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Environmental Impact Assessment Record of Determination

A84 Caireachrombie Straight - Resurfacing

Contents

Project Details

Description

BEAR Scotland has been commissioned by Transport Scotland to carry out resurfacing works on a stretch of the A84 carriageway at Caireachrombie Straight within Stirling Council. The works include milling out and replacing bituminous material to a depth of 100mm and iron works. Following the resurfacing works, road markings will be reinstated.

The total length of the scheme is 585m with an approximate area of 0.351ha.

Main plant will include pavers, planers, excavators, and rollers. A welfare unit with generator will be required on site, and heavy goods vehicles (HGVs) will be required for transport of materials and wastes.

The resurfacing procedure is as follows:

- Set up traffic management (TM) and mark out site.
- Mill out old surface course.
- Reset and/or replace roadside gullies where required.
- Lay new surface course.
- Roll surface and allow it to set.
- Install road markings and studs.
- Remove TM and open road.

The works are currently programmed to be completed within the 2024/2025 financial year, currently commencing in October 2024. Works will be undertaken during night-time hours (19:00-05:00) over the duration of four nights. Changes in the programme may result in the need for a change to daytime working.

TM will involve a full road closure with timed amnesties. Access to junctions and access private roads will be maintained. Site access and plant storage will be located within TM. If the programme changes, this may result in amendments to the exact TM requirements.

Location

The scheme is located on the A84 carriageway, north of Callander within Stirling Council (Figure 1).

