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CÒMHDHAIL ALBA

Environmental Impact Assessment Record of Determination

M80 Stoneywood to Easterton NB

Contents

Project Details

Description

BEAR Scotland has been commissioned by Transport Scotland to carry out resurfacing works on the M80 carriageway. The works will consist of a surface course inlay across the scheme length with smaller sections requiring the replacement of binder material, or the replacement of binder and base material and the reinstatement of road markings for a length of 1779m (1.88ha).

The construction activities for the resurfacing procedure are as follows:

- Set up traffic management (TM) and mark out site.
- Milling of existing bituminous material by road planner.
- Jackhammer and compressor for breaking up surfaces not accessible by planer (e.g. around gullies).
- Loader/excavator used to collect and move excess material.
- Sweeper to collect loose material and provide clean laying surface.
- Milled out/excavated materials all taken off site.
- Tack/bond coat laid.
- Binder material laid and compressed by paver (where required).
- Material compacted using a heavy roller.
- New bituminous surface course material laid by paver.
- Material compacted using a heavy roller.
- Mechanical sweeper to collect loose material.
- HGV for removal and replacement of material.
- Road markings and studs applied where necessary (in accordance with Chapter 5).
- Remove TM and open road.

The works are currently programmed to be completed within the 2024/25 financial year with works expected to begin on 30th September 2024. Works are programmed to be completed over five nights with working hours between 19:30 and 06:00. Traffic management will be in the form of a full night-time road closure with a signed diversion in place. Traffic will be diverted off the M80 at Junction 8, then onto the M876, before joining the M9 briefly, then being diverted off at M9 Junction 7, then M876 Junction 3 (Bowtrees), and returning on the M876 WB, M9 Junction 7 northbound (NB) to M9 Junction 9. There are no pedestrian routes, or other community assets, with connectivity to the scheme extents.

Location

The scheme lies on the M80 carriageway, immediately north of Denny, within the Falkirk council boundary and is surrounded by areas of agricultural land and with residential areas within the southern extents (Figure 1.)

