their professional judgement to scope out the following committed developments that are considered to have little or no potential to contribute to cumulative impacts in the proposed scheme study area:
- Cruicks Quarry;
 - Temporary waste water treatment works (WWTW), North Queensferry;
 - Residential Development at Scotstoun Avenue;
 - Ferry Muir South;
 - Echline Avenue housing development;
 - Kirkliston Distillery;

- Kirkliston North;
- Queen Anne Drive, Newbridge; and
- Former Continental Site.

21.2.9 The remaining committed developments were further examined by environmental and planning specialists who concluded that, given their location, characteristics, and other information available, none were likely to contribute to cumulative impacts in the proposed scheme study area.

Nationally Important Developments

21.2.10 In addition to the 'reasonably foreseeable' (see paragraph 21.1.5) developments discussed above, two possible nationally important developments were identified: at Rosyth and at Grangemouth. Available information on these two national developments, which are proposed container terminals, is presented in Table 21.2, with their locations indicated on Figure 21.1.

21.2.11 Consent has yet to be applied for or granted for these developments, but NFP2 stipulates that the following matters will need to be addressed when consent is sought:

- design of facilities and road and rail access arrangements;
- carbon impact;
- effects on natural heritage and biodiversity, including the Firth of Forth SPA;
- any dredging required to maintain deep water channels and the disposal of dredged material;
- any measures necessary to minimise, mitigate or compensate for adverse effects on the environment or communities; and
- any Ministry of Defence interest.

21.2.12 The NPF Action Plan is currently in draft form, and liaison with lead partners and delivery bodies to review actions and monitor progress is being undertaken from June 2009 to June 2010. The proposed Action Plan notes that, for the container terminal at Rosyth, background investigations, including the need for further environmental assessment, mitigation measures, design and siting are only proposed to commence post-2009. Improvements to the road and rail network are also proposed post-2009, with the terminal anticipated to be operational by 2015.

21.2.13 It is concluded that there may potentially be cumulative construction impacts, including dust, noise, vibration, visual, and ecology, associated with the proposed scheme and the additional container freight capacity proposals at Rosyth and/or Grangemouth. There may also potentially be cumulative operational impacts including landscape and visual impacts, and effects on ecology. However, in the absence of further information, including proposed construction scheduling, the magnitude and significance of any cumulative impacts arising from these possible developments are presently unknown.

21.3 Potential Cumulative Impacts

21.3.1 Potential cumulative impacts of the proposed scheme are described in this section. The residual impacts of each environmental parameter studied as part of the EIA were identified from the relevant ES chapters. The significant residual impacts of the proposed scheme are shown in Table 21.3 and on Figure 21.2.

21.3.2 For land use it should be noted that although a number of residual adverse impacts have been identified on planning allocations/applications, the significance of these impacts has not been defined using standard significance terms. For the purposes of consideration in the cumulative impact assessment, professional judgement has been used to identify those considered to be key

impacts, i.e. where there would be extensive land-take, severance or change in amenity. This relates to one site; the Springfield Road allocation/application.

- 21.3.3 Examination of ES findings by environmental specialists identified two potential 'hotspots', where a number of significant residual impacts overlapped, and where, therefore, cumulative impacts might possibly be expected to occur: one at the north bridgehead and the other at the south bridgehead. These are described in more detail in the following sections.

North Bridgehead

- 21.3.4 At the north bridgehead significant residual impacts related to the following may occur: land use, ecology, landscape, visual, cultural heritage, air quality, and pedestrians. Due to the scale of works necessary, there may also be some disruption to local residents and businesses during construction.
- 21.3.5 Table 21.4 gives additional information on the envisaged impacts in the north bridgehead area, as well as describing the mitigation measures proposed for the individual impacts.
- 21.3.6 Examination of the north bridgehead 'hotspot' shows this area to be predominantly woodland, which is, due to the proposed ecological mitigation measures (which will include habitat replacement planting), not predicted to experience significant residual ecological impacts.
- 21.3.7 Impacts on the cultural heritage resource of this area will be mitigated through implementation of a programme of archaeological evaluation in advance of construction. This programme will identify the extent of known archaeological remains that may be affected by the proposed scheme, and assess areas of unknown archaeological potential. The results of this work will identify the scale and scope of any further cultural heritage mitigation works.
- 21.3.8 Close examination of the north bridgehead 'hotspot' therefore indicates that there are five receptors that may experience cumulative impacts from the proposed scheme: St. Margaret's Hope Gatelodge, St. Margaret's Hope (also known as Admiralty House), the Queensferry Hotel, Ferry Craig House and Tigh-na-Grian. These are described in paragraphs 21.3.9 to 21.3.12 below.
- 21.3.9 St. Margaret's Hope Gatelodge would experience significant visual impacts from the northern route (in both the winter year of opening, and summer 15 years after opening). It is situated in an area that would experience significant residual landscape impacts, and is also within the St. Margaret's Hope and Relict Country Estate, which would experience indirect significant residual cultural heritage impacts.
- 21.3.10 St. Margaret's Hope would experience significant residual air quality impacts (NO₂ concentration in 2017) and significant residual visual impacts from the Main Crossing (in both the winter year of opening, and summer 15 years after opening). It is situated in an area that would experience significant residual landscape impacts, as well as significant indirect residual cultural heritage impacts.
- 21.3.11 The Queensferry Hotel would experience significant residual visual impacts from the Main Crossing (in both the winter year of opening, and summer 15 years after opening). The hotel also falls within the boundary of St. Margaret's Hope and Relict Country Estate, which, as previously noted, would experience significant residual cultural heritage impacts. As a result of disruption during construction of the proposed scheme, as well as changes to the visibility of the hotel during operation of the Main Crossing, there would be an adverse residual land use impact on the viability of this business.
- 21.3.12 Ferry Craig House and Tigh-na-Grian are residential receptors that would experience significant residual visual impacts from the Main Crossing (in both the winter year of opening, and summer 15 years after opening), due to changes to views. Ferry Craig House is also a Grade B Listed Building predicted to experience significant indirect residual impacts on its cultural heritage, primarily

relating to its setting. Ferry Craig House and Tigh-na-Grian may experience cumulative impacts during the construction phase of the proposed scheme, as a result of their close proximity to the foreshore working area.

South Bridgehead

- 21.3.13 At the south bridgehead significant residual impacts related to the following may occur: land use, ecology, landscape, visual, cultural heritage, air quality, noise, and pedestrians. Due to the scale of works necessary, there may also be some disruption to local residents and businesses during construction.
- 21.3.14 Table 21.5 gives additional information on the envisaged impacts in the south bridgehead area, as well as describing the mitigation measures proposed for the individual impacts.
- 21.3.15 Examination of the south bridgehead 'hotspot' shows that much of this area consists of MLURI Land Capability for Agriculture Class 2 arable land, traversed by a number of informal footpaths. This area is designated development land, and is predicted to experience the following significant residual impacts:
- landscape: introduction of the Main Crossing and southern route as new landscape elements;
 - land use: direct land-take and changes in amenity;
 - pedestrians: severance and loss of existing informal footpaths;
 - ecological: severance of commuting routes and foraging areas for bats;
 - visual: impacts of the Main Crossing (in both the winter year of opening, and summer 15 years after opening) on users of the informal footpaths; and
 - noise: increase in noise levels of 3dB(A) or greater.
- 21.3.16 This area includes the proposed location of the South Queensferry main construction compound, and as such, receptors in the vicinity could experience cumulative impacts during the construction phase. These would be due to the visual presence of the construction compound as well as from traffic noise and dust, and disruption of access between this compound and Society Road.
- 21.3.17 During scheme operation, pedestrians using the informal footpaths in the area of arable land may experience cumulative impacts arising from the new elements in the landscape, severance and loss of existing paths, and increased noise from the proposed scheme.
- 21.3.18 In addition to pedestrians, there are four main receptors in this 'hotspot' that may be subject to significant cumulative impacts from the proposed scheme: Inchgarvie House, Inchgarvie Lodge, residents at Clufflat Brae, and Port Edgar Barracks complex. These are described in paragraphs 21.3.19 to 21.3.22 below.
- 21.3.19 Inchgarvie House would be subject to significant residual visual and landscape impacts from both the Main Crossing and southern route (in both winter year of opening, and summer 15 years after opening). In addition it would experience significant residual cultural heritage impacts. Noise levels at Inchgarvie House are predicted to increase by 3dB(A) or more during scheme operation. During the construction phase, Inchgarvie House may experience cumulative impacts due to its close proximity to construction works for the Main Crossing.
- 21.3.20 Inchgarvie Lodge would be subject to significant residual visual impacts from the Main Crossing in both the winter year of opening and summer, 15 years after opening. It is also likely to experience indirect residual cultural heritage impacts as well as increased noise levels during scheme operation. During the construction phase, Inchgarvie Lodge may experience cumulative impacts due to its close proximity to the South Queensferry main compound.

