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Environmental Impact Assessment Record of Determination

A82 East of Loch Lomond – Resurfacing

Contents

Project Details

Description

BEAR Scotland, on behalf of Transport Scotland, will undertake resurfacing works along three sections of the A82 trunk road, covering lengths of 1,010m, 680m, and 995m, respectively. The works will include:

- Milling out and inlaying bituminous material to mixed depths,
- Routine road drainage maintenance, and
- Reinstatement of road markings upon completion of resurfacing.

Key plant and equipment to be used on site include pavers, planers, excavators, and rollers. A welfare unit with a generator will be established on site, and heavy goods vehicles (HGVs) will be required for the transport of materials and waste.

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
- Drainage works
- Remove TM and open road

The works comprise three resurfacing schemes: A82 South of Inverarnan, A82 Viaduct, and A82 Blairannaich. All are scheduled for delivery within the 2025/2026 financial year. The first scheme is currently programmed to commence on 24th August 2025, with the combined works expected to last nineteen nights. All works will be undertaken during nighttime hours (19:00–06:00). However, changes to the programme may result in revised start dates or working hours.

Traffic Management (TM) will involve nighttime full road closures, incorporating hourly amnesties to allow traffic to pass through. Pedestrian access will be maintained throughout. Site access and plant storage will be accommodated within the TM extents. Should the programme be revised, the TM arrangements may also be subject to change.

Location

The schemes run along the east bank of Loch Lomond within Argyll & Bute and Stirling administrate areas (Figure 1). The schemes have the following National Grid References (NGR's):

- A82 South of Inverarnan: NN 31686 17712 to NN 31792 18450
- A82 Viaduct: NN 32276 10328 - NN 32608 10823
- A82 Blairannaich: NN 32885 05587 to NN 32938 06531

Figure 1. Scheme location and extents.

Description of local environment

Air quality

Properties within 300m of the scheme – refer to 'Population and Human Health'.

A search of the Air Quality in Scotland online mapping tool records that the works are not located within an Air Quality Management Area (AQMA). The scheme is located within the Stirling Council and Argyll and Bute administrative areas, which currently do not have any AQMAs.

No Air Quality Monitoring Stations (AQMS) are located within 10km of the scheme extent (Air quality in Scotland). The nearest air quality monitoring sites lie within Dumbarton 30km south of the scheme extents with the levels at the time of search noted to be in 'low' levels (Low Index 1-3).

There are no sites registered for air emissions on the Scottish Pollutant Release Inventory (SPRI) (Scotland's Environment) within 10km of the works.

The most representative traffic data source point to all three schemes is located within the A82 Blairannaich scheme extent (Site ID: ATCCS001) on the A82 carriageway. A manual traffic count conducted in 2024 recorded a total of 4,626 motor vehicles, of which 7.1% were Heavy Goods Vehicles (HGVs) (Transport Scotland Traffic Count Data).

The baseline air quality within the scheme extents is primarily influenced by motor vehicles travelling along the A82 trunk road. Secondary sources are most commonly derived from recreational activities associated with Loch Lomond.

Cultural heritage

According to the PastMap and Historic Environment Scotland (HES) online mapping tools, three Listed Buildings lie within 300m of the scheme extents:

- Category B Listed Building 'Inverarnan, Drover's Inn' (LB8288) lies adjacent to the A82 trunk road boundary approximately 3-5m east from the A82 South of Inverarnan.
- Category C Listed Building 'Inverarnan, Drover's Inn Stables and Steading' (LB8289) lies 10m west of the A82 South of Inverarnan.
- Category B Listed Building 'Creag-An-Arnain Railway Viaduct' (LB864) lies approximately 20m west of the A82 Viaduct scheme.

Of lesser Cultural Heritage value, several Historic Environment Records (HERs) and National Records of the Historic Environment (NRHEs) lie within 300m of the scheme. The nearest features include HERs relating to a military road and previous archaeological surveys, both of which lie within the scheme boundaries (PastMap).

There are no Scheduled Monuments, Conservation Areas, Garden & Designed Landscapes, Battlefields or World Heritage sites identified within 300m of the scheme (PastMap).

