Scottish Trunk Road Network Management Contract

North West Unit

Winter Service Plan
Plan: NW-WSPlan

31 July 2024

BEAR Scotland Limited
North West Unit Central Office, BEAR House, Inveralmond Road, Perth. PH13TW.

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15	M80 DBFO Winter Service Manager	XXXXXXXXXXXXXXXXXXXXXXXX	E
16	Highland Council	XXXXXXXXXXXXXXXXXXXXXXXX	E
17	Perth and Kinross Council	XXXXXXXXXXXXXXXXXXXXXXXX	E
18	Argyll and Bute	XXXXXXXXXXXXXXXXXXXXXXXX	E
19	Stirling Council	XXXXXXXXXXXXXXXXXXXXXXXX	E
20	Network Rail	XXXXXXXXXXXXXXXXXXXXXXXX	E

*The most up-to-date version of this Winter Service Plan is available electronically to appropriate staff on the BEAR Scotland intranet system.

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List of Appendices

Introduction

This is the Winter Service Plan (WSP) provided under the Scottish Trunk Road Network Management Contract for the North West Unit, which will operate from 16 August 2022 for the initial Contract Term until to 15 August 2030.

Within this WSP, the term “Network Maintenance Contract” refers to the above Contract.

This WSP has been developed in full compliance with the requirements set out in Schedule 2 Appendix 6 of the NMC and with reference to the “Manual for the Management of the Risk of Unplanned Network Disruption” and details how BEAR Scotland will provide the Winter Service on the North West Unit.

This WSP covers the following trunk roads in Scotland:

- A9 Perth - Scrabster
- A82 Balloch - Inverness
- A83 Tarbet – Lochgilphead - Campbeltown
- A84 Stirling - Lochearnhead
- A85 Perth - Crianlarich
- A85 Tyndrum - Oban
- A86 Spean Bridge - Kingussie
- A87 Invergarry – Kyle of Lochalsh – Borve - Uig
- A99 Latheron - Wick
- A828 Connel – South Ballachulish
- A830 Fort William - Mallaig
- A835 Tore to Ullapool
- A887 Invermoriston – Moriston Bridge
- A889 Dalwhinnie to Laggan Bridge

The purpose of this WSP is to show how BEAR Scotland will:

- Plan its winter service operations for dealing with forecast and actual winter conditions on or near to the North West Unit.
- Carry out its winter service operations.
- Minimise, where possible, the duration of any winter weather incidents and their impact.
- Identify and deliver mitigating measures to prevent the occurrence of winter weather incidents as per Schedule 2 Section 6.1.8. Whilst individual reviews can be undertaken the Disruption Risk Workshops as detailed in 3. Schedule DRMP1 – Incidents Data and Risk Registers within the Disruption Risk Management Plan provides a framework for problems/solutions to be discussed/recorded/actioned.

This WSP is a controlled document within BEAR Scotland’s Quality Management System.

The WSP will be kept under review prior to and during the Winter Service Period, any proposed amendments shall be submitted to and approved by the Director prior to being incorporated in the WSP.

This WSP will be distributed on first issue and on each re-issued as detailed on Page 3.

The WSP is part of the overall Disruption Risk Management Plan (DMRP). The relationship between the DRMP, WSP and other supporting plans and records is shown schematically in Figure 1.

Figure 1 – Disruption Risk Management Plan

Item 1 – Management Arrangements

1.1 Severe Weather Manager

1.1.1 Name

The Severe Weather Manager (SWM) will be XXXXXXX XXXXXXXXXXXXXXXXX

1.1.2 Qualifications

XXXXXX has:

- HNC in Civil Engineering
- NVQ Level 7 in Senior Manager Construction Management
- NVQ Level 6 in Civil Engineering and Construction
- CSCS Manager
- IHE Winter Service Decision Making
- Fellow of Chartered Institution of Highways and Transportation
- Accident Investigation Training
- SMSTS

1.1.3 Experience

XXXXX has been involved in winter service operations throughout his time on the 2G, 3G and 4G Contracts as a Winter Service Duty Officer and was a Senior Approver for the NW Unit from 2016/17 winter season onwards. He was the North-East Winter Service Manager from August 2020 to August 2022. He is responsible for the preparation of the Winter Service Plan, ensuring that the winter service fleet is prepared, training sufficient winter service drivers and preparing rosters for Winter Service Duty Officers. His experience and training allows him to advise and mentor the Winter Service Duty Officers through the decision making process to ensure that daily winter action plans are in compliance with the Contract requirements and effective in keeping the road network free from ice and snow.

1.1.4 Responsibilities

The SWM is responsible for producing the Winter Service Plan for consent by Transport Scotland. The SWM is responsible for the operation, review and development of that Plan throughout the winter season, thus ensuring the Operating Company fully discharges its responsibilities under the Contract.

The SWM/WSDOs are responsible, on behalf of the Operating Company, for winter maintenance activities including:

- collection and management of weather data
- maintaining salt stock levels and their storage facilities
- achieving response times for precautionary treatment, patrols and snow clearance
- plant and communications
- the Road Weather Information System (RWIS), weather forecasting service and weather radar system
- training of staff and operatives

- preparation and updating of rotas for duty staff
- maintaining electronic records and manual records
- providing an annual winter service report
- liaising with third parties
- communication with Transport Scotland during severe weather events
- participation in conference calls with Transport Scotland as required
- implementing additional resources when required
- reporting weekly salt stock levels to the Scottish Salt User Group through the DfT portal
- ensuring completion of Daily Action Plans and uploading to Vaisala Manager

1.2 Winter Service Duty Officers (WSDOs) / Duty Severe Weather Managers / Incident Liaison Officers (ILOs)

1.2.1 Names

WSDO are:

- XXXXXXXXXXXXXX
- XXXXXXXXXXXXXX
- XXXXXXXXXXXXXX
- XXXXXXXXXXXXXX
- XXXXXXXXXXXXXX
- XXXXXXXXXXXXXX
- XXXXXXXXXXXXXX (mentored)
- XXXXXXXXXXXXXX (mentored)

1.2.2 Qualifications

All WSDOs have undertaken suitable training in relation to winter service decision making and weather forecast interpretation, including subjects such as road meteorology and winter service computer systems. All WSDO's are approved by Transport Scotland.

XXXXX has seven seasons previous experience as a Winter Duty Manager in the North East and South West units. This is XXXXXX sixth winter season on the North West Unit. He was approved as WSDO as part of the tender submission.

XXXXXX works full time within the Severe WeatherTeam. He has completed the IHE Winter Decision makers course and now has 4 seasons experience. He was approved as WSDO as part of the tender submission.

XXXXXX has 15 years trunk road maintenance experience. He has been involved in Winter for 10 years shadowing those carrying out the role and assisting with the MART. He has completed the IHE Winter Decision maker course. He was approved as part of the tender submission.

XXXXXX has been with BEAR for some 12 years working in various engineering roles. XXXXXX has completed the IHE Decision Makers Course. He now has 3 years' experience in the WSDO role.

XXXXXX has 18 years trunk road maintenance experience. He has been involved in Winter service for 13 years and at a supervisory level for 4 years. XXXXXX has attended and completed the IHE Winter Decision makers course.

XXXXXX has been with the company for some 3 years working initially as a Cat 2 Designer and has now Graduated as a Civil Engineer and now working within the Roads team as a Graduate Engineer. XXXXXX has completed a full Winter season mentored by XXXXX and XXXXXX. He has now completed the Winter Decision makers course.

XXXXXX is new to the team having been employed on a full-time basis within the Severe Weather Team. He is new to the industry having worked as a vehicle logistics supervisor for a delivery company organising all the logistics behind deliveries. He has completed the IHE Winter decision makers course and will work on the same shift pattern as XXXXXX for a Winter season.

XXXXX has been involved in Winter Maintenance as a driver for some 17 years. He has joined the Severe Weather team on a full-time basis and will work alongside XXXXXX this coming season and will in due course attend the IHE Winter decision makers course.

1.2.3 Experience

WSDOs will have passed the IHE Winter Decision Makers Course ensuring competent and consistent winter decision making.

1.2.4 Responsibilities

The SWM will be supported by 8 No. WSDO working on a rotational basis. These posts are an integral part of the service as they provide immediate support and guidance to the Network Hub staff, allowing them to process the information being received whilst the WSDO interpret the forecast, make decisions on treatment, prepare the Daily Action Plan and upload those plans to the Traffic Scotland CMS by 14:00hrs. The WSDO is solely authorised to make decisions and issue instructions to direct the Winter Service.

The on-duty WSDO shall be located and on duty in the Central Office Network Hub during the Winter service period when the road surface temperatures are forecast to be below 3^{o}C. During periods of severe weather additional staff will assist in the Network Hub.

All WSDO shall have previous experience of monitoring the road sensor system and making decisions on treatment resulting from the receipt of the forecast information from the supplier.

All the WSDO named will be fully trained in basic road meteorology including the use, and interpretation, of ice prediction systems.

A WSDO will be on duty 24/7 during the winter season. During severe weather events they will post social media updates including changes to conditions, additional treatments and dash cam footage from gritters showing network conditions.

All employees who post social media messages will have received training in accordance with the BEAR Twitter Guidelines. We will use our website to provide additional information such as live feeds from our patrol fleet sensors and updates on the treatment of footways.

In accordance with our Communications Plan our Media and Information Officer will monitor social media using platforms such as Sprinklr (currently used by Traffic Scotland and other

operating companies) which collate data from multiple platforms ensuring we remain aware of emerging issues.

We will post regular updates on social media using rich content (i.e. videos and infographics) to improve interaction.

During out-of-hours severe weather events our Winter Service Duty Officers (WSDOs) and Incident Liaison Officers (ILOs) will monitor social media and our WSDOs will post updates of additional treatments and dashcam footage from gritters showing network conditions. All employees posting social media messages will have received training in accordance with the BEAR Twitter Guidelines.

As social media use and technologies change (Twitter > X!) we will update our systems to ensure a continually proactive and engaging service.

1.2.5 Duty Severe Weather Manager

Over and above the contractual requirements there will be a Duty Severe Weather Managers' rota to assist the Severe Weather Manager in supporting the WSDOs as required. All 4 named below have significant experience in Winter Service and are approved as WSDO's

The Duty Severe Weather Managers are:

- XXXXXXXXXXXXXX
- XXXXXXXXXXXXXX
- XXXXXXXXXXXXXX
- XXXXXXXXXXXXXX
- XXXXXXXXXXXXXX

1.2.6 Journey Time Reliability Co-ordinator/Incident Liaison Officer – Network Hub (JTRC / ILO)

The JTRCs / ILOs will be based in the Network Hub. The Network Hub is staffed by a team of approved JTRCS / ILOs (Network Hub) working to 4 days on, 4 days off shift pattern that ensures it is operated on a 24 hours a day, seven days a week basis.

The JTRCs / ILOs are:

- XXXXXXXXXXXXXX
- XXXXXXXXXXXXXX
- XXXXXXXXXXXXXX
- XXXXXXXXXXXXXX
- XXXXXXXXXXXXXX
- XXXXXXXXXXXXXX
- XXXXXXXXXXXXXX
- XXXXXXXXXXXXXX

The JTRCs / ILOs will assist the WSDO in providing the winter service in an administrative capacity.

JTRCs / ILOs will assist the WSDOs in maintaining and updating of operational records including the following:

- treatment records and patrol records
- material usage
- road closure locations and times
- logs of communications to and from vehicles on route & any other sources
- software faults
- electronic data from data loggers
- reserve and additional plant paper records
- social media updates

1.3 Monitoring Arrangements

1.3.1 Monitoring arrangements during normal working hours

Monitoring will be carried out by staff in the Network Hub from 1 October to 15 May, including

- Contact with expert weather forecast provider including “change triggers”
- Feedback from inspectors during normal working hours
- Monitoring of weather sensors
- Compilation of daily action plan
- Monitoring Road Surface Temperatures (RSTs) trend against forecast
- Use of weather and Traffic Scotland cameras
- Weather radar
- Communications from external parties.
- Mobile road condition monitoring data and camera images will be relayed to the Network Hub and the Traffic Scotland National Control Centre via a web-based application.
- Feedback from patrols and other drivers

1.3.2 Monitoring arrangements out with normal working hours

The North West Unit Network Hub will be based at BEAR Scotland’s Inveralmond Office and will be staffed on a rotational basis 24/7.

The contact number for the Network Hub is:

XXXXX XXXXXX

The Network Hub will have access to all relevant contact phone numbers and winter maintenance systems such as Vaisala Bureau, specialist forecasts from Met Desk, Locatu, communications log database and weather radar.

When the road surface temperature is forecast to be below 3ºC the WSDO will be on duty in the Network Hub as required by Schedule 2 Section 6.2.10 of the NMC.

There will also be a dedicated telephone line for Police Scotland within the Network Hub. This allows direct contact at all times between Police Scotland and staff in our Network Hub. This number will only be issued to Police Scotland.

