TRANSPORT SCOTLAND
CÒMHDHAIL ALBA

transport.gov.scot

Environmental Impact Assessment Record of Determination

M80 DBFO Junction 6A to Junction 7 Drainage

Contents

Project Details

Description

BEAR Scotland has been commissioned by Transport Scotland to carry out filter drain refurbishment works. The proposed works will improve the condition of the drainage assets present within the scheme extents by replacing sections of silted filter stone material and removing silt and vegetation build up, on both the northbound and southbound sides of the M80 and the central reservation across a total 3.53km stretch of the motorway. Existing filter material will be cleaned/recycled off-site and returned for backfill where possible.

Construction activities include:

- Traffic management (TM) to be setup and site marked out,
- Mini excavator to excavate filter drain material (e.g. Type B granular material and detritus) and place in tipper truck,
- Type B granular material and detritus removed from site,
- Type B granular material sieved and separated from detritus and returned to site,
- Filter drain 'topped-up' with new Type B granular material,
- Tipper truck and mini excavator removed from site,
- TM removed and road reopened.

The works are currently programmed to be completed within the 2023/2024 financial year (April 2023 – March 2024 inclusive). Works are expected to be completed over forty nights (19:30 – 06:00) commencing February 2024. TM is currently anticipated to be a combination of night-time lane closures, with a hard shoulder and lane 1 closure during verge works and a double fast lane closure during central reservation works. There are no pedestrian or other non-motorised user (NMU) facilities with connectivity to the scheme extents.

Location

The scheme lies on the M80 within Haggs, with urban development and agricultural land bordering the trunk road (Figure 1).

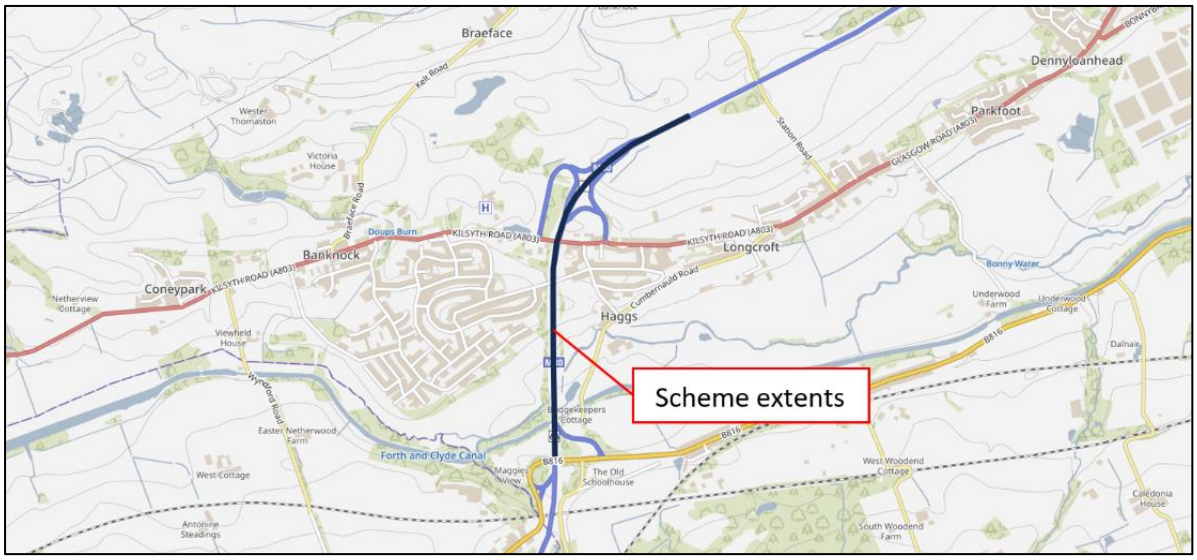

Figure 1: Extent of works. Source: Asset Management Performance System (AMPS). © Europa Technologies Ltd. Contains Ordnance Survey data © Crown copyright and database right 2018.

Description of local environment

Air quality

The scheme lies within the boundary of the Falkirk Council, which has three Air Quality Management Areas (AQMAs) within its administrative boundary. The nearest AQMA lies within North Lanarkshire, 'N Lanarkshire AQMA Croy 2011', approximately 5.7km southwest of the scheme and has been declared for particulate matter (PM_{10}).

There are approximately seven sites registered on the Scottish Pollutant Release Inventory (SPRI) for pollutant releases to air within 10km of the scheme. The closest of these is Energen Biogas Ltd, Cumbernauld, a waste and waste-water management site that has been declared for carbon dioxide (kt) and methane (t), located approximately 1.6km south of the scheme.

Baseline air quality in the study area is mainly influenced by vehicles travelling along the trunk road. Secondary sources are derived from vehicles travelling along the local road network and day-to-day urban and agricultural land management activities.

Cultural heritage

The PastMap and Historic Environment Scotland (HES) online mapping tools records two World Heritage Sites (WHS) lie within 300m of the scheme. Antonine Wall World Heritage Site Buffer Zone borders the M80 motorway boundary at the

southern scheme extents (no works will be undertaken within the WHS buffer zone) and Antonine Wall World Heritage Site Boundary lies 120m south of the scheme at the nearest point. The Antonine Wall was the most northerly frontier of the Roman Empire nearly 2,000 years ago. It ran for 40 Roman miles (60km) from modern Bo'ness on the Firth of Forth to Old Kilpatrick on the River Clyde. At the time it was built, the wall was the most complex frontier ever constructed by the Roman army. The 'Antonine Wall' WHS Buffer Zone is an area surrounding the 'Antonine Wall' WHS that gives an added layer of protection to the WHS.

Three scheduled monuments lie within 300m of the scheme. One scheduled monument is spanned by the motorway within the scheme extents and pertains to Forth and Clyde Canal: Castlecary - M9 Motorway (SM6768). The monument comprises the length of waterway forming part of the Forth and Clyde Canal falling within the boundary of the civil parish of Falkirk and the boundary of Falkirk District. The remaining scheduled monuments share no connectivity with the scheme e.g., the nearest lies outwith the motorway boundary, approximately 150m southeast of the scheme.

