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Environmental Impact Assessment Record of Determination

A84/A821 Kilmahog Junction Signing

Contents

Project Details

Description

BEAR Scotland has been commissioned by Transport Scotland to carry out signing works on the A84/A821 junction at Kilmahog to improve road safety. Works will consist of new advanced direction signs that show the junction layout along with improved chevrons, barrier reflectors and hazard marker posts to better define the various bends in the road. In addition, minor concrete works will be required to install new signposts and some minor trimming of vegetation will be carried out to improve visibility of signage.

The scheme covers an area of 0.23ha (1550m length x 1.5m verge width) and is currently programmed to be completed within the second half of the 2023/2024 financial year, with a proposed start date in December 2023. However, works may be delayed into the first half of the 2024/2025 financial year (April 2024 to October 2024 inclusive). Works are expected to be completed during daylight working hours for an estimated 15 days.

Traffic management (TM) is required to carry out works and is likely to entail lane closures. The TM strategy will be in line with recommendations and guidance in The Traffic Signs Manual Chapter 8 and BEAR Scotland Standard Layout 3 for traffic signals on a 40mph speed limit road.

Location

The works are to be located on the A84 carriageway at Kilmahog (Figure 1), located within the Striling Council area. The scheme has the following National Grid References (NGRs):

- Scheme start (east end): 261393, 708218
- Scheme end (west end): 260111, 708695

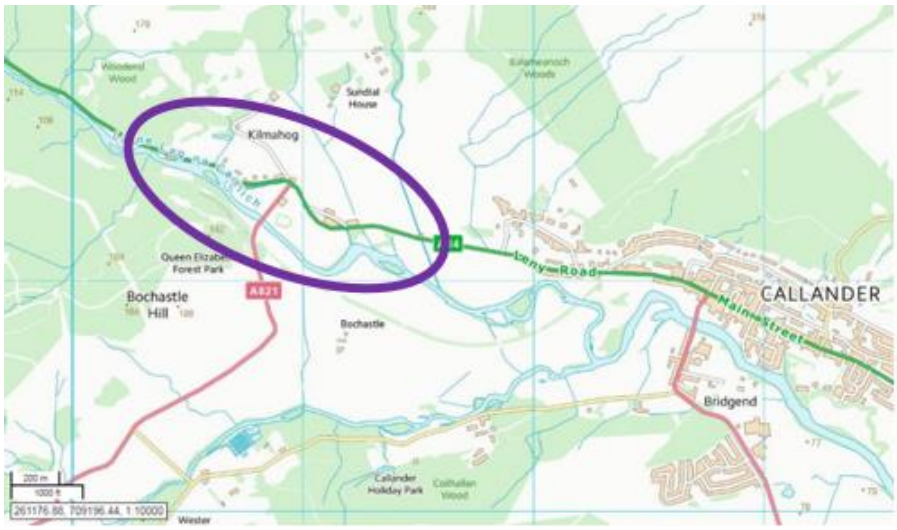

Figure 1. Location of the proposed strategic road safety signage scheme at A84/A821 Kilmahog junction. Source: BEAR Scotland. F108- Environmental Assessment Request (scheme reference: 22-NW-0801-4)

Description of local environment

Air quality

The scheme does not fall within any Air Quality Management Areas (AQMA) declared by Stirling Council and there are no Air Quality Monitoring Stations within 10km of the works. The closest air monitoring station is located around 25km southeast of the works at Stirling Craig's Roundabout, which records Nitrogen Dioxide (NO_2) and Particulate Matter ($PM_{2.5}$, and PM_{10}). All were recorded as being at low levels at the time of search. As the scheme is in a more rural area with less traffic flow than the air monitoring station, it is expected that air pollution levels would be lower than those recorded at this station in Stirling.

There are no sites registered on the Scottish Pollutant Release Inventory (SPRI) for air pollutant releases located within 10km of the proposed works. The closest is Longleys Farm (Scotbeef Ltd.) at Bridge of Allan, over 20km southeast of the scheme.

Annual Average Daily Flow (AADF) at the nearest traffic monitoring point on the A84 (approximately 0.5 km east of the scheme) was estimated at 5,976 total vehicles in 2022, 2.98% (178) of which were heavy goods vehicles (HGVs) (Department for Transport).