1.4 Personnel Resources

The resources detailed below will be the minimum numbers involved in delivering the winter service:

- 1 No. Severe Weather Manager, supported by Duty Severe Weather Managers
- 8 No. Winter Service Duty Officers
- 87 No. Winter drivers
- 36 No. Patrol drivers

1.4.1 The names of Contract Personnel and labour resources are detailed on the rotas in 1.4.2. This information is subject to GDPR and held separately in secure location.

1.4.2 Latest availability rosters including names, addresses and telephone numbers of the personnel shall be held securely in BEARnet and available via the shared drive.

1.5 Call-Out Arrangements

1.5.1 Call-out arrangements during normal working hours

A winter rota will be prepared at the beginning of the winter season for staff and operational staff involved in the winter service. Rotas are available in BEARnet.

Any changes to the rota will be communicated to the relevant parties involved in providing the winter service.

At all times it will be the responsibility of the duty WSDO to ensure that a clear line of communication is kept to all key personnel involved in providing the winter service for that week.

It is anticipated that the requirement for call-out will be minimal from the beginning of November until the end of March, when a dayshift/nightshift system will be in place, with drivers immediately available on the Unit 5 days per week during the normal working week. Outside this period there will be 24-standby covered by two shifts.

From 1 October to 31 October and 1 April to 15 May a 24hr driver standby rota will be in place.

In the event that winter conditions occur between 16 May and 30 September, reactive treatments will be carried out as per Schedule 2 Section 6.1.4 of the NMC.

1.5.2 Call-out arrangements out with normal working hours

It is the role of the WSDO to ensure the appropriate drivers are contacted and advised of the required winter action treatment. The personnel on the rota shall be available to mobilise and commence treatment on the carriageway within 1 hour of being contacted.

1.5.3 Contact arrangements during normal working hours

Each individual involved in providing the winter service shall be issued with a mobile phone to allow easy contact. When drivers are on winter duty for any given week, cognisance of this will be taken into account when planning normal daily duties. This will ensure that drivers still have the ability to respond quickly to any call to carry out a winter service action at short notice within the contractual response times.

1.5.4 Contact arrangements out with normal working hours

As 1.5.3 above on-call drivers will be supplied with mobile phones.

1.5.5 Mobilisation Times

Depots have been positioned in locations where both the Trunk Road precautionary treatment routes and drivers are easily accessible; this ensures that drivers are consistently able to access the start of each precautionary treatment within one hour of a call from their home. To assist in the speed of access to the gritting routes, spreaders may be pre-loaded on any night when action is a possibility.

1.6 Communications Equipment

Good communication systems are essential for effective winter maintenance management and the following systems will be adopted:

- Push To Talk radio (PTT)
- telecommunications – landline and mobile
- satellite tracking of BEAR Scotland vehicles
- e-mail
- internet – refer Communications Plan
- social media e.g. X (formerly Twitter), Instagram, WhatsApp etc - refer to Communications Plan
- MS Teams / Zoom conference calls

All depots will be contactable by mobile telephone, email and Microsoft Teams. In addition, all managers, supervisors, and winter maintenance operational staff will have mobile telephones so that they can be contacted at all times. In the case of winter maintenance vehicles, Bluetooth hands-free systems will work with the PTT radio and mobile phones.

BEAR Scotland vehicles are fitted with an integrated satellite tracking system (Locatu) to deliver communications needs, management system and produce an auditable trail of actions undertaken.
This information will also be available via an approved app to Schedule 5 Clause 2804AR.

Push To Talk (PTT) communication is fitted to frontline and reserve winter service plant in accordance with to Schedule 5 Clause 2805AR. PTT will be used by the Control Room and WSDO's. All staff will be trained in the use of the system.

1.7 Training for Managers and Other Staff

1.7.1 Details of previous training

All current WSDOs have been trained in basic road meteorology and winter service computer systems. Depending on experience some WSDOs will attend the IHE Winter Decision Makers' Course. All winter drivers will be trained to SVQ/City & Guilds level or equivalent in winter maintenance.

1.7.2 Details of proposed training

Prior to the commencement of the winter season, a training programme will be carried out for all personnel involved in providing the winter service. All training will be recorded. The SWM is responsible for organising all winter training. This will include the following:

- Refresher training for WSDOs on decisions, communication, contract requirements etc;
- Seminar for winter drivers detailing treatment routes, Contract requirements, response times, treatment times, communication, health and safety and vulnerable areas;
- Practical training on route familiarisation and plough fitting;
- New recruits to the winter service will be fully trained prior to any involvement in providing the winter service and mentored.
- Dry runs of all precautionary treatment routes will be undertaken prior to the start of each winter period as per WSP 13.

BEAR Scotland staff will also participate in the annual "snow desk" winter scenario training when requested to do so by the Director.

Item 2 – Weather Forecasting

2.1 Purpose

The meteorologists working for the expert weather forecasting service provider supply an accurate indication of weather conditions so that the personnel involved in the provision of winter service are able to prepare a winter action plan which shall prevent or anticipate prevailing weather conditions and allow sufficient time to pre-treat the carriageway prior to the onset of snow or ice.

2.2 Methodology

Weather models are used to produce both the short-range and long-range weather forecasts.

The road model forecasts can be updated as frequently as necessary using actual data from road sensors and data from comprehensive meteorological databases. These are monitored and updated by forecasters around the clock.

2.3 Weather Forecasting Service

The expert weather forecasting service will be provided by MetDesk.

MetDesk,
3 Station Approach,
Wendover,
Aylesbury,
Buckinghamshire,
HP22 6BN

www.metdesk.com

The service shall consist of the following:

- 36 hour forecast text (midday)
- 36 hour forecast graphs for each forecast station within North West Unit
- Evening updates to both 36 hour text & forecast graphs
- 2-10 day text forecast (provides early warning of severe weather)
- Forecast consultancy service for advice 24/7.
- The Weather Forecaster will have access to the RWIS to allow comparison of actual temperatures with forecast temperatures

Weekly weather forecast accuracy reports will be provided by 1200 hours on the first working day of the following week as per Schedule 2 Section 6.1.18 (d).

The above will allow the WSDO to prepare a daily winter action plan each day which shall be uploaded to the Traffic Scotland Service Website via CMS by 1400 hours, advising of all carriageway pre-treatments to be carried out for that day. The DAP will be shared with relevant Stakeholders electronically.

2.3.1 Climatic Domains

Route-based climatic domains are related to the 40g treatment routes. Route specific temperature forecasts are provided for each day during the Winter Service period.
See 2.3.5 for the location of the Forecast sites.

2.3.2 Weather Radar

The WSDOs will have access to a web-based radar facility provided by MetDesk, 24 hours a day, seven days a week, throughout the winter season to supplement forecast information. The radar improves the accuracy of assessing the timing, nature and intensity of precipitation, particularly snowfall.

2.3.3 Weather Stations, Forecasts Sites and Camera Sites

Weather Stations are strategically placed throughout the network. The sensors and cameras will be polled every 10 minutes between 1 October and 15 May. Weather forecast sensors have added functionality to allow modelling of the temperature characteristics of the road pavement. They assist in producing route-specific weather forecasts.

Route Number	Location	Manufacturer	Type
A82	Allt na Feadh	Vaisala	Forecast Site/ Camera
A82	Invergarry	Findlay Irvine	Forecast Site
A83	Furnace	Vaisala	Forecast Site
A83	Rest and Be Thankful	Vaisala	Forecast Site/ Camera
A83	Clachan Hill	Vaisala	Forecast Site
A828	Barcaldine	Vaisala	Forecast Site
A835	Braemore	Vaisala	Forecast Site/ Camera
A87	Cluanie	Vaisala	Forecast Site/ Camera
A87	Varragill	Vaisala	Forecast Site
A87	Ard Dorch	Vaisala	Observational Site/ Camera
A87	Skye Bridge	Vaisala	Observational Site
A887	Achlain	Findlay Irvine	Observational Site/ Camera
A889	Catlodge	Findlay Irvine	Observational Site/ Camera
A9	Achavanich	Findlay Irvine	Observational Site/ Camera
A9	Avielochan	Vaisala	Observational Site/ Camera
A9	Balvraid	Findlay Irvine	Observational Site/ Camera
A9	Berriedale	Vaisala	Observational Site
A9	Bogbuie	Vaisala	Observational Site
A9	Calvine	Vaisala	Observational Site
A9	Daviot	Vaisala	Observational Site/ Camera
A9	Delny	Vaisala	Forecast Site
A9	Dornoch	Findlay Irvine	Observational Site/ Camera
A9	Drumochter	Vaisala	Forecast Site/ Camera
A9	Dunkeld	Vaisala	Forecast Site
A9	Kessock Bridge	Vaisala	Observational Site
A9	Kessock Bridge Deck North	Vaisala	Observational Site
A9	Kessock Bridge Deck South	Vaisala	Observational Site
A9	Ord Ousdale	Vaisala	Forecast Site/ Camera
A9	Slochd	Vaisala	Forecast Site/ Camera
A9	Sordale	Findlay Irvine	Observational Site
A9	Trinafour	Vaisala	Observational Site

Route Number	Location	Manufacturer	Type
A99	Lybster	Vaisala	Observational Site

Figure 2 – List of Weather Stations

Sensors are calibrated twice per year (prior to start of season and during the winter season) and their performance monitored electronically with any issues being checked out on site, as required.

All road sensors and weather prediction equipment use an open protocol based on the Department of Transport TR2020C Protocol and Traffic Scotland Datex II or other open access protocol as required by Schedule 2 Clause 6.2.6, this makes the data available to Traffic Scotland remotely.

2.3.4 Thermal mapping

Currently it is not proposed to use thermal mapping for decision making.

2.3.5 Location plans

A location plan of the forecast sites to be used to generate the route-specific forecasts is shown below.

Figure 3 – Forecast Sites

2.4 Computer Systems

There are a number of computer systems used to interrogate forecast and sensor data to enable the SWM and WSDOs to make the most appropriate decisions. These systems include:

- Bureau service – for collection of weather sensor data. The bureau service is provided by Vaisala. The central database collects data from weather sensors at 10-minute intervals.

- Vaisala RoadDSS Manager - this allows the winter staff to interrogate the bureau to give the most up to date conditions at the weather sensor locations on the trunk road network. This allows them to make informed decisions in relation to winter service actions and direct resources appropriately for road surfaces across the Unit and the structures of the major bridges. Forecasts can also be accessed from the bureau allowing daily action plans to be created, distributed and stored. These action plans are monitored against the forecasts. Daily winter action plans are input directly into RoadDSS Manager and are

emailed to stakeholder and other interested parties. Actual Actions are also recorded in the system. Reports of actual actions completed can be generated as required by running treatment and action reports for the required routes. Critical conditions, such as the formation of Ice, triggers audible alarms, which the system logs confirmation of when acknowledged by Duty staff. The system also holds archive data.

- All patrol spreaders and frontline spreaders have a sensor to provide air temperature, road surface temperature and road surface state in real time to the RWIS and available in an archive and is available 24/7.

- A web-based system supplied by MetDesk will also be utilised to access forecast data along with weather radar images. Weather radar images are particularly useful for predicting and monitoring precipitation conditions.

- Locatu is a web-based system with live GPS vehicle tracking and storage of vehicle telemetry data including spreading data, such as spread rate and width.

- BEARnet is BEAR Scotland's company intranet which holds all the Management System information and electronic records not held in Vaisala Manager or Locatu.

Item 3 – Monitoring Arrangements for Areas Requiring Special Attention

BEAR Scotland will, throughout the Contract duration review Vulnerable Locations and add or remove locations as per Schedule 2 Section 6.2.32. Permission will be sought from the Director to make any amendments at least once during each Annual Period.

No New Vulnerable Locations have been identified via inspection however design is underway for works to address areas of water run-off.

In the event of a Critical Incident resulting from a closure of a carriageway due to snow or ice the Director's consent shall be requested to add to the list of Vulnerable Locations as Schedule 2 Section 6.2.32, where the locus is not already covered by an existing Vulnerable Location.

All staff involved in Winter Service will be instructed to pay particular attention to the areas below. Any problems identified will be reported back and added to the communications log.