Two listed buildings lie within 300m of the scheme. The listed buildings share no connectivity with the scheme e.g., the nearest lies outwith the motorway boundary, approximately 220m south of the scheme.

12 undesignated cultural heritage assets (UCHAs) lie within 300m of the scheme. One UCHA lies within the scheme extents and pertains to Castlecary, Culvert, Forth and Clyde Canal, which the M80 spans. The canal was closed by parliament in the early 1960s when the A80 (now M80) was upgraded to a dual carriageway. The remaining UCHAs share no connectivity with the scheme e.g., the nearest lies outwith the motorway boundary, approximately 15m east of the scheme.

Construction of the M80 road corridor is likely to have removed any archaeological remains that may have been present within the trunk road boundary. The potential for the presence of unknown archaeological remains in the study area has therefore been assessed to be low.

Landscape and visual effects

The scheme is not situated within a National Park (NP) or National Scenic Area (NSA).

The scheme lies within the 'Lowland River Valleys - Lothians' Landscape Character Type (no. 152) (Scottish Landscape Character Types). The key characteristics of this LCT are:

- Well-defined river corridors, most with flat valley floor enclosed by often commanding hills.
- Strong topographic and visual identity, with varying scale and character.
- Glacial terrain and deposits located on valley margins, often subject to mineral extraction.
- Relatively high proportion of tree cover, with roadside and hedgerow trees and seminatural woodland.
- Dense areas of coniferous forest cover the slopes surrounding the reservoir in the Upper Carron Valley.
- Road corridors often running parallel to river corridor form key linear features.
- Settlement often closely linked to the river corridor and parallel road corridors.
- Intensive settlement and urban development on margins of valleys south and north of Firth of Forth.
- Predominance of traditionally managed estate, policy and designed landscapes.
- Nature conservation importance of river and associated habitats.
- Frequently enclosed and focussed views along the river valley.
- Visibility of remnant derelict land, motorway and road corridors, power lines, wind farms and industrial sites from the urban fringe of Falkirk/Denny.

Land use within 300m of the scheme is categorised into the following:

- Motorway and Major Roads,
- Opencast Site,
- Urban Area,
- Managed Woodland,
- Rectilinear Fields and Farms.

The national scale land capability for agriculture classifies land surrounding the scheme as being:

- ‘Class 3.1’ – land capable of producing consistently high yields of a narrow range of crops and/ or moderate yields of a wider range. Short grass leys are common.

Woodland in the study area is comprised of approximately 3ha of native broadleaved woodland (registered on the Native Woodland Survey of Scotland), which borders the M80 WB On-Slip. There are no areas of woodland registered on the Ancient Woodland Inventory Scotland or any trees covered by a Tree Preservation Order (TPO) with connectivity to the scheme extents. The closest area of ancient woodland, assessed as being ancient of semi-natural origin, is located approximately 150m south west of the scheme bordering the B816.

The existing motorway is a prominent linear landscape feature. The trunk road corridor, for example, has a distinct character shaped by fast-flowing traffic, road markings, safety barriers, signage, landscaping and lighting etc. The scale of the trunk road detracts from the quality and character of the wider landscape.

Biodiversity

The NatureScot Sitelink online mapping tools identifies that Dullatur Marsh Site of Special Scientific Interest (SSSI) (EU Site Code 135063) lies 1.2km west (straight line distance) of the scheme extents (at the nearest point) and approximately 1.3km (hydrological distance) upstream of the scheme extents. Dullatur Marsh SSSI has been notified for Fens: Hydromorphological mire range.

The scheme is not situated within 2km of, and does not share connectivity with, any other 'sensitive area' designated for biodiversity features e.g., Special Area of Conservation (SAC), Special Protection Area (SPA), Ramsar, Site of Special Scientific Interest (SSSI), etc.

'Forth and Clyde Canal Wildlife Site' Local Nature Conservation Site (LNCS) is spanned by the motorway within the scheme extents.

There are no Local Nature Reserves (LNRs) designated for biodiversity features with connectivity to the scheme.

A search of the NBN online mapping tool records no invasive non-native species (INNS), injurious weeds (as listed under the Weeds Act 1959), or invasive native perennials (as listed in the Trunk Road Inventory Manual) within 2km of the scheme extents (within the last 10-years).

Habitat immediately bordering the trunk road tends to be of low intrinsic value because the existing road verge is subject to cyclic maintenance e.g., grass cutting, weed control, tree, and shrub cut-back etc. The roadside verges therefore comprise a homogenous species-poor semi-improved grassland alongside broadleaved tree and shrub shelterbelt running parallel, in narrow strips, with the trunk road corridor, which provides a buffer for urban development and agricultural fields bordering the trunk road. Roadside vegetation offers low ecological habitat value due to its limited scale, fragmented nature and high potential for disturbance owing to cyclic trunk road landscape maintenance, and the proximity of the trunk road (with its fast-flowing traffic). The presence of the trunk road also restricts continuity of, and connectivity between, habitats either side of the trunk road boundary.

Outwith the motorway boundary, agricultural land surrounding the scheme forms a pattern of open and exposed fields containing mainly pastoral land. The result of this

intensive agricultural land management is to restrict the occurrence of semi-natural and natural vegetation types. Most field boundaries are post-and-wire fencing, with vegetative features further delineating field boundaries e.g., shrub hedgerow, rough grassland, ruderal herb stands, scrub and tree shelterbelt. Linear features at field boundaries have wildlife value, both as corridors in an intensively managed landscape, and as habitats for birds and small animals

Geology and soils

The M80 within the scheme extents is not located within a Geological Conservation Review Site (GCRS), and there are no Local Geodiversity Sites (LGS) with connectivity to the scheme extents.

The National Soil Map of Scotland online mapping tool records that the generalised soil type or major soil group recorded beneath the scheme extents is Brown soils.