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- 21.3.21 Residents at Clufflat Brae are expected to experience significant visual impacts from the Main Crossing in both winter, year of opening and summer, 15 years after opening. In addition they are predicted to be subject to increased noise levels of at least 3dB(A). Residents in this vicinity would experience the Main Crossing as a new element in the landscape. Residents at Clufflat Brae, as well as others in the proximity of South Queensferry main compound, may experience cumulative visual, noise and disruption to access impacts during the construction phase.
- 21.3.22 Port Edgar Barracks complex is predicted to experience significant residual indirect cultural heritage impacts (on its setting), land use impacts during construction (change in amenity), and the complex is predicted to experience increases in noise of at least 3dB(A). Significant residual landscape impacts are also predicted (due to the introduction of the bridge deck and piers as new landscape elements). Beneficial and adverse ecological impacts are predicted in this area (relating to commuting corridors for bats). In addition, receptors at Port Edgar Barracks complex may experience cumulative impacts during the construction phase.

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Table 21.1: Committed Developments

Note: locations are shown on Figure 21.1.

Ref	Project	Location	Status	Description	Size	Comments
1	Cruicks Quarry	Cruicks Quarry, Cruickness Road, Inverkeithing, Fife KY11 1HH	Planning Application	Minerals Application		<p>Planning Applications: <u>Reference number 09/00161/WFULL</u> Extend working period of quarry until 31/13/2013 and alteration to condition requirement of wharf and timescale of submission for site restoration assessment. Application pending consideration. An EIA was not carried out for this application. SNH advised that the application would have no impacts on the Firth of Forth designated sites. SEPA raised no objections to the application.</p>
15	Longannet Power Station, Alloa, Fife FK10 4AA	Kincardine	Three relevant planning applications for the site. Two have been permitted, one is pending			<p>NPF2 Framework June 2009 - listed as a necessary development as part of a wider introduction of non-nuclear power stations which also proposes development at Boddam and Cockenzie. The development at Longannet will include refurbishing the existing power plant, retrofitting clean coal and carbon capture technology, carbon storage facilities and introduction of associated environmental works.</p> <p>Fife Structure Plan 2001- 2011: Policy E8 supports the redevelopment of the Longannet/Kincardine power station site for the use of clean coal technology electricity generation.</p> <p>Designated as an established employment area under policies BIT 2 and BIT3 in the Fife Council West Villages Local Plan. Two brownfield sites lie adjacent to the power station and are designated for possible business by Fife Council, in conjunction with Scottish Power.</p> <p>Planning Applications: 1) <u>Reference number 09/00298/WFULL</u> Proposal: Establishment of a coal surface handling facility for the importation, storage and processing of coal. Application refused - no appeal lodged as of 18/06/2009.</p> <p>2) <u>Reference number 07/02049/WFULL</u> Establishment of a coal bed methane extraction facility with associated driving infrastructure compounds, access roads and associated landscaping. Application permitted with conditions.</p> <p>SNH objected to this application on the grounds that it would result in adverse impacts on the Firth of Forth SPA, SSSI, European and other protected species and surrounding landscape. More information was required on the associated waste water treatment works (WWTW), in a detailed planning application. SNH stated that the objection would be removed if a condition is introduced to the permission determining that no construction will commence until the aforementioned WWTW was awarded planning permission. SEPA raised no objections to the application.</p>

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Ref	Project	Location	Status	Description	Size	Comments
						<p>3) Reference number 07/01283/WEIA</p> <p>Erection of a biomass power station with associated engineering works, ancillary buildings, formation of a new road, landscaping and ancillary development on land to the west of Longannet Power Station.</p> <p>Application permitted with conditions.</p> <p>An EIA was carried out as part of this application.</p> <p>SNH objected to the application due to a failure of the applicant to produce detailed information on various issues such as site management, site restoration, layout, design and mitigation measures, noting that unless such issues were addressed through the addition of detailed information or the inclusion of planning conditions relating to such matters, the objection of SNH would stand. SNH withdrew the objection due to satisfactory conditions being imposed by Fife Council.</p> <p>SEPA required that conditions be imposed on the awarded planning permission.</p>
3	Rosyth Bio-diesel Processing Facility	Milne Road Rosyth Fife	Planning Application	Bio-diesel process facility	4.6ha site	<p>Planning Applications:</p> <p>Reference number 06/02644/WEIA</p> <p>Installation of bio-diesel process facility and associated infrastructure, vehicular parking and erection of boundary fence on a 4.6ha site.</p> <p>Application permitted.</p> <p>An EIA was carried out for this application.</p> <p>SEPA and SNH information was not available for this application.</p>
2	Temporary waste water treatment works, North Queensferry	Helen Lane North Queensferry Inverkeithing Fife KY11 1JY	Planning Application	Waste water treatment plant		<p>Planning Applications:</p> <p>Reference number 05/03568/WFULL</p> <p>Erection of temporary waste water treatment facility.</p> <p>Application permitted - construction nearing completion.</p> <p>SEPA and SNH information was not available for this application.</p>
4	Residential Development at Scotstoun Avenue	Scotstoun Avenue, South Queensferry EH30 9YB	Planning application	Residential development (outline)	5.6ha	<p>Planning Applications:</p> <p>Reference number 06/00842/OUT</p> <p>Residential development on a 5.6ha site.</p> <p>Application permitted.</p> <p>An EIA was not carried out for this application.</p> <p>SEPA raised an objection regarding SUDS proposals and foul drainage. Transport assessment included in the application but it raised no additional traffic impacts as a result of the development. An archaeological assessment by the City of Edinburgh Council revealed no potential impacts from the proposed development. SNH advised that this application would have no impacts on the Firth of Forth.</p>
6	Echline Avenue housing development	Echline Avenue, South Queensferry EH30 9SW	Planning application	Residential development		<p>Planning Applications:</p> <p>Reference number 04/04627/FUL</p> <p>The erection of 51 new housing units with 64 associated parking spaces.</p> <p>Application permitted.</p>

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						An EIA was not carried out for this application. The Council require investigatory archaeological work to be carried out onsite before development commences. SEPA did not issue a response to this application: indicating that they had no concerns. SNH responded that this application would have no impacts on the Firth of Forth.
5	Ferry Muir South	South Queensferry	Planning allocation/planning application	Mixed-use development		Planning Applications: <u>Reference number 09/00490/OUT</u> Proposed mixed use development comprising office use, a care home, residential development, a leisure unit and, community facility. Application pending consideration. An EIA was not carried out as part of the application. SEPA has no objection to the application. The Council advised that an archaeological investigation had to be carried out on site before any development commences. SNH responded that this application would have no impacts on the Firth of Forth.
8	Stirling Road, Kirkliston	Stirling Road Kirkliston EH29 9BF	Planning allocation/planning application	Residential		Planning Applications: <u>Reference number 04/04471/FUL</u> Erection of two houses and 12 flats in accordance with condition 17 of approved application 03/00399/ful. This earlier application related to the development of 93 housing units. Application permitted. An EIA was not carried out for the 2004 application. SNH advised that this application would have no impacts on the Firth of Forth. SEPA offered no objection to this application. There was an environmental investigation undertaken for application 03/0099/FUL. SEPA objected to this application due to the absence of an adequate SUDS plan for the site. Other issues of concern were also raised, such as contaminated land and the use of nearby water sources within potential SUDS schemes.
9	Kirkliston North	Kirkliston	Local Plan allocation / Development Brief Planning applications	Residential	610 units	The Edinburgh and Lothians Structure Plan policy HOU3 supports the introduction of 1,000 housing units in the combined areas of Newbridge, Kirkliston and Ratho. The North Kirkliston Development Brief sets out the planning and design guidelines upon which development opportunities should be based for this site. The main land uses are housing, community uses (in particular a new primary school), and open space. The site is identified in the Adopted Rural West Edinburgh Local Plan as HSP 1. Planning Applications: <u>1) Reference number 06/05149/OUT</u> Mixed use development comprising new housing, public open space and associated community facilities, with a site being reserved for a primary school – amended. Application permitted. An EIA was not carried out for this application. SEPA removed its original objection to the development on

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						<p>the grounds of flood risk. SNH advised that this application would have no impacts on the Firth of Forth.</p> <p><u>2) Reference number 07/04254/FUL</u> To carry out infrastructure works for future development at North Kirkliston. Application permitted. An EIA was not undertaken for this application. SEPA raised no objection to this proposal. SNH advised that this application would have no impacts on the Firth of Forth.</p> <p><u>3) Reference number: 08/00031/FUL</u> Relative to existing outline application for residential masterplan for the erection of 176 houses and 36 flats Application pending consideration. An EIA not undertaken for this application. SNH responded that it would have no impacts on Firth of Forth.</p> <p><u>4) Reference number 08/01268/FUL</u> Erection of 62 detached and semi-detached houses. Application pending consideration. An EIA was not undertaken as part of this application. It was deemed to fall below the threshold criteria for such an assessment. SEPA issued the same response as it did to the original outline application. (06/05149/OUT) listed above. SEPA did require that planning conditions relating to the inclusion of SUDS infrastructure be imposed on the planning application decision. SNH advised that this application would have no impacts on the Firth of Forth.</p>
7	Kirkliston Distillery	Kirkliston	Local Plan allocation / Planning applications	Residential/ mixed use	3.5 ha site	<p>The Edinburgh and Lothians Structure Plan policy HOU3 supports the introduction of 1,000 housing units in the combined areas of Newbridge, Kirkliston and Ratho. Allocated as HSP 3/ECON 11 mixed use development, predominantly housing in the Rural West Edinburgh Local Plan. Class 4 business development proposed as part of the wider housing site.</p> <p>Planning Applications:</p> <p><u>1) Reference number 08/01455/FUL</u> Material variation to approved scheme (01/01855/FUL). Amendment to road layout and pedestrian access, level changes to accommodate flood prevention measures, house locations adjusted and design changes. Application granted. An EIA was not carried out for 08/01455/FUL. SEPA did not issue a consultation on this application, indicating that they had no concerns with it. SNH advised that this application would have no impacts on the Firth of Forth.</p> <p><u>2) Reference number 08/02216/LBC</u> Alterations to 2 category C, listed malt buildings relating to their conversion to residential units (106 units). Application granted. An EIA was not undertaken as part of this application. SEPA were not consulted on this application. SNH advised that this application would have no impacts on the Firth of Forth.</p>

