

## **13 Visual**

This chapter presents the assessment of impacts of the proposed scheme on the character and visual amenity of views from dwellings and other buildings, outdoor spaces, viewpoints, roads and footpaths, all collectively referred to as receptors.

The open views across the Firth of Forth are dominated by the Forth Road Bridge and Forth Rail Bridge, which are visible from a wide area, including many of the small coastal settlements along the Firth of Forth and distant viewpoints in Edinburgh, Dunfermline and Kincardine and the Ochil, Lomond, Pentland and Moorfoot Hills, in clear conditions.

Views north of the Firth of Forth are generally enclosed by the surrounding steep wooded hillsides of Castlandhill and Ferry Hills and influenced by the surrounding settlement, industry and infrastructure. South of the Firth of Forth, views are limited by the rolling topography of the open farmland around South Queensferry and screened by the mature woodland of Dundas Estate.

Aesthetics are a major consideration in the design of the Main Crossing, which would be the most visually prominent element of the proposed scheme and feature as an additional structure in both local and distant views. Elsewhere, mitigation to reduce visual impacts includes integration of the alignment and earthworks with the surrounding topography, formation of new rock cuttings to achieve a natural appearance, provision of false cuttings, replacement stone walls and noise barriers and planting mixed or scrub woodland, hedges and standard trees to reflect existing boundaries and/or provide screening.

Opinions will differ as to whether the Main Crossing would complement or detract from the dramatic visual character of the area. Residual impacts were therefore assessed as neutral and of Substantial to Moderate significance for 217 properties and 23 outdoor receptors, with the majority of receptors affected by neutral residual impacts of Negligible significance.

Residual impacts of Moderate to Severe significance were assessed for 28 properties in close proximity to the Main Crossing. However, the transfer of traffic from the Forth Road Bridge to the Main Crossing would result in beneficial residual impacts for 14 properties and one outdoor receptor.

Significant residual impacts from the northern route would affect seven properties and five outdoor receptors while the southern route would significantly change views for 63 properties and three outdoor receptors. Overall, the majority of residual impacts from the proposed scheme would not be significant.

### **13.1 Introduction**

13.1.1 This chapter presents the Stage 3 assessment of the proposed scheme in terms of impacts on the visual amenity and character of views from buildings, viewpoints, footpaths and transport routes (collectively referred to as receptors). The chapter is supported by the following appendices, which are cross-referenced in the text where relevant:

- Appendix A13.1: Built Receptor Assessment Table: Main Crossing;
- Appendix A13.2: Outdoor Receptor Assessment Table: Main Crossing;
- Appendix A13.3: Built Receptor Assessment Table: Northern Route;
- Appendix A13.4: Outdoor Receptor Assessment Table: Northern Route;
- Appendix A13.5: Built Receptor Assessment Table: Southern Route; and
- Appendix A13.6: Outdoor Receptor Assessment Table: Southern Route.

13.1.1 The assessment methodology is explained, baseline conditions are described and an assessment is made of the potential impacts on views that would result from the proposed scheme in the absence of mitigation. Mitigation measures are then described and the residual impacts are assessed.

13.1.2 The assessment includes consideration of impacts from the addition of the Main Crossing to the visual setting of the iconic Forth Road Bridge and Forth Rail Bridge.

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- 13.1.3 The assessment also includes consideration of visual impacts from the introduction of Intelligent Transport System (ITS) and night-time lighting of the proposed scheme based on currently available information. Further details of ITS and lighting are contained in paragraphs 13.2.28 to 13.2.30, paragraph 13.5.6 and Chapter 4 (The Proposed Scheme), paragraphs 4.6.25 to 4.6.29.
- 13.1.4 Further considerations related to visual assessment are addressed separately as follows:
- Chapter 12 (Landscape): impacts on the character, quality and physical fabric of the landscape;
  - Chapter 14 (Cultural Heritage): impacts on the setting of historic buildings and cultural heritage sites;
  - Chapter 18 (Vehicle Travellers): assessment of the views from the proposed scheme, as they would be experienced by vehicle travellers; and
  - Chapter 19 (Disruption Due to Construction): temporary visual impacts during construction.

## 13.2 Approach and Methods

### Study Area

- 13.2.1 The indicative study area for the visual assessment was identified through a combination of desk based assessment and site survey. Maps showing the Zone of Theoretical Visibility (ZTV) for both the Main Crossing and northern and southern routes (as indicated on Figures 13.9 to 13.13) assisted in the identification of potential receptors by highlighting additional areas. These were checked during the desk and site survey to identify receptors likely to have views of the proposed scheme, taking account of the local topography, buildings and existing woodland.
- 13.2.2 The indicative study areas for the northern route and southern route were then checked on site to confirm which receptors within 5km of the proposed scheme were likely to be affected by views of the proposed scheme.
- 13.2.3 The study area takes account of the proposed Intelligent Transport System (ITS) gantries (and associated maintenance lay-bys) designed to improve traffic flow, and night-time lighting throughout the proposed scheme and also outwith the highway works for the proposed scheme as described in paragraph 13.2.28.
- 13.2.4 It was considered that the Main Crossing towers (207m high central tower plus 200m high north and south flanking towers) may be visible from locations well beyond the immediate study area, including locations to the west along the Firth of Forth such as Grangemouth and Kincardine, from viewpoints in Dunfermline and Edinburgh and from distant hills in clear conditions. However, potential impacts beyond a study area of approximately 5km would be unlikely to be significant, due to distance and the close proximity of the new structure to the Forth Road Bridge and Forth Rail Bridge, which already feature prominently in views. Several of these distant viewpoints and receptors were assessed due to their sensitivity as cultural heritage receptors, as reported in Chapter 14 (Cultural Heritage) and are shown as photomontages on Figure 12.7. As explained below in paragraph 13.2.13, the study area for potential visual impacts of the Main Crossing was extended, using a 35km ZTV.

### Guidance and Approach

- 13.2.5 The visual assessment followed guidance provided in DMRB Volume 11 Section 3 Part 5, Landscape & Visual Assessment (Highways Agency et al., 1993) and Supplementary Guidance (Scottish Executive, 2002) and Guidelines for Landscape and Visual Impact Assessment (Landscape Institute and Institute of Environmental Management & Assessment, 2002). In addition, guidance contained in Visual Representation of Windfarms: Good Practice Guidance (SNH, 2007) was used for the assessment of the Main Crossing, as the document contains relevant recommendations for assessment of large scale, visually prominent structures.

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- 13.2.6 During the design of the landscape mitigation, reference was also made to the Scottish Executive policy document titled 'Cost Effective Landscapes: Learning from Nature' (CEL:LfN) (Scottish Office, 1998), 'Planning Advice Note (PAN) 58: Environmental Impact Assessment' (Scottish Executive, 1998).
- 13.2.7 The assessment was carried out through:
- review of the design to ascertain the likely visually intrusive elements of the proposed scheme;
  - field studies to assess the likely impact of the proposed scheme on receptors; and
  - ZTV mapping to assist identification of areas from which views of the proposed scheme may be gained.
- 13.2.8 Aesthetics were a major consideration in the design of the proposed scheme, particularly for the Main Crossing. However, as stated in Chapter 12 (Landscape), opinions will differ as to whether the proximity of the Main Crossing to the iconic Forth Road Bridge and Forth Rail Bridge would represent a positive visual relationship or detract from the historic and dramatic visual character of the area. For this reason, the presence of the Main Crossing was not assessed as beneficial or adverse but as neutral, with the significance of the change to views still noted. Remote (neutral) impacts were also assessed to identify the overall impact on the wider landscape.
- 13.2.9 However, visual impacts in very close proximity to the Main Crossing, such as from directly below the bridge deck, would be more likely to result in adverse impacts on views and were assessed accordingly.
- 13.2.10 As agreed with SNH and in order to address the issues detailed above in paragraphs 13.2.8 and 13.2.9, separate assessments to determine the visual impacts from elements of the proposed scheme were undertaken as follows:
- Main Crossing;
  - Northern Route; and
  - Southern Route.
- 13.2.11 The assessment for the Main Crossing was predominantly desk based analysis including generation of photomontage images as informed by the 35km ZTV to address the issues detailed above in paragraph 13.2.4.

#### Zone of Theoretical Visibility (ZTV) Mapping

- 13.2.12 Separate computer generated ZTVs were prepared, using a model of the existing topography 'surface' based on 5m contours from OS Landform data and represented by a high resolution grid of 5m<sup>2</sup> cells, to identify areas where the proposed scheme would be visible or where the Main Crossing would be visible to an observer with an assumed eye level height of 1.75m within a 5km radius. The ITS gantries were included as key elements in the production of ZTVs, to reflect their potential contribution as illuminated, elevated features, to the visibility of the proposed scheme day and night, as detailed in paragraph 13.2.14 and Table 13.1.
- 13.2.13 As agreed with SNH, the potential visibility of the Main Crossing towers was considered to be comparable with the potential visibility of wind turbines. Guidelines developed for windfarm assessment (Visual Representation of Windfarms: Good Practice Guidance; SNH, 2007) were therefore applied. This guidance indicates that the tallest wind turbines of 130m require ZTVs with a radius of 35km to include all those areas within the wider landscape where visual impacts are likely to occur. This principle was therefore applied to determine the extent to which the Main Crossing towers (207m high central tower and 200m high towers to the north and south) would potentially be visible and a 35km ZTV was produced exclusively for the Main Crossing. As above, the topographical 'surface' model for this ZTV was prepared using a model of the existing

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topography 'surface' based on 5m contours from OS Landform data and represented by a low resolution grid of 10m<sup>2</sup> cells.

- 13.2.14 To allow comparison between the extent of the visibility of the proposed scheme and the extent of the visibility of the Main Crossing, within a 5km radius, the relevant ZTVs were combined and shown in contrasting colours on Figures 13.9 to 13.12.
- 13.2.15 The following assumptions were made regarding the heights assigned to existing buildings and woodland and elements of the proposed scheme:
- existing buildings (2 storeys): 6m;
  - existing woodland: 12m;
  - traffic: 4m above centreline of proposed carriageway on northern and southern routes and deck of the Main Crossing, to represent the height of an HGV;
  - lighting columns: 12m at indicative lighting column locations;
  - Intelligent Transport System (ITS) gantries: 12m at indicative gantry locations;
  - Main Crossing towers: 200m for flanking towers and 207m for central tower;
  - anti-collision lights on Main Crossing towers: 200m and 207m as above; and
  - Main Crossing Deck: 50m.
- 13.2.16 Table 13.1 summarises the ZTV scenarios which were prepared, topographical data used, scheme elements included and Figure references for the outputs.

**Table 13.1: ZTV Scenarios**

Scenario	Topographical surface inputs	Elements	Figure
Winter Year of Opening-Day (proposed scheme)	<ul style="list-style-type: none"> <li>• 5km radius.</li> <li>• High resolution 5m<sup>2</sup> cells.</li> </ul>	<ul style="list-style-type: none"> <li>• Traffic.</li> <li>• ITS gantries.</li> </ul>	13.9
Winter Year of Opening-Day (Main Crossing)	<ul style="list-style-type: none"> <li>• 5m contours from OS landform data.</li> <li>• Existing woodland remaining after necessary felling for proposed scheme.</li> </ul>	<ul style="list-style-type: none"> <li>• Main Crossing towers and deck.</li> </ul>	
Winter Year of Opening-Night (proposed scheme)	<ul style="list-style-type: none"> <li>• Buildings from OS MasterMap data.</li> <li>• 3D model of proposed ground with scheme, false cuttings, walls and noise barriers.</li> </ul>	<ul style="list-style-type: none"> <li>• Traffic.</li> <li>• Lighting columns.</li> <li>• ITS gantries.</li> </ul>	13.10
Winter Year of Opening- Night (Main Crossing)		<ul style="list-style-type: none"> <li>• Lighting on Main Crossing towers.</li> </ul>	
Summer 15 Years after Opening- Day (proposed scheme)	<ul style="list-style-type: none"> <li>• 5km radius.</li> <li>• High resolution 5m<sup>2</sup> cells.</li> <li>• 5m contours from OS landform data</li> </ul>	<ul style="list-style-type: none"> <li>• Traffic.</li> <li>• ITS gantries.</li> <li>• Proposed mitigation planting.</li> </ul>	13.11
Summer 15 Years after Opening-Day (Main Crossing)	<ul style="list-style-type: none"> <li>• Existing woodland remaining after necessary felling for proposed scheme.</li> </ul>	<ul style="list-style-type: none"> <li>• Main Crossing towers and deck.</li> </ul>	
Summer 15 Years After Opening-Night (proposed scheme)	<ul style="list-style-type: none"> <li>• Buildings from OS MasterMap data.</li> <li>• 3D model of proposed ground with scheme, false cuttings, walls and noise barriers.</li> <li>• 6-10m mitigation planting.</li> </ul>	<ul style="list-style-type: none"> <li>• Traffic.</li> <li>• Lighting columns.</li> <li>• ITS gantries.</li> <li>• Proposed mitigation planting.</li> </ul>	13.12
Summer 15 Years after Opening-Night (Main Crossing)	<ul style="list-style-type: none"> <li>• 2m hedgerows.</li> </ul>	<ul style="list-style-type: none"> <li>• Lighting on Main Crossing towers.</li> </ul>	
Winter Year of Opening-Day Wider Study Area (Main Crossing)	<ul style="list-style-type: none"> <li>• 35km radius.</li> <li>• Low resolution 10m<sup>2</sup> cells.</li> <li>• Bare earth topography without existing buildings or woodland.</li> </ul>	<ul style="list-style-type: none"> <li>• Main Crossing towers.</li> </ul>	13.13

Sensitivity of Receptors

- 13.2.17 The assessment considers both built and outdoor receptors. Built receptors are identified as dwellings, historic buildings, workplaces and recreational buildings. Outdoor receptors are identified as major and well-used minor roads, railways, outdoor recreational spaces, rights of way (ROW), footpaths (in accordance with the Scottish Paths Record and the core paths network as identified by the Local Authorities), cycleways and equestrian routes. Built and outdoor receptors identified within the study area, which would gain views of the proposed scheme, were assessed by teams of two or more landscape architects in the field using a standard checklist. The surveys were undertaken between October 2008 and April 2009. Potential heritage impacts on listed buildings and other sites of archaeological importance are addressed in Chapter 14 (Cultural Heritage).
- 13.2.18 The sensitivity of visual receptors to changes in their views was evaluated in accordance with the criteria provided in Table 13.2 based on the following factors:
- nature and context of the viewpoint;
  - expectations of users/receptors; and
  - importance and value of the view to the receptor.
- 13.2.19 Where appropriate, intermediate categories of sensitivity were also used in the assessment (i.e. 'low to medium' or 'medium to high').

