

## 16 Assessment of Cumulative Effects

This chapter considers cumulative effects arising from multiple impacts on the same receptor ('Type 1' cumulative effects) and impacts of the proposed scheme in-combination with any 'reasonably foreseeable' developments identified within the vicinity of the proposed scheme (Type 2 cumulative effects).

Cumulative effects have been assessed taking into consideration construction and operational residual effects identified by each environmental topic assessment.

The residential properties at Higgins Neuk were identified and assessed as having potential Type 1 cumulative effects. During construction, the properties closest to the works may be subject to several types of temporary disturbance such as changes to noise and vibration and air quality. However, these impacts will be temporary in nature and are not anticipated to result in a significant cumulative effect.

Given the nature of the works, it is anticipated that there will be no change to the traffic flow, speed or composition on the local road network during the operational phase. Therefore, a material change in operational noise and vibration and air quality is considered to be unlikely. In addition, no significant changes to any other environmental conditions are anticipated during the operational phase. As a result, the assessment concluded that there will be no Type 1 cumulative effects during the operational phase of the proposed scheme.

With regards to the Type 2 cumulative effects, several permitted and planned developments were identified within proximity to the proposed scheme. It has been noted that there is potential for cumulative effects to arise from overlapping construction periods with four other developments. However due to a number of factors - such as the distance of the other developments from the proposed scheme, or the timing and nature of the works and mitigation committed to for the proposed scheme (CEMP) - the assessment concluded that no Type 2 significant cumulative effects are anticipated during the construction phase.

No Type 2 cumulative effects on people or property receptors are anticipated during operation given there will be no change to the existing road conditions. Only two potential non-significant Type 2 cumulative effects are anticipated on the Kincardine Bridge as a Category A Listed Building. This is due to potential in-combination effects between the proposed scheme and two other developments; the 'Kincardine Bridge Refurbishment and Maintenance Activities' and the 'Network Rail West of Fife Enhancement Project'.

### 16.1 Introduction

- 16.1.1 Annex IV of the Environmental Impact Assessment (EIA) Directive (2014/52/EU) (amending Directive 2011/92/EU) requires the consideration of the cumulative effects within Environmental Impact Assessment (EIA) Reports. This requirement is reflected within Schedule 1A of The Roads (Scotland) Act 1984 as amended by the Roads (Scotland) Act 1984 (Environmental Impact Assessment) Regulations 2017 (hereafter referred to as the Roads EIA Regulations).
- 16.1.2 While the term 'cumulative' is not defined within the EIA Directive or the Roads EIA Regulations, the European Commission (EC) guidelines (European Commission 1999) define 'cumulative impacts' as *'Impacts that result from incremental changes caused by other past, present or reasonably foreseeable actions together with the project'*.
- 16.1.3 The Design Manual for Roads and Bridges (DMRB) LA 104 'Environmental assessment and monitoring' (Highways England, Transport Scotland, Welsh Government and Department for Infrastructure Northern Ireland 2020) (hereafter referred to as DMRB LA 104) provides a definition of 'cumulative effects'. The definition expands on the definition in paragraph 16.1.2 above, noting that:

*'For the purpose of this guidance, a cumulative impact can arise as the result of:*

*a) the combined impact of a number of different environmental factors-specific impacts from a single project on a single receptor/resource; and/or*

*b) the combined impact of a number of different projects within the vicinity (in combination with the environmental impact assessment project) on a single receptor/resource.'*

- 16.1.4 Taking the above into account, the cumulative effects captured in this assessment refer to how an environmental receptor/resource may be subject to multiple topic-specific impacts for the proposed scheme (item a) and impacts from more than one development/project (item b). The impacts from multiple developments/projects may overlap, or act in combination, at a particular location or upon a particular receptor/resource, thereby leading to more significant environmental effects than if the impacts were considered in isolation.

## **16.2 Legislation, Policies and Guidance**

- 16.2.1 The approach to the cumulative assessment has utilised guidance provided in the following documents:

- DMRB LA 104; and
- Planning Circular 1/2017: The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 (Scottish Government 2017).