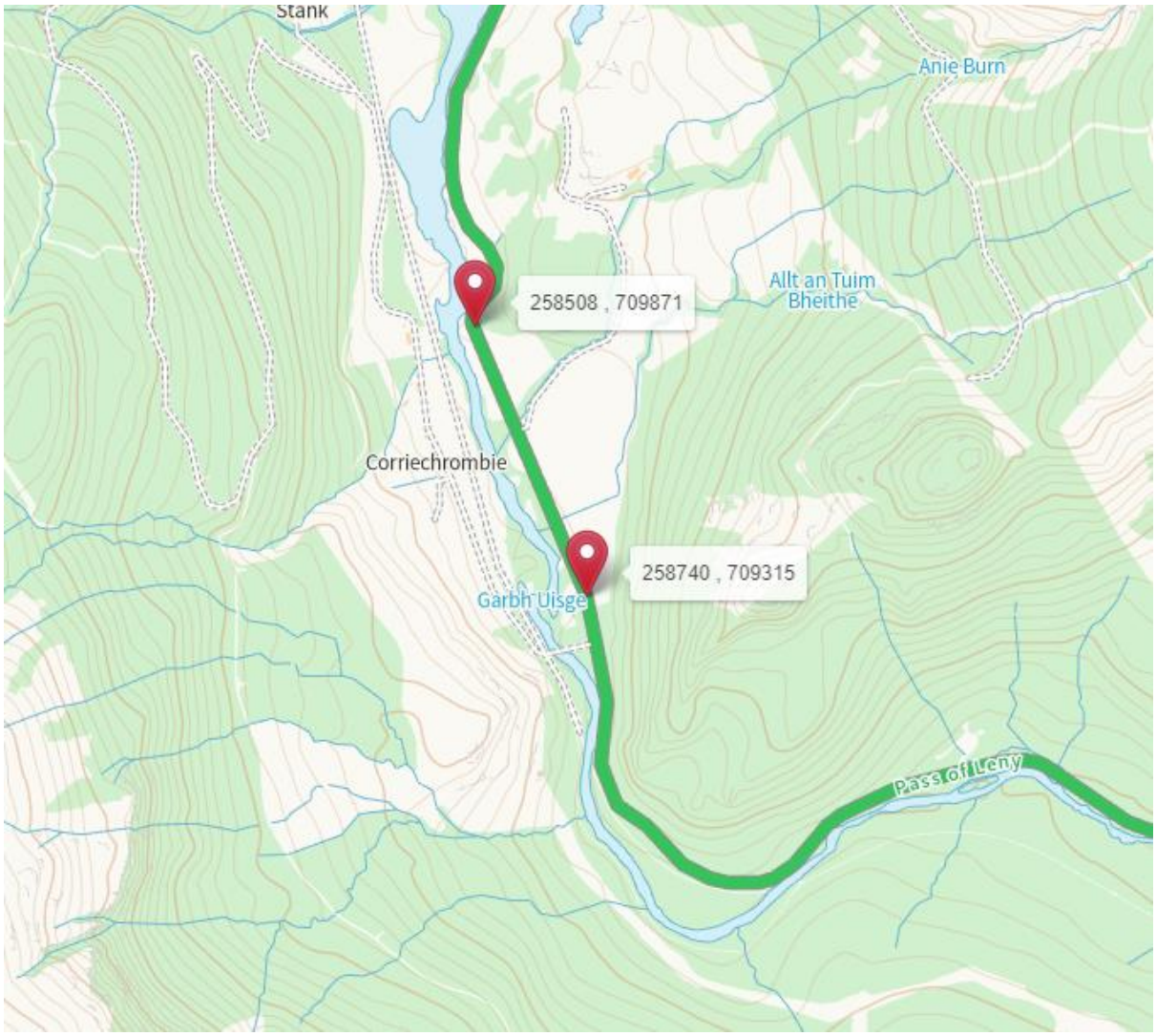

Figure 1. Location of the scheme extent.

The scheme has the following National Grid References (NGRs):

- Scheme northern point: NN 58508 09871
- Scheme southern point: NN 58740 09315

Description of local environment

Air quality

The scheme lies within the boundary of the Stirling Council, which has not declared any Air Quality Management Areas (AQMAs) within its administrative boundary. The nearest AQMA is in Crieff which lies within the boundary of the Perth and Kinross Council, approximately 30km northwest of the scheme and has been declared for nitrogen dioxide (NO2) and particulate matter (PM10) (Air Quality in Scotland).

No Air Quality Monitoring Stations (AQMS) are located within 25km of the proposed works (Air quality in Scotland).

No Scottish Pollutant Release Inventory (SPRI) sites (which record air pollutant releases), are located within 25km of the scheme (Scotland's Environment).

Baseline air quality is likely influenced by traffic along the trunk road and day-to-day agricultural and/or urban activities.

The A84, within the scheme extents is a single carriageway with the national speed limit applying. The Annual Average Daily Traffic (AADT) flow was recorded as 3,594 motor vehicles in 2023, of which 6% was heavy goods vehicles (ID: 50766) (Road Traffic Statistics).

Cultural heritage

No Garden & Designed Landscapes, Conservation Areas, Battlefields, Listed Buildings or World Heritage Sites were identified within 300m of the scheme (PastMap).

One Scheduled Monument, Loch Lubnaig, St Bride's Chapel (SM1630), was identified within 300m of the scheme. It is nearly adjacent to the A84 at the northern end of the scheme extent. The Scheduled Area is bounded by a drystone wall which is set back approximately 1m from the road verge within the scheme extent.

There are numerous Canmore and Historic Environment Records (HERs) within 300m of the scheme. The nearest of these are records associated with the above Scheduled Monument.

Construction of the A84 carriageway is likely to have removed any archaeological remains that may have been present within the carriageway boundary. The potential for the presence of unknown archaeological remains in the study area has therefore been assessed to be low.

Landscape and visual effects

The scheme is not situated within a National Scenic Area (NSA); however, it is located within the Loch Lomond and the Trossachs National Park (SiteLink).

The Landscape Character Type (LCT) within the study area is 'Straths and glens with lochs' (no. 254) (Scottish Landscape Character Types). The key characteristics of this LCT are:

- Strongly enclosed by steep and often rugged hill slopes with lochs filling much of the space between, leaving only a narrow flatter margin against the loch shore.
- Lochs generally long and narrow.
- Narrow passes occur between some lochs. Sutble promontories and narrow beaches feature on loch shorelines, – these particularly appreciated in long views down the length of the lochs. Modification of natural lochs and water catchments in the Park, giving rise to a variety of structures including dams and aquaducts – many of these comprise distinctive 19th Century structures.
- Settlements often located at the head of lochs and major through roads are aligned through some of these glens and straths.
- Scattered traditional dwellings or clusters of buildings usually located close to alluvial pastures at the intersection with side glens and water courses on some loch shores.
- Tourism and recreation facilities along loch shores.
- Highland-type designed landscapes, grand houses, hunting lodges and associated features, policies and parklands occupy prime loch shore positions. Pier and timber boat houses are a common feature in association with houses and estates particularly on Loch Ard.
- Lochs are highly visible, with roads and cycle/walking routes aligned close to their shores.
- Long views are possible across open water to the Highland Summits and the combination of craggy towering hills and smooth water is an essential component of the scenic richness of the National Park.

