

# Appendix 1

## *Supporting Chapter 1 – Introduction*

Appendix 1.1 – Record of Determination

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## Appendix 1.1 – Record of Determination

EC DIRECTIVE 2014/92/EU  
ENVIRONMENTAL IMPACT ASSESSMENT (SCOTLAND) REGULATIONS 1999 (as amended)  
ROADS (SCOTLAND) ACT 1984

## RECORD OF DETERMINATION

**Name of Project:**

A720 Sheriffhall Roundabout  
Junction Improvement

**Location:**

The A720 Sheriffhall Roundabout is located at the eastern end of the A720 Edinburgh City Bypass in the Midlothian Council local authority boundary area.

**Description of Project:**

The A720 Sheriffhall Roundabout ("*the Scheme*") forms a junction on the A720 Edinburgh City Bypass and connects to six A-class roads of local and regional importance:

- The A720 Edinburgh City Bypass (East) and the A720 Edinburgh City Bypass (West).
- The A7 (North) and the A7 (South).
- The A6106 Millerhill Road and the A6106 Old Dalkeith Road.

The location of the Scheme is shown in Appendix 1 - Figure 1.

The Sheriffhall Roundabout is the only at-grade junction on the A720 Edinburgh City Bypass. The six-arm roundabout has undergone various improvements including localised widening, signalisation and the provision of additional lanes to try to alleviate the delays which occur at the junction. Despite the improvements, a congestion problem persists - particularly during peak hours.

Junction improvements at Sheriffhall were first identified as part of the Strategic Transport Projects Review (STPR), published in December 2008. Intervention 22 recommends targeted road congestions/ environmental relief schemes, including junction improvements at the Sheriffhall Roundabout.

The Scheme objectives are to:

- Improve the movement of traffic on the A720 between Gilmerton and Old Craighall by providing grade-separation of the A720 at the existing Sheriffhall Roundabout.
- Reduce the conflict between strategic and local traffic.
- Minimise the traffic impact of local proposed developments in Midlothian, East Lothian and City of Edinburgh on the A720 between Gilmerton Junction and Old Craighall Junction and the approach roads.
- Improve road safety for all users on the A720 and approach roads between Gilmerton Junction and the Dalkeith Northern Bypass.
- Minimise intrusion of the new works on the natural environment, cultural heritage and people whilst enhancing the local environment where opportunities arise.
- Facilitate integration for different modes of transport including non-motorised users (NMUs) along, and across, the A720 corridor between Gilmerton Junction and the Dalkeith Northern Bypass.
- Reduce severance by improving accessibility across the A720 for all users (including NMUs).

**Project Procurement:**

The project procurement is yet to be decided.

**Description of Local Environment:**

The topography of the study area mainly consists of gently undulating ground with natural slope angles of around 5° to 10° typical. Disused railway lines run north-south to the east of the roundabout, as does the new Borders Railway line between Edinburgh and Tweedbank. The A720 road infrastructure is in cutting to the west of Sheriffhall and on embankment to the east.

**1. Landscape and Visual:**

There are two designated Special Landscape Areas (SLAs) to be found within the Scheme study area (the North Esk Valley Area of Great Landscape Value/proposed SLA (pSLA); and The Drum SLA. In addition, there are eight Landscape Character Areas (LCAs) located within the study area (Danderhall Settled Farmland/ Melville Nurseries/Dalkeith Palace/ Burdiehouse Farmland/Drum Estate/ Edgefield/ Melville North Esk Valley and South Melville).

**2. Nature Conservation:**

There are two Statutory Designated Sites in the Scheme study area (Dalkeith Oakwood SSSI), located c. 1km away, and the Burdiehouse Burn Valley Park Local Nature Reserve (LNR). There are also four locally designated sites for nature conservation (*non-statutory designated sites*) within 1km of the Scheme, but none are within the Scheme footprint. In addition, there are approximately 287 hectares of Ancient Woodland within 2km of the existing A720 Sheriffhall Roundabout, of which 112ha is of semi-natural origin.

**3. Cultural Heritage:**

Within a 2km study area radius of the A720 Sheriffhall Roundabout there are a number of cultural heritage designations including 16 scheduled monuments and 21 Category A listed buildings (the closest is the Dalkeith House (Palace) - The Kings Gate, Walls and Lodge which is located <500m to the south of the present Sheriffhall Junction. There are four gardens and parks on the Inventory of Gardens and Designed Landscapes (the closest is the Dalkeith House (Palace) Designed Landscape) and Six Conservation Areas – the closest is the Dalkeith House & Park Conservation Area. There are no entries on the Inventory of Historic Battlefields and no World Heritage Sites (WHS) or WHS Buffer Zones. There are a large number of non-designated heritage assets and the potential for undiscovered archaeology with the area.

**4. Road Drainage and the Water Environment:**

The River North Esk is the largest watercourse in the vicinity of the Scheme. The River Esk (the combined River North Esk and River South Esk) discharges to the Firth of Forth at Musselburgh, approximately 7km to the north east of Sheriffhall. The Dean Burn is a minor tributary of the River North Esk and flows from west to east, to the south of the A720. The Dean Burn flows through an area of woodland at Lugton Bogs where there is a small standing waterbody.

**5. Noise and Vibration:**

There are no major sources of noise such as major quarries, large industrial operations etc., in the Scheme study area. Therefore, road traffic noise is likely to remain the dominant noise source.

**6. Air Quality:**

Based upon 2014 baseline data, mean pollution concentrations for the study area as taken from the local air quality management section of Defra's website (Defra, 2017) are all below the relevant air quality strategy objectives.

**7. Effects on All Travellers:**

In the immediate vicinity of the existing A720 Sheriffhall Roundabout, there are off-road sections of paths allowing for NMUs to cross each of the arms of the Roundabout; however there are no pedestrian controlled crossings. There are several designated Core Paths (Edinburgh City and Midlothian Councils) located within a 500 metres radius of the Scheme study area. Pavement provision linking to the A720 Sheriffhall Roundabout is limited to sections along the A7 northbound and the A6106 Millerhill Road. There are no National Cycle

**Description of Local Environment:**

Network (NCN) routes located within the study area but there are a number of both on-road and off-road local cycle route networks. There are no dedicated equestrian paths or trails within the study area.

**8. Community and Private Assets:**

The study area around the A720 Sheriffhall Roundabout comprises a mix of land uses including residential properties, business premises, community facilities agricultural land, woodland, and waterbodies. The study area is also located within, or in proximity to, designated economic development areas.