3.1 – Significant Gradient Areas

Known Vulnerable Locations	Assigned Sensor Station	Reason	Treatment Route	Patrol Route	2024 Review Outcome
A835 Corrieshalloch	Braemore	Gradient	40-11	PB-2	N/A
A887 Invermoriston - Bunloyne	Achlain	Gradient	40-18	PB-3	N/A
A87 Invergarry – Shiel Bridge	Cluanie	Gradient	40-19	PB-4	N/A
A82 Tyndrum – Glen Coe	Tyndrum, Altnafeadh	Gradient	40-21	PB-6	N/A
A85 Glen Ogle	Glenogle	Gradient	40-24	PB-6	N/A
A83 Rest and be Thankful	Glen Croe	Gradient	40-26	PB-10	N/A
A9 Calvine - Dalnaspidal	Calvine	Gradient	40-03	PA-3	N/A
A9 Drumossie Brae Southbound	Daviot	Gradient	40-08	PA-5	N/A
A9 Ord of Caithness	Ord	Gradient	40-13	PB-1	Added

3.2 - Frost Susceptible Areas

Known Vulnerable Locations	Assigned Sensor Station	Reason	Treatment Route	Patrol Route	2024 Review Outcome
A9 Latheron to Mybster	Achavanich	Frost Susceptible	40-15	PB-1	No Change
A9 Berriedale	Berriedale	Frost Susceptible	40-14	PB-1	No Change
A9 Kildary to Tain	Delny	Frost Susceptible	40-12	PB-2	No Change
A835 Inchbae	Aultguish	Frost Susceptible	40-11	PB-2	No Change
A835 South of Aultguish	Aultguish	Frost Susceptible	40-11	PB-2	No Change
A887 Near Dundreggan	Achlain	Frost Susceptible	40-18	PB-3	No Change
A87 Glenshiel	Cluanie	Frost Susceptible	40-18	PB-4	No Change
A87 Kinlochourn	Invergarry	Frost Susceptible	40-19	PB-4	No Change
A87 Glen Varragill	Varragill	Frost Susceptible	40-16		No Change

Known Vulnerable Locations	Assigned Sensor Station	Reason	Treatment Route	Patrol Route	2024 Review Outcome
A82 Glen Gloy Bends	Spean Bridge	Frost Susceptible	40-19	PB-5	No Change
A82 Spean Bridge	Spean Bridge	Frost Susceptible	40-09	PB-5	No Change
A830 Glenfinnan	Glenfinnan	Frost Susceptible	40-20		No Change
A830 Mhuidie Hill	Glenfinnan	Frost Susceptible	40-20		No Change
A830 West of Loch Elit	Glenfinnan	Frost Susceptible	40-20		No Change
A86 Near Glen Spean	Roybridge	Frost Susceptible	40-07		No Change
A86 Tulloch	Roybridge	Frost Susceptible	40-07		No Change
A86 Near Comra	Aberarder	Frost Susceptible	40-06		No Change
A86 Strathmashie	Aberarder	Frost Susceptible	40-06		No Change
A82 Three Mile Water	West Laroch	Frost Susceptible	40-21	PB-5	No Change
A82 Glen Coe	Alltnafeadh	Frost Susceptible	40-22	PB-6	No Change
A82 Bridge of Orchy	Tyndrum	Frost Susceptible	40-21	PB-6	No Change
A85 Glen Dochart – Lix Toll	Glenogle	Frost Susceptible	40-24	PB-6	No Change
A85 Glen Ogle	Glenogle	Frost Susceptible	40-24	PB-6	No Change
A85 South of Strone	Tyndrum	Frost Susceptible	40-23	PB-7	No Change
A85 Glen Lochy	Tyndrum	Frost Susceptible	40-23	PB-7	No Change
A85 St. Fillans - Lochearnhead	McAras Brae	Frost Susceptible	40-01	PB-8	No Change
A85 Dunira	McAras Brae	Frost Susceptible	40-01	PB-8	No Change
A84 Dandues Brae, Doune	Drumvaich	Frost Susceptible	40-25	PB-9	No Change
A83 Auchindrain	Furnace	Frost Susceptible	40-27		No Change
A9 Loch Faskally	Calvine	Frost Susceptible	40-02	PA-1	No Change
A9 Killiecrankie	Calvine	Frost Susceptible	40-03	PA-2	No Change
A9 Near Dalwhinnie	Drumochter	Frost Susceptible	40-04	PA-3	No Change
A9 Kingussie	Avielochan	Frost Susceptible	40-05	PA-4	No Change
A9 Slochd	Slochd	Frost Susceptible	40-05	PA-4	No Change
A9 Findhorn	Slochd	Frost Susceptible	40-05	PA-4	No Change
A9 Daviot	Daviot	Frost Susceptible	40-08	PA-5	No Change

3.3 – Water Runoff Areas

Known Vulnerable Locations	Assigned Sensor Station	Reason	DMRP / AMPS ref	Treatment Route	Patrol Route	2024 Review Outcome
A9 Achavanich to Tacher	Achavanich	Run-off	NW-WRO01	40-15	PB-1	No Change
A99 Borrowston Quarry	Lybster	Run-off	NW-WRO02	40-14		No Change
A9 Dunbeath Mains	Berriedale	Run-off	NW-WRO03	40-14	PB-1	No Change

Known Vulnerable Locations	Assigned Sensor Station	Reason	DMRP / AMPS ref	Treatment Route	Patrol Route	2024 Review Outcome
A9 Knockinnon	Berriedale	Run-off	NW-WRO04	40-14	PB-1	No Change
A9 Newport	Berriedale	Run-off	NW-WRO05	40-14	PB-1	No Change
A9 Keepers Cottage Ousdale	Ord	Run-off	NW-WRO06	40-13	PB-1	No Change
A9 Layby 190	Bogbuie	Run-off	NW-WRO07	40-12		No Change
A9 Balvraid	Balvraid	Run-off	NW-WRO08	40-12		No Change
A830 West of Loch Elit	Glenfinnan	Run-off	NW-WRO09	40-20		No Change
A86 Near Glen Spean	Roybridge	Run-off	NW-WRO10	40-07		No Change
A86 Near Comra	Aberarder	Run-off	NW-WRO11	40-06		No Change
A85 Glen Dochart – Lix Toll	Glenogle	Run-off	NW-WRO12	40-24	PB-6	No Change
A85 Glen Ogle	Glenogle	Run off	NW-WRO13	40-24	PB-6	No Change
A85 Loch Awe to Brander Lodge	Dalmally	Run-off	NW-WRO14	40-23	PB-7	No Change
A82 Inverarnan to Tarbet	Tarbet	Run-off	NW-WRO15	40-26	PB-10	No Change
A85 St. Fillans - Lochearnhead	McAras Brae	Run-off	NW-WRO16	40-01	PB-8	No Change
A85 Abercairney	McAras Brae	Run-off	NW-WRO17	40-01	PB-8	No Change
A85 Ochtertyre	McAras Brae	Run-off	NW-WRO18	40-01	PB-8	No Change
A85 Cultoquey	Tofts	Run-off	NW-WRO19	40-01	PB-8	No Change
A84 Leny Falls	Drumvaich	Run-off	NW-WRO20	40-25	PB-9	No Change
A83 Stonefield	Kennacraig	Run-off	NW-WRO21	40-28		No Change
A83 Mundells, Tarbert	Kennacraig	Run-off	NW-WRO22	40-28		No Change
A9 Avielochan	Avielochan	Run-off	NW-WRO23	40-05	PA-4	No Change
A9 Moy	Daviot	Run-off	NW-WRO24	40-08	PA-5	No Change
A9 Daviot Northbound	Daviot	Run-off	NW-WRO25	40-08	PA-5	No Change

For both frost susceptible and known surface water run off locations, the ability to monitor and receive up-to-date road surface temperatures and states is critical. All patrol and frontline vehicles are fitted with road condition sensors providing live information to WSDOs/ILOs allowing all areas to be monitored closely. Each patrol driver is provided with a list of vulnerable locations on their route.

Arrangements and mitigation measures for dealing with specific Vulnerable Locations are detailed in Appendix WSP9.

Our Daily Action Plan will include instructions for known areas requiring special attention as provided in Annex 7.2/F.

Item 4 – Decision Making

4.1 Role of the Severe Weather Manager (SWM)

The role of the Severe Weather Manager is to ensure that all procedures detailed in the Winter Service Plan are adhered to and that the most effective action plans are adopted each day to keep the carriageways and footways free from snow and ice.

It is the duty of the SWM to hold regular reviews throughout the winter season to address any problems which may have occurred. This will take the form of briefings to all key staff on nights where difficult road conditions have been experienced. The philosophy will be to have a 'preventative' approach rather than 'reactive' approach in all decision making.

The SWM or Duty Severe Weather Manager will support the WSDO.

4.2 Role of the Winter Service Duty Officer (WSDO)

The WSDO is responsible for decision making, monitoring the ice detection system, monitoring Vaisala for any warnings or audible alarms and taking appropriate action, including updated forecasts and any dialogue with weather forecasters, to assess whether any changes are required to the daily action plan. Where any changes to the daily action plan are considered necessary then the WSDO will relay this information to the Depot Supervisors, confirming the decision.

Precautionary treatments will be undertaken where the road surface temperature is forecast to be less than or equal to 1ºC.

When snow is forecast the WSDO shall consider the forecast elevations of snow using Appendix WSP10 – Route Altitude Map when making the planned treatment decisions.

4.2.1 Winter Service Patrol Mobilisation

From 1 November to 30 April the requirement to carry out a Winter Service Patrol will be established as part of the preparation of the daily action plan and instruction will be given as appropriate in accordance with Schedule 2 Section 6 where the road surface temperature is forecast to be less than or equal to 2ºC.

As per Schedule 2 Section 6.2.21 the winter service patrols shall:

a) patrol all carriageways of trunk roads of the Unit except slip roads;
b) report on road conditions encountered to, and take instructions on treatments from WSDOs;
c) provide an immediate response when instructed to carry out treatments or other de-icing operations by the WSDO;
d) deal with any situation on the winter service patrol route requiring immediate attention;
e) pay particular attention to the areas identified in Schedule 2 Appendix 6 Winter Service Attachment 6.7 Location of Known Vulnerable Locations;
f) undertake short stops for minor maintenance activities such as clearing grips and removing debris; and
g) provide daily reports in the format indicated in Schedule 2 Appendix 6 Winter Service Attachment 6.1 Appendices for Winter Service Plan, Table 6.1.1 Winter Service Patrol Report Record.

h) Report Category 1 defects including potholes and flooding which shall be responded to and recorded by the ILO.
i) Allow for rest periods once patrol run of route complete.

Routes have been designed to comply as follows:

Cat A patrols shall operate from 02:00 – 10:00 at two hourly intervals as per Schedule 2 Section 6.2.25. Between patrols, vehicles will park up at designated locations on their routes.

The route for the Cat A Patrols are designed so that the patrol vehicle, when working, is able to attend any location on its route within 30 minutes of a call from the WSDO/ILO. The "A" patrols alternate between a one-hour patrol and a one-hour standby on each route.

Cat B patrols shall operate from 00:00 to 09:00 at three hourly intervals i.e. 00:00 – 03:00, 03:00 – 06:00 & 06:00 – 09:00 as per Schedule 2 Section 6.2.26.

The winter service patrol routes shall be covered in the same direction in each period as per Schedule 2 Section 6.2.25.

The patrol vehicle will be fully loaded at the commencement of the winter service patrol as per Schedule 2 Section 6.2.23.

Patrols times may be amended from the above times should the weather forecast predict snow accumulations of 0.2cm on the route per hour. This will be identified and actioned during each daily Action plan upon receipt of 36hr forecast.

The winter service patrols will operate out with the specified times when forecasts indicate a high risk of severe conditions due to snow or ice. The vehicles will be used for snow clearance duties on any part of the trunk road network out with the normal patrol times. During the normal patrol times their snow clearance duties will be restricted to their patrol routes. The operational shift pattern used allows these patrols to be operated continuously 24 hours per day.

Winter Patrol Routes are detailed in Appendix WSP3

4.2.2 Proposals for precautionary and additional de-icing treatments when low confidence forecasts shall be issued for variable road and weather conditions

Precautionary treatments will be provisionally identified on an action plan prepared each day by 1300hrs following receipt of an expert weather forecast relayed through the ice prediction system.
Treatments will be in accordance with the treatment matrices detailed in Attachment 6.1 Table 6.11.2 Treatment Matrix Spread Rates for Precautionary Treatments when road surface temperatures are forecast to fall to less than or equal to 1^{o}C and/or when snow conditions are forecast as per Schedule 2 Section 6.3.5.

Thereafter, and in particular where forecasts are of low confidence, conditions will continue to be monitored by the WSDO; and where conditions require further precautionary treatments, these will be ordered whether part of the action plan or not. Where reserve vehicles are to be deployed to vulnerable locations this will be included as a plough and treat as necessary within the daily action plan and locations identified in the text of the daily action plan email.

4.2.3 Proposals for monitoring the effectiveness of de-icing materials

Winter Duty staff will use a variety of methods to assist with assessing the effectiveness of the de-icing materials which have been spread on the carriageway. These methods include:

- Weather stations detail residual salt and give alarms to indicate low residual salt under certain conditions, however, it should be remembered that particularly in drying out conditions such readings may be unreliable
- Warnings and alarms from weather stations
- Experience of local areas and previous actions
- Feedback from drivers & road condition sensors
- Footage from forward facing dash-cams on winter patrol vehicles, available to Duty staff and Traffic Scotland staff on a web-based application Dashcams specification shall be as per Schedule 5 Appendix 1/79.
- Advice from weather forecasters, particularly on likely precipitation (use of weather radar) which may cause salt to be washed from carriageway
- Feedback from external parties such as Police Scotland

The above will be used by the duty staff to make an informed decision as to the status of residual salt on the carriageway, and whether further treatment is required.