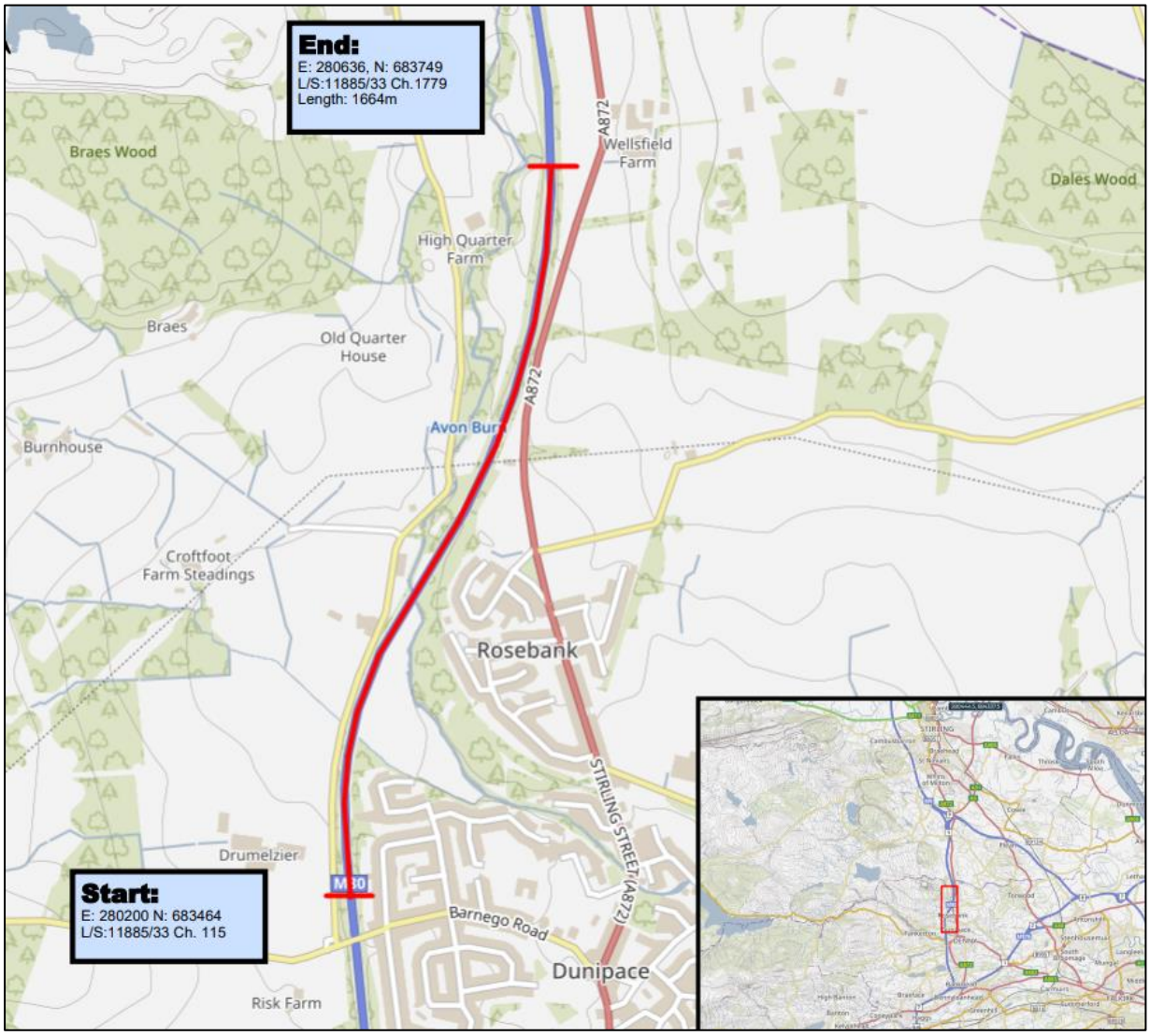

Figure 1. Map of the Scheme Extents (Red) for M80 Stoneywood to Easterton NB - Source: Asset Management System (AMPS). © Europa Technologies Ltd. Contains Ordnance Survey data © Crown copyright and database right 2018.

Description of local environment

Air quality

A search of the Air Quality in Scotland online mapping tool records air quality bandings within the area of the scheme to be within the 'green zone' (Low Index 1-3).

The scheme extents are located within the Falkirk Council boundary area, which currently has three Air Quality Management Areas (AQMAs) within its administrative boundary. The closest AQMA is 'Falkirk Town Centre' which is located approximately 8.4km south east of the scheme extents and has been declared for nitrogen dioxide (NO_2) and particulate matter PM_{10}.

There are 11 sites registered on the Scottish Pollutant Release Inventory (SPRI) for air pollutant releases located within 10km of the scheme extents (Scottish Pollutant Release Inventory. They are as follows:

- Boards Quarry – mineral industry, declared for particulate matter (<10 microns) (lies approx. 570m west of the scheme).
- Bakelite Synthetics UK Ltd., Cowie – chemical industry, declared for formaldehyde (lies approx. 4.2km northeast of the scheme).
- Cambusview Poultry Unit- intensive livestock production and aquaculture, declared for ammonia (t), particulate matter (t) and particulate matter PM_{10} and smaller (lies approx. 8.6km northeast of the scheme)
- Cowiehall Quarry, Stirling – mineral industry, declared for particulate matter (PM_{10}) (lies approx. 5.9km northeast of the scheme).
- Norbord Europe Ltd., Station Rd, Cowie – paper and wood production and processing, declared for antimony, arsenic, cadmium, carbon dioxide, carbon monoxide, chromium, copper, dioxins and furans – as ITEQ, dioxins and furans – as WHO TEQ, formaldehyde, lead, manganese, mercury, nickel, nitrogen oxides – NO and NO_2 as NO_2, non-methane volatile organic compounds (NMVOCs) and PM_{10} (lies approx. 4.2km northeast of the scheme).
- Energen Biogas Ltd., Cumbernauld – waste and waste-water management, declared for carbon dioxide and methane (lies approx. 6.6km southwest of the scheme).
- O-I Manufacturing UK Ltd, Glasshouse – mineral industry, declared for antimony (kg), arsenic (kg), cadmium (kg), carbon dioxide (kt), chlorine and total inorganic chlorine compounds, chromium (kg), copper (kg), fluorine and total inorganic fluorine compounds, hydrogen chlorine (t), lead (kg), nickel (kg), nitrogen oxides, non-methane volatile organic compounds, particulate