Landscape and visual effects

The scheme is situated within Loch Lomond and Trossachs National Park (LLTNP) (NatureScot Site Code: 8621). LLTNP is designated for the following general Special Qualities:

- A world-renowned landscape famed for its rural beauty
- Wild and rugged highlands contrasting with pastoral lowlands
- Water in its many forms
- The rich variety of woodlands
- Settlements nestled within a vast natural backdrop
- Famous through-routes
- Tranquillity
- The easily accessible landscape splendour

The scheme is also located within Loch Lomond National Scenic Area (NSA) (NatureScot Site Code: 9135). The NSA shares the same Special Qualities as the LLTNP.

The Landscape Character Type (LCT) within the study area is 'Upland Glens - Loch Lomond & the Trossachs' (no. 252) and 'Straths and glens with lochs' (no. 254) (Scottish Landscape Character Types).

'Upland Glens - Loch Lomond & the Trossachs' (no. 252) has the following key characteristics:

- Often narrow with little flat glen floor, strongly enclosed by steep hill slopes of the adjacent Steep Ridges and Hills and Highland Summits.
- Steep glen sides often patterned with rocky outcrops, boulders and screes but also extensively forested, particularly on lower slopes.
- Tributary burns and rivers cut deep gullies into slopes and many feature waterfalls and cascades, pools and rocky outcrops.

- Walled pastures sometimes occasionally occurring on lower (usually south-facing) slopes. Heather covers better drained areas and bright green flushes appear at spring lines on hill slopes.
- Some glens covered with extensive coniferous forestry.
- Notable ancient and semi-ancient woodlands of oak and birch in some glens. Natural regeneration of scrub woodland where grazing has declined as in the Luss Glens.
- Relict wood pasture and Caledonian pine woodlands evident in some areas.
- Scattered trees and native woodland trace the edges of burns.
- Sparsely settled but with some isolated farms in lower reaches of glens, these often south-facing.
- Significant cultural features in more open glens, including shielings and abandoned field systems.
- Areas of crofting evident on some lower slopes.
- Some important historic strategic routes for communications and accommodate key road and rail links today for example.
- Classic views channelled up and down the Glens, with steep side slopes framing landscapes that lie beyond them.

'Straths and glens with lochs' (no. 254) has the following key characteristics:

- 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 aqueducts – 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.

The scheme lies within a rural area, with land use surrounding the scheme dominated by woodland. Loch Lomond lies east of the scheme and forms a major landscape feature within the area.

The A82 Trunk Road connects Alexandria with Crianlarich, Fort William and Inverness. It commences immediately north of Tullichewan Roundabout in Alexandria leading generally northwards for a distance of 243 kilometres to its junction with the A9 at (but excluding) Longman Roundabout in Inverness. The A82 is predominantly single carriageway along its length, with some lengths of '2+1' carriageway.

Biodiversity

Glen Etive and Glen Fyne Special Protection Area (SPA) (NatureScot Site Code: 10113) at its nearest point lies 250m west of the A82 South of Inverarnan. The SPA is located more than 2km from the A82 Viaduct and A82 Blairannaich scheme extents.

Loch Lomond Woods Special Area of Conservation (SAC) (NatureScot Site Code: 8298) at its nearest point lies 500m northeast of A82 South of Inverarnan and falls within 2km of all three scheme extents.

Due to the proximity and potential ecological connectivity to the Glen Etive and Glen Fyne SPA and Loch Lomond Woods SAC, a Habitats Regulations Appraisal (HRA) Proforma was produced. A combined HRA Proforma was completed in September 2024 for a package of resurfacing schemes along the A82, including A82 South of Inverarnan, A82 Viaduct, and A82 Blairannaich. The assessment concluded that the proposed works would not have a likely significant effect on the designated features of the SAC or SPA. Consequently, no further assessment was required.

Garabal Hill Site of Special Scientific Interest (SSSI) (NatureScot Site Code: 668) lies 250m west of the A82 South of Inverarnan. For further details refer to the section 'geology and soils' below.

No other locally or nationally designated sites with biodiversity features (such as Local Nature Reserves or National Nature Reserves) are located within 300m of the schemes (SiteLink).

Numerous records of bird species were returned within 2km of the works under the same search criteria. Under the Wildlife and Countryside Act 1981 (as amended)

(WCA), all wild birds and their nests are protected with some birds, particularly those listed on Schedule 1 of the Act, receiving additional protection.

