

# Appendix 8

## *Supporting Chapter 8 – Landscape and Visual Effects*

Appendix 8.1 – Visualisation Production Methodology

Appendix 8.2 – Landscape Character Assessment Tables

Appendix 8.3 – Visual Assessment Tables

Appendix 8.4 – Landscape Objectives

## Appendix 8.1 Visualisation Production Methodology

### Introduction

Photomontages of the Proposed Scheme have been produced from three of the representative viewpoints to support the landscape and visual assessment and give an indication of how the Proposed Scheme would fit into the landscape and views. This appendix provides an overview of the methodology used to produce the photomontages and outlines the limitations to their use.

This methodology used has been developed with reference to and in accordance with Landscape Institute Advice Note 01/11: Photography and photomontage in landscape and visual impact assessment.

### Objectives

The overall aim of a photomontage is to represent both the landscape context under consideration and the proposed development, as accurately as is practical.

The objective of a photomontage is to simulate the likely visual changes that would result from a proposed development, and to produce printed images of a size and resolution sufficient to match the perspective in the same view in the field.

Photomontages use photographs of an actual scene modified by the insertion of a representation of the visible changes brought about by the proposed development. They are subject to the same inherent limitations as photographs, for example only showing the scene as it would appear under the same conditions that prevailed when the original photograph was captured. A properly constructed photomontage can serve as a useful tool to help illustrate the likely visual change that would result from a proposed development.

### Photography

#### **Digital Camera & Lenses**

High resolution digital photography was captured with a Canon EOS 5D digital camera with a fixed 50mm lens. The camera was mounted on a tripod with a panoramic head and positioned at approximately 1.5m above ground level. A series of individual images were then taken at 15° increments to capture the full 360° view available from each location.

#### **Data capture**

The photographer was provided with location information indicating the position of each viewpoint from which the required photographs were to be taken. The OS Location of the camera position was captured using a handheld GPS device, and the focal length, date & time of the photograph recorded. A photograph of the tripod in situ was also taken for reference.

### Image Processing

#### **Image correction**

The camera outputs a standard compressed file-type (JPG). The compressed photographs were then opened within Adobe Photoshop, where they were 'bank' corrected if needed. This corrective process ensured the horizon in each digital image was horizontal.

Despite the advances in digital photography over the last 10 years, the circular nature of lenses results in a small amount of distortion on the perimeter of images. Due to this, the very outer edges of an image are often not taken into consideration to minimise the risk of inaccuracy.

### 3D model

#### **3D model creation**

A three-dimensional computer model of the Proposed Scheme based on the engineering and landscape design drawings was created and augmented with added details where required, to achieve a realistic representation of the Proposed Scheme.

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### **Scale, height & position check**

Once created, the model was positioned using Engineer's general arrangement drawings, OS site plan and available level information. As a further check, both the overall site positioning was cross-checked with site sections.

Virtual cameras of matching specifications to the recorded camera and lens used for each view were then placed within the scene at the correct surveyed location. The virtual 3D camera was then rotated to the correct position using the captured photography as a backplate.

## Rendering

### **Materials and textures**

In order to provide a photo-realistic impression of what the Proposed Scheme could look like once built photographic textures and physically accurate materials were applied. This starts the process of turning the wireline 3D model developed from the design information into a more photo-realistic image.

### **Sunlight & daylight**

To obtain photo-realism, physically accurate lighting is required alongside materials and textures.

The V-RaySun and V-RaySky are special features within our rendering software which are provided as part of the Chaosgroup V-Ray renderer, utilised by AECOM. Developed to work together, the V-RaySun and V-RaySky reproduce the real-life Sun and Sky environment of the Earth. Both are coded so that they change their appearance depending on a number of factors, such as the direction of the V-RaySun; which was dynamically linked and geo-referenced to the real world position of the site, the time, day and month. Different sky options were also chosen (clear, overcast, etc.) to match the digital photography.

Using this lighting system, alongside the physically accurate material properties, the software calculated the effects of the sun and sky conditions on the appearance of the Proposed Scheme, creating increased photo-realism.

## Post production

### **Post production**

Once the rendering stage was complete, the images were brought into Adobe Photoshop to superimpose the proposed development onto the digital images of the site. The foreground details such as trees, buildings or signage were then overlaid as masks; ensuring the depth of the various items was represented correctly. If required, the rendered image was then further edited to accurately match the colour, saturation and environmental effects shown in the photograph. This is a qualitative or subjective process, but effort is made to ensure it provides objectively accurate views of the Proposed Scheme.

### **Review**

A final qualitative check of each of the photomontages was carried out with other members of the project team to ensure that they provided a realistic and objective representation of the Proposed Scheme.

## Use and limitations

It is important to note that a photomontage or visualisation can never show exactly what a development will look like in reality due to factors such as: different lighting, weather and season conditions which vary through time, and the resolution of the image. The images are intended to provide a reasonable impression of the scale and distance of the Proposed Scheme but can never be 100% accurate. Photomontages are intended to be a tool to aid the assessment and should be viewed in the field at the viewpoint location to form the best impression of the potential effects.

Photomontages to depict the Proposed Scheme at both Year 1 and Year 15 have been provided from each of the three viewpoint locations. The Year 1 images are intended to help give an indication of the likely visibility and level of change resulting from the Proposed Scheme once constructed. The Year 15 images are intended to demonstrate how proposed mitigation measures would reduce potential change as planting establishes and begins to mature. The heights of the planting shown in the Year 15 images have been determined based on average growth rates of the proposed species, taking account of the local climatic conditions as far as possible, and application of professional judgement.

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In September 2019 the Landscape Institute released Technical Guidance Note 06/19: Visual Representation of Development Proposals. This provides updated guidance on production and presentation of visualisations and replaces Landscape Institute Advice Note 01/11. The visualisations for this assessment were prepared before the new guidance was published and therefore the previous guidance has been used. This approach is consistent with Landscape Institute advice which advocates a reasonable grace period for any visualisations undertaken in advance of September 2019.

## Appendix 8.2 Landscape Character Assessment Tables

This Appendix provides details of the predicted impacts on landscape character and landscape designations within the study area. The following tables should be read in conjunction with the baseline description and value judgements which are found in Section 8.5 of the main report and the supporting figures, including; Figure 8.1: Landscape Character, 8.2: Landscape Features and 8.3: Landscape Character.

The tables below provide the identified value of each receptor and present the evaluated susceptibility and sensitivity to change in relation to the Proposed Scheme. They then provide a description of potential change resulting from the Proposed Scheme leading to judgements on the magnitude of landscape impact and the significance of landscape effect. A summary of residual landscape effects is contained in Section 8.8 of the LVIA Chapter.

**Table A8.2-1 Landscape Designations**

Receptor - Landscape Designation	Landscape Value	Landscape Susceptibility	Landscape Sensitivity	Mitigation Measures	Description of the magnitude of landscape impacts	Magnitude of Landscape Impact	Significance of Landscape Effect
North Esk Valley SLA	High	Medium	High	Embedded and Secondary Mitigation:  Retain and protect existing vegetation and other landscape features, such as stone walls, where possible; Careful siting of construction compounds, material store and other temporary structures to avoid loss of landscape features and minimise land-take; and Incorporate woodland planting along the route corridors, particularly where on embankment.	Construction, Operation (Year 1) and Operation (Year 15):  The Proposed Scheme is located outside of the SLA and therefore effects would be indirect.  The SLA follows the North Esk Valley in the south of the study area. The prevalence of woodland throughout this SLA, and particularly along the northern edge, coupled with the valley landform limits outward views and therefore potential for indirect change. There may be some localised impression of construction activity from parts of this SLA. However, this would be short term, temporary and would have little, if any, influence on the character or special qualities of this landscape. Similarly, at Operation (Year 1) and Operation (Year 15) there is little potential for any perceptible change to the character or special qualities of this SLA.  It is therefore considered that the magnitude of impact on the SLA would be Negligible.	Negligible	Neutral
Dalkeith House (Palace) GDL	High	Medium	High	Embedded and Secondary Mitigation:  Retain and protect existing vegetation and other landscape features, such as stone walls, where possible;	Construction, Operation (Year 1) and Operation (Year 15):  The Proposed Scheme would be located outwith this landscape designation and therefore potential change would be indirect. The Dalkeith House (Palace) GDL includes considerable policy woodland, including along the northern and western boundaries, restricting potential for outward views. There is therefore little, if any, potential	Negligible	Neutral

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Receptor - Landscape Designation	Landscape Value	Landscape Susceptibility	Landscape Sensitivity	Mitigation Measures	Description of the magnitude of landscape impacts	Magnitude of Landscape Impact	Significance of Landscape Effect
				Careful siting of construction compounds, material store and other temporary structures to avoid loss of landscape features and minimise land-take; and  Incorporate woodland planting along the route corridors, particularly where on embankment.	for indirect change to the character of this designation as a result of construction or operation of the Proposed Scheme and therefore the magnitude of impact at Construction, Operation (Year 1) or Operation (Year 15) would be Negligible.		
The Drum GDL and SLA	As the boundary of the Drum GDL and SLA are broadly consistent with the boundary of the Drum Estate Landscape LCA, the assessment of effects on these landscape designations and the associated landscape character and special qualities would be the same as identified for the Drum Estate LCA described in Table A8.2-2.						

**Error! Reference source not found.****Table A8.2-2 Landscape Character**

Receptor - Landscape Character Type	Landscape Value	Landscape Susceptibility	Landscape Sensitivity	Mitigation Measures	Description of the magnitude of landscape impacts	Magnitude of Landscape Impact	Significance of Landscape Effect
Danderhall Settled Farmland LCA	Low	Low	Low	Embedded Mitigation:	Construction:	Moderate	Slight Adverse
				<p>As a result of the strong presence and influence of existing infrastructure within this LCA, including the A720 and Sheriffhall roundabout.</p> <p>Minimising scheme extents and therefore reducing direct change and loss of existing features; Retain and protect existing vegetation and other landscape features, such as stone walls, where possible; Construction programme to be kept to the minimum duration and clearing works to be undertaken as close as possible to main works starting; Grade out and round off embankment and cutting slopes, and introduce variable gradients to give more natural appearance; SuDS basins designed to appear as natural as possible and reflect the local landscape characteristics; and Extent of street lighting minimised.</p>	<p>The Proposed Scheme is largely located within this LCA and therefore change would be both direct and indirect.</p> <p>Construction would include an increased level of activity within this LCA. Direct change from construction would include temporary surfacing, landform and structures. Direct change would be limited to the scheme extents, including the area required to facilitate construction. Indirect change would be experienced over a slightly larger area of this LCA and would result from increased activity and movement, temporary construction compounds, storage of materials, lighting and traffic management. Mature vegetation, topography and existing built form would restrict the extent of indirect change in parts of this LCA. The construction phase is anticipated to be completed within 28 months, and therefore potential change resulting from construction would be of short duration.</p> <p>It is anticipated that the Proposed Scheme would result in localised intensive change within the site area and immediate surroundings with more limited change to the character of other parts of the LCA during construction. Magnitude of change is therefore considered to be Moderate.</p>		
				Secondary Mitigation:	Operation (Year 1):	Moderate	Slight Adverse
				<p>Careful siting of construction compounds, material store and other temporary structures to avoid loss of landscape features and minimise land-take; Retain existing trees and hedgerows as far as possible and put protection in place to avoid damage during construction;</p>	<p>The level of activity within the site area would be reduced from that experienced during construction. Permanent direct change would occur within the footprint of the Proposed Scheme as a result of loss or fragmentation of existing landscape features and introduction of new landform and structures. Potential indirect change to the landscape character would be a result of loss of vegetation, introduction of new structures, increased height of the A720 and associated traffic and additional lighting. There may also be an increased perception of</p>		

