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Environmental Impact Assessment Record of Determination

M8 Polkemmet Eastbound

Contents

Project Details

Description

BEAR Scotland has been commissioned by Transport Scotland to carry out resurfacing works on the M8 eastbound (EB) carriageway. The works will consist of carriageway resurfacing, including crack and seat where required, and reinstatement of road markings for a length of 1.23km (approximately 1.41ha).

Construction activities for resurfacing include:

- set up traffic management (TM) and mark out site;
- milling of existing bituminous material by road planer;
- 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;
- remove TM and open road.

The works are currently programmed to be completed within the 2024/2025 financial year (July 2024). Works are expected to be completed over nine nights (20:30 – 06:00). Traffic management (TM) is currently anticipated to consist of a night-time EB carriageway road closure, with a signed diversion in place. Traffic will be diverted via B7057, then onto the B7066, and rejoining the M8 at Junction 4a. As the scheme is located on a motorway, pedestrian routes will not be directly impacted by the scheme.

Location

The scheme lies approx. 1km northwest of Whitburn, with land surrounding the scheme dominated by woodland, agriculture, and a golf course (Figure 1).

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

Description of local environment

Air quality

The majority of the scheme lies within the boundary of West Lothian Council, which has three Air Quality Management Areas (AQMAs) within its administrative boundary. A small section of the western extents falls within the boundary of North Lanarkshire Council which also has three Air Quality Management Areas (AQMAs) within its administrative boundary. The nearest AQMA, 'Linlithgow, is located approx. 11.5km northeast of the scheme extent and is declared for particulate matter (PM_{10}) and nitrogen dioxide (NO_2).

There are 13 sites registered on the Scottish Pollutant Release Inventory (SPRI) for pollutant releases to air within 10km of the scheme. They are as follows:

- Bathgate Compressor Stat, Avonbridge, Falkirk - Energy sector which has been declared for Carbon dioxide (CO_2), Methane (t), and Particulate matter (PM_{10}) and smaller (t) (approx. 5.5km north)
- Bathgate Compressor Station (Site 2) - Energy sector which has been declared for Carbon dioxide (CO_2), Methane (t), non-methane volatile organic compounds (NMVOCs) (t) and Particulate matter (PM_{10}) and smaller (t) (approx. 5.5km north)
- Beeches Poultry Farm, Longridge, Bathgate - Intensive livestock production and aquaculture which has been declared for Ammonia (t) and Particulate matter (PM_{10}) and smaller (t) (approx. 5km southeast)

- Cairneyhill Quarry - Mineral industry which has been declared for Particulate matter (PM_{10}) and smaller (t) and particulates - $PM_{2.5}$ and smaller only (t) (approx. 6km west)
- Caradale Bricks, Et Works, Armadale - Mineral industry which has been declared for fluorine and total inorganic fluorine compounds - as HF (t) (approx. 3km northeast)
- Duntilland Quarry, Shotts - Mineral industry which has been declared for Particulate matter (PM_{10}) and smaller (t) (approx. 7km west)
- Levenseat Waste Management Site, Lanarkshire - Waste and waste-water management which has been declared for Carbon dioxide (CO_2), and Methane (t) (approx. 8.1km south)
- LREL - Levenseat, By Forth, Lanark - Waste and waste-water management which has been declared for dioxins and furans - as ITEQ (g) (approx. 7.8km south)
- Rusha Poultry Farm, West Calder - Intensive livestock production and aquaculture which has been declared for Ammonia (t) and Particulate matter (PM_{10}) and smaller (t) (approx. 8.1km south)
- Shin-Etsu Handotai, Wilson Road, Livingston - Chemical industry which has been declared for Ammonia (t) and non-methane volatile organic compounds (NMVOCs) (t) (approx. 10km east)
- Stepend Poultry Farm, West Calder, W.Lothian - Intensive livestock production and aquaculture which has been declared for Ammonia (t) and Particulate matter (PM_{10}) and smaller (t) (approx. 9.3km east)
- Tams Loup Quarry, Harthill - Mineral industry which has been declared for Particulate matter (PM_{10}) and smaller (t) (approx. 3km west)
- Wyman Gordon Ltd, Livingston - Production and processing of metals (7km southwest).