The NBN atlas holds one record of the invasive non-native species (INNS) of plant, rhododendron (*Rhododendron ponticum*), under the above search criteria within 2km of A82 Viaduct scheme.

A search using Transport Scotland's Asset Management Performance System (AMPS) identified Japanese knotweed *(Fallopia japonica)* and rosebay willowherb *(Chamaenerion angustifolium)* within the A82 verges at the A82 South of Inverarnan scheme extents.

The scheme extents are located within a rural area along the eastern bank of Loch Lomond**,** bordered on either side by areas of native broadleaved woodland**.** Loch Lomond and its associated tributaries form an important network of freshwater habitats in the region.

Areas of woodland within 300m of the scheme have been noted as 'ancient' (of semi-natural origin) 'long-established' (of plantation origin) and 'other' (on Roy map) as listed on the Ancient Woodland Inventory (AWI) Scotland. The nearest of these lie adjacent to the A82 within the scheme extents (Scotland's Environemnt).

There are no areas of woodland or individual trees covered by a Tree Preservation Order (TPO) within 300m of the scheme extents (LLTNP TPO map).

Geology and soils

None of the schemes lie within a Geological Conservation Review Site (GCRS) or SSSI designated for geological features.

Garabal Hill GCRS lies 250m west of the A82 South of Inverarnan (SiteLink). Garabal Hill GCRS is overlapped by Garabal Hill SSSI, which is designated for Caledonian Igneous.

Bedrock within the scheme extents is comprised of following (BGS Geology Viewer):

- Ben Ledi Grit Formation (psammite and semipelite) – metamorphic bedrock,
- North Britain Siluro-devonian Calc-alkaline Dyke Suite (microgranite) – igneous bedrock, and
- Beinn Bheula Schist Formation – Psammite and Pelite.

Superficial deposits within the scheme extents is comprised of the following (BGS Geology Viewer):

- Till and Morainic Deposits (diamicton, sand and gravel),

- Alluvium and River Terrace Deposits (gravel, sand, silt and clay),
- Till – diamicton, and
- River Terrace Deposits (gravel, sand, silt and clay).

The local soil type is recorded as brown soils and mineral podzols (Scotland's Environment Map).

Soils within the scheme extent are recorded as being 'Class 0', as displayed on Scotland's Peat Map. Class 0 are mineral soils with no peat present.

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 resurfacing works are necessary to replace the worn carriageway surface and to undertake general maintenance of the A82 trunk road. In addition to resurfacing, the works will include routine maintenance of the road drainage system, such as the resetting of gullies, to ensure continued effective surface water management.

Materials used will consist of:

- Asphaltic material
- Bituminous emulsion bond coat
- Milled in road studs
- Thermoplastic road marking paint

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.

There is no requirement for a site compound.

A Site Waste Management Plan (SWMP) is not required for these works. Additionally, coal tar has not been identified as being present within the scheme extents.

Noise and vibration

For residential, community and commercial receptors refer to the 'Population and Human Health' section below.

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

Noise modelled data from Environmental Noise Directive (END) Round 4 Noise Mapping indicates 24 hour annual average noise levels (Lden) between 60 and 70dB on the A82 at the scheme locations (SpatialData).

The baseline noise and vibration in the scheme extents is primarily influenced by vehicles travelling along the A82 trunk road. Secondary sources are most commonly derived from recreational activities associated with Loch Lomond.

Population and human health

All three schemes are located in relatively rural areas, with between three and six properties situated within 300m of each scheme's extents. There are no properties within 300m of the A82 Viaduct scheme. The properties closest to the works lie within 50m and have little to no screening, with only limited tree cover in between. In contrast, properties located beyond 50m are generally screened by intervening woodland.

A pedestrian footpath lies adjacent to the southbound carriageway of the A82 at the A82 South of Inverarnan schemes northern extents. The pedestrian footpath is also noted as a core path (ID: S0476) (LLTNP Core Path Plan) and a walking route 'Beinn Chabhair, from Inverarnan' recorded by Walk Highlands (WalkHighlands).

A viewpoint over the Loch Lomond with a parking area for a single car, lies adjacent to the southbound lane of the A82 at the A82 Blairannaich scheme extents.