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Receptor - Landscape Character Type	Landscape Value	Landscape Susceptibility	Landscape Sensitivity	Mitigation Measures	Description of the magnitude of landscape impacts	Magnitude of Landscape Impact	Significance of Landscape Effect
				<p>Incorporate woodland planting along the route corridors, particularly where on embankment;</p> <p>Incorporate hedgerows along roadsides and field boundaries to reinforce landscape characteristics;</p> <p>Incorporate planting to SuDs areas and avoid need for SuDS basin fencing to minimise visual intrusion and maximise landscape fit;</p> <p>Mitigation planting and seeding undertaken as soon as possible following the completion of each phase of construction and undertake advanced planting where possible; and</p> <p>Minimise visual clutter from ancillary elements (barriers, lighting, signage etc.) as far as possible.</p>	<p>traffic, including lights at night, on the roads network. These changes are largely contained within the existing road corridor and therefore any noticeable deterioration to landscape character would largely be limited to the Proposed Site and its immediate surroundings. There may also be an increased perception of traffic, including lights at night, on the roads network as a result of the increased height of a section of the A720 and loss of existing roadside vegetation.</p> <p>It is anticipated that magnitude of impact at Operation (Year 1) would be Moderate.</p>		
					Operation (Year 15):	Minor	Slight Adverse
					The establishment of mitigation planting would provide compensation for the loss of existing vegetation and provide a level of screening of the Proposed Scheme and associated traffic, therefore reducing direct and indirect change. Proposed planting would also strengthen existing characteristics of this LCA and provide beneficial direct change. The Proposed Scheme would therefore be better integrated into the existing landscape with little change to the overall character of this LCA.		
Melville Nurseries LCA	Medium	Low	Low	<p>Embedded Mitigation:</p> <p>Minimising scheme extents and therefore reducing direct change and loss of existing features;</p> <p>Retain and protect existing vegetation and other landscape features, where possible, including at Lugton Bogs;</p> <p>Construction programme to be kept to the minimum duration and clearing works to be undertaken as close as possible to main works starting; and</p> <p>Grade out and round off embankment and cutting slopes, and introduce variable gradients</p>	<p>Construction:</p> <p>A small part of the Proposed Scheme would be located within this LCA, with the majority being located within adjacent areas and therefore changes would be both direct and indirect.</p> <p>Construction of the Proposed Scheme would include an increased level of activity within a localised part of this LCA. Direct change would include the removal of small areas of trees and vegetation and changes to landform along the A7 and A6106. Vegetation removal would also slightly increase indirect effects on this LCA as a result of increased activity being apparent in adjacent areas. However, indirect change would be largely restricted by existing woodland blocks south of the A720 which provide containment for much of the LCA.</p> <p>Due to the temporary and short term nature and limited extent of direct and indirect change, the magnitude of</p>	Minor	Slight Adverse

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Receptor - Landscape Character Type	Landscape Value	Landscape Susceptibility	Landscape Sensitivity	Mitigation Measures	Description of the magnitude of landscape impacts	Magnitude of Landscape Impact	Significance of Landscape Effect
				to give more natural appearance; SuDS basins designed to appear as natural as possible and reflect the local landscape characteristics; and Extent of street lighting minimised.	impact would be Minor.		
				Secondary Mitigation:	Operation (Year 1):	Minor	Slight Adverse
				Careful siting of construction compounds, material store and other temporary structures to avoid loss of landscape features and minimise land-take; Retain existing trees and hedgerows as far as possible and put protection in place to avoid damage during construction; Incorporate woodland planting along the route corridors, particularly where on embankment; Incorporate hedgerows along roadsides and field boundaries to reinforce landscape characteristics; Incorporate planting to SuDS areas, including native species hedgerow to boundary of wetland areas at Dean Burn, in place of SuDS basin fencing to minimise visual intrusion and maximise landscape fit; Mitigation planting and seeding undertaken as soon as possible following the completion of each phase of construction and undertake advanced planting where possible; and Minimise visual clutter from	The level of activity within the Proposed Site would be reduced from that experienced during construction. Direct change would result from minor alteration to the layout of road corridors, temporary loss of trees and the addition of drainage basins within a small area of this LCA. These changes are considered to be in keeping with the existing character of this part of the LCA. Indirect change resulting from new structures, earthworks, the elevated A720 and associated traffic and additional lighting and headlights visible at night, in the adjacent LCA would be limited to a relatively small part of this LCA and would be experienced against the baseline which is heavily influenced by the existing road network. It is therefore considered that the magnitude of impact at year 1 of operation would be Minor.		
					Operation (Year 15): Both direct and indirect change would be reduced from Construction and Operation (Year 1) by the establishment of mitigation planting, which would see restoration of some key landscape characteristics including hedgerow and woodland planting. Soft landscape improvements along the Dean Burn would help to strengthen the existing characteristics of this LCA, resulting in some beneficial change. The establishment of planting would also provide a level of screening which would assist in reducing the presence and indirect change resulting from the Proposed Scheme. Magnitude of impact at year 15 of operation is therefore considered to be Negligible.	Negligible	Neutral

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Receptor - Landscape Character Type	Landscape Value	Landscape Susceptibility	Landscape Sensitivity	Mitigation Measures	Description of the magnitude of landscape impacts	Magnitude of Landscape Impact	Significance of Landscape Effect
				ancillary elements (barriers, lighting, signage etc.) as far as possible.			
Dalkeith Palace LCA	High	Medium	High	<p>Embedded Mitigation:</p> <p>Minimising scheme extents and therefore reducing direct change and loss of existing features; Retain and protect existing vegetation, particularly adjacent to Old Sheriffhall as far as possible; Construction programme to be kept to the minimum duration and clearing works to be undertaken as close as possible to main works starting; SuDS basins designed to appear as natural as possible and reflect the local landscape characteristics; and Extent of street lighting minimised.</p>	<p>As a very limited part of the Proposed Site falls within this LCA change would be mostly indirect, with some localised direct change.</p> <p>Construction: Direct change would be as a result of temporary clearance of vegetation to facilitate construction of a SUDS pond to the south of Old Sheriffhall Farm, and new access to the property. Potential indirect change would be a result of increased activity within and out with this LCA. Due to the heavily wooded nature of this LCA, indirect change would be limited to a small area, with very little or no perception of change to the majority of the area. As a result of the short term, temporary and limited nature of direct and indirect change, the magnitude of impact on this LCA is considered to be Minor.</p>	Minor	Slight Adverse
				<p>Secondary Mitigation:</p> <p>Careful siting of construction compounds, material store and other temporary structures to avoid loss of landscape features and minimise land-take; Retain existing trees and hedgerows as far as possible and put protection in place to avoid damage during construction; Incorporate woodland planting along the route corridors, particularly where on embankment; Incorporate hedgerows along roadsides and field boundaries to</p>	<p>Operation (Year 1): The level of activity within the site area would be reduced from that experienced during construction. Direct change including minor works along the A6106 South would be limited and localised to a small area. Potential indirect change resulting from visibility of the Proposed Scheme within an adjacent LCA would be limited to a small area, with little, if any, perception of change to landscape character of the majority of this area. The magnitude of impact is considered to be Minor at Operation (Year 1).</p> <p>Operation (Year 15): Proposed mitigation planting would further reduce potential indirect change and help to integrate the Proposed Scheme into the landscape such that the magnitude of impact would be Negligible.</p>	Minor	Slight Adverse
						Negligible	Neutral

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Receptor - Landscape Character Type	Landscape Value	Landscape Susceptibility	Landscape Sensitivity	Mitigation Measures	Description of the magnitude of landscape impacts	Magnitude of Landscape Impact	Significance of Landscape Effect
				<p>reinforce landscape characteristics;</p> <p>Incorporate planting to SuDs areas, including native species hedgerow to boundary in place of SuDS basin fencing to minimise visual intrusion and maximise landscape fit;</p> <p>Mitigation planting and seeding undertaken as soon as possible following the completion of each phase of construction and undertake advanced planting where possible; and</p> <p>Minimise visual clutter from ancillary elements (barriers, lighting, signage etc.) as far as possible.</p>			
Burdiehouse Farmland LCA	Low	<p>Low</p> <p>As a result of the existing context of the A720 corridor and other infrastructure including OHL towers.</p>	Low	<p>Embedded Mitigation:</p> <p>Retain and protect existing vegetation, particularly adjacent to Summerside and along the existing A720, where possible; and</p> <p>Construction programme to be kept to the minimum duration and clearing works to be undertaken as close as possible to main works starting.</p>	<p>The Proposed Scheme is located approximately 300m east of this LCA and therefore change would be indirect.</p> <p>Construction:</p> <p>During construction, indirect change on this LCA would be as a result of construction activity within an adjacent area. Potential change would be experienced against a baseline already influenced by the presence of the A720 and other infrastructure. Construction activity on and around the existing road network would be evident in the short term, as would machinery involved in formation of the elevated section of the A720. However, this would have only a small influence of the impression of this LCA, given the existing context. As a result of the limited and short term nature of potential change on the character of this LCA the magnitude of impact would be Minor.</p>	Minor	Slight Adverse
				<p>Secondary Mitigation:</p> <p>Careful siting of construction compounds, material store and other temporary structures to</p>	<p>Operation (Year 1):</p> <p>The level of activity apparent from this LCA would be reduced from that experienced during construction. However, the increased height of a section of the A720 and loss of vegetation alongside the existing road network may locally increase the perception of the road network</p>	Minor	Slight Adverse

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Receptor - Landscape Character Type	Landscape Value	Landscape Susceptibility	Landscape Sensitivity	Mitigation Measures	Description of the magnitude of landscape impacts	Magnitude of Landscape Impact	Significance of Landscape Effect
				avoid loss of landscape features; Retain existing trees and hedgerows as far as possible and put protection in place to avoid damage during construction; Incorporate woodland planting along the route corridors, particularly where on embankment and along the A720 West; and Mitigation planting and seeding undertaken as soon as possible following the completion of each phase of construction and undertake advanced planting where possible.	and traffic, including at night, from this LCA resulting in a Minor magnitude of impact.  Operation (Year 15): As proposed mitigation planting establishes and matures there would be a reduced impression of indirect change, such that the magnitude of impact would be Negligible.	Negligible	Neutral
Drum Estate Landscape LCA	High	Medium  Due to the semi-enclosed nature and some context of infrastructure and development in adjacent areas.	High	Embedded Mitigation:  Retain and protect existing vegetation, particularly adjacent to Summerside and along the existing A720, where possible; and Construction programme to be kept to the minimum duration and clearing works to be undertaken as close as possible to main works starting.  Secondary Mitigation:  Careful siting of construction compounds, material store and other temporary structures to avoid loss of landscape features; Retain existing trees and hedgerows as far as possible and put protection in place to avoid damage during construction; Incorporate woodland planting	Construction, Operation (Year 1) and Operation (Year 15):  The Proposed Scheme would be located approximately 800m southeast of this LCA and therefore potential change would be indirect. Policy woodland throughout this LCA restricts outward visibility from many areas, limiting the potential for indirect change. However, there may be a localised appreciation of short term, temporary construction activity alongside the existing road network from parts of this LCA. This activity would be seen in the context of existing roads, traffic and other infrastructure and as such would have very little, if any, influence on the landscape character of the Drum Estate. The main designed vista from the front of the house in Drum Estate would not be affected.  At Operation (Year 1) potential indirect change would be limited to an increased impression of traffic on parts of the road network, including at night. As with construction, potential indirect change would be limited to localised areas of this LCA outwith the main designed vista and would be experienced in the context of existing road infrastructure and traffic.  At Operation (Year 15) proposed mitigation planting would	Negligible	Neutral

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Receptor - Landscape Character Type	Landscape Value	Landscape Susceptibility	Landscape Sensitivity	Mitigation Measures	Description of the magnitude of landscape impacts	Magnitude of Landscape Impact	Significance of Landscape Effect
				<p>along the route corridors, particularly along the A720 West; and</p> <p>Mitigation planting and seeding undertaken as soon as possible following the completion of each phase of construction and undertake advanced planting where possible.</p>	<p>further reduce potential indirect change and help to integrate the Proposed Scheme into the landscape and screen views of many elements, including traffic on parts of the upgraded roads network.</p> <p>In recognition of the limited scope for indirect change on this LCA at Construction, Operation (Year 1) and Operation (Year 15) the magnitude of impact would be Negligible.</p>		

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## Appendix 8.3 Visual Assessment Tables

This appendix provides details of the predicted impacts on visual amenity, including static and transitional views from identified receptors within the study. The following tables should be read in conjunction with the baseline description of views and value of receptors which is found in Section 8.6 of Chapter 8 –Landscape and Visual and the supporting figures, including: Figure 8.4 ‘Zone of Theoretical Visibility’, Figures 8.5 ‘Visual Receptors’, and Figure 8.6 ‘Viewpoint Photography and Photomontages’.