**Table 13.2: Sensitivity of Visual Receptor**

Sensitivity	Criteria
<b>High</b>	Receptors where the changed view is of high value and importance and/or where the receptor would notice any change to visual amenity by reason of the nature of use and their expectations, (particularly remote dwellings situated to take advantage of panoramic scenic views or outdoor receptors where the view is important to users will be considered to be of high sensitivity).
<b>Medium</b>	Receptors where the changed view is incidental but not critical to amenity and/or the nature of the view is not a primary consideration of the users (the majority of dwellings have been assessed as being of medium sensitivity, as well as outdoor receptors where users are likely to spend time outside of participation in their activity looking at the view and industrial receptors that have offices with windows that take advantage of views).
<b>Low</b>	Receptors where the changed view is unimportant/irrelevant and/or users are not sensitive to change (the majority of industrial receptors are considered to be of low sensitivity unless they have a significant number of windows, which may raise their sensitivity to low/medium; outdoor receptors where users are unlikely to consider the views an important element of their usage of the site will generally be assessed to be of low sensitivity).

- 13.2.20 The significance of visual impacts was determined through consideration of both the sensitivity of the visual receptors and the predicted magnitude of change as a result of the proposed scheme.

Magnitude of Visual Change

- 13.2.21 Evaluation of the magnitude of visual change affecting receptors was carried out by considering the scale of change in the view due to the addition or loss of features, change in character and the amount/extent of the view affected.
- 13.2.22 The main elements taken into account in the evaluation of magnitude of change included:
- the extent of the receptor's available view affected by the development (including the distance from the proposed scheme);
  - the angle of view relative to the main activity of the receptor; and
  - the level of integration or contrast created by the crossing or road and their associated elements within the view.

13.2.23 The criteria used to determine the magnitude of visual change are shown in Table 13.3. Where appropriate the intermediate magnitude categories were also used in the assessment (i.e. 'low to medium' or 'medium to high').

**Table 13.3: Magnitude of Visual Change**

Magnitude	Criteria
<b>High</b>	Where the proposed scheme or elements of it would dominate the view and fundamentally change its character and components.
<b>Medium</b>	Where the proposed scheme or elements of it would be noticeable in the view, affecting its character and altering some of its components and features.
<b>Low</b>	Where the proposed scheme or elements of it would be only a minor element of the overall view that are likely to be missed by the casual observer and/or scarcely appreciated.

Impact Significance

13.2.24 A scale ranging from Negligible to Slight/Negligible, Slight, Slight/Moderate etc to Severe (or Major\* - see Table 13.4 footnote) significance of impact was used in the assessment. An initial indication of impact significance was obtained by combining the sensitivity to change and magnitude of change assessments using the framework shown below in Table 13.4.

**Table 13.4: Visual Impact Significance**

Magnitude \ Sensitivity	Low	Medium	High
	High	Moderate	Substantial
Medium	Slight	Moderate	Substantial
Low	Negligible	Slight	Moderate

\*In the case of the neutral impacts of the Main Crossing and beneficial impacts, the 'Severe' category was replaced by 'Major'

13.2.25 It should be noted that the matrix provided in Table 13.4 represents thresholds on a continuum. It provides an initial guide but significance assigned may be adjusted using professional judgement.

13.2.26 Impacts assessed as being of Moderate or greater significance were considered to represent clearly perceptible changes to views, and mitigation has been provided where practicable.

**Limitations to Assessment**

13.2.27 It was assumed that existing vegetation outwith the proposed scheme boundary would not be removed and would therefore continue to provide screening at a level which remains unchanged for both the winter year of scheme opening and summer 15 years after.

13.2.28 The locations of the proposed lighting and gantries with associated maintenance lay-bys were assessed both as elements of the proposed scheme and outwith the highway works for the proposed scheme on existing sections of the M90 between Admiralty and Halbeath and the M9 Spur, were based on indicative locations available at the time of completing this assessment.. A precautionary approach was followed, which assumed that the whole of the proposed scheme would be lit at night and the likely maximum number of gantries would be installed.

13.2.29 As previously stated in Chapter 4 (The Proposed Scheme), paragraph 4.6.25, design development indicates that road lighting will be required as a minimum on the mainline between the Scotstoun Interchange and the Main Crossing in the south and between the Main Crossing and Admiralty Junction in the north. In addition, it is considered that the side roads in the vicinity of Ferrytoll and South Queensferry junctions will require to be lit.

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- 13.2.30 The number of gantries will also be subject to design development to reduce environmental impacts where practicable without compromising safety.

### 13.3 Baseline Conditions

- 13.3.1 The 'Guidelines for Landscape and Visual Impact Assessment' (Landscape Institute and IEMA, 2002), states that '*landscape and visual assessments are separate, although linked, procedures. The landscape baseline, its analysis, and the assessment of landscape effects all contribute to the baseline for visual assessment studies*'. The visual context and baseline description of the study area is therefore incorporated to a considerable extent in Chapter 12 (Landscape) and supporting Appendix A12.1.
- 13.3.2 Baseline visual conditions around the northern and southern study areas are summarised below. Sensitivity is described generally in this section for areas and for key features to provide an overview of baseline visual sensitivity.

#### Northern Study Area

- 13.3.3 Much of the northern study area is occupied by urban development. The largest settlement, Dunfermline, has significantly expanded in recent years, with housing development on-going at the eastern side of the town. The town is built across a number of hills, which provide several areas (such as Garvock Hill and Brucefield) with views to the south across Rosyth and the M90 towards the Forth Road Bridge and Forth Rail Bridge. The majority of properties in these areas are considered to be of medium sensitivity, as the density of the surrounding development adversely affects the quality of the views.
- 13.3.4 To the south of Dunfermline, the settlement of Rosyth sits in a shallow valley between the coastal hills of Castlandhill and Fairy Kirk hill, and the topography rising north towards Dunfermline. The local topography restricts the majority of views from the settlement, with views to the Firth of Forth from the southern edge of the town significantly affected by the Naval Base and the ferry terminal and industrial development of Rosyth Europarc. The density of the development and the adverse visual intrusion of the industrial development limit the sensitivity of most of the dwellings in the area to medium. The A90/M90, which runs along the eastern edge of the settlement, separates Rosyth from Inverkeithing. The position of the settlement on the hillside above Inverkeithing Bay affords the majority of dwellings attractive views across the bay towards Edinburgh. The Forth Road Bridge and Forth Rail Bridge are visible to the south, rising above Ferry Hills and North Queensferry. Many of the dwellings on the northern side of the town have views across rolling farmland towards the M90 and Fordell Estate, although some of these views are adversely affected by the presence of the industrial estate at the edge of the settlement. While the majority of the dwellings in the settlement are of medium sensitivity due to the density of the housing and adjacent industrial estates, some of the dwellings on the higher ground of Muckle Hill are considered to be more sensitive due to the panoramic coastal views available from some areas.
- 13.3.5 Further to the east, the settlement of Dalgety Bay is situated on the hillside above the coast and consists of a number of housing estates of differing eras. The majority of the dwellings have been positioned to take advantage of views across the Firth of Forth, with the Forth Rail Bridge prominent in views to the west. Due to the density of the settlement, most of the dwellings are of medium sensitivity, although many of the properties on the waterfront are likely to have higher sensitivities due to the attractive coastal views available. The topography of the surrounding area, in particular the ridgeline of Letham Hill and the mature woodland across it, limits the majority of views across the surrounding area, although the small community of Hillend at the northern edge of the town has attractive views across the farmland to the south of the Fordell Estate.
- 13.3.6 The settlement of North Queensferry has been constructed on the rising hillside of a rocky promontory that extends into the Firth of Forth, which provides most dwellings with attractive views across the water. The majority of views are dominated by the Forth Road Bridge and Forth Rail Bridge, which meet the north shore within the settlement. The panoramic views available from most

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of the properties which take in such iconic structures affords many of the dwellings medium/high or high sensitivities, although the newer properties that have been constructed near the bridge structures are generally considered to have medium sensitivity.

- 13.3.7 Outwith the settlements, the majority of the study area is open farmland of medium sensitivity with views towards the Firth of Forth, featuring both countryside and urban development. Rolling topography and woodland, particularly within Fordell Estate, provides screening for many rural areas.
- 13.3.8 Views from many of the existing roads are contained by development, while the M90/A90 is visually enclosed throughout much of the study area by cuttings and vegetation, so that sensitivity is limited to low. The B981 road and associated footpath to North Queensferry have attractive, intermittent views across the Firth of Forth which afford this receptor medium sensitivity to change.
- 13.3.9 While the Fife Coastal Path and the footpaths across Castlandhill have attractive views across the Firth of Forth and limited views of the Forth Rail Bridge, they are generally considered to be of medium sensitivity due to the detracting impacts of the A90, industrial estates and old quarries within their views.

#### Firth of Forth

- 13.3.10 The Forth Road Bridge and Forth Rail Bridge across the Firth of Forth are significant features within the landscape, with an extensive visual envelope from northern Edinburgh to Dunfermline and west along the river to Bo'ness. Views from the Firth of Forth itself are also important as it is extensively used by leisure craft as well as commercial and defence vessels. Despite the heavy industry at Rosyth Europarc and Grangemouth, the scenic value of the area is high, with the estuary considered to have medium sensitivity.

#### Southern Study Area

- 13.3.11 South Queensferry is the largest settlement in the southern study area. The position of the town on the rising landform to the south of the Firth of Forth provides many of the properties in the town with views towards the Firth of Forth, although in the newer housing estates these tend to be narrow views between buildings. The Forth Road Bridge and Forth Rail Bridge dominate most views from the town, with the towers of the road bridge visible above the rooftops for the majority of dwellings. While the historic harbour area, which is designated as a Conservation Area, appears to have been originally constructed to focus on the high street rather than the Firth of Forth, the historical context and the views of the iconic bridges available afford several of the properties medium/high sensitivity. However, the majority of dwellings in the settlement are of medium sensitivity. Views away from the Firth of Forth are generally limited for dwellings due to the rolling topography of the surrounding farmland.
- 13.3.12 The other significant settlement in the study area is the village of Kirkliston, situated to the north of Edinburgh Airport between the River Almond and the M9 and M9 Spur. Properties here generally have medium sensitivity due to the adverse visual impact of the airport and the surrounding motorways. The adjacent motorway embankments and rising landform to the north of the village screen views to the north and west.
- 13.3.13 There are several historic estates across the study area at Hopetoun, Dundas, Dalmeny and Newliston. Many of the historic vistas that were part of the designed landscape for the properties have become enclosed by the mature woodland that covers much of the estates, although the Hopetoun House Estate, which is situated on the lower slopes of the estuary, has intermittent views to the east along the Firth of Forth towards the Forth Road Bridge and Forth Rail Bridge. The isolated setting and historical context affords the main house and many of the estate properties medium/high to high sensitivities.