- 16.2.2 This chapter considers the following two categories of scenario to identify potential for significant cumulative impacts, based on the definition provided in DMRB LA 104, as stated in paragraph 16.1.3.

## **16.3 Approach and Methods**

### **Type 1 Cumulative Effects**

- 16.3.1 To consider the potential for a combined effect of different environmental topic-specific impacts on a single receptor/resource, a three-step process has been followed.

#### Step 1: Review of EIA Report Residual Effects

- 16.3.2 A review of the residual effects from the individual topic assessments was undertaken and, using professional judgement, the potential for interaction with other topic areas was identified.

#### Step 2: Identification of Cumulative Effects

- 16.3.3 Where the same sensitive receptor is identified in relation to two or more individual topics, professional judgement was used to determine where multiple impacts combined to result in a cumulative effect.

#### Step 3: Identification of Significant Cumulative Effects

- 16.3.4 Where cumulative effects were identified, the nature of these combined impacts were considered e.g. duration (temporary or permanent), extent, frequency and sensitivity of the receptor, and the significance determined using professional judgement.

- 16.3.5 It is possible to have multiple significant residual impacts which in combination do not constitute an additional significant cumulative effect. However, it is also acknowledged that there is potential that multiple non-significant impacts in combination could result in a significant cumulative effect. Therefore, where information was available, non-significant residual impacts reported in the individual assessments of this EIA Report were also reviewed. Impacts of negligible or neutral significance were excluded from the assessment as by definition they are inconsequential.

- 16.3.6 Chapter 10 (Cultural Heritage) and Chapter 14 (Human Health) have been scoped out of the Type 1 cumulative assessment as these assessments already account for cumulative impacts on their respective receptors.

### **Type 2 Cumulative Effects**

- 16.3.7 To consider the potential for a combined effect of the proposed scheme with other 'reasonably foreseeable' developments on a single sensitive receptor/resource, a three-step process has been followed.

#### Step 1: Identification of 'Reasonably Foreseeable' Developments

- 16.3.8 The study area was defined as up to 500m from the proposed scheme for the purposes of initial identification of 'reasonably foreseeable' developments. Following this, a wider area search beyond 500m of additional projects that may contribute to a cumulative effect was undertaken. DMRB LA 104 sets out that the assessment of cumulative effects should report on: (i.e. 'reasonably foreseeable'):

- roads projects which have been confirmed for delivery over a similar timeframe;
- other development projects with valid planning permissions or consent orders, and for which EIA is a requirement; and
- proposals in adopted development plans with a clear identified programme for delivery.

- 16.3.9 A review of other major developments beyond those that are 'committed' was undertaken to ascertain whether any should also be justifiably included in the assessment, by virtue of their scale, location or timing.

#### Step 2: Potential for Significant Cumulative Effects

- 16.3.10 Once 'reasonably foreseeable' developments were identified and agreed, professional judgement was used to 'scope out' any of the developments that are not considered likely to have in combination significant cumulative effects. This involved a review of the developments based on their location, type or status of development and a review of relevant environmental information included within planning applications and published environmental assessments. This allowed the assessment to focus on those 'reasonably foreseeable' developments that may potentially result in significant cumulative effects in combination with the proposed scheme.

#### Step 3: Review of Cumulative Effects

- 16.3.11 The 'reasonably foreseeable' developments identified as having the potential for significant Type 2 cumulative effects were subject to a topic by topic review, relying on professional judgement to determine the potential for combined effects. The review considered all findings of this EIA Report and available information regarding other 'reasonably foreseeable' developments.

### **Limitations to Assessment**

- 16.3.12 The cumulative effect assessment has utilised available information on 'reasonably foreseeable' developments at the time of writing, which is often not sufficiently detailed to quantify cumulative effects. As such professional judgement was used where necessary to qualitatively ascertain the likelihood of environmental impacts on receptors that may also be affected by the proposed scheme.

