

A9 Dualling: Dalraddy to Slochd **Environmental Statement**

NON-TECHNICAL SUMMARY
August 2018





Preface

This document is the Non-Technical Summary (NTS) of the Environmental Statement (ES) for the A9 Dualling: Dalraddy to Slochd project. The project is proposed by Transport Scotland, an agency of the Scottish Government.

Copies of the ES and the draft Road Orders are available to view during normal office hours at the following locations:

Transport Scotland

Reception, 9th floor
Buchanan House
58 Port Dundas Road
Glasgow, G4 0HF

Tel. 0141 272 7236

8.30am - 5pm (Mon - Thu)

8.30am - 4.30pm (Fri)

High Life Highland

Aviemore Community Centre
Muirton, Aviemore, PH22 1SF

Tel. 01479 813140

8am - 10pm (Mon, Wed, Fri)

7am - 10pm (Tue, Thurs)

10am - 4pm (Sat)

10am - 3pm (Sun)

The Highland Council (Service Point)

Castle St, Inverness, IV1 1JJ

Tel. 01397 707213

9am - 5pm (Mon, Tue, Thur, Fri)

10am - 5pm (Wed)

SPAR/Post Office

Main Street, Carrbridge, PH23 3AS

Tel. 01479 841697

7am - 8pm (Mon - Fri)

7.30am - 7pm (Sat)

8.30am - 6pm (Sun)

The ES (including this NTS) and draft Road Orders may also be viewed online at www.transport.gov.scot/projects/a9-dualling-perth-to-inverness/a9-dalraddy-to-slochd/

Printed copies of the ES (including the NTS) may be obtained at a charge of £150, or a copy on disk is available for £10, by writing to Transport Scotland. Printed copies of the NTS are available free of charge from the same address or by email to: info@transport.gov.scot.

Any person wishing to express an opinion on the ES should write to Transport Scotland at the address above. Formal representations are invited until six weeks after the advertised date of the publication of the ES.



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Cairngorms
NATIONAL PARK

Pàirc Nàiseanta a' Mhònaidh Ruadh



SECTION
01

Introduction





Introduction

The A9 Trunk Road forms a strategic link on Scotland's transport network between the Scottish Highlands and Central Scotland and is vital to the prosperity and development of northern Scotland.

In 2009 the Strategic Transport Projects Review (STPR) identified dualling of the A9 as a priority action and subsequently the Scottish Government's Infrastructure Investment Plan (IIP) in 2011 and 2015 confirmed the commitment to upgrading the A9 to dual carriageway standard between Perth and Inverness by 2025.

The programme of individual projects required to achieve this was subject to a Strategic Environmental Assessment (SEA, 2012-2014) to consider environmental constraints and sensitivities as well as opportunities for enhancement.

The Dalraddy to Slochd project (referred to in this NTS and in the ES as the Proposed Scheme) comprises dualling of approximately 25km of the existing A9. It will involve widening and upgrades to the existing carriageway and the provision of three major junctions (south of Aviemore (Aviemore South), at Granish and Black Mount).

The Proposed Scheme incorporates localised diversions of public roads, four left turn only junctions (directly onto the A9), new and upgraded private accesses, new underpasses and lay-bys, road drainage, and watercourse crossings including a new crossing of the River Dulnain. A new bridge over the Highland Mainline railway at Slochd Beag and improvements to footpaths and a cycleway are also notable components.



The northern gateway to Cairngorms National Park at Slochd

Environmental Impact Assessment

An Environmental Impact Assessment (EIA) of the Proposed Scheme is required under European and Scottish legislation. The ES reports the findings of the EIA which has been undertaken in line with relevant guidance including the Design Manual for Roads and Bridges (DMRB), Volume 11 - Environmental Assessment.

The purpose of the EIA is to examine the likely significant impacts of the Proposed Scheme on the environment.

This NTS presents a summary of the ES, including key aspects of the Proposed Scheme and the associated beneficial and adverse impacts considered to be of particular importance.

Further details about the likely significant impacts of the Proposed Scheme can be found within the ES.

EIA is an important design tool, providing the opportunity to avoid or minimise potentially adverse environmental impacts through iterative design. Information gathered through consultation, surveys and technical studies has informed the design process, enabling potentially significant impacts to be addressed, where practicable, either by modifying the Proposed Scheme design, or identifying additional measures to mitigate impacts.



SECTION
02

The Proposed
Scheme





The Proposed Scheme

Need for the Scheme

The need for dualling the A9 has been recognised for some time and has been the subject of a number of studies. The A9 Route Action Plan and Route Strategy (1995-1997) endorsed carriageway dualling, amongst other improvements, and later the Strategic Transport Projects Review (2009) promoted full dualling of the A9 between Perth and Inverness.

The Scottish Government committed to upgrading the A9 between Inverness and Perth by 2025 in the first and subsequent Infrastructure Investment Plan (2011 and 2015). More recently, the A9 Dualling: Case for Investment 2016 highlighted a high level of stakeholder support, particularly amongst the local business community, for the A9 dualling programme.

National planning policy reflects the Scottish Government's commitment with the inclusion of A9 dualling in National Planning Framework 3 (NPF3) (2014). NPF3 states: *'The dualling of the A9 between Perth and Inverness and improvements to the Highland Main Line railway will provide a step change in accessibility across the rural north, increase business confidence and support investment throughout the region'.*

The current single carriageway sections between Dalraddy and Slochd can lead to vehicles being held up by slower moving traffic. This can cause driver frustration potentially giving rise to dangerous driving. Upgrading the road to dual carriageway will reduce driver frustration, provide opportunity for safer overtaking and prevent right turn manoeuvres across the carriageway.

The Proposed Scheme is required to improve the safety of the A9 which will reduce accident rates and severity.

Scheme Objectives

The aim of dualling the A9 between Dalraddy and Slochd is to improve the operational performance and level of service of this section of the A9, in line with the objectives set for the A9 dualling as a whole. The A9 Dualling Programme objectives set by Transport Scotland, are as follows:

- To improve the operational performance of the A9 by:
 - Reducing journey times; and
 - Improving journey time reliability.
- To improve safety for motorised and non-motorised users by:
 - Reducing accident severity; and
 - Reducing drivers stress.
- To facilitate active travel within the corridor.
- To improve integration with Public Transport facilities.



Alternatives Considered

In 2012, Transport Scotland commissioned a preliminary engineering assessment of the A9 Perth to Inverness route. A SEA was completed in parallel and assessed the potential environmental impacts of dualling the entire route. The outcome of the studies was a recommendation of dualling within an online corridor of 200m width (i.e. 100m either side of the existing A9 carriageway) with localised off-line sections where constraints precluded this.

The Perth to Inverness route was then subdivided into several individual schemes for more detailed assessment.

A DMRB Stage 2 assessment for the Proposed Scheme was undertaken to develop and assess route alignment options and to identify a preferred alignment. Sifting exercises were initially carried out for both the mainline widening and the junctions in order to identify viable options to be considered in the Stage 2 assessment.

The sifting process identified three mainline alignment options: predominantly southbound widening; predominantly southbound widening with a short section of symmetrical widening in the vicinity of Aviemore; and predominantly northbound widening. Sifting also identified three junction locations (Aviemore South; Granish; and Black Mount) along with a total of thirteen junction layout options for these locations. These junctions will be grade-separated (where the local road and dualled A9 traffic flows are kept apart by means of an underpass beneath, or bridge over the A9).

The aim of the DMRB Stage 2 assessment process was to examine environmental, engineering and economic factors and to consider the merits of each option with regard to these factors. The process included desk studies, field surveys and ongoing consultation with stakeholders and the public.

The DMRB Stage 2 assessment concluded that the option of predominantly southbound widening with a short section of symmetrical widening in the vicinity of Aviemore (but also incorporating two localised northbound widening variations in the vicinity of Loch Alvie and at Avielochan) was the preferred option.

As part of the recommendations, scope for refinement of the preferred grade separated junction options (specifically to investigate the potential for incorporating more compact designs) was identified and this was progressed as part of the DMRB Stage 3 Assessment.

Design Development

The DMRB Stage 3 design for the Proposed Scheme is the culmination of the design and assessment work undertaken during the Stage 2 assessment of mainline alignment/junction options, together with further refinement of the preferred route option during the Stage 3 assessment.

The Proposed Scheme design has been influenced by environmental information and assessment findings identified throughout the EIA process and has involved environmental specialists working alongside the scheme designers, and in close collaboration with Transport Scotland and stakeholders. This has provided the opportunity to avoid or reduce potential environmental impacts through changes to the road alignment, land-take requirements and the siting and specifications of design elements. Measures included in the Proposed Scheme design to avoid or reduce impacts are referred to as embedded mitigation.

Key design developments at DMRB Stage 3 that avoided or reduced impacts included the incorporation of compact grade separated junction layouts (at Aviemore South, Granish and Black Mount) which substantially reduced land-take requirements at these locations and consequently impacts on ancient woodland and agricultural land. Repositioning Aviemore South junction further to the south (by approximately 90m) and routing of access tracks to follow existing forestry tracks realised a further reduction in ancient woodland and other woodland loss.

Another key design development at DMRB Stage 3 was the relocation and revised layout (to include an underpass) of Black Mount junction, which provides substantial improvements in terms of landscape and visual impact.

Other embedded mitigation includes: landscape design measures including earthworks profiling and woodland planting to integrate the Proposed Scheme into the landscape and to replace woodland; provision of land to compensate for the loss of open space at Milton Wood, Aviemore; provision of new/diverted and upgraded sections of Non-Motorised User (NMU) routes/private access tracks and underpasses (to replace at grade crossing points); use of low noise road surfacing; compensatory flood storage; Sustainable Drainage Systems (SuDS); culverts with mammal ledges and measures to maintain natural stream beds through the structure; and, use of non-excavation construction techniques (at Feith Mhor floodplain and Black Mount areas) and floating tracks (for non-mainline access tracks) to minimise excavation and disturbance of peat.

The Proposed Scheme

The Stage 3 Proposed Scheme design is an outline design which will be used by the appointed contractor to prepare a detailed design for construction of the Proposed Scheme. A schematic diagram showing the key features of the design is shown in Figure 1 of this NTS and more detailed plans are provided in Section 4.

The Proposed Scheme is located approximately 30km south of Inverness and will involve widening and upgrading the existing A9 trunk road carriageway, over a distance of approximately 25km between Dalraddy and Slochd, to dual carriageway standard.

The Proposed Scheme includes three Grade Separated Junctions. These will be located at Aviemore South, Granish and Black Mount. Aviemore South junction will comprise a bridge over the dualled A9 whilst Granish and Black Mount incorporate underpasses beneath the dualled A9.