There are c.350 residential properties within a 1km radius of the Scheme study area but within a c.500m radius there are only c.20 residential properties with the nearest being the Summerside residences and the Campend residences (on the A7 North) and the Old Sheriffhall Farmhouse residences (on the A6106 Old Dalkeith Road). However there are a number of housing allocations around the study area (with a combined capacity of over 4,000 new homes) - and the A720 Sheriffhall Junction will be a key transport access to/ from these locations.

Industrial and business premises include Lowes Fruit Farm (to let), Didcock and Son Upholstery Sheriffhall Café, the Old Colliery Pub restaurant, Shawfair Park, the Elginhaugh Farm Pub Restaurant, Dobbies Garden Centre/Butterfly World and the Melville Inn Pub Restaurant. Community facilities within the study area include the Chapter One Childcare Nursery, Sheriffhall Park and Ride, the Old Colliery Pub Restaurant, and the Spire Shawfair Park Hospital. The Edinburgh Royal Infirmary at Little France is located on the A7 about 4km north of the A720 Sheriffhall Roundabout. It is a regionally important facility potentially accessed via the A720 Sheriffhall Roundabout.

**9..Geology and Soils:**

There are no SSSIs designated as such for geology in the Scheme study area, neither are there any Regionally Important Geological Site (RIGS). The superficial geology of the study area predominantly consists of glacial till, and glaciofluvial sands and gravels are also present. The solid geology bedrock underlying the study area predominantly comprises rocks belonging to the Middle and Lower Coal Measures which are part of the Carboniferous Coal Measures (Scotland) formation which contains seams of coal and other minerals which are known to have been worked in the past. Seismic activity has been recorded in the past in the area, although the magnitudes of the seismic events were weak to very weak. These events are understood to have been attributed to deep mining activity, which ceased shortly after these recordings.

There are a number of potential sources of contaminated land throughout the Scheme study area linked to historic and current land use activities. Contaminants include metals and metalloids, inorganics, organics, pesticides, asbestos and ground gases.

**10. Materials:**

Although specific waste management disposal facilities have still to be identified for the Scheme, SEPA's Waste Sites and Capacity Tool identifies that there is one non-hazardous waste landfill site in the region and a wide range of recycling facilities .

**Description of main environmental impacts of project and proposed mitigation:**

As a general principle, the Scheme will be delivered in accordance with best practice applying the Best Practicable Means to mitigate the environmental impacts.

**1. Landscape and Visual:**

1. The inclusion of mitigation planting, particularly on embankment slopes as part of the Scheme design, will minimise potential residual and long term effects on both the local landscape character and the visual amenity of a limited number of receptors.

**2. Nature Conservation:**

The key ecological considerations for the Scheme concern loss of ancient woodland (and associated potential impacts on protected species), lengths of required culverting (and associated potential impacts on protected species), and likely increases in protected species road traffic casualties. Further survey work is required to determine the impacts of the Scheme. However, owing to the limited area of land take and culverting anticipated for the Scheme, together with the implementation of recommended design mitigation during the

**Description of main environmental impacts of project and proposed mitigation:**

construction and operational phase, it is not anticipated that there will be any significant Nature Conservation impacts.

**3. Cultural Heritage:**

The Scheme has the potential to impact upon the Dalkeith House (Palace) Garden and Designed Landscape and may result in setting impacts on a Scheduled Monument as well as potentially impacting on the setting of a limited number of Category B listed and Category C listed buildings. The cultural heritage impacts are expected to be of moderate significance and there is a high potential for the presence of further archaeological remains.

**4. Rad Drainage and the Water Environment:**

Effects on the water environment during the Scheme construction include sediment mobilisation and spillage of pollutants to the Dean Burn and preferential pathways to groundwater. There will be a requirement for varying degrees of diversion of the Dean Burn channel and alteration of the floodplain in the vicinity of the Scheme. Flooding of the working areas could occur from the Dean Burn and surface water flooding which are predicted to occur in this location. Alterations to existing culverts or new culverts may be required. Groundwater flow may be impacted through dewatering of excavations. Beneficial effects during the Scheme operation phase include a potential improvement in water quality and surface water flooding issues through the use of Sustainable Urban Drainage Systems (SuDS) for road drainage. The hydromorphology of the Dean Burn may also be degraded to some degree through channel modification and culverting but long-term significant impacts are not anticipated.

**5. Noise and Vibration:**

The Scheme construction noise impacts are likely to extend over a larger area and given the close proximity of receptors there is the potential for significant – but temporary impacts - at nearby receptors. The Scheme is likely to lead to an increase in traffic flows and speeds on the A720, and the majority of the surrounding connecting roads resulting in predicted minor short and longer term increases in traffic noise levels but this would be limited to the very closest receptors. The risk of vibration induced building damage during the Scheme construction is considered to be very low and the risk of temporary annoyance due to construction vibration from standard construction works would be limited to the very closest receptors and is not anticipated to be significant.

**6. Air Quality:**

There is potential for short-term construction impacts on air quality due to fugitive dust and vehicle emissions associated with on-site activities. The impacts would be limited to the small number of receptors within close proximity to the Scheme and are not anticipated to be significant. In the operational phase it is anticipated that local pollutant concentration changes would not be significant compared to the baseline conditions and health based air quality objectives would not be breached.

Regional Air Quality emissions are predicted to increase compared to the baseline situation. The two main reasons for this increase are due to additional roads being constructed resulting in higher traffic flows in the study area and greater vehicle kilometres that would need to be travelled compared to the baseline situation..

**7. Effects on All Travellers:**

Disruption to vehicle travellers and increased driver stress during the Scheme construction would potentially occur but these are not anticipated to be significant. During the Scheme operation the creation of a grade separated junction will improve traffic flow and consistency of speeds for vehicle travellers. There is also the potential for beneficial effects including reduced driver stress and frustration as traffic through Sheriffhall should flow more freely and there would be enhanced safety benefits created by the introduction of the grade separated lay-out. Impacted non-motorised users (NMUs) include users of core paths and other existing shared use paths networks, on-road cyclists and the public using bus stops. The Scheme would be designed to provide similar or enhanced provision for NMUs resulting in overall benefits including segregated shared footway/cycleway provision.