matter – total (t), selenium (kg), sulphur oxides, and vanadium (kg) (lies approx. 9.9km northeast of the scheme).

- Stirling STW – waste and waste water management, declared for methane (t) (lies approx. 7.5km north of the scheme).
- Superglass Insulations Ltd., Stirling – mineral industry, declared for ammonia, carbon dioxide, formaldehyde, methane, NMVOCs, and phenols (total as C) (lies approx. 6.6km north of the scheme).
- West Carron Landfill, Stenhousemuir – waste and waste-water management, declared for methane (lies approx. 7.3km southeast of the scheme).
- Beltmoss Quarry – mineral industry, declared for particulate matter PM_{10} and smaller (lies approx. 9.2km southwest of the scheme).

Baseline air quality within the scheme extents is likely to be primarily influenced by traffic along the M80 carriageway, with secondary influence from the nearby Boards Quarry.

Cultural heritage

The PastMap and Historic Environment Scotland (HES) online mapping tools records four Canmore Sites within 300m of the scheme extents. One of which the "Low Quarter Mill Roundabout" Canmore site (ID: 187448) lies within the scheme extents.

There are no Listed Buildings, Scheduled Monuments, Garden & Designed Landscapes, Conservation Areas, Battlefields, World Heritage Sites, or Protected Military Remains within 300m of the scheme extents.

Construction of the M80 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.

This factor has no constraints that are likely to be impacted by the proposed works given that they relate to the like for like replacement of the existing carriageway. Therefore, cultural heritage has been scoped out of further environmental assessment.

Landscape and visual effects

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

The Landscape Character Type (LCT) within the scheme extents is categorised as "Lowland River Valleys" (LCT 152) in the southern part of the scheme, and "Lowland Hill Fringes" (LCT 150) in the northern part of the scheme (Landscape Character Type Map). Lowland River Valleys are characterised by:

- 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.

Lowland Hill Fringes are characterised by:

- Undulating, rolling topography rising to larger scale hill landforms.
- Gradation of topography creates transitional landscape linking the open hills of more pronounced relief and the neighbouring settled valley landscapes.
- Diverse landcover of arable and open improved and unimproved pasture land, interlocks with woodland and forestry, with some estate landscapes with frequent beech hedgerows and shelterbelts.
- High proportion of woodland cover including large coniferous blocks, mixed shelterbelts and broadleaf tree clumps.
- Scattered residential development and small settlements on slopes, with recent expansion in some areas.
- Minor roads.
- Concentration of small water bodies, reservoirs and small watercourses.
- Strong interrelationship between stepped escarpment and lower foot slopes in Gargunnock/Fintry and East Touch Fringe.

- Estate and designed landscapes give distinctive character to East Touch Fringe area.
- Hill fringes offer important panoramic views to neighbouring hills, valleys and straths, as well as large settlements such as Glasgow and Falkirk.
- A sense of remoteness and isolation in some areas despite proximity to settlement and relatively limited geographic extent.

Land use within 300m of the scheme is classified as:

- Motorways and Major Roads.
- Rectilinear Fields and Farms.
- Urban Areas.
- Managed Woodland.
- Designed Landscape.

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

- Class 3.2 in the north and south of the scheme – Land capable of average production though high yields of barley, oats, and grass can be achieved. Grass leys are common.
- Urban classification in the middle of the scheme.

There are five areas of native woodland recorded on the Native Woodland Survey of Scotland. These five areas have a total area of approximately 12.34ha and are all classified as “Lowland mixed deciduous woodland” with a range of maturities. Four of the areas lie directly adjacent to the M80 carriageway within the scheme extents.