The British Geological Survey online mapping tool records that the superficial geology in the scheme extents is comprised of:

- Glaciofluvial Ice Contact Deposits (gravel, sand and silt),
- Glaciofluvial Sheet Deposits (gravel, sand and silt),
- Alluvium (clay, silt, sand and gravel) and
- Till, Devensian (Diamicton).

The bedrock geology in the scheme extents is recorded as:

- Scottish Lower Coal Measures Formation (sedimentary rock cycles, coal measure type) and
- Passage Formation (sedimentary rock cycles, clackmannan group type).

There is no evidence of historical industrial processes or the storage of hazardous materials that could have given rise to land contamination within the scheme extents.

Material assets and waste

The value of the scheme is greater than £350,000. As a result, a Site Waste Management Plan (SWMP) is required.

The proposed works involve the replacement of filter drain material, hence the material used for the scheme consists of filter drain material (typically Type B granular material).

The majority of the filter drain arisings (graded stone and filter drain detritus) will be cleaned and reused with an approximate recovery rate of 50% - 70%. Therefore,

filter drain material will be reused onsite. Waste classification testing will be undertaken prior to works commencing to determine the List of Waste code for the filter drain materials. Materials classified as non-hazardous may be disposed of at an inert waste facility subject to meeting inert Waste Acceptance Criteria (WAC) thresholds. Full WAC testing will be carried out and if any exceedances of the inert WAC thresholds are recorded then wastes will be disposed of accordingly.

Noise and vibration

Receptors - refer to 'Population and human health'.

Works are not located within a Candidate Noise Management Area (CNMA) or Candidate Quiet Areas (CQA).

The night-time modelled noise level (Lnight), within the scheme extents, ranges between 70 and 75 decibels, with levels dropping to between 60 and 65 decibels at the nearest NSR (residential property) (Scotland's Noise Scotland's Environment).

Baseline noise levels are mainly influenced by vehicles travelling along the trunk road. Secondary sources are likely derived from vehicles travelling along the local road network and day-to-day urban and agricultural land management activities.

Population and human health

Numerous properties (including residential and business premises) and a farmstead lie within 300m of the scheme. Properties nearest to the trunk road lie approximately 20m from the motorway, however all properties are screened from the scheme extents by a combination of roadside tree shelterbelt, raised roadside embankment, topography and intervening properties.

Three sensitive receptors lie within 300m of the scheme. Details are as follows:

- St Luke church lies 100m east.
- Bannock Medical Centre lies 150m west.
- Bankview Care Home lies 250m west.

All three sensitive receptors are screened from the scheme extents by a combination of roadside tree shelterbelt, raised roadside embankment, topography and intervening properties.

There are no non-motorised user (NMU) or community facilities with connectivity to the scheme extents. Street lighting is absent across the scheme extents.

The M80, within the scheme extents, is a dual carriageway with the national speed limit applying throughout. The Annual Average Daily Traffic (AADT) flow is high (68,199 motor vehicles (ID: 82070, 2022)) (Road Traffic Statistics) and is comprised of:

- 144 two wheeled motor vehicles,
- 47,223 cars and taxis,
- 176 bus and coaches,
- 12,764 Light Goods Vehicles (LGVs), and
- 7,892 Heavy Goods Vehicles (HGVs).

There are no congestion issues noted on the M80 within the scheme extents.

Road drainage and the water environment

The Scottish Environment Protection Agency (SEPA) River Basin Management Plan online mapping tool records two classified surface waterbodies, Forth and Clyde Canal (Wyndford to Rough Castle) and Bonny Water/Red Burn, are spanned by and culverted beneath the M80 within the scheme extents. Forth and Clyde Canal (Wyndford to Rough Castle) is a river (ID: 3), in the River Carron (Falkirk) catchment of the Scotland river basin district. The main stem is approximately 9.5km in length. The water body has been designated as an artificial on account of physical alterations that cannot be addressed without a significant impact on navigation. Forth and Clyde Canal has been assigned a Water Framework Directive 2000/60/EC (WFD) overall classification of 'Good ecological potential', an overall ecological classification of 'High' and a status of 'High' for fish barrier. The Forth and Clyde Canal is separated from the carriageway by a concrete parapet (approximately 1m high).

Bonny Water/Red Burn is a river (ID: 4205), in the River Carron (Falkirk) catchment of the Scotland river basin district. The main stem is approximately 13.9km in length. The water body has been designated as a heavily modified on account of physical alterations that cannot be addressed without a significant impact on the drainage of agricultural land. Bonny Water/Red Burn has been assigned a WFD overall classification of 'Moderate ecological potential', an overall ecological classification of 'Moderate' and a status of 'High' for fish barrier. The Bonny Water/Red Burn culvert extends approximately 30m from either side of the carriageway and is separated by a roadside tree shelterbelt and raised roadside embankment.

There are no unclassified surface waterbodies spanned by, culverted beneath or which share direct connectivity with the scheme extents.

A search of the Scotland's Environment (SE) online mapping tool determined that the trunk road, within the scheme extents, lies on the 'Castle Cary' and 'Denny' groundwaters, which has been classified as 'Good' and 'Poor' respectively .

A search of the SE online mapping tool determined that the trunk road, within the scheme extents, does not lie within a Nitrate Vulnerable Zone.

Road drainage is provided by filter drains.

Climate

The Climate Change (Scotland) Act 2009 sets out the target and vision set by the Scottish Government for tackling and responding to climate change (The Climate Change (Scotland) Act 2009). The Act includes a target of reducing CO_2 emissions by 80% before 2050 (from the baseline year 1990). The Climate Change (Emissions Reduction Targets) (Scotland) Act 2019 amended the Climate Change (Scotland) Act 2009 to bring the target of reaching net-zero emissions in Scotland forward to 2045 (Climate Change (Emissions Reduction Targets) (Scotland) Act 2019).