**8. Community and Private Assets:**

The Scheme construction would lead to permanent land take of agricultural land and Local Development Plan (LDP) allocated land proposed for economic development use. Proposed mitigation includes the payment of appropriate compensation for permanent loss of affected land. There will also be disruption during construction

**Description of main environmental impacts of project and proposed mitigation:**

to a number of residential properties, Network Rail land, field accesses and community facilities. However, these would be temporary and of short duration. The Scheme operation would not result in any permanent severance of access provision to residential properties, industry/business premises, community facilities, or agricultural fields.

**9..Geology and Soils:**

The Scheme is not anticipated to have a significant effect on the geomorphology, agricultural soils, drift geology and bedrock of the area after mitigation measures are employed. Contaminated land and potential for contamination of sensitive receptors are also not anticipated to be significant issues. The most significant environmental effect could result from the treatment of mine workings and the potential contamination and disruption of groundwater flow from mine waters; mine gases; and grout which need to be prevented by close control. By applying appropriate mitigation measures the risk of such events can be minimised and the residual effects are not predicted to be significant.

**10. Materials:**

The construction of the Scheme will require a wide range of materials (e.g. fencing, drainage systems, and road pavements). Various forms of waste will be generated, the greatest of which will be surplus inert waste arising from the excavated earthworks during construction. Mitigation will seek to re-cycle materials on-site where possible with the amount of spoil and waste to be disposed of minimised. The Waste Hierarchy as defined in the Article 4 of the Revised Waste Framework Directive (2008/98/EC) will be applied.

**Extent of EIA work undertaken and details of consultation:**

- A STAG Part 1 Assessment was published in May 2008 which identified six Sheriffhall Junction improvement options with five of these being recommended to be taken forward for a STAG Part 2 Assessment.
- A DMRB Stage 1 Environmental Assessment “refresh” report was completed in 2014 which identified an initial eight junction improvement options for the A720 Sheriffhall Roundabout.
- A DMRB Stage 2 Environmental Assessment was completed in March 2017. The Stage 2 assessment has been supplemented by:
  - Meetings with Transport Scotland and relevant bodies, and a review of work previously undertaken by Transport Scotland;
  - A Stakeholder Workshop; Value for Money Assessment Workshops and a two-day Public Exhibition event;
  - Landscape, Ecological, and Air Quality field surveys and other environmental site inspection and visit walkovers; and
  - Consultation with the statutory and non-statutory bodies.

The following organisations were consulted regarding the works on A720 Sheriffhall Improvement Scheme.

**Statutory Consultees**

***Scottish Natural Heritage***

- SNH repeated its response from DMRB Stage 1 that access (how the scheme will accommodate active travel or non-motorised users); protected species (that work will have to be done to assess any impacts upon protected species); and landscape and visual impacts are the three most relevant topics within that should be considered in this project.

***SEPA***

- Sheriffhall Roundabout is at risk of flooding from surface water ponding. Consider vulnerable receptors when extending/replacing culverts.
- Ensure diversions/realignment of watercourses are assessed to understand changes in capacity, velocity and sediment erosion/deposition. Ensure alterations to watercourse/floodplain are detailed through a submitted Flood Risk Assessment.

#### **Extent of EIA work undertaken and details of consultation:**

- Install SUDs or other bio-retention areas to enhance the local environment.
- Identify all aspects of works that may impact upon the environment and potential pollution risks, then identify principals of preventative measures and mitigation.
- Recommend Environmental Health officers in the relevant local authorities be consulted

#### **Historic Environment Scotland**

- Recommended that both City of Edinburgh and Midlothian Councils' archaeological and conservation advisors be consulted regarding potential impacts on the historic environment, including undesignated assets.
- The previous comments made at DMRB Stage 1 remain valid:
  - 1) There are a number of heritage assets in the vicinity of the Sheriffhall Junction that should be identified in constraint mapping including the Elginhaugh Roman Camp/Fort and Melville Grange Scheduled Monuments; Dalkeith Park/King's Gate/Walls & Lodge Grade A listed building and Dalkeith House (Palace) Garden Designed Landscape (GDL).
  - 2) It appears unlikely at this stage that any of the proposed schemes would have a significant impact on the settings of these heritage assets. Minor alterations to the scheme might result in direct impacts on Elginhaugh Roman Camp or the Dalkeith House (Palace) GDL.

#### **Midlothian Council**

- Welcomes the improvement works and have provided detailed general and option specific comments for consideration.
- Require clarification on modelling, SUDs requirements, drainage, proposed Tram Line 3 extension impacts, and active travel provision.
- State the bus operators overall preferred option.
- Visual Impact less where A720 is on embankment.
- Suggest segregated cycle lanes, over/under passes and continental style roundabouts (TRL) for NMUs.
- May have light pollution impacts on Dalkeith Palace GDL.
- Looking for information relating to modelling of noise emissions and air quality impacts.
- The Council does not have any flooding data in the vicinity of Sheriffhall Roundabout. Notes that approximately five years ago there was a recurring flooding issue on the A7 near Campend. No flooding in the area since the insertion of a larger carrier pipe.

#### **City of Edinburgh Council**

- State that the most efficient way for the Council to contribute to this stage of the process would initially be for relevant Officers from these Services to meet with AECOM to discuss the proposals and any issues arising from them (*Note a range of officers were invited and attended a Stakeholder Workshop in October 2016*)
- States that the Dean Burn is wholly within the Midlothian area. Note from the SEPA flood maps that it doesn't look like the risk of flooding from the Dean Burn greatly affects the road, however it does identify several areas of potential surface water flooding that would need to be assessed.

#### **East Lothian Council**

- State that the Council has no particular preference to any of the Sheriffhall Junction option proposals
- General concerns that the improvement works at Sheriffhall will result in more free flowing traffic on the A720 potentially resulting in more traffic arriving in a constant flow at the A720/A1 Old Craighall Junction and creating more congestion at this junction – particularly during peak weekday periods.
- In particular, concerns raised that the Sheriffhall Junction improvements will result in increased queuing of A1 southbound traffic exiting at the Old Craighall Junction to join the A720 leading to increased queue lengths back onto the East Lothian Council section of the A1 with the potential for vehicle collisions.
- The consultation response requests that "this is modelled and potential impacts (as highlighted above) mitigated against particularly on the ELC section of the A1".
- Hold no relevant information and have no concerns regarding the proposed improvement. (Environmental Protection Officer)
- Advised that The Wildlife Information Centre (local record centre) should be contacted regarding



**Extent of EIA work undertaken and details of consultation:**

species records and information on any locally designated sites in the area. A data request had already previously been made to TWIC to support this Stage 2 assessment. (*Biodiversity Officer*).