Four left-in / left-out (LILO) only junctions (where turning movements between a local road and the dualled A9 are restricted to left only turns) and eight additional underpasses will also be provided.

The Proposed Scheme incorporates localised diversions of the connecting public roads at the three grade separated junctions as well as at two additional locations - at Lynwilg and Slochd – where diversions are required to connect public roads to Aviemore South Junction and Slochd LILO, respectively. Eleven lay-bys (six northbound and five southbound) are included.

Approximately nine kilometres of new and upgraded private access tracks will be provided along with SuDS, to serve the new carriageway, and associated private access tracks. There will be new crossings over watercourses including a second major bridge over the River Dulnain. Another major structure over the Highland Mainline railway at Slochd, adjacent to the existing bridge, is also included.

A number of modifications and improvements to footpaths and cycleways have been incorporated to facilitate active travel including a connection to the Kingussie to Kinraig route, from the southern end of the Proposed Scheme to Aviemore South Grade Separated Junction and with a connection to the right of way (also to be upgraded as part of the Proposed Scheme) leading into Aviemore.

Proposed new underpasses, replacing existing crossing points for pedestrians, cyclists and equestrians, will improve safety for users of core paths, rights of way, National Cycle Network Route 7 (NCN7) and other non-vehicular routes which intersect the A9 within the Proposed Scheme extents.

Delivering the Proposal

The Proposed Scheme will be submitted for authorisation through the Roads (Scotland) Act 1984. Subject to approval, via the statutory process, it is anticipated that once a contractor is appointed construction would take approximately 4.5 years.

The design of the Proposed Scheme may be subject to further refinement by the appointed contractor to develop a final detailed design for construction, however, the design must adhere to the requirements set out in the ES.

Should the contractor elect to refine the design assessed in this EIA, an environmental review of the refinements will require to be conducted to assess whether the impacts (taking into account mitigation) are greater than reported in the ES and whether any additional measures are required.

Consultation

Consultation has been an integral part of the design development and assessment process. Consultees have included Cairngorms National Park Authority, Historic Environment Scotland, Scottish Natural Heritage, Scottish Environment Protection Agency and The Highland Council. Other stakeholders have included potentially affected landowners, community councils, business groups, non-motorised user groups, environmental groups, local residents and members of the public.

Public consultation has been undertaken at key stages of design development and has involved public exhibitions and drop-in sessions in Aviemore and Carrbridge.

The issues raised and information gathered during consultation have been considered carefully throughout the development of the Proposed Scheme and have helped to inform the design and assessments.

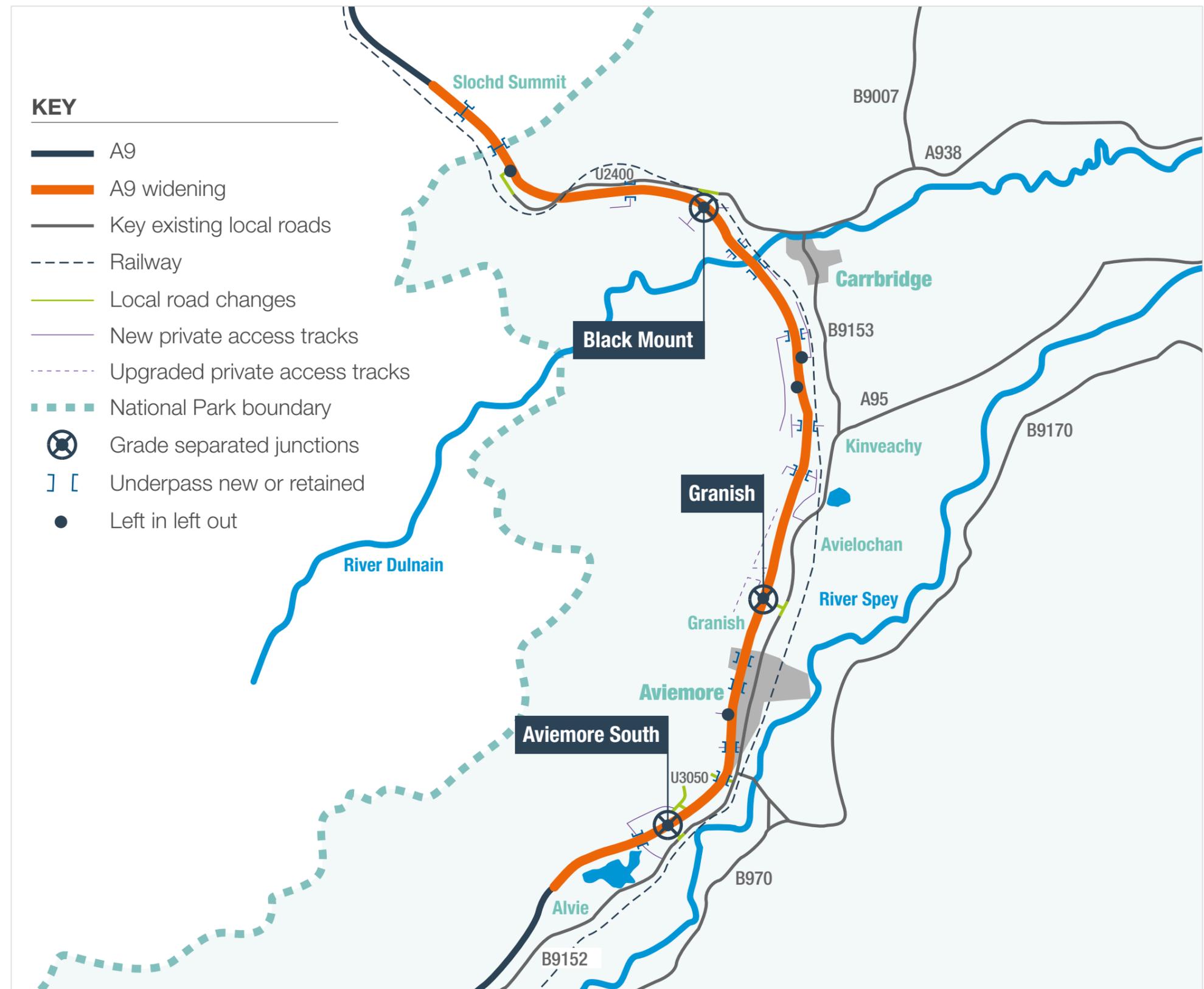


Figure 1



Cairngorms
NATIONAL PARK
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SECTION
03

Environmental
Impacts and
Mitigation





Environmental Impacts and Mitigation

The following sections summarise the likely significant impacts of the Proposed Scheme on the environment and also indicates relevant mitigation measures. Full details of each assessment and associated findings of the EIA are presented in the full ES.

People and Communities – Community and Private Assets

Land uses within the study area of the Proposed Scheme include community, residential and commercial areas, as well as areas that support agricultural, forestry and sporting activity. The main settlements are the town of Aviemore and the village of Carrbridge, which contain most of the residential, community and commercial land within the study area. There are several future development land allocations and live / consented planning applications for housing, economy / employment land and open space and tourism. Agricultural, sporting and forestry interests include six agricultural enterprises, three commercial forests, and two areas of sporting interest.

The development of the Proposed Scheme has sought to avoid impacts on community and private assets where possible. With the exception of Red Stag Lodge at Granish, which is under the ownership of Scottish Ministers, no demolition of property is proposed. Mitigation measures embedded into the design to reduce impacts include widening of underbridges and associated access tracks to provide increased space for NMUs and widening and reducing gradients for certain existing forestry and maintenance access roads. To compensate for the loss of open space at Milton Wood land to the south of the wood will be provided and safeguarded for public access post construction.

Other mitigation to reduce impacts has been developed, including maintaining access and / or providing alternative access to residential, commercial, agricultural, forestry and sporting assets during construction.

During construction significant impacts are predicted, including land take and access disruption. The following receptors will be affected: Five residential properties (Kinmundy, Lagavulin, Lagnacallich, March Cottage and Craig Dhu) south of Aviemore adjacent to the A9 northbound carriageway (disruption during underbridge construction with short-term diversion arrangements); Slochd Cottage, Slochd Mhor Lodge, Rynaclarsach (disruption to access during construction works); Ballinluig Farm (loss of agricultural land and temporary closure of accesses); Granish Farm (loss of agricultural land and temporary closure of accesses); Avielochan Farm (loss of agricultural land and permanent and temporary closure of accesses); Dalrachney Beag Croft (loss of agricultural land and closure of access off the A9); land owned by Scottish Water (loss of commercial forestry land) and also Reidhaven Trust and Seafield Rural Partnership (loss of commercial forestry land and permanent and temporary closure of accesses).

Operational impacts include land take and changes in access to land. With mitigation in place, there will be significant impacts associated with agricultural land take at Ballinluig Farm (Kinrara Estate) and Granish Farm. At Avielochan Farm and Dalrachney Beag Croft, access to land will be adversely affected and agricultural land take impacts will also be significant. There will be significant loss of forestry land owned by Scottish Water and Reidhaven Trust and Seafield Rural Partnership, with increased journey times for the latter. There will be a significant impact on access to Slochd Cottage, Slochd Mhor Lodge and Rynaclarsach but only for larger vehicles (greater than 3.8 tonnes) in terms of access to the A9 heading south and off the A9 heading from the north. There will also be a significant access change impact for Ballinluig Farm and Druim Mhor, but only in terms of access to the A9 heading south.



NCN7 at Slochd – looking south

People and Community – Effects on all Travellers

Potential impacts of the Proposed Scheme on journey times and access to the outdoors for NMUs, and the impact on vehicle travellers from changes in views from the road and driver stress have been assessed.

The assessment identified outdoor areas and paths including core paths, rights of way, NCN 7 and local/informal paths within 500m of the Proposed Scheme. A total of thirty-four paths were identified as well as twenty-one crossing points of the existing A9. Outdoor areas included in the assessment were Loch Alvie, Craigellachie National Nature Reserve (NNR), River Spey, Beinn Ghuilbin, River Dulnain, Ellan Wood and the hills in the vicinity of Slochd Summit. Changes to NMu journey lengths and amenity were assessed with mitigation embedded into the Proposed Scheme, such as new/improved underpasses (crossings of the A9), new sections of multi-user route and upgrading of existing private access tracks taken into account.

The Proposed Scheme facilitates NMu access whilst providing safer passage across the A9 with no at-grade NMu crossings on the A9. During construction, significant impacts have been identified, as a consequence of potential temporary diversion distances, for users of NCN7, one core path (INV27.01), one right of way (HI110) and three other NMu routes (16,17 and 18). The contractor will be required to produce and maintain a Construction Environmental Management Plan (CEMP) as part of the contract for the Proposed Scheme. The CEMP will outline the proposed measures to minimise impacts caused by temporary closures and diversions of NMu routes and will identify alternative routes where this is feasible.