Baseline air quality is mainly influenced by vehicles travelling along the M8 motorway. Secondary sources are likely derived from vehicles travelling along the local road network, and day-to-day urban, woodland and agricultural land management activities.

Cultural heritage

The PastMap and Historic Environment Scotland (HES) online mapping tools record no cultural heritage sites within 300m of the scheme.

Construction of the M8 road corridor is likely to have removed any archaeological remains that may have been present within the trunk road boundary. The potential

for the presence of unknown archaeological remains in the study area has therefore been assessed to be low.

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

Landscape and visual effects

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

The Landscape Character Type (LCT) in the study area is 'Lowland Plateaux - Lothians' (no. 273) (Scottish Landscape Character Types), the key characteristics of which are:

- Broadly undulating and open plateau landform, becoming more rolling to the south and east to form a series of craggy hills above Blackridge.
- The principal rivers form shallow valleys, with more deeply incised tributaries.
- A pastoral landscape with post and fire fences, thin hedges, and windswept shelterbelts.
- Important wetland habitats and lowland peat bogs.
- Scattered woodland consisting of small areas of coniferous, deciduous, and mixed species.
- Evidence of historical mining activity, leaving highly visible traces in the red shale bings.
- Widespread residential and commercial development, as well as major transport corridors.
- A landscape with extensive presence of modern human development and infrastructure.

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

- Rectilinear fields and farms,
- Motorway and major roads,
- Plantation,
- Golf course, and
- Country Park.

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

- 'Class 5.2' – land capable of use as improved grassland. Few problems with pasture establishment but may be difficult to maintain.

'Hare Moss Wood' (approx. 6ha of which is registered on the Ancient Woodland Inventory Scotland database and approx. 4ha of which is recorded in the Native

Woodland Survey of Scotland) borders either side of the M8 carriageway at multiple locations within the scheme extents. There are no trees covered by a Tree Preservation Order (TPO) with connectivity to the scheme extents.

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

Biodiversity

The NatureScot Sitelink online mapping tools identifies that the scheme is not situated within 2km of, and does not share connectivity with, a European Site designated for biodiversity features e.g., Special Area of Conservation (SAC), Special Protection Area (SPA), Ramsar.

Polkemmet Country Park borders the motorway within the scheme extents. The 68-ha country park includes woodland and the River Almond.

A Local Nature Conservation Site (LNCS) designated for biodiversity features has been identified within 300m of the scheme. Polkemmet and River Almond to Greenrigg Local Biodiversity Site (LBS) borders the westbound carriageway within the scheme extents.

The scheme is not situated within 300m of a Site of Special Scientific Interest (SSSI), or Local Nature Reserve (LNR) designated for biodiversity features.

The National Biodiversity Network (NBN) online mapping tool records no mammal species of conservation importance within 2km of the scheme (in last 10-years). Only records with open-use attributions (OGL, CC0, CC-BY) were included in the search criteria.

A search of NBN online mapping tool records the following species within 2km of the scheme extents (within the last 10-years):

One invasive non-native species (INNS):

- Japanese knotweed (*Reynoutria japonica*).

Four injurious weeds (as listed under the Weeds Act 1959):

- Broad-leaved dock (*Rumex obtusifolius*),
- Creeping thistle (*Cirsium arvense*),
- Spear thistle (*Cirsium vulgare*), and
- Common ragwort (*Senecio jacobaea*).

And one invasive native perennial (as listed in the Trunk Road Inventory Manual):

- Rosebay willowherb (*Chamerion angustifolium*).

The nearest record pertains to Japanese knotweed recorded in 2019, approx. 0.6km south of the scheme.

A search of the Asset Management Performance System (AMPS) online mapping tool records the following within 2km of the scheme extents w(in the last 10-years):

One INNS:

- Rhododendron (Rhododendron ponticum) has been recorded within the westbound verge at three locations within the scheme extents.

One invasive native perennial:

- Rosebay willowherb has been recorded within the westbound verge throughout the scheme extents.