**Non-Statutory Consultees**

- Sustrans
- Scottish Rights of Way & Access Society (Scotways)
- British Horse Society
- Sestrans
- SESplan
- VisitScotland
- Buccleuch Estates
- Road Haulage Association Ltd
- Lothian Buses
- Transport Scotland - Network Operations & Development Control

**Statement of case in support of a Determination that a formal EIA and ES is required:**

The A720 Sheriffhall Junction Improvement Scheme falls within Annex II as referred to in the Environmental Impact Assessment (Scotland) Regulations 1999 (as amended), given that works will exceed 1 hectare taking into account both the permanent and temporary works and there are likely significant effects on the environment.

To determine whether a formal Environmental Impact Assessment is required under the Environmental Impact Assessment (Scotland) Regulations, 1999 (as amended), the project has been subject to screening using the Annex III criteria. Screening using this criteria has identified a need for an Environmental Impact Assessment and Environmental Statement as there are likely significant effects on the environment by virtue of factors such as:

***Characteristics of the Scheme***

The Scheme involves the enlargement of the existing A720 Sheriffhall Roundabout to become an 8-arm grade-separated roundabout but the Roundabout would be retained at its existing location, and would be reduced to three lanes.

The A720 would be carried across the Sheriffhall Roundabout by two new bridges each with a span of approximately 40m.

There would be vertical and horizontal realignment of the A720 over an approximate length of 1600m.

***Location of the Scheme***

The total footprint area is expected to 19.5 ha, of which approximately 11 ha is within the existing road boundary.

***Characteristics of Potential Impacts of the Scheme***

Some of the receptors listed above are of high sensitivity, and detailed further work is required to fully determine the magnitude of potential impacts, in particular, on ecology, landscape, visual amenity and noise and air quality.

**File references of supporting documentation:**

- A720 Sheriffhall Roundabout Feasibility Study - STAG 1 Assessment (May 2008).
- A720 Sheriffhall Junction Improvement - DMRB Stage 1 Scheme Assessment ("Refresh Report") (September 2014).
- A720 Sheriffhall Junction Improvement - Stage 2 "Wider" Stakeholder Workshop Minutes (October 2016).
- A720 Sheriffhall Junction Improvement - DMRB Stage 2 Scheme Assessment Report (March 2017).

I have determined, following discussions with the MTRIPS Project Manager that an EIA/ES is required for this project.




SIGNATURE Transport Scotland Environmental Advisor .....

Date ... 11 May 2017

Authorisation to publish Notice of Determination

SIGNATURE Director, MTRIPS.....

Date ..........

**A720 SHERIFFHALL ROUNDABOUT JUNCTION IMPROVEMENT ENVIRONMENTAL IMPACTS AND PROPOSED MITIGATION: SUMMARY OF PROVISIONAL MEASURES**



Issue	Baseline Conditions	Potential Effects	Potential Mitigation
<p>Landscapes and Visual</p>	<ul style="list-style-type: none"> <li>The study area contains the Garden and Designed Landscapes and two designed Special Landscape Areas</li> <li>Eights Landscape Character Areas (LCAs) have been identified within the study area.</li> <li>A number of potential residential receptors have been identified.</li> </ul>	<ul style="list-style-type: none"> <li>Impacts on landscape character.</li> <li>Impacts on visual receptors/ views (<i>Visual Amenity</i>).</li> </ul>	<ul style="list-style-type: none"> <li>Careful siting of construction compounds.</li> <li>Minimise required extent of land take and vegetation removal for construction.</li> <li>Minimise loss of existing woodland, trees and hedgerows.</li> <li>Incorporate mitigation planting where possible to improve landscape fit and screen views of traffic.</li> <li>Vary gradients of embankment to provide more natural, less engineered appearance.</li> </ul>
<p>Nature Conservation</p>	<ul style="list-style-type: none"> <li>Three statutory designated sites were identified within 2km of the proposed Scheme, as follows: Dalkeith Oakwood SSSI, Burdiehouse Burn Valley Park Local Nature Reserve (LNR) and the Firth of Forth SSSI, SPA and Ramsar site.</li> <li>Approximately 287 hectares of Ancient Woodland have also been identified within the study area.</li> <li>The majority of grassland in the study area is improved pasture with limited ecological interest.</li> <li>The majority of scrub habitat occurs as roadside verges along the A720 bypass. The dominant species are hawthorn, willow, and small ash, and in some areas this scrub forms extensive patches.</li> <li>Water courses within the survey area include the Dean Burn which runs through the centre of the survey area (a likely Otter commuting route), and the River North Esk which clips the south of the survey area.</li> <li>There is evidence of Protected Species in the study area – otter, badger and bats.</li> <li>There is likely to be a wide range of breeding birds in the area owing to the variety of habitats present.</li> </ul>	<ul style="list-style-type: none"> <li>Pollution via contamination of surface or ground-waters.</li> <li>Air pollution.</li> <li>Loss of terrestrial habitat and c.0.17ha of ancient woodland.</li> <li>Pollution of watercourses.</li> <li>Partial or total loss of pond closest to existing bypass.</li> <li>Culverting of moderate lengths of watercourses.</li> <li>Impacts on Animal/ Mammal Species.</li> <li>Impacts on Plants.</li> </ul>	<ul style="list-style-type: none"> <li>Conduct appropriate bat surveys. If roosts found which might be disturbed/lost, obtain licences as appropriate (requiring detailed mitigation/compensation measures such as appropriate timing of works).</li> <li>Conduct specific badger, squirrel, great crested newt and water vole surveys. If setts or dreys identified appropriate licences and mitigation measures would be required.</li> <li>Conduct appropriate specially-protected bird survey.</li> <li>Compensatory pond creation.</li> <li>Design culverts to DMRB standards with minimised lengths.</li> <li>Carry out compensatory tree planting.</li> <li>Implement SUDS</li> <li>Follow SEPA Pollution Prevention Guidelines (PPGs), and other SEPA instructions to avoid potential negative impacts on fish and fresh water ecology.</li> </ul>
<p>Cultural Heritage</p>	<ul style="list-style-type: none"> <li>Within 1km of the Scheme there are 32</li> </ul>	<ul style="list-style-type: none"> <li>Temporary construction impact on the setting</li> </ul>	<ul style="list-style-type: none"> <li>Detailed design to avoid or reduce impacts</li> </ul>