The Scottish Government has since published its indicative Nationally Determined Contribution (iNDC) to set out how it will reach net-zero emissions by 2045, working to reduce emissions of all major greenhouse gases by at least 75% by 2030 (Scotland's contribution to the Paris Agreement: indicative Nationally Determined Contribution - gov.scot (www.gov.scot)). By 2040, the Scottish Government is committed to reducing emissions by 90%, with the aim of reaching net-zero by 2045 at the latest.

Transport Scotland is committed to reducing carbon across Scotland's transport network and this commitment is being enacted through the Mission Zero for Transport (Mission Zero for transport | Transport Scotland). Transport is the largest contributor to harmful climate emissions in Scotland. In response to the climate emergency, Transport Scotland are committed to reducing their emissions by 75% by 2030 and to a legally binding target of net-zero by 2045.

Policies and plans

This Record of Determination has been undertaken in accordance with all relevant regulations, guidance, policies and plans, notably including the Environment and Sustainability Discipline of the Design Manual for Roads and Bridges (Design Manual for Roads and Bridges (DMRB)) and Transport Scotland's Environmental Impact Assessment Guidance (Guidance - Environmental Impact Assessments for road projects (transport.gov.scot)).

Description of main environmental impacts and proposed mitigation

Air quality

During the construction phase, activities undertaken on site could potentially have some minor localised and short-term air quality impacts in proximity to the works. The construction phase will, for example, require a range of ancillary plant, vehicles, and non-road mobile machinery (NRMM) which will contribute to local dust and air pollutants. The main sources are likely to be dust generated by excavation of the filter drain material, as well as exhaust emissions from ancillary plant and vehicles. As a result, there is potential for dust, particulate matter, and exhaust emissions (DPMEE) to be emitted to the atmosphere.

However, considering the nature of the scheme, and with implementation of mitigation detailed below, the proposed works impacts on local air quality levels during the construction period are assessed to be temporary negligible adverse in magnitude.

Upon completion of the works, no residual air quality impacts are anticipated.

Air quality mitigation measures:

- Careful consideration will be given to the siting and orientation of ancillary plant, vehicles, and NRMM, so that it is located, as far as is possible, away from receptors (if possible, > 20m from surrounding properties). Activities which have the potential to produce DPMEE (e.g., cutting and grinding of materials) will also, if possible, be undertaken away from any surrounding properties.
- Ancillary plant, vehicles and NRMM will have been regularly maintained, paying attention to the integrity of exhaust systems.
- Ancillary plant, vehicles and NRMM will be switched off when stationary to prevent exhaust emissions (e.g., there will be no idling vehicles).
- Where practicable, if powered generators are required, the use of mains electricity or battery powered ancillary plant will be considered in place of diesel or petrol alternatives.
- Materials that have a potential to produce dust will be removed from site as soon as possible.

- Regular monitoring (e.g., by engineer or Clerk of Works) will take place when DPMEE generating activities are occurring. In the unlikely event that unacceptable DPMEE are emanating from the site, the operation will, where practicable, be modified and re-checked to verify that the corrective action has been effective. Actions to be considered include: (a) minimizing reducing the operating hours, (b) changing the method of working, etc.

Cultural heritage

People, ancillary plant, vehicles, NRMM and materials are restricted to areas of made/engineered ground within the boundary of the M80, no works will be completed within the WHS Buffer Zone or Scheduled Monument and the works do not include any alterations that would affect the historic and architectural character of these features. As such, application for consent or any other permission is not required.

Construction of the M80 road corridor is likely to have removed any archaeological remains that may have been present within the trunk road boundary scheme extents. The potential for the presence of unknown archaeological remains in the study area has therefore been assessed to be low. Moreover, the works will be limited to minor earthworks (i.e. excavation of existing filter drain to a depth of 0.8m) and minor vegetation clearance (i.e. limited to the clearance of overgrown filter drains), and people, ancillary plant, vehicles, NRMM and materials are restricted to areas of made/engineered ground within the boundary of the M80. As such, there is negligible risk of disturbing or damaging previously undiscovered or unrecorded items of cultural interest.

Given the nature of the scheme, and with implementation of mitigation detailed below, the proposed impacts on cultural heritage during the construction period are assessed to be negligible in magnitude.

Upon completion of the works, no residual impacts on cultural heritage are anticipated.

Cultural heritage mitigation measures:

- All site personnel will be briefed on the importance and location of the ‘Antonine Wall’ World Heritage Site (WHS) Buffer Zone and Forth and Clyde Canal: Castlecary - M9 Motorway (SM6768). Ancillary plant, vehicles and NRMM will not be stored within 10m of these features.

- Toolbox Talk TTN-046 Archaeology will be briefed prior to works commencing.

- All site personnel will be briefed on the importance of archaeological finds and will be instructed to inform the site supervisor where potential finds are made. If there are any unexpected archaeological finds, all works will temporarily stop, the area will be cordoned off and BEAR Scotland's Environmental Team will be contacted for advice.

- People, ancillary plant, vehicles, NRMM and materials will be restricted to areas of made/engineered ground (as much as is reasonably practicable). Where access outwith made/engineered ground is required for the safe and effective completion of the scheme, the area will be reduced as much as is reasonably practicable, and ideally will be accessed on foot.

- If a change to the construction programme onsite is required that necessitates additional earthworks or vegetation clearance other than those currently programmed, BEAR Scotland's Environmental Team will be contacted.

Landscape and visual effects

There will be a short-term impact on the landscape character and visual amenity of the site as a result of the presence of construction plant, vehicles, and TM.

However, people, ancillary plant, vehicles, NRMM and materials are restricted to areas of made/engineered ground within the M80 carriageway boundary, and construction works are programmed to be undertaken at night on a rolling programme. In addition, the M80 within the scheme extents is screened from the wider environment by a combination of roadside embankments and tree shelterbelt planting. As such, the visual impact of the works will be somewhat reduced.

Considering the nature of the scheme, and with implementation of mitigation detailed below, impacts on landscape are assessed as temporary minor adverse in magnitude.

Upon completion of the works, no residual impacts are anticipated e.g., when complete the visual appearance will remain largely unaffected, with renewed filter drain being the only discernible change.