The tables below provide the identified value of each receptor and present the evaluated susceptibility and sensitivity to change in relation to the Proposed Scheme. They then provide a description change, leading to judgements on the magnitude of visual impact and the significance of visual effect. A summary of residual visual effects is contained in Section 8.8 of Chapter 8 –Landscape and Visual.

**Table A8.3-3 Visual Impacts from Viewpoints**

Viewpoint	Representative receptors	Value of the View	Visual Susceptibility	Visual Sensitivity	Mitigation Measures (Embedded/Secondary)	Description of the magnitude of visual impacts	Magnitude of impacts	Significance of visual effect
1 - Sheriffhall Mains	Residential receptors - Sheriffhall mains  Road users - A6106 North	Low	High	Medium	Embedded Mitigation:  Retain and protect existing vegetation as far as possible, particularly west of the existing A6106 North; Construction programme to be kept to the minimum duration and clearing works to be undertaken as close as possible to main works starting; and Grade out and round off embankment and cutting slopes, and introduce variable gradients to give more natural appearance; SuDS basins designed to appear as natural as possible and reflect the local landscape characteristics; and Extent of street lighting minimised.	<b>Construction:</b>  From this location views of the Proposed Scheme would include construction activity related to the rerouting of the A6106 North in relative close proximity. This would include the movement of workers, machinery, and traffic management along the A6106 North corridor. The removal of a sections of Poplar trees alongside the A6106 would slightly increase visibility of the existing junction. Activity associated with construction of new road structures and SuDS basins would also be visible occupying a relatively large extent of the view, although would be seen in the context of existing traffic on the A720, A6106 and Sheriffhall Roundabout, and the double line of OHL towers in the foreground.  Views of construction activity from the majority of residential receptors at Sheriffhall Mains would be screened by adjacent buildings, boundary walls and intervening vegetation and topography. However, there may be partial views of construction activity along the realigned A6106 from the main farmhouse and more open views from the property to the south.  Views along the A6106 would include some close-range views of construction activity however this would appear largely within the context of the existing road network and not change the overall impression of views.  Overall due to the existing context of traffic on the road	Moderate	Moderate Adverse

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Viewpoint	Representative receptors	Value of the View	Visual Susceptibility	Visual Sensitivity	Mitigation Measures (Embedded/Secondary)	Description of the magnitude of visual impacts	Magnitude of impacts	Significance of visual effect
			higher rating.			network and roundabout and other prominent detracting elements within the view and the short term and temporary nature of construction activity, the magnitude of impact is anticipated to be Moderate.		
					<p>Secondary Mitigation:</p> <p>Careful siting of construction compounds, material store and other temporary structures to avoid loss of planting;</p> <p>Retain existing trees and hedgerows as far as possible;</p> <p>Incorporate woodland and other planting along the route corridors, particularly where on embankment;</p> <p>Incorporate planting to SuDs areas and avoid need for SuDS basin fencing, to minimise visual intrusion;</p> <p>Mitigation planting and seeding undertaken as soon as possible following the completion of each phase of construction and undertake advanced planting where possible; and</p> <p>Minimise visual clutter from ancillary elements (barriers, lighting, signage etc.) as far as possible.</p>	<p><b>Operation (Year 1):</b></p> <p>The introduction of the Proposed Scheme and particularly the elevated section of the A720 and slip roads would increase the visibility of road infrastructure in views south from this location. The loss of mature trees along the A6106 would also increase visibility towards the Proposed Scheme. Additional lighting along the A6106 North would also increase visibility of the Proposed Scheme from the viewpoint and select receptors during night time hours.</p> <p>The Proposed Scheme would increase the visibility of road infrastructure and traffic, including at night, in views from this location and the residential property south of Sheriffhall Mains. The baseline view in this direction includes the A720, A6106 and associated traffic and also prominent OHL towers in the foreground, providing a context to potential change. It is anticipated that the magnitude of impact at Operation (Year 1) would be Moderate.</p>	Moderate	Moderate Adverse
						<p><b>Operation (Year 15):</b></p> <p>The establishment of mitigation planting would help to reduce visibility of parts of the Proposed Scheme and associated traffic. Key landscape elements would include roadside verge planting, woodland screen planting and field hedgerows and boundary trees. The Proposed Scheme would represent a barely perceptible change to visual amenity and as such the magnitude of impact would be Negligible.</p>	Negligible	Neutral
2 - Campend	Residential receptors - Campend Road users - A7 North including	Low	High	Medium	<p>Embedded Mitigation:</p> <p>Retain and protect existing vegetation as far as possible, particularly adjacent to Summerside and along the north side of the A720 West;</p>	<p><b>Construction:</b></p> <p>From this viewpoint changes during construction would include an increase in queuing traffic and traffic management along the A7 North within the foreground of views and mid</p>	Minor	Slight Adverse

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Viewpoint	Representative receptors	Value of the View	Visual Susceptibility	Visual Sensitivity	Mitigation Measures (Embedded/Secondary)	Description of the magnitude of visual impacts	Magnitude of impacts	Significance of visual effect
	Core Path CEC4		of the highest susceptibility.  The viewpoint is also representative of other receptor types which would often have a lower susceptibility. For this assessment all receptors have been given the higher rating.		Construction programme to be kept to the minimum duration and clearing works to be undertaken as close as possible to main works starting; and Extent of street lighting minimised.	<p>distant visibility of construction activity adjacent to the A720 West, including; traffic, machinery, and workers. However, construction activity would be largely contained within the existing A7 and A720 corridors. From residential properties there would be oblique views of the construction activity to the south and southwest and this would not interrupt the key focus of distant views toward the Pentland Hills. Visibility is heavily restricted from ground floor windows by the mature hedgerow boundaries of these properties and in some cases by adjacent buildings.</p> <p>Road users would experience some closer range views of construction activity, in particular traffic management and movement of machinery, as well as the removal of a line of Poplar trees to the north of the A7 which would open up views towards construction activity at Sheriffhall Junction. However, this change would be for a short duration and be experienced as part of a wider series of transitional views along the A7 North.</p> <p>Overall these changes would be short duration, temporary and reversible and limited to a relatively small part of the view. Magnitude of impact is therefore considered to be Minor.</p>		
					<p>Secondary Mitigation: Careful siting of construction compounds, material store and other temporary structures to avoid loss of planting; Retain existing trees and hedgerows as far as possible; Incorporate woodland and other planting along the route corridors, particularly where on embankment and along the A720 West; Mitigation planting and seeding undertaken as soon as possible following the completion of each phase of construction and undertake advanced planting where possible; and Minimise visual clutter from ancillary elements (barriers, lighting, signage etc.) as far as possible.</p>	<p><b>Operation (Year 1):</b> Changes to visual amenity arising from the Proposed Scheme would include the loss of vegetation along the A720 West and A7 North which would result in increased visibility of traffic and associated headlights within oblique views to the south and south west, and to a lesser extent, views south east. Lighting would also extend slightly further along the A7 North than the existing situation, which would increase the presence of the Proposed Scheme during night time hours.</p> <p>Road users would experience some direct views of the proposed road bridges and the loss of poplar tree vegetation at Campend. However, this would be limited to a short duration from close range due to the slight bend in the road before Summerside.</p> <p>Overall changes would generally be limited to a small and</p>	Minor	Slight Adverse

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Viewpoint	Representative receptors	Value of the View	Visual Susceptibility	Visual Sensitivity	Mitigation Measures (Embedded/Secondary)	Description of the magnitude of visual impacts	Magnitude of impacts	Significance of visual effect
						unimportant part of the view for these receptors, resulting in a Minor magnitude of impact.		
						<b>Operation (Year 15):</b>	Negligible	Neutral
						Proposed mitigation planting along the A720 west of the junction and A7 north would reduce visibility of traffic to a level similar or less than in the baseline view. There may be a minor increased perception of the junction and elevated A720 from road users on the A7 from this location. However, this would be limited and filtered by tree planting. Overall the magnitude of impact at Operation (year 15) would be Negligible.		
3 - Summerside	Residential Receptors - Summerside	Low	High	Medium	Embedded Mitigation:	As outlined in the baseline and shown on Figure 8.7 the viewpoint is located within a part of the rear garden of one of the properties (Summerside House) in this group of receptors. The location was selected as it has relatively open visibility towards the Proposed Scheme and therefore represents the potential worst case view. In reality outward views from the residential properties are generally more restricted, as indicated by <b>Error! Reference source not found.</b> in Section <b>Error! Reference source not found.</b> . The following description of potential change initially focuses on the view from the viewpoint location, and then provides details of anticipated change from the residential properties.	Major (from viewpoint location)  Moderate (from residential properties)	Large Adverse (from viewpoint location)  Moderate Adverse (from residential properties)
			Residential receptors are considered to be of the highest susceptibility.		Retain and protect existing vegetation as far as possible, particularly adjacent to Summerside and along the north side of the A720 West; Construction programme to be kept to the minimum duration and clearing works to be undertaken as close as possible to main works starting; Design and finish of various structures and elements of the scheme to be of a high quality; and Extent of street lighting minimised.			
						<b>Construction:</b>		
						During construction from the viewpoint location there would be views of construction activity in the fore and mid ground associated with removal of vegetation, earthworks and installation of new structures and a SUDS pond. Existing vegetation would restrict and filter some views of construction activity from the viewpoint location. However, as a result of the close proximity of construction activity and the relatively wide extent of the available view from the viewpoint location affected, change would be very noticeable and therefore of Major magnitude of impact		
						Figure 8.7 shows the layout of the residential properties at Summerside, the directions of the main views and the		

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Viewpoint	Representative receptors	Value of the View	Visual Susceptibility	Visual Sensitivity	Mitigation Measures (Embedded/Secondary)	Description of the magnitude of visual impacts	Magnitude of impacts	Significance of visual effect
						<p>locations of trees and woodland which restrict outward views.</p> <p>Two properties in this group are aligned along the A7 North, with views orientated to the northeast across the A7 and therefore including traffic in the foreground. From these properties there would be close range views of construction activity alongside the A7, including the removal of trees to the north and works to create an improved access to the Summerside properties, although the majority of the works would not be visible. There would be similar changes to views from the cottage closest to the A7. However, these would be seen from an oblique angle as this property is orientated southeast.</p> <p>Visibility of construction activity to both the east and south from the remaining properties would be largely restricted by the intervening vegetation and boundary walls which surround Summerside. Views south towards construction activity (as described above) at Sheriffhall Roundabout would be limited to partial, oblique visibility from two upper floor windows from one property.</p> <p>Taking a worst case approach from the residential properties the greatest level of change would be experienced from the two northernmost residential properties. Although construction activity would be in the foreground of views from these properties it would be experienced in the context of existing traffic on the A7 and would be temporary and of short duration. It is therefore considered that the magnitude of impact from these properties would be Moderate during construction.</p>		
					<p>Secondary Mitigation:</p> <p>Careful siting of construction compounds, material store and other temporary structures to avoid loss of planting;</p> <p>Retain existing trees and hedgerows as far as possible;</p> <p>Incorporate woodland and other planting along the route corridors, particularly where on</p>	<p><b>Operation (Year 1):</b></p> <p>At year 1 of operation the newly created SuDS pond would be visible in the foreground of views from the viewpoint location, with the elevated A720, off slip and roundabout and associated lighting and traffic in the mid ground. The removal of vegetation and increased height of road structures would represent a very noticeable change from this location resulting in a Major magnitude of impact.</p>	<p>Major (from viewpoint location)</p> <p>Minor (from residential properties)</p>	<p>Large Adverse (from viewpoint location)</p> <p>Slight Adverse (from residential)</p>

