

**EC DIRECTIVE 97/11
ENVIRONMENTAL IMPACT ASSESSMENT (SCOTLAND) REGULATIONS 1999 (as amended)
ROADS (SCOTLAND) ACT 1984**

RECORD OF DETERMINATION

Name of Project: A83 Rest and Be Thankful
Phase 3b

Location: A83 Rest and Be Thankful
OS Grid Ref NN 23872 06755

Description of project:

BEAR Scotland has been commissioned by Transport Scotland to carry out emergency works to address landslide risk on the A83 trunk road at the Rest and Be Thankful (RABT) Phase 3 b, Glen Croe, between Tarbet and Cairndow. See Location Plan in Appendix A1.

The works are a result of 2 landslide events which occurred over a period of 6 weeks at the RABT on the 4th August and 13th September 2020. The first event resulted in approximately 10,000 tonnes of debris; the second event resulted in a further 5000 tonnes of debris. Material continues to slip towards the A83.

The proposed solution will entail excavation of one debris pit (Phase 3b) to intercept debris flows. This will utilise top down construction methods comprising of self-drilling hollow steel bars with anchorage into rock. A rigid reinforced sprayed concrete facing will then be fixed onto the face of the three sloping sides of the pit. The catch pit is approximately 28m long, 18m wide, and will cover an area of approximately 0.09 ha. The volume of the pit below road level is around 700-1000m³, however when a parapet wall is included this will increase to the region of around 1200m³. Design details of the pit and scour protection can be found in Appendix A2a & A2b & A2c.

The three sloping sides are a combination of existing natural slopes and excavated slopes the latter of which are intended to be formed at an angle of 65° from the horizontal. This angle represents a balance between pit volume, structural requirements and overall stability. These three sides are formed of a back slope, furthest upslope and approximately parallel to the A83, and a side slope on each side of the pit. The back slope is up to around 18m in height and the side slopes vary in height from around 18m to 3m in height. The fourth side of the pit, adjacent to and parallel to the A83, is to be formed from a 3m high in-situ concrete retaining wall to support the road. Accordingly, the base of the catchpit is around 3m below road level and the top of the back face is around 15m above road level. The width of the pit at the base between the sidewalls is 6-10m.

A reinforced concrete apron will be installed below phase 3b wall to provide scour protection measures. The apron will be formed with 300mm thick shotcrete incorporating two layers of reinforced mesh embedded into the concrete. Soil nails will be drilled into the rockhead to support the concrete apron (see construction detail). The scour protection detail is approximately 67m² in area.

Full details of the proposals are contained in the Scheme Plan in Appendix A and supporting document A83 RaBt -Phase 3b Catchpit Design Summary Revision 0 – October 2020.

The works are scheduled to commence in November 2020 and are expected to take approximately 5 months to complete. Working hours are unrestricted although work is likely to be during daylight hours only. Some overnight working is likely for those aspects of work that can be carried out safely. The

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hillside is presently being monitored 24hrs a day during heavy rainfall conditions and this is likely to continue until appropriate mitigation is in place. The channel will require to be illuminated by spotlight during hours of darkness.

Any request to work during the hours of darkness will require further discussion and approval of BEAR Scotland.

Landslide mitigation works have already been carried out on other sections of the A83 RABT which include Phases 7, 8 and 9, and works are currently ongoing at Phase 1. Future works include Phases 5 & 6 and Glen Kinglas Bunds, (See Appendix A3 RABT Master Plan)

Further phases of works are anticipated in the future however details of these are not yet known.

There has been extensive consultation with regulators and non-statutory bodies including Scottish Environment Protection Agency (SEPA), Scottish Natural heritage (SNH), Loch Lomond and the Trossachs National Park (LLTNP) and Argyll & Bute Fisheries Trust and Board. A virtual workshop was held on the 21st of September to discuss these emergency works and potential design proposals.

Project Procurement:

The scheme is executed by the operating company as site operations – ‘**As of Right**’ scheme

Description of Local Environment: The following baseline descriptions have been sequenced to follow the appropriate Design Manual for Roads and Bridges (DMRB) chapters for environmental assessment and do not reflect a ranking of sensitivity.

AIR AND CLIMATE:

There are no air quality monitoring sites near the scheme location¹, with the closest monitoring site being at Greenock² which lies 32km south of the scheme location. Air quality was recorded as Low (Index 2) on 16th September 2020. The site does not lie within an Air Quality Management Area (AQMA)³.

Local air quality in the area is likely to be reasonable due to its rural location, although the trunk road corridor itself will be affected to some degree by vehicle emissions. High Glencroe, the nearest residential property to the works, is approximately 600m to the northwest of the A83. Other sensitive receptors in the area are visitors to the Rest and Be Thankful viewpoint and hillwalkers and cyclists utilising the old military road.

The Rest and Be Thankful lies in Glen Croe between Cairndow and Tarbet. The climate in Tarbet is recorded as warm and temperate. There is a great deal of rainfall in Tarbet, even in the driest month. According to Köppen and Geiger, this climate is classified as a temperate oceanic climate (Cfb). The average annual temperature is 8.4 °C in Tarbet. The rainfall here averages 1,625 mm⁴. Cairndown also has a warm and temperate climate. The rainfall in Cairndow is significant, with precipitation even during the driest month. This location is classified as Cfb and the annual temperature is 8.6 °C with about 1,730 mm of precipitation falls annually⁵. The climate in Glen Croe is expected to be similar to

¹ <http://www.scottishairquality.scot/latest/> (Accessed 16/9/2020)

² http://www.scottishairquality.scot/latest/site-info?site_id=INC2 (Accessed 16/9/2020)

³ <https://uk-air.defra.gov.uk/aqma/maps> (Accessed 16/9/2020)

⁴ <https://en.climate-data.org/europe/united-kingdom/scotland/tarbet-64617/> (Accessed 16/9/2020)

⁵ <https://en.climate-data.org/europe/united-kingdom/scotland/cairndow-484294/> (Accessed 16/9/2020)

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Cairndow and Tarbet with high volumes of rainfall throughout the year. The prevailing wind direction is from the southwest with 408 hours per year where winds speeds are at or above 12mph⁶ which is generally considered capable of mobilising and transporting dust⁷.