## 16.4 Potential Cumulative Effects

### Type 1 Cumulative Effects

16.4.1 Type 1 cumulative effects during construction and operation of the proposed scheme are discussed in this section.

#### Construction

16.4.2 Chapter 3 (The Proposed Scheme) and Appendix A3.1 (Construction Information) provide information regarding the timing/programming and type of construction activities anticipated at present. The precise details of these would be dictated by the Contractors construction methodology.

16.4.3 During construction, properties closest to the works may be subject to temporary disturbance such as changes to noise and vibration and air quality. Two residential properties (known as Higgins Neuk) are located within the study area with the closest property, located approximately 40m from the proposed temporary site access from the north side, 110m north-west from the proposed scheme temporary bridge structure and 150m from the existing piled viaduct.

16.4.4 Receptors potentially affected by Type 1 cumulative effects during construction are set out in Table 16.1.

**Table 16.1: Cumulative Construction Impacts of the Proposed Scheme (Type 1)**

Receptor	Description of Individual Impacts	Cumulative Effect
Higgins Neuk residential properties	<p><b>Noise and Vibration:</b></p> <ul style="list-style-type: none"> <li>With the appropriate essential noise mitigation measures employed, it is considered that any adverse noise or vibration effects associated with construction of the proposed scheme are unlikely to be significant.</li> </ul> <p><b>Air Quality:</b></p> <ul style="list-style-type: none"> <li>It is considered that with an appropriate Construction Environmental Management Plan and Dust Management Plan implemented, there would be no significant effects on air quality during the construction phase of the proposed scheme.</li> <li>The impact on air quality from the proposed traffic management measures is considered not significant.</li> <li>Predicted pollutant concentrations at the identified sensitive receptors are unlikely to result in exceedances of the annual mean nitrogen dioxide (NO<sub>2</sub>) and fine particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub> (i.e. particulate matter with an aerodynamic diameter of 10 microns or less and particulate matter with an aerodynamic diameter of 2.5 microns or less)) Air Quality Objectives thresholds during the construction works.</li> </ul> <p>When considered in combination these effects are not likely to result in a significant cumulative effect.</p>	Not significant

16.4.5 Mitigation measures are proposed in the relevant chapters for potential impacts on Higgins Neuk during construction. Key controls to facilitate implementation of this mitigation would be the Construction Environmental Management Plan (CEMP) which is required during construction as set out in Chapter 17 (Schedule of Environmental Commitments) (**Mitigation Item SM1**).

16.4.6 As shown on Table 16.1, both Higgins Neuk residential properties will be subject to non-significant residual effects associated with construction activities. However, given the short term nature of these residual effects, when considered in combination these are not anticipated to constitute a significant cumulative effect on any receptor during construction.

Operation

- 16.4.7 It is anticipated that the proposed scheme will not change the traffic flow, speed or composition on the local road network during the operational phase. Therefore, a material change in operational noise and vibration and air quality is considered to be unlikely. No significant changes to any other environmental conditions are anticipated during the operational phase and the assessment of Type 1 operational cumulative effects has been scoped out of this assessment.

**Type 2 Cumulative Effects**

- 16.4.8 As noted in Section 16.2 (Methodology), both committed and other relevant developments (collectively referred to as 'reasonably foreseeable') were reviewed for their potential to have significant cumulative effects in combination with the proposed scheme. It should be noted that currently available information on these 'reasonably foreseeable' developments has been utilised to inform the assessment, and this is often not sufficiently detailed to quantify cumulative effects. As such professional judgement was used where necessary to qualitatively ascertain the likelihood of environmental impacts on receptors that may also be affected by the proposed scheme.
- 16.4.9 As part of the assessment consultations with Falkirk Council, Fife Council, Clackmannanshire Council and Marine Scotland were undertaken regarding the identified reasonably foreseeable developments. Further information on this consultation is contained in Appendix A5.1 (Summary of Consultation Responses).
- 16.4.10 Two development allocations from the Fife Council Local Development Plan (LDP) were identified, these overlapped with a planning application within the town of Kincardine and have been included in Table 16.2. The nearest Falkirk Council LDP and Clackmannanshire Council LDP development allocations are located approximately 2.3km north-west and 3.1km north of the proposed scheme respectively. Due to the distance from the proposed scheme and as neither area had a defined programme or active planning application at the time of writing, neither were deemed to be 'reasonably foreseeable' within the context of this assessment. No Marine License Applications within the study area were identified at the time of writing.
- 16.4.11 Table 16.2 sets out the reasonably foreseeable developments which were considered for inclusion in the cumulative assessment.