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

Out with the trunk road boundary, the scheme extents are surrounded by agricultural land which forms a pattern of open and exposed fields containing predominantly arable land, large areas of woodland broadleaved and conifer plantation woodland are found to the north with broadleaved woodland encompassing Polkemmet Golf Course and Polkemmet Country Park found to the south. Woodland habitats within Polkemmet Country Park likely offer habitats for a variety of species. While the intensive agricultural land management bordering the western extents restricts the occurrence of semi-natural and natural vegetation types. Most field boundaries are post-and -wire fencing, with vegetative features further delineating field boundaries e.g., shrub hedgerow, rough grassland, ruderal herb stands, scrub and tree shelterbelt. Linear features at field boundaries have wildlife value, both as corridors in an intensively managed landscape, and as habitats for birds and other small animals.

Geology and soils

The M8 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 within 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),
- Alluvium – Clay, silt, sand, and gravel, and
- Peat.

The bedrock geology in the scheme extents is recorded as:

- Scottish Lower Coal Measures Formation (sedimentary rock cycles and 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.

Factor has no constraints that are likely to be impacted by the proposed works and has therefore 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:

- Asphaltic material,
- Road-marking paint,
- Bituminous emulsion bond coat,
- Milled-in/surface-mounted road studs.

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

The 1.23km scheme involves removal of the surface course and localised areas of binder course. The main waste produced during the works will be bituminous material (European Waste Catalogue Code: 17 03 02) will be removed from site, none of which is classified as hazardous material containing coal tar.

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 (Lnight) for the scheme extents ranges between 70 and 75 decibels (Scotland's Noise Scotland's Environment).

Baseline noise levels are mainly influenced by vehicles travelling along the M8 carriageway. Communication with the Design Engineer confirmed that the road surface is in a poor condition, with a series of defects, which have the potential to elevate ambient noise levels. Secondary sources are likely derived from vehicles travelling along the local road network, and day-to-day urban, woodland and agricultural land management activities.

Population and human health

There are no properties within 300m of the scheme extents.

There are no non-motorised user (NMU) or community facilities with connectivity to the scheme.

Street lighting is absent throughout the scheme.

The M8, within the scheme extents, is a dual carriageway with a speed limit of 70 mph applying throughout. The Annual Average Daily Traffic (AADT) flow is high (54,140 motor vehicles (ID: 80501, 2022 data)) (Road traffic statistics) and is comprised of:

- 90 two wheeled motor vehicles,
- 35,654 cars and taxis,
- 387 bus and coaches,
- 9,770 Light Goods Vehicles (LGVs), and
- 8,239 Heavy Goods Vehicles (HGVs).

There are no congestion issues noted on the M8 within the scheme extents during the proposed working hours.

Road drainage and the water environment

A search of the Scottish Environment Protection Agency (SEPA) River Basin Management Plan online mapping tool records two classified surface waterbodies within 300m of the scheme extents:

- How Burn ID: 3031, is culverted beneath the motorway within the scheme extents. It is a river within the River Almond catchment with the main stem being approx. 8km in length and has been given an overall classification of 'Poor', and an overall ecological classification of 'Poor'. The culvert of How Burn extends approx. 5m beyond the EB carriageway and is separated by a kerbline, grass verge and post-and-rail fencing.
- River Almond (Breich Water confluence to Maitland Bridge) ID: 3001 is located approx. 250m south of the scheme extents. It is in the River Almond catchment of the Scotland river basin district with the main stem approx. 18.4km in length and has been given an overall classification of 'Poor ecological potential', and an overall ecological classification of 'Bad'.

Three small, minor unclassified surface waterbodies, considered to be a minor tributary or drainage channels lie within 300m of the schemes. Details are as follows:

- Drain1 – approx. 15m south of the scheme extents.
- Drain2 – approx. 100m south of the scheme.
- Drain3 – approx. 200m north of the scheme.

All three waterbodies are too small (in terms of catchment area) to be classified as a main stem waterbody by SEPA under the Water Framework Directive (WFD).

A search of the SEPA's Flood Map online mapping tool records that the motorway within the scheme extents is not at risk of surface water flooding.