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Viewpoint	Representative receptors	Value of the View	Visual Susceptibility	Visual Sensitivity	Mitigation Measures (Embedded/Secondary)	Description of the magnitude of visual impacts	Magnitude of impacts	Significance of visual effect
					embankment; Incorporate planting to SuDs areas and avoid need for SuDS basin fencing, to minimise visual intrusion; Mitigation planting and seeding undertaken as soon as possible following the completion of each phase of construction and undertake advanced planting where possible; and Minimise visual clutter from ancillary elements (barriers, lighting, signage etc.) as far as possible.	Views south towards the Proposed Scheme from residential properties at Summerside would largely be screened or heavily filtered, reducing the potential magnitude of impact from these locations. From the northernmost properties there would be close range views of the upgraded A7 North which is largely along the same alignment as the existing, and also the new access to Summerside, additional street lighting, new footpaths and removal of vegetation to the north of the A7. Removal of vegetation would slightly open up views to the fields beyond allowing more light into properties. The most visible element in the view, traffic on the A7, would be similar to that experienced in the baseline and therefore the Proposed Scheme would result in a Minor magnitude of impact from these properties.		properties)
						<b>Operation (Year 15):</b>  From the viewpoint location mitigation planting would slightly reduce visibility of the Proposed Scheme. However, it is anticipated that the Proposed Scheme would remain a very noticeable feature and therefore the magnitude of change would remain Major..  Visibility of the Proposed Scheme from the south and east facing windows of residential properties would be reduced due to the establishment of mitigation planting. However, from the two northernmost properties there is little scope for mitigation planting in the foreground of the A7, beyond the inclusion of a section of hedgerow and therefore the level of change would be similar to that experienced at Year 1, resulting in a Minor magnitude of impact.	Major (from viewpoint location)  Minor (from residential properties)	Large Adverse (from viewpoint location)  Slight Adverse (from residential properties)
4 - Old Sheriffhall	Residential receptors - Sheriffhall	Low	High	Medium	Embedded Mitigation:  Retain and protect existing vegetation as far as possible, particularly to the west and northwest of these properties; Construction programme to be kept to the minimum duration and clearing works to be undertaken as close as possible to main works starting;	<b>Construction:</b>  This viewpoint is located within the rear garden of Sheriffhall House. During construction there would be close range views of construction activity, such as the movement of machinery to form earthworks and new carriageways. This activity would be short term and temporary to the rear of the property but would nevertheless represent a noticeable change. There may also be oblique filtered views of	Major	Large Adverse

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Viewpoint	Representative receptors	Value of the View	Visual Susceptibility	Visual Sensitivity	Mitigation Measures (Embedded/Secondary)	Description of the magnitude of visual impacts	Magnitude of impacts	Significance of visual effect
					Design and finish of various structures and elements of the scheme to be of a high quality; and Extent of street lighting minimised.	<p>construction activity within the main view to the southeast of this property.</p> <p>From Old Sheriffhall Farmhouse, visibility of construction activity would be more limited. There would be oblique views of activity associated with construction of the SUDS pond to the southeast of the property. However, the main activity would occur to the northwest and would be screened by adjacent outbuildings.</p> <p>Overall, considering the potential worst case, the temporary and short term nature of change and the existing context of the A720 the magnitude of impact would be Major</p>		
					<p>Secondary Mitigation:</p> <p>Careful siting of construction compounds, material store and other temporary structures to avoid loss of planting; Retain existing trees and hedgerows as far as possible; Incorporate woodland and other planting along the route corridors, particularly where on embankment; Incorporate planting to SuDs areas and avoid need for SuDS basin fencing, to minimise visual intrusion; Mitigation planting and seeding undertaken as soon as possible following the completion of each phase of construction and undertake advanced planting where possible; and Minimise visual clutter from ancillary elements (barriers, lighting, signage etc.) as far as possible.</p>	<p><b>Operation (Year 1):</b></p> <p>At year 1 of operation the completed A720 and slip roads would be in close proximity to this viewpoint, increasing the visibility of road infrastructure and associated traffic and lighting. Removal of vegetation would also increase the extent of the view affected. The low level earthworks of the SuDS pond to the southeast would be largely imperceptible from Sheriffhall House, but may be more visible from Old Sheriffhall Farmhouse, representing a limited change.</p> <p>Overall due to the close proximity of the proposed Scheme within views from Sheriffhall House and the increased extent of the view affected the magnitude of impact would be Major.</p>	Major	Large Adverse
						<p><b>Operation (Year 15):</b></p> <p>At year 15 proposed mitigation planting would have matured sufficiently to provide screening of the majority of the Proposed Scheme, although some glimpsed views of traffic and increased lighting may still be apparent. The overall impression of the view would be similar to the existing view and it is therefore anticipated that the magnitude of impact would be Minor.</p>	Minor	Slight Adverse

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Viewpoint	Representative receptors	Value of the View	Visual Susceptibility	Visual Sensitivity	Mitigation Measures (Embedded/Secondary)	Description of the magnitude of visual impacts	Magnitude of impacts	Significance of visual effect
5 - Lasswade to Shawfair Shared Path	Recreational users - Lasswade to Shawfair Shared Path	Medium/Low	Medium	Medium	Embedded Mitigation:	<b>Construction:</b>	Minor	Slight Adverse
					Retain and protect existing vegetation as far as possible, particularly adjacent to Summerside and along the north side of the A720 West; Construction programme to be kept to the minimum duration and clearing works to be undertaken as close as possible to main works starting; and Extent of street lighting minimised.	Construction activity along parts of the A7 and A720, north and west of Sheriffhall Roundabout would be visible within the distance from this location. Change is likely to include the movement of construction traffic, machinery and workers and traffic management. These changes would however be seen within the context of existing views south which include OHL towers, buildings and the existing A7 and A720 road corridors. The introduction of the Proposed Scheme would not restrict the focus of views towards hills in the distant horizon.  Changes would be for a short duration and result in a small change that occupies a limited area of the view, resulting in a Minor magnitude of impact.		
					Secondary Mitigation:	<b>Operation (Year 1):</b>	Minor	Slight Adverse
					Careful siting of construction compounds, material store and other temporary structures to avoid loss of planting; Retain existing trees and hedgerows as far as possible particularly along the A720 West and around Summerside; Incorporate woodland and other planting along the route corridors, particularly where on embankment and along the A72 West; Mitigation planting and seeding undertaken as soon as possible following the completion of each phase of construction and undertake advanced planting where possible; and Minimise visual clutter from ancillary elements (barriers, lighting, signage etc.) as far as possible.	The loss of vegetation along the A7 and A720 north and west respectively of Sheriffhall Roundabout would slightly increase visibility of the Proposed Scheme and associated traffic and headlights. The increased height of a section of the A720 in combination with the removal of areas of vegetation would result in a small increase in visibility of the road network and associated traffic and lighting from this viewpoint. This change would occupy a small part of the overall view which is already influenced by infrastructure and the magnitude of impact would be Minor.		
						<b>Operation (Year 15):</b>	Negligible	Neutral
						The establishment of mitigation planting along the A7 and A720 would reduce visibility of the Proposed Scheme and associated traffic. There may be a narrow view of the road bridge at the junction. However, this would form a very limited portion of the wider view and there would be no discernible change to visual amenity. Magnitude of impact would therefore be Negligible.		

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Viewpoint	Representative receptors	Value of the View	Visual Susceptibility	Visual Sensitivity	Mitigation Measures (Embedded/Secondary)	Description of the magnitude of visual impacts	Magnitude of impacts	Significance of visual effect
6 - Elginhaugh Farm pub and restaurant	Visitors to retail and leisure facilities.. Road users – A722 including the adjacent Core Path 6-0	Low	Low	Low	Embedded Mitigation:	<b>Construction:</b>	Minor	Slight Adverse
					Views from these receptors would largely be incidental and as such of limited susceptibility.	Retain and protect existing vegetation as far as possible, particularly adjacent to the A7 South; Construction programme to be kept to the minimum duration and clearing works to be undertaken as close as possible to main works starting; and Extent of street lighting minimised.		
					Secondary Mitigation:	<b>Operation (Year 1) and Operation (Year 15):</b>	Negligible	Neutral
					Careful siting of construction compounds, material store and other temporary structures to avoid loss of planting; Retain existing trees and hedgerows as far as possible, particularly along the A7 South; Incorporate woodland and other planting along the route corridors, particularly where on embankment; Mitigation planting and seeding undertaken as soon as possible following the completion of each phase of construction and undertake advanced planting where possible; and Minimise visual clutter from ancillary elements (barriers, lighting, signage etc.) as far as possible.	At year 1 views east would include traffic on the A7 and would not present any discernible change from the existing view. To the north, views towards the Proposed Scheme would be heavily filtered and screened by woodland and therefore change would be very limited and largely imperceptible. At year 15 mitigation planting would further reduce visibility of the Proposed Scheme and reduce the level of potential impacts. Magnitude of change at Operation (Year 1) and Operation (Year 15) would be Negligible		
7 – Gilmerton Road Roundabout, A7 South	Road users - A7 South, A722 and Core Path 6-4	Low	Low	Low	Embedded Mitigation:	<b>Construction:</b>	Minor	Slight Adverse
					Views from road users would be experienced in passing and are incidental to the experience of the receptor.	Retain and protect existing vegetation as far as possible, particularly adjacent to the A7 South; Construction programme to be kept to the minimum duration and clearing works to be undertaken as close as possible to main works starting; and Extent of street lighting minimised.	Construction activity including traffic management and the movement of machinery and workers would be visible within the focus of the view along the road corridor. These changes take place within the context of the existing road corridors and therefore would not be uncharacteristic. Construction activity on the raised section of the A720 may increase the perception of infrastructure in the view to a limited degree	

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Viewpoint	Representative receptors	Value of the View	Visual Susceptibility	Visual Sensitivity	Mitigation Measures (Embedded/Secondary)	Description of the magnitude of visual impacts	Magnitude of impacts	Significance of visual effect
						and may partially restrict distant views to the Firth of Forth. Construction activity would result in a small change to the overall composition of the view and therefore the magnitude of impact would be Minor.		
					<p>Careful siting of construction compounds, material store and other temporary structures to avoid loss of planting;</p> <p>Retain existing trees and hedgerows as far as possible, particularly along the A7 South;</p> <p>Incorporate woodland and other planting along the route corridors, particularly where on embankment;</p> <p>Incorporate planting to SuDs areas and avoid need for SuDS basin fencing, to minimise visual intrusion;</p> <p>Mitigation planting and seeding undertaken as soon as possible following the completion of each phase of construction and undertake advanced planting where possible; and</p> <p>Minimise visual clutter from ancillary elements (barriers, lighting, signage etc.) as far as possible.</p>	<p><b>Operation (Year 1) and Operation (Year 15):</b></p> <p>At operation potential change would be a result of increased visibility of the A720 and associated traffic due to the increased height of the carriageway and potential removal of vegetation. Visibility of the Proposed Scheme would be partially restricted by woodland and focused along the A7 road corridor. This part of the views is already heavily influenced by infrastructure, signage and traffic and therefore potential change would be very limited, resulting in a Minor magnitude of impact.</p> <p>At Year 15 proposed mitigation planting would further restrict visibility of the Proposed Scheme, reducing the impression of change to the view. However, the magnitude of change would be similar to that experienced at Year 1.</p>	Minor	Slight Adverse
8 – King's Gate, A6106 South	Road users – A6106 South and the adjacent Core Path 4-34/4-35a	Low	Low	Low	<p><b>Embedded Mitigation:</b></p> <p>Retain and protect existing vegetation as far as possible, particularly alongside the A6106 South and A720 West;</p> <p>Construction programme to be kept to the minimum duration and clearing works to be undertaken as close as possible to main works starting; and</p> <p>Extent of street lighting minimised.</p>	<p><b>Construction:</b></p> <p>Views north towards the proposed scheme are limited to a short section of approximately 300m which starts at the bend in the A6106 just before King's Gate and are restricted by the adjacent vegetation which bounds the road.</p> <p>Visibility of construction activity would be limited to traffic management and the introduction of movement of machinery and workers along a short section of this route. For road users travelling along the A6106 South, construction activity would initially appear within oblique views toward the Proposed Scheme and become more direct as the road straightens. Overall these changes are short-duration, within</p>	Minor	Slight Adverse