**Table 16.2: Committed Developments Review for Type 2 Cumulative Effect Assessment (CEA)**

Ref. No.	Development Description	Location	Development Status	Screened In / Out	Comments
Fife Council (17/02330/PPP) (Associated with Fife Council LDP KCD002/KCD003)	Application for Planning Permission in Principle for residential development with associated roads, open space, community facilities, formation of new access, SUDS infrastructure and development of a new business park with associated infrastructure at Land To South Of Riverside Terrace Kincardine Fife.	Approx. 1km east of the proposed scheme	Conditional Approval / Legal Agreement November 2017	In	Potential for overlap of construction timescales.
Fife Council (18/00296/FULL)	Replacement of existing 275kV electrical switchyard with 275kV gas insulated switchgear substation. Application includes installation of proposed switchgear, new GIS building, installation of new steel palisade security fencing and a new access track within the former Kincardine Power Station site, Fife.	Approx. 1.1km north-east of the proposed scheme	Planning Permission Granted June 2018	Out	Timescales do not overlap.
Fife Council (19/02331/EIA) <i>Associated proposal and reference: (19/00627/PAN)</i>	Redevelopment of former Power Station site with a mix of Class 4 (Business), 5 (General Industrial) and 6 (Storage and distribution) Uses, service facilities, SuDS, landscape works and associated development at Longannet Power Station, Fife.	Approx. 0.7km south-east of the proposed scheme	Planning Permission Granted January 2020	In	Potential for overlap of construction timescales.
N/A	Grangemouth Flood Protection Scheme	Approx. 4km south-east of the proposed scheme	Currently at EIA stage	In	The Scoping Report for this project states construction will commence in 2022 (Jacobs, 2018). As such there is potential for overlap of construction timescales.
N/A	Network Rail West of Fife Enhancement Project. Improvements to the railway line between Alloa and Longannet.	Approx. 0.5km north-east of the proposed scheme	Stage of development currently unknown	Out for construction In for operation	This project appears to be in the early stages of development as indicated by news sources (Network Rail, 2020). There is no publicly available information indicating a time frame for delivery, and as a result overlap of the construction periods is deemed to be unlikely. However, it has been included by virtue of its distance from the proposed works and potential to impact the Kincardine Bridge in its context as a listed building.

Ref. No.	Development Description	Location	Development Status	Screened In / Out	Comments
N/A	<p>Kincardine Bridge: Refurbishment and Maintenance Activities.</p> <p>The refurbishment and maintenance activities do not form part of the proposed scheme. They are however to be included in the application for listed building consent as this would cover works beyond the period of the proposed scheme construction works. It is anticipated that the environmental assessment and consenting requirements of the refurbishment and maintenance activities would be undertaken by the Trunk Road Operating Company prior to these activities coming forward for construction.</p>	Kincardine Bridge	Listed Building Application to be submitted	In	Potential for additional physical changes to the Kincardine Bridge as a Listed Building.
Falkirk Council (P/20/0398/FUL)	<p>Demolition of existing kiosk building, erection of a petrol filling station and associated retail kiosk (Class 1) and jet washes, freestanding restaurant (Class 3) including drive-thru lane (Sui Generis), site access, parking provision, landscaping and ancillary works at Viewforth Filling Station.</p>	Approx. 80m west of the proposed scheme	<p>Planning application submitted September 2020.</p> <p>Awaiting Decision.</p>	In	There is potential for the construction periods to overlap.