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11	Former Continental Site	Newbridge	Three relevant planning applications / subject to Local Plan alteration	Residential	25 ha site 500 units	<p>The Edinburgh and Lothians Structure Plan policy HOU3 supports the introduction of 1,000 housing units in the combined areas of Newbridge, Kirkliston and Ratho.</p> <p>The site is designated for housing in the Alteration to the Rural West Edinburgh Local Plan and is listed as housing sites HSP 8 and HSP 9. The estimated housing unit capacity for the HSP 8 site is detailed at 150 in the plan alteration while that of HSP9 is given as 350.</p> <p>Planning Applications:</p> <p>1) <u>Reference number: 03/02233/REM</u> 1A Old Liston Road Newbridge EH28 8SJ. Offices (class 4) and hybrid industrial units (class 4,5/6) development with associated car/vehicle parking and landscaping. Application approved. An EIA was not carried out for this proposal. SNH advised that this application would have no impacts on the Firth of Forth.</p> <p>2) <u>Reference number 07/04646/OUT</u> 1A Old Liston Road Newbridge EH28 8SJ. Application for outline planning permission for proposed demolition of existing buildings and redevelopment of site to provide new residential development including family and affordable housing, residential care home, public transport facilities, community recycling facilities, new access roads, car parking, footpaths and cycleways, public park, open space, landscaping and other ancillary community facilities. Application pending consideration.</p> <p>An EIA was not undertaken for this application, yet various additional assessments were carried out such as transport, noise and ecology. Historic Scotland had no concerns related to the possible development. SNH did not object to the application but strongly advised the inclusion of planning conditions relating to the ecological impacts of the proposed development on the River Almond Site of Importance for Nature Conservation. SEPA has not objected to the application at this stage of the permission process.</p>
12	Newbridge North	Newbridge	Local Plan allocation / planning allocations	Commercial	22.8 ha. site	<p>The Edinburgh and Lothians Structure Plan policy ECON 6 supports the introduction of office development on business/industrial land in Newbridge. Allocated as ECON 7 in the Rural West Edinburgh Local Plan. The site is under private ownership and has been proposed for class 4 business use.</p> <p>Planning Applications</p> <p>1) <u>Reference number 07/04961/REM</u> 2A Kirkliston Road, Newbridge. Plot 2 - proposed office development with associated car parking and landscaping. Application approved.</p>

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						<p>An EIA was not undertaken for this application. SEPA originally objected to the development because of a lack of information on SUDS measures. This objection was then withdrawn on the condition that the required SUDS infrastructure be introduced.</p> <p>SNH advised that this application would have no impacts on the Firth of Forth.</p> <p><u>2) Reference number 07/04960/REM</u> 2A Kirkliston Road, Newbridge. Plot 6B - proposed office development with associated car parking and landscaping. Application approved.</p> <p>An EIA was not undertaken for this application. SEPA originally objected to the development because of a lack of information on SUDS measures. This objection was then withdrawn on the condition that the required SUDS infrastructure be introduced.</p> <p>SNH advised that this application would have no impacts on the Firth of Forth.</p> <p><u>3) Reference number: 08/00529/REM</u> 2A Kirkliston Road Newbridge. Proposed hotel development encompassing ancillary restaurant, public house and leisure facilities with associated car parking and landscaping. Application approved.</p> <p>An EIA was not undertaken for this application. SEPA originally objected to the proposal because of a lack of information on SUDS proposals. This objection was later withdrawn.</p> <p>SNH advised that this application would have no impacts on the Firth of Forth.</p> <p><u>4) Reference number 08/00435/REM</u> 2A Kirkliston Road, Newbridge. Reserved matters application for erection of hotel and restaurant/public house (public house licence) with associated parking and landscaping. Application approved.</p> <p>An EIA was not undertaken for this application. SEPA has no objection to the proposed development. SNH advised that this application would have no impacts on the Firth of Forth.</p> <p><u>5) Reference number 08/01299/FUL</u> Variation of condition 1 of outline planning permission 01/00829/OUT to allow for an extension of time with which applications for reserved matters can be submitted. 01/00829/OUT relates to the development of a business park campus comprising two, three and four storey buildings with associated parking. Application granted.</p>

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						<p>SEPA and SNH not consulted on the application 08/01299/FUL. SEPA raised no objections to the original development 01/00829/OUT.</p> <p><u>6) Reference number 08/01881/REM</u> 2A Kirkliston Road Newbridge. Proposed office and industrial development (class 4, 5 and 6) with associated storage yard, car parking and landscaping. Application approved.</p> <p>SEPA raised no objections to this proposal. SNH advised that this application would have no impacts on the Firth of Forth.</p> <p><u>7) Reference number 08/02002/REM</u> 2A Kirkliston Road, Newbridge. Proposed road layout including junction details for phase 2. Application approved.</p> <p>SEPA were not consulted on this application. An archaeological survey is required prior to any development commencing onsite. SNH advised that this application would have no impacts on the Firth of Forth.</p> <p><u>8) Reference number 08/04063/FUL</u> Land at 9 Edinburgh Road, Newbridge. Variation of condition one of planning permission 06/02978/FUL and 08/01393./REM to allow for plot 10 to be included within the condition alongside plots 1 and 6B. Application permitted.</p> <p>SEPA did not respond to the applications 08/04063/FUL or 08/01393/REM. SEPA originally objected to the application 06/02978/FUL on flood risk grounds, but withdrew this objection after further information was received. SNH advised that this application would have no impacts on the Firth of Forth.</p> <p><u>9) Reference number 06/02978/FUL</u> 9 Edinburgh Road, Newbridge. Erection of new car showrooms/workshop. Application permitted.</p> <p>SEPA originally objected to application 06/02978/FUL on flood risk grounds, but withdrew this after further information was received. SNH advised that this application would have no impacts on the Firth of Forth.</p>

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Ref	Project	Location	Status	Description	Size	Comments
						<p>10) Reference number 07/01358/REM Land at 9 Edinburgh Road Newbridge. Proposed road layout including junction details and access and egress details for Phase one of site. Application permitted. SEPA and SNH were not consulted on this application.</p>
10	Queen Anne Drive, Newbridge	3 Queen Anne Drive, Newbridge EH28 8LH	Planning application	Industrial/ storage development		<p>Planning Application: 1) Reference number 08/00057/FUL Erection of class 5 (general industry) and class 6 (storage and distribution) development with ancillary class 4 (office) associated access, parking and landscaping. Application granted. SNH advised that this application would have no impacts on the Firth of Forth. SEPA has no objection to the application.</p>
14	Winchburgh		Structure Plan allocation/Local Plan allocation	Residential and Mixed Use	3000 units, 352 ha. development	<p>The Edinburgh and Lothians Structure Plan Policy HOU3 supports the introduction of 3,000 houses in the combined areas of Winchburgh, East Broxburn and Uphall which are identified as core development areas for housing. Policy CDA9 of the West Lothian Local Plan allocates six sites in Winchburgh for the purposes of mixed use development, of which residential will be the predominant land use. The policy states that in combination, the sites shall accommodate 3,450 residential units. Non residential uses which are compatible with the proposed uses for these sites will be permitted if they do not conflict with other policies in the Local Plan. The Local Plan emphasises the need for a new non-denominational school, and town centre, improved road connections (including an M9 link and a railway station) with an accompanying park and ride to be introduced as part of the development of the designated sites within the Winchburgh area. An EIA was carried out for this application. SEPA supports the application and associated masterplan, determining that outstanding matters can be resolved at the detailed planning stage. SNH originally objected to the outline application on grounds of natural heritage impacts. It subsequently accepted that issues of contention could be resolved at the detailed planning stage but added that further fieldwork/surveys need to be undertaken. Planning Applications: 1) Reference number: 1012/P/05 Outline planning for a 352ha development including residential, commercial, industrial, recreation and retail uses, community facilities, landscaping and open space, road and rail infrastructure, including M9 junction, train station, park and ride, primary and secondary schools. Application pending consideration.</p>
13	Niddry Castle Bing	Niddry Castle Bing, Winchburgh	Planning Application	Minerals application		<p>Planning Applications: 1) Reference number: 0033/M/09 Review of conditions on minerals permission (M1015/1990).</p>