There are three areas of ancient woodland within 300m of the scheme extents (Ancient Woodland Inventory). The three areas have a total area of 5.68ha, the closest of which is approx. 30m west of the scheme bordering Auchenbowie Burn. Two areas have an antiquity of 1a, meaning they are semi-natural woodland which has been continuously wooded since at least 1750. The other area has an antiquity of 2b, meaning it is a long-established woodland of plantation origin and has been continuously wooded since at least 1860. There are no trees covered by a Tree Preservation Order (TPO) with connectivity to the scheme extents (Falkirk Council)

The existing trunk road 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, etc. The scale of the trunk road detracts from the quality and character of the wider landscape.

Biodiversity

According to the online mapping tool NatureScot SiteLink there are no European Sites located within 2km of, or which share connectivity with, the scheme.

There are no Sites of Special Scientific Interest (SSSI), Local Nature Conservation Sites (LNCS), or Local Nature Reserves (LNRs) designated for biodiversity features within 300m of, or which share connectivity to the scheme.

The NBN Atlas was also searched using the same criteria for plant species and identified the following records of injurious weeds, as listed in the Trunk Road Inventory Manual under the same criteria:

- Broad-leaved dock (*Rumex obtusifolius*)
- Spear thistle (*Cirsium vulgare*)

A search of the Asset Management Performance System (AMPS) online mapping tool records invasive non-native species (INNS) Japanese knotweed (*Reynoutria japonica*) along the NB verge within the scheme extents, located in proximity to the Avon Burn culvert. Of lesser note, invasive native species rosebay willowherb (*Chamaenerion angustifolium*) is noted at multiple locations along the northbound verge within the scheme extents. No injurious weeds (as listed in the Trunk Road Manual) are located within the scheme extents.

The habitat immediately bordering the M80 carriageway within the scheme extents is bordered by strips of semi-mature and mature broadleaved treelines and made verges which undergo cyclic maintenance (e.g., grass-cutting, weed control, etc.). Auchenbowie Burn is channelled below the scheme extents and runs parallel to the M80, offering suitable habitats for a number of species. However, the habitat immediately bordering the trunk road is assessed to be of reduced ecological value, due to the likelihood of trunk road disturbances from traffic flow and that the M80 trunk road limits the connectivity and continuity for species between their potential habitats on either side of the road.

Geology and soils

There are no geological SSSIs or Geological Conservation Review Sites within 300m of the scheme extents (SiteLink). Additionally, there are no Local Geodiversity Sites (LGS) within 300m of the scheme extents.

Soils in the scheme areas northern, middle, and southern sections are classified as noncalcareous gleys, browns earths, and “no soil” respectively. (Scotlands’s Soils). The Carbon and Peatland 2016 map shows soils in the scheme area have a carbon

and peatland class of 0 indicating mineral soils in which peatland habitats are not typically found (Scotland's Soils).

Bedrock in the scheme extents are classified as Limestone Coal Formation, characterised by sedimentary rock cycles. There are superficial deposits of Glaciofluvial Ice Contact Deposits, Alluvium, and Devensian Diamicton Till throughout the scheme extents (Geology Viewer)

This factor has no constraints that are likely to be impacted by the proposed works and therefore has been scoped out of further environmental assessment.

Material assets and waste

The proposed works are required to resurface the worn carriageway and reinstate road markings. Materials used will consist of:

- TS2010 Surface Course, 10mm aggregate Site Class 1
- AC20 Binder
- AC32 Base Material
- Thermoplastic Road Markings
- Surface Mounted Road Studs

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

The 1.78km scheme involves removal of the surface course and localised areas of binder course. In total, approx. 1708 tonnes of bituminous material (European Waste Catalogue Code: 17 03 02) will be removed from site, 32 tonnes of which is classified as hazardous material containing coal tar. All 32 tonnes of coal tar planings will be disposed of at an approved facility.