Issue	Baseline Conditions	Potential Effects	Potential Mitigation
	<ul style="list-style-type: none"> <li>Category B and 20 Category C listed buildings.</li> <li>Category B listed, Summerside Farmhouse is c. 140m away from the existing junction.</li> <li>Within 2km of the Scheme there are 16 scheduled monuments, 21 Category A listed buildings, four Gardens and Designed Landscape and six Conservation Areas.</li> <li>Category A listed, Dalkeith House is c. 435m away from the existing junction.</li> <li>In addition, there are 44 other non-designated heritage assets within the area.</li> </ul>	<ul style="list-style-type: none"> <li>of heritage assets</li> <li>Permanent direct impact on setting of Dalkeith House (Palace) Designed landscape, Summerside Farmhouse, and Sheriffhall Farmhouse and Dovecot.</li> </ul>	<ul style="list-style-type: none"> <li>on heritage assets; physical protection or screening measures, including planting.</li> </ul>
Road Drainage and the Water Environment	<ul style="list-style-type: none"> <li>River North Esk is the largest watercourse in the vicinity of the Scheme.</li> <li>The Dean Burn is a minor tributary of the River North Esk and flow adjacent to the A720 through a number of road culverts beneath the A772, the A7 and the A6106.</li> <li>The groundwater bedrock is composed of moderately productive Scottish Coal measures Group.</li> <li>There are a number of water drainage networks in the vicinity of the existing A720 Sheriffhall Roundabout.</li> <li>There are two surface water outfalls discharging to the Burn in the vicinity of the pumping station.</li> </ul>	<ul style="list-style-type: none"> <li>Surface water quality.</li> <li>Surface water flooding.</li> <li>Impact on watercourse geomorphology.</li> <li>Groundwater Quality/Flow.</li> <li>Flood risk.</li> <li>Flooding.</li> <li>Increase in flood levels due to increased hardstanding.</li> <li>Impacts on water quality.</li> <li>Damage to channel bed and banks.</li> <li>Possible improvement of surface water flooding and water quality related to increased use of SuDS.</li> <li>Potential for release of sediment and pollutants to the groundwater.</li> <li>Dewatering of excavations could impact local groundwater flow.</li> </ul>	<ul style="list-style-type: none"> <li>Implementation of SUDS measures within the road drainage design to treat surface water run off.</li> <li>Development and implementation of a Construction Environmental Management Plan (CEMP) will reduce the impacts.</li> <li>Follow the SEPA Pollution Prevention Guidelines.</li> <li>New road drainage to be designed in accordance with best practice.</li> </ul>
Noise and Vibration	<ul style="list-style-type: none"> <li>Baseline monitoring was undertaken in 2006 at a selection of the closest residential receptors.</li> <li>No major sources of noise such as major quarries, large industrial operations etc. have been identified in the study area. Therefore, road noise and natural noise sources are likely to be the dominant noise sources.</li> </ul>	<ul style="list-style-type: none"> <li>Construction Vibration – Building Damage.</li> <li>Construction Vibration – Receptor Annoyance.</li> <li>Construction noise.</li> <li>Operational Traffic Noise</li> </ul>	<ul style="list-style-type: none"> <li>Implement best practice construction procedures, applying best practicable means to mitigate construction effects.</li> <li>Site specific mitigation if required to be determined once a contractor is involved and specific information is available</li> <li>Low noise surface included in design.</li> <li>Additional mitigation measures to be considered at Stage 3 if required and feasible.</li> </ul>
Air Quality	<ul style="list-style-type: none"> <li>2014 annual mean background pollution concentrations for the study area are all below</li> </ul>	<ul style="list-style-type: none"> <li>Fugitive construction dust and particulate emissions.</li> </ul>	<ul style="list-style-type: none"> <li>Application of current best practice mitigation and abatement measures will minimise the</li> </ul>

Issue	Baseline Conditions	Potential Effects	Potential Mitigation
	<p>the relevant air quality strategy objectives. Baseline monitoring was carried out at relevant receptors (residences and the West End of Dalkeith)</p>	<ul style="list-style-type: none"> <li>• Change in annual mean concentrations of NO<sub>2</sub> (Nitrogen Dioxide) and PM<sub>10</sub> (Particulate Pollution).</li> </ul>	<ul style="list-style-type: none"> <li>• effects of construction dust on nearby sensitive receptors.</li> <li>• There is no mitigation measures proposed for the operational phase.</li> </ul>
Effects on all Travellers	<ul style="list-style-type: none"> <li>• There are off-road sections of paths allowing for NMUs to cross each of the arms of the Sheriffhall Roundabout; however there are no pedestrian controlled crossings.</li> <li>• The Edinburgh City Council Core Path (CEC4) links with the Midlothian Council Core Path (4-34) through the Sheriffhall Roundabout which then connects to the Midlothian Council core path section (4-35a) at the A6106 Old Dalkeith Road/Melville Gate Road junction.</li> <li>• There are a network of local cycle routes within the 500m study area.</li> <li>• Both the A7 and the A6106 provide additional on-road cycling opportunities.</li> <li>• The Sheriffhall Park &amp; Ride facility is located to the north of the Roundabout. There are 14 other bus stops within the study area.</li> </ul>	<ul style="list-style-type: none"> <li>• Extended local journey times for vehicle travellers.</li> <li>• Changes to amenity (relative pleasantness of journeys).</li> <li>• Driver Stress &amp; Frustration.</li> <li>• The permanent loss of a Traffic monitoring lay-by</li> <li>• Disruption to Public Transport Travellers.</li> <li>• Disruption to a number of the baseline Non-Motorised User (NEMU) receptors.</li> </ul>	<ul style="list-style-type: none"> <li>• Phasing of construction works to minimise disruption to A7/A720/A6106 vehicle travellers and maintenance of vehicle traveller access at Sheriffhall to avoid any temporary route severances.</li> <li>• Advance warning signage and clear directional signage.</li> <li>• Any required temporary diversion should be agreed in advance with City of Edinburgh/Midlothian council and advanced signage should be provided.</li> <li>• The scheme design incorporates segregated provision for NMUs with at grade crossings as embedded mitigation. Consultations with City Of Edinburgh Council and Midlothian Council will be undertaken to inform the design of NEMU routes through Sheriffhall Roundabout.</li> <li>• Consultations to be held with affected bus operators to agree permanent alternative bus stop locations to maintain scheduled local bus services provision.</li> <li>• Consultations will be undertaken to agree whether alternative layby provision should be incorporated into the Scheme design.</li> <li>• Best practice construction measures should minimise impacts on all users during construction.</li> </ul>
Community and Private Assets	<ul style="list-style-type: none"> <li>• There are around 20 residential and two commercial properties within the 500m study area.</li> <li>• The wider 1 km study area contains a number of residential localities.</li> <li>• The wider 1 km study area also contains five Local Development Plan housing allocation sites.</li> <li>• There are a number of community and</li> </ul>	<ul style="list-style-type: none"> <li>• Temporary and permanent land take of agricultural land, network rail land and part of proposed economic local development Plan allocations.</li> <li>• Disruption to accesses.</li> </ul>	<ul style="list-style-type: none"> <li>• Pre-consultation consultation with affected land owners to agree temporary access arrangements and land take requirements.</li> <li>• Liaise with affected landowners and where necessary ensure appropriate compensation for permanent loss of land</li> <li>• Ensure to minimise the land take requirements of proposed economic allocations.</li> <li>• Provision of suitable alternative accesses.</li> </ul>