Baseline air quality at the scheme location is likely to be mainly influenced by traffic along the A84 trunk road and other local roads which provide access to the nearby town of Callander.

Cultural heritage

According to PastMap, there is one Scheduled Monument (Bochastle Roman Fort), which is located 100m south of the scheme. There are also several Listed Buildings (three of which are located a few metres outside of the carriageway boundary), numerous Canmore sites and Historic Environment Records (HERs) within 300m of the scheme. However, none of these sites are located in the road or verges where the signs and safety posts are due to be installed/changed. The minor nature of the works also reduces the likelihood of sites being impacted.

No World Heritage Sites, Garden & Design Landscapes, Conservation Areas, or Battlefields were identified within 300m of the scheme.

Landscape and visual effects

The scheme is entirely located within Loch Lomond and the Trossachs National Park (LLTNP) (NatureScot site code: 8621), which has the following listed in its 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.
- Famous through-routes.
- Tranquillity.
- The easily accessible landscape splendour.

The Landscape Character Type (LCT) within the scheme extent is recorded as 'Straths and Glens' (LCT No. 253) on the east side of the scheme and 'Straths and Glens with Lochs' (LCT No. 254) on the west side which have the following key characteristics.

Straths and Glens:

- Broad u-shaped glens and straths with wide flat floodplains.
- Lower side slopes often rolling and complex with hummocky moraine and rocky outcrops.
- Many glen and strath sides are forested, predominantly with spruce, on upper slopes. Some of these forests occasionally extend across strath and glen floors. Scattered trees and remnants of native woodland are found along the edges of burns.

- Rivers are prominent in open floodplains, often contained by flood barriers and levees. Less modified stretches of river feature pools, gravel beds and waterfalls.
- Riparian woodlands trace the course of rivers and their tributaries.
- Better drained strath and glen floors are farmed with improved pastures. Occasional small regular-shaped plantations and shelter belts pattern hill slopes and valley floors.
- Mixed policy woodlands and avenues of trees line access tracks in places.
- Settlements and farms are located on lower side slopes, raised above the floodplain, and often tucked between knolls. Settlements tend to be sited at bridging points or at the junction with side glens.
- Road and rail transport corridors follow the edges of strath and glen floors.
- Pylons and low voltage overhead power lines are highly visible features across open glen floors.
- Open strath and glen floors allow views along and across the traditional farmed landscapes, attractive river landscapes and lochs, as well as the dramatic Highland setting of the surrounding rugged slopes and mountain summits.

Straths and Glens with Lochs:

- 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. Subtle 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.

There are no National Scenic Areas within 300m of the proposed scheme (NatureScot Sitelink).

As the scheme is located within LLTNP, the LLTNP planning department have been consulted regarding the proposed works.

Biodiversity

The River Teith Special Area of Conservation (SAC) (NatureScot site code: 8367) runs adjacent to part of the scheme extent and within 10-200m of the length of the scheme.

The Pass of Leny Flushes Site of Special Scientific Interest (SSSI) (NatureScot Site Code 1275) is located approximately 150m south of the scheme, on the opposite side of the River Teith.

Additionally, bird species were also recorded on NBN within 2km over a 10-year period. Under the Wildlife and Countryside Act 1981, all wild birds and their active nests are protected.

Transport Scotland's Asset Management Performance System (AMPS) shows no record of any invasive non-native species (INNS) of plants near the scheme. NBN Atlas shows there was one recorded sighting of Japanese knotweed (*Fallopia japonica*) in the area, but this was just over 10 years ago. Due to this record, a site visit was carried out in mid-October 2023 to identify whether any INNS were present in the boundary of the carriageway verges. Rhododendron (*Rhododendron ponticum*) and snowberry (*Symphoricarpos albus*) were recorded in multiple locations along the A84 within the scheme extent, largely out with the carriageway boundary but still within 2m of the road in some places.

According to Scotland's Environment Web, there is a Tree Protection Order (TPO) in place for a row of several trees within approximately 150m of the most easterly point of the scheme (see Figure 1 below). The TPOs run from the western edge of Callander to Leny Lodge. Minor vegetation clearance is planned for parts of the scheme to ensure road signage is visible; however, no felling or trimming of trees with TPOs will take place.