With the Proposed Scheme in operation there will be significant impacts for NMUs using right of way HB48 and seven other routes because of an increase in journey length (Other NMu routes 1,6,8,10,12,15 and 16).

With regard to impacts on vehicle travellers, views from the road were assessed for the existing A9 and for the Proposed Scheme during winter in year one of the scheme opening and during summer 15 years after scheme completion.

Existing views from the road are generally restricted by landform and roadside vegetation whether travelling north or south and no significant impacts on views from the road are anticipated.

Current levels of driver stress for the A9 between Perth and Inverness during peak hours are assessed as moderate. Traffic levels are forecast to increase over time and in the absence of the Proposed Scheme it is anticipated that higher levels of driver stress during peak hours would be experienced. However, with the Proposed Scheme in place driver stress would decrease to low levels.





River Dulnain and Railway Bridge

Geology, Soils and Groundwater

One designated site of geological interest (Slochd Geological Conservation Review site) will be directly impacted by the Proposed Scheme, however, excavation of fresh rock exposures is anticipated to enhance the geodiversity interest, resulting in a neutral impact overall.

Areas of peatland have been avoided where possible and although peat will be disturbed during construction, the affected areas form a small proportion of peat within the entire study area. Embedded mitigation includes the use of non-excavation construction techniques (e.g. piling) in the construction of the mainline road embankments in areas of deeper peat (Feith Mhor floodplain and Black Mount areas) and floating tracks (for non-mainline access tracks construction). An outline Soil and Peat Management Plan has been produced which seeks to minimise the excavation of peat and identifies potential re-uses of soil and peat across the Proposed Scheme.

High productivity aquifers are present and several habitats dependent on groundwater (Groundwater Dependent Terrestrial Ecosystems (GWDTEs)) were also identified.

Whilst there may be localised significant impacts at a number of individual locations, taking into account the scale of the Proposed Scheme and mitigation/monitoring measures, the overall impact is not considered to be significant. The mitigation options proposed for GWDTEs include a programme of pre, during and post construction monitoring.

A number of groundwater source private water supplies were identified as being potentially impacted by the Proposed Scheme. No significant impacts are predicted, taking into account proposed pollution control measures during construction and operation which will protect private and public water supplies.

The groundwater assessment found that the Aviemore Public Water Supply boreholes do not fall within the radius of influence of any cuttings forming part of the Proposed Scheme, therefore the overall impact is not considered to be significant. However, given the very high sensitivity of these boreholes additional mitigation measures are included within the design to protect these Scottish Water assets.

A contaminated land assessment was carried out and no significant impacts were identified.

Road Drainage and the Water Environment

Within the study area, the existing A9 has approximately seventy watercourse crossings, including bridges, culverts and drainage pipes. There are eleven floodplain locations which would potentially be impacted by the Proposed Scheme, via disconnection, displacement and or encroachment of scheme earthworks onto the floodplain. There are five surface water fed private water supplies within the study area, two of which are considered within the assessment due to their intake locations being lost under the Proposed Scheme. Both supply intakes will be relocated and water supply will be maintained to the receiving properties during this time.

Waterbodies within the study area comprise Loch Alvie, Loch Vaa, Loch Puladdern, Loch Beag, Bogach, Avie Lochan, Loch Roid and numerous small ponds. Only Loch Alvie is classified under the Water Framework Directive, and has a 'Good' (2016) status. Construction of the Proposed Scheme will involve direct loss of six water bodies adjacent to the existing A9 carriageway. Mitigation for the loss of standing waters includes the establishment of new ponds to replace Shunem Pond (Pond 18) and Pond 15 at Kinveachy, to ensure pond per pond replacement (for every pond of local ecological importance or greater lost to construction).

Embedded mitigation within the design of the Proposed Scheme includes a minimum of two levels of treatment for the A9 road drainage to remove pollutants and good practice principles applied to the design and construction of watercourse realignments to maintain flows and sediment processes within watercourses.

Other measures include temporary construction drainage and sediment control measures to avoid deterioration in water quality and measures to protect private water supplies.

With the implementation of mitigation, no significant impacts have been identified for almost all potential receptors, the exception being increased flood risk at the Allt an Fhearna watercourse. No residential receptors will be at any greater flood risk. At the Allt na Criche (Granish) and Avielochan watercourses there are potentially significant beneficial impacts in terms of flood risk (with embedded mitigation). Significant adverse impacts were also assessed on water quality and biodiversity aspects during construction of crossing structures over the Allt-na-Criche (Lynwilg), River Dulnain and Allt nan Ceatharnach (Allt Ruighe Magaig), all of which are part of the River Spey SAC. With appropriately designed crossing structures to minimise in-channel works and application of good site environmental management practice the likelihood, magnitude and timeframe of any construction pollution incidents will be reduced.



Craigellachie SSSI/NNR

Ecology and Nature Conservation

There are fifteen internationally designated sites within 10km of the Proposed Scheme and eight nationally designated sites within 2km. No significant construction or operational impacts will occur to any of these sites.

Woodland accounts for approximately half of the habitat within the study area and areas of woodland listed on the Ancient Woodland Inventory (AWI) fall within the Proposed Scheme. Other common habitats within the study area include grassland, heathland, bog / swamp, as well as river and pond habitats. Notable rivers within the Study Area include the River Dulnain, Allt nan Ceatharnach and the Allt na Criche (Lynwilg) which form part of the River Spey Special Area of Conservation (SAC).

A number of protected and notable species were recorded during surveys including bats, badger, birds, fish including salmonids, fungi, invertebrates, great crested newt, red squirrel, reptiles, otter, water vole and pine marten.

Whilst minimisation of loss of ancient woodland was a key objective during the development of the scheme design, a significant impact on ancient woodland has been unavoidable given the extent of ancient woodland adjacent to the existing A9. A total area of 77.2ha of woodland listed on the Ancient Woodland Inventory (AWI) will be lost to the Proposed Scheme. The majority (~65%) of the woodland listed on the AWI that will be lost is dominated by plantation or immature trees with no or few ancient woodland features. It is possible that the ancient woodland seedbank is still present in these areas. There are also substantial (~35%) areas with mature and ancient trees, diverse ground layer and ancient woodland indicator species.

Compensatory woodland planting is proposed such that there is no net loss of woodland, however this will not mitigate for the permanent loss of the biodiversity and intrinsic value of AWI woodland. Soil will be retained from locations of ancient woodland and reused in areas of woodland planting. These soils will be reused in areas of new woodland planting in order to utilise the existing seedbank as much as possible and transfer soil organisms and specialist bacteria that may be adapted to these environments to new areas of woodland. In areas of compensatory planting, new woodland corridors will establish and provide habitat and species connectivity. Over time, significant impacts are therefore predicted to reduce.

A total of 20.9ha of habitat from the dry heath zone at Slochd will be permanently lost including 17.3ha of dry heath which is identified as a significant impact. Habitat creation within the dry heath zone will be undertaken to mitigate the loss and this will include 15.5ha of dry heath and 1.94ha of other habitats.

A significant beneficial impact, in terms of facilitating fish passage through watercourses crossed by the Proposed Scheme, results from embedded mitigation, including the replacement of existing crossing structures with clear span bridges on Allt na Criche (Lynwilg) and Allt Chriochaidh, and the replacement of pipe culverts with portal-frame culverts which restore natural beds at Allt Cnapach, Aviemore Burn and Caochan Ruadh.



Looking southeast towards Black Mount from Carn Bad nan Luibhean

Landscape

The existing A9 corridor lies within the Strath of the River Spey with the Monadhliath Mountains to the west, Cairngorms Massif to the east and the Strathdearn Hills to the north. The River Spey runs through the central part of the study area. The rocky Slochd pass demarcates the northern gateway to the Cairngorms National Park.

Woodland is a key landscape element with extensive conifer plantations and mixed woodland, including substantial areas of ancient woodland, lining the A9 corridor within the study area.

The Proposed Scheme is almost entirely within the Cairngorms National Park (CNP) and lies on the margins of the Cairngorm Mountains National Scenic Area (CMNSA).

Embedded mitigation has sought to achieve a best landscape fit design and includes blending earthworks with existing landforms to integrate the Proposed Scheme within the surrounding landscape.

Natural stone treatment for a number of structures is also proposed, as is appropriate design of rock cuts to achieve natural-looking rock faces.

Additional mitigation includes: retention of existing trees and vegetation, where possible; planting to replace trees lost; and use of native species for replanting and seeding works.

Significant impacts are predicted in terms of three Landscape Character Areas – Badenoch: Loch Alvie to Inverdrue; Slochd; and Strathspey: Inverdrue to Pityoulish. This is mainly due to the construction of Aviemore South Junction, the construction of retaining walls at Slochd Beag Bridge and A9 widening and replacement underpasses within Aviemore, respectively. No significant landscape impacts associated with the Proposed Scheme during operation are anticipated.



Looking southeast, over the A9, towards the Cairngorms Massif from High Burnside, Aviemore

Visual

Visual receptors include residents on the edge of towns/villages (i.e. Aviemore and Carrbridge) or in residential clusters along the existing A9 and local roads, recreational receptors using designated paths and cycle routes and the Highland Main Line railway. From many residential receptor viewpoints, there are existing views of the A9, with some, though not all, having existing views screened, to varying degrees, by existing vegetation.

Mitigation has been embedded into the design of the Proposed Scheme to reduce visual impacts during construction and operation, as described above in the Landscape section.

Mitigation during construction will include: retaining/protecting existing trees and vegetation where possible, keeping the construction programme to the minimum practicable time and commencing reinstatement activities as soon as possible. Plant and machinery will also be stored appropriately on site and lighting during hours of darkness will be kept to a minimum.

Operational phase mitigation measures include new planting on embankments, particularly those most perceptible to visual receptors, and softening of the appearance of drainage features with appropriate planting.

During construction, nineteen visual receptors will experience a significant adverse impact (with mitigation in place).

In winter of year one of opening, eighteen visual receptors will experience a significant adverse impact. Mitigation planting will, at maturity, reduce the visual impact such that only one visual receptor (Broom Cottages) will experience a significant impact in the summer of year 15 and this is due to close proximity to the proposed new Dulnain Bridge structure.

Cultural Heritage

A total of two hundred and twenty-two known cultural heritage assets have been identified within the study area, including six Scheduled Monuments, twenty-two Listed Buildings and two Gardens and Designed Landscapes.

Potential impacts during construction will be mitigated through a programme of archaeological investigation, recording and monitoring implemented in advance of and during construction. The preferred option for the mitigation of archaeological remains is preservation in situ. However, this is not always possible and in these instances preservation by record will allow the remains to be fully investigated and recorded prior to construction.