Issue	Baseline Conditions	Potential Effects	Potential Mitigation
<p>Geology and Soils</p>	<ul style="list-style-type: none"> <li>business facilities within 500m of the existing Roundabout.</li> <li>A significant area of the land located within the wider 1km study area is agricultural and consists of a mixture of arable and grazing land. The study area is largely designated Green Belt.</li> <li>Natural superficial deposits within the site area are glacial till.</li> <li>The topography of the study area mainly consists of gently undulating ground with natural slope angles of around 5° to 10° typical.</li> <li>The solid geology bedrock underlying the study area predominantly comprises rocks belonging to the Middle and Lower Coal Measures. Fifteen coal seams are recorded to outcrop within the study area. Many seams are recorded as having been worked, either by historic shallow workings or more recently (up to 1980s) by deeper longwall workings.</li> <li>The structural geology of the ground in the study area is significantly faulted with a series of east-west and north south trending faults. The most persistent fault is the Sheriffhall Fault.</li> <li>The soil quality in the study area is classed as 'prime agricultural land' and is predominantly mapped as Class 2 or 3.1.</li> </ul>	<ul style="list-style-type: none"> <li>Superficial Geology impacts.</li> <li>Altering of geomorphology of the site.</li> <li>Disturbance to bedrock strata during piling and mine workings treatment.</li> <li>Loss of Class 1 and Class 2 agricultural soil.</li> <li>Disturbance of contaminated land and potential pollution of surrounding geology and soils.</li> <li>Disturbance of groundwater flow, and pollution of groundwater and aquifers from mine waters and mine gases.</li> </ul>	<ul style="list-style-type: none"> <li>Detailed round investigation to minimise impact of the Scheme on underlying soils</li> <li>Detailed ground investigation to identify underlying solid geology and depth of bedrock.</li> <li>Carry out further consultation with coal authority.</li> <li>Design should consider land take, on site compounds and haul distances.</li> <li>Cut and fill balance should seek to minimise requirements for imported materials.</li> <li>Use of current best practice (details to be included in the Earthworks Design Specification).</li> <li>Preparation and implementation of a Construction Environmental Management Plan.</li> </ul>
<p>Materials Assessment</p>	<ul style="list-style-type: none"> <li>There are a range of national, regional and local policy drivers that seek to minimise the environmental impacts associated with material resource use and waste generation.</li> <li>There are a number of waste management facilities within the local area capable of disposing of the waste which will be produced.</li> <li>A number of sites have been identified in the local area for both the disposal and recycling of construction and demolition waste to indicate these requirements.</li> </ul>	<ul style="list-style-type: none"> <li>Use of Materials for earth works.</li> <li>Use of Materials – General (e.g. fencing, drainage systems, road restraint systems, road pavements).</li> <li>Production of inert waste arising from earthworks.</li> </ul>	<ul style="list-style-type: none"> <li>A Materials and Waste Management Strategy and a Site Waste Management Plan should be put in place and adhered to by the contractor.</li> <li>Material should be sourced locally.</li> <li>Reduce overall demand from external sources through the re-use of materials, where feasible.</li> <li>All waste should be dealt with following the waste hierarchy.</li> <li>The contractor shall identify the waste category, quantities, opportunities for recycling and or reuse, disposal routes and licensing requirements for all spoil and waste.</li> </ul>

Issue	Baseline Conditions	Potential Effects	Potential Mitigation
			<ul style="list-style-type: none"> <li>• Procurement of products and materials with high levels of recycled content where possible.</li> <li>• Use of renewable materials from legal and sustainable sources and minimise use of virgin material where possible.</li> </ul>

# Transport Scotland

Trunk Road Infrastructure and Professional Services

## Appendix 1

### Figure 1 – Locations Plan



**SAFETY** - READ THE ENVIRONMENTAL INFORMATION BOX  
 IN FULL BEFORE YOU START WORK. THE INFORMATION IS GIVEN TO YOU AS A  
 GUIDE ONLY. IT IS YOUR RESPONSIBILITY TO CHECK THE INFORMATION  
 AGAINST THE ACTUAL SITUATION ON THE GROUND.  
 THIS DRAWING IS TO BE USED ONLY FOR THE PURPOSES OF ISSUE  
 AND NOT FOR CONSTRUCTION. IT IS NOT TO BE USED FOR ANY OTHER  
 PURPOSES.  
 NOTES:  
 1. THE DRAWING IS FOR INFORMATION ONLY. IT IS NOT TO BE USED FOR  
 CONSTRUCTION.  
 2. THE DRAWING IS FOR INFORMATION ONLY. IT IS NOT TO BE USED FOR  
 CONSTRUCTION.  
 3. THE DRAWING IS FOR INFORMATION ONLY. IT IS NOT TO BE USED FOR  
 CONSTRUCTION.  
 4. THE DRAWING IS FOR INFORMATION ONLY. IT IS NOT TO BE USED FOR  
 CONSTRUCTION.