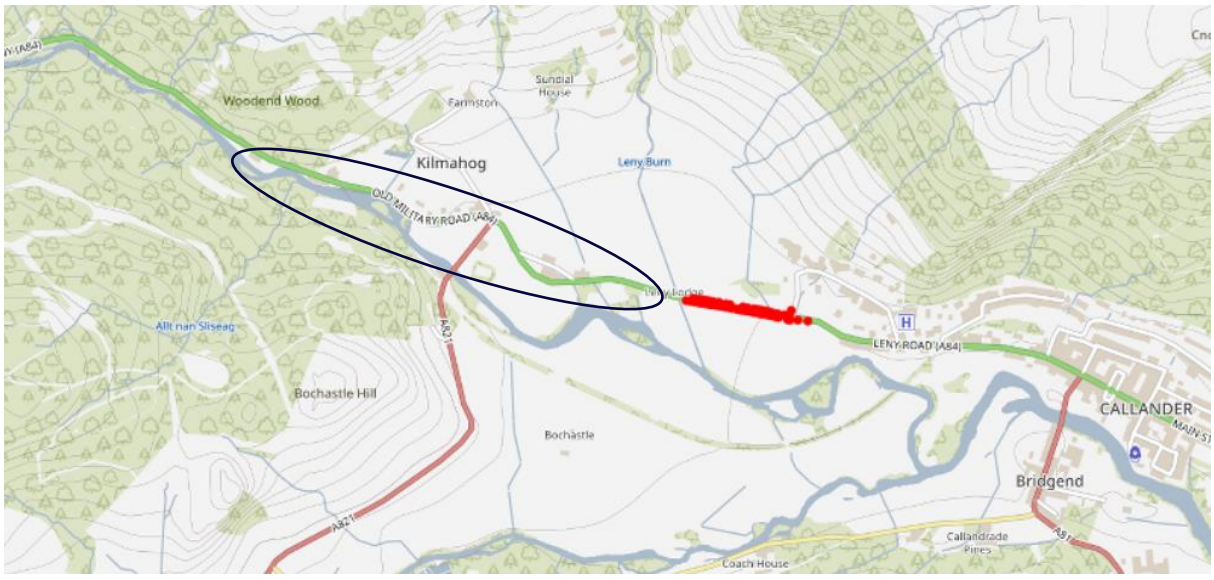

Figure 2. Location of TPOs (red dots) in relation to the scheme extent (circled in black).

Habitats in proximity to the scheme extents are dominated almost exclusively by mixed woodland types and farmland (grazing pastures).

Two areas of woodland, listed on the Ancient Woodland Inventory (AWI) as ancient (of semi-natural origin) woodland, lie around 200m south of the scheme on the other side of the River Teith. Another woodland is listed as long-established (of plantation origin) and located around 270m northwest of the end of the scheme.

Geology and soils

The scheme does not fall within any Geological Conservation Review Sites (GCRS) and there are no geological Sites of Special Scientific Interest (SSSI) within 300m of this site (NatureScot Sitelink).

Bedrock within 300m of the scheme extent is recorded as Keltie Water Grit Formation (Sandstone - Metamorphic) and Craig of Monievreckie Conglomerate Formation (Conglomerate - Sedimentary). There are also two small areas of Leny Limestone and Slate Member (Pelite (clay-rich) and Semipelite - Metamorphic) and Scotland Late Carboniferous Tholeiitic Dyke Swarm (Quartz-micro gabbro - Igneous) on the far west side of the scheme. (British Geological Survey- GeoIndex).

Scotland's Soils Soil Map shows local soils around the scheme area being recorded as Alluvial soils (including some peaty alluvial soils) and Brown earth soils.

Material assets and waste

The works will consist of new advanced direction signs that show the junction layout along with improved chevrons, barrier reflectors and hazard marker posts to better define the various bends. Materials used will consist of:

- Signs.
- Posts.
- Hazard marker posts.
- Concrete.

The waste material from this project is anticipated to include old aluminium signs and steel posts, both of which are 100% recyclable. Some new signs will be attached to pre-existing posts to reduce the amount of waste.

As the value of the scheme does not exceed £350,000, a Site Waste Management Plan (SWMP) is not required for these works.