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Ref	Project	Location	Status	Description	Size	Comments
						<p>Application pending consideration. An Environmental Statement did accompany this application. SNH has no objection to the proposal but insists that the consideration of European Protected Species must be included within the planning application process. Conditions seeking to limit ecological and landscape impacts should be included in an awarded permission, while further field surveys may be required to fully assess the potential impacts of the development. Historic Scotland raised no issues on the application.</p> <p><u>2) Reference number: 1146/FUL/06</u> Renewal of temporary planning permission 0623/FUL/06 relating to the increase of loaded lorries leaving the site per day to 500 daily vehicle movements. Application permitted with conditions. An EIA was not carried out as part of this application. Neither SNH nor SEPA have objections to the application.</p> <p><u>3) Reference number: 0623/FUL/06</u> Variation of condition 3 of planning permission 1015/M/90 to allow an increase from 100 loaded vehicles leaving the site per day to 250 loaded vehicles leaving the site per day, giving rise to a total of up to 500 daily vehicle movements. Application granted subject to a Section 75 Agreement. An EIA was not carried out for this application. SEPA raised no objections to this application. SNH advised that this application would have no impacts on the Firth of Forth.</p>
17	Bo'ness Harbour	Bo'ness	Structure Plan allocation, Local Plan allocation, Planning application	Residential Commercial	17.5ha 750 housing units	<p>Falkirk Structure Plan 2007, Schedule Com 1b. Finalised Falkirk Council Local Plan HBNS14 – Bo'ness foreshore, housing led regeneration as part of the Special Initiative for Residential led Regeneration (SIRR) to introduce a predominantly residential development, incorporating commercial leisure and community opportunities. This is proposed in the Settlement Statement for Bo'ness under paragraphs 6.4 to 6.6. Bo'ness Local Plan 1995 – BNS 34 recreational potential of Bo'ness foreshore.</p> <p>Planning Applications:</p> <p><u>1) Reference number: P/07/0124/LA</u> Notice of intention to develop engineering works to foreshore flood prevention scheme and formation of pedestrian/cycle path at Bo'ness Harbour & Dock. Application approved on 19 September 2007. SEPA have no objections to this application. SNH did not provide a response to this application.</p> <p><u>2) Reference number: P/07/0125/LB LA</u> Listed building consent for engineering works to harbour and docks related to flood defences at Bo'ness</p>

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Ref	Project	Location	Status	Description	Size	Comments
						<p>Harbour and Dock. Application approved on 5 October 2007. SNH did not provide a response to this application.</p> <p>3) <u>Reference number: 05/0573/FUL</u> Formation of mixed use development including 123 apartments, 75 townhouses, 90 bedroom hotel, yacht club, restaurants/bars, retail, reinstatement of harbour to create marina and associated roads and infrastructure. An EIA was carried out for this development. Application: pending consideration.</p> <p>SNH originally objected to this application but stated that this would change if specific conditions were imposed on the granting of permission in order to meet their requirements.</p> <p>4) <u>Reference number: 05/0571/OUT</u> Formation of mixed use development including residential, and leisure, commercial uses, reinstatement of harbour to create marina, and associated marina roads and infrastructure. Application: pending consideration SNH originally objected to this application but stated that this would change if specific conditions were imposed on the granting of permission in order to meet their requirements.</p>
16	Grangemouth Container Port	Grangemouth	Planning Applications	Industrial Port related		<p>Planning Applications Made for a variety of different uses, primarily the petro-chemical sector:</p> <p>1) <u>Reference number P/08/0411/HAZ</u> BP Kinneil, Bo'ness Road, Grangemouth, FK3 9XH. Modification to Hazardous Substances Consent 06/0095/HAZ to increase the on site storage capacity for diesel from 50 Tonnes to 200 Tonnes. Application pending consideration. SNH had no objection to the application.</p> <p>2) <u>Reference number: P/08/0284/FUL</u> Ineos, Bo'ness Road, Grangemouth, FK3 9XH. Erection of four free-standing gas cracking columns and associated plant. Application granted. SEPA has no objections to this application. SNH raised no objections to the application proposal.</p> <p>3) <u>Reference number: P/08/0547/HAZ</u> Kemfine North Site, Earls Road, Grangemouth, FK3 8XG. Storage of hazardous substances.</p>

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Ref	Project	Location	Status	Description	Size	Comments
						<p>Application granted. SNH raised no objections once adequate safeguards (through planning conditions or further detailed submissions on behalf of the applicant) were incorporated into a planning permission to prevent hazardous substances affecting the adjacent SPA. Such measures were authorised by SEPA and Falkirk Council.</p> <p>4) <u>Reference number: P/07/0257/FUL</u> Ineos, Bo'ness Road, Grangemouth, FK3 9XH. Erection of bio-diesel plant, incorporating bulk storage area. Application granted. An EIA was carried out for this development. SNH objected to the application due to potential impacts on Firth of Forth SPA, SSSI and Ramsar sites. However, objection would be removed if SNH guidance was followed.</p> <p>5) <u>Reference number: P/07/0243/HAZ</u> Syngenta, Earls Road, Grangemouth, FK3 8XG. Application relating to the storage of hazardous substances. Application granted. An EIA was not carried out for this development. SNH stated that an objection on their behalf would only be raised if SEPA identified potentially harmful impacts of the development. SEPA responded with no objections to the development.</p> <p>6) <u>Reference number: P/07/0244/HAZ</u> Avecia North Site, Earls Road, Grangemouth, FK3 8XG. Application relating to the storage of hazardous substances. Application granted. An EIA was not carried out as part of the application. SEPA and SNH raised no issues or concerns with the application.</p> <p>7) <u>Reference number: 06/0129/HAZ</u> British Petroleum, Powdrake Road, Grangemouth, FK3 9AY. Application relating to the storage of hazardous substances. Application granted. An EIA was not carried out as part of the application. SEPA and SNH raised no issues or concerns with the application.</p> <p>8) <u>Reference number: 06/0202/HAZ</u> Innovene, Powdrake Road, Grangemouth, FK3 9AY. Application relating to the storage of hazardous substances. Application granted.</p>

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Ref	Project	Location	Status	Description	Size	Comments
						<p>An EIA not carried out as part of the application. SEPA raised no issues or concerns with the application. SNH had no objection to the application.</p> <p><u>9) Reference number: 06/0203/HAZ</u> BP L P G UK, South Shore Road, Grangemouth, FK3 8TQ. Application relating to the storage of hazardous substances. Application granted. An EIA not carried out for the application. SEPA raised no issues or concerns with the application. SNH had no objection to the application.</p> <p><u>10) Reference number: 06/0093/HAZ</u> British Petroleum, Powdrake Road, Grangemouth, FK3 9AY. Application relating to the storage of hazardous materials. Application granted. An EIA was not carried out as part of the application. SEPA and SNH raised no issues or concerns with the application.</p> <p><u>11) Reference number: 06/0094/HAZ</u> BP L P G UK, South Shore Road, Grangemouth, FK3 8TQ. Application relating to the storage of hazardous materials. Application granted. An EIA was not carried out as part of the application. Neither SEPA nor SNH raised issues or concerns with the application.</p> <p><u>12) Reference number: 06/0095/HAZ</u> British Petroleum, Bo'ness Road, Grangemouth, FK3 9UT. Application relating to the storage of hazardous materials. Application granted. An EIA was not carried out as part of the application. SEPA raised no issues or concerns with the application. SNH had no objection to the application.</p> <p><u>13) Reference number: 06/0906/HAZ</u> Oran, Grange Lane, Grangemouth, FK3 8EG. Continuation of hazardous substances consent for the storage of 10,000 tonnes of ethanol following a change in control of part of the land. Application granted.</p>

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Ref	Project	Location	Status	Description	Size	Comments
						An EIA was not carried out as part of the application. SEPA raised no issues or concerns with the application. SNH had no objection to the application.
18	RD57 dry dock (Babcock)	Rosyth	Local plan allocation, Brownfield site The site has berthing facilities and an adjacent landholding. Finding a suitable use is an economic priority	Industrial	25.6ha site	Fife Structure Plan 2001-2011- policy SS5 states that proposals for the development of a roll-on roll-off ferry terminal, a port facility, port related facilities and a new industrial, business and other mixed uses at the Rosyth Military Estate will be supported. Policy E3 seeks to safeguard strategic employment sites such as the Port of Rosyth from other forms of development. Finalised Fife Structure Plan 2006 to 2026- proposal PT2 states that the Port of Rosyth will be developed as a multi-modal international freight distribution facility. Proposals likely to prejudice the development of an integrated road, rail and port freight transport hub will not be supported. Site S10 in the Dunfermline and Coast Local Plan. Covered by policies BE2 development within town and village envelopes, and BE7 Brownfield Development Sites. Proposal PR22 states that the Rosyth Waterfront will be developed for employment purposes.

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Table 21.2: Relevant National Developments as Identified in NPF2

Note: locations are shown on Figure 21.1.