Landscape and visual effects mitigation measures:

- Where possible, construction vehicles will not be left in places where soil or vegetation can be damaged. If damage to road verge occurs this will be lightly cultivated or graded (upon completion of the works) to allow natural recolonization by local species and promote integration with existing landscape character.

- The site will be monitored regularly for signs of litter and other potential contaminants and litter will be removed before and after works take place.

- The site will be left clean and tidy following construction.

Biodiversity

Dullatar Marsh SSSI is located approximately 1.3km (hydrological distance) upstream of the scheme. Given the distance separating the works, the restriction of works to the M80 carriageway and associated verge and due to the designation being located upstream, no impacts to Dullatar Marsh are anticipated.

The scheme is not situated within 2km of, and does not share connectivity with, any other 'sensitive area's' designated for biodiversity features e.g., SAC, SPA, Ramsar, SSSI, etc.

'Forth and Clyde Canal Wildlife Site' LNCS is spanned by the motorway within the scheme extents; however, all works are minor in nature and are restricted to filter drain refurbishment within the M80 boundary, and no plant, personnel or NRMM will access land outwith the works corridor. Furthermore, mitigation measures detailed below will be implemented on site, therefore, no impacts upon the LNCSs are anticipated.

All earthworks relate to minor excavation of existing filter drain to a depth of 0.8m, any vegetation removal will be limited to overgrown sections of filter drain, the works will not require any permanent (or temporary) land-take, accommodation works, site clearance or locally gained resources. As such, the works do not involve any physical altering or removal of habitat and will not result in habitat fragmentation. Furthermore, there is no requirement to import topsoil and as such there is limited potential to spread or introduce invasive or injurious flowering plant species.

A temporary short-term increase in noise levels may cause disturbance to local wildlife. The works will, for example, require a range of ancillary plant, vehicles and NRMM which will emit noise and create potential disturbance. The works will also require delivery of materials and the presence of personnel to facilitate the filter drain refurbishment. However, the number of construction vehicles and construction operatives required onsite is low given the scale and scope of works. In addition, any species in the area are likely to be accustomed to road noise and visual disturbance pertaining to vehicle movements on the M80, and the scheme will be undertaken over 40-nights on a rolling programme. The potential for species disturbance within the area of likely construction disturbance is therefore somewhat diminished.

Considering the nature of the scheme, and with the implementation of mitigation detailed below, the proposed work impacts on biodiversity throughout the

construction period are therefore assessed to be temporary minor adverse in magnitude.

Upon completion of the works, no residual impacts are anticipated in relation to biodiversity.

Biodiversity mitigation measures:

- Site personnel will remain vigilant for the presence of potentially unrecorded instances of invasive non-native flowering plant species (INNS) or injurious weeds in road verges throughout the works period. Should any INNS be identified in working areas, no works will take place within 7m of these areas until the BEAR Scotland Environmental Team can provide further advice on additional mitigation measures.

- Any unsupervised excavations/trenches > 0.5m deep will be covered or have ramps installed when left unsupervised at the end of a working day.

- All site workers will have received adequate training relevant to their role prior to working on the site, including specific environmental inductions and 'toolbox talks' as required.

- Site personnel will remain vigilant for protected species and will not approach or touch any animals seen on site. Any sightings of protected species will be reported to BEAR Scotland's Environmental Team. Should a protected species be encountered or move within 50 m of the active works (including compounds), works will be temporarily halted until the animal(s) move at least 50m away from the construction site, or until BEAR Scotland's Environmental Team can provide advice.

- The Contractor will employ 'soft-start' techniques for all noisy activity to avoid sudden and unexpected disturbance during works. Each time the activity is started up after a period of inactivity, the noise levels will be gradually increased over a period of 30 minutes to permit animals (and birds) to move away from the disturbance.

- Where possible, artificial lighting used during night works will be sufficiently screened and aligned so as to ensure that there is no direct illumination of neighbouring habitat (e.g., locations adjacent to tree shelterbelt, woodland, surface waterbodies, Forth and Clyde Canal Wildlife Site etc.) to ensure minimal impact on nocturnal species.

- All equipment stored onsite will be checked at the start of each workday to ensure any mammal species are not present. Any storage containers/plant within the compound will also be secured overnight to prevent exploration by any mammal species. Any areas where an animal could become trapped (e.g., storage containers) will also be covered at the end of each working day, to avoid mammals falling in and becoming trapped.

- People, ancillary plant, vehicles, NRMM and materials will be restricted to areas of made/engineered ground (as much as is reasonably practicable). If during works unforeseen access to the surrounding environment is required, works will cease in this area and BEAR Scotland's Environmental Team will be contacted to allow consideration of potential environmental effects.

- BEAR Scotland's Environmental Team will be contacted to allow consideration of potential environmental effects if:
    - unforeseen site clearance is required, outwith that already planned,
    - unplanned works must be undertaken outwith the carriageway boundary and adjacent verge,
    - there is any deviation from the agreed plan, programme and/or method of working,
    - nesting birds are found onsite.

- BEAR Scotland's Control Room will be contacted if there is a pollution incident.

Geology and soils

Road schemes have the potential to impact upon the geology and soils through direct and indirect impacts on sensitive sites, loss or sterilisation of mineral deposits or soil resources, disturbance of contaminated land, or surcharging of ground which may accelerate erosion and subsidence.

However, works are minor in nature and are restricted to like-for-like filter drain refurbishment, with all works restricted to made/engineered ground within the M80 boundary. The work corridor is also not located within a GCRS, geological SSSI or LGS.

Considering the nature of the scheme, and with implementation of the mitigation detailed below, the potential for impact on geology and soils within the area of likely construction disturbance is somewhat diminished. The proposed works impacts on geology and soils throughout the construction period are therefore assessed to be negligible in magnitude.

Upon completion of the works, no residual impacts are anticipated in relation to geology and soils.

Mitigation measures:

- If any contaminated land requiring remediation is encountered, it will be contained and/or removed in a safe and controlled manner to the standards required by SEPA. Any removal of potentially hazardous material is likely to constitute a net positive impact as this will remove the risk of any future contamination.