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Viewpoint	Representative receptors	Value of the View	Visual Susceptibility	Visual Sensitivity	Mitigation Measures (Embedded/Secondary)	Description of the magnitude of visual impacts	Magnitude of impacts	Significance of visual effect
						an existing context of road infrastructure and therefore would result in only a small change to visual amenity.		
					<p>Secondary Mitigation:</p> <p>Careful siting of construction compounds, material store and other temporary structures to avoid loss of planting;</p> <p>Retain existing trees and hedgerows as far as possible;</p> <p>Incorporate woodland and other planting along the route corridors, particularly where on embankment;</p> <p>Incorporate planting to SuDs areas and avoid need for SuDS basin fencing, to minimise visual intrusion;</p> <p>Mitigation planting and seeding undertaken as soon as possible following the completion of each phase of construction and undertake advanced planting where possible; and</p> <p>Minimise visual clutter from ancillary elements (barriers, lighting, signage etc.) as far as possible.</p>	<p><b>Operation (Year 1) and Operation (Year 15):</b></p> <p>At operation views of the Proposed Scheme would be limited to the elevated section of the A720 and associated traffic and the lighting and signage along the A6106. These elements would be visible within a narrow part of the view along the existing A6101 and would therefore represent a limited change.</p> <p>At Year 15 the establishment of landscape mitigation planting may partially reduce visibility of the Proposed Scheme. There would be views of a small part of the raised A720 carriageway and associated traffic. However, this would represent a small change to the overall composition of this view.</p> <p>Magnitude of impact at Year 1 and Year 15 of operation would be Minor.</p>	Minor	Slight Adverse
9 – Millerhill Embankment	<p>Residential receptors – Millerhill</p> <p>Recreational receptors - Midlothian Council have aspiration to create a formal route along the embankment.</p>	Low	High	Medium	<p>Embedded Mitigation:</p> <p>Retain and protect existing vegetation as far as possible, particularly adjacent to the A720 East and A6106 North/ Campend;</p> <p>Construction programme to be kept to the minimum duration and clearing works to be undertaken as close as possible to main works starting; and</p> <p>Extent of street lighting minimised.</p>	<p><b>Construction:</b></p> <p>From this location views of the Proposed Scheme would include construction activity related to the rerouting of the A6106 North, works along the A720 East and at Sheriffhall Roundabout. Activity would largely be located in excess of 1km and would be seen in the context of existing traffic on both the A720 and A6106 and the double line of OHL towers in the foreground.</p> <p>Views from residential receptors in Millerhill would be more limited due to intervening vegetation and topography, although there may be some open views from upper storey of higher buildings.</p>	Minor	Slight Adverse

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Viewpoint	Representative receptors	Value of the View	Visual Susceptibility	Visual Sensitivity	Mitigation Measures (Embedded/Secondary)	Description of the magnitude of visual impacts	Magnitude of impacts	Significance of visual effect
						<p>Potential change would be short term and reversible. The changes would occupy part of the mid-distance and appear within the context of the existing road corridors and other detracting elements. Magnitude of impact during construction would therefore be Minor.</p>		
					<p>Secondary Mitigation:</p> <p>Careful siting of construction compounds, material store and other temporary structures to avoid loss of planting; Retain existing trees and hedgerows as far as possible, particularly along the A720 East; Incorporate woodland and other planting along the route corridors, particularly where on embankment; Mitigation planting and seeding undertaken as soon as possible following the completion of each phase of construction and undertake advanced planting where possible; and Minimise visual clutter from ancillary elements (barriers, lighting, signage etc.) as far as possible.</p>	<p><b>Operation (Year 1):</b></p> <p>At operation changes to views would include the increased height of the A720 and associated traffic, signage and lighting infrastructure. The loss of vegetation along a short section of the northern edge of the A720 East will also slightly increase visibility of traffic, including vehicle headlights at night. These changes would be within a small part of the overall views from this location and would be seen in the context of existing views of the A720 and associated traffic.</p> <p>Although the proposed Scheme would result in an increase in the visibility of part of the A720 and associated traffic it would represent only a small change to the overall view and therefore the magnitude of impact would be Minor.</p>	Minor	Slight Adverse
						<p><b>Operation (Year 15):</b></p> <p>At Year 15 proposed mitigation planting along the edges of the A720 East and A6106 North would partially screen the Proposed Scheme, reducing the impression of change to the view. The magnitude of impact would therefore reduce to Negligible at Year 15.</p>	Negligible	Neutral
10 – A772 overbridge, Gilmerton Junction	Core Path users including cyclists and pedestrians, road users on the A722	Low	Low	Low	<p>Embedded Mitigation:</p> <p>Retain and protect existing vegetation as far as possible, particularly adjacent to the A720 West and at Summerside; Construction programme to be kept to the minimum duration and clearing works to be undertaken as close as possible to main works starting; and</p>	<p><b>Construction:</b></p> <p>Construction of the Proposed Scheme would be visible in the distance to the east in views along the existing A720. Vegetation along the existing embankments would provide screening of much of the low level activity except at the westernmost extent of the works. Removal of existing vegetation may slightly increase visibility of the works and traffic along the A720.</p>	Minor	Slight Adverse

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Viewpoint	Representative receptors	Value of the View	Visual Susceptibility	Visual Sensitivity	Mitigation Measures (Embedded/Secondary)	Description of the magnitude of visual impacts	Magnitude of impacts	Significance of visual effect
					Extent of street lighting minimised.	Considering the limited visibility of the Proposed Scheme from this location, the distance, small part of the view affected and the short duration and temporary nature of change the magnitude of impact during construction would be Minor.		
					<p>Secondary Mitigation:</p> <p>Careful siting of construction compounds, material store and other temporary structures to avoid loss of planting;</p> <p>Retain existing trees and hedgerows as far as possible, particularly along the A720 West;</p> <p>Incorporate woodland and other planting along the route corridors, particularly where on embankment;</p> <p>Mitigation planting and seeding undertaken as soon as possible following the completion of each phase of construction and undertake advanced planting where possible; and</p> <p>Minimise visual clutter from ancillary elements (barriers, lighting, signage etc.) as far as possible.</p>	<p><b>Operation (Year 1):</b></p> <p>At year 1 of operation there is likely to be partial visibility of the Proposed Scheme as a result of loss of vegetation along the A720 West and the increased height of the carriageway at Sheriffhall Roundabout. This change would be relatively distant and seen in the context of the A720 corridor which currently has a strong influence on the view.</p> <p>The magnitude of impact at year 1 would be Minor.</p>	Minor	Slight Adverse
						<p><b>Operation (Year 15):</b></p> <p>At Year 15 proposed mitigation planting along the A720 West and on the embankments adjacent to the elevated section of carriageway would reduce the potential visibility such that there would be very little appreciation of change from the baseline. The magnitude of impact would therefore reduce to Negligible at Year 15.</p>	Negligible	Neutral

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Route	Representative receptors	Value of the View	Visual Susceptibility	Visual Sensitivity	Mitigation Measures (Embedded/Secondary)	Description of the magnitude of visual impacts	Magnitude of impacts	Significance of visual effect
The Kaims Core Path (4-8)	Recreational users	Low	Medium	Medium	Embedded Mitigation:	<b>Construction:</b>	Minor	Slight Adverse
						Views from this route are variable and often restricted by vegetation, with more open views from occasional gaps in planting. Where open views are possible they would include construction activity associated with the rerouting of the A6106 North within the mid-distance and works along the A720 East beyond.		
					Retain and protect existing vegetation as far as possible, particularly alongside the A6106 North and A720 East; Construction programme to be kept to the minimum duration and clearing works to be undertaken as close as possible to main works starting; and Extent of street lighting minimised.	The broader focus of the view towards rolling countryside to the south would remain unaffected. Construction activity would result in a small temporary and short term change, occupying a limited part of glimpsed and heavily filtered views from this route. Magnitude of impact during construction would be Minor.		
				Secondary Mitigation:	<b>Operation (Year 1):</b>	Minor	Slight Adverse	
					Careful siting of construction compounds, material store and other temporary structures to avoid loss of planting; Retain existing trees and hedgerows as far as possible; Incorporate woodland and other planting along the route corridors, particularly where on embankment; Mitigation planting and seeding undertaken as soon as possible following the completion of each phase of construction and undertake advanced planting where possible; and Minimise visual clutter from ancillary elements (barriers, lighting, signage etc.) as far as possible.	The removal of vegetation to facilitate construction of the Proposed Scheme would increase visibility of the realigned A6106 and associated traffic and locally increased visibility of additional short sections of the A720. Additional lighting and car headlights along the A6106 would also increase the visibility of the Proposed Scheme during darkness, although views would generally be less important at night. The Proposed Scheme would result in a small change to views and visual amenity from this route and would therefore result in a Minor magnitude of impact.		
						<b>Operation (Year 15):</b>	Negligible	Neutral
						The establishment of vegetation along much of the north edge of the proposed realigned A6106 would help to reduce visibility of the road		

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Route	Representative receptors	Value of the View	Visual Susceptibility	Visual Sensitivity	Mitigation Measures (Embedded/Secondary)	Description of the magnitude of visual impacts	Magnitude of impacts	Significance of visual effect
						corridor and traffic, creating a similar composition to the existing. Overall the Proposed Scheme would result in no discernible change to visual amenity, and therefore magnitude of impact would be Negligible.		
A720 Edinburgh City Bypass	Road users of the A720	Low	Low	Low	Embedded Mitigation:	<b>Construction:</b>	Minor	Slight Adverse
			Views from road users would be experienced in passing and are incidental to the experience of the receptor.		Retain and protect existing vegetation as far as possible; Construction programme to be kept to the minimum duration and clearing works to be undertaken as close as possible to main works starting; and Extent of street lighting minimised.	During construction activity and movement of machinery associated with clearance of vegetation, earthworks operations and formation of new structures and carriageways would be visible from short sections of the A720, on the approach to the existing Sheriffhall Roundabout. There is also likely to be views of traffic management and changes to routing of traffic as construction progresses. Views of construction would be limited to a short section of the A720 and would be short term and temporary, therefore resulting in a small change. Magnitude of impact on views from the A720 during construction would be Minor.		
					Secondary Mitigation:	<b>Operation (Year 1) and (Year 15):</b>	Negligible	Neutral
					Careful siting of construction compounds, material store and other temporary structures to avoid loss of planting; Retain existing trees and hedgerows as far as possible; Incorporate woodland and other planting along the route corridors, particularly where on embankment; Incorporate planting to SuDs areas and avoid need for SuDS basin fencing, to minimise visual intrusion; Mitigation planting and seeding undertaken as soon as possible following the completion of each	At Operation (Year 1) views of the Proposed Scheme from the A720 would be limited to sections in the immediate vicinity of the upgraded junction. Traffic would be more elevated and therefore the proposed scheme would form a small element in the foreground of more open views and would be experienced in the context of existing infrastructure. It is therefore anticipated that there would be only a limited perception of change to visual amenity from users of the A720. At year 15 proposed planting would further reduce visibility of the Proposed Scheme, with short glimpsed views as traffic passes over bridges or where there are gaps in planting on the embankments.		