Mitigation planting, including screening measures implemented during the construction phase, will aid in reducing the impacts upon all elements of the historic environment.

With mitigation in place, no significant impacts are predicted on designated or undesignated archaeological remains, historic buildings or historic landscapes.

Air Quality

The local air quality assessment focused on the impacts of the air pollutants nitrogen dioxide (NO₂) and particulate matter (PM) at human health receptors. In addition, concentrations of oxides of nitrogen (NO_x) and nitrogen deposition were included in the assessment of ecological receptors. The regional assessment of emissions considers NO_x, carbon dioxide (CO₂) and particulate matter.

To establish local baseline air quality conditions, an air quality monitoring survey was undertaken over a six-month period (commencing in November 2015). Air quality in the immediate vicinity of the Proposed Scheme was found to be very good, with air pollutant concentrations less than a quarter of the Air Quality Strategy (AQS) objectives.

Good site management practices will effectively control and minimise dust generation such that there will be no significant dust impacts beyond the site boundary.

There is not predicted to be a significant impact on local air quality as a result of construction traffic.

There are no significant changes in concentrations of NO₂ or particulate matter as a result of the Proposed Scheme at human health receptors. There are no significant changes in concentrations of NO_x or nitrogen deposition as a result of the Proposed Scheme at ecological receptors.

There will be an increase in regional emissions due to an increase in vehicle kilometres travelled, however, the changes in regional emissions of CO₂ can be considered to be insignificant when viewed in the context of regional or national emissions.



Looking southwest from the northern end of Loch Alvie to Alvie Church

Noise and Vibration

A noise survey and noise modelling have been carried out. Measurements were taken at eighteen locations (representative of noise sensitive receptors) along the A9 between Dalraddy and Slochd in the vicinity of the Proposed Scheme. The survey findings revealed a relatively stable noise environment, dominated by traffic noise.

Mitigation embedded in the Proposed Scheme design to reduce traffic noise includes the use of low noise road surfacing.

Additional mitigation, during the construction phase, includes appropriate scheduling of noisy activities, use of plant and equipment and methods of working to ensure that noise impacts are minimised.

Mitigation during the operation phase includes noise barrier implementation at Railway Cottages (adjacent to the east of the B9152) and March Cottage (adjacent to the west of the A9), all south of Aviemore.

Significant operational phase impacts have been identified in relation to three dwellings and two ecological receptors, in the short-term only.

The dwellings are the semi-detached properties, 7 Bogroy, Dalrachney Road and Cherry Bank, at Carrbridge. At these dwellings, where the impacts are due to changes in traffic on existing roads and which are more than 600m from the A9 carriageway, localised constraints make it impractical to provide effective noise mitigation, with the associated impacts to the properties outweighing any benefits it would provide.

At the two ecological receptors (Craigellachie SSSI/NNR and Alvie SSSI) mitigation has not been considered because of the transient use, localised impact, the availability of alternative space, and because the receptors are located at the closest point to the A9.

The assessment identifies four dwellings (March Cottage, Aviemore; and Birch View, Underwood and Meikle House, Boat of Garten) in the long-term that may qualify for an offer of noise insulation under the Noise Insulation (Scotland) Regulations 1975.

Materials

An assessment of the impact of constructing the Proposed Scheme, in terms of consumption of materials associated with primary natural resources and manufactured products, has been undertaken. The assessment focused on non-renewable soil and mineral resources (e.g. rock, sand and gravel). It is notable that a large quantity of rock will be produced during rock cutting activity at Slochd and it is considered that a substantial amount of this material will be suitable for use as aggregate in constructing the Proposed Scheme. This will reduce the need for importation of such resources and there is the potential that further reductions could be realised through the re-use of excess material from other A9 dualling projects.

The total embodied carbon emissions associated with the predicted material resources requirements for the Proposed Scheme has been estimated at between 134,879 to 155,111tCO₂e which is considered an impact of major magnitude.

A waste assessment has been carried out to estimate the likely waste arisings from the Proposed Scheme for the construction stages. It is estimated that approximately 50% of all predicted arisings (primarily comprising soils, rock and concrete) can be reused on-site and there may also be potential for off-site re-use to reduce the amount of waste requiring disposal. A Site Waste Management Plan will be developed prior to construction, as part of the Construction Environmental Management Plan (CEMP), to ensure that the on or off-site re-use of excess materials will be maximised, thereby avoiding disposal.

Policies and Plans

The principle of the Proposed Scheme, as part of the A9 Dualling, is supported in key national planning policy and transport and economic strategies including National Planning Framework 3 (2014), the National Transport Strategy (2016), and Scotland's Economic Strategy (2015). The Proposed Scheme will help to achieve regional transport policy objectives.

The assessment of the Proposed Scheme against planning policy objectives at the national, regional and local level indicates compliance with the majority of relevant planning policies, however, areas of potential conflict with some aspects of planning policy have been identified. This is primarily because of the scale and nature of the Proposed Scheme, as well as the context of policies not being directly relevant to large scale roads projects.

The Proposed Scheme meets an established need for essential infrastructure and the conflicts with policy objectives which have been identified are considered to be outweighed by clear over-riding economic and public benefits of the Proposed Scheme which will help deliver improved connections between Perth and Inverness.

Cumulative Effects

The potential for cumulative effects as a result of the Proposed Scheme and those of the Proposed Scheme in combination with other developments, including other projects forming part of the A9 dualling programme was assessed.

Significant cumulative effects were identified for Druim Mhor, Lynwilg Farm, Kinakyle, Birch View, March Cottage and Kinmundy residential properties, towards the southern end of the scheme, during the construction phase. These effects comprise a combination of travel disruption and visual effects.

Potentially significant effects in-combination with other developments include the loss of woodland on the Ancient Woodland Inventory (AWI) and carbon emissions, natural resources depletion and waste generation during construction.

Replacement planting will mitigate woodland loss over time as new trees become established, however, there will be a significant cumulative effect as areas of mature ancient woodland are not considered replaceable.