CULTURAL HERITAGE AND MATERIAL ASSETS:

The Historic Environment Scotland (HES) PastMap website shows a few sites of cultural heritage interest within 300 m of the scheme. The scheme is to the east of the Dumbarton – Tarbet – Inveraray – Tyndrum Military Road which is recorded on the Historic Environment Record (HER)⁸. This old road, which was a reconstruction of the original military road, can be seen at a lower level to the west of the present A83 trunk road. The old road was superseded by the present road in the 1930s.

A few other local/regional sites of cultural heritage interest are present in with in 300m of the scheme which include Sheepfolds; Buildings; Field-systems; Hut-circles (possible); Cairn (possible). However they will not be impacted by the works proposed.

BIODIVERSITY:

The scheme is not situated within or adjacent to any site designated for ecology and nature conservation. The closest site is the Beinn an Lochain Site of Special Scientific Interest (SSSI)⁹ which lies approximately 500m west of the scheme. The A83 and A828 form the eastern boundary, and the site is designated for habitats, including tall herb ledge, upland assemblage and siliceous scree (includes boulder fields).

Ecological surveys have previously been carried out on adjacent sections of the RABT, which included Phases 1, 5 & 6 of works with surveys carried out on the 29th of August 2019 for Phase 1 and in late July 2020 for Phases 5 & 6.

The Phase 3 b scheme is located approximately 300m west of Phase 1 and 165m east of the Phase 5 & 6 works and as such it is considered that the area of 3 b is of similar in character in terms of biodiversity, as these previously surveyed areas. The surrounding habitats are grazed by cattle and sheep and comprise primarily marshy grassland, heathland, areas of scrub and some tall ruderal vegetation with rocky outcrops.

Habitats: The surrounding habitat is recorded on EUNIS¹⁰ as acid alpine, subalpine and extensive grassland in the immediate area with coppice and early-stage plantations, temperate shrub heathland and montane vegetation in surrounding areas. The habitat on the south side of Glen Croe primarily comprises coniferous plantation woodlands with montane habitat above the tree line. The north side of Glen Croe comprises steep, treeless montane habitat that is grazed by sheep.

Birds: Areas of scrub surrounding the scheme do provide some habitat suitable for nesting birds.

Fish: There is a single watercourse which is not recorded on the 1:50k OS map that is culverted under the trunk road within the scheme extents.

The steep nature of the slopes within and below the proposed Phase 3b work area and presence of a culvert (A83 and Old Military Road) will restrict movement of fish into the area from the River Croe below. The unnamed watercourse fans out below the site with a broken and diffuse spread across a 10-20m wide area over boulders and alluvial deposits. For a large section below the site there is no

⁶ https://www.meteoblue.com/en/weather/forecast/modelclimate/cairndow_united-kingdom_2654069 (Accessed 16/9/2020)

⁷ https://iaqm.co.uk/text/guidance/mineralsguidance_2016.pdf

⁸ http://www.wosas.net/wosas_site.php?id=21653 (Accessed 16/9/2020)

⁹ <https://sitelink.nature.scot/site/163> (Accessed 16/9/2020)

¹⁰ <https://map.environment.gov.scot/sewebmap/> [HabMos - EUNIS] (Accessed 16/9/2020)

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clearly defined channel on the watercourse. In addition, very steep drops (5-8m) below the road will further restrict movement of fish from the main River Croe below the site.

Consultation with the Argyll Fisheries Trust has confirmed that migratory fish cannot pass a barrier presented by the A83 trunk road on the Croe Water at NN 25400 04300; therefore, they will not be present in the headwaters.

LANDSCAPE:

The works lie wholly within the Loch Lomond and the Trossachs National Park (LLTNP)¹¹. The dramatic landscape is characterised by the steep mountainsides of Beinn Luibhean to the north-east and partially forested slopes of Ben Donich to the south. The immediate surrounding landscape comprises open views across Glen Croe to Ben Donich. Landslide netting and catch pits are in place alongside sections of the hillside immediately above the A83. From a distance across the glen, the netting blends into the rugged terrain as the steely colour of the nets resembles the colour of rock outcrops.

Due to the emergency nature of the proposed works at RABT 3b a stakeholder video conference call was held on the 21/9/2020 to inform key consultees of the issues and proposed design solutions. The conference call included the following participants, SNH, SEPA and the LLTNP. Design proposals for RABT 3b were subsequently issued to all parties on the 6/10/2020.

Comments received from the LLTNP in respect of the design consisted of the following:

The LLTNP main comment relates to the fact that the A83 remains a very important route for tourism as well as to local communities and beyond; and Glen Croe and the surrounding mountains are very important for outdoor recreation, so we need to do what we can in the circumstances to achieve an appropriate landscape fit.

A number of design details should be considered and adopted where possible to mitigate the views of it from the road and from a distance.

From a landscape perspective SNH have confirmed they have no comments regarding the proposed design for catch pit 3b and where it is possible they support the comments made by LLTNP.

LAND:

Land use is predominantly estate land within the LLTNP, rough grazing and coniferous forestry plantation. According to the Macaulay System, the land is of limited agricultural value, falling within Land Capability for Agriculture Classes 6.1 to 7¹².