Land use (HLA) within 300m of the scheme extent is classified as:

- Managed woodland
- Rough grazing
- Rectilinear fields and farms
- Plantation and
- Freshwater area.

The land immediately surrounding the trunk road is classified as 6.1 - Land capable of use as rough grazing with a high proportion of palatable plants. (Scotland's soils).

There are multiple woodland areas present within 300m of the scheme extents, most of them consisting of upland birchwood, upland oakwood and wet woodland.

The A84 carriageway is a prominent linear landscape feature. The road corridor, for example, has a distinct character shaped by fast-flowing traffic, road markings, safety barriers, signage, landscaping, lighting etc. The scale of the carriageway detracts from the quality and character of the wider landscape.

Biodiversity

The River Teith Special Area of Conservation (SAC) lies approximately 15m west of the scheme, with most of the scheme located 30-65m from the SAC.

There are no Local Nature Conservation Sites (LNCS), Sites of Special Scientific Interest (SSSI) or Local Nature Reserves (LNRs) within 300m of, or which share connectivity with the scheme extent (SiteLink).

There are no records of any other species of conservation importance, invasive non-native species or injurious weed recorded on the NBN Atlas within 2km of the scheme using the same search criteria.

A search of the Asset Management Performance System (AMPS) records rosebay willowherb (*Chamaenerion angustifolium)*, an invasive native perennial, within the northern edge of the scheme in 2023.

There are no areas of woodland listed on the Ancient Woodland Inventory Scotland within the scheme extents, however approximately 85m south of the scheme extent, there are multiple woodland areas recorded as 'ancient' (of semi-natural origin).

Habitat in the vicinity of the scheme includes areas of agricultural fields, woodland, freshwater, and riparian habitat.

Geology and soils

The A84 within the scheme extents is not located within a Geological Conservation Review Site (GCRS) or geological SSSI and there are no Local Geodiversity Sites (LGS) with connectivity to the scheme extents.

The British Geological Survey online mapping tool records that the bedrock geology within the scheme extents is recorded as:

- Ben Ledi Grit Formation – metasandstone

The mapping tool records the following superficial deposits within the scheme extents:

- Alluvium - clay, silt, sand and gravel
- Alluvial fan deposits – gravel, sand, silt and clay

Soils within the scheme extent are recorded as being 'Class 0', as displayed on Scotland's Peat Map. Class 0 is considered to be mineral soil, and peatland habitats are not typically found on such soils. Within 300m south of the scheme, soils are recorded as class 2 (Peat soil with occasional peaty soil).

Works will be restricted to previously engineered ground within the A84 trunk road boundary. Therefore, this receptor has no constraints (as identified in Environmental Baseline) that are likely to be impacted by the proposed works and as such, 'geology and soils' is scoped out and is not discussed further within this RoD.

Material assets and waste

The proposed works are necessary to resurface sections of the A84 carriageway, requiring base/binder inlay, and reinstatement of road markings, studs, and kerbing where required. Materials used will consist of:

- Asphaltic material
- Bituminous emulsion bond coat
- Milled in road studs
- Thermoplastic road marking paint
- Pre-cast concrete kerbs

Wastes are anticipated to be removed planings from the surface course, which will be recovered for re-use in line with BEAR Scotland's Procedure 126: The Production of Fully Recovered Asphalt Road Planings. The Contractor is responsible for the disposal of 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.

A Site Waste Management Plan (SWMP) is not required for the scheme. Coal tar has not been highlighted as being present within the scheme extent.

Noise and vibration

The works do not fall within a Candidate Noise Management Area (CNMA) as defined by the Transportation Noise Action Plan (Road Maps) (TNAP).

Evening (19:00-23:00) and night-time (23:00-07:00) noise levels have been modelled within the scheme extent. Evening time (L_{eve}) noise levels are mainly in the region of 62-66db and night-time (L_{night}) noise levels are recorded at around 60-63db on the road (Scotland's Noise Scotland's Environment).