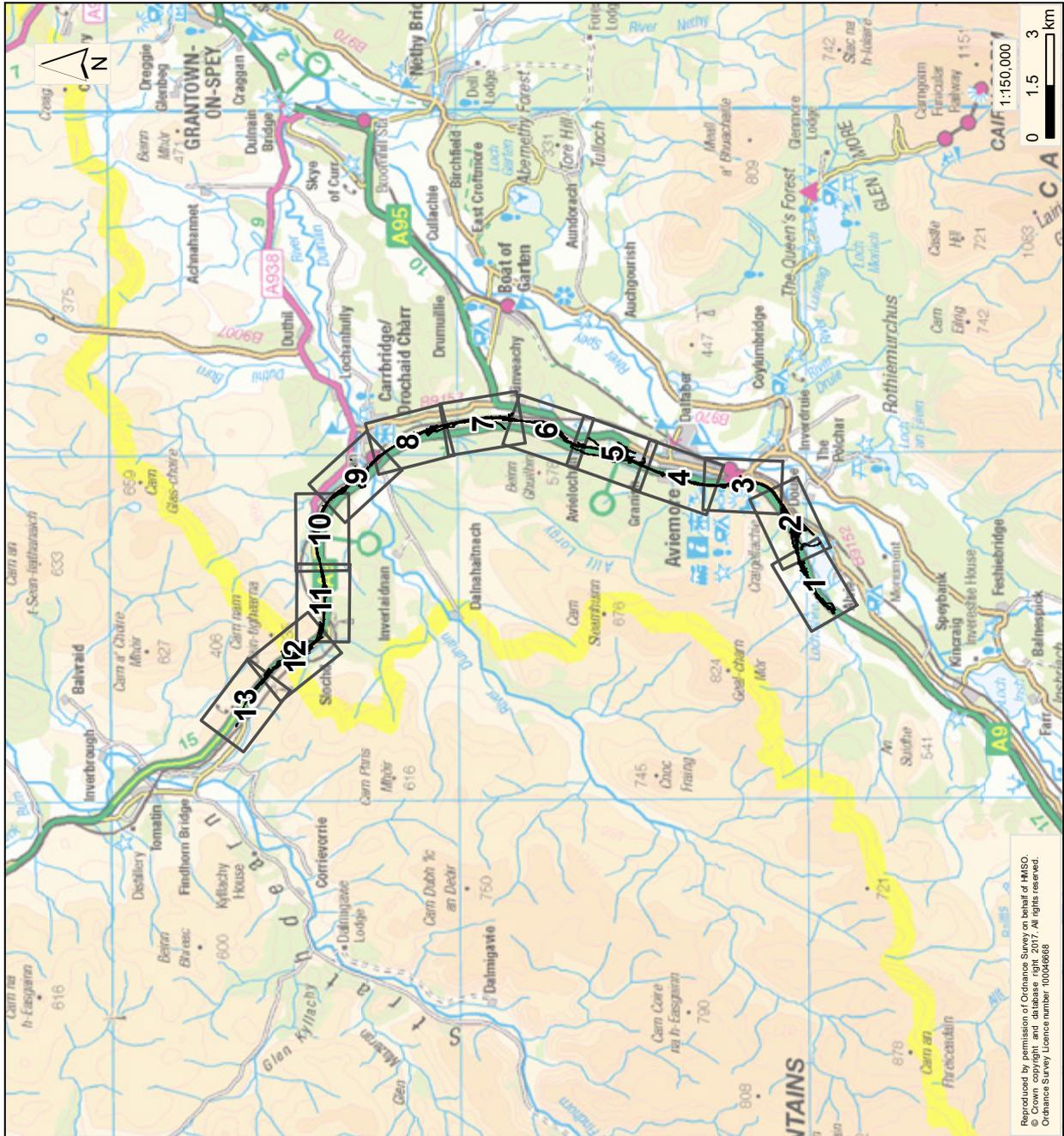


Slochd Beag Bridge from the U2400

SECTION
04

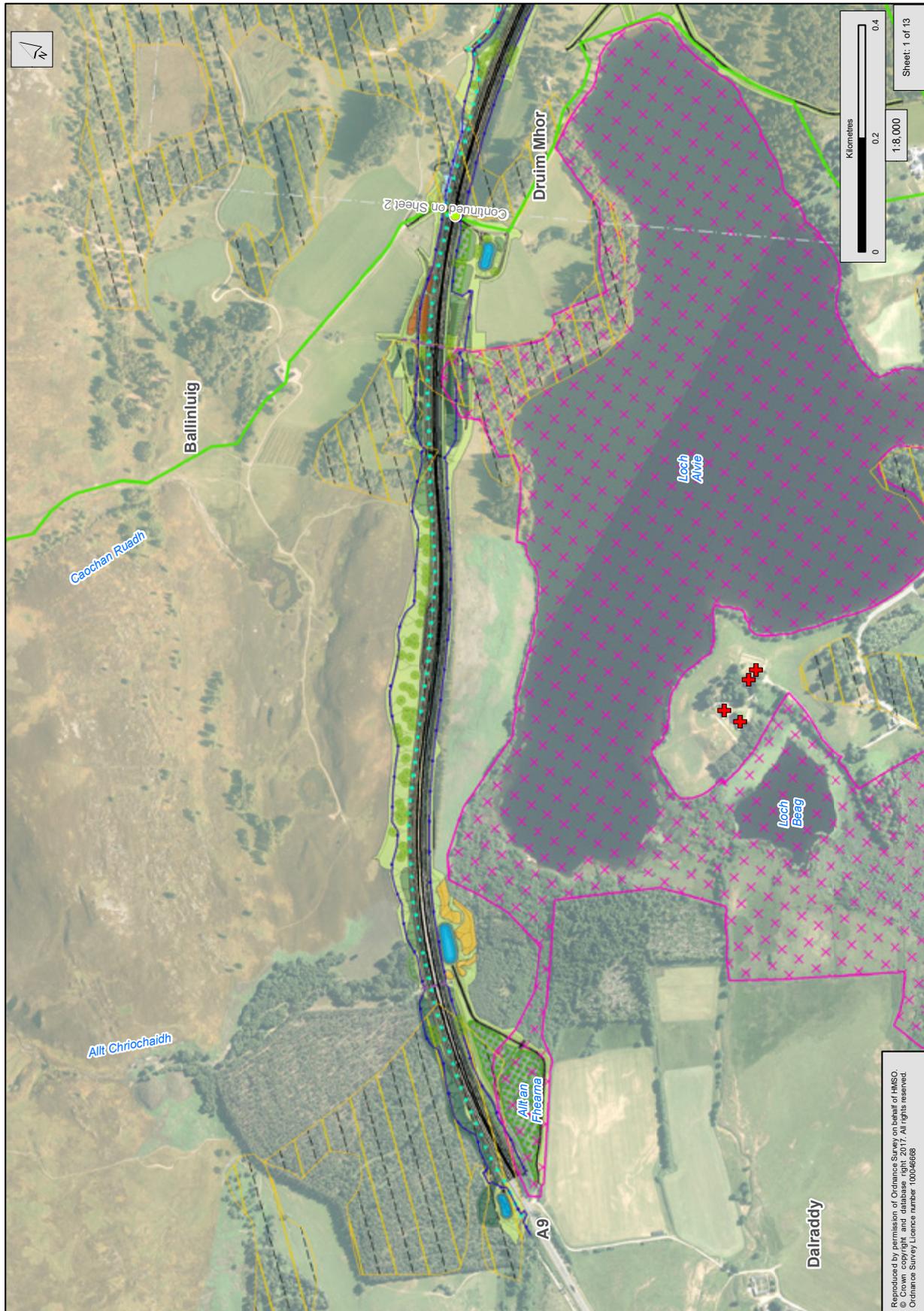
Environmental
Plans

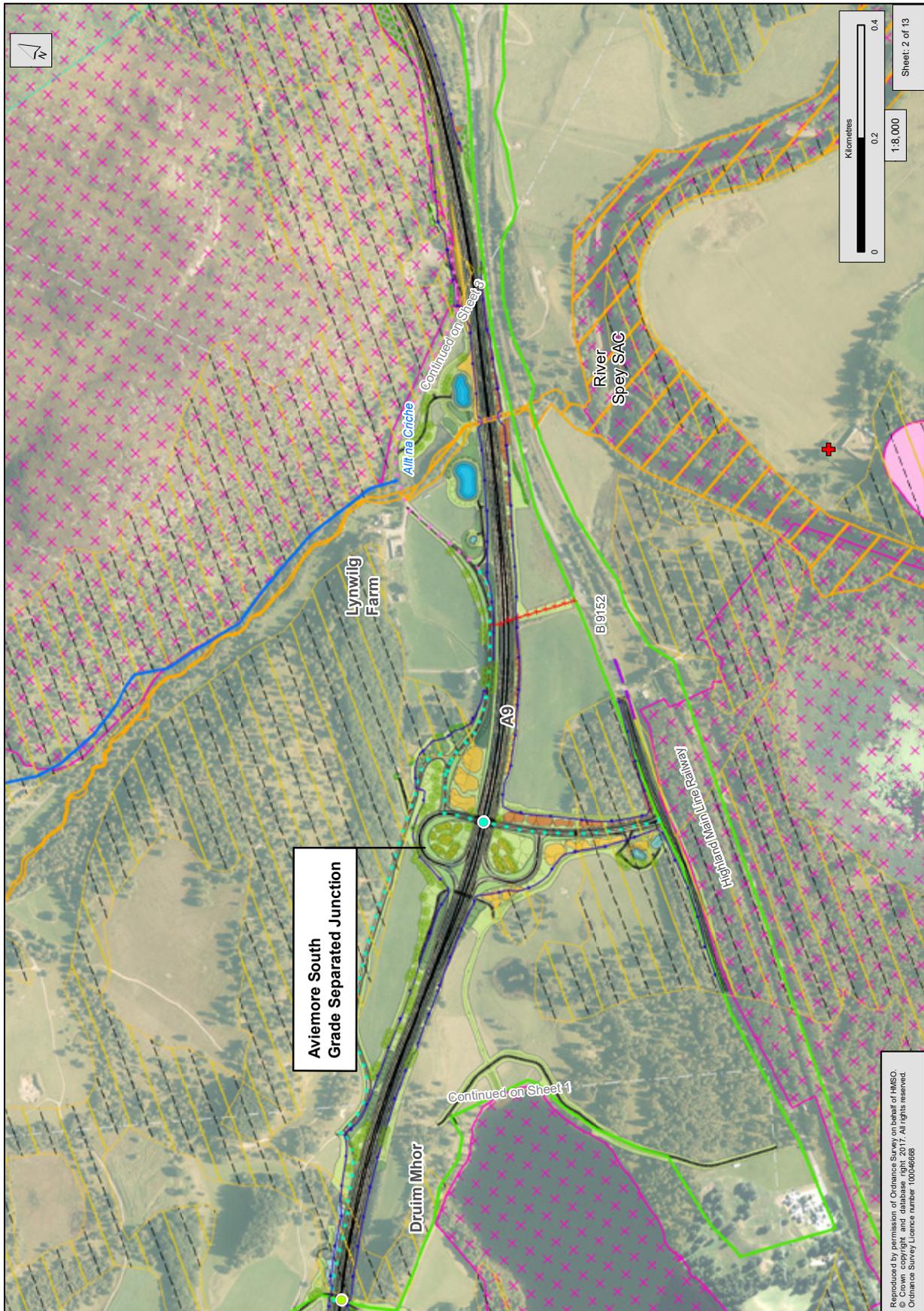


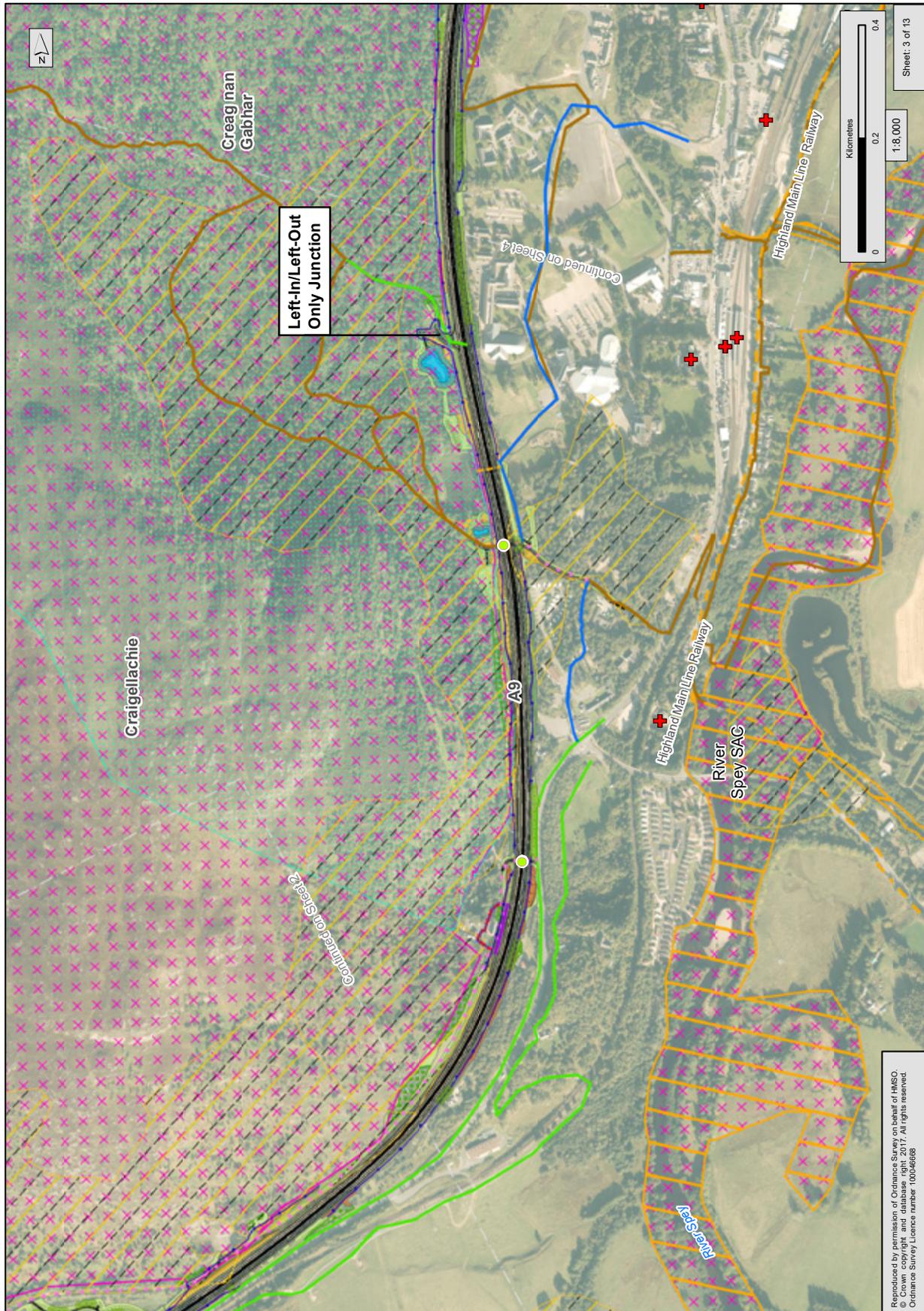


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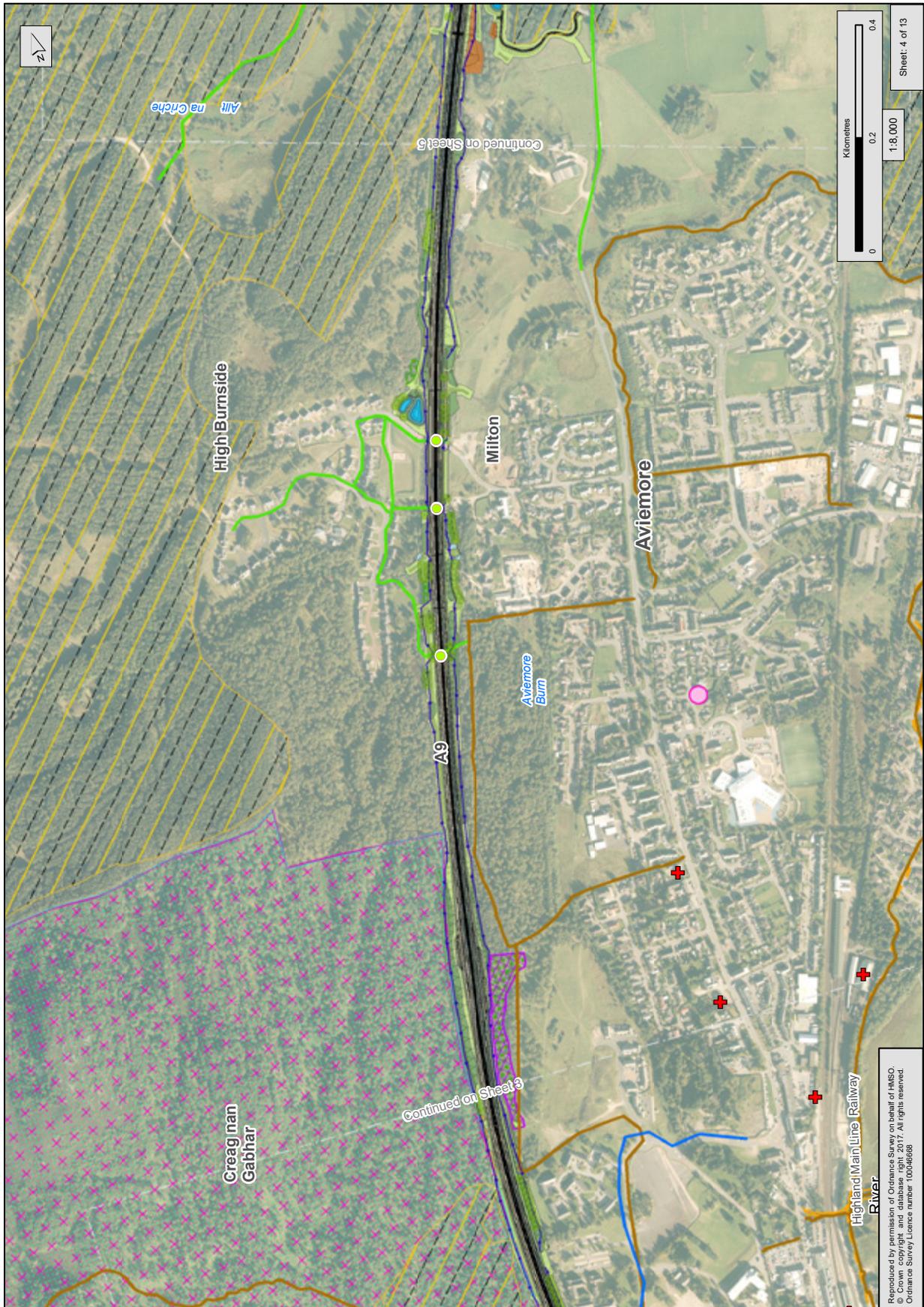
- Legend**
- Design**
- Proposed Scheme
 - Land Safeguarded for Public Access Post-Construction
- Proposed Landscape Mitigation**
- Coniferous Woodland
 - Aspen Woodland
 - Birch Woodland
 - Wet Woodland
 - Dry Heath
 - Mixed Woodland
 - Scrub
 - Verge Grassland
 - Wet Grassland
 - Acid Grassland
 - Rock Cutting
 - Scattered Trees
- Proposed Ecological Mitigation**
- Existing Woodland incorporating Bat Boxes
 - Pond
 - Mammal Fencing
 - Culvert with Mammal Ledge
 - Dry Mammal Underpass
- Proposed Noise Mitigation**
- Noise Barrier
- Non-Motorised User (NIMU)**
- New Overbridge
 - New Underpass
 - Retained Underpass
 - Upgraded NIMU Route
 - Proposed NIMU Route
 - NIMU Route Discontinued
 - National Cycle Network Route (NCN)
 - Core Path
 - Other NIMU Route
 - Right of Way
- Constraints**
- Listed Buildings
 - Ancient Woodland Inventory
 - Special Area of Conservation (SAC)
 - Scheduled Monument
 - National Nature Reserve (NNR)
 - Site of Special Scientific Interest (SSSI)