POPULATION AND HUMAN HEALTH:

The scheme is in a rural location where noise and vibration levels will be primarily influenced by the A83 trunk road and Forestry Commission Scotland (FCS) felling programmes in the scheme area. One property, High Glencroe, lies within 600m of the proposed works; it is not known whether it is permanently inhabited. Other sensitive receptors are as detailed in the Air and Climate section B.

¹¹ <https://sitelink.nature.scot/site/8621> (Accessed 16/9/2020)

¹² http://www.hutton.ac.uk/sites/default/files/files/soils/lca_leaflet_hutton.pdf

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There are no designated footpaths located within the scheme extents¹³; however, there are a few walking routes in the wider area, including Beinn an Lochain¹⁴, Ben Donich via Rest and Be Thankful¹⁵, and Beinn Luibhean¹⁶. There are no formal cycle routes¹⁷ that follow the A83 trunk road at the Rest and Be Thankful or Glen Croe itself. Nevertheless, long distance cyclists may use the trunk road and the Old Military Road. Equestrians are unlikely to use the A83 at this location, due to the high-speed nature of the traffic and the availability of more appropriate trails and bridleways in the wider surrounding countryside.

The A83 provides the main link between Tarbet and Campbeltown. It is frequently affected by landslide events, necessitating a diversion route along the Old Military Road through Glen Croe when the A83 is impassable. There is a car park at the Rest and Be Thankful which provides a parking area and view point for visitors to the area.

WATER:

The main hydrological feature in proximity to the proposed works is the Croe Water, 300m south-west of the A83 trunk road. Croe Water was classified by the Scottish Environment Protection Agency (SEPA) in 2018 as having an overall condition of Moderate¹⁸. A watercourse not recorded on the 1:50k OS map lies within the scheme extents and will be re-sectioned over a 14m section upstream as part of the proposed works. It has not been classified by SEPA. However detailed consultation has been carried out with SEPA who have advised that an application for a Simple CAR licence will be required to authorise the proposed re-sectioning works.

The scheme lies within the Cowal and Lomond groundwater area, which was classified by SEPA in 2018 as having an overall condition of Good¹⁹. The scheme also lies within areas recorded as ground²⁰ and surface²¹ Drinking Water Protected Areas.

GEOLOGY AND SOILS:

There are no statutory or non-statutory geologically designated areas within the scheme footprint²². The area is characterised by steeply sloping ground underlain by rocks of the Beinn Bheula Schist Formation of Pelite, Semipelite and Psammite²³. This metamorphic bedrock was formed approximately 542 to 1,000 million years ago and was originally sedimentary rock formed in deep seas, later altered by low-grade metamorphism.

Superficial deposits comprise Till, Devensian – Diamicton, formed up to 2 million years ago in the Quaternary Period²⁴. They indicate that the local environment was previously dominated by ice age conditions. Soils within the scheme extents are recorded as Strichen – peaty gleyed podzols with peaty gleys with dystrophic semi-confined peat²⁵.

¹³ <https://www.walkhighlands.co.uk/lochlomond/arrochar.shtml> (Accessed 16/9/2020)

¹⁴ <https://www.walkhighlands.co.uk/lochlomond/beinn-an-lochain.shtml> (Accessed 16/9/2020)

¹⁵ <https://www.walkhighlands.co.uk/lochlomond/ben-donich.shtml> (Accessed 16/9/2020)

¹⁶ <https://www.walkhighlands.co.uk/lochlomond/beinn-luibhean.shtml> (Accessed 16/9/2020)

¹⁷ <https://osmaps.ordnancesurvey.co.uk/56.21630,-4.82689,11> (Accessed 16/9/2020)

¹⁸ <https://www.sepa.org.uk/data-visualisation/water-classification-hub/> (Accessed 16/9/2020)

¹⁹ <https://map.environment.gov.scot/sewebmap/> [Groundwater classification] (Accessed 16/9/2020)

²⁰ <https://map.environment.gov.scot/sewebmap/> [DWPA ground] (Accessed 16/9/2020)

²¹ <https://map.environment.gov.scot/sewebmap/> [DWPA surface] (Accessed 16/9/2020)

²² <https://www.google.com/maps/d/viewer?mid=1HfclRWclTRxXUZWNARManl-PUhE&ll=56.231241523667805%2C-4.838274992284141&z=13> (Accessed 16/9/2020)

²³ <http://mapapps.bgs.ac.uk/geologyofbritain/home.html> [bedrock] (Accessed 16/9/2020))

²⁴ <http://mapapps.bgs.ac.uk/geologyofbritain/home.html> [superficial] (Accessed 16/9/2020)

²⁵ <http://mapapps2.bgs.ac.uk/ukso/home.html> [Soils of Scotland 1:250k] (Accessed 16/9/2020)

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WASTE, MATERIALS AND USE OF NATURAL RESOURCES:

Waste materials will comprise rock and soil which may be utilised on other projects such as the bund creation on the A83 trunk road at Glen Kinglas or for use as an aggregate for forest access roads. Depending on the final destination for the material, the appropriate SEPA exemptions and consents will be in place to ensure the material is appropriate for its given purpose and that this has gone through the appropriate regulatory process.

Description of the main environmental impacts of the project and proposed mitigation:

As a result of a desktop study and site visit, issues requiring consideration have been identified and potential effects, their magnitude and overall significance (based on the sensitivity of receptor) have then been considered. Effects have been split into construction and operational effects and the magnitude of effect is based on consideration of mitigation measures noted in Table 1: Environmental Impacts and Proposed Mitigation Summary.

The following headings have been set out to follow DMRB chapters for environmental assessment and do not reflect a ranking of impact severity. 'Disruption due to construction' and impacts on 'policies and plans' are covered within each environmental topic heading, where applicable. Unless otherwise stated, the study area considered for the assessment of potential impacts extends 200m in each direction from the centre of the road.