- Any areas of exposed soil/bare earth/damaged verge as a result of the filter drain works will be reinstated and re-seeded once the works are complete.

Material assets and waste

Minimising impacts arising from construction materials are focussed upon making the most efficient use of materials onsite to reduce the need for imported primary materials and minimise the creation and disposal of waste through (i) reduction, (ii) re-use, and (iii) recycling. Potential impacts have been assessed for both the construction and operational phases of this scheme. It is anticipated that most material impacts are likely to arise during construction, though long-term residual impacts could occur post construction during the operational phase e.g., during the disposal of materials arising from routine maintenance operations.

Considering the nature of the scheme, and with implementation of the mitigation detailed below, the proposed works impacts on material assets and waste throughout the construction period are therefore assessed to be temporary negligible adverse in magnitude.

Upon completion of the works, no residual impacts are anticipated on materials or waste.

Material and waste mitigation measures:

- Good materials management methods (e.g., 'just-in-time' delivery) will be implemented wherever possible.
- The filter drain stone will be filtered and reused where possible.
- Full WAC testing will be carried out and if any exceedances of the inert WAC thresholds are recorded then wastes will be disposed of accordingly. The Waste Classification Report will be forwarded to the preferred waste receiver for review to confirm, prior to material being removed from the site.
- The disposal / re-use of filter stone has been registered in accordance with a Paragraph 13 exemption, as described in Schedule 3 of the Waste Management Licensing Regulations 2011 (exemption number: WML/XS/2007660), the rules of which will be complied with.
- The Contractor will comply with all 'Duty of Care' requirements, ensuring that any surplus materials or waste are stored, transported, treated, used, and disposed of safely without endangering human health or harming the environment. Material transfer notes and/or waste exemption certificates (if required) will also be completed and retained.
- Designated areas will be identified within which all materials and personnel, including construction compounds (within the confines of the

TM), will be contained to limit environmental disturbance during construction works. This will include a designated area (if required) for segregation and reuse of waste materials.

- The selection of areas for materials stockpiling will avoid sensitive locations such as road drainage and surface waterbodies. Stockpiled materials with leachate potential, for example, will be stored away from road drainage to prevent cross-contamination with other materials, wastes, or groundwater.
- Materials will be stored with the appropriate security to prevent loss, theft, or vandalism.
- All temporary road signs and traffic cones will be removed from site on completion of works.
- Wastewater from mobile welfare facilities (if required) will be subject to effluent treatment followed by tanker removal.
- If hazardous substances are used onsite, each substance will be subject to assessment under the Control of Substances Hazardous to Health (COSHH) Regulations 2002. Hazardous substances will also be clearly labelled, and disposed of, in line with COSHH safety data sheets and the Special Waste Regulations 1996. Special waste will also not be mixed with general waste and/or other recyclables.

Noise and vibration

Activities undertaken on site could potentially have some localised and short-term noise impacts in proximity to the works. The works will, for example, require a range of ancillary plant, vehicles and NRMM for filter drain refurbishment. Noise will also be generated by the excavation of filter material, unloading materials, vehicle movement etc. As a result, there is potential for noise and vibration effects.

However, works will be completed on a rolling programme, with the aim being to complete the noisiest works by 23:00. In addition, considering the likely sources of noise and vibration, the distance from the point of generation to Noise Sensitive Receptors (NSRs), the nature, duration, size and scale of the scheme, and with implementation of the mitigation detailed below, it is unlikely that noise and vibration associated with the works will lead to significant impacts, disruption and/or complaints. The proposed scheme is therefore anticipated to result in temporary minor adverse noise impacts.

Noise mitigation measures:

- The local authority environmental health will be notified of nighttime working by BEAR Scotland's design engineer.
- Wherever possible, careful consideration will be given to the siting and orientation of particularly noisy items of NRMM so that it is located away from (if possible, > 20m from) surrounding properties. Activities which have the potential to produce excessive noise.
- Where possible, the noisiest work operations (e.g., excavation of filter material, unloading materials etc.) will be completed before 23:00.
- If unacceptable noise is emanating from the site the operation will, where possible, be modified and re-checked to verify that the corrective action has been effective. Actions to be considered include (a) reducing the operating hours, (b) repositioning equipment, (c) changing the method of working etc. Corrective actions will be actioned through the non-conformance reporting procedure, which ensures a root-cause analysis is carried out on each incident. The non-conformance procedure also ensures that appropriate corrective and preventative action measures are agreed and implemented in a timely fashion with all parties, and are recorded and actioned through to closeout, and fully auditable and traceable.
- Ancillary plant, vehicles and NRMM with directional noise characteristic will (where practical) be shut down in intervening periods between site operations.
- Drop heights from vehicles and NRMM will be kept to a minimum to minimise noise when unloading.
- All ancillary plant, vehicles and NRMM used onsite will have been regularly maintained, paying attention to the integrity of silencers and acoustic enclosures.
- All compressors will be 'sound-reduced' models fitted with properly lined and sealed acoustic covers which will be kept closed when in use.
- HGV, site vehicles and NRMM will be switched to the minimum setting required by HSE and, where possible, will utilise 'broadband non-tonal' or 'directional sound reversing' alarms. Speed limits will also be reduced through the works.

Population and human health

During construction, activities undertaken on site have the potential to have temporary adverse impacts on local residents, vehicle travellers, and NMUs.

However, no congestion issues are noted, and TM will only be in place at night (when traffic flows will be at a minimum) on a rolling programme. In addition, the proximity of road space suggests that residents will have a degree of tolerance to noise and disturbance.

The three sensitive receptors are screened from the scheme extents therefore there will not be an impact upon users of these.

Considering the nature of the scheme, and with implementation of the mitigation described below, impacts on population and human health are assessed as temporary minor adverse in magnitude.

Upon completion of the works, no residual impacts are anticipated in relation to population and human health.