A search of the Scotland's Environment (SE) online mapping tool determined that the trunk road, within the scheme extents, lies on the 'Armadale' groundwater, which has been classified as 'Poor'.

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

Climate

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

The Scottish Government has since published its indicative Nationally Determined Contribution (iNDC) to set out how it will reach net-zero emissions by 2045, working

to reduce emissions of all major greenhouse gases by at least 75% by 2030 (Scotland's contribution to the Paris Agreement: indicative Nationally Determined Contribution - gov.scot (www.gov.scot)). By 2040, the Scottish Government is committed to reducing emissions by 90%, with the aim of reaching net-zero by 2045 at the latest.

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

Policies and plans

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

Description of main environmental impacts and proposed mitigation

Air quality

During the construction phase, activities undertaken on site could potentially have some minor localised and short-term air quality impacts in proximity to the works. The construction phase will, for example, require a range of ancillary plant, vehicles, and non-road mobile machinery (NRMM) which will contribute to local dust and air pollutants. The main sources are likely to be dust generated by cold milling in preparation of carriageway resurfacing, 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.

Proposed 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.
- 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.
- 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).
- 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 activities which have the potential to impact local air quality are occurring. In the unlikely event that unacceptable dust, particulate matter, or exhaust emissions 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.

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 on the M8, and construction works are programmed to be undertaken at night (9 nights) on a rolling programme. As such, the visual impact of the works will be somewhat reduced.

Considering the nature of the scheme, and with implementation of mitigation detailed below, impacts on landscape are assessed as temporary, 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 renewed road surface 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 recolonization by local species and promote integration with existing landscape character.
- The site will be monitored regularly for signs of litter and other potential contaminants and litter will be removed before and after works take place.
- The site will be left clean and tidy following construction.

Biodiversity

The scheme is not situated within 2km of, and does not share connectivity with a European Site designated for biodiversity features (e.g., SAC, SPA, Ramsar). Furthermore, the scheme is not situated within 300m of a LNR or SSSI designated for biodiversity features.

Polkemmet Country Park borders the motorway within the scheme extents; however, the works will be restricted to the motorway boundary and therefore shares no connectivity to the country park.

Polkemmet and River Almond to Greenrigg LBS borders the WB carriageway within the scheme extents. However, the works will be restricted to the M8 carriageway boundary, are small scale in nature and will be undertaken over a short duration, and are therefore not expected to result in any impacts to the LNCS.

A temporary short-term increase in noise levels may cause disturbance to other 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 carriageway 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 M8 and the scheme is of short duration (9 nights) and as detailed above will be undertaken on a rolling programme. The potential for significant species disturbance within the area of likely construction disturbance is therefore somewhat diminished.

Rhododendron and rosebay willowherb have been recorded within the motorway boundary scheme extents; however, all works are restricted to areas of made ground on the M8 carriageway surface, with only ‘like-for-like’ replacement of road surface being undertaken. As such, there is limited potential to spread or introduce INNS, invasive native perennials, or injurious flowering plant species. Rhododendron and Rosebay willowherb (and any other invasive or injurious flowering plant species) will also be controlled/treated by cultural methods and/or chemical weed control as per the South East Annual Landscape Management Plan.

Considering the nature 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:

- Site personnel will be made aware of the sensitivity and proximity of the ‘Polkemmet and River Almond to Greenrigg LBS’ prior to works commencing.
- All site workers will have received adequate training relevant to their role prior to working on the site, including specific environmental inductions and ‘toolbox talks’ as required.

- Site personnel will remain vigilant for the presence of any protected species throughout the works period. Should a protected species be noted during construction, works will temporarily halt until the species has sufficiently moved on. Any sightings of protected species will be reported to the BEAR Scotland Environmental Team.
- Rhododendron and rosebay willowherb have been recorded within westbound verge within the scheme extents, therefore 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.
- 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.
- 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., Polkemmet and River Almond to Greenrigg LBS, locations adjacent to tree shelterbelt, woodland, surface waterbodies etc.) to ensure minimal impact on nocturnal species.
- All equipment stored onsite, where 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, to avoid mammals falling in and becoming trapped.
- People, ancillary plant, vehicles, NRMM and materials will be restricted to areas of made/engineered ground (as much as is reasonably practicable). If during works unforeseen access to the surrounding environment is required, works will cease in this area and BEAR Scotland's Environmental Team will be contacted to allow consideration of potential environmental effects.
- BEAR Scotland's Environmental Team will be contacted to allow consideration of potential environmental effects if:
    - unforeseen site clearance is required,
    - 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.