AIR AND CLIMATE:

There is potential for temporary impacts on air quality during construction as a result of activities such as excavation of the debris pits, the presence of construction traffic and vehicles idling on site.

Provided the following mitigation measures are adhered to during the works, impacts on air quality during construction are not anticipated to be significant.

- A designated laydown area will be established on level ground away from the excavation and drilling works;
- All materials will be stored in the laydown area and only moved to site when they are required;
- Prolonged storage of debris on site exposed to wind should be avoided. Materials should be wetted down or covered when exposed to wind for lengthy periods of time;
- All delivery vehicles carrying material with dust potential will be covered when traveling to or leaving site, preventing the spread of dust beyond the work area.
- Material stockpiles will be reduced as much as reasonably practicable by using a 'just in time' delivery system. All material will also be stored on made ground (e.g. within the A83 carriageway boundary) and 10m away from potential pollution pathways such as drains and watercourses where feasible.
- Materials should be removed from site as soon as is practical.
- Vehicles removing excavation materials must have their loads effectively covered;
- All plant, machinery and vehicles associated with the scheme must be maintained to the appropriate standards and must switch their engines off when not in use.
- Construction operatives will be encouraged to car-share, use organised company transport or public transport to reduce greenhouse gas emissions.
- Where possible, materials are to be sourced locally to reduce greenhouse gas emissions associated with materials movement.
- Cement bags will remain closed when not in use to prevent cast off to the surrounding environment.
- The movement of dusty material will be minimised by appropriately planning material movements.

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- Any stockpiled material on site, such as rock, will be monitored daily to ensure no risks of dust emissions exists. Where a risk of dust emissions exists from stockpiles, these are to be damped down. This is likely to require the use of mobile water bowsers.
- Good housekeeping will be employed throughout the works.

The proposed works are not expected to affect air quality during the operation phase since there will be no significant change in traffic levels or dynamics at this location.

CULTURAL HERITAGE AND MATERIAL ASSETS:

The working area will be confined to the hillside outside the trunk road boundary. Provided the following mitigation measures are adhered to during the works, potential impacts on cultural heritage during construction are not anticipated to be significant.

- 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 area will be sensitively located to avoid areas of cultural heritage interest.

The works are not anticipated to result in significant impacts on cultural heritage interests during the operational phase.

BIODIVERSITY:

Terrestrial mammals:

Habitat suitable to support structure for bats, otter, pine marten, red squirrel and badger was not present within 300m of the scheme extents.

Provided that the following mitigation measures are followed during construction, impacts on terrestrial mammals are not anticipated to be significant.

During the operational phase, impacts on terrestrial mammals are considered to be non-significant due to the lack of suitable habitat within the vicinity of the works.

Habitats:

The works will entail excavation of a single debris pit adjacent to the A83 trunk road at this location. The slopes above the pit will comprise self-drilling hollow steel bars with anchorage into rock to affix a rigid reinforced sprayed concrete facing onto the face of the three sloping sides of the pit. There is potential for impacts on surrounding terrestrial habitats during excavation works.

Provided that the following mitigation measures are followed during construction, impacts on habitats are not anticipated to be significant.

- Material storage areas and site compound will be sited sensitively to avoid requirement for further land take;
- Where practical, this will be in existing hardstanding areas on level ground away from drilling and excavation operations;
- Mitigation measures described in the Landscape Section will be followed to improve/reinstate habitat;
- Mitigation measures described in the Water Section will be followed to minimise potential impacts on the water environment;

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- Mitigation measures described in the Geology and Soils Section will be followed to minimise potential impacts on habitats.

During the operation phase, the works are not predicted to significantly impact surrounding habitats as debris pits will be excavated into bedrock along the east-bound carriageway; this will result in the loss of rock overlain by grazed upland heath habitat, which is ubiquitous habitat at this location.

Birds:

There are areas of scrub within the scheme extents which are considered to provide some habitat suitable for nesting birds. Additionally, there is potential for ground-nesting birds to be present within the scheme footprint. Works are due to start in late November 2020 and will take approx. 5 months to complete. As works are starting in autumn (i.e. outwith the bird breeding season), it is not expected that any birds will be nesting within the scheme extents when works commence. As works will be ongoing when the bird breeding season begins (usually in March), it is unlikely that any birds moving into the area will begin nesting within the scheme extents due to the existing noise and disturbance. The bird breeding season is generally considered to run from March to August, inclusive.

Consultation with SNH on the 7/10/2020 with respect to Phase 3 b works has confirmed no LSE on the Glen Etive and Glen Fyne SPA.

Providing the following mitigation is adhered to during the works, significant impacts are not anticipated during the construction phase.

- If works are postponed and begin between March to August inclusive, these will be preceded by a nesting bird check;
- Any lighting will be directed to works areas and will not shine on areas of adjacent habitat; and
- There will be no blasting or use of cranes for the duration of construction.

During the operation phase, no significant impacts are anticipated on birds, as access to remove any debris flow will be via the trunk road with no requirement for helicopter access.

Fish:

The watercourse within the scheme extents does not provide any habitat for spawning salmonids and is impassable for migratory species due to a barrier downstream, as confirmed with the Argyll Fisheries Trust on previous consultations on works at Phase 1, 5 & 6. However, this watercourse has connectivity with the Croe Water and there is potential for temporary, indirect impacts on fish during construction due to mobilisation of sediment as a result of excavation works. With the following mitigation in place, this is not anticipated to be significant.

The Argyll & Bute Fisheries Trust confirmed they have no issues with regards to the process in dealing with the Emergency works and welcomed site of the final designs. They have confirmed they have no specific concerns with regards to the final design recommendations received in relation to the Phase 1, 5 & 6 catch pit works will be applied to the 3b works.