Two bus stops are located either side of the A82 at the northern end of the A82 South of Inverarnan scheme extents.

There are no National Cycle Network (NCN) routes within 300m of any of the scheme extents.

Road drainage and the water environment

Allt Arnan (unclassified) is spanned by the A82 within the A82 South of Inverarnan scheme extents. Allt Arnan flows for 630m in a southerly direction where it discharges into the River Falloch (d/s Dubh Eas) (ID: 10165). The River Falloch is a

classified waterbody by Scottish Environment Protection Agency (SEPA) and lies within the River Leven (Loch Lomond) catchment of the Scotland river basin district and has last been classified as having a 'good ecological potential' (2023) (SEPA Water Classification Hub).

Loch Lomond (North) (ID: 100339) is a classified waterbody by SEPA and lies directly adjacent to the A82 at the A82 Viaduct scheme extents and separated by 1m high wall. Loch Lomond (North) also lies 5m east of the A82 Blairannaich scheme extents. Loch Lomond (North) lies within the River Leven (Loch Lomond) catchment of the Scotland river basin district and has last been classified as having a 'good ecological potential' (2023) (SEPA Water Classification Hub).

A number of unclassified waterbodies, including field drains and minor tributaries, are culverted beneath the A82 within the scheme extents and lie within 300 metres of the works.

The scheme is underlain by the 'Cowal and Lomond' groundwater body, which SEPA classified in 2023 as having an overall status of 'Good' (SEPA Water Classification Hub). The groundwater body is also recorded as a Drinking Water Protected Area (DWPA) (Ground) (Scotland's Environment).

The banks of Allt Arnan and its wider area which is spanned by the A82 within the A82 South of Inverarnan scheme extents has been identified as having a high likelihood of fluvial flooding (10% chance of flooding each year) (SEPA Flood Maps). In addition, the banks of Loch Lomond which lies adjacent and in proximity to the A82 Viaduct and A82 Blairannaich and are identified as having a high likelihood of fluvial flooding (10% chance of flooding each year) (SEPA Flood Maps).

Climate

The Climate Change (Scotland) Act 2009 ('The Act'), and its subsequent amendment under the Climate Change (Emissions Reduction Targets) (Scotland) Act 2019, sets the framework for the Scottish Government to address climate change. The Act has an ambitious target to reach Net Zero greenhouse gas emissions by 2045, with any residual emissions balanced by removing carbon dioxide from the atmosphere. This is five years earlier than the rest of the UK due to the greater potential for carbon sequestration in Scotland.

The Act was amended to replace interim targets with carbon budgets. Carbon budgets are legally binding caps on greenhouse gas emissions in Scotland over five-year periods. In line with the Act, the Climate Change Committee (CCC) published advice on the level of Scotland's four carbon budgets, covering the period 2026 to 2045, recommending what the Scottish Government sets its carbon budgets at for

annual average levels of emissions. These recommendations are based on an ambitious but credible route to Net Zero for Scotland by 2045.

Emissions reductions from surface transport are the largest contribution to meeting the first two carbon budgets. The pathway for surface transport emission reduction is primarily driven by the uptake of electric vehicles, in addition to measures to enable a shift from car use to public transport and active travel, which all play a role in reducing emissions from fossil fuel cars. Ensuring efficiency of existing transport infrastructure and improving/providing new active travel facilities is therefore important to support these carbon reduction budgets.

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 the above noted legally binding target of net-zero by 2045. 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).

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

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.

- 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 non-road mobile machinery (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 generating air pollution are occurring. In the unlikely event that unacceptable levels of air pollution 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.
- 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.
- 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 risk of dust emissions exists.
- Materials will be removed from site as soon as is practicable.
- Good housekeeping will be employed throughout the work.

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 Record of Determination (RoD).

Cultural heritage

Although three Listed Buildings lie within 20 metres of the works, one of which is located approximately 3–5 metres east of the A82 carriageway at the A82 South of Inverarnan scheme, all works will be confined to the existing road surface and its associated drainage infrastructure (e.g. gullies). No works are proposed on or immediately adjacent to the Listed Buildings, and no impacts are anticipated.