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Route	Representative receptors	Value of the View	Visual Susceptibility	Visual Sensitivity	Mitigation Measures (Embedded/Secondary)	Description of the magnitude of visual impacts	Magnitude of impacts	Significance of visual effect
					phase of construction and undertake advanced planting where possible; and Minimise visual clutter from ancillary elements (barriers, lighting, signage etc.) as far as possible.	In the context of existing views experienced from the A720 the magnitude of impact at year 1 and year 15 of operation would be negligible.		
Border's Railway	Rail users	Low	Low	Low	Embedded and Secondary Mitigation:  Retain and protect existing vegetation as far as possible, particularly adjacent to the A6106 North and A720 East; Construction programme to be kept to the minimum duration and clearing works to be undertaken as close as possible to main works starting; Careful siting of construction compounds, material store and other temporary structures to avoid loss of planting; Incorporate woodland and other planting along the route corridors, particularly where on embankment; Incorporate planting to SuDs areas and avoid need for SuDS basin fencing, to minimise visual intrusion; Mitigation planting and seeding undertaken as soon as possible following the completion of each phase of construction and undertake advanced planting where possible; and Minimise visual clutter from ancillary elements (barriers, lighting, signage etc.) as far as possible.	<b>Construction and Operation (Year 1), (Year 15):</b>  Views of construction activity and introduction of the Proposed Scheme would be limited to glimpsed views for a very short section of railway journeys as the railway is largely situated within cutting. Change would also be seen in passing and for a short duration.  Overall the Proposed Scheme would result in a barely perceptible change in views from the Borders Railway, resulting in a Negligible magnitude of impact.	Negligible	Neutral

## Appendix 8.4 Landscape Objectives

# **A720 Sheriffhall Roundabout Landscape Objectives**

**Quality information**

Document name	Ref	Prepared for	Prepared by	Date	Reviewed by
Sheriffhall A720 Landscape Objectives	Appendix 8.4	Transport Scotland	CS	29.03.19	KC

**Revision history**

Revision	Revision date	Details	Prepared by	Checked	Approved
A	18.04.2019	Mitigation measures amended	CS	KC	ZM
B	02.05.2019	Design Team and TS Comments	CS	JD	ZM
C	31.05.2019	Design Team and TS Comments	CS	JD	ZM
D	27.06.2019	TS Comments	CS	JD	ZM
E	06.08.2019	Design Team Comments	CS	JD	ZM
F	27.08.2019	Reference updates	CS	JD	ZM

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# Introduction

The Proposed Scheme provides a number of opportunities to reinforce and enhance the landscape character and environmental quality of the Sheriffhall Roundabout and its surroundings. In response to this and in order to guide detailed design a series of scheme specific landscape objectives have been identified. The main aim of these objectives is to ensure a high quality design is achieved in order to provide an enhanced user experience while also relating to and fitting with the existing context.

The objectives have been informed by the Landscape and Visual Impact Assessment carried out as part of the Environmental Impact Assessment (EIA) prepared for the Proposed Scheme. The Environmental Statement (ES) reports the findings of the assessment and provides details of mitigation measures identified to minimise potential impacts on landscape character and visual amenity. The landscape objectives supplement the committed landscape mitigation measures outlined in the ES and help inform a number of outline design principles for the following key elements of the Proposed Scheme:

- Structural Finishes;
- Subways;
- Lighting and Signage;
- Surfaces;
- Dry Riverbed;
- Landform and Slope Treatment; and
- Soft Landscape.

The provision of shared (unsegregated) use paths for NMU is an integral part of the Proposed Scheme design. A number of underpasses and paths within the Scheme for pedestrians, cyclists and equestrians have been developed through extensive consultation, to recognise the important north-south link across the A720 Edinburgh City Bypass.

Extensive development is proposed within this area of Edinburgh/Midlothian over the next 20 years and this along with the existence of a Core Path that currently runs through the roundabout, provides strong justification for the provision of enhanced facilities for NMUs.

The landscape objectives and outline design principles set out in this appendix have been informed by the following policy and best practice guidance related to the design of transport infrastructure:

- Fitting Landscapes (Transport Scotland, 2014);
- Cycling by Design (Transport Scotland, 2011);
- Traffic Free Routes: Conceptual Design (draft)' (Sustrans, 2014);
- Designing Streets: A Policy Statement for Scotland (The Scottish Government, 2010);
- Creating Places: A policy statement on architecture and place for Scotland (The Scottish Government, 2013); and
- Local planning policy and guidance produced by Midlothian Council and the City of Edinburgh Council related to landscape, design and placemaking.

The above policy and guidance should also be used to inform the detailed design of the Proposed Scheme.

The landscape objectives and outline design principles set out in this document should inform the detailed design of the proposed Scheme. Early engagement with Transport Scotland as part of the construction tender dialogue will be important and engagement on landscape design should continue throughout the detailed design stage.



Fig 1. Photomontage from Summerside (VP03 in ES)

# Site Context

The objectives and design of landscape elements discussed in this document should respond to the local context of Sheriffhall. The below summarises the site location and the character of its surroundings, which provide a baseline for the objectives and starting point for the design.

The Proposed Scheme is located to the south of Edinburgh at Sheriffhall Roundabout, on the A720 Edinburgh City Bypass. The character of the landscape is influenced by the urban-rural fringe location with fields and woodland located in the adjacent areas. It sits largely within the Danderhall Settled Farmland Landscape Character Area (LCA) with small parts of the Proposed Scheme located within the Melville Nurseries LCA and Dalkeith Palace LCA. Further information on landscape character is provided within the ES.

The Proposed Scheme site is not covered by any landscape designation and is characterised by the existing road network and peripheral landscapes which are made-up of agricultural fields, shelterbelts and scattered settlements.

Key landscape characteristics of the Proposed Site and surroundings include:

- Flat or gently undulating landform which drains towards the North Esk River to the south;
- The presence of man-made infrastructure including roads, railway and overhead lines across the wider area;
- Scattered small scale settlements within the surroundings of the roundabout with the larger settlements of Danderhall and Dalkeith located further north and south respectively;
- Large blocks of woodland such as Dalkeith Country Park and tree belts along the A720 are common features to the south of the A720. These woodland blocks contain development within the landscape and restricts views;
- A largely open landscape to the north comprised of large agricultural fields with hedgerows and tree belt field boundaries; and
- Distant views of hills including Arthurs Seat, Pentland Hills and Moorfoot Hills are possible from open areas to the north of Sheriffhall Roundabout.

## Local Material Palette

The design should take inspiration from materials and features within the local landscape and the vernacular style of buildings. The below images are taken from the surrounding area and provide ideas on key features which could influence the design.



Fig 2. Site Location Plan NTS (Google Maps) (AECOM)



Fig 3. Natural stone boundary walls are found throughout the study area. Old Dalkeith Road (A7), Danderhall (AECOM)



Fig 4. Designed landscape and sculptural landform of Dalkeith Palace (AECOM)



Fig 5. Expansive views with urban influences, looking north from Sheriffhall Mains (AECOM)



Fig 6. Woodland blocks are a common feature to the south of the study area (AECOM)

# Design Objectives

The following section sets out the overall landscape objectives for the Proposed Scheme. These have been informed by an understanding of the existing context, guidance and best practice and the ES. These objectives respond to the aims set out in Fitting Landscapes (Transport Scotland, 2014).

## Landscape Objectives for Proposed Scheme

### Ensure high quality of design and place:

- The preferred layout responds to the local context and landform.
- Existing features retained where possible. Unavoidable tree loss mitigated by replacement planting.
- Longevity and ease of maintenance considered in design choices.
- Early consideration of active travel NMU route.
- Coordinated design encompassing water, drainage, habitat and landscape will help support healthy biodiverse interventions.
- Local and site won materials and native plant species to reinforce characteristics of locality.
- Mitigation for landscape and visual impacts include contouring of earthworks; screen planting and hard and soft materials palette.
- Bespoke design interventions focused on approaches to highway verges; diverges; integration of swales; setting of SuDS ponds and Non- Motorised Users (NMU) to ensure high quality place making.

### Use resources wisely:

- Re-use of material on site including earth, stone and seedbank.
- Use locally found materials and plant species.

### Enhance and protect natural heritage:

- Support local biodiversity with native plant and grass seed mixes.
- Creation of variety of habitats including swales, basins and meadows.
- Reroute Dean Burn with naturalistic meanders where necessary.

### Build in adaptability to change:

- Creation of enhanced natural habitats.
- Advance planting to achieve mitigation screen planting and diverse habitats from outset.
- Sustainable drainage integrated into design from outset.

## Application of Objectives and Outline Design Principles

A number of Committed Environmental Mitigation Measures have been identified in the ES. These measures are part of the Proposed Scheme and the Contractor is required to carry these forward at Detailed Design.

The following section sets out outline design principles for a number of the scheme elements, which are intended to inform the detailed design of the Proposed Scheme. In addition to the Committed Environmental Mitigation Measures, careful consideration of the following outline design information will be important to ensure all design objectives are achieved. The contractor will be required to demonstrate their commitment to meet the design quality and objectives set out in this document during the tender stage.

The outline design principles set out here are not intended to be overly prescriptive or restrictive on a Contractor, rather they provide details on elements of the Proposed Scheme that must be considered further. The purpose is to ensure that the design will deliver an appropriate level of high quality detailing for specific landscape elements of the Proposed Scheme.

The design principles cover a range of hard and soft landscape treatments. Precedent examples from elsewhere have been included to provide context and to highlight ideas that could influence the detailed design stage. Commentary is provided on how these ideas could be applicable to the Proposed Scheme.

Outline design principles are developed for the following landscape elements of the Proposed Scheme:

- Structural Finishes;
- Subways;
- Lighting and Signage;
- Surfaces;
- Dry Riverbed;
- Landform and Slope Treatment; and
- Soft Landscape.

## Concept

The Proposed Scheme should deliver a series of high quality, safe, welcoming and well-functioning places which respond to the site and enhance the experience for all user groups.

Application of best practice design standards will result in a robust design that endures and meets the needs of users today and in the future.

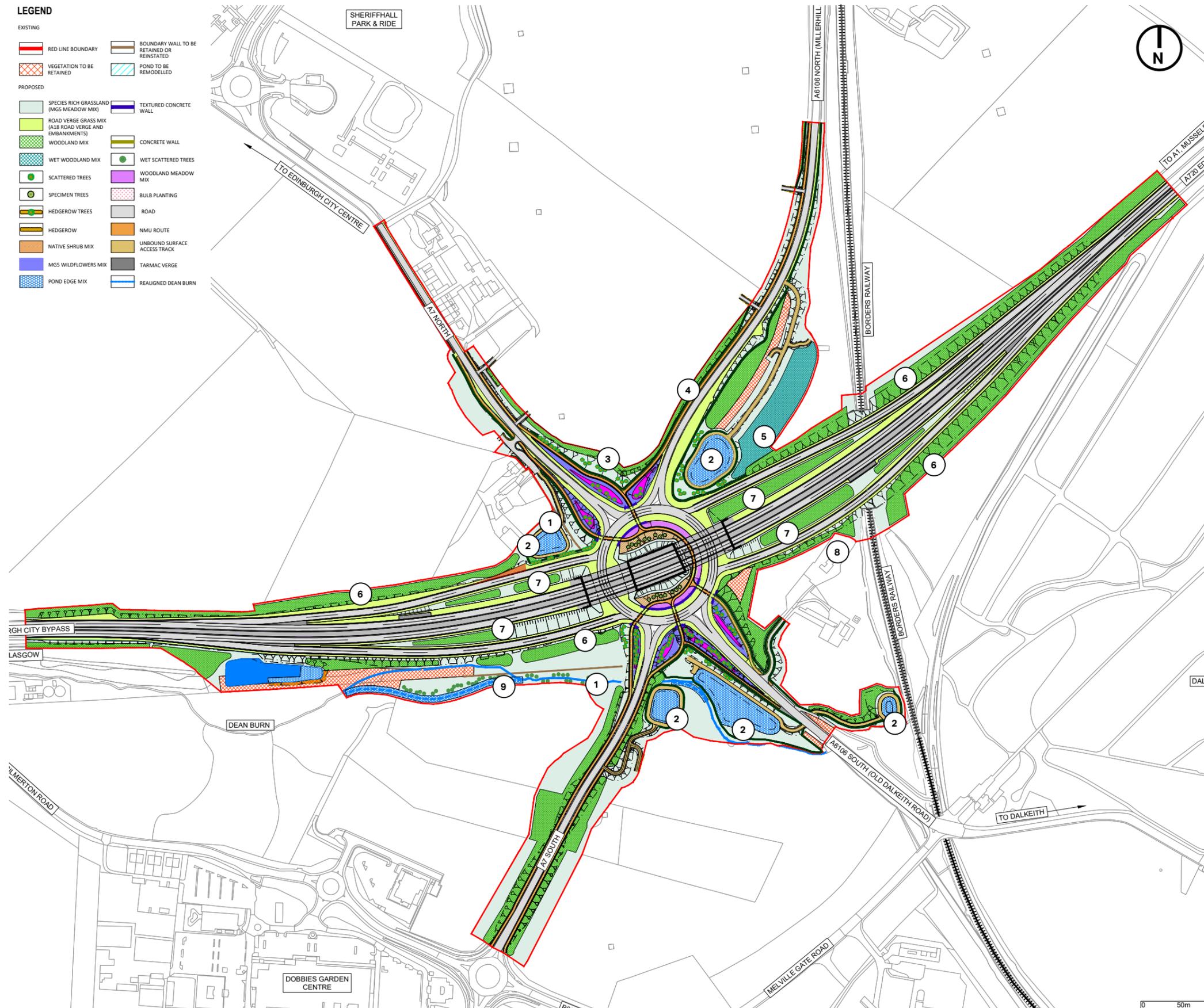
The Proposed Scheme occupies a unique transitional space, between rural countryside and urban fringe, with residential development etching a presence into the greenbelt of both Edinburgh City and Midlothian Council boundaries.