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- 13.3.14 Between the M9 and the Firth of Forth, there are numerous isolated farms and dwellings across the study area. The rolling nature of the surrounding landform and a number of woodland plantations limit views for most of these properties.
- 13.3.15 The majority of the existing roads have open views across the surrounding farmland and are of low to medium sensitivity, in particular the M9 and M9 Spur, which are generally situated on high embankments. The rolling topography of the farmland limits views of the Firth of Forth from many of the roads, but the tops of the Forth Road Bridge and Forth Rail Bridge are visible from northbound sections of the M9 Spur, A90 and A8000. Open views across the Firth of Forth are available from the A904 to the west of South Queensferry, with a designated viewpoint situated at the edge of the small settlement at Newton. This viewpoint and the coastal road leading to Hopetoun House, which also forms part of the National Cycle Network and is used by walkers, have attractive, open views across the Firth of Forth and towards the Forth Road Bridge and Forth Rail Bridge. Consequently, they are considered to be of high sensitivity.

## 13.4 Potential Impacts

- 13.4.1 Potential visual impacts may include the following:
- alteration to the character of views from the addition of the Main Crossing to the visual setting of the Forth Road Bridge and Forth Rail Bridge.
  - alteration to the character of views by the introduction of infrastructure elements associated with the proposed scheme, including road surface, noise barriers and bunds, SUDS detention basins, bridges, underpass, culverts, ITS gantries, signage and lighting into rural areas and in close proximity to settlement;
  - introduction of changed appearance of landform due to new rock cuttings to the north of the Main Crossing; and
  - alteration and obstruction of views by the introduction of significant cuttings or embankments into the landform and reduced screening where woodland is lost.
- 13.4.2 As stated in paragraph 13.1.3 and 13.2.3, the assessment includes visual impacts from the introduction of ITS gantries and lighting throughout the proposed scheme and also outwith the highway works for the proposed scheme on existing sections of the M90 and M9 Spur.
- 13.4.3 Where ITS and lighting are the only source of visual impacts from the locations outwith the highway works for the proposed scheme. this is reported as follows:
- M90 north of Admiralty junction to Halbeath: see paragraph 13.6.57; and
  - M9 Spur: see paragraph 13.6.88.
- 13.4.4 In general, where the location of gantries would be remote from receptors, in deep cuttings or closely aligned with other structures, this would not represent a discernible change to views, and therefore no impacts were assessed.
- 13.4.5 Visual impacts of the proposed scheme, taking mitigation into account, are described in summary in section 13.6 (Residual Impacts), as shown below. Detailed visual impacts of the proposed scheme on all receptors are recorded in Appendices A13.1 to A13.6.
- 13.4.6 For a summary of residual impacts from the Main Crossing on built and outdoor receptors and the wider study area refer to paragraphs 13.6.11 to 13.6.53 and Table 13.5.
- 13.4.7 For a summary of residual impacts from the northern route on built and outdoor receptors refer to paragraphs 13.6.54 to 13.6.71 and Table 13.6.
- 13.4.8 For a summary of residual impacts from the southern route refer to paragraphs 13.6.72 to 13.6.96 and Table 13.7.

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13.4.9 For a summary of overall residual impacts from the proposed scheme refer to paragraphs 13.6.97 to 13.6.108.

13.4.10 It should be noted that a single built receptor may comprise multiple properties as demonstrated in Appendix A13.1 (Main Crossing), A13.3 (Northern Route) and A13.4 (Southern Route).

## 13.5 Mitigation

### General

13.5.1 As mitigation of adverse landscape and visual impacts are closely related and inter-dependent, mitigation of visual impacts will be incorporated in the specific landscape mitigation measures, which have been developed in consultation with other disciplines as part of the iterative approach to the design of the proposed scheme.

13.5.2 All proposed landscape mitigation measures are described and assigned a mitigation item number in Chapter 12 (Landscape), and are illustrated on Figure 12.4.

13.5.3 All identified mitigation measures, designed to moderate the nature and extent of impacts where practicable, are taken into account in the assessment of residual visual impacts (note that implementation of all landscape mitigation is assigned mitigation item V1 in Chapter 23: Schedule of Environmental Commitments).

13.5.4 Landscape proposals that reduce visual impacts are summarised below, with their application as specific mitigation measures for individual receptors provided in the tables in Appendices A13.1 to A13.6:

- high standard of aesthetics for the proposed scheme, particularly the sensitive design of the Main Crossing to avoid visual confusion and complement views of the Forth Road Bridge and Forth Rail Bridge;
- integration of the alignment and earthworks with the surrounding topography;
- formation of new rock cuttings to achieve a natural appearance;
- provision of false cuttings and noise barriers to screen or restrict views of the road;
- provision of stone walls, hedges and standard trees to provide screening and reinstate field boundaries; and
- planting mixed or scrub woodland to screen views, integrate new cuttings and embankments and reflect the character of the existing landscape.

13.5.5 Mitigation measures are taken into account for winter year of scheme opening when false cuttings) and other built screening elements such as noise barriers are in place, but before new planting has become established. The proposed scheme impacts are also assessed for the summer, 15 years after the scheme opening when mitigation planting will be established. The former is intended to represent the 'worst-case scenario' and the latter the 'best-case scenario' for permanent impacts.

13.5.6 Cross sections indicating the relationship between the proposed scheme and key visual receptors, together with mitigation proposals, are shown on Figure 12.5.

### Lighting

13.5.7 The introduction of artificial lighting from road lighting and other fixtures may create or contribute to light pollution in the form of sky glow, glare and/or light trespass/spill, or direct impacts from views of lighting columns. It is therefore beneficial to minimise these potential adverse effects on visual amenity. Where lighting is essential, all reasonable precautions will be undertaken to reduce energy consumption and avoid/reduce the amount of light pollution of the night sky and rural landscape where this can be achieved safely and effectively (mitigation item V2). The functionality

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of the installed lighting will therefore allow for dimming and remote control for future energy reduction to support government objectives to reduce carbon emissions, pollution of the night sky and to reduce impacts on the rural landscape where this can be achieved safely and effectively. Installation of passive lighting in the form of reflective road marking and signage will also be implemented wherever practicable.

#### Structures

- 13.5.8 In order to ensure aesthetic continuity, enhance the experience of the road user and promote a sense of place, the design of the Main Crossing and other bridge structures on the northern route and southern route have been informed by detailed input from specialist aesthetic advisors, aesthetics and design team workshops and consultation with Architecture and Design Scotland.
- 13.5.9 The Main Crossing has been designed to an aesthetically pleasing structure, and have a scale which would be sympathetic to the visual character of the area and complimentary to the form of the Forth Road Bridge and Forth Rail Bridge. The simple, elegant design of the Main Crossing is intended to compliment the existing views, including those where the Main Crossing would be viewed directly in front of or beyond the Forth Road Bridge and Forth Rail Bridge.

### 13.6 Residual Impacts

- 13.6.1 As noted in Section 13.2 (Approach and Methods), visual impacts reported in this chapter are considered adverse unless otherwise stated. This is of particular relevance to the assessment of the Main Crossing, where the majority of impacts of the Main Crossing were considered to be neutral (i.e. neither adverse nor beneficial) for the reasons set out in paragraphs 13.2.7-13.2.8.
- 13.6.2 Receptors likely to be affected by the proposed scheme are identified on Figures 13.2 to 13.8. Photographs from a number of key viewpoints and key receptor locations, as shown on Figure 12.6, are shown in the photomontage and wireline images provided on Figure 12.7. These images were developed as part of the mitigation design and taken into account as part of the assessment process.

#### General

- 13.6.3 Computer generated ZTVs were prepared to show areas from which the proposed scheme may potentially be visible. As noted in Section 13.2 (Approach and Methods) the ZTV extends to 5km from the proposed scheme to ensure that any potential for significant visual change is identified, with an additional 35km ZTV to enable wider visual assessment of the Main Crossing.
- 13.6.4 The computer generated ZTV shown on Figure 13.13 demonstrates the extent to which the Main Crossing would potentially be visible. Where this occurs, the slender design of the Main Crossing and proximity to the Forth Road Bridge and Forth Rail Bridge would mean that impacts would be unlikely to be significant for most areas. To the north of the Firth of Forth, the rising topography around Dunfermline would limit the range of views. Similarly, the rolling topography of the farmland that covers much of the southern study area would also limit views from many locations, assisted by the ridgeline between Craigie Hill and Dundas Hill. The majority of built receptors expected to receive a discernible change to their views would be located in North and South Queensferry, Inverkeithing and Rosyth, with minor impacts for some properties in Dunfermline, Dalgety Bay and scattered properties to the south of South Queensferry.
- 13.6.5 For the northern route, the ZTV on Figure 13.9a, which models the 'worst-case' scenario during the winter year of opening, shows that the majority of views would be limited by the surrounding topography and the predominantly online alignment. Receptors would therefore mainly be dwellings on the higher ground at the edges of Rosyth and Inverkeithing, with more distant views from the edge of Dunfermline.

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- 13.6.6 The ZTV for the southern route on Figure 13.9b and 13.9c, which models the 'worst-case' scenario during the winter year of opening, also indicates the extent to which screening by the local topography and woodland would help to limit the views of the proposed scheme. The majority of significantly affected receptors would occur around the western edge of South Queensferry and scattered properties to the southwest. Views of the upgraded M9 Junction 1A at Kirkliston would be seen from the scattered properties to the west of the settlement, with the embankments for the existing roads, established vegetation around the area, the rolling topography of the farmland around Carmelhill and the bings to the west helping to contain views.
- 13.6.7 Visual impacts from new lighting for the proposed scheme would be restricted to receptors located in close proximity to the junctions at Ferrytoll, Queensferry and M9 Junction 1A. The impact of lighting at Ferrytoll and Echline would be unlikely to result in significant impacts, as most of the existing roads are currently lit. The introduction of new lighting would therefore not represent a significant change in views for receptors. The introduction of lighting to M9 Junction 1A would contribute to the impact significance for local receptors, although the area is already adversely affected by the presence of the M9 and M9 Spur. Lighting on the Main Crossing would contribute to the visibility of the bridge structure at night. However, this would not represent a significant change to existing views of the Firth of Forth as the Forth Road Bridge is lit.
- 13.6.8 When assessing magnitude and significance of change, the impacts of road lighting and headlights were taken into account, so that the level of impact significance determined for each of the receptors affected encompasses all elements of the proposed scheme. These factors also influenced the design of mitigation measures for the proposed scheme.
- 13.6.9 The visual impact assessment for each building receptor or cluster of receptors and each outdoor receptor affected by the proposed Main Crossing is presented together with details of proposed mitigation measures in Appendix A13.1 for built receptors and Appendix A13.2 for outdoor receptor sites. The assessment of built and outdoor receptors affected by the northern road is presented in Appendices A13.3 and A13.4 respectively, and the built and outdoor receptor assessments for the southern road are presented in appendices A13.5 and A13.6 respectively. This information is summarised in Tables 13.5 to 13.7 to show the total number of built receptors, in terms of the total number of properties contained within built receptors, and outdoor receptors affected by different degrees of impact in the winter year of scheme opening and residual impact by summer 15 years later.
- 13.6.10 The findings of the visual impact assessment are summarised in this section and illustrated as follows:
- Figure 13.2 (Main Crossing: Visual Impact on Outdoor Receptors);
  - Figure 13.3 (Main Crossing: Visual Impact on Built Receptors);
  - Figure 13.4 (Main Crossing: Visual Impact on Built Receptors – Urban Areas);
  - Figure 13.5 (Northern Route: Visual Impact on Outdoor Receptors);
  - Figure 13.6 (Northern Route: Visual Impact on Built Receptors);
  - Figure 13.7 (Southern Route: Visual Impact on Outdoor Receptors); and
  - Figure 13.8 (Southern Route: Visual Impact on Built Receptors).

#### **Main Crossing**

##### Built Receptors

- 13.6.11 The Main Crossing would be the most visually prominent element of the proposed scheme and feature in both the local and wider landscape. Local impacts are covered below and the wider area from where the Main Crossing would potentially be visible is illustrated on Figure 13.13.

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- 13.6.12 As explained in paragraph 13.2.8, the majority of impacts of the Main Crossing were considered neutral, and this is clearly stated within the assessment.
- 13.6.13 The following descriptions summarise the key residual impacts for dwellings and settlement areas. For detailed information on all assessed receptors refer to Appendix A13.1 and Figures 13.3 and 13.4.