4.2.4 Road closure Metal Swing snow gate operational procedures

See 9.1.2

4.2.5 Proposals for dealing with areas requiring special attention

See Item 3 Arrangements and Mitigation Measures for Dealing with Vulnerable Locations and Appendix WSP9 Arrangements and Mitigation Measures for Vulnerable Locations.

4.2.6 Proposals for Using Alternative De-icers in Extreme Temperatures

When Road Surface Temperatures are forecast to be less than MS 7 ºC consultation with the Director shall be held with a view to potentially utilising alternative de-icers which are more effective at such temperatures.

Alternative de-icers can be used neat as a de-icer or added to brine to make the brine/salt mixture more effective at low temperatures. The alternative de-icer causes an exothermic reaction bringing the temperature up to MS 5°C where salt starts to be reactive.

<u>Method 1 - Precautionary Treatment with alternative de-icer</u>
Consideration should be given when road surface temperatures are forecast to be below MS 7 ºC to consider substituting the brine with a blend of brine and alternative de-icer in certain climatic conditions.

- Safecote should be used as a straight replacement for brine.

- Magnesium Chloride should be blended with the brine in a 30% magnesium chloride to 70% brine mixture.

- Potassium acetate is used specifically on bridge decks and is spread neat from additional

tanks on modified combi-spreaders. Refer to specific route treatment cards.

Method 2 – Used neat on hard packed ice from a spray tanker or combi-spreader
Alternative de-icers such as Safecoat and Magnesium Chloride, etc can be used as spot treatments in the event of hard packed ice. Both will operate in extremely low temperatures where traditional Rock Salt is ineffective.

Once the Safecoat and/or Magnesium Chloride is applied to the surface of the ice a further application of salt may be required. A period of time may be required between each application as this helps to break down the hard-packed ice. If the ice is particularly thick and conventional ploughing is not successful then the Raiko Icebreaker or a hard-edged plough could be used. Two of the tractors used by BEAR Scotland will be capable of operating an icebreaker.

Item 5 – Liaison and Communication

5.1.1 BEAR Scotland shall consult with operational partners in the preparation of the Winter Service Plan and discuss winter service provision at the regular liaison meetings held with the adjacent local authorities and Operating Companies to ensure that there are no issues at boundary interfaces. We will also undertake liaison meetings with Police Scotland prior to the start of the winter season to apprise them of the details of the Winter Service Plan. SAIS were contacted and information on the Avalanche issue at Drumochter discussed. They have been added to the Daily Action Plan Winter distribution list and have also supplied a monitoring tool for the area.

We will use a variety of social media platforms to proactively inform the travelling public of the winter service we will provide. For example, Twitter messages will advise the public of the daily forecast, the action to be taken and when it will be carried out.

Link to consultation as follows: **Pre Winter Meetings**

Our plans for liaison and communication are as follows:

(i) The Director

At the completion of each winter season, BEAR Scotland will prepare an Annual Report in accordance with Schedule 2 Section 6.1.19. This report will be submitted to the Director prior to 31 May; and within 15 working days, an annual review meeting will be held to discuss the contents of the report and performance of BEAR for the winter season just ended. Comments will be taken on board by BEAR in the preparation of the Winter Service Plan (WSP) for the forthcoming season and amendments to the previous WSP made prior to submission by 31 July. Completed current certificates of consultation (Certificate #25NW) with key Stakeholders will be uploaded to the BEARnet. The template proforma is included in Appendix WSP25.

On a daily basis, the BEAR Scotland daily winter action plan will be uploaded to Vaisala Manager which Transport Scotland and PAG have access to view.

During periods of prolonged severe weather, BEAR Scotland will update the Director of conditions on the Trunk Road network hourly or other such interval instructed by the Director. This will generally be done via a conference call or the Multi Agency Response Team

(MART). If a road is closed due to severe weather conditions, the Director will be immediately informed by a phone call or text message and confirmed in writing via email within 12 hours of the closure.

Situation reports will be issued at regular intervals to provide updates and / or information on anticipated reopening times to Transport Scotland and Traffic Scotland.

(ii) Police Scotland

For compiling the annual Winter Service Plan, proposed amendments will be discussed with Police Scotland prior to submitting the WSP to the Director for his approval. The discussion shall take the form of reviewing the draft WSP for the forthcoming season. Police Scotland will comment on any problem areas which they think may be improved upon.

During the winter season, it is essential that good communication lines are kept between BEAR and Police Scotland. This is particularly the case during periods of severe weather. A dedicated phone line will be set up for the emergency services and should only be known to them, thus enabling Winter Service Duty Officers to clearly identify emergency calls from any emergency service including Police Scotland.

BEAR Scotland will also liaise closely with Police Scotland during severe weather to ensure that a consistent message is given to media and road users as to road conditions at any moment.

(iii) The Traffic Scotland Operator and Infrastructure Services Contractor

During periods of severe weather BEAR Scotland will liaise closely with Police Scotland and Traffic Scotland so that upon request from the OC consistent and accurate messages can be displayed on the variable message signs and on the Traffic Scotland web site.

BEAR Scotland's Daily Action Plan shall be submitted to the Traffic Scotland Operator on a daily basis, but no later than 14:00 hours.

Situation reports are completed for any incidents on the network resulting in a lane or carriageway is closed. When periods of severe weather are forecast by the Met Office network condition reports will be provided by Multi Agency Response Team staff or Network Hub staff at the frequency requested by Transport Scotland as per Schedule 2 Section 6.2.15 and shall be provided every hour.
Push to Talk radio communication is used by BEAR Scotland MART staff to get site information from drivers.

(iv) Adjacent Local Road Authorities and Trunk Road Operators

Adjacent road authorities, highway authorities, adjacent Trunk Road Operating Companies and DBFOs will be issued with an electronic copy of the WSP.

BEAR Scotland will issue daily to all adjacent road authorities its daily winter action plan and receive the same in return.

Winter issues shall also be an item on the agenda at liaison meetings with all adjacent roads and highway authorities.

(v) Network Rail

BEAR Scotland will submit the daily winter action plan to Network Rail. BEAR Scotland will, in discussion with Network Rail, ensure that appropriate safety precautions are taken when snow ploughing vehicles are negotiating railway level crossings.

(vi) Other Operational Partners

BEAR Scotland will interact with other Operational Partners as required.

Item 6 – Mutual Aid Arrangements

6.1 Mutual Aid

6.1.1 BEAR Scotland will liaise closely with already well-established winter maintenance contacts within all local authorities to co-ordinate resources including labour, plant and salt to assist any party requiring mutual aid.

Management of mutual aid shall be agreed and co-ordinated at a senior management level and shall be recorded in full detail. Mutual aid could take the form of supplying materials, plant or labour.

Any agreement to free resources for mutual aid shall be directed by Transport Scotland in advance, taking into consideration:

- current weather hazards on the Trunk Road network
- weather forecast
- prioritisation of need

DBFO/Local Authority Contacts:

- SE Unit (BEAR Scotland)
- NE Unit (Amey)
- SW Unit (Amey)
- M80 DBFO (BEAR Scotland)
- Police Scotland Trunk Road Policing
- Highland Council
- Argyll and Bute Council
- Stirling Council
- Perth and Kinross Council

Welfare kits as per Schedule 2 Section 6.2.9 – winter service vehicles will carry welfare kits for distribution in the event of a Critical Incident that involves stranded vehicles comprising of the following:

- 24 emergency blankets
- 24 bottles of water
- 24 energy bars (or equivalent)

BEAR Scotland will support the Director in the operation of the Scottish Salt Group as per Schedule 2 Section 6.1.17.

Item 7 – Winter Service Patrols

7.1 Winter Service Plant and Reporting

From 1 November to 30 April inclusive Winter Service Patrols shall be carried out on all routes in the North West network as shown in Appendix WSP3 (Table 6.1.2 Patrol Routes). Appendix WSP3 also contains a map of the Winter Patrol Routes for the North West Unit.

7.1.1 The plant designated to carry out these patrols is detailed in Appendix WSP12 (Table 6.1.6).

7.1.2 Each patrol route driver shall update their patrol record sheet as detailed in Appendix WSP13 Patrol Record during their patrol and submit the final record on completion of their shift which will include any treatments they have carried out. In the event of deteriorating conditions, they will advise the WSDO.

Item 8 – Treatment Routes

8.1.1 Treatment Routes

Route cards for carriageway precautionary treatment routes are detailed in Appendix WSP1 Precautionary Treatment Routes to Table 6.1.2 - 40 g/m2 Routes. The plant designated to carry out these treatment routes is detailed in Appendix WSP12 (Table 6.1.7). The plan for the 2024/25 season is to introduce automated spreading on precautionary treatment routes as the new fleet is commissioned and becomes operational. This system will be provided by our telematics provider Locatu.

All routes have been designed to ensure that treatment time will be completed within 2 hours of commencement as per Schedule 2 Section 6.3.17. Furthermore, each route has been assessed to ensure that the 1-hour contractual response time will be met.

Where TTM remains in place this will be reviewed Weekly to ensure any re-design of routes required to comply with Clause 6.3.17 are captured on a rolling basis. Where required, the carriageway will be treated prior to reopening to traffic.

During all treatments, all Winter Service Plant shall be driven in a manner appropriate to the prevailing weather conditions. The speed limit for salting is 40 mph as per Clause 6.3.6. There are no routes undertaking full route precautionary treatments using a full liquid application.

Dry runs, including fitting and removal of ploughs, will be carried out prior to the 1 October each year.

Records of preparation training will be retained electronically.

A basic map of each proposed route has been provided in WSP1 (Table 6.1.2 - 40 g/m^2 Routes). An electronic version will be developed to incorporate all treated areas including slip roads. These more detailed electronic maps of each route will be held in NW Records Referencing System in BEARnet.

The total width of carriageway areas shall receive precautionary treatments as per Schedule 2 Section 6.3.4 including;

- Slip Roads,
- Hardstrips,
- Turning lanes,
- Central reservation crossovers,
- Contiguous laybys,
- Bus bays,
- Car parks,
- Cycle lanes,
- Hatched areas,

Treatment of 2+1 sections and junctions and areas deemed to be contiguous will be undertaken in accordance with Schedule 2 Section 6.3 Treatments with the spread pattern adjusted to suit the carriageway layout. Areas of more than three lanes will be treated in two passes as per the Route Cards.

Potassium Acetate Treatment Locations

Potassium acetate treatment shall be applied at the locations as follows:

- A87 East of Carrick Bridge to Kyleakin Roundabout – 1600m
- A9 200m South of Dornoch Firth Crossing to 200m North of Dornoch Firth Crossing - 1300m
- A9 NB 200m South of Kessock Bridge to North end of Kessock Bridge – 1300m
- A9 200m South of Cromarty Bridge to Ardullie Roundabout – 2100m
- A9 SB 200m North of Kessock Bridge to South end of Kessock Bridge – 1300m
- A82 WB Longman Roundabout to Shore Street Roundabout (excl Roundabouts) – 500m
- A82 EB Telford Street Roundabout to Shore Street Roundabout – 500m

Footways/cycleways on the above bridges will also be treated with potassium acetate.

Precautionary treatment using potassium acetate will be spread at a rate as determined in Appendix WSP15 Decision Matrices for Winter Service.

(i) Should for whatever reason the normal access to a route be blocked, this route will be accessed from an alternative depot as per Route Cards.
(ii) Precautionary treatment routes will initially be operated from Inverness and Ardelve.
(iii) There are presently no designated cycling facilities within urban areas contained within the network area. Any cycleways that are designated as Category A are detailed in Appendix WSP2.

Category A footways shall receive precautionary brine treatment when the temperature is forecast to be below 1°C after 0600 hours each morning. The brine tank on the footway tractors will be supplemented by additional brine storage carried on the towing vehicle.
Treatment to all Category A footways, footpaths and cycle facilities will be undertaken in accordance Schedule 2 Section 6.3.13 and Table 6.10.3 of Schedule 2 Appendix 6 Section 6.10 as detailed in Appendix WSP2 Footway Treatment Routes and Maps and completed by 0600 hours each morning as per Schedule 2 Appendix 6 Table 6.10.1.

Category A precautionary treatments for footways, footpaths and cycle facilities shall be treated with brine at 20 ml/m^2.

Total width of footways, footbridges, cycling facilities and service roads on bridges shall be treated

If there are problems with the brine production systems at the depots or brine distribution systems on any vehicle which cannot be rectified in reasonable time dry salt will be used to ensure routes are treated in line with the NMC requirements. Should this need arise permission to use dry salt will be sought from TS as required by Sch 2 Cl 6.3.14.

Resilience Precautionary Treatment Routes have been developed in case of a significant driver shortage. A table of routes in available in Appendix WSP24.