Baseline noise and vibration in the study area is mainly influenced by vehicles travelling along the A84 trunk road. Secondary sources are derived from day-to-day urban and agricultural/forestry land management activities.

Population and human health

There are 8 properties located within 300m of the scheme, however all of them are shielded from the works either by woodland or the river. The nearest property is located approximately 180m from the area of works.

Within the scheme extent, there is one layby, one access road and multiple gates leading onto fields located next to the A84 carriageway.

There are no footways, pedestrian crossings, streetlights or other dedicated non-motorised user facilities located within the scheme extents.

One National Cycle Network (NCN) route, one core path (SE Map) and two walking routes, as listed on WalkHighlands, are located within 300m of the scheme. They follow the same route, which is located west of the scheme, with the River Teith acting as a barrier between scheme and the route.

TM will involve a full road closure with timed amnesties. Access to junctions and access private roads will be maintained.

The A84 Trunk Road, within the North West, connects Stirling with Doune, Callander and Lochearnhead. It commences from its junction with the M9 at and including the eastern most roundabout at Craigforth Stirling (M9 Junction 10) leading generally north-westwards for a distance of 44.7 kilometres to its junction with the A85 in Lochearnhead. The A84 is a single carriageway along its length.

Road drainage and the water environment

The A84 within the scheme extents is located along the River Leny/Garbh Uisge (ID: 4718). It is a river in the River Forth catchment of the Scotland river basin district and has been classified by the Scottish Environment Protection Agency (SEPA) in 2022 under the Water Framework Directive 2000/60/EC (WFD) as having an overall status of ‘Good’ (SEPA).

The scheme is located 400m south of Loch Lubnaig (ID: 100258), which is a lake in the River Forth catchment of the Scotland river basin district and has been classified by SEPA in 2022 under the WFD as having an overall status of ‘Moderate’ (SEPA).

The SEPA River Basin Management Plan online mapping tool records two unclassified surface waterbodies within 300m of the scheme. Anie Burn and Allt an Tuim Bheithe are two watercourses that cross the A84 carriageway within the scheme extents.

A search of the SEPA Flood Map identifies that there is some risk of surface water flooding and river flooding within the scheme extents. The A84 within the scheme extents has a medium to low likelihood for surface water flooding, with a 0.1% – 0.5% chance of flooding every year. The risk for river flooding is high, with a 10% chance of flooding every year.

A search of the Scotland's Environment (SE) online mapping tool determined that the trunk road, within the scheme extents, lies on the 'Trossachs' groundwater, which has been classified as 'Good'. The scheme falls into a Drinking Water Protected Area for groundwater. A Drinking Water Protected Area for surface water is located 2km southwest of the scheme.

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 included 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 (RoD) 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

Construction activities associated with the proposed works have the potential to temporarily cause local air quality impacts. Activities undertaken on site may cause dust and particulate matter to be emitted to the atmosphere. However, taking into account the nature and scale of the works and the following mitigation measures, the risk of significant impacts to air are considered to be low.

- When not in use, plant and vehicles will be switched off; there will be no idling vehicles.
- All plant, machinery and vehicles associated with the works will be maintained in order to minimise emissions, as per manufacturing and legal requirements. No significant dust, particulate matter, and exhaust emissions sources will be introduced by the works.
- Green driving techniques will be adopted, and effective route preparation and planning to be undertaken prior to works.
- All delivery vehicles carrying material with dust potential will be covered when travelling to or leaving site, preventing the spread of dust beyond the work area.
- Activities involving cutting/planing will be appropriately managed to reduce the potential for dust creation. This will involve use of measures such as dampening down or on tool extraction where required.
- Material stockpiles will be reduced as far as is reasonably practicable by using a ‘just in time’ delivery system. All material will also be stored on made ground.
- Any stockpiled material on site will be monitored daily to ensure no risks of dust emissions exists.
- Materials will be removed from site as soon as is practicable.
- Good housekeeping will be employed throughout the work.
- Drop heights to haulage vehicles and onto conveyors will be minimised.
- Surfaces will be swept where loose material remains following planing.

With the above mitigation measures in place, it is anticipated that any air quality effects associated with the proposed works are unlikely to be significant. This receptor is not considered further in this RoD.