#### *Built Receptors North of Main Crossing*

- 13.6.14 The towers of the Main Crossing would be visible from elevated locations in Dunfermline at Abbey Parks, Garvock Hill and Brucefield, although a change to the character of existing views would not be predicted due to the distance involved. However, a number of properties at the southeastern edge of Dunfermline are orientated to benefit from the available views towards the Forth Road Bridge and Forth Rail Bridge, and a change would therefore be discernible. The most significantly affected properties would be the Masterton House dwellings and part of a new housing development that was partially constructed at time of assessment. The position of Masterton House and three adjacent houses (receptor 727 on Figure 13.3a) on the hillside would provide clear views across Rosyth to the Main Crossing, resulting in neutral impacts of Slight/Moderate significance during the winter year of opening, which would not reduce by the summer after 15 years. A cluster of houses on Merlin Drive (receptor 720 on Figure 13.3a) have a similar aspect and the Main Crossing would cause a neutral impact of Slight/Moderate significance on views during winter year of opening, which would not change over time. Two further properties in the estate (receptors 721 and 722) would receive neutral impacts of Slight significance during the winter year of opening, with residual impacts reducing to Slight/Negligible following the development of the planting within the housing estate. A number of other receptors in the area would have similar views, although impacts would be limited neutral impacts of Negligible to Slight/Negligible significance both during the winter year of opening and by the summer after 15 years, due to the screening provided by the development of recent planting around the housing areas and views of existing development and infrastructure in the area.
- 13.6.15 The majority of the residential areas of Rosyth would be screened from views of the Main Crossing by the topography of Castlandhill, Fairy Kirk hill and Muckle Hill. At the western edge of the town, a number of receptor groups around Peasehill Road and Peasehill Brae (receptors 664 to 686 on Figure 13.3a and 13.3b) are situated on a low ridgeline, which would provide them with views of the Main Crossing. In the winter year of opening, neutral impacts would be of Slight to Negligible significance, which would remain unchanged by the summer after 15 years for the majority of the receptors. To the south of the housing area, several of the business units in the Rosyth Europarc would have open views towards the Main Crossing, although these would generally be limited to neutral impacts of Negligible/Slight significance due to the lower sensitivities of the receptors.
- 13.6.16 Towards the southern edge of Rosyth, several of the properties in the housing estate accessed from Ferry Toll Road are orientated towards the Forth Road Bridge and Forth Rail Bridge, and would have views of the Main Crossing. While the Main Crossing would be visible in the majority of their views, it would be seen against the backdrop of the Forth Road Bridge and Forth Rail Bridge, reducing the magnitude of the change to the views. Impacts arising for receptors 650 to 652 on Grampian Road (Figure 13.3b) and the houses at the southern side of Ferry Toll Place (receptor 659) would be neutral and of Slight/Moderate significance during the winter year of opening, which would remain in place for receptors 650 to 652. By the summer after 15 years, neutral impacts for receptor 659 would reduce to Slight significance, as the density and maturity of the existing trees in front of the houses would provide a screen to views in summer but allow filtered views in winter. Neutral impacts on other properties in the estate would have significances ranging from Slight to Negligible during the winter year of opening, with residual impacts remaining the same for most receptors. The nearby property of Hillside (receptor 662) has more open views across the Firth of Forth due to its elevated position and the Main Crossing would result in neutral impacts of Moderate significance during the winter year of opening, which would not reduce over time.

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- 13.6.17 Castlandhill Farm (receptor 646 on Figure 13.3b) and the row of houses on Lothian View (receptor 647) have panoramic views of the Firth of Forth, which are adversely affected by the existing A90, mobile phone masts in front of the properties and the Dunfermline Wastewater Treatment Works (WWTW) near North Queensferry. Impacts during the winter year of opening for both receptors would be neutral and of Moderate significance, which would remain by the summer after 15 years for receptor 647. The grouping and density of the existing trees around receptor 646 allows filtered views to the south in the winter, but provides a screen to views that cannot be seen through in summer, which would reduce the neutral impacts to Slight/Moderate significance by the summer after 15 years. The elevated position of Castlandhill House (receptor 719) on the south facing slopes of Whinny Hill, affords it open views across the Firth of Forth that are dominated by the Forth Road Bridge and Forth Rail Bridge. The introduction of the Main Crossing, viewed against the backdrop of the Forth Road Bridge and Forth Rail Bridge, would produce neutral impacts of Moderate significance during the winter year of opening, which would not reduce over time.
- 13.6.18 Impacts for the majority of properties in Inverkeithing are assessed as neutral and of Negligible/Slight significance, as only the tops of the towers would be visible above Ferry Hills. However, some of the properties on Muckle Hill, which have more open views across the Firth of Forth due to their elevated positions, would notice a more significant change. Receptors 508 and 509 (Figure 13.4a) on View Terrace and Cleveland Drive at the edge of the housing estate would be subject to a neutral impact of Moderate significance during the winter year of opening, with residual impacts remaining unchanged by the summer after 15 years. At the southwest corner of Inverkeithing, several elevated properties on Whinnyhill Crescent (receptors 488 to 490 on Figure 13.3c) would receive neutral impacts of Slight/Moderate significance during the winter year of opening, which would not reduce by the summer after 15 years.
- 13.6.19 The Main Crossing would be visible from the majority of North Queensferry, but would generally be viewed behind the Forth Road Bridge. The most significant impacts would occur for Craigdhu (receptor 399), Craigdhu Cottage (receptor 398) and several houses on Inchcolm Drive (receptor 402), which would all be subject to neutral impacts of Moderate/Substantial significance during the winter year of opening (Figure 13.3d). The grouping and density of the existing trees around receptor 399 provides a dense screen to western views in summer but allows filtered views in winter. By the summer after 15 years these impacts would reduce to neutral impacts of Moderate significance. Impacts would remain the same for receptors 398 and 402. For other receptors in North Queensferry, neutral impacts would range from Moderate to Negligible significance depending on the visual domination of the Forth Road Bridge. The majority of the significantly affected receptors would be clustered around Inchcolm Drive, the harbour area around Main Street and at the western end of Brock Street, where properties are orientated to gain views to the west.
- 13.6.20 To the west of the Forth Road Bridge, the Queensferry Hotel (receptor 390 on Figure 13.3d), situated on the Ferry Hills, has attractive panoramic views across the Firth of Forth which are dominated by the Forth Road Bridge and Forth Rail Bridge. The proposed scheme would pass very close to the hotel and would significantly alter the views available to the west, resulting neutral impacts of Moderate/Substantial significance that would not reduce over time.
- 13.6.21 Admiralty House (also known as St. Margaret's Hope) is a large former dwelling (which is now utilised as offices) situated on the coast within wooded grounds to the west of North Queensferry (receptor 644 on Figure 13.3b). The house is considered to be of high sensitivity due to its setting and panoramic views across the Firth of Forth. The introduction of the Main Crossing in close proximity to the receptor would have an adverse impact on the setting of the house, resulting in impacts of Severe significance that would not reduce over time. At the eastern edge of the grounds, the Lodge House (receptor 487 on Figure 13.3c) would receive impacts of Substantial/Severe significance both during the winter year of opening and the summer after 15 years, due to the cutting for the bridge landing adjacent to the house. The nearby dwellings of Ferry Craig House and Tigh-na-Grian (receptor 391 on Figure 13.3d) also have attractive, coastal views, but the sensitivity of these receptors is limited to medium/high by the proximity of the Forth Road Bridge. The structures of the Main Crossing would significantly alter the existing views, causing permanent impacts of Substantial significance.

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- 13.6.22 The tops of the towers of the Main Crossing would be visible above Ferry Hills and behind the Forth Rail Bridge from many of the dwellings in Dalgety Bay, particularly those on the waterfront around St. David's Harbour. However, this would not represent a discernible change to views and the significance is therefore not assessed.

#### *Built Receptors South of Main Crossing*

- 13.6.23 The Main Crossing would be visible from many of the dwellings in South Queensferry, although for the majority of receptors this would not represent a significant change. For the eastern half of the town, the Forth Road Bridge would obstruct views of much of the new structure. Changes to views would occur predominantly from the visibility of the towers, so that impacts for most receptors in the eastern half of the town would be neutral and of Negligible significance. The most significant impacts would affect receptor 915 on Stoneycroft Road (Figure 13.3f), which is situated in an elevated position above the heritage area. This receptor has panoramic views across the Firth of Forth which afford the receptor high sensitivity. The Main Crossing would be visible to the west, although as it would be positioned behind the Forth Road Bridge, impacts would be limited to neutral and of Slight/Moderate significance both during the winter year of opening and the summer after 15 years. Other significant impacts would be predicted for several properties near the Forth Road Bridge. On the waterfront, new housing on Rose Lane and Shore Road (receptors 21 and 22 on Figure 13.4e) has been constructed to take advantage of available coastal views and therefore properties have high sensitivity. These receptors would have views beneath the Forth Road Bridge to the north landing of the Main Crossing, with permanent neutral impacts of Slight significance caused by the associated structures and earthworks. Views for several dwellings on Morison Gardens (receptors 36 to 38 on Figure 13.4e) are currently dominated by the continual flow of heavy traffic on the Forth Road Bridge. Replacement of this high volume of traffic with pedestrians, cyclists and public transport would have a beneficial impact of Slight significance on views for these properties during both the winter year of opening and the summer after 15 years.
- 13.6.24 In the western half of the town, the Main Crossing would feature more prominently due to its visual separation from the Forth Road Bridge. The majority of impacts would be neutral and range from Slight to Negligible in significance. Many of the impacts for receptors would be caused by the visibility of the towers above the rooftops of adjacent buildings. The settlement is constructed on the rising valley slopes adjacent to the Firth of Forth, which provides some properties with elevated views over the adjacent buildings, while public open spaces throughout the urban area provide some of the properties around them with more open views which would notice a more significant change from the Main Crossing. Views for properties on Springfield Lea (receptor 136 on Figure 13.4d(i)) would be dominated by the Main Crossing, resulting in neutral impacts of Substantial significance that would not reduce over time. Receptor group 132 on Springfield Crescent (Figure 13.4d(ii)) would have similar views, but both initial and residual impacts would be limited to neutral impacts of Moderate/Substantial significance due to the screening provided by the existing trees and hedgerows in the gardens of the houses. At the northern edge of town, views for most of the houses on Farquhar Terrace and Society Road are partially obstructed by the dense mature woodland along the coast in the area. Receptor group 128 (Figure 13.4d(i)) is situated at the edge of the housing estate and gains views over the Firth of Forth and across the Port Edgar marina through a clearing in the trees, which gives the dwellings medium/high sensitivity. The Main Crossing would be prominent in the views, with neutral impacts of Moderate/Substantial significance during both the winter year of opening and the summer after 15 years.
- 13.6.25 For several receptor groups on Clufflat (receptor 3), Clufflat Brae (receptors 2, 116 to 118 and 120 to 121) and Springfield Lea (receptor 137), the proximity of the viaduct and abutment at the south end of the Main Crossing would have more significant impacts, as shown on Figure 13.4d(i). For receptors 116 to 118 and 120 to 121, these impacts would range from Slight/Moderate to Moderate in significance. However, the piers for the viaduct of the Main Crossing would be constructed directly in front of receptors 2 and 137, resulting in Substantial impacts during the winter year of opening that would remain unchanged after 15 years. For 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, resulting in impacts of Substantial significance during the winter year of opening. While the summer foliage of the surrounding trees would provide

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some screening for the property, impacts in the summer after 15 years would remain of Substantial significance.

- 13.6.26 To the west of South Queensferry, the small community of Linn Mill has attractive views over the Firth of Forth, with several of the properties considered to be of medium/high or high sensitivity. 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. Changes would affect receptors 363, 372-375 and 377, with neutral impacts ranging from Moderate to Substantial significance during the winter in the year of opening, as shown on Figures 13.3e and 13.3f. Impacts would remain the same by the summer after 15 years. However, receptors 350, 351 and 362 (Figures 13.3d and 13.3e), which are situated lower down the hill, would notice an adverse change to their views to the east towards Inchgarvie House. The Main Crossing would be seen above the house on viaduct, resulting in impacts of Substantial significance for receptors 350 and 362 and impacts of Substantial/Severe significance for receptor 351, which would not change by the summer after 15 years. The Main Crossing would also be seen from The Weddle (receptor 347) and The Fisheries (receptor 378 on Figure 13.3d) but impacts would not be considered adverse as it would be seen against the backdrop of the Forth Road Bridge and Forth Rail Bridge. The Weddle would be subject to neutral impacts of Moderate/Substantial significance while The Fisheries, which is situated on the waterfront, would receive neutral impacts of Substantial significance that would not reduce over time for either property.
- 13.6.27 Inchgarvie House (receptor 381 on Figure 13.3d) is situated within wooded grounds at the western edge of South Queensferry, overlooking the Firth of Forth, with the Forth Road Bridge and Forth Rail Bridge to the east. The Main Crossing would pass immediately to the east of the house on viaduct causing impacts of Severe significance that would not reduce over time. To the east of the main house, Inchgarvie Lodge (receptor 380) has very limited existing views due to the dense mature woodland that surrounds the property. Despite the proximity of the Main Crossing, the adjacent woodland would limit the views, resulting in impacts of Moderate/Substantial significance impacts during both the winter year of opening and summer after 15 years.
- 13.6.28 Further west, Hopetoun House (receptor 388 on Figure 13.3e) would be subject to a minor change to views from the Main Crossing, particularly from the viewing tower at the top of the house. However, as the crossing would be seen against the backdrop of the Forth Road Bridge and Forth Rail Bridge it would not represent a significant change to views, causing neutral impacts of Slight/Moderate significance during the winter year of opening. The density and layout of the mature estate trees beside the entrance drive would allow filtered views towards the Main Crossing in winter, but would provide a sufficiently dense screen in the summer to reduce impacts to neutral and of Slight significance by the summer after 15 years. Glimpses of the Main Crossing would also be seen from the Hopetoun Lodge House (receptor 387) and from Easter Society (receptor 389) but the impacts would not be significant.
- 13.6.29 To the southwest of South Queensferry, views from the scattered dwellings and farms of Gillerhill (receptor 224), Westfield (receptor 225), White Lodge (receptor 227), Baronscraig Cottage and Holly Cottage (receptor 226) would not be significantly changed by the Main Crossing (Figure 13.3e). Impacts would be neutral, and range from Slight to Negligible significance during the winter year of opening, and would not decrease by the summer after 15 years. Similarly, Lawflat (receptor 228) and Duddingston Farm Cottage (receptor 229) to the west of South Queensferry would receive neutral impacts of Slight/Negligible significance and neutral impacts of Negligible significance respectively from the Main Crossing during winter year of opening as the backdrop of the Forth Road Bridge and Forth Rail Bridge would limit the significance of change. While the grouping and density of the existing trees close to receptor 228 would allow filtered views to the Main Crossing during the winter, the summer foliage provides a dense screen that would obstruct any significant views to the Firth of Forth, which would reduce impacts during the summer after 15 years to neutral impacts of Negligible significance. Impacts for receptor 229 would not change over time.
- 13.6.30 Within Dundas Estate, several receptors including Dundas Castle (receptors 352 to 357 on Figures 13.3e and 11.3f) would be able to glimpse the towers of the Main Crossing through the woodland