8.1.2 As 8.1 (iii) above, there are presently no designated cycling facilities within urban areas contained within the network area. Any cycleways that are designated as Category A are detailed in Appendix WSP2.

Item 9 - Snow and Ice Clearance

9.1 Snow Clearing

Using the 2-5 Day Forecast the WSDO and SWM will consider the need for additional labour and plant to be mobilised to deal with snow.

In advance of an accumulating snow forecast precautionary treatments will be at 40 g/m^2. During snow clearance using ploughs salt will be spread at 40 g/m^2. When the forecaster predicts any snow accumulations of 0.2cm/hr or greater in a Vulnerable Location that includes a gradient the Operating Company shall mobilise frontline and reserve winter service plant to commence treatment at start of route in advance of snow fall, as per Schedule 2 Section 6.2.31, no later than one hour before forecast snowfall.

To comply with Schedule 2 Section 6.3.21 snow plough blades have ceramic inserts. This allows the plough blades to be in full contact with the carriageway surface ensuring full removal of snow. To prevent damage to the carriageway or the plough blades, the ploughs will be operated on a hydraulic float mechanism.

There are no vertical concrete barriers on the North West unit at present.

The total width of carriageway areas shall be cleared of snow as per Schedule 2 Section 6.3.4. Care will be taken to avoid irregular weaving windrows.

- During the annual winter service period snow ploughs shall be fitted to all winter service Frontline and Reserve vehicles when ***any*** reference to *Snow,* or any *Snow accumulations,* are detailed including within any 1 hour increment within any issue or revision of the 24 hour route specific forecast tables or text, or in any reference within the 2-5 day ***unit*** specific forecast provided by the OC/DBFO's Expert Weather Forecaster.
- If the OC WSM /SWM wishes to implement the removal of snow ploughs based on the condition above they shall notify the Director in advance by email prior to the first operations following any removal

- When each and **any** further reference to *Snow* or any *Snow accumulations* are detailed in any subsequent 24 or 2-5 day ***unit*** specific forecast provided by the Expert Weather Forecaster the WSM / SWM shall immediately order the fitting of ploughs to all Frontline and Reserve vehicles.
- Treatments will be carried out at the rate specified in the treatment matrix.

9.1.1 Arrangements for Managing Snowfall

A 40g/m2 precautionary treatment will be carried out when snow is forecast on a route to be completed no later than 1hr before snowfall to provide a debonding layer.

Ploughing routes are based on the 40 g/m^2 treatment routes in Appendix WSP1 (Table 6.1.3) focussing on keeping at least one lane open. The clearance procedure for dual carriageways will be to commence echelon ploughing as soon as practicable, utilising the Frontline vehicle for the route affected and minimum of 1 other vehicle.

In the event of moderate or heavy snow and snow showers forecast by MetDesk all available frontline, patrol, reserve and additional winter service plant will be deployed. Where the forecast only affects part of the network appropriate resources will be deployed. See also Appendix WSP17.

Our Daily Forecast also details routes with the potential for Drifting Snow, during the forecasting period. Our forecaster provides detailed updates as required. We may also seek the advice of our weather forecaster out with these update periods as to the severity and nature of the drifting snow.

Treatment and pre-deployment of resources for snow clearing will be based around the advice from our expert weather forecaster.

OC will commence snow and ice clearing treatment at beginning of route within 1 hr of being informed by the EWFS of snow or ice accumulating

Lane to be completed cleared smooth and continuous windrows no sudden encroachments

Details of snow blowers, loading shovels, de-icing vehicles fitted with plough blades and other winter service plant provided directly by BEAR Scotland and through supply chain arrangements can be found in Appendix WSP12.

Where hard packed snow and ice not exceeding 20mm thick has formed, and the air temperature is above minus 5°C, removal will be achieved by successive spreading of de-icing material. Below minus 5°C or where the snow or ice is more than 20mm thick great care will be taken as the use of de-icing material alone can result in an uneven and slippery surface. A single sized abrasive aggregate of particle size of 6mm, or 5mm sharp sand and having low fines content will be added to the de-icing material on a 1:1 ratio. Reversion to the use of de-icing material only will be made as soon as possible. Abrasive aggregates will be considered as a supplement in urban areas where de-icing material alone would provide an unacceptably slippery surface.

Treatments will be carried out at the rate specified in the treatment matrix.

During prolonged periods of snowfall at locations where the use of salt for de-icing is prohibited such as bridge decks, ploughing will be continuous followed by applications of Potassium Acetate as required. If snow becomes hard packed consideration will be given to applying 5mm sharp sand to aid traction while snow clearing operations are being carried out.

RST continue to fall & need for ploughing continues, or hard packed snow or ice formed spread rates increases as per S2:App6:Att6.1:Table 6.11.2 & 6.11.3

In extreme conditions, such as when temperatures drop below levels at which sodium chloride is ineffective, the Operating Company will use alternative de-icing materials (e.g. Magnesium Chloride). See 4.2.6 above.

Should hard packed snow or ice be present consideration will be given to deploying additional measures such as using a Raiko ice breaker and/or using the alternative de-icing agent Magnesium Chloride.

Transport Scotland to share 2 ice breakers on priority basis, all Operating Companies to arrange for storage and sharing, 2 Front Lines to be capable of fitting and operating ice breakers.

During snow clearing operations all Winter Service Plant shall be driven in a manner appropriate to the prevailing weather conditions.

Appendix WSP15 Decision Matrices for Winter Service provides Contractual target timescales for snow clearance.

9.1.2 Road Closure Procedure Including the Use of Metal Swing Snow Gates

Any decision to close a road will normally be taken by Police Scotland.

The WSDO, the Director and Traffic Scotland will be informed immediately by telephone, and In writing within 12 hours, of any decision to close a road, or of other major problems encountered within the Unit due to winter weather conditions.

Police Scotland will normally notify the other Emergency Services of road closures and the WSDO / ILO will notify the local Roads Authorities of any relevant trunk road closures.

The WSDO / ILO will liaise with and co-operate with Police Scotland to control the snow gates, if applicable, until a search of the road between the gates has been undertaken to ensure that no vehicles or pedestrians are trapped.

Once it has been ascertained that no-one has been trapped between the snow gates, the gates will be secured and all BEAR Scotland personnel withdrawn except those involved in the clearance of snow.

When it is considered safe, Police Scotland will request BEAR Scotland assistance to open the gates. The WSDO / ILO shall immediately inform Traffic Scotland and the Director of the reopening of the road. A written report will be submitted to the Director within 12 hours (or if outside of normal working hours then the morning of the next working day) of Police Scotland instructing the road closure.

Padlocks for each gate will be operated by number code with details held at the Network Hub and provided to Police Scotland.

In certain situations (e.g. Amber/Red Met Office snowfall warnings) and following discussions with Police Scotland it may be necessary to have plans in place to restrict access to parts of the network. In order to achieve this pre-deployment of signs and cones to specific locations would be necessary based on the level of warning and forecast.

In exceptionally severe conditions, such as blizzards, resulting in reduced visibility and deep drifting snow the SWM may decide that it is unsafe for operational staff to continue to clear snow or ice and operations may have to be suspended until conditions improve. Such occurrences are likely to be extremely rare and the SWM would consult with the Police, the Director, the expert forecaster and Traffic Scotland prior to making such a decision.

9.1.3 Prolonged Snowfall Strategy

During prolonged periods of snowfall, ploughing will be continuous to prevent a build-up of snow and compaction by traffic until the road is clear and snow fall has stopped. Reserve and additional winter service plant will be used to supplement frontline winter service plant in snow conditions, when required.

RST continue to fall & need for ploughing continues, or hard packed snow or ice formed spread rates increases as per S2:App6:Att6.1:Table 6.11.2 & 6.11.3

When planning and carrying out snow clearance, BEAR Scotland will pay attention to the layout of the carriageway in terms of the overall number of lanes and the location of entrance and exit slip lanes. Snow clearance of slip roads will be co-ordinated with main carriageway clearance, and a clear path kept open between those entry and exit points where frequent lane changes are necessary.

Clearance of snow from contiguous and remote laybys will be carried out once the main carriageway, junction areas and crossovers have been cleared of snow.

At roadworks, traffic management equipment must not be disrupted. An accumulation of ploughed snow creating a ramp adjacent to safety fences and concrete barriers will be avoided.

Where snow ploughing is not possible, for example:

- in exceptional circumstances when the snow on the road is deep and cannot be removed by conventional ploughing
- when de-icing treatment over packed snow is likely to provide an unacceptable surface,
- when the traffic is insufficient to disperse the snow

BEAR Scotland will lift, remove and dispose of snow and ice and/or utilise snow blowers, with the snow being directed onto adjacent land (where BEAR Scotland has obtained the prior agreement of the landowner and the Scottish Environmental Protection Agency). Such operations will be followed by de-icing treatment. Snowblowers will comply with the requirements of Schedule 2 Section 6.5.14 and Section 6.5.15.

When snow ploughing or snow blowing operations are undertaken care will be taken that snow does not build up across:

- railway tracks or against gates
- bridges
- parapets
- fences and safety fences
- walls and other boundaries

Speeds of ploughing vehicles will be regulated, particularly at features such as underbridges where snow could be thrown over the bridge parapet, and adjacent to the central reserve where snow could be pushed into the opposing carriageway. When ploughing snow, other vehicles will not be overtaken unless stationary. OC will lift and remove snow or ice from multi-level & grade separated interchanges where necessary. Disposal sites agreed with SEPA. OC to provide TTM for these ops.

9.1.4 De-icing and spread rates for snow and ice clearance of carriageways are detailed in Appendix WSP15 Decision Matrices for Winter Service

9.1.5 When ploughing wide single carriageway roads to remove snow accumulations from the two-lane section of three lane sections of road, the priority will be to keep lane 2 open to traffic, and the procedure will be to plough snow from lane 2 into lane 1 initially. Once lane 2 is free of snow, all resources will concentrate on lane 1, ploughing snow towards the carriageway channel. This particularly applies to WS 2+1 roads and roads with crawler lanes.

9.1.6 Resources shall be deployed to ensure that footways, footbridges & cycle facilities are cleared of snow and ice in accordance with Schedule 2 Appendix 6 Table 6.10.2. Snow Clearance Operations on Category A Footways as detailed in Schedule 2 Appendix 6 Table 6.10.3 will be undertaken between 0600 hours and 1900 hours. Footways should be cleared of snow within 2 hours of snowfall ceasing. Footway tractors will have data loggers to record material spread rates and locations. Any areas spread from a backpack will be detailed in a daily work record.

All Winter Service Plant shall be fitted with Data Loggers.

9.2 Maps showing details of the footways, footbridges and cycle facilities are detailed in Appendix WSP2 Footway Routes

During snowfall additional resources will supplement precautionary treatment routes resources to meet Contractual requirements in accordance with Schedule 2 Appendix 6.10.3. Where necessary supply chain partners will be deployed. These resources will utilise small tractors with ploughs, small footway snow blowers, walk behind pedestrian ploughs and mini excavators. Where machine snow clearance is not suitable, snow clearance and de-icer treatment will be carried out by hand.

Following snow & ice clearance from Footways, Footbridges, Cycling Facilities full width to be treated with de-icing material as per Cl 6.3.12

Where there is a willingness to get involved, we will propose providing them with self-help kits of backpack brine sprayers, intermediate bulk containers of brine, hand-push salt spreaders, salt stocks, snow shovels and personal protective clothing. Training and induction in safe working methods will be provided to all volunteers.

Item 10 – Freezing Rain/Rain Falling on Extremely Cold Surfaces

10.1 Advance Planning

The prediction of freezing rain is difficult and the action necessary to deal with it is problematic. The very nature of freezing rain means that treatments will have virtually no effect initially and ice will form on the carriageway. Considering the limits in the effectiveness of treatments in dealing with freezing rain it is essential that practical measures are implemented to provide warning to road users of the hazardous conditions. Measures for dealing with Freezing Rain fall into three main areas: Advance Planning, Operational Arrangements and Hazard Mitigation.

These measures are considered in further detail as follows:

10.1.1 Advance Planning for Freezing Rain / Rain Falling on Extremely Cold Surfaces

(i) Advance planning includes consideration of the potential impact of freezing rain and development of contingency arrangements to mitigate the effects. These contingency arrangements are documented below.

If freezing rain occurs during a forecasted period of severe weather that necessitates a Yellow or Amber Met Office Severe Weather Warning the MART may be activated.

Any Police Scotland response to freezing rain would be part of a multi-agency operation and would be subject to other ongoing operational commitments.

Advance signing of the forecast of freezing rain may be signed on the Traffic Scotland national network of VMS, with an appropriate legend such as:

FREEZING RAIN FORECAST PLAN AHEAD

The use of social media platforms, at a strategic level, can also be used to provide advanced warning of the forecast conditions and what the general public should expect should such weather conditions prevail.