Noise and vibration

The works do not fall within a candidate noise management area (CNMA) as defined by the Transportation Noise Action Plan (TNAP).

The night-time modelled noise level (Lnight) within the scheme extents ranges between 60 and 75 dB with levels dropping to around 45-50 dB at the nearest noise sensitive receptor (residential properties) (Noise Map Viewer).

Baseline noise and vibration in the study area is mainly influenced by vehicles traveling along the trunk road. Secondary sources are derived from vehicles

travelling along the local road network and day-to-day woodland and agricultural land management activities.

Population and human health

There are numerous residential properties within 300m of the scheme extents. The closest of which lie approximately 50m east of the M80 carriageway, adjacent to the southbound carriageway. They receive partial screening from the carriageway by a bordering broadleaved treeline. There are at least four commercial properties, Alan Gilmour Transport Services, Buildvale, Avonmill Equestrian, and Wellsfield Farm Holiday Lodges, within 300m of the scheme extents. They are also screened by the broadleaved treeline and the roadside embankment.

There are no laybys, footpaths, core paths or local access roads within the scheme extents.

There are also no recognised cycle routes within 300m of the scheme extents. (OS Maps)

There is no street lighting within the scheme extents.

The nearest manual traffic count point (74403) lies approximately 490m south of the scheme extents on the M80 carriageway. In 2023 the estimated Annual Average Daily Flow (AADF) was high, calculated as 39,993 vehicles, and was comprised of:

- 120 two-wheeled motor vehicles,
- 27,737 cars and taxis,
- 218 bus and coaches,
- 8311 Light Goods Vehicles (LGVs), and
- 3608 Heavy Goods Vehicles (HGVs)

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 one classified surface waterbody within 300m of the scheme extents. Auchenbowie Burn (ID: 4210) begins on the western side of the M80 carriageway before passing under the road and travelling east where it drains into the River Carron. Auchinbowie Burn was classified as “moderate ecological potential” by SEPA in 2022. Auchenbowie Burn is separated from the NB

carriageway by a small kerbed pavement at the parapet location and narrow verge to the north and south of the parapet.

In addition, one unclassified waterbody is located within 300m of the scheme extents. This unnamed watercourse is tributary of Auchenbowie Burn and is culverted below the M80 within the southern scheme extents. The watercourse is separated from the M80 NB carriageway by a grassed verge, local road and a narrow strip of scrub.

A search of the SEPA's Flood Map online mapping tool records that there are two primary areas with an increased chance of flooding. The lefthand lane at the northern part of the northbound side of the scheme extents, and the lefthand lane in the southern part of the southbound side both have a 0.5% chance of flooding each year. Some isolated areas, in particular those adjacent to Auchinbowie Burn, have a 10% chance of flooding.

The scheme extents lie within the Stirling (ID:150571) and Carron Sand and Gravel (ID:150774) groundwater basins. They were rated "poor" and "good" overall respectively by SEPA in 2022.

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 (https://www.gov.scot/publications/scotlands-contribution-paris-agreement-indicative-ndc/). 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 milling of the existing carriageway surface, as well as exhaust emissions from ancillary plant and vehicles. As a result, there is potential for dust, particulate matter, and exhaust emissions 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:

- A water-assisted dust sweeper will sweep the carriageway after dust-generating activities, and waste will be contained and removed from site as soon as is practicable.
- 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).
- Materials that have a potential to produce dust will be removed from site as soon as possible, and vehicles that remove cold-milled material from site will have sheeted covers.
- Cutting, grinding, and sawing equipment (if required) will be fitted or used in conjunction with suitable dust suppression techniques e.g., local exhaust ventilation system that fits directly onto tools.
- Regular monitoring (e.g., by engineer or Clerk of Works) will take place when there is potential for dust, particulate matter, and exhaust emissions to be emitted to the atmosphere. In the unlikely event that unacceptable air pollutants 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) minimising reducing the operating hours, (b) changing the method of working, etc.

