



**TRANSPORT
SCOTLAND**
CÒMHDHAIL ALBA

Environmental Impact Assessment Record of Determination

M80 River Carron to Hags

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Project Details

Description

BEAR Scotland has been commissioned by Transport Scotland to carry out filter drain works, which require 5,960 tonnes of silted filter stone material to be refurbished across approx. 2.77 km of carriageway verge (northbound (NB) & southbound (SB)), to a maximum depth of 0.9 m. Works will be carried out over 3 sections of filter drain within the scheme extents (approximately 2 ha).

Construction activities include:

- Set up traffic management (TM) and mark out site;
- Mini excavator excavates filter drain material (e.g., Type B granular material and detritus) and places in tipper truck;
- Type B granular material and detritus is removed from site,
- Type B granular material is sieved and separated from detritus and returned to site,
- Filter drain is 'topped-up' with new Type B granular material;
- Tipper truck and mini excavator are removed from site
- Remove TM and open road.

The works are currently programmed to be completed within the 2022/2023 financial year (January - March 2023). However, works may be delayed into the 2023/2024 financial year (April – December 2023). Works are expected to be completed over twenty-five nights (19:30 – 06:00). Traffic management (TM) is currently anticipated to consist of hard shoulder and lane 1 closure. As the scheme is located on a motorway, pedestrian routes will not be directly impacted by the scheme.

Location

The scheme lies on the western periphery of Denny (Figure 1).

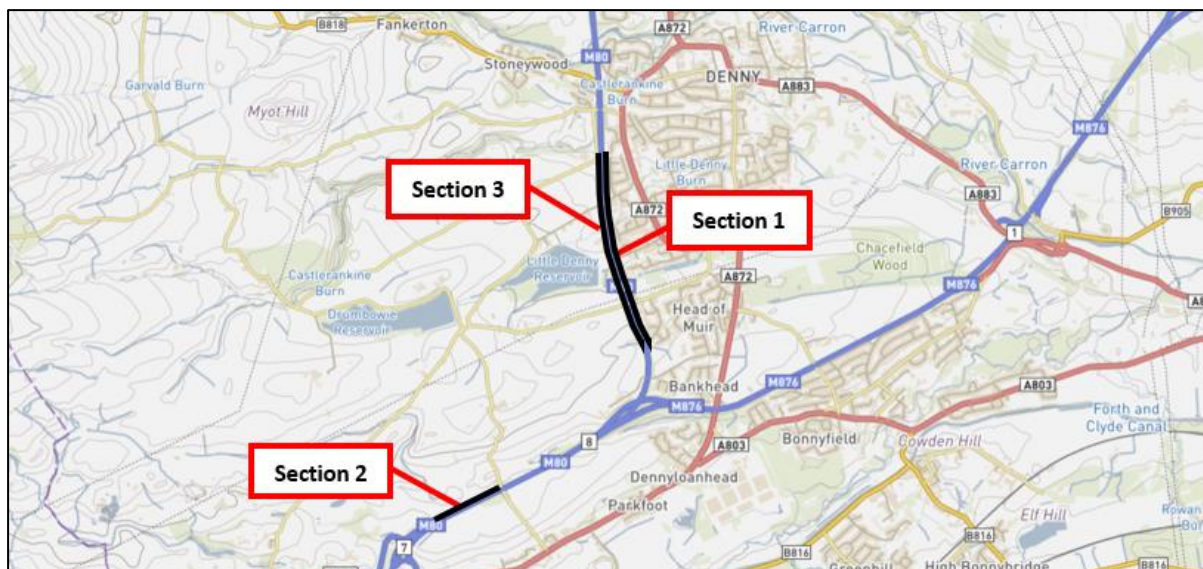


Figure 1. Extent of works. Source: Grid Reference Finder. Reproduced by permission of Ordnance Survey on behalf of HMSO. © Crown Copyright and database right 2022.

Description of local environment

Air quality

The scheme lies within the boundary of Falkirk Council, which has five [Air Quality Management Areas](#) (AQMAs) within its administrative boundary. The nearest AQMA, 'Banknock & Haggs', lies approx. 0.4 km southwest of the scheme and is declared for nitrogen dioxide (NO₂).

There are no sites registered on the Scottish Pollutant Release Inventory ([SPRI](#)) for air pollutant releases lies within 1 km of the scheme.