Construction

- 16.4.12 In line with Chapter 3 (The Proposed Scheme) of this EIA Report it has been assumed that construction works would not commence before Summer 2021 and the overall construction period is expected to last between 18 and 24 months.
- 16.4.13 Construction impacts generally occur in a localised area in the vicinity of particular construction activities. As such, whilst there is currently limited information regarding construction of the above developments, due to the nature these developments and/or distance from the proposed scheme it is unlikely that individual receptors would be directly affected by multiple projects. Potential Type 2 cumulative construction effects identified in this assessment comprise the following:
- impacts on people/property receptors (noise and vibration and air quality);
  - material assets and waste; and
  - Firth of Forth SSSI, SPA and Ramsar site.

*People/Property Receptors*

- 16.4.14 The assessment of potential for Type 2 cumulative effects on receptors sensitive to construction related impacts summarised in Table 16.3. At the time of writing, none of the developments listed in Table 16.3 had a clear programme for delivery. However, based on the information available, all were deemed to have potential for the construction periods to overlap with the proposed scheme. As a result, a precautionary approach was adopted and cumulative effects have been assessed in a scenario where the developments do overlap with the proposed scheme.

**Table 16.3: Committed Developments – Type 2 Cumulative Effect (People and Property – Construction)**

Development	Construction Details	Cumulative effect
Application for Planning Permission in Principle for residential development with associated roads, open space, community facilities, formation of new access, SUDS infrastructure and development of a new business park with associated infrastructure at Land To South Of Riverside Terrace Kincardine Fife.	Construction timescales not yet confirmed, however there is potential for this to overlap with the proposed scheme. The development is located approximately 1km to the east of the proposed scheme. Any impacts are expected to be short-term and temporary and with appropriate development of the construction programme and the CEMP ( <b>Mitigation Item SM1</b> ) for the proposed scheme these are not expected to be significant.	Not Significant
Redevelopment of former Power Station site with a mix of Class 4 (Business), 5 (General Industrial) and 6 (Storage and distribution) Uses, service facilities, SUDS, landscape works and associated development at Longannet Power Station, Fife.	Construction timescales not yet confirmed, however there is potential for overlap with the proposed scheme. The works are to be undertaken within 0.7 km of the proposed scheme, therefore there is potential for cumulative effects from construction activity to arise. For example, increased congestion caused by concurrent traffic management for the two schemes, or greater in combination air quality or noise impacts. Any impacts are expected to be short-term and temporary and with appropriate development of the construction programme and the CEMP for the proposed scheme these are not expected to be significant.	Not Significant
Grangemouth Flood Protection Scheme	The Scoping Report for this project indicated an EIA would be published by 2019 and construction would begin in 2022. It should be noted that the EIA for the Grangemouth Flood Protection Scheme has not been	Not Significant



Development	Construction Details	Cumulative effect
	<p>published at the time of writing this assessment, and as such the construction timescale is not confirmed.</p> <p>Should the construction periods for these schemes overlap there is potential for a localised increase in HGV vehicles on the surrounding road network, depending on what routes will be utilised by the Grangemouth Scheme. The Contractor for the proposed scheme will develop a CEMP (<b>Mitigation Item SM1</b>) and a traffic management plan (<b>Mitigation Item AT4</b>). Due to the distance between the two schemes increases in congestion or in combination air quality or noise impacts are not expected to be significant.</p>	
<p>Demolition of existing kiosk building, erection of a petrol filling station and associated retail kiosk (Class 1) and jet washes, freestanding restaurant (Class 3) including drive-thru lane (Sui Generis), site access, parking provision, landscaping and ancillary works at Viewforth Filling Station.</p>	<p>If the planning application is approved there is potential for the construction to overlap with the proposed scheme. Given the proximity to the proposed scheme there is potential for cumulative effects from construction activity to arise. Any impacts are expected to be short-term and temporary and with appropriate development of the construction programme and the CEMP for the proposed scheme these are not considered to be significant.</p>	<p>Not Significant</p>