Ref*	Project	Location	Status	Description	Size	Comments
16	Grangemouth Container Port	Grangemouth	National development	Industrial Port related		<p>NPF2 Proposed Framework June 2009 - states that the expansion of the existing Grangemouth freight terminal and improvement of surrounding transport infrastructure, including road and rail links, is a needed national development.</p> <p>There have been no planning applications received for such a development, but significant other applications for different uses, primarily the petro-chemical sector have been submitted (see Table 21.1).</p>
18	Rosyth Dockyard (Forth Ports Authority)	Rosyth	National development	Industrial	14 ha	<p>NPF 2 Proposed Framework June 2009- the development of Rosyth into an international container terminal is a necessary national development.</p> <p>Fife Structure Plan 2001-2011- policy SS5 states that proposals for the development of a roll-on roll-off ferry terminal, a port facility, port related facilities and a new industrial, business and other mixed uses at the Rosyth Military Estate will be supported.</p> <p>Policy E3 seeks to safeguard strategic employment sites such as the Port of Rosyth.</p> <p>Finalised Fife Structure Plan 2006 to 2026- proposal PT2 states that the Port of Rosyth will be developed as a multi-modal international freight distribution facility. Proposals likely to prejudice the development of an integrated road, rail and port freight transport hub will not be supported.</p> <p>Allocated as site S121 in the Dunfermline and Coast Local Plan. It is a brownfield site which proposal PR22 of the Dunfermline and Coast Local Plan states is to used as employment land.</p>

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Table 21.3: Residual Impacts of the Proposed Scheme Considered in the Cumulative Impact Assessment

Receptor/Location	Description	Significance
Land Use		
Deep Sea World overspill car park	100% land-take of overspill car park. Residual impact on commercial land. Adverse impact on viability.	Moderate/Substantial
Queensferry Hotel	18% land-take. Adverse impact on viability.	Moderate
HSG2, Springfield Road, South Queensferry	Direct land-take and changes in amenity impacts on development land.	Adverse (significance category not assigned)
Scottish Water – Dunfermline WWTW	36% land-take which would result in a change in the existing access arrangements.	Moderate
ENV 6, Springfield Road, South Queensferry	Direct land-take and changes in amenity impacts on development land.	Adverse (significance category not assigned)
Inchgarvie House (flats)	11% land-take (gardens). Right of servitude also required over part of garden during operation.	Moderate
Ove Arup and Partners, Scotland Limited	23% land-take. Neutral impact on viability.	Moderate
Scottish Water - South Queensferry WWTW	23% land-take. Neutral impact on viability.	Moderate
Dundas Mains, Land Refs 3 & 22	Residual impact on agricultural, sporting and forestry interest. Loss of 32% of total farmed area. Likely future viability compromised.	Substantial
Dundas Estate, Land Refs 1, 6, 9 & 23	Severance impact on agricultural, sporting and forestry interest. Loss of 9% of total farmed area, loss of boundary features and disruption to field drainage system.	Moderate/Substantial
Overton Grazing, Land Ref 15	Land-take impact on agricultural, sporting and forestry interest. Land lost equates to 35% of total farmed area.	Substantial
Geology		
No Significant residual impacts identified.		
Water Environment		
No Significant residual impacts identified.		
Terrestrial and Freshwater Ecology		
Port Edgar Barracks and west of South Queensferry	Severance of commuting routes and foraging areas for bats between South Queensferry, East Shore Wood, and Hopetoun which will affect habitat connectivity in the study area.	Significant
River Almond, Niddry Burn and Swine Burn	Construction activities undertaken within 10m of watercourses may cause loss of riparian habitat used by otters for lying up, foraging, and commuting.	Short term: Significant
River Almond, Niddry Burn, and Swine Burn	Severance of otter home ranges and commuting habitats along the River Almond, Niddry Burn and Swine Burn due to M9 widening junction improvements and construction of embankments, leading to habitat fragmentation.	Short term: Significant

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Receptor/Location	Description	Significance
River Almond, Niddry Burn, and Swine Burn	Otters are likely to suffer disturbance from increased light, noise, and vibration from construction activities.	Short term: Significant
Swine Burn	Riparian planting and inclusion of meanders and bends along the new alignment of the Swine Burn will result in a greater diversity of species and habitats than is currently present. Freshwater fish will benefit from increased cover provided by the new culvert.	Significant Positive
Main Crossing	The Main Crossing will provide a third structure along which bats may commute between Fife and Lothians, enriching the commuting habitat resource at Authority area importance.	Significant Positive
Estuarine Ecology		
Migratory and non-migratory fish	Short term (construction phase) residual impacts of noise and vibration from piling activity and from the excavation of Beamer Rock.	Significant
All receptors i.e. benthic habitats, migratory and non-migratory fish, marine mammals, and estuarine birds	Residual impacts as a result of chemical spills during the construction phase, or arising from a road traffic accident during operation of the Main Crossing.	Significant
Landscape		
<p><i>Note: WYO = Winter Year of Opening, SFY – Summer, Fifteen Years after Opening.</i></p> <p><i>Note: As described in Section 12.1 of Chapter 12 (Landscape), the landscape assessment has considered the existing Forth Road Bridge and Forth Rail Bridge.</i></p>		
Coastal Hill: Castlandhill. Whinney Hill	Direct residual impact of the Northern Route as a result of introduction of new road cuttings, slips roads, and gyratory.	Moderate (WYO)
Coastal Flat: North Queensferry	Direct residual impact of the Northern Route as a result of introduction of viaduct, realignment of corridor to Main Crossing and introduction of slip road.	Substantial (WYO) Moderate to Substantial (SFY)
Coastal Hill: Ferry Hills. Wooded hill to the east of A90	Direct residual impact of the Main Crossing as a result of the loss of mature trees, visual loss of landform, shadow and shade.	Substantial (WYO & SFY)
Coastal Hill: Ferry Hills. Wooded hill to the east of A90	Direct residual impact of the Northern Route as a result of cutting through the top of the hill, loss of mature woodland, and cutting through rock for road realignment.	Substantial (WYO & SFY)
Urban Area: North Queensferry	Indirect residual impact of the Main Crossing.	Moderate Neutral (WYO & SFY)
Firth of Forth; main waterbody, shores and mudflats, Beamer Rock, and islands	Direct residual impact of the Main Crossing due to the introduction of Main Crossing as a new landscape element. Use of Beamer Rock for a central pier support.	Moderate to Substantial Neutral (WYO & SFY)
Urban Area: South Queensferry	Direct residual impact of the Southern Route as a result of introduction of new junction with embankments, southern route in cutting and at grade, introduction of access roads to compound, realignment of B924 junction with A904, and stopping up of existing A90 to Forth Road Bridge at Ferry Muir.	Moderate to Substantial (WYO) Moderate (SFY)
Lowland Hill and Valley Farmland: Duddingston. North facing slopes	Direct residual impact of the Main Crossing as a result of the introduction of bridge deck and piers as new landscape elements.	Moderate (WYO & SFY)

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Receptor/Location	Description	Significance
Lowland Hill and Valley Farmland: Duddingston. North facing slopes	Direct residual impacts of the Southern Route as a result of the introduction of Southern Route in cutting and at grade, introduction of access road to the east of the proposed scheme as it crosses the Echline Fields, and introduction of SUDS detention basin.	Substantial (WYO) Moderate (SFY)
Lowland Hill and Valley Farmland: Duddingston. Undulating farmland	Direct residual impacts of the Southern Route as a result of the introduction of new Queensferry Junction, realignment of A904 at Queensferry Junction, introduction of Southern Route in cutting and at grade, realignment of B924 junction with A904, and creation of bus lane to north of existing A90 on embankment and at grade.	Substantial (WYO) Moderate to Substantial (SFY)
Lowland Hill and Valley Farmland: Duddingston. South facing slopes	Direct residual impacts of the Southern Route as a result of the realignment of Swine Burn, introduction of slip road on embankment and new bridge structure on B9080 and introduction of SUDS detention basin.	Moderate (WYO)
Designed Wooded Landscape: Dundas	Direct residual impacts of the Southern route as a result of the introduction of the Southern Route on embankment and creation of bus lane to the A8000 along disused road to south of existing A90 on embankment and at grade.	Substantial (WYO) Moderate to Substantial (SFY)
Visual	<p><i>Note: WYO = Winter Year of Opening, SFY – Summer, Fifteen Years after Opening.</i></p> <p><i>Note: As described in Section 13.1 of Chapter 13 (Visual), the visual assessment has considered the existing Forth Road Bridge and Forth Rail Bridge.</i></p>	
Built Receptors North of Main Crossing		
Hillside (receptor 662)	Change to views across Firth of Forth.	Moderate (WYO & SFY)
Castlandhill Farm (receptor 646)	Change to views across Firth of Forth.	Moderate (WYO)
Lothian View (receptor 647)	Change to views across Firth of Forth.	Moderate (WYO & SFY)
Castlandhill House (receptor 719)	Introduction of the Main Crossing in views across the Firth of Forth, viewed against the backdrop of the Forth Road Bridge and Forth Rail Bridge.	Moderate (WYO & SFY)
Receptors 508-509 on View Terrace and Cleveland Drive	Change to views.	Moderate (WYO & SFY)
Craigdhu (receptor 399)	Change to views.	Moderate/Substantial (WYO) Moderate (SFY)
Craigdhu Cottage (receptor 398) and several houses on Inchcolm Drive (receptor 402)	Change to views.	Moderate/Substantial (WYO & SFY)
Views from the Queensferry Hotel (receptor 390)	Change to views as the proposed scheme would pass very close to the hotel and would significantly alter the views available to the west.	Moderate/Substantial (WYO & SFY)
St. Margaret's Hope (receptor 644)	Change to setting.	Severe (WYO & SFY)
St Margaret's Hope Gatelodge (receptor 487)	Change to setting.	Substantial/Severe (WYO & SFY)
Ferry Craig House and Tigh-na-Grian (receptor 391)	Significant changes to views.	Substantial (WYO & SFY)