Proposed population and human health mitigation measures:

- Where appropriate, a communication strategy (e.g., social media, consultation with local authority and other stakeholders, letter drop (for night-time works), etc.) will be initiated to keep local residents and/or businesses informed of the proposed working schedule, particularly the times and durations of noisy construction activities. The communication strategy will also provide a 24-hour contact number for the BEAR Scotland Control Room.

- Given the proximity of urban development to the scheme extents, Toolbox Talk TTN-042 Being a Good Neighbour will be briefed prior to works commencing.

- Construction lighting will consider the need to avoid illuminating surrounding properties to avoid a nuisance at night, and non-essential lighting will be switched off at night.

- A Traffic Management Plan (TMP), which includes measures to avoid or reduce disruption to road traffic, will be produced in accordance with the Traffic Signs Manual (Department of Transport 2009). The TMP will ensure that there is no severance of community assets, access routes or residential development.

Road drainage and the water environment

During filter drain refurbishment works, there is potential for temporary adverse impacts on the water environment. Potential changes in water quality e.g., from pollution events (either by accidental spillage of sediments, particulate matter, chemicals, fuels or by mobilisation of these in surface water caused by rain) during works have the potential to have a direct or indirect effect on surrounding waterbodies.

However, no 'in-water' works are required, therefore there will be no change in the hydrological regime or water quality within the Forth and Clyde Canal (Wyndford to Rough Castle) or Bonny Water/Red Burn. In addition, works will not be undertaken directly above the Forth and Clyde Canal, as filter drains are only located north and south of the bridge. All land outwith the trunk road boundary is also considered out-of-bounds to all construction staff during the works and there is no requirement for land take, site clearance or resources from within a waterbody. There is also no requirement for the abstraction or transfers from, or discharges to a waterbody. The potential for a direct pollution incident within a waterbody is also unlikely e.g., experience gained from BEAR Scotland maintenance schemes elsewhere on the network has shown that where standard best working practice is adopted (e.g., adherence to SEPA GPPs or PPGs, utilisation of drain covers or similar, etc.), water quality is protected.

Considering the nature of the scheme, and with implementation of the mitigation detailed below, the proposed works impacts on the road drainage and water environment are assessed as temporary negligible adverse in magnitude.

Upon completion of the works, it is expected that improvements will be made to the road drainage and water environment due to the alleviation of flooding.

Proposed road drainage and water environment mitigation measures:

- No work has been identified that would require entering any surface waterbodies. If such a need were identified onsite, BEAR Scotland's Environmental Team will be contacted (before works commence) to allow consideration of potential environmental effects.

- The abstraction or transfers of water from, discharges to, or the washing of tools in surface waterbodies is not permitted.

- All site personnel will be made aware of site spillage response procedures and in the event of a spill, all works associated with the spill will stop, and the incident reported to the Site Supervisor. Small spills that did not leave the site boundary and are cleaned up without material environmental harm or residual environmental impact would most likely not be required to be notified to SEPA or other authorities. However, all such incidents will be recorded and reported to BEAR Scotland's Environmental Team. In the event of a 'serious incident', SEPA will be notified without delay. Such notification will include: (i) the time and duration of the incident, (ii) a description of the cause of the incident, (iii) any effect on the environment as a result of the incident, and (iv) any measures taken to minimise or mitigate the effect and prevent a recurrence.

- All waste, vehicles, ancillary plant, NRMM and fuels will be stored in the compound(s) or laydown area and will be secured and located, if space is available, at least 10m from drainage entry points, or surface waterbodies, in order to comply with GPP 5 'works and maintenance in

or near water'. Refuelling will only be undertaken at designated refuelling areas (e.g., on hardstanding, with spill kits available, and >10m from drainage entry points or surface waterbodies, where practicable). Spill kits will also be available within all site vehicles and spill kits will be replenished onsite when required. Only designated trained and competent operatives will be authorised to refuel plant. Generators, and other ancillary plant and NRMM, where there is a risk of leakage of oil or fuel, will have internal bunding or must have a secondary containment system placed beneath them that meets 110% capacity requirements. Containment systems will also be emptied regularly. All waste, vehicles, ancillary plant, NRMM and fuels will also be stored in a manner that ensures they are protected from damage by collision or extremes of weather.

- Regular visual pollution inspections of the designated laydown area and work site (particularly near road drainage entry points and surface waterbodies) will be conducted (e.g., site walkover by engineer or Site Supervisor), especially during periods of heavy rain.
- All vehicles and NRMM onsite will have been regularly maintained, paying attention to the integrity of oil tanks, coolant systems, gaskets etc. A checklist must be present to make sure that the checks have been carried out.

Climate

BEAR Scotland, working on behalf of Transport Scotland, undertake carbon monitoring of major projects and operational activities. Emissions from activities are recorded using Transport Scotland's Carbon Management System. BEAR Scotland also undertakes resource efficiency activities to manage and reduce emissions contributing to climate change. The footway improvement works will also extend the maintenance intervals required for future works. In doing so, the service life of the footpath is also extended.

During works there is potential for impacts as a result of the emission of greenhouse gases through the use of equipment, vehicles, and NRMM, material use and production, and transportation of material/waste. However, considering the nature of the scheme, and the mitigation detailed below, the risk of significant impacts to climate are considered to be negligible adverse in magnitude.

Upon completion of the proposed scheme no residual impacts are anticipated on the climate.

Proposed climate mitigation measures:

- Local contractors and suppliers will be used as far as practicable to reduce fuel use and greenhouse gas emitted as part of the works.

- BEAR Scotland will adhere to its Carbon Management Policy.
- Where possible, waste will be removed to local waste management facilities.

Vulnerability of the project to Major Accidents and Disasters

There will be no increase in impermeable surface area therefore there will be no increase to existing base flows within the road drainage system and refurbishment of the existing filter drain will improve drainage, alleviating flooding on the M80 within the scheme extents upon completion of the works.

Works are restricted to areas of made/engineered ground within the boundary of the M80 roadside verge, with access to the scheme gained via the M80. TM is currently anticipated to be a combination of lane closures. There are no pedestrian or other NMU facilities with connectivity to the scheme extents. As such, the proposed works impacts on road traffic accidents is assessed to be of negligible magnitude.