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on the northern side of the estate. No significant change to views is predicted, as the towers of the Forth Road Bridge and Forth Rail Bridge are also visible. Impacts during the winter year of opening would therefore be neutral and range from Slight to Slight/Negligible in significance, with the majority of impacts remaining unchanged by the summer after 15 years. For receptor 357, the density of the existing woodland behind the properties would allow filtered views to the Main Crossing in winter but would form a dense screen in summer, so residual neutral impacts would reduce to Slight/Negligible in significance by the summer after 15 years. The cluster of dwellings at Dundas Home Farm (receptor 361) and the adjacent properties of Newbigging Lodge (receptor 359) and Ashley Cottages (receptor 360) would see the Main Crossing beyond South Queensferry, without significant impacts due to the visibility of the Forth Road Bridge and Forth Rail Bridge. Ashley Cottages would experience the most significant change to views, with neutral impacts of Slight/Moderate significance that would not reduce over time. Newbigging Lodge would receive impacts of Negligible significance, while the Dundas Home Farm dwellings would receive neutral impacts of Slight significance that would not change by the summer after 15 years.

#### Outdoor receptors

- 13.6.31 The following descriptions summarise the key residual impacts on outdoor spaces, footpaths, cycleways, equestrian routes and roads, which are shown on Figures 13.2a to 13.2c. For detailed information on all assessed receptors refer to Appendix A13.2.

#### *Outdoor Receptors North of Main Crossing*

- 13.6.32 At the eastern edge of Dunfermline, several local roads and footpaths would gain views of the Main Crossing due to their position on the rising ground to the north of Rosyth. The impacts would generally not be significant due to the distance of the Main Crossing from the receptors and its proximity to the existing Forth Road Bridge and Forth Rail Bridge, with the majority of impacts being neutral and ranging from of Slight to Negligible significance during the winter in year of opening, which would be unlikely to change by the summer after 15 years. The most significantly affected receptor would be Masterton Road (receptor R69 on Figure 13.2a), which would gain clear views across Rosyth and along the M90 towards the Main Crossing, resulting in neutral impacts of Slight/Moderate significance during the winter year of opening that would not reduce over time.
- 13.6.33 The position of Hope Street Cemetery (receptor O72 on Figure 13.2a) on Muckle Hill enables views towards the Firth of Forth that are partially screened by established trees and scrub around the site boundary. The introduction of the Main Crossing to views would represent a minor change that would result in neutral impacts of Slight/Negligible significance during both the winter year of opening and the summer 15 years after opening.
- 13.6.34 To the south of Rosyth, a right of way crossing Castlandhill has attractive views across the Firth of Forth (receptors F49A to F49C on Figure 13.2a), despite the visual intrusion of mobile phone towers on the hill and the existing A90. The Main Crossing would be clearly visible from sections F49A and F49B of the path, but impacts would be limited to neutral and of Moderate significance during both the winter year of opening and summer after 15 years as the Forth Road Bridge and Forth Rail Bridge dominate views, which would reduce the significance of the change. Views from receptor F49C would be limited to glimpses through the existing trees and hedges along the path, which would result in neutral impacts during the winter year of opening of Slight/Moderate significance. The density of the existing vegetation is such that during the summer views of the bridge would be more significantly screened, which would reduce residual neutral impacts to Slight significance. Impacts on a second right of way which runs along the valley between Castlandhill and Whinny Hill (receptors F46A and F46B) would be less significant due to screening by the local topography and existing vegetation, with neutral impacts of Slight/Moderate significance for the western section near Ferry Toll Road (receptor F46A) during the winter year of opening that would not reduce over time and neutral impacts of Slight significance for the eastern section at Castlandhill Road (receptor F46B) which would reduce to neutral impacts of Slight/Negligible significance by the summer 15 years after scheme opening.

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- 13.6.35 Despite adverse visual intrusion from the surrounding industry and the Dunfermline WWTW to the west of North Queensferry, stretches of Milne Road and a new extension of Keith Road at Rosyth Europarc (which are also footpaths and cycleways) have attractive views across the Firth of Forth, which are dominated by the Forth Road Bridge and Forth Rail Bridge. The impacts for the sections of road within the industrial estate (receptors F47A, F47B, F47C and F48A) are generally not significant, are neutral and range from Slight/Moderate to Negligible in significance both during the winter year of opening and the summer after 15 years. However, views from footpaths F47D, F48B and F48C are generally more open and the Main Crossing would form a more significant visual feature, resulting in neutral impacts of Moderate significance for the receptors that would not reduce over time, as shown on Figure 13.2a.
- 13.6.36 To the west of North Queensferry, the level of change to existing views from a footpath and cycleway around St. Margaret's Marsh would vary along its length from the introduction of the Main Crossing. For receptor F40A (Figure 13.2a) which follows the coastline, the significance of change to views would be neutral and of Moderate/Substantial significance both during winter year of opening and summer after 15 years, as it would be seen against the backdrop of the Forth Road Bridge and Forth Rail Bridge. Existing views from receptor F40B are restricted by the topography and woodland around Admiralty House. During the winter year of opening the path would glimpse the Main Crossing in filtered views through the existing woodland, resulting in neutral impacts of Slight significance, which would remain the same by the summer after 15 years.
- 13.6.37 At the Queensferry Hotel, a designated viewpoint (receptor O33 on Figure 13.2a) provides visitors with excellent views over the Forth Road Bridge and Forth Rail Bridge and west along the Firth of Forth. The Main Crossing would introduce a significant new feature in close proximity to the viewpoint that would have neutral impacts of Moderate/Substantial significance both during the winter year of opening and the summer after 15 years. On the hillside above North Queensferry, a public recreation space and playground (receptor O30) and a right of way (receptor F31) behind the North Queensferry Community Centre have elevated views over the Forth Road Bridge, Forth Rail Bridge and the Firth of Forth. The receptors would have clear views of the Main Crossing, although the significance of the impact would be reduced due to the visual dominance of the Forth Road Bridge and Forth Rail Bridge, resulting in neutral impacts of Moderate significance for the footpath and neutral impacts of Slight/Moderate significance for the recreation area during the winter year of opening, which would not change for either receptor by the summer after 15 years.
- 13.6.38 Within North Queensferry, a number of public open spaces around the harbour (receptors O27, O29, O35, O36 and O38) and a children's playground (receptor O28) have views across the Firth of Forth that are dominated by the Forth Road Bridge and Forth Rail Bridge. The Main Crossing would be visible to the west in views, with impacts being neutral and ranging from Moderate to Slight significance during the winter year of opening, as the Main Crossing would be less prominent in the views than the Forth Road Bridge. Residual impacts would remain unchanged over time. Beneath the Forth Road Bridge, a public recreation area near the lifeboat station (receptor O39) would have clear views of the Main Crossing, which would cause neutral impacts of Moderate/Substantial significance both during winter year of opening and the summer after 15 years.
- 13.6.39 The Fife Coastal Path runs east from North Queensferry, with attractive views across the Firth of Forth. The Forth Rail Bridge provides a significant feature to views, with the towers of the Forth Road Bridge visible above the Ferry Hills. The towers of the Main Crossing would be visible from stretches of the path near North Queensferry (receptors F34A to F34D on Figure 13.2a) and to the west of Dalgety Bay (receptor F54A and F54B), with neutral impacts ranging from Moderate to Negligible in significance both during the winter in year of opening and the summer after 15 years, with the most significant impacts affecting the path as it runs into North Queensferry.

#### *Impact on Firth of Forth*

- 13.6.40 The cycleway and footpath on the Forth Road Bridge (receptor R24 on Figure 13.2b) have attractive views to both sides of the bridge along the Firth of Forth. The Main Crossing would be

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visible to the west of the receptor, causing a significant change to views and neutral impacts of Substantial significance that would not reduce over time.

- 13.6.41 The Firth of Forth (receptor O66 on Figure 13.2b) is utilised by a variety of leisure craft throughout the year, with the Forth Road Bridge and Forth Rail Bridge providing dominating features to views. The introduction of the Main Crossing would only represent a minor change to the more sensitive recreational views due to its proximity to the Forth Road Bridge and Forth Rail Bridge, resulting in neutral impacts of Slight significance both during the winter year of opening and the summer after 15 years. Impacts for the commercial users for which views are less important, such as the ferries from Rosyth, would be less significant.

#### *Outdoor Receptors South of Main Crossing*

- 13.6.42 In South Queensferry, the Main Crossing would be visible from a number of public spaces scattered throughout the urban area. Impacts would generally not be significant for receptors to the east of the Forth Road Bridge as views are currently dominated by the Forth Road Bridge and Forth Rail Bridge. For South Queensferry beach and promenade, the Main Crossing would contribute to the famous views of the Forth Road Bridge and Forth Rail Bridge, resulting in beneficial impacts of Slight significance both during the winter year of opening and the summer after 15 years. The Main Crossing would result in a more significant change to views from the open spaces within the housing estates to the west of the Forth Road Bridge, with neutral impacts ranging from Negligible to Moderate in significance, which would generally not decrease over time. For Port Edgar marina (receptor O9 on Figure 13.2b) a more significant change is predicted as the Main Crossing would be dominant in views to the west, resulting in neutral impacts of Substantial significance both during the winter year of opening and the summer 15 years after opening.
- 13.6.43 To the west of South Queensferry, a viewpoint and picnic area on Society Point at the edge of the Hopetoun Estate (receptor O19 on Figure 13.2b) has panoramic views of the Firth of Forth. The 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, reducing the significance of neutral impacts to Moderate during the winter year of opening, which would not change by the summer after 15 years. Society Road (receptors R20A to R20C), the coastal road from Hopetoun House to North Queensferry, also provides a footpath, cycleway and equestrian route along the Firth of Forth with attractive coastal views. To the west of the new crossing (R20A), the Main Crossing would cause neutral impacts of Moderate significance to views, dissipated by the backdrop of the Forth Road Bridge and Forth Rail Bridge. Section R20B, past Linn Mill, where the Forth Road Bridge and Forth Rail Bridge are partially screened by local woodland and buildings, would be crossed by the proposed Main Crossing and therefore more significantly affected by neutral impacts of Substantial significance during the winter year of opening that would not reduce over time. Views from the stretch of road within South Queensferry (receptor R20C) would be more restricted by surrounding urban development, with neutral impacts of Slight/Negligible significance resulting from visibility of the Main Crossing towers during both the winter year of opening and the summer after 15 years.
- 13.6.44 A network of informal but well-used footpaths that run around the Echline Fields to the west of South Queensferry (receptors F65A and F65B on Figure 13.2b) provide attractive views across the Firth of Forth, which are currently dominated by the Forth Road Bridge and Forth Rail Bridge. From receptor F65A, the Main Crossing would be visible in close proximity to the Forth Road Bridge and Forth Rail Bridge which would limit the significance of the change, resulting in neutral impacts of Slight/Moderate significance during both the winter year of opening and the summer after 15 years. Impacts on receptor F65B would be more significant, as the footpaths would be directly affected by the viaduct resulting in neutral impacts of Moderate significance during the winter year of opening that would not change over time.
- 13.6.45 On the A904 near Newton, a lay-by and designated viewpoint (receptor O16 on Figure 13.2b) provides scenic views across the Firth of Forth and towards the Forth Road Bridge and Forth Rail Bridge. The Main Crossing would feature distinctly in the foreground, resulting in neutral impacts of Moderate significance during the winter year of opening that would remain unchanged by the

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summer after 15 years. The Main Crossing would also be visible from the eastbound A904 beyond Newton (receptors R18A to R18D), with views partially screened in stretches by topography and existing vegetation, with neutral impacts ranging from Slight to Negligible in significance which would remain unchanged over time.