Noise and vibration

The works are located in a semi-rural location <1km west of the town of Callander. There are several residential properties within 300m of the of the scheme, the closest being around 2-3m from the carriageway. There are also two commercial facilities: Trossachs Woollen Mill (café/shop within 2-3m of the scheme) and The Lade Inn (restaurant/shop around 100m from the scheme at the A84/A821 junction).

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

Scotland's Noise Map does not hold any data for the A84 carriageway within the scheme extent.

Baseline noise levels in the area are likely to be heavily influenced by traffic along the A84 and other nearby local roads (e.g.,A821). As such, any residential property within 300m of the scheme will already be affected by the noise of the trunk road throughout the day.

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 daytime working pattern to minimise the impacts on local residents. The Best Practicable Means, as defined in Section 72 of the Control of Pollution Act 1974, will be employed at all times.

Population and human health

The works are located in a semi-rural location <1km of west the town of Callander. There are several residential properties within 300m of the of the scheme and two commercial facilities: Trossachs Woollen Mill (café/shop) and The Lade Inn

(restaurant/shop). This stretch of the A84 primarily connects Callander through Kilmahog and north to Lochearnhead where it joins the A85.

There are several services located in/near Callander (1km east of the scheme) including a fire station, pharmacies, veterinary clinics, Community Centre, petrol stations and grocery stores. There are no bus stops along the proposed scheme.

National Cycle Network (NCN) Route 7 runs parallel to the A84 on the opposite bank of the River Teith through this area. This cycle route is also listed as a core path.

One walking route is listed on WalkHighlands in this area, 'Bochastle and the Falls of Leny', which follows the NCN Route 7 and core path on the opposite side of the River Teith to the scheme.

The A84 Trunk Road connects Stirling with Doune, Calendar 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

Garbh Uisge / River Leny (ID: 4718) is a waterbody which runs adjacent to the scheme extent, within approximately 10m at the closest point. It has been classified by the Scottish Environment Protection Agency (SEPA) under the Water Framework Directive 2000/60/EC (WFD) in 2020 as having an overall status of 'Good'. This watercourse joins the main stem of the River Teith at Callander and forms part of the River Teith SAC.

The scheme falls within the 'Callander', 'Teith and Forth Valleys' and 'Trossachs' groundwater bodies, which were classified by SEPA (and mapped out on Scotland's Environment) in 2020 as having 'Good' overall condition.

There are a few south-flowing minor tributaries/ drainage channels culverted under the A84 within the scheme extent. The road surface drainage uses built-in kerbside tubes/pipes, which are present sporadically along the scheme and drain directly into the Garbh Uisge/River Leny.

The A84 within the scheme extent has small sections highlighted as being at high risk of river flooding (10% chance of flooding each year) and medium risk of surface water flooding (0.5% chance of flooding each year), according to SEPA Flood Maps.

Climate

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

The Scottish Government has since published its indicative Nationally Determined Contribution (iNDC) to set out how it will reach net-zero emissions by 2045, working to reduce emissions of all major greenhouse gases by at least 75% by 2030 (Scotland's contribution to the Paris Agreement: indicative Nationally Determined Contribution - gov.scot (www.gov.scot)). By 2040, the Scottish Government is committed to reducing emissions by 90%, with the aim of reaching net-zero by 2045 at the latest.

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

Policies and plans

This Record of Determination (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, considering the nature and scale of the works and the following mitigation measures, the risk of significant impacts to air are considered to be low.

- All plant, machinery and vehicles associated with the scheme will be maintained to the appropriate standards and will be switched off when not in use.
- 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/breaking out 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 much as is reasonably practicable by using a ‘just in time’ delivery system. All material will also be stored on made ground.
- Green driving techniques will be adopted, and effective route preparation and planning shall be undertaken prior to works.
- 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.

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

Although there are features of cultural heritage interest within 300m of the scheme extent, construction of the A84 is likely to have removed any archaeological remains that may have been present. Therefore, the potential for the presence of unknown archaeological remains in the study area has been assessed to be low. Moreover, all works are restricted to the A84 trunk road boundary, the nearby Scheduled Monument and Listed Buildings lie outside of the footprint of works, and the works do not include any alterations that would affect the historic and architectural character of any nearby cultural heritage features.

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

- 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.
- There will be no storage of vehicles, plant, or materials against any buildings, walls or fences.