Cultural heritage

One Scheduled Monument (Loch Lubnaig, St Bride's Chapel) is present at the north end of the scheme and is almost adjacent to the working area. However, no works will take place within the Scheduled Monument area and all site staff will be advised of the location and importance of the site to ensure that no access is taken within the drystone wall that surrounds the Scheduled Monument.

All work is restricted to the already engineered carriageway boundary, and as such the potential for exposure of undiscovered cultural heritage features is considered negligible; construction of the A84 road corridor is likely to have removed any archaeological remains that may have been present.

As standard, the following good practice measures will be in place to reduce the risk of impacts to undiscovered features of cultural heritage interest:

- All site staff will be advised of the location of the nearby Scheduled Monument and instructed that no access will be taken within the boundary of the Scheduled Monument area.
- There will be no storage of vehicles, plant, or materials against any buildings, walls or fences.
- Should any unexpected archaeological evidence be discovered, works will stop temporarily in the vicinity and the BEAR Scotland Environment Team contacted for advice.
- People, plant, and materials will, as much as is reasonably practicable, only be present on areas of made / engineered ground. Where access out with these areas is required for the safe and effective completion of the scheme, it will be reduced as much as is reasonably practicable and ideally be limited to access on foot.

With the above mitigation measures in place, it is anticipated that any cultural heritage effects associated with the proposed works are unlikely to be significant. This receptor is not considered further in this RoD.

Landscape and visual effects

The works lie within the boundary of the Loch Lomond and the Trossachs National Park. Due to the nature of resurfacing works being restricted to the trunk road boundary, no impact on the National Park is expected. However, the National Park will be notified of works prior to works commencing.

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, works will be restricted to the A84 carriageway boundary and will be limited to the like-for-like replacement of the carriageway surface and will be carried out over 4 nights in total.

Land use will not change as a result of the works, and the works will not result in any residual change to the visual amenity of the local landscape.

In addition, the following mitigation measures will be put in place during works:

- Throughout all stages of the works, the site will be kept clean and tidy, with materials, equipment, plant and wastes appropriately stored, reducing the landscape and visual effects as much as possible.
- Works will avoid encroaching on land and areas where work is not required or is not permitted. This includes general works, storage of equipment/containers and parking.
- Where applicable, upon completion of the works, any damage to the local landscape shall be reinstated as much as is practicable.
- The site will be left clean and tidy following construction.

With the above mitigation measures in place, it is anticipated that any landscape and visual effects associated with the proposed works are unlikely to be significant. This receptor is not considered further in this RoD.

Biodiversity

During road resurfacing, activities undertaken on site could potentially have a temporary adverse impact on biodiversity in the area as a result of an increased vehicle presence and the potential for disturbance to protected species and pollution of habitats.

The works lie close to the River Teith SAC. BEAR Scotland produced a Habitats Regulations Appraisal (HRA) Proforma to assess potential effects of the proposed resurfacing works on the SAC. This HRA Proforma concluded that works would not result in any Likely Significant Effects on the qualifying species within the River Teith SAC, provided that standard measures for pollution prevention are adhered to during works.

All works will be restricted to the A84 carriageway surface and will not entail any in-stream works or vegetation clearance. There are no significant earthworks associated with the scheme, and the scheme does not require permanent (or temporary) land-take, accommodation works, site clearance or locally gained resources, and there is no requirement to import topsoil. As such, there is limited potential to spread or introduce invasive non-native species (INNS), invasive native perennials, or injurious flowering plant species.

Activities undertaken on site could potentially have a temporary adverse impact on biodiversity in the area as a result of an increased vehicle presence and the potential for disturbance to protected species and pollution of habitats. However, works are restricted to the A84 carriageway and 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 A84 and the scheme is of short duration (4 nights) and will be undertaken on a rolling programme. The potential for significant species disturbance within the area of likely construction disturbance is therefore considered to be low.