- Mitigation measures described in the Water Section will be followed to minimise potential impacts on the water environment;
- Robust silt fencing will be installed to prevent the mobilisation of sediments into watercourses or drains on site;
- The silt fencing will be checked daily and more frequently during periods of heavy rain;
- As detailed in the Water Section, an Environmental Clerk of Works (EnvCoW) will attend site during set up of the site compound and will attend site fortnightly for the first three months of

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construction and monthly thereafter, as a minimum. More frequent visits may be required during sensitive site activities (e.g. culvert re-sectioning, concrete pouring). The EnvCoW will advise on the suitability and effectiveness of pollution prevention measures. If required the EnvCow will have the power to conduct audits of the site at any time and stop works should any breach of the Site Environmental Management Plan (SEMP) or CAR licence conditions be identified. The EnvCoW will provide advice and recommendations to the contractor and will produce an EnvCoW report for submission to BEAR Scotland and the Argyll Fisheries Trust and Board on a monthly basis.

No significant impacts are anticipated on fisheries during operation as there will be no loss of spawning or feeding habitat for diadromous fish species.

LANDSCAPE:

During the construction phase, there will be a temporary visual impact as a result of vehicles and plant in the vicinity of the works. During the operation phase, the new debris pit will blend into the existing nature of the hillside, being excavated into the bedrock. The finished faces will be similar to that of the existing debris pits completed for Phases 1, 7, 8 and 9.

The LLTNP has been consulted with regards to the proposed design for 3b and potential cumulative impact, given that the hillside already has landslide netting and debris pits in place. Liaison between the LLTNP and BEAR Scotland roads managers continues to be carried out and this has resulted in the LLTNP providing the following comments with regards to design.

LLTNP comments centred around achieving the best landscape fit, within the constraints imposed by the significant engineering challenge and risks to the road. The A83 remains a very important route for tourism as well as to local communities and beyond and Glen Croe and the surrounding mountains are very important for outdoor recreation, so we need to do what we can in the circumstances to achieve an appropriate landscape fit.

There will be no significant impacts on landscape effects during operation, provided that the following mitigation measures are implemented:

- Throughout all stages of the works, the site must be kept clean and tidy, with materials, equipment, plant and wastes appropriately stored, minimising the landscape and visual effects;
- Works are to avoid encroaching on land and areas where work is not required or does not have permission to do so. This includes general works, storage of equipment/containers and parking;
- Advice on aesthetics for the catch pit have been provided by LLTNP, in which they have advised that where possible design needs to achieve an appropriate landscape fit. Ongoing meetings and site visits will be arranged between BEAR Scotland and the LLTNP to facilitate this.

LAND:

The works will entail excavation of a debris pit along the east-bound carriageway of the A83 at this location. The slopes above the pit currently provide rough grazing for livestock and will be stabilised locally by self-drilling hollow steel bars with anchorage into rock to affix a rigid reinforced sprayed concrete facing onto the face of the three sloping sides of the pit. No properties or communities will be affected by the development.

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The excavation of the debris pit will result in a permanent loss of a narrow strip of land with limited agricultural value adjacent to the A83 east-bound carriageway. No significant impacts on land use are anticipated during the construction or operational phases.

POPULATION AND HUMAN HEALTH:

During construction, there is the potential for a temporary impact on pedestrians and cyclists, but impacts are unlikely to be significant as their numbers are likely to be low. Pedestrians at the Rest and Be Thankful viewpoint will be unaffected due to the distance of the viewpoint from the works.

Similarly, impacts during construction on equestrians are unlikely to be significant as the road is not likely to be heavily used by equestrians.

- An appropriate traffic management plan taking into account the needs of non-motorised travellers will be designed in accordance with Volume 8, Chapter 4 of the DMRB.

During operation, there will be a slight to moderate beneficial impact on safety for cyclists using the A83 at this location with infrastructure in place to reduce the risk of impact from landslide events.

There will be a temporary impact on vehicle travellers during construction, but this will be managed with appropriate traffic management, which is anticipated to be a single lane closure with traffic signal control. With the following mitigation in place during the works, this is not anticipated to be significant.

- An appropriate traffic management plan will be designed in accordance with Volume 8, Chapter 4 of the DMRB.

During operation, there will be a slight to moderate beneficial impact on safety for vehicular travellers with infrastructure in place to reduce the risk of impact from landslide events.

During construction, there will be a temporary impact from noise and vibration due to the works. The nearest residential receptor is approximately 600m distant and has no screening from the works. Due to the general lack of screening in the area and presence of rocky outcrops and faces, the noise is likely to be audible to visitors at the Rest and Be Thankful viewpoint. To some extent it may also be audible to hillwalkers and cyclists in the wider area, however, works are programmed to take place outwith the main tourist season and summer months when visitors to the area are likely to be reduced.

With the implementation of the following mitigation, noise and vibration impacts during the construction phase are not predicted to be significant.

- The best practice means, as defined in Section 72 of the Control of Pollution Act 1974 and BS5228-1:2009+A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites, will always be employed to reduce noise to a minimum;
- All construction operatives will be briefed through toolbox talks prior to works commencing using the Being a Good Neighbour toolbox talk template;
- Where possible, inherently quiet plant should be selected for construction works;
- All plant, machinery and tools will be well maintained, including parts relating to noise minimisation;
- All plant, machinery, and vehicles will be switched off when not in use;
- Where ancillary plant such as generators are required, they will be positioned so to cause minimum noise disturbance. Where deemed necessary, acoustic screens will be utilised;
- Movement of plant onto and around the site will have regard to minimising noise and will not be left running if not required for immediate use;

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- All plant must be operated in a mode that minimises noise emissions and must have been maintained regularly to comply with relevant national and international standards;

Traffic dynamics will remain unchanged during the operational phase and will not result in significant impacts caused by noise and vibration. The works will improve the safety of road users during the operational stage due to reduced landslide risk.