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Receptor/Location	Description	Significance
Built Receptors South of Main Crossing		
Properties on Springfield Lea (receptor 136)	Views dominated by the Main Crossing.	Substantial (WYO & SFY)
Springfield Crescent (receptor group 132)	Change to views.	Moderate/Substantial (WYO & SFY)
Receptor group 128, situated at the edge of the housing estate (North South Queensferry)	Main Crossing would be prominent in the views.	Moderate/Substantial (WYO & SFY)
Receptor groups Clufflat Brae (receptor 116 to 118 and 120 to 121)	Proximity of the viaduct and abutment at the south end of the Main Crossing.	Moderate (WYO)
Clufflat Brae (receptor 2) and Springfield Lea (receptor 137)	The piers of the viaduct of the Main Crossing would be constructed directly in front of these properties.	Substantial (WYO & SFY)
Clufflat (receptor 3)	The piers of the Main Crossing would be visible from the front of the house, with the rest of the crossing visible through surrounding trees from the back of the property.	Substantial (WYO & SFY)
Lin Mill properties (receptors 363, 372-375,377)	Change to view because the Main Crossing would pass immediately to the east of the dwellings as a significant feature, viewed against the backdrop of the Forth Road Bridge and Forth Rail Bridge.	Moderate/Substantial (WYO & SFY)
Lin Mill property (receptor 350, 351 and 362)	Adverse change to views to the east towards Inchgarvie House, the Main Crossing would be seen above the house on viaduct.	Substantial/Severe (WYO & SFY)
The Weddle (receptor 347)	View of Main Crossing against backdrop of the Forth Road Bridge and Forth Rail Bridge.	Moderate/Substantial (WYO & SFY)
The Fisheries (receptor 378)	View of Main Crossing against backdrop of the Forth Road Bridge and Forth Rail Bridge.	Substantial (WYO & SFY)
Inchgarvie House (receptor 381)	Change in view due to the Main Crossing passing immediately to the east of the house on viaduct.	Severe (WYO & SFY)
Inchgarvie Lodge (receptor 380)	Change in view due to the Main Crossing passing immediately to the east of the house on viaduct, but limited by surrounding woodland limiting view.	Moderate/Substantial (WYO & SFY)
Outdoor Receptors North of Main Crossing		
F49A and F49B of the Right of Way crossing Castlandhill	The Main Crossing would be clearly visible.	Moderate (WYO & SFY)
Receptors F47D, F48B and F48C east of Europarc and west of St. Margaret's Marsh	The Main Crossing would form a significant visual feature.	Moderate (WYO & SFY)
Footpath receptor F40A which follows the coastline south of St. Margaret's Marsh	View of Main Crossing against backdrop of the Forth Road Bridge and Forth Rail Bridge.	Moderate/Substantial (WYO & SFY)

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Receptor/Location	Description	Significance
Queensferry Hotel view point (receptor O33)	Main Crossing would introduce a significant new feature in close proximity to the viewpoint.	Moderate/Substantial (WYO & SFY)
North Queensferry right of way (receptor F31) at Ferry Hills	Clear views of the Main Crossing.	Moderate (WYO & SFY)
North Queensferry public open space receptors O27, 028, 029, 035, 036, 038	Views of the Main Crossing.	Moderate (WYO & SFY)
North Queensferry public open space (receptor 039)	Clear views of the Main Crossing.	Moderate/Substantial (WYO & SFY)
Sections of the Fife coastal path (receptors F34A to F34D and F54A and F54B)	Towers of the Main Crossing would be visible.	Moderate (WYO & SFY)
Impact on Firth of Forth		
Cycleway and footpath on the Forth Road Bridge (receptor R24)	The Main Crossing would be visible to the west of the receptor, causing a significant change to views.	Substantial (WYO & SFY)
Outdoor Receptors South of Main Crossing		
Port Edgar Marina (receptor O9)	Main Crossing would be dominant in views.	Substantial (WYO & SFY)
Viewpoint and picnic area on Society Point at edge of the Hopetoun Estate (receptor O19)	Main Crossing would be highly visible to the east, but would be seen against the backdrop of the Forth Road Bridge and Forth Rail Bridge.	Moderate (WYO & SFY)
Society Road (receptor R20A)	Views of Main Crossing with backdrop of the Forth Road Bridge and Forth Rail Bridge.	Moderate ((WYO & SFY)
Society Road (receptor R20B), past Linn Mill	Views of the Main Crossing.	Substantial (WYO & SFY)
Informal footpaths within Echilne (receptor F65B)	Change in views as a result of the viaduct.	Moderate (WYO & SFY)
A904 near Newton lay-by and designated viewpoint (receptor O16)	The Main Crossing would feature distinctly in the foreground of views.	Moderate (WYO & SFY)
Built Receptors (Northern Route)		
Receptor 3-RN Whinnyhill Crescent	Views of revisions to Ferrytoll Junction and the north viaduct.	Substantial (WYO) Moderate (SFY)

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Receptor/Location	Description	Significance
Receptor 4-RN Whinnyhill Crescent	Views of revisions to Ferrytoll Junction and the north viaduct.	Moderate (WYO)
Muckle Hill Park receptor 7-RN and 11-RN	Views of revisions to Ferrytoll Junction and the north viaduct.	Moderate (WYO)
Dunfermline WWTW (receptor 19-RN)	Views of the viaduct and the realignment of the B981.	Moderate (WYO)
St. Margaret's Hope Gatelodge (receptor 20-RN)	Significantly affected by construction of the new viaduct, revised B981 and the loss of existing woodland within the estate.	Substantial/Severe (WYO & SFY)
Outdoor Receptors (Northern Route)		
Castlandhill (receptors F4A-RN and F4B-RN)	Revised Ferrytoll Junction and northern viaduct would affect views towards the Firth of Forth.	Moderate (WYO)
Ferry Toll Road (receptors C5-RN and R6-RN)	The northern viaduct would be visible to the east.	Moderate (WYO) Moderate for R6-RN (SFY)
At Ferrytoll Junction	Views from the realigned roads, footpaths and cycleways (receptor R7-RN) would be dominated by the northern viaduct.	Moderate/Substantial (WYO) Moderate (SFY)
North Queensferry (receptor R8-RN)	The realignment of the B981 would divert travellers to the west of Dunfermline WWTW and beneath the viaduct of the Main Crossing. This would represent a significant change to the current tree lined approach to the settlement.	Moderate/Substantial (WYO & SFY)
Receptor F10B-RN	Noticeable change to views due its proximity to the new B981.	Moderate (WYO & SFY)
Section F10C-RN of footpath which connects the coastal path to the B981	Views of the path beneath viaduct affected.	Moderate/Substantial (WYO) Moderate (SFY)
Built Receptors (Southern Route)		
Receptors 1-RS to 3-RS	Significant change from the rural views of dwellings at Springfield Lea on the western edge of the settlement.	Substantial/Severe to Substantial (WYO) Substantial to Moderate/Substantial (SFY)
Views from receptor 10-RS	Views would significantly alter as a result of the proposed scheme.	Substantial/Severe (WYO) Substantial (SFY)
Views from receptor 9-RS	Views would significantly alter as a result of the proposed scheme.	Substantial (WYO & SFY)
Views from receptor 12-RS and 13-RS	Views would significantly alter as a result of the proposed scheme.	Moderate/Substantial (WYO) Moderate (SFY)
Receptors 24-RS, 25-RS, 26-RS and 31-RS of Echline Drive from the Southern Route	Change to views.	Moderate (WYO) Moderate for 25-RS and 26-RS (SFY)

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Receptor/Location	Description	Significance
Receptor 34-RS on Echline Drive including views of the A904 and Queensferry Junction	Change to views.	Moderate/Substantial (WYO) Moderate (SFY)
Receptor 35-RS	Change to views.	Moderate (WYO)
Echline Farmhouse receptor 37-RS	Change to views, the proposed scheme would be visible from three sides of the house.	Substantial (WYO) Moderate/Substantial (SFY)
Two properties on Echline Drive (receptor 39-RS)	These would glimpse the proposed scheme, including the Intelligent Transport System (ITS) sign on the A904, through the trees around the Echline Farmhouse.	Moderate (WYO)
Receptor group 58-RS at Linn Mill	Would overlook the proposed scheme as it crosses the Echline Fields.	Moderate (WYO)
Receptor group 59-RS	Would have views of the Queensferry Junction at the brow of the hill, although the rolling landform and false cutting adjacent to the road would help to provide a degree of screening.	Moderate/Substantial (WYO)
Inchgarvie House (receptor 61-RS)	Upper floors would have views of the proposed scheme on embankment as it approaches the south landing of the Main Crossing.	Moderate/Substantial (WYO) Moderate (SFY)
Change to views of receptor 62-RS (Dakota Hotel)	Would include view of the carriageway passing the northern edge of the Dundas Estate.	Moderate ((WYO & SFY)
Change to views of dwellings at Dundas Home Farm (receptor 56-RS)	The introduction of the proposed scheme would require the partial clearance of a mature woodland shelterbelt adjacent to the properties.	Substantial/Severe (WYO) Substantial (SFY)
Change to views of dwellings at Dundas Home Farm (receptors 54-RS and 57-RS)	The introduction of the proposed scheme would require the partial clearance of a mature woodland shelterbelt adjacent to the properties.	Substantial (WYO) Moderate/Substantial (SFY)
Change to views of dwellings at Dundas Home Farm (receptor 53-RS)	The introduction of the proposed scheme would require the partial clearance of a mature woodland shelterbelt adjacent to the properties.	Moderate/Substantial (WYO) Moderate (SFY)
Dundas castle viewing platform	Would gain views of the Queensferry Junction and the road as it runs north from the estate.	Moderate/Substantial ((WYO & SFY)
Dundas Estate (Blue Acre receptor 51-RS)	Change to view as a result of felling of Echline Strip.	Substantial (WYO), Moderate (SFY)
White Lodge (receptor 70-RS)	Change to views as a result of proposed scheme, would include lighting, gantries and Queensferry Junction.	Moderate/Substantial (WYO)
Humbie Farm and Wester Humbie (receptor 68-RS)	Change in views due to the loss of existing vegetation around M9 Junction 1A.	Moderate (WYO)