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

There is potential for minor, visual impacts to LLTNP during the works as a result of new signage, littering, or obstructed views due to materials, vehicles and machinery. However, like-for-like replacement of signs will be undertaken where possible and new signage will be in keeping with other local signage. Proposed works will be restricted to the carriageway and verges on the A84, and land use will not change as a result of the works. The LLTNP has been consulted regarding the proposed works, which are required to improve road safety in the area, but has not provided a response to date. The following mitigation measures will be put in place:

- 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.
- The working area will be appropriately reinstated following works.
- 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 will be reinstated as much as is practicable.
- The site will be left clean and tidy following completion of the works.

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

Activities undertaken on site could potentially have a temporary adverse impact on biodiversity as a result of an increased vehicle presence and the potential for disturbance to protected species and pollution of habitats. Although the scheme is located within 10m of the River Teith SAC, a Habitats Regulations Appraisal (HRA) concluded that the works would not result in potential for any likely significant effects (LSE) upon the qualifying features by virtue of the following factors:

- No works are required within the boundary of the River Teith SAC and no in-stream works or discharges to the natural water environment are required. Therefore there will be no change to water quality or impact on the qualifying fish species as a result of the works.
- All works are restricted to the A84 carriageway boundary and works will not involve any change of the natural landscape or its processes.
- The risk of loss of containment is considered very low given the nature of the works and the standard industry pollution prevention practices that will be adhered to throughout the works.
- Additional anthropogenic noise associated with the works is not anticipated to deviate from existing noise levels in the area originating from the A84, or residential and commercial properties nearby.

The Pass of Leny Flushes SSSI is located approximately 150m from the area of works on the opposite side of the River Teith. No significant negative impacts have been identified on the qualifying features of the SSSI (upland oak woodland, and

flushes) as a result of the proposed works due to the distance from the scheme extent and lack of connectivity.

Although invasive plant species have been identified in proximity to the scheme extent, they are not located within the footprint of works for installation of new signage. Site staff will be advised of INNS and instructed to contact the BEAR Environment Team if any excavation works within areas of INNS are required. A toolbox talk for working near INNS will be included in the SEMP and adhered to on site.

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. Any protected species in the area are likely to be accustomed to road noise on the A84 and the scheme is of a temporary nature with works undertaken during daylight hours. 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 works. Unnecessary encroachment onto terrestrial or aquatic areas will not be tolerated. No in-stream works will be undertaken and no works will be undertaken within the boundary of the River Teith SAC.
- All construction operatives will be briefed through toolbox talks prior to works commencing. 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.
- Operatives will made aware of invasive plant species in the area and biosecurity and other measures to avoid the spread of INNS will be stated in the SEMP and adhered to on site.
- 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.

Geology and soils

Although works include excavation, construction activities are restricted to the already engineered layers of the A84 carriageway and verges, so are not anticipated to have an adverse impact on geology and soils. With the following mitigation measures in place, the likelihood of significant impacts on the geology and soils is low.

- The parking of machinery/personnel and storage of equipment on road verges will be minimised as far as is reasonably practicable.
- Upon completion of the works, any damage to the local landscape (i.e., damage to grass verges) will be reinstated as much as is practicable.
- Mitigation measures to prevent contamination of soils through loss of containment will be strictly adhered to.
- Topsoil and subsoil reused on site will be spread evenly in a single layer less than 200 mm in height to ensure the soil profile is maintained across the works location.
- Multiple handling of soil derived from excavations will be minimised. The extent and duration of exposed soil will be kept to the minimum required for the works.

With the above mitigation measures in place, it is anticipated that any geology and soils 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.
- 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 be available for inspection. A copy of the Duty of Care paperwork shall 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 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

The proposed works have the potential to cause noise and vibration impacts through the use of equipment and construction vehicles for the proposed activities. Works will be undertaken over 15 days by utilising a daytime working programme and several properties lie within 300m of the scheme. Due to the short duration and localised nature of the works, the scheme is anticipated to result in temporary minor noise impacts during 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 to reduce noise to a minimum.
- Residents within 300m of the scheme will be notified in advance of the works, likely by a letter drop. This notification will include details of proposed nature, timings and duration of the works, and a 24-hour contact number for the BEAR Scotland Control Room.
- 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, machinery and vehicles will be switched off when not in use.
- 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 local residents, vehicle travellers, and non-motorised road users (NMUs) as a result of vehicle noise and delays due to TM measures. 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.
- Any changes of schedule (e.g. change from night-time works to daytime works) will be communicated to local residents 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.
- Journey planning information will be available for drivers online at the Traffic Scotland website. Journey planning information will also be available for drivers online through BEAR's social media platforms.
- Works will be undertaken out with the peak tourist season if possible.
- Works will be carried out during daylight hours.