Landscape and visual effects

There will be a short-term impact on the landscape character and visual amenity of the local area due the presence of construction plant, vehicles, and TM. However, people, ancillary plant, vehicles, NRMM and materials are restricted to areas of made/engineered ground on the M80 northbound carriageway, and construction works are programmed to be undertaken at night (five nights) on a rolling programme. As such, the visual impact of the works will be somewhat reduced.

Considering the nature, duration, size, and scale of the scheme, and with implementation of mitigation detailed below, impacts on landscape and visual effects are assessed as temporary, negligible adverse in magnitude.

Upon completion of the works, no residual impacts on landscape and visual effects are anticipated e.g., when complete the visual appearance will remain largely unaffected, with a renewed road surface being the only discernible change.

Landscape and visual effects mitigation measures:

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

Biodiversity

A temporary short-term increase in noise levels may cause disturbance to local wildlife if present in the vicinity of the works. 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 road surface. 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 noise and visual disturbance pertaining to vehicle movements on the M80, furthermore, the scheme is of short duration (five nights) and will be undertaken on a rolling programme. The potential for significant species disturbance within the area of likely construction disturbance is therefore somewhat diminished.

Two instances of INNS Japanese knotweed have been identified along the northbound verge within the scheme extents. Of lesser concern invasive native perennial rosebay willowherb is noted as being widespread along the NB verge within the scheme extents. However, all works are restricted to existing made ground on the M80 carriageway, with like-for-like replacement of the road surface taking place. As such, with mitigation measures implemented below, there is no potential to impact upon these species.

Considering the nature, duration, size, and scale of the scheme, and with implementation of mitigation detailed above, the proposed works 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:

- Where possible, artificial lighting used during night works will be sufficiently screened and aligned to ensure that there is no direct illumination of neighbouring habitat (e.g., woodland etc.) to ensure minimal impact on nocturnal species.
- 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.
- All site operatives will be made aware of the location of INNS Japanese knotweed within the NB verge. No site operatives, equipment, plant / machinery or signage will be permitted within the verge at these locations. In addition, given the presence of Japanese knotweed and rosebay willowherb Toolbox Talk TTN-009 ‘Working with Injurious Weeds & Invasive Plants’ will be briefed prior to works commencing. Site personnel will remain vigilant for the presence of any potentially unrecorded instances of invasive or injurious weeds in road verges throughout the works period.
- 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 50m 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 (including birds) to move away from the disturbance.
- All equipment stored onsite, if necessary, will be checked at the start of each workday to ensure mammal species are not present. Any storage

containers/plant within the compound will also be secured overnight to prevent exploration by 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.

- 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,
    - unplanned works must be undertaken out with the carriageway boundary,
    - 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.

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.

Given the identification of coal tar within the area required to be resurfaced there is also potential for impacts to occur as a result of improper storage or disposal of waste.

However, the detailed design will reduce the requirements for primary materials e.g., the carriageway surfacing, and subbase will be carefully considered to minimise the requirements for importing primary material. Materials will also be derived from recycled, secondary, or re-used origin as far as practicable within the design specifications to reduce natural resource depletion. Specifying TS2010 surface course also allows a wider array of aggregate sources to be considered when compared to typical stone mastic asphalt (SMA). As a result, the use of TS2010 should reduce the usage of imported aggregates and increase the use of a wider range of sustainable aggregate sources. The design life for the TS2010 surfacing is also estimated to be 20 years. The enhanced durability of TS2010 therefore reduces

reoccurring routine maintenance and associated levels of traffic disruption to this section of road over the period.

A SWMP will be partially completed by the Design Engineer and then will be issued to the Contractor to complete the contract delivery section. The SWMP will provide details of the following:

- The quantity and type of waste that will be produced.
- How waste will be minimised, reused, recycled, recovered, or otherwise diverted from landfill.
- How materials that cannot be reused, recycled, or recovered will be removed from site and consigned, transported and disposed of in full accordance with all relevant UK legislation.