#### *Materials and Waste*

- 16.4.15 Chapter 13 (Material Assets and Waste) reports that the construction of the proposed scheme is likely to generate Slight adverse effects for material assets and waste, after the application of mitigation, resulting in Not-significant effects for the purposes of EIA.
- 16.4.16 As the construction phase of the proposed scheme is within a similar timeframe to some of the developments listed in Table 16.2, the proposed scheme has the potential to generate cumulative effects with regards to the use of material assets and the generation and management of waste. Impacts would predominantly arise from the depletion of primate aggregates and the permanent use of landfill void capacity within the study area.
- 16.4.17 The assessment has determined that the material assets required for the proposed scheme are relatively low, with imported aggregate materials estimated to account for less than 3% of the primary aggregate production in the study area. Additionally, the disposal of construction and demolition waste from the proposed scheme has the potential to result in a negligible (0.1%) reduction in the forecast landfill capacity available in the study area during construction.
- 16.4.18 Comparable materials use and waste generation data are not thought to exist for the other reasonably foreseeable developments listed in Table 16.2 as the developments are not roads schemes and as a result are unlikely to have followed the DMRB LA 110 assessment methodology. It is therefore difficult to determine the significance of any cumulative impacts with any preciseness. All developments would be required to develop a CEMP which would include mitigation measures that maximise resource efficiency and designing out waste in response to legislative, policy and fiscal drivers. This would result in a likely reduction in the quantity of imported primary aggregates and exported waste to landfill during construction of these developments.
- 16.4.19 Given the low requirements in relation to materials use, negligible waste disposal and the available landfill capacity in the study area, it is considered that the proposed scheme will not have significant cumulative effects on material assets and waste in-combination with the other reasonably foreseeable developments in the study area.

*Firth of Forth Site of Scientific Interest (SSSI), Special Protection Area (SPA) and Ramsar site*

- 16.4.20 A detailed consideration of the potential impacts on European sites; Protection Area (SPA) and Ramsar site in the context of The Conservation (Natural Habitats, & c.) Regulations 1994 (referred to as the Habitats Regulations), has been undertaken in a Habitats Regulations Appraisal (HRA) which considers construction and operational impacts of the proposed scheme on these sites in-combination with other reasonably foreseeable projects. The HRA concluded that the proposed scheme would not result in any likely significant effects on the European SPA/Ramsar site, and as a result there would be no potential for in-combination effects to occur with other plans or projects.
- 16.4.21 Chapter 9 (Terrestrial Ecology) concludes that there would be no significant residual effect on the Firth of Forth SSSI, through the implementation of appropriate mitigation measures to control pollution. Additionally, a review was undertaken of the available information on all reasonably foreseeable projects listed in Table 16.2 and none reported any significant residual effects on the SSSI. As a result, no cumulative effect is predicted with other developments.

Operation

*People/Property Receptors*

- 16.4.22 Due to the nature of the proposed scheme, which involves the replacement of the existing piled viaduct section of the Kincardine Bridge, it is anticipated that the proposed scheme will not change the traffic flow, speed or composition on the local road network during the operational phase. Therefore, a material change in operational noise and vibration and air quality is considered to be unlikely. As a result no Type 2 cumulative effects are anticipated during operation in relation to changes to noise and vibration, air quality or traffic which would affect people or property receptors.

*Cultural Heritage*

- 16.4.23 Only two significant residual effects are anticipated during operation, both on the Kincardine Bridge (Category A Listed Building) as reported in Chapter 10 (Cultural Heritage). Under the worst case scenario identified in Chapter 10 (Cultural Heritage), while use of replacement panels in keeping with the design and materials of originals would ameliorate the impact resulting from the loss of panels continuing from construction into operation it would not wholly mitigate this impact. A residual effect of Moderate adverse significance has therefore been assessed.
- 16.4.24 A Moderate beneficial effect during operation has also been assessed. The proposed scheme would keep the bridge in its intended use in the long-term thus ensuring the future maintenance of the structure and preserving the way the bridge is understood, experienced and appreciated. The design of the new piled viaduct would be of a similar appearance to the spans of the adjacent part of the bridge in terms of architectural design and massing as well as the use of materials ensuring the special interest of the bridge is complemented by the architectural form and quality of the new construction.
- 16.4.25 In addition to the proposed scheme, there will be further physical changes to the bridge as part of the Kincardine Bridge: Refurbishment and Maintenance Activities. However, as noted in Table 16.2 these activities are outwith the scope of the works assessed in this EIA Report. In addition, given Kincardine Bridge's designation as a Category A Listed Building, relevant refurbishment and maintenance activities will require listed building consent and construction would need to be carried out in accordance with the conditions attached to such consent. This listed building consent process will allow sufficient assessment to take place so as to avoid or reduce potential significant impacts. As a result significant type 2 cumulative effects are not anticipated.
- 16.4.26 It is assumed that there is potential for the Network Rail West of Fife Enhancement Project to result in physical changes to the Kincardine Bridge. At the time of writing this assessment, there was not sufficient