- 13.6.46 Within Dundas Estate, the towers of the Main Crossing would be visible above the estate woodland from higher ground on the Dundas Park Golf Course (receptor O13 on Figure 13.2b). This would not represent a significant change to views due to the close proximity of the Forth Road Bridge towers, resulting in neutral impacts of Negligible significance both during the winter year of opening and the summer after 15 years.
- 13.6.47 Limited views of the towers of the Main Crossing beside the Forth Road Bridge and Forth Rail Bridge would also occur on the A8000, M9 Spur and adjacent footpaths and minor roads, with impacts being assessed as neutral and ranging from Slight/Negligible to Negligible in significance at winter year of opening and the summer after 15 years.

#### Wider Study Area (35km)

- 13.6.48 Outwith the main study area, the visual envelope of the Main Crossing would extend across the wider landscape to distant viewpoints in Edinburgh, Dunfermline and Kincardine and beyond to the Ochil, Lomond, Pentland and Moorfoot Hills, in clear conditions as shown on Figure 13.13.
- 13.6.49 Visibility of the east of the Main Crossing would extend across the northern shore of the Firth of Forth to the settlements at Aberdour, Burntisland and Kinghorn with the undulating coastal topography would help to screen views further east at Kirkcaldy, Buckhaven and Leven. The Main Crossing would also be visible from the western side of Inchcolm Island, with views from Inchcolm Abbey likely to be well screened by the local topography. However, due to the visual dominance of the Forth Rail Bridge in the foreground and the distance from the Main Crossing, the views of the towers would not represent a discernible change and have therefore not been assessed. On the southern shore of the Firth of Forth, the Main Crossing would potentially be visible from many of the settlements on the coast, such as Leith, Musselburgh, Cockenzie and Aberlady, but it is considered unlikely that there would be any discernible impact on views.
- 13.6.50 To the west of the study area, Blackness Castle and the House of the Binns tower would see the Main Crossing in views to the east. However, the backdrop of the more substantial structure of the Forth Rail Bridge and the distance would prevent significant change to views or discernible impacts. Further to the west, views would be available along the Firth of Forth from Charlestown, the coastal areas of Bo'ness and from the area to the south of Kincardine. However, as the views would be very distant and set against the backdrop of the more substantial structure of the Forth Rail Bridge, it would not represent a notable change and has therefore not been assessed. Inland from the Firth of Forth, views of the Main Crossing would generally be limited by the rising topography of the landform around the Forth estuary, although they would potentially extend to Falkirk, Stirling and the edge of the Bridge of Allan, with further views across Denny and along the River Carron.
- 13.6.51 Views to the north of the Firth of Forth would generally be limited by the rising topography of Dunfermline and the surrounding landform, although views would be available from scattered areas of high ground around Glenrothes, Kelty and the Ochil Hills. The Main Crossing would be very distant in views and would be situated in close proximity to the Forth Road Bridge and Forth Rail Bridge and would therefore not represent a significant change.
- 13.6.52 The wider area ZTV indicates that views would extend to the south of the Firth of Forth over parts of Broxburn, Livingston and the majority of the A71 road corridor. The Main Crossing would also be visible from the north facing slopes of the Pentland Hills, although there would be unlikely to be any discernible impact for these areas. The topography of the Pentland Hills would help to restrict further views to the south.

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- 13.6.53 The Main Crossing would also be visible in distant views from parts of Edinburgh, with views generally restricted to elevated open spaces, such as Arthur's Seat, beside Edinburgh Castle and parts of the New Town. No significant change to views would be anticipated due to the distance from the receptors and the proximity of the Main Crossing to the Forth Road Bridge and Forth Rail Bridge.

#### **Northern Route**

- 13.6.54 ITS gantries and lighting outwith the highway works for the proposed scheme would be introduced north of the proposed scheme on the M90 between Admiralty Junction to Halbeath.
- 13.6.55 The proposed scheme would be online between Fairy Kirk hill and Ferrytoll, from where it would continue south by viaduct to join the north landing of the Main Crossing. This would not represent a significant change for most views.

#### Built Receptors

- 13.6.56 The following descriptions summarise key residual impacts for dwellings and settlement areas affected by the northern route, which are illustrated on Figure 13.6. For detailed information on all assessed receptors refer to Appendix A13.3.
- 13.6.57 North of the proposed scheme, the majority of proposed lighting and ITS gantries on the M90 from Admiralty Junction to Halbeath Junction would not affect the views of properties in the vicinity of the road due to the screening of the rolling landform and the existing woodland, although two receptor groups in the Crossgates settlement (receptors 21-RN and 22-RN on Figure 13.6a) would gain views of the new lighting at the approach to Halbeath Junction, resulting in impacts of Negligible and Slight/Negligible significance both during the winter year of opening and by the summer after 15 years.
- 13.6.58 The majority of receptors affected by the proposals would be situated at the edge of Inverkeithing on Fairy Kirk hill and Muckle Hill, for properties which currently overlook the existing A90 and the rock cuttings adjacent to the carriageway. The most significantly affected receptor in the area would be on Whinnyhill Crescent, where receptor 3-RN (Figure 13.6c) would receive impacts of Substantial significance during the winter year of opening as a result of the revisions to Ferrytoll Junction and views of the north viaduct. By the summer after 15 years the proposed mitigation planting around the junction would help to reduce residual impacts to Moderate significance. Impacts for nearby receptors 1-RN, 2-RN and 4-RN would range from Moderate to Slight significance during the winter year of opening due to the loss of existing vegetation to create new rock cuttings. By the summer after 15 years, impacts for receptor 4-RN would reduce to Slight/Moderate significance due to the screening provided by mitigation planting, while impacts for receptors 1-RN and 2-RN would not change.
- 13.6.59 Residual impacts for housing at Muckle Hill Park (receptors 5-RN to 11-RN on Figure 13.6c) would generally not be significant, with impacts during the winter year of opening ranging from Moderate to Negligible, with receptors 7-RN and 11-RN receiving the most significant impacts as their more elevated positions would allow views along the carriageway towards Ferrytoll Junction. By the summer after 15 years proposed mitigation planting around the junction and along the new cuttings would reduce impacts for the receptors to Slight to Negligible in significance.
- 13.6.60 At the eastern edge of Rosyth, a number of properties near the A90/M90 would receive minor impacts due to the clearance of existing vegetation on Fairy Kirk hill for the upgraded slip roads to the Admiralty Junction. Dwellings on Castlandhill Road and Hillwood Terrace (receptor 13-RN on Figure 13.6b) would receive impacts of Slight/Moderate significance at winter year of opening, with long term impacts reducing to Negligible due to the natural weathering of the rock cuttings and the development of mitigation planting adjacent to the diverge slip road.

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- 13.6.61 The existing A90 currently represents a significant adverse feature in views from properties on Castlandhill, which limits the significance of change to views from the proposed scheme. However, the elevated position of these properties would enable views of the redesigned Ferrytoll Junction and the northern viaduct to the Main Crossing. The altered landform and rock cuttings would affect views from Castlandhill Farm (receptor 16-RN) and the Lothians View terrace (receptor 17-RN on Figure 13.6b) with Slight/Moderate impacts at winter year of opening. The grouping and density of the existing trees around receptor 16-RN allows filtered views to the south in the winter but provides a dense screen in summer. This would reduce impacts to Slight significance during the summer after 15 years, while impacts for 17-RN would remain unchanged by the summer after 15 years.
- 13.6.62 To the west of North Queensferry, the Dunfermline WWTW (receptor 19-RN on Figure 13.6b) overlooks the Firth of Forth and would be located close to the proposed scheme. While the viaduct would be visible from the facility and the realignment of the B981 would remove some of the scrub vegetation around the perimeter of the site, the low sensitivity of this receptor would limit impacts during the winter year of opening to Moderate in significance, which would reduce to Slight in significance by the summer after 15 years following the development of the mitigation planting.
- 13.6.63 At the edge of Admiralty House Estate, the Lodge House (receptor 20-RN on Figure 13.6b) would be significantly affected by construction of the new viaduct, revised B981 and the loss of existing woodland within the estate. The receptor would be positioned very close to the viaduct, which would result in impacts of Substantial/Severe significance that would not reduce over time.
- 13.6.64 The north viaduct would also be visible from several of the properties in the Linn Mill settlement on the south side of the Firth of Forth. However, as the majority of the road would be screened by the wooded hillside around Admiralty House and the visible section would represent a very small element of a panoramic view and be in a similar position to the visible traffic on the existing A90, the proposals would not represent a discernible change to views and have not been assessed.

#### Outdoor Receptors

- 13.6.65 The following descriptions summarise the key residual impacts on outdoor spaces, footpaths, cycleways, equestrian routes and roads, which are shown on Figure 13.5. For detailed information on all assessed receptors refer to Appendix A13.4.
- 13.6.66 The construction of the new southbound diverge slip road at the revised Ferrytoll Junction would require a new rock cutting at Muckle Hill, which would have a direct impact on Hope Street Cemetery (receptor O11-RN on Figure 13.5), requiring the demolition of the boundary wall and the partial felling of some established trees that currently screen the existing road cutting. The removal of the trees would result in an impact of Slight significance during both the winter year of opening and the summer after 15 years.
- 13.6.67 The elevated right of way crossing Castlandhill (receptors F4A-RN and F4B-RN on Figure 13.5) has attractive views of the surrounding area. The online section of the proposed scheme would not represent a significant change to views, but the revised Ferrytoll Junction and northern viaduct would impact on views towards the Firth of Forth, with Moderate significance for both sections of the path during the winter year of opening. Mitigation planting and existing local vegetation would help to provide screening for both receptors, which would reduce impacts to Slight/Moderate significance by the summer after 15 years. A second right of way, located in the valley between Castlandhill and Whinny Hill (receptor F3-RN) would also be affected by the revised Ferrytoll Junction, but its reduced elevation would limit impacts during the winter year of opening to Slight/Moderate significance. By the summer after 15 years the development of the proposed mitigation planting would increase the screening of the junction and soften the appearance of the rock cuttings and reduce residual impacts to Slight significance.
- 13.6.68 The northern viaduct would be visible to the east from Ferry Toll Road (receptors C5-RN and R6-RN on Figure 13.5). Although existing views are adversely affected by the existing A90 and

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WWTW, the proposed scheme and associated loss of woodland above St. Margaret's Marsh would result in impacts of Moderate significance for both receptors during the winter year of opening. By the summer after 15 years, mitigation planting would provide screening for receptor C5-RN and reduce impacts to Slight/Moderate significance, while impacts for R6-RN would remain the same.

- 13.6.69 At Ferrytoll Junction, views from the realigned roads, footpaths and cycleways (receptor R7-RN on Figure 13.5) would be dominated by the northern viaduct, with impacts of Moderate/Substantial significance during the winter year of opening. By the summer after 15 years, the establishment of mitigation planting would soften the appearance of the junction and viaduct, reducing impacts to Moderate. The realignment of the B981 into North Queensferry (receptor R8-RN) 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, resulting in impacts of Moderate/Substantial significance during the winter year of opening. While the development of the proposed mitigation planting by the summer 15 years after opening would help to screen the WWTW and soften the appearance of the proposed scheme, residual impacts on the receptor would not change.
- 13.6.70 From the footpath and cycleway crossing St. Margaret's Marsh, the northern viaduct would result in a significant change to views. Views from the coastal section of the path to the west of the WWTW (receptor F10A-RN on Figure 13.5) are currently adversely affected by the existing A90 and the WWTW, which limit the sensitivity of the receptor. The introduction of the viaduct and realigned B981 would cause impacts of Slight significance during the winter year of opening which would not change over time. Receptor F10B-RN would have a more noticeable change to views due its proximity to the new B981, which would result in impacts of Moderate significance for both during the winter year of opening and the summer after 15 years. Section F10C-RN of the footpath, which connects the coastal path to the B981, would be realigned as a result of the scheme, and would be diverted around the proposed detention basin before it connects to the new B981. During the winter year of opening, views for the path beneath the viaduct would be affected by impacts of Moderate/Substantial significance. The development of the proposed mitigation planting around the footpath by the summer after 15 years would help to soften the appearance of the embankments and cuttings for the road and would reduce the visibility of the viaduct and the resulting impacts to Moderate significance.
- 13.6.71 The viaduct for the northern road would also be visible from sections of the A904 and Society Road on the southern side of the Firth of Forth. However, the proposed scheme would not represent a discernible change to views, so has not been assessed.

#### **Southern Route**

- 13.6.72 ITS gantries and lighting outwith the highway works for the proposed scheme would be introduced on the M9 Spur, which links the offline and online sections of the southern route.
- 13.6.73 The proposed scheme would run south from the landing of the Main Crossing to the west of South Queensferry, crossing the A904 and passing to the south of the town to connect with the existing A90 and M9 Spur. A new junction with the realigned A904 would provide access to South Queensferry and the surrounding area.
- 13.6.74 M9 Junction 1A would also be upgraded to provide improved access between the M9 and M9 Spur.