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 the 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 or tidal movements) 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 will be permitted. Appropriate containment measures will be in place to prevent any loss of construction materials into the water environment.
- 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 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 will 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 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/or suppliers to be used wherever possible to reduce carbon footprint from transportation.
- Where possible, materials will be sourced locally to reduce greenhouse gas emissions associated with materials movement
- Any waste that cannot be reused or recycled will be disposed of at local landfills to reduce carbon footprint from transportation of waste.

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

The A84 within the scheme extent has a small section highlighted as being at high risk of river flooding (10% chance of flooding each year) and a medium risk of surface water flooding (0.5% chance each year), according to SEPA Flood Maps. Works will be programmed as far as is reasonably practicable to avoid periods of adverse weather or heavy rainfall.

Works are restricted to the A84 carriageway boundary (including verges), and any TM will be designed in line with existing guidance. The proposed works are anticipated to last 15 days, with guidance as per the recommendations and guidance in The Traffic Signs Manual Chapter 8 and BEAR Scotland Standard Layout 3 for traffic signals on a 40mph speed limit road. Where required, alternative pedestrian routes will be included in the TM setup, to minimise impact of the works on NMUs.

These measures, along with mitigation measures and standard working practices, will be detailed in the SEMP and adhered to on site.

As the works will be limited to signage and safety marker installations/replacements, there will be no change in vulnerability of the road to risk, or in severity of major

accidents/disasters that would impact on the environment. The vulnerability of the project to risks of major accidents and disasters is considered to be low.

Assessment of cumulative effects

The proposed works are not anticipated to result in significant environmental effects. A search of the Stirling Council planning portal identified no planning applications within 300m of the scheme.

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 A84 trunk road in proximity to and at the same time as this scheme.

BEAR Scotland programme all of their proposed works in line with appropriate guidance and contractual requirements. All schemes are programmed to consider 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

The HRA undertaken to assess potential effects of the works on the River Teith SAC did not identify potential for any LSE on the qualifying features due to the nature and scale of the works and limited pathway to effect.

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) are situated in whole or in part in LLTNP 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 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:

- The scheme is less than 1 ha in area and will be restricted to the A84 carriageway boundary (including verges).
- The works will be temporary (15 days) and undertaken during daylight hours.
- Works are not expected to result in significant disturbance to protected species that may be present in the wider area.
- No in-combination effects have been identified.
- The risk of major accidents or disasters is considered to be low.
- The works are essential to improve road safety in the area with clearer signage and hazard markings.
- Any potential adverse impacts of the works are expected to be temporary, short-term, non-significant, and limited to the construction phase.

Location of the scheme:

- Although works are located in proximity to the River Teith SAC, the HRA did not identify the potential for any LSE on the qualifying features of the SAC due to the nature and scale of the works and limited pathway to effect.
- Consultation with the LLTNP has been carried out to identify any concerns regarding the proposed works, but no response has been received to date.
- Road signage will be replaced where possible and any permanent changes will be localised within the A84 boundaries and will be in keeping with existing street furniture. Visual impacts on LLTNP are therefore not expected to be significant.
- The works are not expected to result in any alteration to existing cultural heritage features or exposure of potentially undiscovered features of cultural heritage.
- The scheme will be confined within the existing carriageway and verges and will not require any land take or alter any local land uses.

- No site compound is required for this project.

Characteristics of potential impacts of the scheme:

- Although INNS have been recorded within the scheme extent, they are not anticipated to be localised to specific working areas or access routes. However, biosecurity measures and measures to prevent the spread of INNS will be detailed in the SEMP and adhered to on site.
- Containment measures will be in place to prevent debris and pollutants from entering the surrounding environment.
- Measures will be in place to ensure appropriate removal and disposal of waste.
- The SEMP will include plans to address environmental incidents.
- Mitigation measures detailed above and in the SEMP are 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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