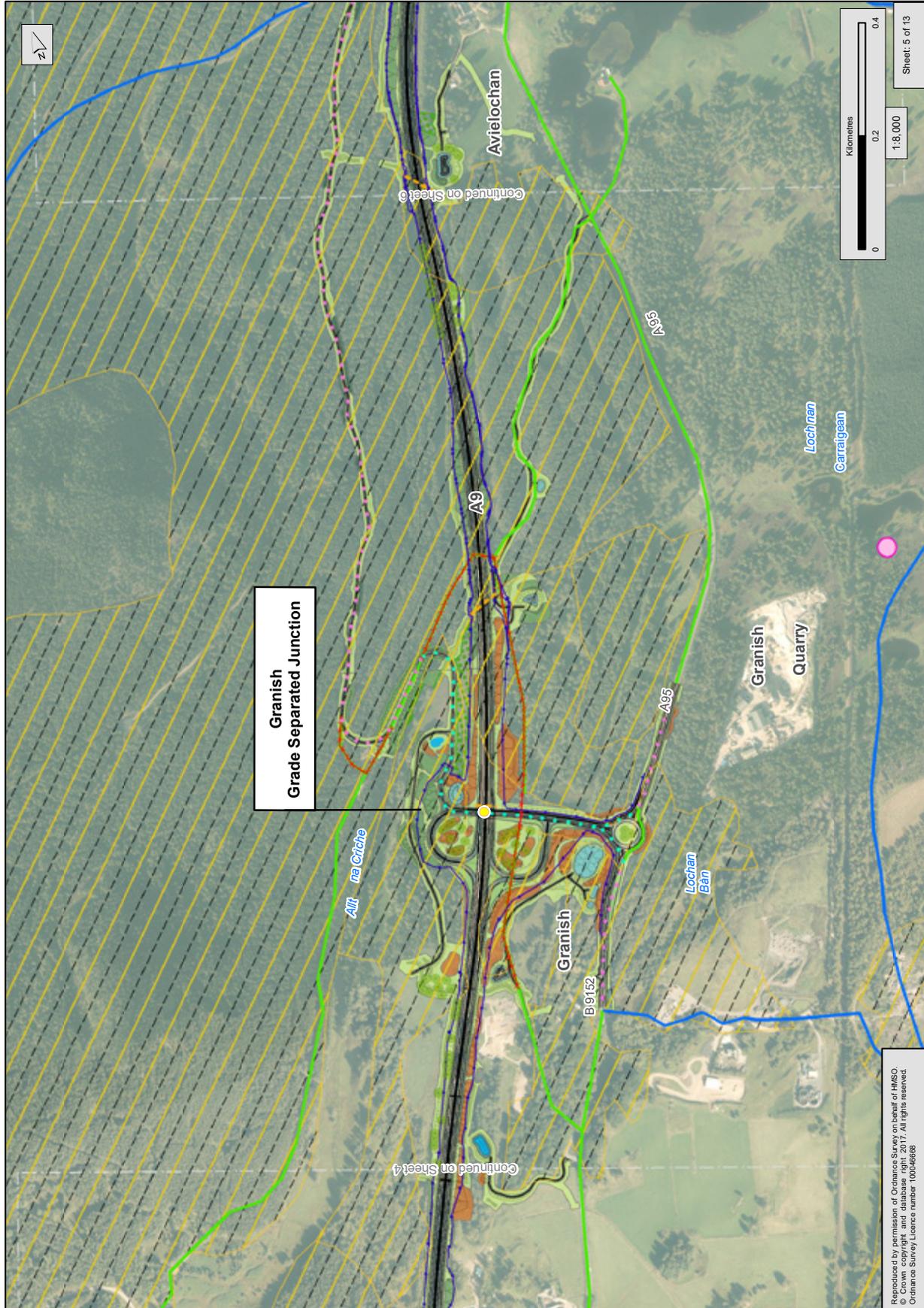






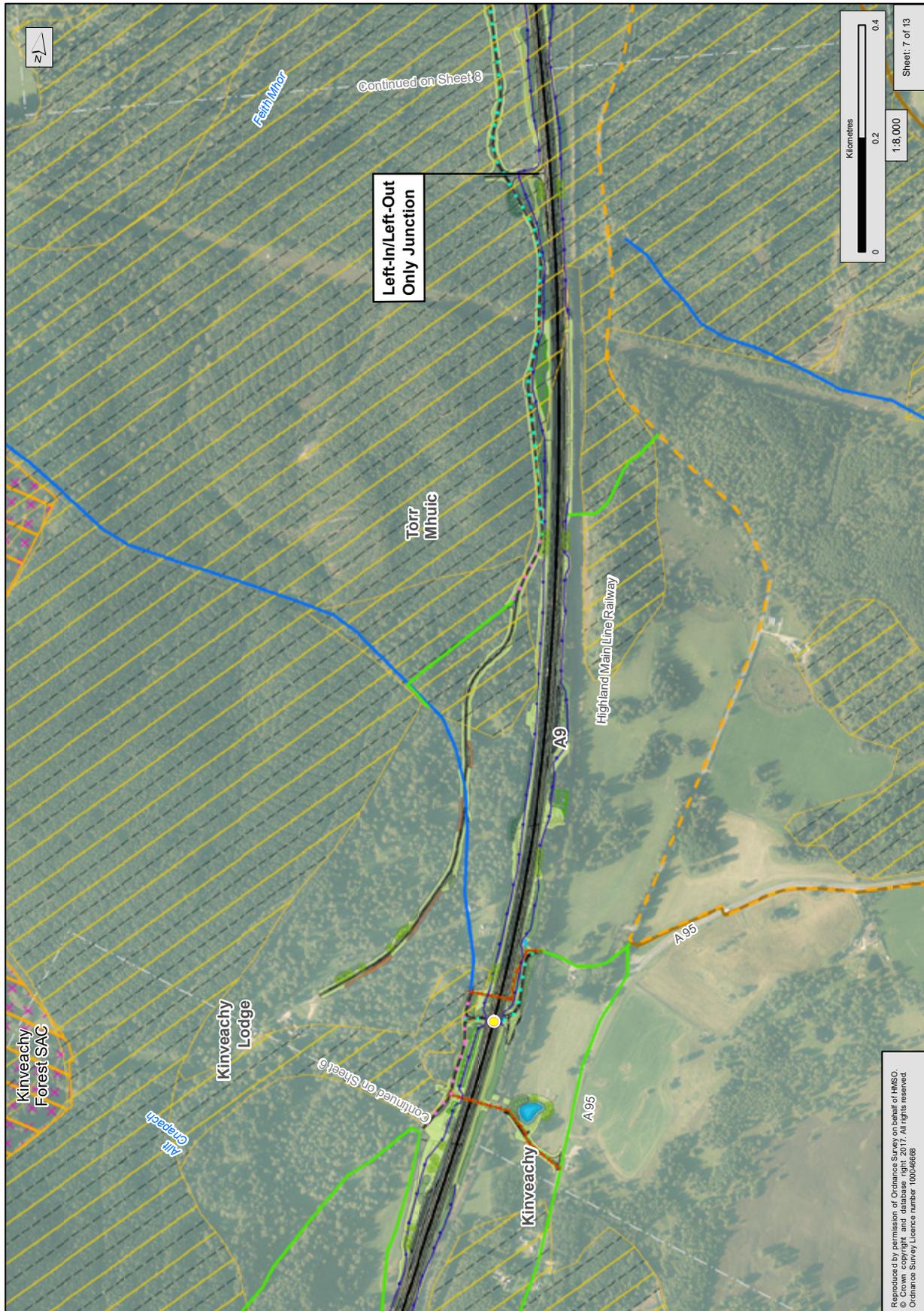
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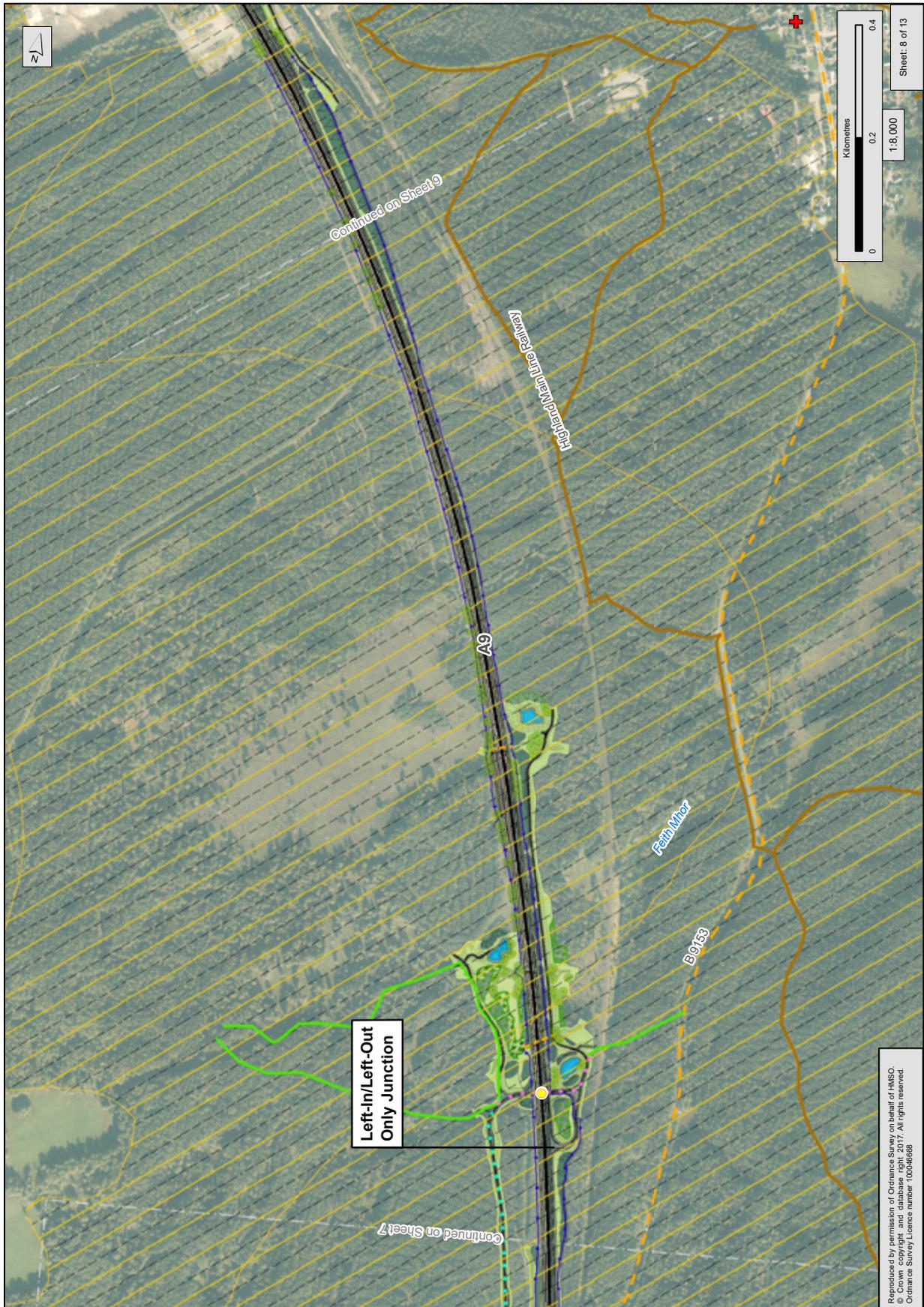
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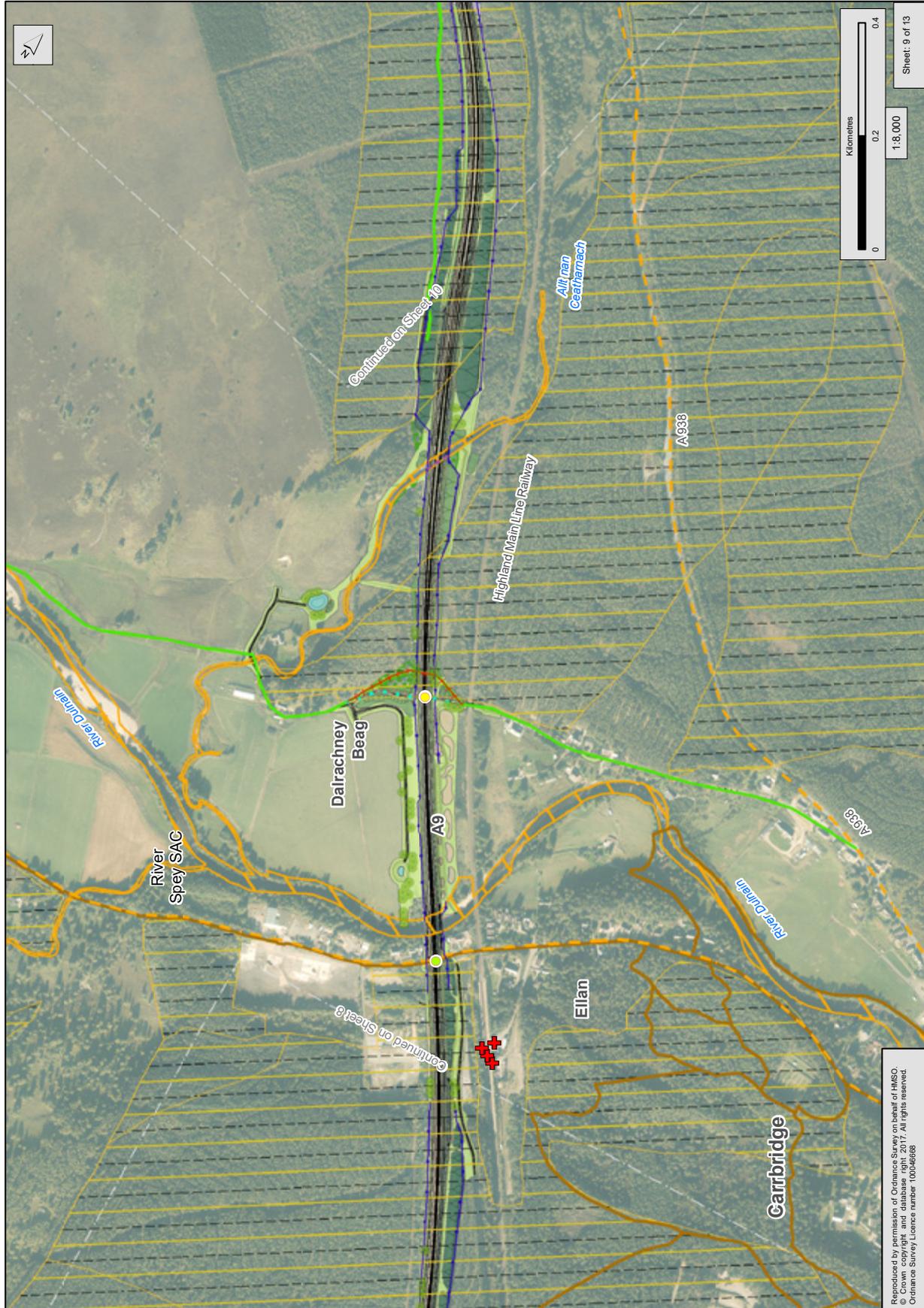