The works comprise a like-for-like renewal of the road surface and routine maintenance of the road drainage system. As such, they have been assessed as not having an adverse impact on the cultural heritage value of nearby heritage assets, provided the following mitigation measures are in place:

- All site personnel will be briefed on the importance of cultural heritage value within the area.
- If there are any unexpected archaeological finds, works will stop temporarily in the vicinity, the area will be cordoned off and a member of the BEAR Environment team will be contacted for advice.
- Laydown areas will be sensitively located (e.g., on areas of made ground) to avoid areas of cultural heritage interest where possible.
- There will be no storage of plant, materials or equipment against buildings, bridges, walls or fences.

With the above mitigation measures in place, it is anticipated that any cultural heritage effects associated with the proposed scheme 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 LLTNP. However, the works are like-for-like general maintenance of the trunk road surface and its drainage system and as such the works will not have an impact on landscape character associated with the LLTNP. Though, the National Park Authority will be notified of the works prior to construction 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, the works are of a short duration (up to nineteen nights), undertaken during the nighttime hours (19:00 – 06:00) and restricted to the A82 carriageway boundary and generally screened from the wider landscape by woodland and roadside tree shelterbelts. 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.
- LLTNP advice, if received, will be complied with.

- Works will avoid encroaching on land and areas where work is not required or 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 will 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

The works lie within 2km of Glen Etive and Glen Fyne SPA and Loch Lomond Woods SAC and as such an HRA Proforma was undertaken to assess potential effects of the proposed resurfacing and drainage works on the SAC and SPA. The HRA Proforma concluded that the works would not result in LSE on the qualifying features of Glen Etive and Glen Fyne SPA and Loch Lomond Woods SAC due to the minor nature of the works and standard measures for pollution prevention.

Although a record of Japanese knotweed, INNS, was noted within A82 road verges within A82 South of Inverarnan scheme extents, the works will be restricted to the carriageway and its drainage system and as such it is unlikely that any invasive weeds will be encountered during the works. Furthermore, noted INNS of plants will be controlled/treated by cultural methods and/or chemical weed control as per the NW Annual Landscape Management Plan.

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 A82 carriageway and its drainage system 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 A82 and the scheme is of short duration (up to nineteen 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.

Although the majority of the scheme extents is flanked by areas of ancient woodland; no tree felling is planned for the works.

Pollution controls and good practice measures to reduce impacts of works on the local environment will be detailed in the 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:

- Works will be strictly limited to areas required for access and to carry out the works. Unnecessary encroachment onto terrestrial or aquatic areas will not be tolerated.
- All construction operatives will be briefed through toolbox talks prior to works commencing, which will be included in the SEMP. The toolbox talks will provide information on the legislation, general ecology, and best practice measures for relevant protected species.
- 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. If required, NatureScot will be contacted for advice.
- Artificial lighting will be directed away from areas of woodland and waterbodies as far as is safe and reasonably practicable.
- Personnel will remain vigilant for the presence of INNS or injurious weeds in road verges throughout the works period. Should any INNS be identified in working areas, works will be restricted to a 7m buffer of any growth where reasonably practicable.
- 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.
- 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.
- 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.
- Where applicable, all temporary signage will be removed from site on completion of the works.

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 also be completed over up to nineteen nights on a rolling programme with the aim being to complete the noisiest works by 23:00 where possible. Due to the short duration and localised and transient nature of the works, the proposed scheme is anticipated to result in temporary minor noise impacts during the construction programme.

A number of properties located within 50m of the scheme have only limited screening provided from the A82 carriageway at the scheme extents. As such, there is potential for disturbance to residents, however with mitigation in place disturbance will be minimised and significant impact to these receptors is not predicted.

The road surface is in a poor condition with a series of defects. Replacing the life-expired surface course 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.

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 residents, business premises and the Environmental Health Officer (EHO) for relevant administrative areas 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 where possible.
- Drop heights from vehicles and NRMM will be kept to a minimum to minimise noise when unloading.

- All plant, machinery and vehicles will be switched off when not in use.
- 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 have the potential to have temporary adverse impacts on vehicle travellers. There is potential for impacts on human receptors due to A82 trunk road closures, however regular amnesties will be provided. No significant congestion issues are envisioned due to the proposed off-peak construction hours. Increased journey times may occur, but these are considered insignificant considering the relatively low traffic count during the night-time programming.