A Site Environmental Management Plan (SEMP) will be produced by BEAR Scotland which sets out a framework to reduce the risk of adverse impacts from construction activities on sensitive environmental receptors. The Contractor will comply with all conditions of the SEMP during works and may be subject to audit throughout the contract.

Considering the above, the vulnerability of the project to risks of major accidents and disasters is considered to be low.

Assessment of cumulative effects

The proposed works are not anticipated to result in significant environmental effects. Due to the nature of the proposed works, no cumulative effects are anticipated with any other developments in the vicinity. Any future BEAR Scotland schemes will be programmed to take into account already-programmed works and as such, any cumulative effect will be limited.

In addition, a search using Falkirk Council 'Simple Search' identified that there is one planning application within 300 m of the scheme.

Reference	Proposal	Status
P/23/0341/FUL	Construction of 2 Dwellinghouses.	Awaiting decision

However, considering the nature and scale of the planning applications, and the nature and scale of the minor maintenance works being undertaken by BEAR Scotland, no in-combination effects are anticipated.

Assessments of the environmental effects

As detailed in the Description of Main Environmental Impacts and Proposed Mitigation section, there are no significant effects anticipated on any environmental receptors as a result of the proposed works.

Statement of case in support of a Determination that a statutory EIA is not required

This is a relevant project in terms of section 55A(16) of the Roads (Scotland) Act 1984 as it is a project for the improvement of a road and the completed works (together with any area occupied by apparatus, equipment, machinery, materials, plant, spoil heaps, or other such facilities or stores required during the period of construction) exceed 1 ha and are situated in whole or in part in 'Forth and Clyde Canal: Castlecary - M9 Motorway' Scheduled Monument (SM6768) and the M80 motorway boundary borders the 'Antonine Wall World Heritage Site Buffer Zone' World Heritage Site which are sensitive areas within the meaning of regulation 2(1) of the Environmental Impact Assessment (Scotland) Regulations 1999.

The project has been subject to screening using the Annex III criteria to determine whether a formal Environmental Impact Assessment (EIA) is required under the Roads (Scotland) Act 1984 (as amended by The Roads (Scotland) Act 1984 (Environmental Impact Assessment) Regulations 2017). Screening using Annex III criteria, reference to consultations undertaken and review of available information has not identified the need for a statutory EIA.

The project will not have significant effects on the environment by virtue of factors such as:

Characteristics of the scheme:

- Works are restricted to like-for-like filter drain refurbishment, with all works restricted to made/engineered ground on the M80 carriageway verge.
- No works are required within the Forth and Clyde Canal (Wyndford to Rough Castle) or Bonny Water/Red Burn, which are spanned by/culverted beneath the M80 within the scheme extents, therefore there will be no change in the

hydrological regime or water quality within the Forth and Clyde Canal (Wyndford to Rough Castle) or Bonny Water/Red Burn.

- Works are not expected to result in significant disturbance to protected species that may be present in the wider area.
- No in-combination effects have been identified.
- The risk of major accidents or disasters is considered to be low.
- Refurbishment of the existing filter drain will alleviate flooding on the M80 within the scheme extents upon completion of the works, which will result in safer conditions for road users.
- Any potential impacts of the works are expected to be temporary, short-term, not significant, and limited to the construction phase.
- As the works are restricted to the like-for-like filter drain refurbishment, there is no change to the vulnerability of the road to the risk or severity of major accidents/disasters that would impact on the environment.
- No impacts on the environment are expected during the operational phase as a result of the works.

Location of the scheme:

- The scheme will not have any impact on the WHSs, scheduled monuments or listed buildings noted within 300 m of the scheme.
- The scheme is not located within any areas designated for landscape interests Land use will not change as a result of the works.
- The works do not require any private land acquisition.
- The scheme does not lie within any sites designated for geology or soils.
- The scheme is not located within a densely populated area.

Characteristics of potential impacts of the scheme:

- Full WAC testing will be completed before works commence and the waste classification Report in its entirety, including all data and appendices, will be submitted to the potential waste receiver(s) to confirm their ability to legally receive the waste and their acceptance of the waste assessment and the European Waste Catalogue (EWC) code.
- Waste minimisation is key to our business as well as the Scottish Economy. The waste hierarchy will be followed to reduce waste to landfill and increase recycling.
- With good practice pollution prevention measures implemented onsite, there is a negligible risk of a pollution event e.g., compliance with the SEMP.

- Works are programmed to take 40-nights to complete on a rolling programme, with the aim being to complete the noisiest works by 23:00.

Annex A

"sensitive area" means any of the following:

- land notified under sections 3(1) or 5(1) (sites of special scientific interest) of the Nature Conservation (Scotland) Act 2004
- land in respect of which an order has been made under section 23 (nature conservation orders) of the Nature Conservation (Scotland) Act 2004
- a European site within the meaning of regulation 10 of the Conservation (Natural Habitats, &c.) Regulations 1994
- a property appearing in the World Heritage List kept under article 11(2) of the 1972 UNESCO Convention for the Protection of the World Cultural and Natural Heritage
- a scheduled monument within the meaning of the Ancient Monuments and Archaeological Areas Act 1979
- a National Scenic Area as designated by a direction made by the Scottish Ministers under section 263A of the Town and Country Planning (Scotland) Act 1997
- an area designated as a National Park by a designation order made by the Scottish Ministers under section 6(1) of the National Parks (Scotland) Act 2000.

TRANSPORT SCOTLAND
CÒMHDHAIL ALBA

Further copies of this document are available, on request, in audio and visual formats and in community languages. Any enquiries regarding this document / publication should be sent to us at info@transport.gov.scot

This document is also available on the Transport Scotland website: www.transport.gov.scot

Published by Transport Scotland, February 2024

Follow us:

transcotland

@transcotland

transport.gov.scot

Scottish Government
Riaghaltas na h-Alba
gov.scot