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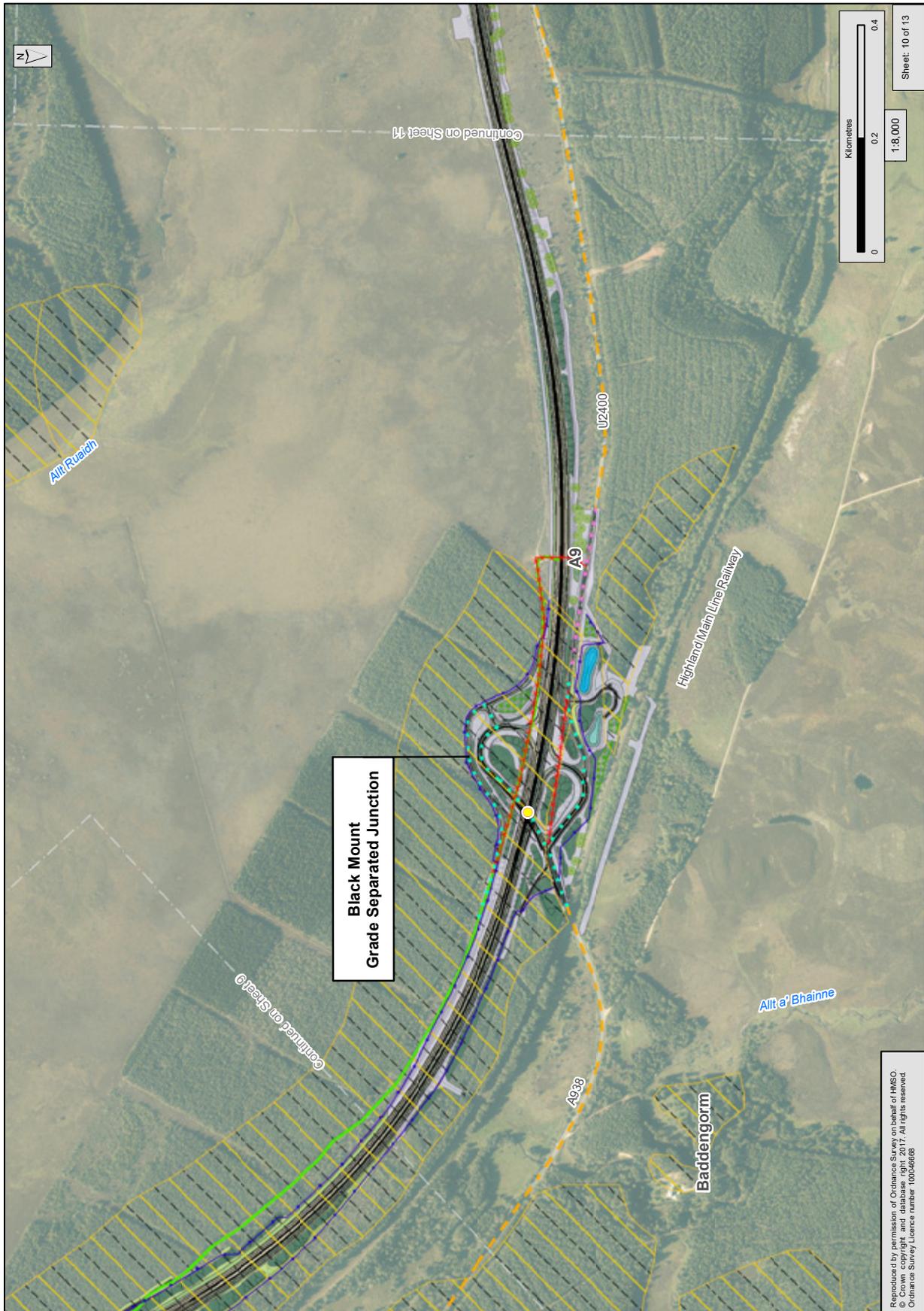
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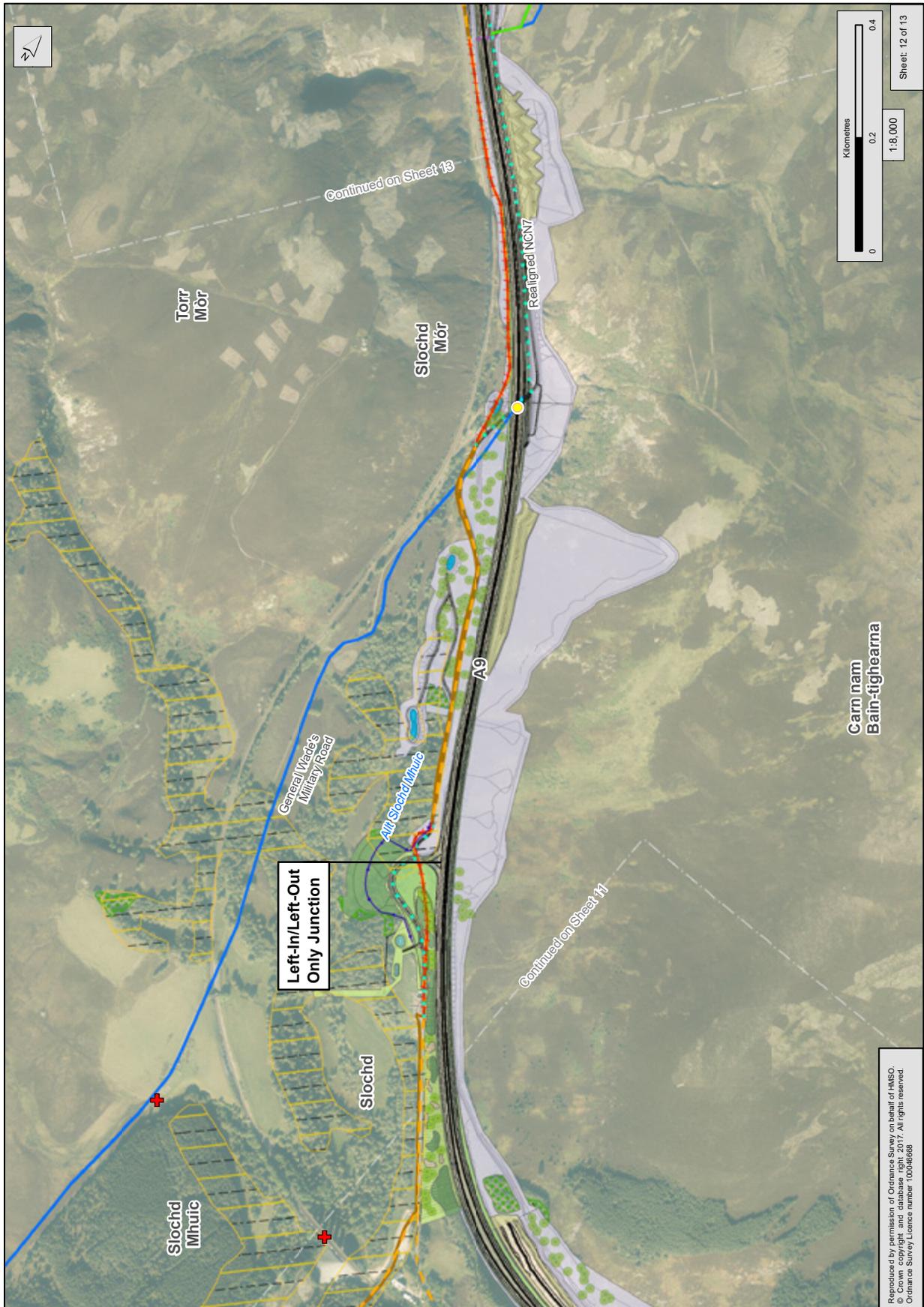
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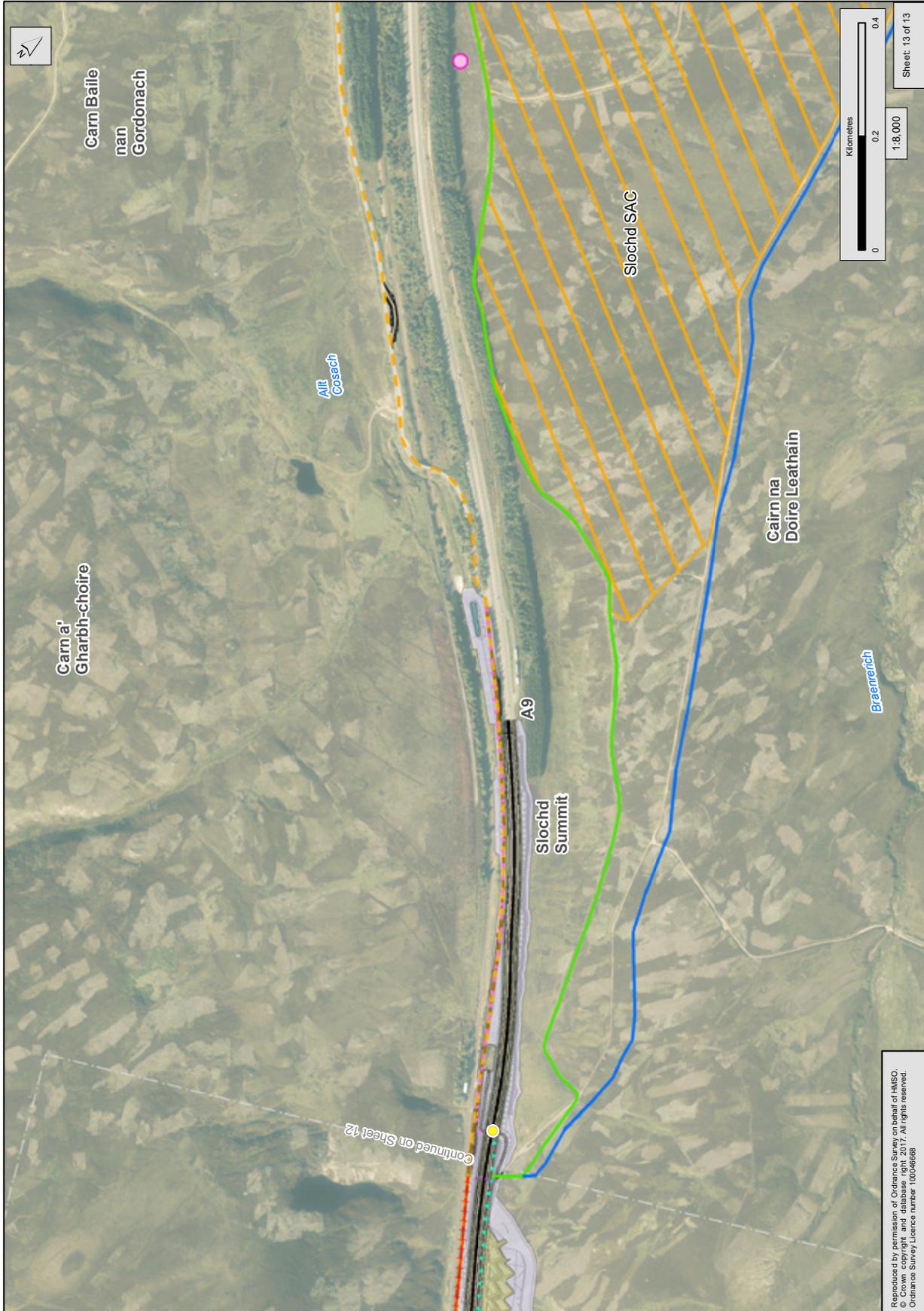




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