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 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 with the SWMP 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.

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

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

Proposed material 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. Material 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 01-WMX-815954555), the rules of which will be complied with.
- 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. 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.

However, there are no properties within 300m of the scheme, the works are not located within a CNMA or CQA. Works will also be completed over 9 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 will also be intermittent, temporary, transient, and short-lived. 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 (430m south west), 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.

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 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.

Proposed noise mitigation measures:

- The local authority environmental health 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.
- 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.
- 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, vehicle travellers, and NMUs.

There are no properties, NMU facilities, or other community assets, with connectivity to the scheme extents. Moreover, TM will only be in place for 9 nights (when traffic flows will be at a minimum), and no congestion issues are noted during the proposed construction hours.

Considering the nature, duration, 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:

- Where appropriate, a communication strategy (e.g., social media, consultation with local authority and other stakeholders, letter drop 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.
- Advanced signage will be strategically placed on the trunk road to notify stakeholders of the road closure and diversion. Signage will be installed at least 7 days in advance of the road closure.
- 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 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, in particular How Burn, which is culverted beneath the motorway within the scheme extents and Drain1 which is 15m south of the motorway boundary. All other waterbodies (Drain2, Drain3 and River Almond) are located a minimum of 100m from the scheme and as such the risk of impacting these is considered to be low.

However, no ‘in-water’ works are required, therefore there will be no change in the hydrological regime or water quality within surrounding surface waterbodies. Furthermore, all land out with the motorway boundary is also considered out-of-bounds to all construction staff during the works. The potential for a direct pollution incident within a waterbody is also unlikely e.g., experience gained from BEAR Scotland maintenance schemes elsewhere on the network has shown that where standard best working practice is adopted (e.g., adherence to SEPA GPPs or PPGs, etc.), water quality is protected.

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

Upon completion of the works, no residual impacts are anticipated in relation to the road drainage and water environment.

Proposed road drainage and water environment mitigation measures:

- Site operatives will be made aware of the location and proximity of How Burn and Drain1.
- No work has been identified that would require entering any surface waterbodies. If such a need were identified onsite, BEAR Scotland's Environmental Team will be contacted (before works commence) to allow consideration of potential environmental effects.
- The abstraction or transfers of water from, discharges to, or the washing of tools in surface waterbodies is not permitted.
- 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.
- 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 must 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 and surface waterbodies, in order to comply with GPP 5 'works and maintenance in or near water'. Refuelling will only be undertaken at designated refuelling areas (e.g., on hardstanding, with spill kits available, and >10m from

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

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

Vulnerability of the project to Major Accidents and Disasters

There will be no change to the likelihood of flooding on the M8 within the scheme extents upon completion of the works.

Works are restricted to areas of made ground on the M8 carriageway surface, with access to the scheme gained via the M8. TM will employ road closure with signed diversion. 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 of cumulative effects

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

A search using the Scottish Road Works Commissioner identified no other roadworks are scheduled to be undertaken on the routes connecting to the scheme extents within the planned period of works.

In addition, a search using West Lothian Council 'Simple Search' and North Lanarkshire Council Map Search identified that there are no planning applications within 300m of the scheme extents.

As such the no further potential for in-combination effects have been identified.

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

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

Characteristics of the scheme:

- Works are restricted to like-for-like replacement of worn road surface, with all works restricted to made ground on the M8 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 part of the M8 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 situated within 2km of, and does not share connectivity with, a European Site designated for biodiversity features e.g., SAC, SPA, Ramsar.
- 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 and there are no properties or NMU facilities within 300m of the scheme.

Characteristics of potential impacts of the scheme:

- The waste hierarchy will be followed to reduce waste to landfill.
- Works are programmed to take nine nights to be completed 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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