information available to ascertain what the extent of these changes might be. However, it is assumed that the Network Rail scheme will be subject to a listed building consent application allowing sufficient assessment to take place so as to avoid or reduce potential significant impacts. As a result no significant type 2 cumulative effects are anticipated.

- 16.4.27 Based on the information available at the time of writing, none of the other 'reasonably foreseeable' developments set out in Table 16.2 will have any physical impacts on the Kincardine Bridge, and as a result no type 2 cumulative effects are anticipated.
- 16.4.28 No significant changes to any other environmental conditions are anticipated during the operational phase.

## 16.5 Statement of Significance

### Type 1 Cumulative Effects

- 16.5.1 No significant or non-significant residual effects identified in this EIA Report are, in combination, considered to constitute a significant cumulative effects on any receptor during construction of the proposed scheme, provided appropriate mitigation is implemented through the CEMP.

### Type 2 Cumulative Effects

#### Construction

- 16.5.2 Four other developments were identified which may overlap with the construction period of the proposed scheme. However, any impacts as a result of concurrent construction activity are expected to be short-term and temporary and no significant Type 2 cumulative effects are expected with appropriate development of the construction programme and the CEMP (**Mitigation Item SM1**) for the proposed scheme.

#### Operation

- 16.5.3 There is potential for type 2 cumulative effects on the Kincardine Bridge as a Category A Listed Building due to the combination of the adverse Moderate residual effect from the proposed scheme and potential impacts caused by the Kincardine Bridge: Refurbishment and Maintenance Activities and the Network Rail West of Fife Enhancement Project. However, it is anticipated that both developments will be subject to the listed building consent application process in respect of relevant works at the Kincardine Bridge, allowing sufficient assessment to take place so as to avoid or reduce potential significant impacts. As a result no significant type 2 cumulative effects are anticipated.

## 16.6 References

### Reports and Documents

European Commission (1999). Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions, May 1999.

Highways England, Transport Scotland, Welsh Government, and Department for Infrastructure Northern Ireland (2019). Design Manual for Roads and Bridges, LA 104 Environmental assessment and monitoring, Revision 1.

Highways England, Transport Scotland, Welsh Government, and Department for Infrastructure Northern Ireland (2019b). Design Manual for Roads and Bridges, LA 110 Material assets and waste

Jacobs (on behalf of Falkirk Council) (2018) Environmental Impact Assessment: Screening / Scoping Report. Grangemouth Flood Protection Scheme. Available at: [http://marine.gov.scot/sites/default/files/grangemouth\\_fps\\_eia\\_scoping\\_report\\_final\\_for\\_submission.pdf](http://marine.gov.scot/sites/default/files/grangemouth_fps_eia_scoping_report_final_for_submission.pdf) [Accessed 6 October 2020].

Network Rail (2020). *Rail Works To Inform Project Development For Fife And Clackmannanshire - Network Rail*. [online] Available at: [www.networkrail.co.uk/news/rail-works-to-inform-project-development-for-fife-and-clackmannanshire/](http://www.networkrail.co.uk/news/rail-works-to-inform-project-development-for-fife-and-clackmannanshire/) [Accessed 6 October 2020].

Scottish Government (2017): Planning Circular 1/2017: Environmental Impact Assessment Regulation

### EU Directives and National Legislation

Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014, amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment.

The Roads (Scotland) Act 1984 (Environmental Impact Assessment) Regulations 2017