WATER:

There is potential for an impact on water quality during construction as a result of potential spillage of fuels, oils and mobilisation of silt.

Extensive consultation has taken place with SEPA regarding the emergency works and the proposed design for 3b catch pit.

In summary SEPA have confirmed the design is acceptable, however any re-sectioning may require a CAR Licence. They have also advised that they are proposing to issue a site wide licence to cover current and future works requiring any CAR authorisation, although this is still at an early stage.

Provided the following mitigation measures are adhered to throughout the works, impacts during the construction phase are not predicted to be significant.

- All conditions of the CAR Simple Licence are to be complied with. A copy of which will be supplied to the successful contractor;
- A copy of the CAR Licence must also be kept on-site at all times;
- No discharges into any watercourses or drainage systems are permitted;
- All plant and equipment must 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;
- All on-site activities should operate in accordance with relevant SEPA Pollution Prevention Guidelines (PPGs) and Guidance for Pollution Prevention (GPPs). Specific documents relevant to works include:
 - PPG 1: Understanding your environmental responsibilities – good environmental practices;
 - PPG 6: Working at construction and demolition sites;
 - PPG 18: Managing fire water and major spillages;
 - GPP 2: Above ground oil storage tanks;
 - GPP 5: Works and maintenance in or near water;
 - GPP 8: Safe storage and disposal of used oils;
 - GPP 21: Pollution incident response planning; and
 - GPP 22: Dealing with spills.
- All hazardous material will be stored in accordance with Control of Substance hazardous to Health (COSHH) data in a designated storage area at least 10m away from any watercourses, drains and / or waterbodies;
- The designated storage area must be on impermeable ground and fully bunded;
- All hazardous material utilised on site is required to undergo assessment under the COSHH Regulations 2002. These assessment(s) will contain a section on environment which highlights any precautions and mitigation requirements;
- All hazardous material will be stored in line with COSHH data within a designated COSHH storage area. Oils and chemicals will be stored in appropriately bunded storage cabinets. The COSHH store will be locked with only appropriate personal having access and an inventory register being maintained;
- Where applicable and practicable, bio-degradable hydraulic fluids and oils should be utilised in machinery;

Document:

- Where fuel is stored on site and refuelling activities are undertaken, the following will apply:
 - Only suitably double-skinned fuel bowser(s) or tank(s) in line with General Binding Rules the Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended) will be utilised on site;
 - The fuel bowser(s) and/or tank(s) must be stored at least 10m away from any watercourses, waterbodies or drains and away from being struck by plant and machinery;
 - All distribution and fuelling nozzles will be fitted with a shut-off valve;
 - All refuelling activities are to be undertaken in a designated site with a drip tray positioned underneath the nozzles when not in use;
 - All fuel containers and nozzles are to be secured, for example with a lock when not in use; and
 - All staff undertaking refuelling activities are to be appropriately trained and undertake these activities in line with site refuelling procedures.
- During refuelling of smaller mobile plant, a funnel and drip trays must be used;
- Spill kits must be quickly accessible to capture any spills should they occur;
- The ground / stone around the site of a spill must 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 must have bunding with a capacity of 110%. If these are not available, then drip trays with a capacity of 110% should be placed beneath the equipment;
- A spillage control procedure will be in place in which all staff are to be trained;
- Suitable spill kits are to be available on site with all staff to be trained in their use;
- All spills must be logged and reported. In the event of any spills into the water environment, all works must stop, and the incident reported to the project manager and the BEAR Scotland Environment Team. SEPA must be informed of any such incident as soon as possible using the SEPA Pollution Hotline;
- Mitigation detailed in Biodiversity Section will be strictly adhered to;
- All conditions of the CAR Simple Licence are to be complied with;
- The Water Pollution – Silt toolbox talk will be delivered to all site personal as part of the site induction prior to works commencing;
- Pollution prevention measures will be installed to prevent sediments from reaching the Croe Water;
- Pollution prevention measures will be checked daily and more regularly during period of heavy rainfall; and
- As detailed in the Biodiversity Section, an EnvCoW will attend site during set up of the site compound and will attend site fortnightly for the first three months of construction and monthly thereafter, as a minimum. More frequent visits may be required during sensitive site activities (e.g. culvert re-sectioning, concrete pouring). The EnvCoW will advise on the suitability and effectiveness of pollution prevention measures. If required the EnvCow will have the power to conduct audits of the site at any time and stop works should any breach of the SEMP or CAR licence conditions be identified. The EnvCoW will provide advice and recommendations to the contractor and will produce an EnvCoW report for submission to BEAR Scotland and the Argyll Fisheries Trust and Board on a monthly basis.

During operation, there will be a slight beneficial impact on the water environment during a landslide event, as debris pits and the extended culvert system will prevent larger sediments entering watercourses.

GEOLOGY AND SOILS:

There is the potential to disturb surrounding ground during construction of the debris pits.

Document:

Provided the following mitigation measures are followed during the course of the works, impacts during construction are not anticipated to be significant.

- Excavated soil and rock will be stored in a designated area on level ground where practicable;
- If the soil is to be re-used on site, then it will be wetted (if necessary) during periods of dry weather to prevent drying out;
- Upon completion of the works, any damage to the local landscape, i.e. damage to grass verges, should be reinstated as much as is practicable; and
- Mitigation measures to prevent contamination of soils through loss of containment are discussed in the Water Section.