A bold vision informed by an attractive materials palette will ensure a cohesive design. Attention to detail during design and construction, will ensure a legible and function environment whether travelling on foot, bicycle, horse (equestrians) or vehicular transport.

A stripped back hard landscape material palette and clean, bright lighting will be softened by flowing contours of grass embankments. Biodiversity will be increased by native plants, whilst woodland planting will provide visual screening, contrast to the structures and introduce pockets of dappled light.

The sculptural elegance of the supporting earthworks will create a recognisable landmark feature, which will aid wayfinding, provide visual interest and form a marker point between countryside and suburban spread.

# Landscape Mitigation Plan



The following plan provides an overview of the scheme wide Landscape Mitigation Plan which is part of the ES. The summary below is provided to give context to objectives and design principles discussed in this appendix.

## Notes

Existing mature tree planting should be retained as far as possible and protected during construction of the Proposed Scheme. A tree survey will be undertaken and a tree retention and protection plan prepared prior to construction to inform detailed design.

- Existing stone boundary walls are a feature of the landscape and should be retained where possible. Where this is not possible the stone boundary wall should be carefully dismantled and reconstructed after other works are completed.
- SuDS ponds to be sown with pond edge mix to provide habitat.
- Area of in-cutting to be planted with native hedgerow and woodland to replace vegetation lost along this boundary.
- Hedgerow and woodland planting to form field boundary and provide screening of the A6106 when viewed from the north.
- Area of wet woodland planting to include water tolerant species suitable for the existing wet ground conditions of this location to support local ecosystems.
- Woodland planting along road corridor embankments to provide screening of the A720.
- Slip road embankments to be planted with woodland to provide screening of the A720 and reinforced steepened slopes sown with grass mix to soften their appearance.
- Land take should be minimised around Sheriffhall House.
- Riparian habitat along the re-aligned Dean Burn to be created using native grass mixes and adjacent scattered tree planting in naturalistic groups.

Fig 7. Landscape Mitigation Plan, NTS (AECOM)

# Structural Finishes

Structural walls and slopes will be most noticeable at the central roundabout area. The selection of materials and finishes in this location should be carefully considered to reduce the scale and prominence of these structures.

The use of patterns and textures on hard surfaces provides the potential to create bespoke finishes and form a distinctive palette unique to the location and ensure a high quality environment is delivered. There is potential to select patterns which reflect the urban/rural fringe location of the Proposed Scheme using local materials, vegetation, organic forms and landscapes as inspiration.

## Precedent Images

### Texture

Use of distinctive materials can contribute to the character of the area and create a sense of place. Texture should be consistent throughout to create a unifying palette within the landscape.



Fig. 8 Freeway Sound Barriers (Concrete Colour Systems)



Fig. 9 Bundall Road Sound Barriers (Concrete Colour Systems)



Fig. 10 Honeycomb pattern wall (Concrete Colour System)

### Patterns

Patterns can be created through simple stencil or relief techniques such as concrete formwork. Patterned finishes provide an adaptable approach to creating unique character within the landscape.



Fig. 11 Contour pattern in concrete panel, Victoria, London (AECOM)



Fig. 12 Textured concrete, Bribie Island (Concrete Colour Systems)



Fig. 13 Pre-cast concrete (Concrete Colour Systems)

### Material Quality

The selection of the materials should be robust, easy to maintain and functional. It is important to develop a cohesive palette, which responds to the local context and contributes to the sense of place.



Fig. 14 Bowden Place (Lahnimmo Architects)



Fig. 15 Use of boulders in the landscape, Sunshine Plaza (Concrete Colour Systems)



Fig. 16 Natural stone finish retaining wall (AECOM)

# Structural Finishes

## Applicability to the Proposed Scheme

### Beneath Bridge Deck

Shaded areas beneath the bridge deck may not be suitable for planting. Surfaces could be textured to soften the appearance of large expanses of concrete. Textures could also pick up on natural forms, such as the use of timber boards to create a linear pattern or the use of natural stone setts. For areas along the NMU path these ideas could be combined with the dry riverbed concept (see page 12).



Fig. 17 Wood textured concrete (Creative Commons)



Fig. 18 Textured concrete finish (Creative Commons)

### Retaining Walls

The entrances to subways provide opportunities to create distinct facades which clearly mark these entrance points. These areas could be finished with light-coloured textured concrete which picks up on organic forms and takes reference from the surrounding landscape or natural stone cladding which borrows from the drystone dyke and stone wall features within the surrounding area.



Fig. 19 Natural stone wall. Royal Botanic Gardens, Edinburgh (AECOM)



Fig. 20 Formwork liners can create various patterns within in-situ concrete (Max Frank)

# Subways

The subway entrance should be clearly visible with high quality materials selected to mark and emphasise these gateways as inviting spaces to encourage usage.

## Precedent Images

The use of high quality materials at entrances could provide contrast to the surrounding road infrastructure. This contrast could be used to highlight and make a feature of subways. Possible treatments for entrances and within the subways include cladding which comes in a variety of materials and finishes.



Fig. 21 Timber cladding at Seongsan Underpass, Seoul (RIBA, 2015)



Fig. 22 Harewood Underpass, Christchurch (Meg Back)



Fig. 23 Metal artwork panels, Melbourne Train Station (Lump Studio)

## Applicability to the Proposed Scheme

Clear signage should aid navigation and mark thresholds. If possible, views through to the outside of the subway will make these spaces more welcoming.

The walls and ceiling of the subways could be formed of light-coloured materials to increase light and make the subway environment more welcoming. In places it may be possible to include art work and light installations within the subways (see page 10). Cladding provides the opportunity to introduce different textures and patterns which could be integrated with the lighting scheme.



Fig. 24 Signage above subway, London (Creative Commons)



Fig. 25 Underpass cladding and LED lights, Schwäbisch Gmünd (Uwe Röder)



Fig. 26 Corten cladding, Architecture Infocentre, the Netherlands (Creative Commons)

# Lighting and Signage

Lighting and wayfinding will help to create a comfortable, safe and easy to navigate environment for NMUs. Both elements could be used creatively to make unique placemaking features. This could include decorative signage marking the entrances towards Edinburgh and Dalkeith.

## Precedent Images

Bold designs including feature lighting and signage can be used to transform subway spaces. There is an opportunity for lighting to be in the form of moving visual features that offers both temporary and permanent art installations, where appropriate.



Fig. 27 Cumbernauld Subway (Inhabitat)



Fig. 28 Colourful lighting in underpass (Creative Commons)



Fig. 29 Light installation, Greenock (Creative Commons)

## Applicability to the Proposed Scheme

Lighting and wayfinding will increase accessibility and legibility of the roundabout. Subways should be lit 24-hours a day and coloured lights could create an interesting feature and in combination with surface lighting to guide people through the subways and roundabout. Traditional wayfinding and cycle signage features such as fingerposts could also be included to aid navigation.



Fig. 30 Lighting columns to be set back from NMU path (AECOM)



Fig. 31 Surface lighting (Eco Innov)



Fig. 32 Fingerpost (AECOM)

# Surfaces

Surfaces should be smooth, robust and functional for all user groups, including pedestrians, cyclists and equestrian riders, with poured sealed surfaces such as tarmac, resin bound aggregate and concrete likely to be the most suitable options.

Paths will be shared (unsegregated) amongst user groups with clear signage indicating this at the entrances and exits. Changes in surface colour may be useful to highlight threshold changes. Kerbs and edging details should complement the main surface design and material.

## Precedent Images

Surfaces for cycling are often poured to provide even finishes. To add interest within these types of surface, pattern and texture can be added. This could include using different types of aggregates or by making a feature of concrete joints or by adding markings over the top of tarmac surfaces.



Fig. 33 Surface markings could enhance surfaces, Copenhagen (AECOM)



Fig. 34 Poured concrete can create an attractive high quality finish, Copenhagen (AECOM)



Fig. 35 Surface markings at DNA Path, Cambridgeshire (Creative Commons)

## Applicability to the Proposed Scheme

Surface markings will be important for helping pedestrians and cyclists to easily understand how the shared (unsegregated) path functions.

Coloured tarmac is often used for footpaths within parks as the lighter tone differentiates it from highways. Other surface options may include exposed aggregate concrete or resin bound gravel which are available in buff colours.

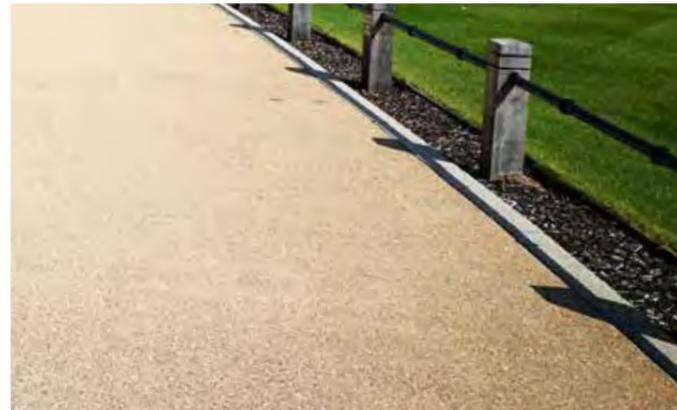


Fig. 36 Exposed aggregated concrete with low kerb edge, Leicester Public Real (AECOM)



Fig. 37 Signage should be integrated into surfaces where required, Leicester Public Realm (AECOM)



Fig. 38 Typical rural shared-use path (AECOM)

# Dry Riverbed

The design language of a dry riverbed could inform the design of the NMU routes. Boulders and natural stone elements securely embedded in concrete could provide texture and interest in areas shaded by structures, such as beneath the bridge deck and provide a linear naturalistic feature to enhance the user experience.

The combination of sculptural grass mounds and use of natural stone reflects the surrounding landform, in particular the Pentland Hills and associated water courses. Natural stone features are a characteristic of the surrounding landscape, which could influence the choice of materials.

## Precedent Images

The design language of the dry riverbed could be used within the landscape as shown. The integration of planting within pockets of natural stone could provide increased biodiversity and attractive contrast of elements.



Fig. 39 Natural Dry Riverbed (Creative Commons)



Fig. 40 Natural stone features are common within the surrounding landscape of Sheriffhall (AECOM)



Fig. 41 Planting along a designed dry riverbed (Creative Commons)

## Applicability to the Proposed Scheme

The use of feature boulders and natural stone could be extended at key gateway entrances and at intervals along the cycle path. The inclusion of naturalistic rock clusters at the base of slopes, could serve to integrate the landscape proposals with the wider landscape.

The continuation of the dry river bed theme could create route wide continuity. Lighting beneath the bridge deck could further accentuate the sculptural effect.