Baseline air quality is mainly influenced by vehicles travelling along the motorway. Secondary sources are likely derived from day-to-day agricultural land management, and urban activities within Denny.

Cultural heritage

The [PastMap](#) and [Historic Environment Scotland](#) (HES) online mapping tools records three undesignated cultural heritage assets (UCHAs) within 300 m of the scheme. There is no connectivity between the scheme and the UCHAs e.g., the nearest lies outwith the motorway boundary, approx. 150 m south of the scheme.

Landscape and visual effects

The scheme is not situated within a 'sensitive area' designated for landscape features e.g., [National Park](#) (NP), [National Scenic Area](#) (NSA).

The scheme lies on the western periphery of Denny, with transport infrastructure, agricultural land, and urban development surrounding the scheme extents. Views from the scheme extents are limited due to raised roadside embankments and tree shelterbelt.

The scheme lies within the Lowland River Valleys - Central Landscape Character Type (LCT) (LCT 152), which is characterised by well-defined corridors with flat valley floors, enclosed by commanding hills. It occurs in several areas in Central Scotland.

Land use within 2 km of the scheme extents is categorised into the following: (i) rectilinear fields and farms, (ii) reservoir, (iii) urban development, (iv) motorway and major roads, (v) industrial-scale farming unit, and (vi) managed woodland.

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), and 'Class 3.2' – land capable of average production though high yields of barley, oats and grass can be obtained (grass leys are common). Agricultural land surrounding the scheme forms a pattern of open and exposed fields containing mainly grazed pasture. Field patterns are an important landscape element, varying in size and shape to fit the local topography. Field boundaries, for example, highlight the landform by accentuating undulating land and flatter areas. 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.

The scheme is bordered by approx. 3 ha of native broadleaved woodland registered on the [Native Woodland Survey of Scotland](#) and lies within 300 m of the scheme. There are no areas of ancient woodland registered on the [Ancient Woodland Inventory Scotland](#) within 300 m of the scheme.

Biodiversity

The [NatureScot Sitelink](#) online mapping tools identifies that the scheme is not situated within, and does not share connectivity with, a '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.

The scheme is not situated within a Local Nature Conservation Site (LNCS) or Local Nature Reserve (LNR) designated for biodiversity features.

The [National Biodiversity Network](#) (NBN) online mapping tool records six mammal species of conservation importance within 2 km of the scheme (in last 10-years) within 10 km grid squares NS78, NS87 and NS88.

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 2 km of the scheme extents (within last 10-years). A search of the Asset Management Performance System (AMPS) online mapping tool records Rosebay willowherb (*Chamaenerion angustifolium*), an invasive native perennial (as listed in the Trunk Road Inventory Manual), within the NB and SB grassed verges within the scheme extents in 2015.

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 and Major Soil Group in the study area is Brown soils.

The British Geological Survey online mapping tool records that the superficial geology underlying the scheme extents is comprised of Till, Devensian (diamicton). The bedrock geology underlying the scheme extents is comprised of (i) Upper Limestone Formation (sedimentary rock cycles, Clackmannan group type), (ii) Limestone Coal Formation (sedimentary rock cycles, Clackmannan group type), (iii) Scottish Middle Coal Measures Formation (sedimentary rock cycles, coal measure type), and (iv) Scottish Lower Coal Measures Formation (sedimentary rock cycles, coal measure type).

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

Material assets and waste

The proposed works are required to refurbish filter drain material. Materials used will consist of:

- Filter stone (drainage materials)

The scheme is executed by the operating company as site operations e.g. 'As-of-Right' scheme of value less than £350,000. As a result, a Site Waste Management Plan (SWMP) is not required.

The main waste produced will be 5,960 tonnes of filter drain arisings (graded stone and filter drain detritus), all removed filter drain material will be filtered and re-used where possible. Waste classification testing has determined that the List of Waste code for the filter drain materials is considered to be '17 05 04 soil and stones other than those mentioned in 17 05 03', i.e., non-hazardous waste. Materials classified as non-hazardous waste may be disposed of at an inert waste facility subject to meeting inert Waste Acceptance Criteria (WAC) thresholds. Full WAC testing was carried out on seventeen samples taken from the filter drain (e.g., Section 1: TP01S – TP09S, Section 2: TP01NA – TP03NA, and Section 3: TP01N, TP03N – TP06N), and no

exceedances of the inert WAC thresholds were recorded. The filter drain materials are therefore considered to be suitable for disposal at an inert waste facility.