The works will not result in significant impacts to geology and soils during the operation phase as the works do not lie within any site designated for geology and soils.

WASTE, MATERIALS AND USE OF NATURAL RESOURCES:

During construction, there will be a temporary impact as a result of materials and waste. This is unlikely to be significant as rock will be removed from site by road to be reused either by use of the raw material or sent to a local quarry for processing into useable fill material. Topsoil will be re-used as far as possible on site.

Provided the following mitigation measures are followed during the course of the works, impacts during construction are not anticipated to be significant.

- The waste hierarchy (Reduce, Reuse, Recycle and Dispose) will be employed throughout the construction works;
- Where possible, waste production will be minimised. For example, the provision of reusable cutlery, crockery and water bottles to all on-site staff is strongly encouraged;
- Bulk material will be delivered to site without packaging where possible;
- Supplies are to be requested to minimise all packaging where possible;
- Care is to be taken to only order the correct quantity of required materials, preventing disposal of unused materials;
- Materials should be reutilised where possible;
- Facilities on site will be provided in a designated area to enable the correct segregation of waste, maximising recycling on site. These are to be clearly marked and labelled;
- Wastes not suitable for recycling will be sent to landfill or special waste treatment facilities, depending on the nature of the waste;
- All waste stored on site will be adequately protected against the elements and vermin;
- All appropriate waste documentation must be present on-site and be available for inspection;
- All wastes and unused materials will be removed from site in a safe 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 retained by BEAR Scotland. A copy of the waste transfer is also to be provided to BEAR Scotland as early as practicably feasible and retained;
- If required, an exemption from SEPA will be secured to allow for the reuse of materials;
- Prior to, and following completion of construction works a litter sweep of the site will be undertaken;
- During the site induction all staff are to be informed that littering will not be tolerated. Staff are also encouraged to collect any litter seen on site;
- Where applicable, all temporary signage will be removed from site on completion of the works;
- All hazardous material will be stored in line with Section 10.0: Road Drainage & Water Environment;

Document:

- A copy of the duty of care paperwork should be provided and filed appropriately in accordance with the Code of Practice (as made under Section 34 of Environmental Protection Act 1990 as amended);
- Any contaminated ground as a result of the works should be removed and transferred off site as special waste; and
- Any COSHH waste and special waste should be removed from site by a specialised waste carrier. COSHH waste should NOT be mixed with general waste and/or other recyclables.

The main materials associated with the works along with approximate values are provided below:

Item	Quantity	Units
Sprayed Concrete for Facing	315	m ³
B785 Mesh for Sprayed Facing	1565	m ²
R38 Hollow Bar Anchor	4950	m
Headplates for anchorages	615	no.
Nuts for anchorages	615	no.
Concrete for Retaining Wall	72	m ³
Reinforcing Steel for Retaining Wall	14	Tonnes
Volume of Excavation (total)	2000	m ³

All waste will be disposed of safely and legally with regard to Duty of Care. No significant impacts are anticipated during the operation phase.

Extent of EIA work undertaken and details of consultation:

The following environmental parameters have been considered within this Record of Determination:

- Air and Climate
- Cultural Heritage and Material Assets
- Biodiversity
- Landscape
- Land
- Population and Human Health
- Water
- Geology and Soils
- Waste Material and use of Natural Resources

Consultation with statutory consultees was deemed necessary because there are potential nature conservation parameters which could be affected during the works. Below is a list of consultees:

- Loch Lomond and the Trossachs National Park
- Scottish Environment Protection Agency
- Scottish Natural Heritage
- Argyll Fisheries Trust and Board

Document:

Statement of case in support of a Determination that a formal EIA and Environmental Statement is not required:

This is a relevant project falling within Annex II of The Roads (Scotland) Act 1984 as amended by the Roads (Scotland) Act 1984 (Environmental Impact Assessment) Regulations 2017 that:

- Lies wholly within the Loch Lomond and the Trossachs National Park.
- Lies 2km distant from the Glen Etive and Glen Fyne SPA.
- Lies 500m distant from the Beinn an Lochain SSSI.

The project has been subject to screening using the Annex III criteria to determine whether a formal EIA is required under the Roads (Scotland) Act 1984 (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 full EIA.

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

Characteristics of the scheme:

- The development is approximately 0.09Ha.
- Previous phases of works have been carried out and further phases of works have been proposed; This programme of works is being carried out to reduce the risk of landslide events in the area;
- Works are scheduled to take 5 months in an area where there are few sensitive receptors;
- Habitat in the immediate area comprises grazed upland heathland which is ubiquitous in the wider area;
- No impacts on breeding birds are anticipated due to works commencing prior to the bird breeding season (March to August inclusive);
- With pollution prevention measures in place, there are no risks to human health from water contamination or air pollution;
- The installation of the catch pit will help to reduce the effects of landslides on the water environment and human population including the travelling public;

Location of the scheme:

- Current land use in the area is primarily that of rough grazing for livestock;
- The habitats within the scheme extents are grazed upland heathland and steep tributaries of the Croe Water which are abundant and numerous in the local area;
- The scheme does not lie within a densely populated area;
- The scheme does not lie within any sites of historical, cultural or archaeological significance;
- The scheme does not lie within any sites designated for their geology or soils;
- The scheme lies wholly within the LLTNP, renowned for its famous landscape. Extensive liaison has been carried out with the LLTNP to ensure that the final design is one that does not compromise visitor experiences to the Rest and Be Thankful viewpoint. As long as design recommendations by LLTNP are included, the final appearance of the debris pit will avoid significant or cumulative landscape impacts.