**FOR INFORMATION**

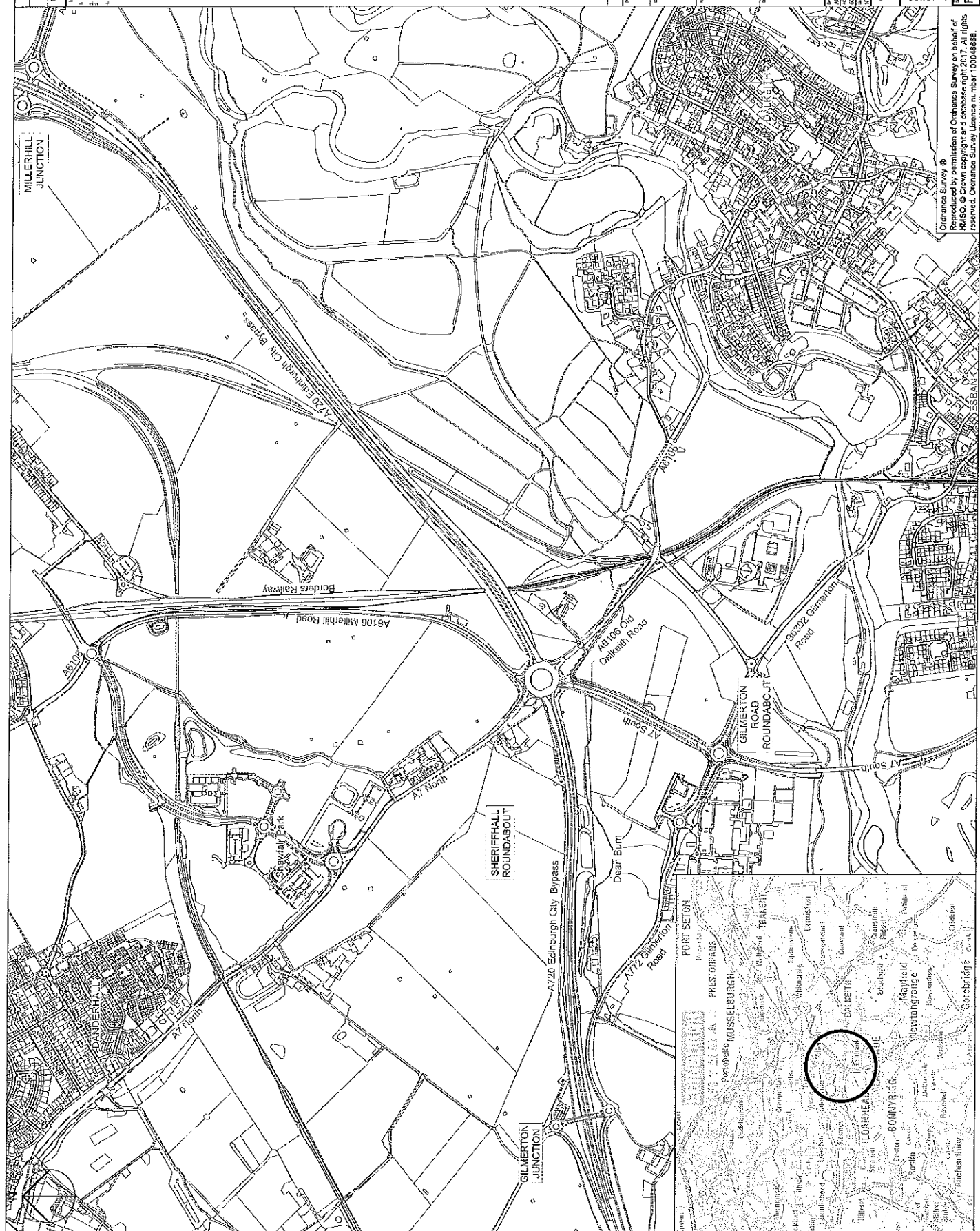
Project Name: A720 SHERIFFHALL ROUNDABOUT  
 Date: 15/08/2017  
 Issue: 1

**LOCATION PLAN**

Project No: 10004668

**AECOM**  
 AECOM Infrastructure & Environment UK Limited  
 10004668

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**FIGURE 1**

## Appendix 1.2 – Table of Expert Competencies

Topic	Name	Relevant Academic Qualifications	Relevant Professional Qualifications	Other Relevant Experience
ES Verification (AECOM internal ES verification process)	Gareth Coughlin	<ul style="list-style-type: none"> <li>BSc (Hons) Environmental Science</li> <li>MPhil Quarry Rehabilitation</li> </ul>	<ul style="list-style-type: none"> <li>Chartered Member of CIWEM (MCIWEM)</li> <li>Chartered Water &amp; Environmental Manager (C.WEM)</li> <li>Chartered Environmentalist (CEnv)</li> <li>Certified CEEQUAL Assessor</li> <li>Chartered Scientist (CSci)</li> <li>Fellow of CIWEM (FCIWEM)</li> <li>Fellow of IEMA (FIEMA)</li> </ul>	<ul style="list-style-type: none"> <li>20 years' environmental consulting experience;</li> <li>20 years infrastructure EIA Experience;</li> <li>Lead Environmental Expert witness for Roads Service / TransportNI at various highway public inquiries.</li> </ul>
Environment Lead (responsible for overall Environmental Statement (ES) and compilation of ES Chapters 1 - 7)	Zoe McClelland	<ul style="list-style-type: none"> <li>MSc Urban and Regional</li> <li>MA (Hons) Geography</li> </ul>	<ul style="list-style-type: none"> <li>Chartered Member Royal Town Planning Institute</li> </ul>	<ul style="list-style-type: none"> <li>15 years, environmental consulting experience</li> <li>13 years infrastructure EIA Experience</li> <li>Expert Witness for Transport Scotland at highways public inquiry</li> </ul>
Landscape and Visual Lead	John Devenny	<ul style="list-style-type: none"> <li>MA (Hons) Landscape Architecture</li> </ul>	<ul style="list-style-type: none"> <li>Chartered Member of the Landscape Institute</li> </ul>	<ul style="list-style-type: none"> <li>14 years' experience in Landscape and Visual Impact Assessment</li> <li>Experience of all stages of road development (assessment, design, implementation &amp; management)</li> <li>Expert Witness at Public Inquiry</li> </ul>
Nature Conservation Lead	Tony Marshall	<ul style="list-style-type: none"> <li>BSc (Hons) Biological Sciences (Ecology)</li> </ul>	<ul style="list-style-type: none"> <li>Member of the Chartered Institute of Ecology and Environmental Management (MCIEEM)</li> </ul>	<ul style="list-style-type: none"> <li>9 years ecological consulting experience including large-scale EIA infrastructure developments</li> </ul>
Cultural Heritage Lead	Dr Jonathan Shipley	<ul style="list-style-type: none"> <li>2010 PhD Archaeology</li> <li>2005 MLitt Archaeology</li> <li>2003 BA (Hons) Archaeology</li> </ul>	<ul style="list-style-type: none"> <li>Associate Member of Chartered Institute for Archaeologists</li> </ul>	<ul style="list-style-type: none"> <li>18 years' experience working in field archaeology and cultural heritage, including 15 years of consulting experience.</li> <li>Archaeological Clerk of Works for the A1 Leeming to Barton motorway upgrade scheme.</li> <li>Successfully lead on a large number of Environmental Impact Assessment projects covering infrastructure, renewable and residential developments.</li> <li>Extensive experience throughout the UK as well as Europe, the Middle East and Africa.</li> <li>Successfully developed outreach and public engagement projects.</li> </ul>