Pollution controls and good practice measures to reduce impacts of works on the local environment will be detailed in the Site Environmental Management Plan (SEMP) and adhered to on site. Therefore, with the following mitigation measures in place, the risk of significant impacts on biodiversity are considered to be low:

- Site personnel will remain vigilant for the presence of potentially unrecorded instances of INNS or injurious weeds in road verges throughout the works period. Should any INNS be identified in working areas, no works shall take place within 7m of these areas until the BEAR Scotland Environment Team can provide further advice on additional mitigation measures.
- Works will be strictly limited to areas required for access and resurfacing works. Unnecessary encroachment onto terrestrial or aquatic areas will not be tolerated.
- 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 shall be reported to the BEAR Scotland Environment Team.
- A ‘soft start’ will be implemented on site each day. This will involve switching on vehicles and checking under/around vehicles and the immediate work area for mammals prior to works commencing to ensure none are present and that there is a gradual increase in noise.
- Relevant toolbox talks for working with protected species will be included in the SEMP.
- Any excavations, exposed pipes/drains, or areas where an animal could become trapped (e.g., storage containers) will be covered over when not in use, at the end of each shift, and following completion of the works to avoid animals falling in and becoming trapped.
- Any artificial lighting used during night works or periods of low light levels will be directional and will avoid spilling into sensitive areas where possible.

- If fencing is utilised at any point during the works, a gap of 200mm from ground level will be provided, allowing free passage for mammals and preventing entrapment.

With the above mitigation measures in place, it is anticipated that any biodiversity effects associated with the proposed works are unlikely to be significant. This receptor is not considered further in this RoD.

Material assets and waste

There is potential for impacts as a result of resource depletion through use and transportation of new materials. However, materials will be sourced locally where possible and the following mitigation measures will be put in place:

- Materials will be sourced from recycled origins as far as reasonably practicable within design specifications.
- Care will be taken to order the correct quantity of required materials to prevent the disposal of unused materials.
- Where possible, minimal packaging will be requested on required deliveries to reduce unnecessary waste and production of packaging materials.

There is potential for impacts during works as a result of the improper storage or disposal of waste. The following mitigation measures will be put in place:

- The waste hierarchy (Reduce, Reuse, Recycle and Dispose) will be employed throughout the construction works.
- The subcontractor will adhere to waste management legislation and ensure they comply with their Duty of Care.
- Containment measures will be in place to prevent debris or pollutants from entering the surrounding environment.
- Planings will be re-used or recycled under a SEPA Paragraph 13(a) waste exemption and in line with BEAR Scotland's procedure 126: The Production of Fully Recovered Asphalt Road Planings.
- All wastes and unused materials will be removed from site in a safe and legal manner by a licensed waste carrier upon completion of the works. The appointed waste carrier will have a valid SEPA waste carrier registration, a copy of which will be provided to and retained by BEAR Scotland as early as possible.
- All appropriate waste documentation will be present on site and will be available for inspection. A copy of the Duty of Care paperwork must be

provided and filed appropriately in accordance with the Code of Practice (as made under Section 34 of Environmental Protection Act 1990 as amended).

- Re-use and recycling of waste will be encouraged and undertaken where possible, and the subcontractor will be required to fully outline their plans and provide documentary evidence for waste arising from the works (e.g., waste carrier's licence, transfer notes, and waste exemption certificates).
- Staff will be informed that littering will not be tolerated. Staff will be encouraged to collect any litter seen on site.

With the above mitigation measures in place, it is anticipated that any material assets and waste effects associated with the proposed works are unlikely to be significant. This receptor is not considered further in this RoD.

Noise and vibration

Construction activities associated with the proposed works have the potential to cause noise and vibration impacts through the use of equipment and construction vehicles for the proposed activities. The works will employ a night-time working pattern with the noisiest works (e.g. planing) completed by 23:00. Due to the short duration and localised nature of the works, the proposed scheme is anticipated to result in temporary minor noise impacts during the construction programme. The following mitigation measures will be put in place:

- The Best Practicable Means, as defined in Section 72 of the Control of Pollution Act 1974, will be employed at all times to reduce noise to a minimum.
- Affected local residents and the Environmental Health Officer (EHO) for Stirling Council will be notified of works.
- All site staff will receive the 'Being a Good Neighbour' toolbox talk.
- The noisiest works (e.g. planing) will be programmed to be completed by 23:00.
- On-site construction tasks will be programmed to be as efficient as possible, with a view to limiting noise disruption to local sensitive receptors.
- All site personnel will be fully briefed in advance of works regarding the need to minimise noise during works and of the site-specific sensitivities.
- All plant will be operated in such a way that minimises noise emissions and will have been maintained regularly to the appropriate standards.
- Where fitted, and where permitted under Health and Safety requirements, white noise reversing alarms will be utilised during construction.