#### Built Receptors

- 13.6.75 The following descriptions summarise key residual impacts for dwellings and settlement areas. For detailed information on all assessed receptors refer to Appendix A13.5. The receptors are illustrated on Figures 13.8a to 13.8c.
- 13.6.76 At the western edge of South Queensferry, the proposed scheme would be located in cutting to pass under the A904 before returning to grade to connect with the south bridge landing. The

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proposed scheme would represent a significant change to the rural views from dwellings at Springfield Lea on the western edge of the settlement (receptors 1-RS to 3-RS on Figure 13.8b), with impacts during the winter year of opening ranging from Substantial/Severe to Substantial significance. By the summer after 15 years, impacts would reduce to either Substantial or Moderate/Substantial significance due to the increased screening provided by the proposed mitigation planting along the bridge embankments and false cutting.

- 13.6.77 A number of properties situated along the western edge of South Queensferry on Springfield Place, Springfield Terrace and Springfield Crescent, would also gain views of the road as it passes to the west. Views of the road would be largely screened by the depth of the cutting and the rolling landform of the fields, which would be enhanced by the false cutting adjacent to the road. Impacts for the majority of affected properties would range from Moderate to Slight/Negligible in significance during the winter year of opening, due to the limited views available between buildings. However, for receptors 9-RS, 10-RS, 12-RS and 13-RS (Figure 13.8b) the proposed scheme would significantly alter views from the properties, resulting in impacts of Substantial/Severe significance for receptor 10-RS, Substantial significance for receptor 9-RS and Moderate/Substantial significance for receptors 12-RS and 13-RS. By the summer after 15 years significance of impacts on receptor 10-RS would reduce to Substantial, with receptors 12-RS and 13-RS reducing to Moderate due to the screening provided by proposed mitigation planting. Impacts on receptor 9-RS would not change over time.
- 13.6.78 At the southwestern corner of South Queensferry, a number of properties around Echline Drive would receive minor impacts from the southern route, although views would be partially screened by the rolling topography of the adjacent farmland. Impacts from views of traffic on the proposed M90 would be offset by existing traffic on Bo'ness Road in the foreground and the screening provided by the false cutting. Receptors 24-RS, 25-RS, 26-RS and 31-RS on Figure 13.8a would all receive impacts of Moderate significance during the winter year of opening. By the summer after 15 years, screening provided by proposed mixed woodland would reduce the significance of impacts on receptor 24-RS to Slight and 31-RS to Slight/Moderate, while impacts on receptors 25-RS and 26-RS would remain the same. Views of the existing A904 from receptor group 34-RS on Echline Drive are currently partially screened by a mound in the centre of the existing junction between the A904 and Bo'ness Road. The revised layout of Bo'ness Road would move the road closer to the properties and remove several existing trees currently providing screening for the dwellings. A false cutting adjacent to the southbound diverge slip road would help to provide some screening during the winter year of opening, but the more exposed view of the local road and the elevated position of the Queensferry Junction would result in impacts of Moderate/Substantial significance during the winter year of opening. The development of the proposed mitigation planting on the false cutting would help to screen views of the junction, which would reduce impacts to of Moderate significance by the summer 15 years after opening.
- 13.6.79 On Builyeon Road (A904), Echline Farmhouse (receptor 37-RS) would receive significant impacts from the proposed scheme, with two adjacent properties (receptors 35-RS and 36-RS) receiving less significant impacts (Figure 13.8a). The proposed scheme would be largely screened by the cutting and undulating topography of the surrounding farmland for receptors 35-RS and 36-RS, with impacts further offset by the A904 in the foreground. Impacts would be of Moderate and Slight/Moderate significance respectively during the winter year of opening, with impacts for receptor 35-RS reducing to Slight significance by the summer after 15 years due to the screening provided by proposed mitigation planting. Impacts for receptor 36-RS would remain the same. However, for Echline Farmhouse the proposed scheme would be visible from three sides of the house. The front of the house would gain views towards the elevated carriageway at the edge of the Dundas Estate. Views from the side of the house are partially screened by the rolling farmland in the foreground, although the introduction of a new VMS sign on the A904 adjacent to the property would alter views. From the back of the house, the upstairs rooms would gain views over the adjacent rooftops to the proposed Queensferry Junction and associated slip roads, which would result in overall impacts of Substantial significance during the winter year of opening. The grouping and density of the existing mature trees around the house allows filtered views in winter but provides significant screening in summer, which would reduce impacts to Moderate/Substantial significance by the summer after 15 years. Two properties on Echline Drive (receptor 39-RS) would

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glimpse the proposed scheme, including the VMS sign on the A904, through the trees around the Echline Farmhouse, resulting in impacts of Moderate significance during the winter year of opening which would be reduced to Slight significance by the summer after 15 years by the dense seasonal screening provided by the existing trees.

- 13.6.80 Receptors at the edge of the Echline housing area (receptors 43-RS to 47-RS on Figure 13.8b) would receive minor visual impacts on views from upper floors due to the visibility of the proposed scheme as it runs along the northern edge of the Dundas Estate on embankment. Impacts during the winter year of opening would range from Slight/Moderate to Slight significance and would not reduce over time. The proposed scheme would also be visible from the Premier Inn (receptor 75-RS) adjacent to the existing A90 Junction at South Queensferry, although impacts would be limited to Slight/Moderate significance during the winter year of opening as existing views are already influenced by the existing A90. By the summer 15 years after opening the significance of impacts would reduce to Slight due to the development of the proposed mitigation planting.
- 13.6.81 To the west of South Queensferry, receptors in Linn Mill would overlook the proposed scheme as it crosses the Echline Fields. Receptor group 58-RS (Figure 13.8a) would receive impacts of Moderate significance during the winter year of opening due to their views of the earthworks for the road, which would reduce to Slight/Moderate significance by the summer after 15 years as a result of the development of the proposed planting around the detention basin. Impacts would be greater for receptor group 59-RS due to their 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, resulting in impacts of Moderate/Substantial significance during the winter year of opening. The density and grouping of the existing trees around the properties allows filtered views to the south in the winter but provide significant screening during the summer, which would supplement the screening provided by the proposed mitigation planting to reduce impacts during the summer after 15 years to Moderate significance. The elevated location of Inchgarvie House (receptor 61-RS) would enable the upper floors of the property to view the proposed scheme on embankment as it approaches the south landing of the Main Crossing. The abutment for the Main Crossing would require the partial felling of the established boundary woodland, resulting in impacts of Moderate/Substantial significance due to the visibility of the vehicles, lighting and gantries. Impacts would reduce to Moderate significance by the summer after 15 years as a result of the development of proposed mitigation planting.
- 13.6.82 For receptors 62-RS to 66-RS (Figure 13.8b) in the Ferry Muir industrial park at the southern edge of South Queensferry, the proposed scheme would not represent a significant change to views due to the views of the existing road. Changes to views from many of the west facing rooms in the Dakota Hotel (receptor 62-RS) of the carriageway passing the northern edge of the Dundas Estate would result in impacts of Moderate significance during the winter year of opening, which would not reduce over time.
- 13.6.83 The proposed scheme would require the partial felling of the Echline Strip as it runs to the north of the Dundas Estate, which would have impacts of Substantial significance for Blue Acre within the estate (receptor 51-RS on Figure 13.8f) during the winter year of opening. Screening by mitigation planting would reduce impacts to Moderate significance by the summer after 15 years. At the edge of Dundas Estate, White Lodge (receptor 70-RS on Figure 13.8a) would have views from the side of the house across rolling farmland towards the Queensferry Junction and the proposed scheme as it passes the northern edge of the Dundas Estate on embankment. Views from the property along the carriageway and towards the lighting, gantries and the structures for Queensferry Junction would result in impacts of Moderate/Substantial significance during the winter year of opening. The existing mature trees and hedges around the property provide partial screening in winter and increased screening during the summer, which would reduce impacts during the summer after 15 years to Slight/Moderate significance.
- 13.6.84 To the west of Dundas Estate, views of the proposed scheme from Baronscraig and Holly Cottages (receptor 49-RS on Figure 13.8e) would be partially screened by local topography, which would limit impacts in both the winter year of opening and summer after 15 years to Slight/Moderate in significance.

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- 13.6.85 The property of Lawflat (receptor 50-RS on Figure 13.8a), located on higher ground to the west of Dundas Estate, would have views of the proposed Queensferry Junction with the A904 and the proposed scheme passing the edge of the Dundas Estate. Existing views from the property are affected by the existing A904, which would limit impacts to Slight/Moderate in significance during the winter year of opening. The density and grouping of the existing mature avenue trees around the property allows views out in the winter but provides significant screening during the summer, reducing impacts to Slight significance in the summer after 15 years.
- 13.6.86 The Queensferry Junction and the section of the proposed scheme crossing the Echline Fields would also be visible from properties north of the Firth of Forth on Castlandhill and near Ferry Toll Road, at the southern edge of Rosyth, although there would be no discernible impact on views due to the distance from the receptors.
- 13.6.87 At the northern edge of Dundas Estate, visual impacts for the cluster of dwellings at Dundas Home Farm (receptors 53-RS to 57-RS on Figure 13.8b) would generally be significant due to their proximity to the new road. The introduction of the proposed scheme would require the partial clearance of a mature woodland shelterbelt adjacent to the properties, causing impacts of Substantial/Severe significance for receptor 56-RS, Substantial significance for receptors 54-RS and 57-RS and Moderate/Substantial significance for receptor 53-RS. By the summer 15 years after opening, impacts would reduce to between Moderate and Substantial in significance due to the proposed mitigation planting. Dundas Home Farm (receptor 55-RS) would not be significantly affected by visual impacts from the proposed scheme, as it would be well screened by the false cutting and noise barrier adjacent to the road and by the adjacent buildings and mature estate trees and walls around the property boundary. This would result in impacts of Slight/Negligible significance during the winter year of opening which would reduce to Negligible by the summer after 15 years due to the proposed mitigation planting adjacent to the road. Dundas Castle itself would be largely screened from views of the proposed scheme by the existing estate woodland around the northern boundary, with none of the rooms gaining views. However, the viewing platform at the top of the castle's tower, which has private access but provides panoramic views towards the Firth of Forth, would gain views of the Queensferry Junction and the road as it runs north from the estate. This would result in impacts of Moderate/Substantial significance during the winter year of opening that would not reduce over time.
- 13.6.88 To the north of M9 Junction 1A, Humble Farm and Wester Humble (receptor 68-RS on Figure 13.8c) would receive impacts of Moderate significance during the winter year of opening due to the loss of existing vegetation around M9 Junction 1A. By the summer 15 years after opening, impacts would reduce to Slight significance as a result of the screening provided by the development of the proposed mitigation planting along the embankments and around the detention basin. For Humble Cottages (receptor 69-RS) the loss of existing vegetation around the M9 Junction 1A would represent a minor change to the views, although the majority of the changes would be screened by the rolling farmland adjacent to the dwellings. However, the properties would receive impacts of Slight/Negligible significance both during the winter year of opening and the summer after 15 years due to the introduction of a gantry over the southbound M9 Spur as it approaches M9 Junction 1A.
- 13.6.89 In the area around Kirkliston, the visual impact of the revised M9 Junction 1A would be limited to several nearby properties by surrounding topography and the embankments of the M9 Spur. Existing views from Burnbank and Overton Cottages (receptor 67-RS on Figure 13.8c) are dominated by the embankments of the M9. The westbound merge slip road for the revised junction would be visible from the dwellings, but would not represent a significant change to views, with the main impacts arising from the loss of established vegetation around the junction and the introduction of new signage and ITS for the junction, resulting in impacts of Negligible significance both during the winter year of opening and summer after 15 years.