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Receptor/Location	Description	Significance
Outdoor Receptors		
Receptor O1-RS (a small public open space beside Springfield Place at the western edge of the town)	Significant change to views.	Moderate ((WYO & SFY)
Informal paths - Echline fields adjacent to South Queensferry (receptors F8A-RS)	Significant views of the proposed scheme from the Queensferry Junction to the start of the Main Crossing.	Moderate (WYO)
Between Bo'ness Road and the existing A90 (receptor R4B-RS)	The proposed scheme would be visible on embankment at the edge of Dundas Estate in views for traffic travelling in both directions of the A904.	Moderate ((WYO & SFY)
Cultural Heritage		
Site 1111. Dundas Castle Designed Landscape	Direct residual impacts.	Moderate
Site 1111. Dundas Castle Designed Landscape	Indirect residual impacts.	Slight
Site # 300. St. Margaret's Hope, including boundary walls, walled garden to south, and archway on drive to north	Indirect residual impact.	Substantial
Site 334. Ferry Craig, North Queensferry	Indirect residual impact.	Moderate
Site 426. Beamer Rock Beacon	Direct residual impact	Moderate
Site 484. Port Edgar Harbour Barrack complex	Indirect residual impact.	Substantial
Site 532. Inchgarvie House	Indirect residual impact.	Moderate
Site 530. Inchgarvie House Lodge	Indirect residual impact.	Moderate
Site 1102. St. Margaret's Hope Relict Country Estate	Indirect residual impact.	Substantial
Air Quality		
R25. St. Margaret's Hope, North Queensferry	NO ₂ concentrations in 2017.	Moderate

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Receptor/Location	Description	Significance
Noise and Vibration		
Clufflat Brae/Springfield Lea, South Queensferry	Residual impact on scheme opening and future assessment year.	Significant adverse
Linn Mill/Inchgarvie House	Residual impact on scheme opening and at future assessment year.	Significant adverse
Pedestrians, Cyclists, Equestrians and Community Effects		
Core Path (Ref 22ii)	Residual impact on path.	Moderate
Core Path (Ref 24)	Residual impact on path.	Moderate beneficial
Local Path (Ref 31)/ National Cycle Route 1	Residual impact on path.	Substantial beneficial
Local Path (Ref 46)	Residual impact on path.	Moderate
Local Path (Ref 69)	Residual impact on path.	Moderate beneficial
Local Path (Ref 76)	Residual impact on path.	Moderate beneficial
Local Path (Ref 77)	Residual impact on path.	Moderate beneficial
Forth Road Bridge	Residual impact on access to the outdoors.	Substantial beneficial
Disruption Due to Construction		
Various properties in close proximity to proposed construction works or construction compounds.	Visual, noise and dust impacts, with some disruption to access.	Not assigned an overall level of significance.

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Table 21.4: Residual Impacts at the North Bridgehead Considered in the Cumulative Impact Assessment

Receptor/Location	Proposed Mitigation	Residual Impact
Land Use		
Queensferry Hotel	Mixed woodland planting.	Significant disruption during construction and changes in access, parking, noise and the visibility of the hotel during operation of the proposed scheme.
Terrestrial and Freshwater Ecology		
Main Crossing	Maintenance of newly created habitats alongside the new road.	Significant positive impact as the Main Crossing will provide a third structure along which bats may commute between Fife and Lothians, enriching the commuting habitat resource at Authority area importance.
Landscape		
Coastal Hill: Ferry Hills. Wooded hill to the west of A90	Aesthetics are major consideration in Main Crossing design and no mitigation is proposed specifically for the landscape change as a result of the Main Crossing.	Substantial direct residual impacts of the Main Crossing in both winter, year of opening and summer, 15 years after opening. These impacts are predicted due to the loss of mature trees, visual loss of landform, and shadow and shade effects.
Coastal Hill: Ferry Hills. Wooded hill to the west of A90	Mixed woodland planting and scrub woodland planting. Naturalistic grading of rock cut as permitted by safety issues and promotion of natural regeneration.	Cutting through the top of the hill, loss of mature woodland, and cutting through rock for road realignment are predicted to result in Substantial direct residual impacts of the Northern Route in both winter, year of opening and summer, 15 years after opening.
Coastal Flat: North Queensferry	Stone facings and local gravel beneath viaducts with ivy planting where light permits. Mixed woodland and scrub woodland planting as well as standard tree planting.	Significant direct residual impacts of the Northern Route will result from the introduction of a viaduct, realignment of the corridor to the Main Crossing, and introduction of slip road. These are predicted to be Substantial in winter, year of opening, and Moderate to Substantial in summer, 15 years after opening.
Visual		
See Figure 21.2 for locations of significant residual impacts on both outdoor receptors and built receptors.		
Cultural Heritage		
Site 300. St. Margaret's Hope, including boundary walls, walled garden to south, and archway on drive to north	Implementation of a programme of building recording prior to construction, and vibration monitoring during construction. Prior to relocating or dismantling St. Margaret's Hope archway a programme of building recording should be undertaken.	Substantial residual impact on the setting of this complex of Regionally Important Category B Listed Buildings at St. Margaret's Hope. This complex will be spanned or partially spanned by the proposed Main Crossing, introducing a new prominent element into the setting of this site.
Site 334. Ferry Craig, North Queensferry	None.	Moderate residual impact on the setting of this Listed Building.
Site 1102. St. Margaret's Hope Relict Country Estate	None.	Substantial residual impact on the setting of part of St. Margaret's Hope Relict Country Estate where it is proposed that the north abutment be sited.

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Receptor/Location	Proposed Mitigation	Residual Impact
Air Quality		
R25. St. Margaret's Hope Gatelodge, North Queensferry	None.	Moderate residual impact due to predicted NO ₂ concentrations in 2032.
Pedestrians, Cyclists, Equestrians and Community Effects		
Core Path (Ref 22)	Footpath to be provided on realigned B981 to replace section lost on old B981. Alternative route (via re-aligned B981) is proposed for pedestrians wishing to travel between North Queensferry and Inverkeithing, utilising a new at grade crossing point to the north of the Forth Road Bridge.	Moderate residual impact on eastwards movement along this path.
Local Path (Ref 69)	n/a	Moderate beneficial residual impact on path as a result of decreased traffic flows in the vicinity, as traffic is redirected onto the Main Crossing.
Forth Road Bridge	n/a	Substantial beneficial residual impact on access to the outdoors.
Disruption Due to Construction		
St. Margaret's Hope Gatelodge, St. Margaret's Hope (also known as Admiralty House), the Queensferry Hotel, Ferry Craig House and Tigh-na-Grian.	Adherence to a Code of Construction Practice. Also refer to Chapter 19 (Disruption Due to Construction) for types of mitigation proposed.	Not assigned an overall level of significance.

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Table 21.5: Residual Impacts at the South Bridgehead Considered in the Cumulative Impact Assessment

Receptor/Location	Proposed Mitigation	Residual Impact
Land Use		
HSG2, Springfield Road, South Queensferry	Stone wall on false cutting to provide noise mitigation and visual screening.	Direct land-take and changes in amenity impacts on development land.
ENV 6, Springfield Road, South Queensferry	Stone wall on false cutting to provide noise mitigation and visual screening.	Direct land-take and changes in amenity impacts on development land.
Site HSG7, Society Road, South Queensferry	Detailed site-specific mitigation to be considered on an individual basis for development applications.	Changes in amenity of development land, although no direct land-take.
HSG6/ECON10, Port Edgar	Detailed site-specific mitigation to be considered on an individual basis for development applications.	Changes in amenity of development land, although no direct land-take.
Terrestrial and Freshwater Ecology		
Port Edgar Barracks and west of South Queensferry	Retention of existing flight line along Society Road and hedgerow at Inchgarvie by ensuring that routes are not obstructed and that light pollution mitigation measures are followed.	Significant residual impact due to severance of commuting routes and foraging areas for bats between South Queensferry, East Shore Wood, and Hopetoun. This severance will affect habitat connectivity in the study area.
Main Crossing	Maintenance of newly created habitats alongside the new road.	Significant Positive residual impact due to the Main Crossing providing a third structure along which bats may commute between Fife and Lothians. This commuting route will enrich the commuting habitat resource at Authority area importance.
Landscape		
Lowland Hill and Valley Farmland: Duddingston. North facing slopes	Aesthetics are major consideration in Main Crossing design. Noise barriers on viaduct.	Moderate direct residual impact of the Main Crossing as a result of the introduction of bridge deck and piers as new landscape elements. This impact is predicted in both winter, year of opening and summer, 15 years after opening.
Urban Area: South Queensferry	Planting of mixed woodland, standard trees, hedgerow, and species-rich grassland. Replacement stone walls.	Direct residual impact of the Southern Route as a result of introduction of new junction with embankments, southern route in cutting and at grade, introduction of access roads to compound, realignment of B924 junction with A904, and stopping up of existing A90 to Forth Road Bridge at Ferry Muir. Predicted to be Moderate to Substantial in winter, year of opening and Moderate in summer, 15 years after opening.
Lowland Hill and Valley Farmland: Duddingston. North facing slopes	Planting of mixed woodland, scrub, standard trees, hedgerows, and species-rich grassland. Noise barriers.	Direct residual impacts of the Southern Route as a result of the introduction of Southern Route in cutting and at grade, introduction of access road to the east of the proposed scheme as it crosses the Echline fields, and introduction of SUDS detention basin. Predicted to be Substantial in winter, year of opening and Moderate in summer, 15 years after opening.
Lowland Hill and Valley Farmland:	Planting of mixed woodland, standard trees, hedgerow, and species-rich grassland.	Substantial in winter, year of opening and Moderate in summer, 15 years after opening. Direct residual impacts of the southern route as a result of the introduction of new Queensferry Junction, realignment of