- Where ancillary plant such as generators are required, they will be positioned so as to cause minimum noise disturbance. Where deemed necessary, acoustic screens will be utilised.

With the above mitigation measures in place, it is anticipated that any noise and vibration effects associated with the proposed works are unlikely to be significant. This receptor is not considered further in this RoD.

Population and human health

During construction, activities undertaken on site may have temporary adverse impacts on vehicle travellers, and non-motorised road users (NMUs) as a result of construction presence, and associated noise and delays due to traffic management measures. Road users and local bus operators will be informed of works through a media release, which will provide details of construction dates and times.

No significant congestion issues are noted during the proposed construction hours; however increased journey times may occur, but these are considered insignificant considering the relatively low traffic counts.

With the following mitigation measures in place, the risk of significant impacts on population and human health is considered to be low:

- Notification will be issued to local public transport operators prior to commencement of the works, advising of any proposed works and expected restrictions.
- Local access will be granted as required.
- Any changes of schedule (e.g. change from daytime works to nighttime works) will be communicated to travelling public throughout the programme.
- Appropriate provisions / measures will be implemented within the TM to allow the safe passage of NMUs of all abilities through the site (if required).
- Journey planning information will be available for drivers online at the trafficscotland.org website. Journey planning information will also be available for drivers online through BEAR Scotland's social media platforms.

With the above mitigation measures in place, it is anticipated that any population and human health effects associated with the proposed works are unlikely to be significant. This receptor is not considered further in this RoD.

Road drainage and the water environment

During resurfacing works, there is potential for temporary impacts on the water environment. Potential changes in water quality from pollution events (either by accidental spillage of sediments, particulate matter, chemicals, fuels or by mobilisation of these in surface water caused by rain/flooding) during works have the potential to have a direct or indirect effect on the surrounding waterbodies. The following mitigation measures will be put in place to reduce the risk of pollution incidents as a result of works:

- The scheme will not entail any in-stream works.
- Standard working practices to comply with The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended) for works in or near water are detailed in the SEMP and will be adhered to on site.
- No discharges into any watercourses or drainage systems are permitted. Appropriate containment measures will be in place to prevent any loss of construction materials into the water environment.
- Appropriate measures will 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 should be visually checked to ensure they have not become blocked as a result of the scheme.
- An incident response (contingency) plan will be put in place to reduce the risk from pollution incidents or accidental spillages. All necessary containment equipment, including suitable spill kits (for oil and chemicals) will be available on site, quickly accessible if needed, and staff trained in their use.
- All spills will be logged and reported. In the event of any spills into the water environment, all works will stop, and the incident will be reported to the project manager and the BEAR Scotland Environmental Team. SEPA will be informed of any such incident as soon as possible using the SEPA Pollution Hotline.
- All plant and equipment will be regularly inspected for any signs of damage and leaks. A checklist will be present to make sure that the checks have been carried out.
- Storage of hazardous material, oil and fuel containers will be distanced more than 10m away from any watercourses.
- If required, a designated refuelling area will be identified. Fuel bowsers will be stored on an impermeable area and will be fully bunded. This will be distanced more than 10m from any watercourses.

- During refuelling of smaller mobile plant, a funnel will be used, and drip trays will be in place. Care will be taken to reduce the chance of spillages. Spill kits will be quickly accessible to capture any spills should they occur. The ground / stone around the site of a spill will be removed, double bagged and taken off site as special contaminated waste.
- Generators and static plant may have the potential to leak fuel and / or other hydrocarbons and will have bunding with a capacity of 110%. If these are not bunded then drip trays must also be supplied beneath the equipment with a capacity of 110%.

With the above mitigation measures in place, it is anticipated that any road drainage and the water environment effects associated with the proposed works are unlikely to be significant. This receptor is not considered further in this RoD.

Climate

Construction activities associated with the proposed scheme works have the potential to cause local air quality impacts as a result of the emission of greenhouse gases through the use of vehicles and machinery, material use and production, and transportation of materials to and from site. The following mitigation measures will be put in place:

- BEAR Scotland will adhere to their Carbon Management Policy.
- Local contractors and suppliers will be used as far as practicable to reduce fuel use and greenhouse gas emitted as part of the works.
- Where possible, materials will be sourced locally to reduce greenhouse gas emissions associated with materials movement, and waste will be disposed at local landfill.