Topic	Name	Relevant Academic Qualifications	Relevant Professional Qualifications	Other Relevant Experience
Road Drainage and the Water Environment Lead	Glenn McKay	<ul style="list-style-type: none"> <li>BSc (Hons) Geography</li> <li>MSc Environmental Engineering</li> <li>Hazard Waste Operations and Emergency Response trained</li> </ul>	<ul style="list-style-type: none"> <li>Chartered Environmentalist (CEnv)</li> <li>Chartered Scientist (CSci)</li> <li>CSR Yellow Card Holder</li> <li>Member of the Chartered Institution of Water and Environmental Management (MCIWEM)</li> </ul>	<ul style="list-style-type: none"> <li>Over 14 years experience in environmental appraisal, assessment and technical review of strategic infrastructure projects.</li> <li>Glenn has a proven track record in delivering strategic infrastructure projects subject to EIA through the statutory procedures and into construction</li> </ul>
Noise and Vibration Lead	Suzanne Scott	<ul style="list-style-type: none"> <li>BSc (Hons) Geography</li> <li>MSc Environmental Science</li> <li>Diploma Acoustics and Noise Control</li> </ul>	<ul style="list-style-type: none"> <li>Chartered Scientist (CSci)</li> <li>Member of the Institute of Acoustics (MIOA)</li> <li>Member of the Institution of Environmental Sciences (MIEnv)</li> </ul>	<ul style="list-style-type: none"> <li>22 years' experience in acoustics, including 18 years' in consultancy.</li> <li>Successfully led noise assessments for over 20 highway schemes.</li> <li>Member of the Highways England 'Peer to Peer' Acoustics Group.</li> <li>Expert witness experience, including for highway schemes.</li> </ul>
Air Quality Lead	Gareth Hodgkiss	<ul style="list-style-type: none"> <li>BSc (Hons) Geography</li> <li>MSc Environmental Management</li> </ul>	<ul style="list-style-type: none"> <li>Member of the Institution of Environmental Sciences</li> <li>Member of the Institute of Air Quality Management</li> </ul>	<ul style="list-style-type: none"> <li>15 years working in the air quality industry</li> <li>12 years experience working in Environmental consultancy</li> </ul>
Effects on all Travellers Lead	Zoe McClelland	<ul style="list-style-type: none"> <li>MSc Urban and Regional</li> <li>MA (Hons) Geography</li> </ul>	<ul style="list-style-type: none"> <li>Chartered Member Royal Town Planning Institute</li> </ul>	<ul style="list-style-type: none"> <li>15 years, environmental consulting experience</li> <li>13 years infrastructure EIA Experience</li> <li>Expert Witness for Transport Scotland at highways public inquiry</li> </ul>
Community and Private Assets Lead	Zoe McClelland	<ul style="list-style-type: none"> <li>MSc Urban and Regional</li> <li>MA (Hons) Geography</li> </ul>	<ul style="list-style-type: none"> <li>Chartered Member Royal Town Planning Institute</li> </ul>	<ul style="list-style-type: none"> <li>15 years, environmental consulting experience</li> <li>13 years infrastructure EIA Experience</li> <li>Expert Witness for Transport Scotland at highways public inquiry</li> </ul>
Geology and Soils Lead	Catriona Fisher (General)	<ul style="list-style-type: none"> <li>BEng (Hons) Civil Engineering</li> <li>MSc Geotechnical Engineering Design and Management</li> </ul>	<ul style="list-style-type: none"> <li>2006 – Member of Institution of Civil Engineers (MICE)</li> </ul>	<ul style="list-style-type: none"> <li>Over 15 years geotechnical design experience</li> <li>10 years' experience in Geology and Soils Environmental Assessment for Transport Scotland Roads schemes</li> </ul>
	Christine Johnson (Contaminated Land Specialist)	<ul style="list-style-type: none"> <li>BSc (Hons) Applied Geology</li> <li>MSc Engineering Geology</li> </ul>	<ul style="list-style-type: none"> <li>Chartered Geologist (CGeol)</li> <li>Chartered Scientist (CSci)</li> <li>Fellow of the Geological Society (FGS)</li> <li>Member of the European Federation of Geologists</li> </ul>	<ul style="list-style-type: none"> <li>Over 30 years extensive and wide-ranging geotechnical / geoenvironmental consultancy experience</li> <li>Specialist geoenvironmental experience including contaminated land risk assessments and input to numerous EIA's.</li> </ul>
Materials Lead	Mike Bains	<ul style="list-style-type: none"> <li>BSc (Hons) Chemistry</li> </ul>	<ul style="list-style-type: none"> <li>Chartered Chemist</li> <li>Member of the Royal Society of Chemistry</li> </ul>	<ul style="list-style-type: none"> <li>25 years' environmental consultancy experience, predominantly in waste management</li> <li>Expert witness for waste and materials in hearings as part of DCO public examination process</li> </ul>
Climate Lead	Ian Davies	<ul style="list-style-type: none"> <li>BA (Hons) Environmental Studies</li> </ul>		<ul style="list-style-type: none"> <li>Over 15 years' experience in the management and delivery of energy efficiency, carbon management and climate change assessment</li> </ul>

Topic	Name	Relevant Academic Qualifications	Relevant Professional Qualifications	Other Relevant Experience
Cumulative Impacts Lead	Zoe McClelland	<ul style="list-style-type: none"> <li>• MSc Urban and Regional</li> <li>• MA (Hons) Geography</li> </ul>	<ul style="list-style-type: none"> <li>• Chartered Member Royal Town Planning Institute</li> </ul>	<ul style="list-style-type: none"> <li>• Has successfully project managed a range of carbon accounting, carbon reduction and Life Cycle Assessment projects for large scale infrastructure projects</li> <li>• 15 years, environmental consulting experience</li> <li>• 13 years infrastructure EIA Experience</li> <li>• Expert Witness for Transport Scotland at highways public inquiry</li> </ul>