Material assets and waste mitigation measures:

- A SWMP will be completed by the Designer and Contractor as required.
- Good materials management methods (e.g., 'just-in-time' delivery) will be implemented wherever possible.
- 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. Waste transfer notes and/or waste exemption certificates (if required) will also be completed and retained.
- The Contractor is responsible for the reuse / disposal of non-hazardous road planings, and this has been registered in accordance with a Paragraph 13(a) waste exemption issued by SEPA as described in Schedule 3 of the Waste Management Licensing Regulations 2011 (exemption number: WML/XS/2007167), the rules of which will be complied with.
- Approximately 32 tonnes of bituminous material classified as hazardous due to the presence of coal tar will be appropriately processed of in line with Transport Scotland's Guidance Note on dealing with coal tar bound arisings (Coal Tar Guidance). This will include, but not be limited to:
    - Coal tar contaminated road planings will be classified as a Special Waste.
    - All waste will be appropriately segregated, with coal tar contaminated planings being kept separate from uncontaminated planings.
    - Coal tar contaminated road planings will be transported by a registered waste carrier and be accompanied by a SEPA-issued consignment note or code. SEPA will be notified, at least 72 hours before and no longer than one month before, prior to Special Waste leaving site. The approx. 32 tonnes being disposed of will be sent to a facility that holds suitable pollution prevention and control permits and waste management licences. Copies of consignment notes will be retained for a period of three years.

    - Waste will be transported in a safe and secure manner to prevent the release of contaminated material en-route.
- Designated areas will be identified within which all materials and personnel, including construction compounds, where necessary, 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. 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 their relevant waste regulations. 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 cold milling in preparation for carriageway resurfacing. Noise will also be generated by using breakers (jackhammers), chipping hammers, use of rollers, etc. As a result, there is potential for noise and vibration effects to residential and commercial properties within the local area, the closest of which are approx. 50m east of the scheme.

However, the works are not located within a CNMA or CQA, and works will also be completed over five nights, with the aim being to complete the noisiest works by 23:00. In addition, the proximity of road space suggests that residents have a degree of tolerance to noise and disturbance.

The road surface is in a poor condition, with a series of defects. Replacing the life-expired surface course with TS2010 road surfacing affords the benefits of a reduction in mid-to-high frequency traffic noise and a reduction in the ground vibrations. As a result, upon completion of the work, noise associated with the movement of vehicles on the trunk road should decrease post construction.

Considering the likely sources of noise and vibration, with 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 and vibration mitigation measures:

- The local authority environmental health department will be notified of nighttime working by BEAR Scotland's design engineer.
- Where possible, the noisiest work operations (e.g., cold milling, using breakers (jackhammers), chipping hammers, use of rollers, etc.) will be completed before 23:00.
- 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 surrounding properties. Activities which have the potential to produce excessive noise will be undertaken away from surrounding properties, if possible.
- 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 characteristics will (where practical) be shut down in intervening periods between site operations.
- The use of paving breakers (jackhammers), chipping hammers, etc. will be avoided (except where there is an overriding justification), and if used will be fitted with mufflers or silencers of the type recommended by the manufacturer.
- 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 road users. However, there are no NMUs or community facilities with connectivity to the scheme extents and the works

will be undertaken at night when usage of the M80 northbound carriageway is expected to be lower. TM will only be in place for five nights (when traffic flows will be at a minimum), as such, no congestion issues are noted during the proposed construction hours.

As noted above, numerous residential properties and at least four commercial properties lie within 300m of the scheme extents, the nearest of which lies approximately 50m east of the scheme extents. As such there is potential for impacts to local residents in the form of noise / vibration impacts, visual disturbance and delays due to traffic management. However, providing mitigation measures detailed below, and those listed within the noise and vibration section, are adhered to the impacts are assessed to be somewhat reduced.

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

Upon completion of the works, there will be a positive impact in relation to population and human health due to the improvement of usability and safety provided by the new carriageway surface.

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 at night.
- 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 local 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 residential properties Toolbox Talk TTN-042 Being a Good Neighbour will be briefed to staff prior to the commencement of works.
- Advanced signage will be strategically placed on the trunk road to notify stakeholders of the road closure and diversion.
- 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.
- The design engineer will inform the Falkirk Council Environmental Health Officer of preplanned night works.