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Receptor/Location	Proposed Mitigation	Residual Impact
Duddingston. Undulating farmland	Stone walls.	A904 at Queensferry Junction, introduction of Southern Route in cutting and at grade, realignment of B924 junction with A904, and creation of bus lane to north of existing A90 on embankment and at grade.
Visual		
See Figure 21.2 for locations of significant residual impacts on both outdoor receptors and built receptors.		
Cultural Heritage		
Site # 484. Port Edgar Harbour Barrack Complex	Implementation of a programme of building recording prior to construction and vibration monitoring during construction.	Indirect residual impact. The complex of Regionally Important Category B Listed Buildings at Port Edgar Barracks will be spanned or partially spanned by the proposed Main Crossing, introducing a new prominent element into the setting of this site. The significance of impact on the setting of this site has been assessed as Substantial.
Site # 532. Inchgarvie House	Implementation of a programme of building recording prior to the start of construction and vibration monitoring during construction.	The Main Crossing would have an indirect residual impact on the setting of Inchgarvie House; a Category C (s) Listed Building) and its associated gate lodge. The significance of impact on the setting of this site has been assessed as Moderate.
Site # 530. Inchgarvie House gate lodge	None.	The Main Crossing would also have an indirect residual impact on the setting of Inchgarvie House gate lodge. The significance of impact on the setting of this site has been assessed as Moderate.
Noise		
Society Road, Clufflat Brae, Springfield Place, Springfield Lea, South Queensferry	South Queensferry barrier means noise levels would be 1-3 dB(A) lower.	Direct significant adverse residual impact.
Linn Mill/Inchgarvie Community	Linn Mill barrier provides benefits of approximately 1-2 dB(A) for the first row of dwellings on Linn Mill, approx. 1dB(A) for the second row and 3-4 dB(A) for the multiple residences at Inchgarvie House.	Direct significant adverse residual impact.
Pedestrians, Cyclists, Equestrians and Community Effects		
Local Paths (Ref 46)	Alternative path route proposed west of the mainline to link A904 with Linn Mill and recreational area beyond.	Moderate residual impact on path.
Forth Road Bridge	n/a.	Substantial beneficial residual impact on access to the outdoors.
Disruption Due to Construction		
Inchgarvie House, Inchgarvie Lodge, residents at Clufflat Brae, Port Edgar Barracks complex.	Adherence to a Code of Construction Practice. Also refer to Chapter 19 (Disruption Due to Construction) for types of mitigation proposed.	Not assigned an overall level of significance.

21.4 Mitigation of Cumulative Impacts

21.4.1 Avoidance of environmental impacts through design and the incorporation of mitigation to prevent or reduce impacts have been an integral part of the proposed scheme design process, and investigation by environmental specialists has not indicated any additional appropriate mitigation which would be effective in addressing the cumulative impacts that have been identified. It is considered that the mitigation measures proposed in this ES will reduce impacts of the proposed scheme as far as is practicable.

21.4.2 Tables 21.4 and 21.5 present the key mitigation measures identified for the significant individual impacts predicted to arise from the scheme. The following sections summarise the overall mitigation approaches for both the north and south bridgehead areas.

North Bridgehead

21.4.3 St. Margaret's Hope Gatelodge - proposed mitigation of adverse impacts in this area includes the consideration of aesthetics in the design process for the proposed scheme, mixed woodland and scrub woodland planting, naturalistic grading of rock cuts, and the promotion of natural regeneration.

21.4.4 St. Margaret's Hope - proposed mitigation of adverse impacts in this area includes the consideration of aesthetics in the design process for the proposed scheme, mixed woodland and scrub woodland planting, naturalistic grading of rock cuts, and the promotion of natural regeneration. Implementation of a programme of building recording prior to construction and vibration monitoring during construction is also proposed.

21.4.5 The Queensferry Hotel - proposed mitigation of adverse impacts in this area includes the consideration of aesthetics in the design process for the proposed scheme. Other mitigation of adverse impacts in the vicinity of this property has included mixed woodland planting.

21.4.6 Ferry Craig House and Tigh-na-Grian - proposed mitigation of adverse impacts on these properties includes the consideration of aesthetics in the design process for the proposed scheme. Best practicable means will be implemented to reduce potentially significant effects.

21.4.7 Proposed mitigation of construction phase impacts in the north bridgehead area includes detailed consideration of the layout of construction compounds and the storage of materials in order to minimise potential disruption to sensitive receptors, for example through directional lighting or construction traffic movements. Programming of works will also be planned to minimise the disruption period, for example, ensuring that site clearance and set up of construction compounds are scheduled as close as possible to the commencement of works. Best practicable means will be implemented to reduce potentially significant effects during construction, and detailed mitigation measures are provided in the Code of Construction Practice (CoCP; Appendix A19.1) which stipulates working hours, noise control and other measures that will need to be adhered to during construction.

South Bridgehead

21.4.8 Inchgarvie House – proposed mitigation of adverse impacts in this area includes the consideration of aesthetics in the design process for the proposed scheme, the provision of trees for screening, and a noise barrier.

21.4.9 Inchgarvie Lodge – proposed mitigation of adverse impacts in this area includes the consideration of aesthetics in the design process for the proposed scheme as well as the refinement of mitigation planting, and the alignment and design of the proposed mainline and junctions. A noise barrier is proposed in order to mitigate noise impacts.

- 21.4.10 Clufflat Brae – proposed mitigation of adverse impacts in this area includes the consideration of aesthetics in the design process for the proposed scheme. Planting will help to mitigate visual impacts, and the proposed noise barriers will mitigate noise.
- 21.4.11 Port Edgar Barracks complex – proposed mitigation of adverse impacts in this area includes the consideration of aesthetics in the design process for the proposed scheme. Noise barriers will mitigate noise impacts. Best practicable means will be implemented to reduce potentially significant effects.
- 21.4.12 Proposed mitigation of construction phase impacts in the south bridgehead area includes detailed consideration of the layout of construction compounds and the storage of materials in order to minimise potential disruption to sensitive receptors, for example through directional lighting or construction traffic movements. Programming of works will also be planned to minimise the disruption period, for example, ensuring that site clearance and set up of construction compounds are scheduled as close as possible to the commencement of works. Best practicable means will be implemented to reduce potentially significant effects. Detailed mitigation measures are provided in the CoCP which stipulates working hours, noise control and other measures that will need to be adhered to during construction.

21.5 Residual Cumulative Impacts

- 21.5.1 In the absence of any practicable additional mitigation, the residual cumulative impacts are expected to be identical to the potential cumulative impacts, described in Section 21.3 (Potential Cumulative Impacts).

21.6 Ongoing Design Development

- 21.6.1 An addition to the scheme proposals is the inclusion of an alternative location for the construction compound to the west of South Queensferry. This alternative was identified in response to concerns raised by local residents during the ongoing consultation process, and it locates the compound further to the west.
- 21.6.2 This alternative site was identified subsequent to the completion of the assessment of potential impacts of the proposed scheme on land use as reported in this chapter. However, as land-take requirements are affected by the inclusion of this alternative site, an assessment of its impacts on land use has been undertaken and is provided in Chapter 19 (Disruption Due to Construction).

21.7 Conclusions

- 21.7.1 Two cumulative impact 'hotspots' are identified for the proposed scheme: one at the north bridgehead and the other at the south bridgehead.
- 21.7.2 Within the north bridgehead area cumulative impacts may occur for the following receptors: St. Margaret's Hope Gate Lodge, St. Margaret's Hope, the Queensferry Hotel, and Ferry Craig. Within the south bridgehead 'hotspot', cumulative impacts may occur for: pedestrians using informal footpaths, Inchgarvie House, Inchgarvie Lodge, residents at Clufflat Brae and others in close proximity to the proposed location of the South Queensferry main construction compound, and Port Edgar Barracks Complex.
- 21.7.3 Two national developments, at Rosyth and Grangemouth, may proceed at some time in the future. If they do, they could potentially contribute to cumulative impacts for the proposed scheme. However this is still unknown, and can only be assessed when further information becomes available.

21.8 References

European Commission (1999). Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions, May 1999. Quoted in Highways Agency et al. (2008a).

Highways Agency et al. (2008a). DMRB Volume 11, Section 2, Part 7: Glossary of Terms Used in The Design Manual for Roads and Bridges Volume 11 Sections 1 and 2, August 2008. The Highways Agency, Scottish Government, Welsh Assembly Government and Department for Regional Development Northern Ireland.

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