Specific measures which BEAR will take are as follows:

- Outline operational arrangements for carrying out Precautionary Treatments are documented within this WSP under Appendix WSP1. 40g/m^2 Precautionary Treatment Routes will be utilized.

- Although the adverse effects of freezing rain can impact across any part of the network, particular consideration will be given to those parts identified as Vulnerable Locations in Appendix WSP9.

- On receipt of a forecast of freezing rain or rain falling on extremely cold surfaces, a conference call will be initiated with the Director (Transport Scotland), Traffic Scotland, Police Scotland and appropriate Local Authorities and service providers in the affected area.

Topics for discussion should include:

- Forecast and expected timings
- Extent of routes affected
- BEAR Scotland Plant & Police Scotland Resources
- Police travel / no travel advice
- Advance VMS warnings
- Social Media / Media Release

(ii) Risk Assessments

Freezing rain will require to be treated in a similar manner to snow. Refer to risk assessment and method statements for snow clearance available in BEARnet.

10.2.1 Operational Arrangements

(i) As above freezing rain will have to be treated in a similar manner to snow i.e. treatment in advance of, during the event and then treatment following as required.

Freezing rain usually occurs along the line of an incoming warm front. To ensure maximum effectiveness of the salt, the advance treatment should be made in the same direction and immediately in advance of the weather front. The weather radar, provided by MetDesk, will be used by the WSDO to determine the timing of the treatment and where practicable, the direction of treatment.

Consideration will be given to stationing vehicles at the point on the route where the weather front will first hit in order that timely treatments can be undertaken.

(ii) Salt will inevitably be lost during and following treatment, therefore constant monitoring will be required. Successive treatments will be required during rainfall and continued until such time that the rain has ceased, or the temperature of the road has risen above freezing.

It is likely the first confirmed instances of freezing rain will either be from the winter drivers patrolling during the event, from members of the public or Police Scotland.

10.3.1 Hazard Mitigation

(i) The very nature of freezing rain means that treatments will have virtually no effect initially and ice will form on the carriageway. Mitigation of the hazard is therefore a significant aspect of the actions taken in response to freezing rain or rain falling on extremely cold surfaces.

The main action is to inform road users of the hazard, however more pro-active measures may be required.

The national network of VMS operated by Traffic Scotland should be used to warn road users of the hazard.

TRISS units may be deployed to provide localised warnings utilising the vehicle mounted VMS.

(ii) Consideration should be given to closing the road as the rain arrives and holding traffic (rather than diverting) until such times as it is deemed safe to proceed.

Consideration could be given to the use of rolling blocks and convoy arrangements to either hold or slow traffic down both just prior to and during the event. Again, this will require resources from Police Scotland as only they have the legal authority to control traffic in this manner and would be subject to ongoing operational commitments.

In addition to the arrangements made in respect of advance planning, operational procedures and hazard mitigation, it will be necessary to consider the arrangements to be implemented should incidents occur as a result of the freezing rain.

These should follow existing procedures set out in the Disruption Risk Management Plan for the management of Major and Critical Incidents.

Item 11 - De-icing Materials

11.1 Details

De-icing materials will primarily comprise rock salt and potassium acetate. In extreme conditions, such as when temperatures drop below levels at which rock salt is effective, BEAR Scotland will use alternative de-icing materials such as magnesium chloride, blended in the pre-wet liquid. See 4.2.6 above.

11.1.1 (i) Specification

Potassium acetate used for de-icing operations will comply with the AMS 1435D: Liquid Runway De-icing/Anti-icing Product .

Salt storage to ensure m/c not > 4%. If > 4% OC to take measures to ensure compliance. Where m/c inc to deal with low humidity spread rate not increased. No arisings from brine production disposed of in salt stockpiles as per Clause 6.4.5

Salt for de-icing will be 6.3mm grading particle size complying with BS3247 and treated with an anti-caking agent. Marine salt for brine production will also comply BS3247. No arisings are anticipated from this marine salt but should arisings exist they will be treated as waste and not added to the stock pile.

For pre-wetting salt, the percentage of salt brine added to salt for spreading Operations will be 30% of the total weight of spread material, and the saturated salt in the brine solution before combination will be 23%.

Brine will be produced and stored in purpose-built salt saturators sited at Perth, Inverness, Ballinluig, Killin, Inveraray, Machrihanish, Oban, Corpach, Ardelve, Kingussie and Dunbeath depots. These saturators will automatically produce and store brine of the correct concentration and transfer it to saddle tanks located on the spreaders by means of an integrated pump. Digital read outs are fitted to brine production facilities, with remote access to those read outs and an alarm for notification of loss of production or out of specification production. A text message is sent to nominated persons in the event of any brine production problems arising. The system shuts down production until corrective action is undertaken to ensure brine is only produced at the correct percentage. Remote access will be arranged for the Director and PAG, where requested. In addition, daily checking of brine concentration in the saturators will be carried out by Depot Supervisors by means of a refractometer, and records held electronically. The saturators will be serviced on an annual basis through a

service contract with the manufacturer. The water pipes to the saturators will be frost protected to ensure they can operate in extreme temperatures.
Brine production units have the capability of fully replenishing themselves within 2 hours of being depleted in accordance with Schedule 2 Clause 6.4.15.

Where air temperatures are forecast to fall below MINUS 15° Celsius the brine will be diluted by an additional 5 to 10% of water to prevent recrystallisation. Ensuring that that the solution is well mixed.

Typical analysis from our salt suppliers are shown in Figures 7 and 8.

Chemical Analysis	BS3247	SSC typical
	Percent	percent
Total Chlorides expressed as NaCl	90.0 minimum	91.0
Insolubles	7.0 maximum	6.5
$CaSO_4$	2.5 maximum	2.5
H_2O	4.0 maximum	

Particle size distribution	BS3247	SSC typical
Mesh size (mm)	% retained	% retained
+6.30	0	0
+5.60		0
+2.36	20 – 70	30
+1.18		0
+0.30	80 minimum	87

Reagent Addition	Typical (ppm)
Anti-caking agent	80ppm

Figure 7: Typical Specification for Dry Salt Supplied by Cleveland Potash

Chemical Analysis	BS3247	PS typical
	Percent	percent
Total Chlorides expressed as NaCl	90.0 minimum	98.5
Insolubles	7.0 maximum	0.5
$CaSO_4$	2.5 maximum	1.0
H_2O	4.0 maximum	1.0

Particle size distribution	BS3247	PS typical
Mesh size (mm)	% retained	% retained
+6.30	0	0
+5.60		1
+2.36	20 – 70	35
+1.18		63

+0.30	80 minimum	90
Reagent Addition	Typical (ppm)	
Anti-caking agent	30ppm	

Figure 8: Typical Specification for Brining Salt Supplied by Peacock Salt

(ii) Storage

BEAR Scotland will undertake environmental risk assessments of all depots to identify measures necessary to ensure that SEPA guidelines and requirements are adhered to. Materials will be stored within a covered structure or within bulk containers and in accordance with current planning, environmental regulations and as per Schedule 2 Appendix 6 Section 6.13.1 'Specification for Salt Storage Facility'.

As de-icing salt is removed from storage areas, a positive slope will be maintained to avoid danger to operatives and winter service plant from the collapse of stockpile cliff walls. BEAR Scotland will ensure that de-icing material stockpiles are managed and safeguarded effectively and those stockpiles do not become contaminated with foreign matter likely to cause damage to winter service plant, cause non-compliance with Schedule 2 Section 6, or affect other trunk road users, by storing all salt on either a concrete or bituminous base.

(iii) Testing Methods

Salt shall be tested in accordance with BEAR Scotland Procedure 093 – Winter service salt testing, to ensure that the salt complies with BS3247 within 10 working days of each delivery of 500 tonnes.

Moisture content will be tested Monthly to ensure its within specification and a moisture content of 4% or less.

(a) Moisture content (one (1) test per five hundred (500) tonnes),
(b) Particle size distribution (one (1) test per five hundred (500) tonnes),
(c) Chloride content (one (1) test per one thousand five hundred (1500) tonnes), and
(d) Soluble sulphate compounds (one (1) test per one thousand, five hundred (1,500) tonnes)

To ensure that BEAR Scotland does not receive salt which does not comply with BS3247, all our salt suppliers will be ISO9001 accredited. Should a supplier deliver de-icing salt which is non-compliant, the following procedure will be implemented:

- The supplier will be notified as soon as possible
- The severity and type of failure will be analysed
- If the failure can be rectified (i.e. moisture content) then a solution will be sought with the supplier
- If the failure cannot be corrected, arrangements will be made with the supplier to deliver further supplies of de-icing salt and remove the supplies which failed.

Salt stored in depots found, through monthly testing, to be non-compliant with BS3247, will be quarantined in a separate stockpile and will not be used for treating the Unit.

A register of Salt testing results shall be stored within the OC's Management System Sharepoint in the form of a spreadsheet..

(iv) Suppliers

BEAR Scotland has developed arrangements with national de-icing material suppliers:

- Cleveland Potash Ltd. Boulby Mine, Loftus, Saltburn-by-the-Sea Cleveland, TS13 4UZ
- Irish Salt Sales 10 Fort Road, Carrickfergus BT38 9BT
- Peacock Salt, Jura Terminal, North Harbour, Ayr, KA8 8AE
- OMEX Environmental Ltd, Bardney Airfield, Tupholme, Lincoln LN3 5TP
- Safecote Ltd, Winnington Hall, Northwich, Cheshire, CW8 4DU
- LNT Solutions, Helios 47, Leeds LS25 2DY

(v) Importers

All suppliers are currently within the United Kingdom.

(vi) Stock Levels

A table of salt stock levels is included in Appendix WSP18 De-icing Materials - stock levels for all de-icing material by depot.

During the winter period, salt stock monitoring reports will be made to the Director using the salt reporting system portal at https://cms.traffic-scotland.co.uk/ as per Schedule 2 Section 6.1.18 (a) and (b). An explanation of how the number of resilience days at each depot will be calculated and reported is included in Appendix WSP22 Salt Resilience Days per Depot.

Upon request by the Director, daily salt monitoring reports will be provided within 4 hours of receipt of the request.

Daily depot resilience days will be reported each day during the winter period as per clause 6.1.21(f).

(vii) Restocking and Monitoring

BEAR Scotland shall provide the minimum operational salt stock levels at the start of the Winter Service Period as per Schedule 2 Appendix 6 and as detailed in Appendix WSP18 De-icing Material Stock. If salt stocks have reduced to 90 percent on 21 December in any Winter Service Period, the Operating Company shall restock to 100 percent of the full pre-season stocks.

Salt stocks will be continuously monitored and managed. During the winter period, a detailed daily return of salt used will be entered into Vaisala RoadDSS Managers Salt Management system by the WSDOs/ILOs and salt deliveries will be entered into the system by the SWM. During snow conditions a daily report of salt usage will be submitted. This continuous monitoring will ensure salt stocks are replenished timeously. Salt stocks shall be surveyed 7 days before the start of each winter service period and 5 working days before the 21 December and 15 February during every Winter Service Period by an independent specialist surveyor. A copy of the survey report including calculations will be provided to the Director no later than one day after receipt.

The procurement of salt will be on a call-off basis and triggered by minimum stock levels at each depot. The SWM is responsible for the ordering of salt.

Alternative de-icing materials (Magnesium Chloride) will be restocked to 50,000 litres when the stock level has fallen to 30,000 litres. Restocking to be within 7 days as per Schedule 6 Clause 6.4.20.

11.1.2 The cumulative minimum salt stock level at the beginning of the season is 35,000 tonnes. Appendix WSP18 De-icing Materials - stock levels for all de-icing material by depot.

Item 12 – Strategic Salt Stocks

As ordered by the Director, BEAR Scotland will procure, transfer and store strategic salt as required.

Item 13 – Winter Service Plant

13.1.1 In accordance with Schedule 2 Appendix 6 Winter Service Attachment 6.1 Appendices for Winter Service Plan:

13.1.2 Frontline Winter Service Plant

All winter plant is detailed in Appendix WSP12 as per Schedule 2 Appendix 6 Section 6.5.19 All frontline and reserve fleet will be fitted with a navigation routing package incorporating Auto-Salt. Using a dash mounted tablet with 3D navigation, route and live ambient condition monitoring from the MD30 sensors will be available to the winter service operator and the WSDO. This system will also interface by providing data integration for all peripherals such as spreading and ploughing activity, ambient monitoring and route compliance/completion.

All Winter Service plant comply a) Section 6, b) fitted with snowplough & c) Min 2 additional headlamps

The system will notify drivers of known run off locations, gradients, etc which facilitates treatment of areas requiring special treatments as listed in item 3 above.

(i) (Table 6.1.6) Frontline Plant and Patrols for Carriageways
(Table 6.1.7) Frontline Plant for Footways and Cycling facilities
(Table 6.1.8) Reserve Plant

One Reserve Vehicle is provided for every 4 Frontline Vehicles as detailed in Table 6.1.6.