Fig. 42 Boulders integrated into hard landscape, Leicester Public Realm (AECOM)

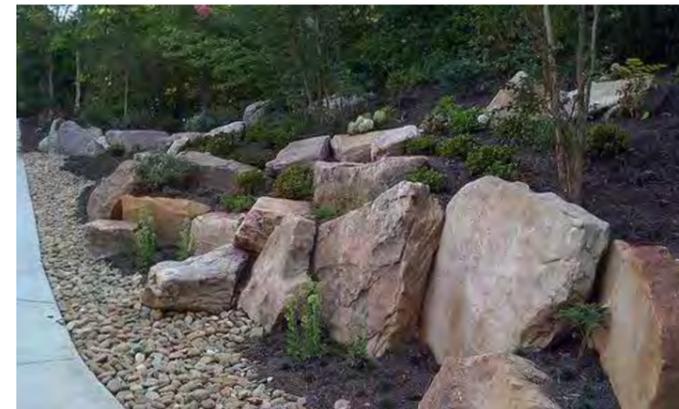


Fig. 43 Sloping garden with retaining stone blocks (Only Humans)



Fig. 44 Corten and gravel edging detail, Barcelona (AECOM)

# Landform and Slope Treatment

Slopes should be kept to the minimum steepness required and contours should be sinuous with rounded edges. Slopes with a gradient of 1:3 or less will be most suitable for tree and shrub planting, whereas steeper slopes may require green engineering solutions to aid plant establishment.

Within the central mound area landform could take a sculptural form, possibly using terraces or sweeping contours to reflect those at Dalkeith Palace. This could help to break-up the mass of the central roundabout embankments and create an attractive feature and enhanced sense of place.

## Precedent Images

Possible slope treatments could include terracing or sculptural landforms, softened with planting such as grasses and wildflowers, sedum or other ground cover species.



Fig. 45 Slope terraces (AECOM)



Fig. 46 Sculptural landform, Jupiter Artland (AECOM)



Fig. 47 Sedum planted embankments (Sempergreen)

## Applicability to the Proposed Scheme

All slopes to be 1:3 where possible to help the integration of planting elements such as trees and shrubs. Slopes alongside the main carriageway and slip roads are to be planted with woodland as per the Committed Environmental Mitigation Measures.

Where steepened slopes are required the use of green engineering solutions such as Green Terramesh could be used to achieve a softer 'greened' finish. The inclusion of terraces or berms within steep slopes could be integrated to create simple sculptural forms enhancing the sense of place.



Fig. 48 Green Terramesh (Maccaferri Ltd.)



Fig. 49 Slopes with woodland planting (AECOM)



Fig. 50 Sculptural landform (Creative Commons)

# Soft Landscape

Planting should provide visual interest to those using the roundabout, and particularly people using the NMU route, by providing colour and texture to enhance the experience. The Proposed Scheme presents opportunities for habitat enhancement and the species selection has been discussed with an ecologist to ensure that it supports the Committed Ecology Mitigation Measures.



Fig. 51 Recommended roundabout palette (Creative Commons)

## Sheriffhall Roundabout

Within the proposed roundabout area planting should be designed to soften the appearance and filter views of the engineered structures. Planting should be used to reduce the scale of the roundabout and bridges and ensure that Sheriffhall Roundabout is a welcoming space for people using the NMU route.

A combination of native shrubs, woodland meadow and light canopy birch trees could soften the edges of the route and provide seasonal change and colour. Native shrubs and specimen trees would create structure during winter months and wildflowers will provide waves of colour from early spring through to autumn. Tree planting, where feasible, would help soften and break-up the mass of embankments.



Fig. 52 Recommended NMU palette (Creative Commons)

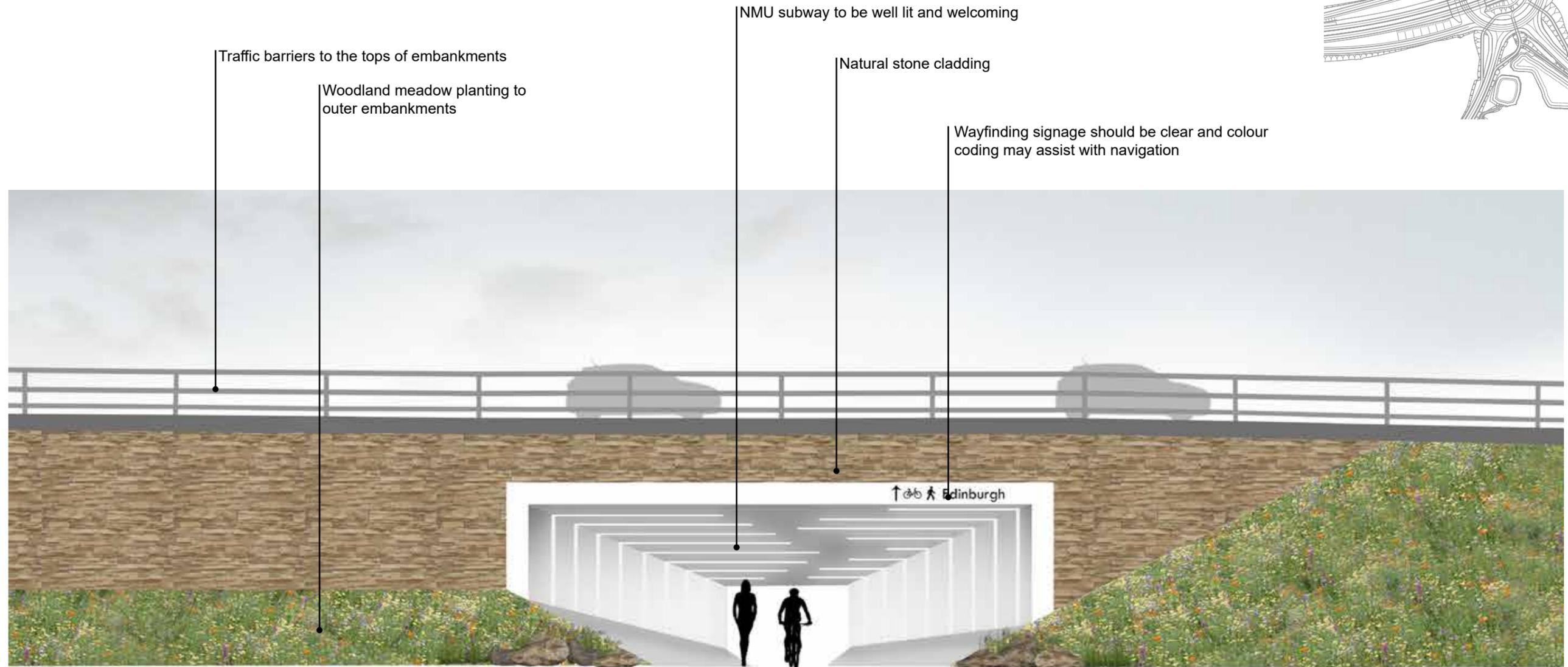
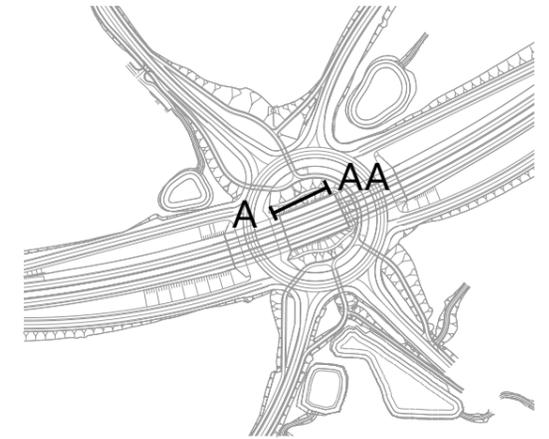
## NMU Route

The NMU routes are located within areas of in-cutting as they emerge from the roundabout. The soft landscape palette should respond to this with low level planting to ensure that the routes feel as open as possible. Tree planting should be set back from the NMU route for this same reason. Colour could be added to these routes through the inclusion of a native meadow mix which includes wildflowers and bulb planting to provide spring colour.

# NMU Elevation

The below sketch elevation provides an artist's impression of how the entrance to the subways could look. The design of these elements will be further developed as part of the detailed design stage.

## Key Plan



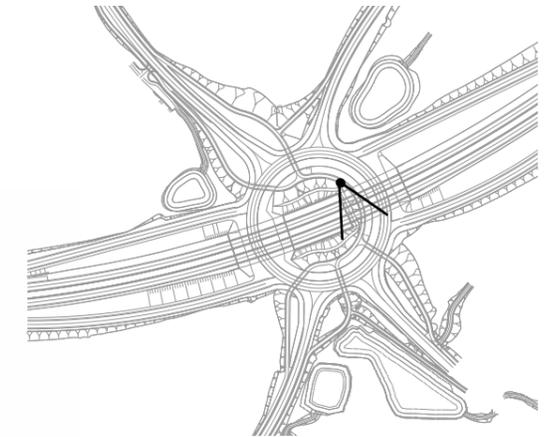
**Elevation A:AA - Elevation through roundabout looking north towards NMU Entrance (NTS)**

Fig. 53 Elevation (AECOM)

# Sketch Ideas

The below sketch provides an artist's impression of how the NMU route within the centre of the roundabout could look. The design of the elements shown will be further developed as part of the detailed design stage.

## Key Plan



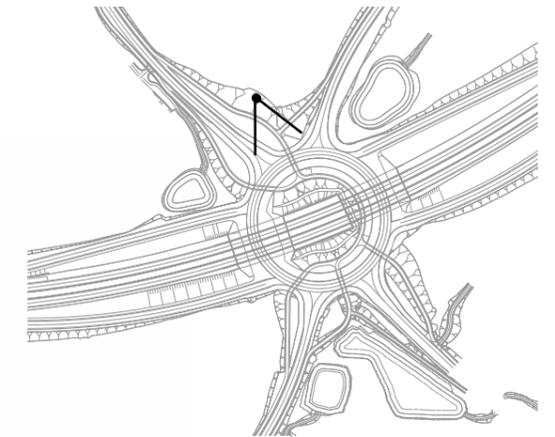
**Sketch looking south from NMU path within Roundabout**

Fig. 54. Sketch A (AECOM)

# Sketch Ideas

The below sketch provides an artist's impression of how the NMU route and approach to subways could look. The design of the elements shown will be further developed as part of the detailed design stage.

## Key Plan



Terraced or sculptural landform to break-up the mass of the embankment

Lighting columns set back from path

Native species hedgerow boundary

Native Grass (MG5 Mix)

Welcoming and well-lit entrance to subway with clear signage

Wildflower meadow

Fingerpost wayfinding

Lighting and finger post elements to be integrated within verge

Wayfinding integrated into surface

**Sketch looking south from NMU path north of Roundabout**

Fig. 55 Sketch B (AECOM)

# Next Steps and Recommendations

The landscape objectives and design ideas set out in this document will be further refined as part of the preparation of the Employer's Requirements for the Proposed Scheme.

It is recommended that detailed design should seek to integrate the Proposed Scheme within the receiving environment whilst providing a sense of place, at human scale for NMU, road users and adjacent residents. Precedent images have been provided as examples to inform the detailed design stage.

The successful implementation of the Proposed Scheme will be dependent on a cohesive and integrated approach to detailed design, informed by the principles outlined in this appendix and by the ES.

To enable these aspirations to be implemented through the procurement phase, engagement between the Contractor and Transport Scotland will be essential. The development of high quality design solutions should be discussed at tender dialogue meetings to ensure full compliance. Adherence to policy, best practice and the objectives and design principles outlined in this appendix, will bring multiple benefits to the Proposed Scheme.

## Recommendations for Detailed Design

- The detailed design should follow the recommendations and principles set out within this document;
- Ensure design follows placemaking guidance to deliver a series of high quality, safe, welcoming and well-functioning places which respond to the site and enhance the experience for all user groups;
- Ensure best practice guidance and policy is followed;
- Early appointment of a Landscape Architect to develop a detailed landscape design; and
- Designers to work closely with Transport Scotland to develop high quality design.

# References

## Documents

Sustrans (2014) Sustrans Design Manual Chapter 5, Traffic free routes: conceptual design (draft), Route types, alignment and general principles - [https://www.sustrans.org.uk/sites/default/files/file\\_content\\_type/5\\_traffic\\_free\\_routes-conceptual\\_design\\_09\\_12\\_14.pdf](https://www.sustrans.org.uk/sites/default/files/file_content_type/5_traffic_free_routes-conceptual_design_09_12_14.pdf)

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