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#### Outdoor Receptors

- 13.6.90 The following descriptions summarise key residual impacts on outdoor spaces, footpaths, cycleways, equestrian routes and roads, which are illustrated on Figure 13.7. For detailed information on all assessed receptors refer to Appendix A13.6.
- 13.6.91 Within South Queensferry, the majority of public spaces and footpaths would not have views of the proposed scheme. The only receptor with views would be O1-RS, on Figure 13.7, a small public open space beside Springfield Place at the western edge of the town. Views of the carriageway would be largely screened by the false cutting adjacent to the road, but the obstruction to views, the visual impact of the lighting and gantries along the road and the distant views of the Queensferry Junction to the southwest would represent a significant change. However, the low sensitivity of the receptor would limit the significance of impact to Moderate in both the winter year of opening and summer after 15 years.
- 13.6.92 To the west of the town, a network of informal but well-used paths around the edges of the Echline Fields adjacent to South Queensferry (receptors F8A-RS and F8B-RS on Figure 13.7) gain attractive views over the Firth of Forth due to their position on the hillside. Following completion of the proposed scheme, the paths would be realigned to pass beneath the Main Crossing, as explained in Chapter 17 (Pedestrians, Cyclists and Equestrians and Community Effects). The more elevated position of receptor F8A-RS would result in more significant impacts, with views of the proposed scheme from the Queensferry Junction to the start of the Main Crossing. The remaining sections of paths around the field would receive impacts of Moderate significance during the winter year of opening, which would be reduced to Slight/Moderate significance by the summer after 15 years following the development of the proposed mitigation planting. The significance of impacts on receptor F8B-RS would be limited to Slight/Moderate during the winter year of opening, as the majority of the proposed scheme would be screened from view by the rising topography of the hillside. By the summer after 15 years, impacts would reduce to Slight significance due to the development of the proposed mitigation planting, particularly around the detention basin.
- 13.6.93 From the A904 to the west of South Queensferry between Headrig Road and the end of Bo'ness Road (receptor R4A-RS on Figure 13.7), the rolling topography of the area would limit the significance of impacts to Slight/Moderate for both the winter year of opening and summer after 15 years, with views of Queensferry Junction and the proposed scheme passing the edge of Dundas Estate. 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, with impacts of Moderate significance during the winter year of opening that would not reduce over time.
- 13.6.94 The Queensferry Junction and the section of the road crossing the Echline Fields would also be visible from the footpaths on Castlandhill and Ferry Hills, as well from sections of Ferry Toll Road, Castlandhill Road and the new access road into the Rosyth Europarc, although there would be no discernible impact on views due to the distance from the receptors.
- 13.6.95 To the west of Kirkliston, impacts for views from the right of way from Swineburn Wood (receptor F2-RS on Figure 13.7) and the B9080 between the M9 and Humbie Farm shelterbelt (receptor F3A-RS) from the revised eastbound link at M9 Junction 1A would be Negligible, as the proposed scheme would be seen against the backdrop of the existing M9 Spur embankments. Between the shelterbelt at Humbie Farm and the M9 Spur (receptor F3B-RS), users of the B9080 would notice a minor change to views due to the loss of the existing vegetation around the junction, resulting in impacts of Slight significance during the winter year of opening which would reduce to Slight/Negligible in significance following the development of the proposed mitigation planting.
- 13.6.96 Between Ross Plantation and Niddry Burn, travellers on the M9 (receptor R6-RS on Figure 13.7) would gain views of the revised M9 Junction 1A, with impacts resulting from the loss of existing vegetation and the introduction of gantries and lighting around the junction. During the winter year of opening, this section of the M9 would be subject to impacts of Slight/Negligible significance,

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which would be reduced to Negligible in significance by the summer after 15 years by development of the proposed mitigation planting. Similar impacts would affect the views from the M9 Spur between the edge of Dundas Estate and M9 Junction 1A (receptor R7-RS).

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**Table 13.5: Impacts of the Main Crossing**

Total Built Receptors (as individual properties) = 3095  
Total Outdoor Receptors = 101

Receptor Type	Severe		Substantial/Severe		Substantial		Moderate/Substantial		Moderate	
	Winter Yr of Opening (2017)	Summer 15 Yrs after Opening (2032)	Winter Yr of Opening (2017)	Summer 15 Yrs after Opening (2032)	Winter Yr of Opening (2017)	Summer 15 Yrs after Opening (2032)	Winter Yr of Opening (2017)	Summer 15 Yrs after Opening (2032)	Winter Yr of Opening (2017)	Summer 15 Yrs after Opening (2032)
Built	11	11	2	2	11	11	1	1	3	3
Outdoor	0	0	0	0	0	0	0	0	0	0

Receptor Type	Slight/Moderate		Slight		Slight/Negligible		Negligible		Major neutral	
	Winter Yr of Opening (2017)	Summer 15 Yrs after Opening (2032)	Winter Yr of Opening (2017)	Summer 15 Yrs after Opening (2032)	Winter Yr of Opening (2017)	Summer 15 Yrs after Opening (2032)	Winter Yr of Opening (2017)	Summer 15 Yrs after Opening (2032)	Winter Yr of Opening (2017)	Summer 15 Yrs after Opening (2032)
Built	3	3	0	0	0	0	0	0	0	0
Outdoor	0	0	0	0	0	0	0	0	0	0

Receptor Type	Substantial/Major neutral		Substantial neutral		Moderate/Substantial neutral		Moderate neutral		Slight/Moderate neutral	
	Winter Yr of Opening (2017)	Summer 15 Yrs after Opening (2032)	Winter Yr of Opening (2017)	Summer 15 Yrs after Opening (2032)	Winter Yr of Opening (2017)	Summer 15 Yrs after Opening (2032)	Winter Yr of Opening (2017)	Summer 15 Yrs after Opening (2032)	Winter Year of Opening (2017)	Summer 15 Yrs after Opening (2032)
Built	0	0	13	13	37	35	171	169	211	181
Outdoor	0	0	3	3	4	4	18	16	12	10

Receptor Type	Slight neutral		Slight/Negligible neutral		Negligible neutral		Slight beneficial	
	Winter Yr of Opening (2017)	Summer 15 Yrs after Opening (2032)	Winter Yr of Opening (2017)	Summer 15 Yrs after Opening (2032)	Winter Yr of Opening (2017)	Summer 15 Yrs after Opening (2032)	Winter Yr of Opening (2017)	Summer 15 Yrs after Opening (2032)
Built	347	268	286	258	1978	2165	14	14
Outdoor	19	16	13	15	30	35	1	1

Note: A single built receptor may comprise multiple properties.

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**Table 13.6: Impacts of Northern Route**

Total Built Receptors (as individual properties) = 106

Total Outdoor Receptors = 15

Receptor Type	Severe		Substantial/Severe		Substantial		Moderate/Substantial		Moderate	
	Winter Yr of Opening (2017)	Summer 15 Yrs after Opening (2032)	Winter Yr of Opening (2017)	Summer 15 Yrs after Opening (2032)	Winter Yr of Opening (2017)	Summer 15 Yrs after Opening (2032)	Winter Yr of Opening (2017)	Summer 15 Yrs after Opening (2032)	Winter Yr of Opening (2017)	Summer 15 Yrs after Opening (2032)
<b>Built</b>	0	0	1	1	6	0	0	0	10	6
<b>Outdoor</b>	0	0	0	0	0	0	3	1	5	4

Receptor Type	Slight/Moderate		Slight		Slight/Negligible		Negligible	
	Winter Yr of Opening (2017)	Summer 15 Yrs after Opening (2032)	Winter Yr of Opening (2017)	Summer 15 Yrs after Opening (2032)	Winter Yr of Opening (2017)	Summer 15 Yrs after Opening (2032)	Winter Yr of Opening (2017)	Summer 15 Yrs after Opening (2032)
<b>Built</b>	22	21	9	12	5	12	53	65
<b>Outdoor</b>	2	3	3	3	1	3	1	1

Note: A single built receptor may comprise multiple properties.

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**Table 13.7: Impacts of Southern Route**

Total Built Receptors (as individual properties) = 313  
 Total Outdoor Receptors = 15

Receptor Type	Severe		Substantial/Severe		Substantial		Moderate/Substantial		Moderate	
	Winter Yr of Opening (2017)	Summer 15 Yrs after Opening (2032)	Winter Yr of Opening (2017)	Summer 15 Yrs after Opening (2032)	Winter Yr of Opening (2017)	Summer 15 Yrs after Opening (2032)	Winter Yr of Opening (2017)	Summer 15 Yrs after Opening (2032)	Winter Yr of Opening (2017)	Summer 15 Yrs after Opening (2032)
<b>Built</b>	0	0	14	0	11	20	31	5	33	38
<b>Outdoor</b>	0	0	0	0	0	0	0	0	4	3

Receptor Type	Slight/Moderate		Slight		Slight/Negligible		Negligible	
	Winter Yr of Opening (2017)	Summer 15 Yrs after Opening (2032)	Winter Yr of Opening (2017)	Summer 15 Yrs after Opening (2032)	Winter Yr of Opening (2017)	Summer 15 Yrs after Opening (2032)	Winter Yr of Opening (2017)	Summer 15 Yrs after Opening (2032)
<b>Built</b>	34	30	65	31	106	98	19	91
<b>Outdoor</b>	2	2	1	1	6	5	2	4

Note: A single built receptor may comprise multiple properties.

### **Summary of Residual Impacts**

#### Main Crossing

- 13.6.97 The Main Crossing would be visible from a wide area including many of the small coastal settlements along the Firth of Forth such as Aberdour and Burntisland, distant viewpoints in Edinburgh, Dunfermline and Kincardine and the Ochil, Lomond, Pentland and Moorfoot Hills, in clear conditions.
- 13.6.98 From a total of 3095 properties and 101 outdoor receptors assessed, 28 properties would be affected by impacts of Moderate to Severe significance. No outdoor receptors would be affected by significant impacts.
- 13.6.99 Aesthetics are a major consideration in the design of the Main Crossing with 217 properties and 23 outdoor receptors affected by neutral impacts of Moderate to Substantial significance and the majority of receptors, receiving neutral impacts of Negligible significance.
- 13.6.100 The transfer of traffic from the Forth Road Bridge to the Main Crossing would result in beneficial impacts of Slight significance for 14 properties. The Main Crossing would also represent a beneficial change for one outdoor receptor, by complementing views currently dominated by the Forth Road Bridge and Forth Rail Bridge.

#### Northern Route

- 13.6.101 ITS gantries and lighting would be introduced north of the proposed scheme on the M90 between Admiralty junction to Halbeath, but the majority of the northern route would be constructed online between Fairy Kirk hill and Ferrytoll, from where it would continue south by viaduct, which would be partially screened by local topography, to join the north landing of the Main Crossing.
- 13.6.102 From a total of 106 properties and 15 outdoor receptors, 17 properties would be affected by impacts of Moderate to Substantial/Severe significance and eight outdoor receptors would be affected by impacts of Moderate to Moderate/Substantial to significance in the winter, year of opening.
- 13.6.103 Mitigation to reduce visual impacts includes formation of new rock cuttings to achieve a natural appearance, provision of a noise barrier and planting mixed or scrub woodland to provide integration and screening.
- 13.6.104 By the summer, 15 years after scheme opening, increased screening from matured mixed and scrub woodland would reduce the number of properties affected by impacts of Substantial/Severe to Moderate significance to seven and outdoor receptors affected by impacts of Moderate Moderate/Substantial significance to five.

#### Southern Route

- 13.6.105 The southern route would continue offline from the Main Crossing across rolling farmland to the west and south of South Queensferry, passing the edge of Dundas Estate, to connect with the existing A90 and M9 spur. M9 Junction 1A would be upgraded to provide improved access between the M9 and M9 Spur, where ITS gantries and lighting would be introduced outwith the highway works for the proposed scheme.
- 13.6.106 From a total of 313 properties and 15 outdoor receptors, 89 properties would be affected by impacts of Substantial/Severe to Moderate significance and four outdoor receptors properties would be affected by impacts of Moderate significance in the winter, year of scheme opening.
- 13.6.107 Mitigation to reduce visual impacts includes integration of the alignment and earthworks with the surrounding topography, provision of false cuttings, stone walls and noise barriers and planting

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mixed or scrub woodland, hedges and standard trees to reflect existing boundaries and/or provide screening.

- 13.6.108 By the summer, 15 years after opening, increased screening from matured mixed and scrub woodland, hedges and standard trees would reduce the number of properties affected by impacts of Moderate to Substantial significance to 63 and the number of outdoor receptors affected by impacts of Moderate significance to three.

## 13.7 Ongoing Design Development

### Alternative Construction Compound

- 13.7.1 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.

- 13.7.2 This alternative site would not alter the assessment provided in this chapter, as visual impacts during construction are considered separately in Chapter 19 (Disruption Due to Construction).

### Ferry Hills Rock Cuts

- 13.7.3 The proposed scheme design as assessed in this chapter includes significant rock cuts to the north and south of Ferrytoll Junction. Detailed design may allow these rock cuts to be avoided or reduced. Design development indicates that there could be potential for a westward shift of the proposed scheme alignment of up to approximately 15m between approximate chainage ch7500-7800 (southwest of Jamestown) and ch8150-8500 (west of Hope Street Cemetery) to allow the rock cuts to be avoided.

- 13.7.4 Environmental review of this refinement indicates that this could reduce adverse impacts associated with the rock cuts without materially increasing other environmental effects. If this option were taken forward the amended alignment may slightly reduce visual impacts for the following receptors:

- Hope Street Cemetery, receptor O11-RN;
- Properties at the edge of Inverkeithing on Fairy Kirk Hill (receptors 1-RN to 4-RN and 5-RN to 11-RN);
- Dwellings on Castlandhill Road and Hillwood Terrace (receptor 13-RN), Castlandhill Farm (receptor 16-RN) and the Lothians View terrace (receptor 17-RN);
- Footpath between Castlandhill and Whinny Hill (receptor F3-RN); and
- St Margaret's Marsh footpath (receptors F10A-RN to F10C-RN).

- 13.7.5 However the overall significance of residual impact on these receptors would remain as assessed in this chapter.

## 13.8 References

Highways Agency et al. (1993). Design Manual for Roads and Bridges (DMRB), Vol.11, Landscape & Visual Assessment. Section 3, Part 5. The Highways Agency, Scottish Executive Development Department, The National Assembly for Wales and The Department of Regional Development Northern Ireland.

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