Noise and vibration

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

The night-time modelled noise level (L_{night}) within the scheme extents ranges between 70 and 75 decibels, with noise levels dropping to between 55 and 60 decibels at the nearest Noise Sensitive Receptor (NSR) (residential property) ([Scotland's Noise Scotland's Environment](#)).

Baseline noise levels are mainly influenced by vehicles travelling along the motorway. Secondary sources are likely derived from day-to-day agricultural land management, and urban activities within Denny.

Population and human health

Numerous properties (including a primary school and business premises) lie within 300 m of the scheme. The primary school lies 290 m east of the scheme. Properties closest to the scheme (approx. 30 m) are screened from the scheme extents by roadside embankment and roadside tree shelterbelt (approx. 25 m wide), with properties further afield (including the primary school) additionally screened by 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 at the scheme location is a two-lane motorway with a continuous hard shoulder and the national speed limit applying throughout. The Annual Average Daily Traffic (AADT) flow is 35,059 (ID: 74403) (2021 data) ([Road traffic statistics](#)) and is comprised of:

- 92 two wheeled motor vehicles,
- 24,578 cars and taxis,
- 78 bus and coaches,
- 6,747 Light Goods Vehicles (LGVs), and
- 3,565 Heavy Goods Vehicles (HGVs).
- The AADT flow recorded for pedal cycles is 0 (2021 data).

There are no congestion issues noted on the M80 within the scheme extents during the proposed working hours.

Road drainage and the water environment

The Scottish Environment Protection Agency (SEPA) [River Basin Management Plan](#) online mapping tool records no classified surface waterbodies spanned by, culverted beneath or which share direct connectivity with the scheme extents.

One unclassified surface waterbody, considered to be a minor tributary and herein referred to as Denny Burn, is culverted beneath the motorway within the scheme extents (Section 1 and Section 3). The culvert of Denny Burn extends for approx. 5 m beyond both sides of the carriageway and is separated by a grassed verge and vehicle restraint system (VRS). Denny Burn is considered too small (in terms of catchment area) to be classified as a main stem waterbody by SEPA under the Water Framework Directive (WFD) ([SEPA water environmental hub](#)).

A search of the Scotland's Environment (SE) online mapping tool determined that the motorway within the scheme extents lies on the 'Denny' [groundwater](#) (a [Drinking Water Protected Area](#)), which has been classified as 'Poor'.

The motorway within the scheme extents is not located within a [Nitrate Vulnerable Zone](#).

The SEPA indicative surface water online [flood mapping](#) tool records that a 500 m stretch of the motorway, within the scheme extents, is at a medium risk of surface water flooding (0.5% Annual Exceedance Probability (AEP), 1-in-200-year flood event).

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 CO₂ 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 the excavation of filter material, as well as exhaust emissions from ancillary plant and vehicles. As a result, there is potential for DPME to be emitted to the atmosphere.

However, DPME associated with the construction phase will be localised to the works footprint and be of a short duration. Moreover, considering the nature, size, and scale 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.

Proposed air quality mitigation measures:

- 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 DPME generating activities are occurring. In the unlikely event that unacceptable DPME 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 cutting and grinding on-site, (b) reducing the operating hours, (c) changing the method of working, etc.

Cultural heritage

Construction of the M80 road corridor is likely to have removed any archaeological remains that may have been present within the boundaries of the carriageway. The potential for the presence of unknown archaeological remains in the study area has

therefore been assessed to be low. Moreover, the works do not entail any significant earthworks (minor excavation of existing filter drain to a depth of 0.9 m) or vegetation clearance, and people, ancillary plant, vehicles, NRMM and materials are restricted to areas of made/engineered ground within the boundary of the M80 carriageway. As such, there is negligible risk of disturbing or damaging previously undiscovered or unrecorded items of cultural interest.

Given there are no features of cultural heritage significance that require planning permission or consent within 300 m of the scheme extents, and with implementation of mitigation detailed below, the proposed works 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.