Road drainage and the water environment

During resurfacing 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 such as Auchenbowie Burn and its unnamed tributary, both of which are culverted below the M80 within the scheme extents.

However, the potential for a direct/ indirect pollution incident to a waterbody is considered to be 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, utilisation of drain covers or similar, etc.), water quality is protected.

Considering the nature, duration, 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 resurfacing works, no residual impacts are anticipated in relation to the road drainage and water environment.

Road drainage and the water environment mitigation measures:

- No work has been identified that would require entering a waterbody. 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 identified is not permitted.
- All site personnel must be made aware of the location and proximity of Auchenbowie Burn and its unnamed tributary.
- Appropriate mitigation measures, such as an Edge Protection System (EPS) will be utilised to prevent debris and run-off from entering Auchenbowie Burn, where it is spanned by the M80. Sandbags will be located at the bottom of the containment systems and debris netting will cover the EPS. The containment systems will be periodically checked throughout the works to ensure they remain intact.
- The Contractor will implement measures to minimise the risk of sediment or accidental spillages entering the road drainage system e.g., prior to works commencing any roadside gullies within 10m of work activities will be bunded (e.g., utilisation of drain covers or similar) to ensure full segregation of the works from the road drainage system. The Contractor will inspect bunds periodically to ensure that they have not been removed, damaged, or interfered with and they will be cleaned of silt and debris, as necessary. If it is identified that bunds are not up to standard, the works will not commence until they have been reinstated to the condition, they were originally in.

- Appropriate measures must be implemented during resurfacing operations to limit the potential for wastes (i.e. road planings) and materials (i.e. new asphalt) to enter any gullies present on site. On completion of resurfacing operations, any gullies present on site will be visually checked to ensure they have not become blocked as a result of the scheme.
- 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, Auchenbowie Burn and its tributary, 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 any Auchenbowie Burn and its tributary, and drainage entry points, 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) 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 works will also extend the maintenance intervals

required for future works. In doing so, the service life of the trunk road 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 and adverse in magnitude.

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

Climate mitigation measures:

- Local contractors and suppliers will be used as far as practicable to reduce fuel use and greenhouse gases 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 risks

There will be no change to the likelihood of flooding on the M80 northbound carriageway or on slip within the scheme extents upon completion of the works.

Works are restricted to areas of made ground on the M80 northbound carriageway and on slip surface, with access to the scheme gained via the M80 northbound. TM will employ a full M80 northbound carriageway road closure with signed diversion and there are no NMU or community assets with connectivity to the scheme extents. As such, the proposed work impacts on road traffic accidents are 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 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.

In addition, a search using Falkirk Council 'Map Search' identified no planning applications within 300m of the scheme.

A search of the Scottish Road Works Commissioner's website (map search) has identified that an ongoing scheme relating to a temporary slip road at the M80 Junction 9 Offslip is located to the north of the M80 Stoneywood to Easterton NB scheme. However, this area falls within the proposed road closure and as such will not result in any cumulative impacts to road users.

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 hectare in area and are not situated in whole or in part in a sensitive area 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 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 replacement of worn/damaged road surface, with all works restricted to made ground on the M80 northbound carriageway surface.
- Works are not expected to result in significant disturbance to protected species that may be present in the wider area.
- The risk of major accidents or disasters is considered to be low.
- By removing the carriageway defects, this will provide this section of the M80 northbound carriageway with another life cycle, and significantly improve the ride quality, 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. No impacts on the

environment are expected during the operational phase as a result of the works.

Location of the scheme:

- The scheme is not located within 2km of a European Site designated for nature conservation.
- 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 is not located within a densely populated area.

Characteristics of potential impacts of the scheme:

- The waste hierarchy will be followed to reduce waste to landfill.
- Works are programmed to take five nights to complete on a rolling programme, with the aim being to complete the noisiest works by 23:00.
- With good practice pollution prevention measures implemented onsite, there is a negligible risk of a pollution event e.g., compliance with the SEMP.

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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