The Operating company will update Transport Scotland with fleet information and consult and seek approval on spreader names via the Engagement Manager.

13.1.3 Additional Winter Service Plant

(ii) (Table 6.1.9) Additional Winter Plant

(iii) Loading Winter Service Plant - 11 loading shovels will be permanently available within the Unit, 1 at each of the following depots**:** Perth, Inverness, Ballinluig, Killin, Inveraray, Machrihanish, Oban, Corpach, Ardelve, Kingussie, and Dunbeath.

An electronic register will be maintained within BEARnet containing details of the operational status of the winter fleet and loading plant. This register will be used to provide daily operational updates as per Schedule 2 Section 6.1.18 (e).

In the event of a breakdown of frontline winter service plant the cause, time and location will be recorded in the Vaisala Manager diary facility within 1 hour of the breakdown occurring. Where practical the vehicle will be returned to the nearest depot and a replacement vehicle mobilised.

In the event of an on-board electronic data logger malfunction the Operating Company shall prepare a similar written record within 12 hours of the malfunction occurring.

13.2 Calibration of Winter Service Plant

13.2.1 Calibration Arrangements

In September and January of each Annual Period, the Operating Company shall calibrate all equipment for spreading de-icing material:

- in accordance with the requirements of BS1622, or
- where BS1622 does not provide for the calibration of any de-icing spreading equipment, in a manner proposed in writing by the Operating Company and consented to in writing by the Director. As a minimum the Operating Company shall provide details of the Winter Service Plant supplier's calibration method to the Director, and
- in accordance with the requirements of the specific material being used
- September testing shall comply with the requirements of tests 'A' and 'B' and January testing shall comply with the requirements of test 'B' of BS1622.
- Re-calibration and testing shall be carried out after repairs to the spreading equipment and at other times when necessary to ensure the accuracy of de-icing material spreading.

All calibration and re-calibration shall be independently carried out and certified. Calibration certificates shall be held in the Operating Company's Management System.

Calibration of spreaders will be carried out in accordance with the National Winter Service Research Group document ‘Best Practice Guidance for Spreading Salt’.

All calibrations will be carried out in BEAR Scotland depots.

13.2.2 Calibration Certificates

The certification for these independent calibrations will be held in the Central Office, in accordance with our documented Quality Management System. Copies of the calibration certificates will be held in the relevant depot for the vehicle. Calibration Certificates will be available for inspection by the Director and the Performance Audit Group at any time on BEARnet.

Item 14 – Compounds, Depots and Facilities

14.1 A schedule of compounds, depots and facilities covering the network within the North West Unit is included in Appendix WSP14.

Item 15 – Maps, Drawings and Graphical Information

15.1 Maps

(i) Precautionary treatment routes including summary table of routes, route card and route map (20 g/m^2 and 40 g/m^2) – see Appendix WSP1
(ii) Precautionary treatment routes for footways, footbridges and cycleways including summary table of routes, list of all Category A footways, detailed treatment location map – see Appendix WSP2
(iii) Reactive treatment routes for footways, footbridges and cycleways – See (ii) above
(iv) Winter Service Patrols Routes Category A and B – summary table of routes, map of Unit showing all routes - see Appendix WSP3
(v) Ploughing Routes – as per 40g/m^2 routes in (i) above.
(vi) Weather Stations – see Appendix WSP4
(vii) Snow Gates – see Appendix WSP5
(viii) Snow Fences – see Appendix WSP6
(ix) Shelter Belts – see Appendix WSP6
(x) Snow Poles – see Appendix WSP5
(xi) Snow and Ice Folding Message Signs – see Appendix WSP7
(xii) Salt Bins – see Appendix WSP8
(xiii) Vertical Concrete Barriers – not applicable
(xiv) Other Facilities – not applicable
(xv) Where Route Based Forecasting is not used, Climatic Domains and the Sensors Used to Generate Domain Forecasts – not applicable

Item 16 – Compiling and Maintaining Records

Records of decisions, amendments to decisions, actions taken and patrol communications will all be maintained on electronic logs in the Network Hub. It is the responsibility of the WSDO to ensure all winter records (electronic and 'hard' copies) are collated and maintained.

On completion of a precautionary treatment the weight of de-icing material used is input to Vaisala Manager and checked against the route target tonnage spreadsheet (See Appendix WSP20). Should it be below the minimum target tonnage of 90 % of the target route tonnage the WSDO decides what action to take. Any decisions taken will be recorded within Vaisala Manager. WSP13 contains examples of forms completed by Winter Maintenance Operational Staff.

Any Problems and actions to resolve will be recorded on the Daily record sheet.

Longer Term Solutions will be recorded within our quality management system.

The vehicle data logs will be interrogated for effectiveness and efficiency of the operations. A daily report on the preceding days winter maintenance operations will be submitted to the SWM for perusal and action where required. In addition, records as detailed in Schedule 2 Appendix 6 will be held in appropriate electronic logs.

The following table identifies the typical records and reports required and where they will be held electronically:

Attachment 6.8 – Records required to be retained	Currently held in
Summary Forecast and Actual Weather data	Vaisala Manager
Decisions taken, when and by whom	Vaisala Manager
Planned and actual treatment Records	Vaisala Manager
Planned and actual response times achieved	Vaisala Manager
Planned and actual commencement times	Vaisala Manager
Planned and actual Route times	Vaisala Manager
Planned and actual spread rates	Vaisala Manager
Observations and actions taken by the Winter Service Patrols	Vaisala Manager / BEAR Call log
Loading point de-icing stocks and replenishment orders	Vaisala Manager
Weight and volumes as appropriate for the amount of de-icing material spread on each Route for each treatment.	Vaisala Manager
Actual salt stocks held including strategic salt stocks	Vaisala Manager
Number of treatment days (capability) of de-icing material available for each depot based on six treatments per route per day at 20 g/m^2	Vaisala Manager
Ice prediction system Records	Vaisala Manager
Output from Winter Service Plant on-board data loggers to Schedule 5 Clause 2803AR All Winter Service Plant shall be fitted with Data Loggers.	Locatu
Plough usage	Locatu
Winter Service Plant down time and software faults	Locatu / BEAR Fleet Defect Reporting
Winter Service Plant Deployment Records (including vehicle location Records) and driver and operator logs	Locatu
Log (both manual and electronic) for telephone, email and two-way communication calls	BEAR CMS log
Complaints by members of the public and Trunk Road users	TRCC & BEAR CMS log
Accidents during winter conditions	BEAR CMS log
Road closures due to weather conditions	BEAR CMS log
Pre- and mid-season road sensor calibration systems	BEARnet
Winter Service Plant Calibration Certificates	BEARnet
Weather Forecast Accuracy	BEARnet
Any other relevant information	BEARnet

Figure 9 – Records required to be retained

A shared area shall be set up on the BEAR Scotland central computer server where appropriate files not stored on Vaisala Manager and Locatu to which Transport Scotland and Performance Audit Group require access will be stored. All winter service records are to be uploaded to BEARnet by 15:00hrs, the day after commencement of the treatment.

For clarity, the treatment times run from midday to midday . The remote access for all files stored on the shared area will be read only access to ensure the integrity of files.

Transport Scotland, Traffic Scotland and PAG shall have read access to the Vaisala Manager and the Locatu system which includes all ice sensor data such as road surface temperature, road surface state and camera images etc. The system can be used to generate various live reports in relation to actual treatments, timings, salt usage etc, as and when required.

All telephone calls to and from the Network Hub shall be recorded and stored on the BEAR Scotland computer system which can be accessed if required.

The daily winter action plan shall be uploaded to the Traffic Scotland website daily by 14:00 hours.

Item 17 – Snow Poles

17.1 Maintenance, replacement of damaged or missing snow poles, refurbishment and reserve stocks.

Snow poles are located on the A83, A85, A835, A86, A889, A82 and A9 as included in Figure 10 below.

The Operating company shall supply and erect snow poles. To be inspected annually prior to start of Winter Service Period to be functional and effective appearance throughout Winter Service period.

During the Winter Service Period, damaged snow poles which pose a risk to road users, pedestrians or cyclists, or two or more consecutive missing snow poles will be treated as Category 1 defects. Where possible a temporary repair will be undertaken by the Safety Inspection Team, and in any case within 24 hours of the identification of the defect.
A permanent repair will be undertaken within 28 days of the identification.

The refurbishment of snow poles will be undertaken prior to each Winter Service Season as a result of submitted annual bids.

Across Central, Subordinate and Area depots a reserve stock of 40 snow poles will be stocked at the commencement of each Winter Service Season to ensure that damaged or missing snow poles can be replaced quickly and efficiently.

Route	Link	Section	Start Chainage	End Chainage	Spacing (metres)	Number
A83	16512	19	4400	6930	50	50
	16512	19	4400	6930	50	50
	16512	59	0	2370	50	47
	16512	59	0	2370	50	47
	16512	73	0	3600	50	72
	16512	73	0	3600	50	72
	A83 Total			**338**		
A85	11910	05	0	680	50	14
	11910	05	0	680	50	14
	11910	08	0	2608	50	52
	11910	08	0	2608	50	52
	11910	20	0	3206	50	64
	11910	20	0	3206	50	64
	11910	37	0	4964	50	99
	11910	37	0	4964	50	99
	11910	59	0	3957	50	79
	11910	59	0	3957	50	79
	A85 Total			**616**		
A835	18010	05	30	2040	50	40
	18010	10	80	200	50	2
	18010	50	2335	4240	50	38
	18010	50	3779	4240	50	9
	18010	60	0	6470	50	129

	18010	60	0	6470	50	129
	18010	70	0	7880	50	157
	18010	70	0	7880	50	157
	A835 Total			**661**		
A86	12940	65	90	3236	50	64
	12940	65	90	3236	50	64
	12940	65	200	400	50	5
	12940	65	100	400	50	4
	A86 Total			**137**		
A889	12705	05	0	180	50	3
	12705	05	0	180	50	3
	12705	05	865	1170	50	6
	12705	05	865	1170	50	6
	A889 Total			**18**		
A82	10838	05	0	2632	50	52
	10838	05	0	2632	50	52
	10850	05	260	3156	50	57
	10850	05	260	3156	50	57
	10850	11	15	3214	50	63
	10850	11	15	3214	50	63
	10850	45	45	3165	50	62
	10850	45	45	3165	50	62
	10850	56	16	1097	50	21
	10850	56	16	1097	50	21
	10861	00	41	8981	50	178
	10861	00	41	8981	50	178
	10861	25	0	2515	50	50
	10861	25	0	2515	50	50
	10861	35	0	5797	50	115
	10861	35	0	5797	50	115
	10861	45	0	1200	50	24
	10861	45	0	1200	50	24
	A82 Total			**1244**		
A9	10489	20	0	2120	50	42
	10489	25	350	740	50	7
	10489	25	1135	1404	50	5
	10489	30	0	1130	50	22
	10489	60	165	330	50	3
	10440	44	765	1315	50	11
	10440	44	3300	3800	50	10
	10440	44	4170	4460	50	5
	10440	44	6860	8255	50	27
	10440	44	6860	8255	50	27
	10440	66	0	1317	50	26
	10440	67	0	1312	50	26
	10440	70	0	4540	50	90
	10440	70	5350	8481	50	62
	10440	81	0	8446	50	168
	10440	92	0	3250	50	65
	10440	92	0	3250	50	65
	10441	0	0	7269	50	145
	10441	0	0	7269	50	145
	10442	05	0	4356	50	87
	10442	05	0	4356	50	87

	10442	25	0	5233	50	104
	10442	25	0	5233	50	104
	10442	50	0	1344	50	26
	10442	51	0	1338	50	26
	10446	75	1600	1920	50	6
	10446	75	1800	2630	50	16
	10447	05	0	851	50	17
	10447	10	260	900	50	12
	A9 Total			**1465**		

Figure 10: Locations of Snow Poles

Item 18 – Snow Gates

18.1 Maintenance, Liaison and Operation

Prior to the commencement of the winter service period the Metal Swing snow gates shall be inspected to ensure they are functional and of effective appearance throughout the winter service period.

Refer also to 9.1.2 and Appendix WSP5 Location of Snow Gates.

Item 19 – Variable Message Snow and Ice and Hidden Message Signs

19.1 BEAR Scotland will open snow and ice folding message signs prior to 1 October each year to check their functionality. Any maintenance work required will be carried out. Thereafter signs will be used as required to provide information to the road user regarding weather and road conditions.

19.1.1 A schedule of the snow and ice folding message signs is contained in Appendix WSP7.

Item 20 – Salt Bins

Salt bins will be strategically positioned to assist in the carrying out of footway treatments by 30 September each year. Locations are detailed in Appendix WSP8 Location of Salt Bins

Any missing or damaged salt bins will be replaced within 48 hours of the defect being known.

At the end of each winter seasons the salt bins will be returned to depots, cleaned and any maintenance required undertaken including greasing of hinges. Maintenance will be recorded on Form 402NW.