Pedestrian facilities are present within and in proximity to the scheme extents however the works are undertaken at nightime when footfall is to be at its lowest. Access for non-motorised users (NMUs) will be maintained throughout the works.

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 residents and 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 nighttime works to daytime 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'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

There is potential for temporary impacts on the water environment due to operation of plant within and within proximity to watercourses and/or drainage systems, which may lead to 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). No in-water works within natural watercourses will take place and there is no requirement for the abstraction or transfers of water from, or discharges to, a waterbody. As such, the potential for a direct pollution incident within a waterbody is unlikely. Experience gained from BEAR maintenance schemes elsewhere on the network has shown that where standard good working practice is adopted (e.g., adherence to SEPA good practice guidance, utilisation of drain covers or similar, etc.), water quality is protected.

The works may result in potential direct or indirect effects on 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 within natural waterbodies.
- 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

Banks of Allt Arnan and Loch Lomond which lie in proximity to the scheme have been noted to have a high (10% 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 A82 carriageway and its drainage system; TM will be designed in line with existing guidance. TM will consist of nighttime road closures with amnesties. The road closures and times of amnesties will be publicised in advance. Local residents will be notified of working hours and provided with appropriate contact information. Pedestrians or other NMUs will be accommodated within the traffic management setup.

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 LLTNP Planning Portal (Loch Lomond and Trossachs National Park) identified three approved planning applications within 300m of the scheme, in the last 6 months. All of these applications are associated with Sloy Power Station and lies within 300m of A82 Viaduct scheme.

Although there is potential for cumulative effects to arise from overlapping construction periods with other developments, due to a number of factors - such as the timing and nature of the works and mitigation committed to for the proposed scheme (SEMP) - the assessment concluded that no significant cumulative effects are anticipated during the construction phase. No cumulative effects on people or property receptors are anticipated during operation given there will be no change to the existing road conditions.

A search of the Scottish Roads Works Commissioner website (Map Search) has identified BEAR Scotland 24 hour works on barrier within the scheme extents of A82 South of Inverarnan which are to overlap with the resurfacing works. Considering the locations overlap and both works are undertaken by BEAR Scotland, it is anticipated that the works will be undertaken under one set of TM, negating additional disturbance to travelling public.

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 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. A Habitat Regulations Appraisal has determined that the works will not result in Likely Significant Effects on designated features of the Loch Lomond Woods SAC and Glen Etive and Glen Fyne SPA.

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

This is a relevant project in terms of 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 and Loch Lomond National Scenic Area which are sensitive areas within the meaning of regulation 2(1) of the Environmental Impact Assessment (Scotland) Regulations 1999.

The project has been subject to screening using the Annex III criteria to determine whether a formal Environmental Impact Assessment 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 and maintenance of road drainage system, with all works restricted to the man-made ground on the A82 carriageway surface.
- Construction activities are restricted to 1,010m, 680m, and 995m long sections along the A82 trunk road with working area of 0.73ha, 0.49ha and 0.68ha respectively.
- The works will be temporary, transient, localised, and completed during night-time hours on a rolling programme over nineteen nights combined.
- 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 A82 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 A82 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 or Loch Lomond National Scenic Area in which the scheme is situated.
- Loch Lomond Woods SAC and Glen Etive and Glen Fyne SPA lie within 2km of the scheme. The HRA Proforma completed by BEAR Scotland did not identify any LSE on the qualifying features of the nearby SAC or SPA as a result of works.
- Three to six properties situated within 300m of each scheme's extents with no receptors within 300m of A82 Viaduct scheme. Mitigation measures will be provided within a SEMP.
- INNS Japanese knotweed has been highlighted on A82 verges within the A82 South of Inverarnan scheme extents.
- Three Listed Buildings lie within 20m of the scheme extents with the nearest being just 3-5m east from the A82 South of Inverarnan. The works are confined to the trunk road with no requirement for works near or on the buildings.

Characteristics of potential impacts of the scheme:

- The works are transient, temporary, short duration and undertaken during nightime working hours negating impact on travelling public.
- Measures will be in place to ensure appropriate removal and disposal of waste.
- The location of identified INNS Japanese knotweed and mitigation measures will be provided in the SEMP.
- 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 of the carriageway surface and maintenance of road drainage system; 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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