Proposed cultural heritage mitigation measures:

- People, ancillary plant, vehicles, NRMM and materials will be restricted to the made/engineered ground within the M80 carriageway boundary (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, vegetation clearance or works outwith the trunk road boundary, 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 (25-nights) on a rolling programme. In addition, the M80 within the scheme extents is partially screened from the wider environment by earth embankments and shelterbelt woodland. As such, the visual impact of the works will be somewhat reduced.

Considering the nature, size, and scale of the scheme, and with implementation of mitigation detailed below, impacts on landscape are assessed as temporary negligible 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 a refurbished filter drain being the only discernible change.

Proposed 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 recolonisation 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

The scheme is not situated within, and does not share connectivity with, a '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.

There is no requirement for significant earthworks (minor excavation of existing filter drain to a depth of 0.9 m), destruction or removal of vegetation, 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.

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 improvements to the filter drain. 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 on the M80, and the scheme will be undertaken over 25-nights on a rolling programme. The potential for significant species disturbance within the area of likely construction disturbance is therefore somewhat diminished.

The invasive native perennial records pertain to rosebay willowherb present within the grassed verges within the scheme extents. However, if rosebay willowherb (or any other invasive or injurious plant species) is present within the works corridor, the plant will be controlled/treated by cultural methods and/or chemical weed control as per the SE Annual Landscape Management Plan. There are also no significant earthworks (minor excavation of existing filter drain to a depth of 0.9 m) or vegetation clearance associated with the scheme, the scheme does not require permanent (or temporary) land-take, accommodation works, site clearance or locally gained resources, and there is no requirement to import topsoil. As such, there is limited potential to spread or introduce invasive or injurious flowering plant species.

Considering the nature, size, and scale of the scheme, and with 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.

Proposed biodiversity mitigation measures:

- Any unsupervised excavations/trenches > 0.5 m deep will be covered or have ramps installed when left unsupervised at the end of a working day.
- 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 BEARs 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 50 m away from the construction site, or until BEAR'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 etc.) to ensure minimal impact on nocturnal species.
- All equipment stored onsite will be checked at the start of each workday to ensure protected species, and any or other mammal species, are not present. Any storage containers/plant within the compound will also be secured overnight to prevent exploration by protected species (and any or other 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.
- Toolbox Talk TTN-009 Working with Injurious Weeds & Invasive Plants will be briefed prior to works commencing. Site personnel will be briefed on the location of the rosebay willow herb that is recorded onsite and will remain vigilant for the presence of any other potentially unrecorded instances of invasive or injurious weeds in road verges throughout the works period. In particular, if rosebay willowherb is present within the works corridor, the plant will be controlled/treated by cultural methods e.g., 'forked-out' or 'cut down' or controlled/treated by chemical weed control. The waste material can then be placed at the back of the verge to decompose.
- Should any further injurious species or INNS be identified in working areas, no works will take place within 7 m of these areas until the BEAR Scotland Environmental Team can provide further advice on additional mitigation measures.
- 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: (i) unforeseen site clearance is required, (ii)

unplanned works must be undertaken outwith the carriageway boundary, (iii) there is any deviation from the agreed plan, programme and/or method of working, (iv) nesting birds are found onsite.

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 carriageway verge. 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.

Proposed mitigation measures:

- If any contaminated land requiring remediation were encountered (outwith the carriageway boundary), 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.

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, size and scale 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.

Proposed material and waste mitigation measures:

- Good materials management methods (e.g., 'just-in-time' delivery) will be implemented wherever possible.
- The filter drain materials will be filtered and reused where possible. Remaining filter drain material are considered to be suitable for disposal at an inert waste facility. It is ultimately the decision of the waste receiver as to whether they will accept the arisings, and in many cases, this may be dependent on the specific conditions of the landfill facilities environmental permit, waste management licence or exemption. The Waste Classification Report will therefore be forwarded to the preferred waste receiver for review prior to material being removed from the site.
- 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, 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 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 road 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, the works are not located within a CNMA or CQA. Works will also be completed over 25-nights on a rolling programme, with the aim being to complete the noisiest works by 23:00. Works with the potential to induce worst-case scenario noise and vibration (excavation of filter material, unloading materials, vehicle movement etc.) will also be intermittent, transient, temporary, and short-lived. The M80 within the scheme extents is located within a partial cutting, with earth embankments lining the carriageway. The presence of earth embankments, as well as shelterbelt plantation, will provide a degree of screening to local residents. In addition, the proximity of road space suggests that residents within the local area will have a degree of tolerance to noise and disturbance. The potential for disturbance will therefore be somewhat diminished.