Document:

Characteristics of potential impacts of the scheme:

- No impacts on any features of cultural heritage interest are anticipated;
- Any impacts on air quality or noise levels are temporary during the construction period. Due to the distance of the works from sensitive receptors and with mitigation measures in place, impacts are minor and not significant;
- Minor short-term impacts are anticipated for vehicle travellers, pedestrians, cyclists, and equestrians; however, these are reduced due to works being completed outside of the key tourist period;
- There will be no significant landscape impacts provided there is adherence with the final design agreed with the LLTNP;
- There is potential for an impact on water quality during construction as a result of potential spillage of fuels, oils and mobilisation of silt; however, with pollution prevention measures in place this is considered to be negligible;
- There will be a minor loss of habitat, but these habitats are abundant in the vicinity and the impact is not considered to be significant;
- No change in land use is anticipated, but a minor loss of habitats of low agricultural quality, ubiquitous to the wider area, is expected;
- No impacts on geology and soils are anticipated;
- During construction, there will be a temporary impact as a result of materials and waste. This is unlikely to be significant as rock will be removed from site by road to be reused either by use of the raw material or sent to a local quarry for processing into useable fill material. Topsoil will be re-used as far as possible on site.

File references of supporting documentation:

A83 RaBT -Phase 3b Catchpit Design Summary Revision 0 – October 2020.

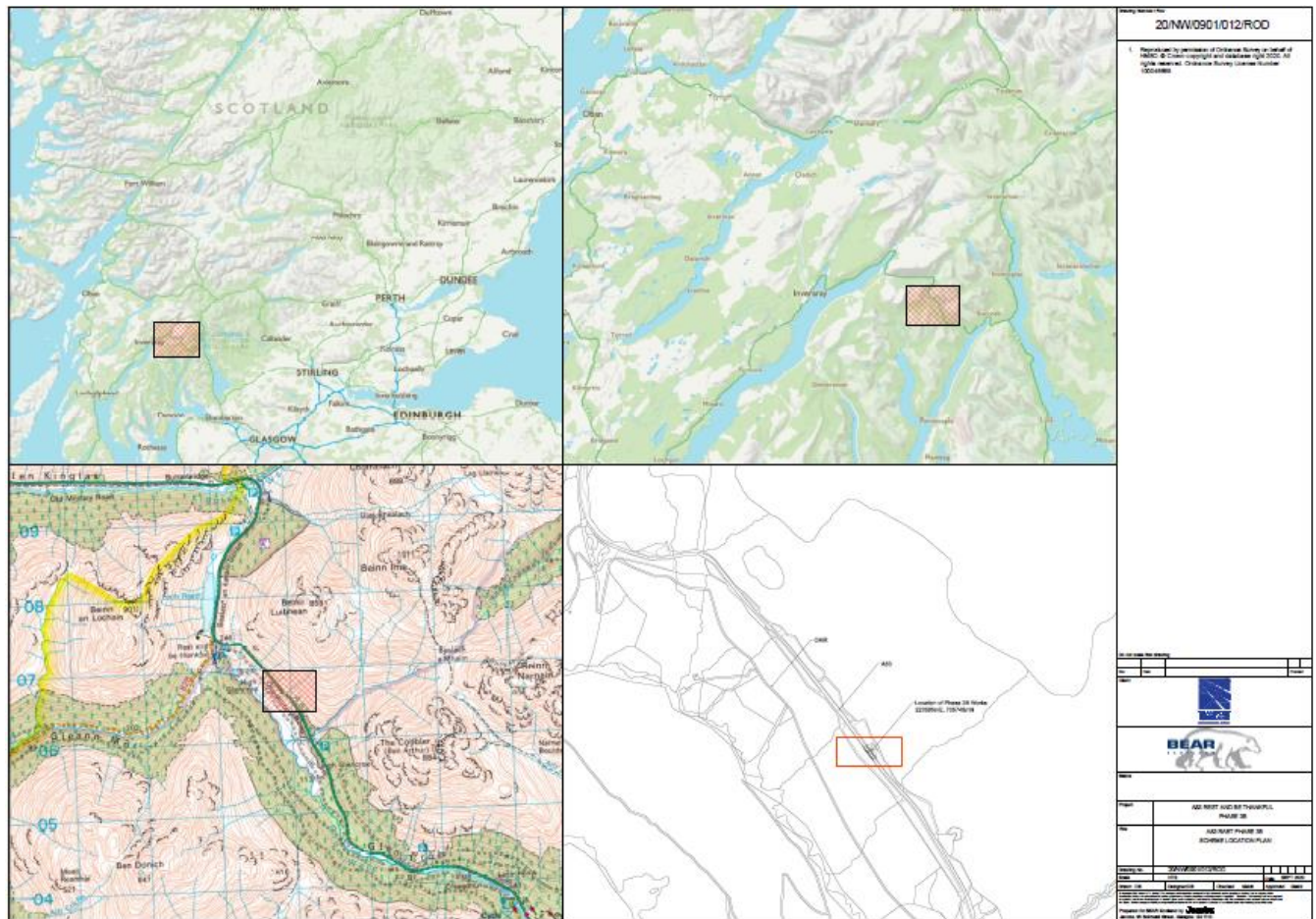


Figure A1: Location of scheme

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RABT MASTERPLAN

Notes:

- This Drawing has been prepared for the sole purpose of providing indicative information on the approximate location of existing and proposed landslide mitigation measures and should not be used for other purposes.

Key:

- ① Debris flow risk reduction measures phase number
- Approximate locations of debris flow risk reduction measures.
- Proposed catch pits
- Existing catch pit channel protection

Rev	Description	Date
0	Information Only	

Report: A83 Fleet and Sea Thankful

Title: Existing, Ongoing and Proposed Landslide Protection Measures MASTERPLAN

Drawn By	Check By	Scale	North Arrow	Units

Figure A3:RABT Master Plan