With the above mitigation measures in place, it is anticipated that any climate effects associated with the proposed works are unlikely to be significant. This receptor is not considered further in this RoD.

Vulnerability of the project to risks

Small areas of the A84 carriageway within scheme extents are recorded as being at medium (0.5% chance) risk of fluvial flooding. Works will be programmed as far as is reasonably practicable to avoid periods of adverse weather or heavy rainfall.

Works are restricted to the made ground of the A84 carriageway and TM will be designed in line with existing guidance. TM will consist of nightshift lane closures

with amnesties. Where required, alternative NMU provisions/routes will be included in the traffic management setup, to minimise impact of the works on NMUs.

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.

These measures, along with mitigation measures and standard working practices, will be detailed in the SEMP and adhered to on site. The vulnerability of the project to risks of major accidents and disasters is considered to be low.

Assessment cumulative effects

The proposed works are not anticipated to result in significant environmental effects. Due to the nature of the proposed works, no cumulative effects are anticipated with any other developments in the vicinity.

A search of the Stirling Council Planning Portal (Stirling Council Planning Portal) identified no approved planning applications within 300m of the scheme, in the last 6 months.

A search of the Scottish Roads Works Commissioner website (Map Search) has identified that no other roadworks are currently ongoing, or noted as being planned, on the trunk road at the same time as this scheme. Due to the nature of the proposed works, no cumulative effects are anticipated with any other developments in the vicinity.

BEAR Scotland programme all of their proposed works in line with appropriate guidance and contractual requirements. All schemes are programmed to take into account existing and future planned works, with a view of limiting any cumulative effects relating to TM. As a result of this exercise, where a potential for cumulative impacts is identified, BEAR Scotland will reprogramme schemes to avoid / limit any cumulative effects or will utilise existing TM to complete multiple schemes at once. This approach allows BEAR Scotland to effectively manage the potential cumulative effects as a result of TM, resulting in minimal disruption to users of the Scottish trunk road network.

Overall, it is unlikely that the proposed works will have a significant cumulative effect with any other future works in the area.

Assessments of the environmental effects

As detailed in the Description of Main Environmental Impacts and Proposed Mitigation section within this Record of Determination, 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) is situated in Loch Lomond and the Trossachs National Park which is 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 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 A84 carriageway surface.
- Construction activities are restricted to an area of 0.351ha along a 585m stretch of the A84.
- The works will be temporary, transient, localised, and completed during night-time hours on a rolling programme.
- 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 A84 carriageway with another life cycle, and significantly improve the ride quality, which will result in safer conditions for road users.

- No impacts on the environment are expected during the operational phase as a result of works. The works are expected to result in positive impacts on road users during the operational phase.
- As the works will be limited to the like-for-like replacement of the structural components, there is no change to the vulnerability of the road to the risk or severity of major accidents/disasters that would impact on the environment.

Location of the scheme:

- The scheme will be located within the existing A84 road boundary and as such, no land take will be required.
- The works will not result in any change to the qualifying features of the Loch Lomond and the Trossachs National Park in which the scheme is situated.
- The River Teith SAC is located in proximity to the scheme. The HRA Proforma completed by BEAR Scotland did not identify any LSE on the qualifying features of the nearby River Teith SAC as a result of works.
- Several residential properties lie within 300m of the scheme; however, these are screened from the works by woodland.
- Any impacts to the local landscape during the construction phase will be minor, temporary and not considered significant. In addition, no operational impacts are anticipated

Characteristics of potential impacts of the scheme:

- Any potential impacts of the works are expected to be temporary, short-term, non-significant, and limited to the construction phase.
- Measures will be in place to ensure appropriate removal and disposal of waste.
- No impacts on the environment are expected during the operational phase as a result of works. The works are expected to result in positive impacts on road users, ecological and human receptors during the operational phase.
- As the works will be limited to the like-for-like replacement there is no change to the vulnerability of the road to the risk or severity of major accidents/disasters that would impact on the environment.
- Mitigation measures detailed above (and in the SEMP) will be put in place with the objective to prevent and, if required, subsequently control any potential impacts on sensitive receptors.

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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