Considering the likely sources of noise and vibration, the distance from the point of generation to NSRs, the nature, 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.

Proposed noise mitigation measures:

- 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) minimizing cutting and grinding on-site, (b) reducing the operating hours, (c) repositioning equipment, (d) 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 and vehicle travellers. However, the scheme does not require permanent (or temporary) land-take, accommodation works, site clearance or locally gained resources, and there is no requirement for a Compulsory Purchase Order (CPO). There are also no NMU facilities, or other community assets, with connectivity to the scheme extents. A TM Plan, which will include measures to avoid or reduce road traffic disruption, will be produced in accordance with the Traffic Signs Manual (Department of Transport 2009). Moreover, TM will only be in place for 25-nights (when traffic flows will be at a minimum) on a rolling, and no congestion issues are noted during the proposed construction hours.

Considering the nature, size and scale 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:

- Construction lighting will take into account the need to avoid illuminating surrounding properties to avoid a nuisance at night, and non-essential lighting will be switched off.
- 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.
- Journey planning information will be available for drivers online at the trafficscotland.org website. Journey planning information will also be available for drivers online through BEARs social media platforms.
- 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 Denny Burn and surrounding waterbodies.

However, no 'in-water' works are required, therefore there will be no change in the hydrological regime or water quality within Denny Burn. All land outwith the motorway 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 of water from a waterbody. The potential for a direct pollution incident within a waterbody is also unlikely e.g., experience gained from BEAR 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.

There will be no increase in impermeable surface area therefore there will be no increase to existing base flows within the road drainage system. Refurbishment of the existing filter drain will also alleviate flooding on the M80 upon completion of the works.

Considering the nature, size and scale 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, no residual impacts are anticipated in relation to the road drainage and water environment.

Proposed road drainage and water environment mitigation measures:

- No work has been identified that would require entering Denny Burn. 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, discharges to, or the washing of tools in Denny Burn 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 10 m from drainage entry points and Denny Burn, 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 >10 m from drainage entry points and Denny Burn, 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 Denny Burn) 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 will 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 carriageway resurfacing works will also extend the maintenance intervals required for future works. In doing so, the service life of the motorway 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, duration, size and scale 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 disposed at local waste management facilities.

Vulnerability of the project to Major Accidents and Disasters

A 500 m stretch of the motorway, within the scheme extents, is at a medium risk of surface water flooding (0.5% Annual Exceedance Probability (AEP), 1-in-200-year flood event). However, there will be no increase in impermeable surface area therefore there will be no increase to existing base flows within the road drainage system. Refurbishment of the existing filter drain will also alleviate flooding on the M80 upon completion of the works.

Works are restricted to areas of made/engineered ground on the M80 roadside verge, with access to the scheme gained via the M80. TM will employ hard shoulder and lane 1 closure. There are no NMU facilities, or other community assets, 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 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 are no planning applications within 300 m of the scheme. Overall, it is unlikely that the proposed works will have a significant cumulative effect with any other future works in the area.

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 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.

The project has been subject to screening using the Annex III criteria to determine whether a formal Environmental Impact Assessment 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 roadside verge.
- Works are programmed to only take 25-nights to complete on a rolling programme, with the aim being to complete the noisiest works by 23:00 each night.
- No works are required within Denny Burn, which is spanned by the M80 within the scheme extents, therefore there will be no change in the hydrological regime or water quality within Denny 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 also alleviate flooding on the M80 upon completion of the works, which will result in safer conditions for road users.

Location of the scheme:

- The scheme is not located wholly or in part in a 'sensitive area' as defined in the EIA (Scotland) Regulations 1999 (as amended).
- The scheme does not lie within any sites of historical, cultural, or archaeological significance.
- 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:

- Any potential impacts of the works are expected to be temporary, short-term, not significant, and limited to the construction phase.
- With good practice pollution prevention measures implemented onsite, there is a negligible risk of a pollution event e.g., compliance with the SEMP.
- 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.

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.



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