20.1 Stock Level Monitoring and Replenishment Procedures

Salt bin level monitoring will be undertaken by the safety inspectors and the operational staff carrying out precautionary footway treatments. Replenishment will be undertaken as required.

Item 21 – Salt Measurement Apparatus

21.1 Equipment and locations and recording methods

At our depots in Perth, Inverness, Ballinluig, Killin, Invearay, Machrihanish, Oban, Corpach, Ardelve, Kingussie, and Dunbeath depots weighbridges are installed in order to accurately record the quantities of salt being used.

Spreaders will be weighed at the start and end of each treatment. These weights will be phoned through to the Network Hub and recorded. For the 2024/25 season it is intended to introduce a system where weighbridge weights are automatically downloaded to the Network Hub. It is intended to develop this system over time to eliminate the need for verbal reporting.

Should usage be 10% below the targeted weight for the precautionary treatment of the route then then a retreatment of the entire route will be undertaken unless the forecast or actual hazard for ice or snow has passed.

The facilities proposed will also be calibrated in accordance with manufacturer's instructions in September and January each year and records maintained in the BEAR Scotland Management System.

Each depot, with the exception of Brora, will have brine manufacture and storage facilities capable of holding sufficient brine that would allow treatment of all routes simultaneously from that depot at maximum spread rates plus an additional 20 per cent above the minimum to be held in reserve. Brora shall have brine storage facilities only, with brine produced at Dunbeath.

See Appendix WSP18 De-icing Materials.

The brine tanks produce and maintain a concentration level of 23% which can be checked on a digital read-out. Daily checks will be carried out using an optical refractometer (saturation meter) and weekly records held electronically in the BEAR Scotland Management System.

Appendices

Appendix	
WSP1	Precautionary Carriageway Treatment Routes
WSP2	Precautionary Footway Treatment Routes
WSP3	Winter Patrol Routes
WSP4	Location of Weather Stations and Cameras
WSP5	Location of Snow Gates and Snow Poles
WSP6	Location of Snow Fences and Shelter Belts
WSP7	Schedule and Location of Snow and Ice Hidden Message Signs
WSP8	Location of Salt Bins
WSP9	Arrangements and Mitigation Measures for Vulnerable Locations
WSP10	Route Altitude Map
WSP11	Daily Winter Action Plan
WSP12	Winter Service Plant
WSP13	Forms Completed by Winter Maintenance Operational Staff
WSP14	Operating Company's Compounds, Depots and Facilities
WSP15	Decision Matrices for Winter Service
WSP16	Snow and Ice Clearance on Footways, Footbridges and Cycleways
WSP17	Snow Forecast Resource Deployment Matrix
WSP18	De-icing Materials
WSP19	Carriageway Snow and Ice Clearance Procedures
WSP20	North West Salt Tonnage Targets
WSP21	Winter Drivers' Rotas
WSP22	Salt Resilience Days per Depot
WSP23	Winter Service/ISU/TRISS – Action Plan Covid-19 Risks for 2023/24
WSP24	Resilience Precautionary Treatment Routes
WSP25	Consultation Certificate

Appendix WSP1 – Precautionary Treatment Routes 40 g/m^2

Summary of 40 g/m^2 Treatment Routes and Ploughing Routes

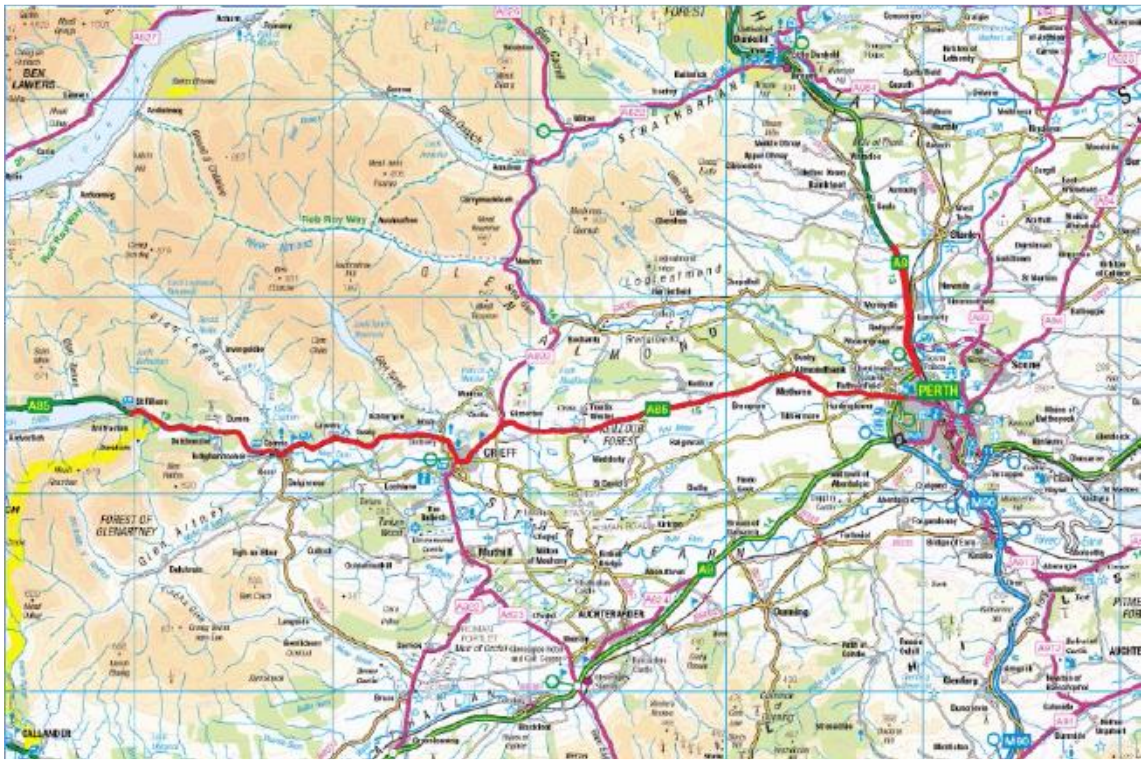
Route No.	Depot	Description	Depot to Route (km)	Time to Route (mins)	Salting Length (km)	Aver Speed (km/hr)	Route Time (mins)	Route to Depot (km)	Alternative Access	Average Width of Route	Route Tonnage @40g/m2	Treatment type
40-01	Perth	A9 Stanley - Perth – A85 St Fillans	7	7	54	50	42.0	62	Killin	7.00	15.16	Pre-wet
40-02	Perth	A9 Perth - Pitlochry - Perth	2	4	52	55	109	1	Ballinluig	7.50	15.45	Pre-wet
40-03	Ballinluig	A9 Ballinluig – Blair Atholl - Dalwhinnie – Ballinluig	1	1	52	50	94	1	Kingussie	7.50	15.60	Pre-wet
40-04	Kingussie	A9 Kingussie – Trinafour	1	4	52.2	50	84	34.7	Ballinluig	7.50	15.25	Pre-wet
40-05	Kingussie	A9 Kingussie – Dalraddy Dual - Tomatin - Dalraddy Dual - Kingussie	2	3	58	55	109	3	Inverness	7.0	15.68	Pre-wet
40-06	Kingussie	A86 Kingussie – A889 Jct A889 Laggan – A9 Dalwhinnie Junction	1	2	33.3	50	37.5	25.5	Ballinluig	6.00	8.85	Pre-wet
40-07	Kingussie	A86 Laggan Junction - Spean Bridge	18	22.5	45.5	50	55.0	64	Fort William	6.00	10.92	Pre-wet
40-08	Inverness	A9 Inverness – Tomatin	1	2	42	50	98.5	28	Kingussie	7.50	12.60	Pre-wet
40-09	Inverness	A82 Inverness – Fort Augustus (B862)	3	5	56	50	69.0	57.5	Fort William	6.40	14.31	Pre-wet
40-10	Inverness	A82 Longman – Telford St	1	2	48	50	96.0	1	Ullapool	7.00	13.44	Pre-wet & Pot. Acetate

Route No.	Depot	Description	Depot to Route (km)	Time to Route (mins)	Salting Length (km)	Aver Speed (km/hr)	Route Time (mins)	Route to Depot (km)	Alternative Access	Average Width of Route	Route Tonnage @40g/m2	Treatment type
		A9 Inverness – Tore – Ardullie (Kessock and Cromarty Bridges) A835 Tore - Contin										
40-11	Inverness	A835 Contin - Ullapool	28	30	59	50	70.8	89	Ullapool	6.50	15.34	Pre-wet
40-12	Inverness	A9 Ardullie – The Mound (Dornoch Bridge)	22	24	54	50	64	87	Dunbeath	6.50	14.04	Pre-wet & Pot. Acetate
40-13	Dunbeath	A9 Berriedale – The Mound	9	10	49	50	58	58	Wick	6.00	11.76	Pre-wet
40-14	Dunbeath	A9 Berriedale – A99 Latheron – Wick	9	10	42	50	50	39	Wick	6.40	10.75	Pre-wet
40-15	Dunbeath	A9 Latheron – Scrabster	6	8	41	50	50	47	Wick	6.30	10.66	Pre-wet
40-16	Ardelve	A87 Moll Junction – Uig	38	41	54	50	61	92	Portree	6.00	12.96	Pre-wet
40-17	Ardelve	A87 Glenshiel Battlefield – Moll Junction (Carrick and Skye Bridges)	22	26	60	50	72	39	Portree	6.00	14.40	Pre-wet & Pot. Acetate
40-18	Ardelve	A87 Glenshiel Battlefield – Bunloyne A887 Bunloyne - Invermoriston A82 Fort Augustus - Invergarry	22	26	60	50	83	67	Fort William	6.00	14.40	Pre-wet
40-19	Fort William	A830 Corpach – Lochybridge A82 Lochybridge –	1	2	63	50	76	64	Ardelve	6.00	15.12	Pre-wet

Route No.	Depot	Description	Depot to Route (km)	Time to Route (mins)	Salting Length (km)	Aver Speed (km/hr)	Route Time (mins)	Route to Depot (km)	Alternative Access	Average Width of Route	Route Tonnage @40g/m2	Treatment type
		Invergarry A87 Invergarry – Bunloyne										
40-20	Fort William	A830 Corpach - Mallaig	1	2	62	50	74	63	Mallaig	6.20	15.60	Pre-wet
40-21	Fort William	A82 Ballachulish - A82 Tyndrum	28	35	54	50	64	80	Killin	6.20	13.39	Pre-wet
40-22	Oban	A828 Connel –A82 Ballachullish Roundabout – A82 Lochybridge	10	12	66	50	72	75	Corpach	6.00	15.76	Pre-wet
40-23	Oban	A85 Oban - Tyndrum	1	2	58	50	75	61	Killin	6.20	14.38	Pre-wet
40-24	Killin	A85 St Fillans - Lochearnhead - Lix Toll - Crainlarich A82 Crianlarich - Tyndrum	22	27	43	44	57	30	Oban	6.30	10.83	Pre-wet
40-25	Killin	A84 Lochearnhead – Kildean Roundabout	11	17	44	50	53	55	Perth	6.30	11.08	Pre-wet
40-26	Killin	A82 Crianlarich – Tarbet A83 Tarbet – Rest & Be Thankful	23	28	40	45	53	63	Inveraray	6.50	10.40	Pre-wet
40-27	Inveraray	A83 Achnagoul Junction – Rest & Be Thankful A82 Tarbet – Alexandria – RaBT Bus Turning Circle	6	8	58	50	106	56	Killin	6.30	14.61	Pre-wet

Route No.	Depot	Description	Depot to Route (km)	Time to Route (mins)	Salting Length (km)	Aver Speed (km/hr)	Route Time (mins)	Route to Depot (km)	Alternative Access	Average Width of Route	Route Tonnage @40g/m2	Treatment type
40-28	Inveraray	A83 Achnagoul Junction - Kennacraig	6	8	63	50	76	69	Machrihanish	6.00	15.12	Pre-wet
40-29	Machrihanish	Campbeltown Ferry Terminal to Kennacraig	7	9	57.6	50	76	50	Inveraray	6.2	14.28	Pre-wet

Depot:	Perth	Route:	NW40R01
Spread Rate:	40 g/m²	**Route Length:**	56.2 km
Treatment Type:	Pre-wet salt	**Route Treated Length:**	54.1 km
Depot to Route:	7.0 km	**Route Time:**	42 mins
Depot to Route:	7 mins	**Route Coverage:**	15.16 tonnes
Route to Depot:	62.0 km	**Route Average Width:**	7.0 m
Route to Depot:	56 mins	**Route Average Speed:**	55 km/h



A = 7.0 km – Distance from 1. depot to 2. start of route (km) - (i.e dead time)

B = 56.2 km – Distance from 2. start of route to 3. end of route (km) – (i.e including any dead time from start to end of route for junctions etc hence optimisation)

C = 54.1 km – Total Distance treated from 2. start of route to 3. end of route (km)

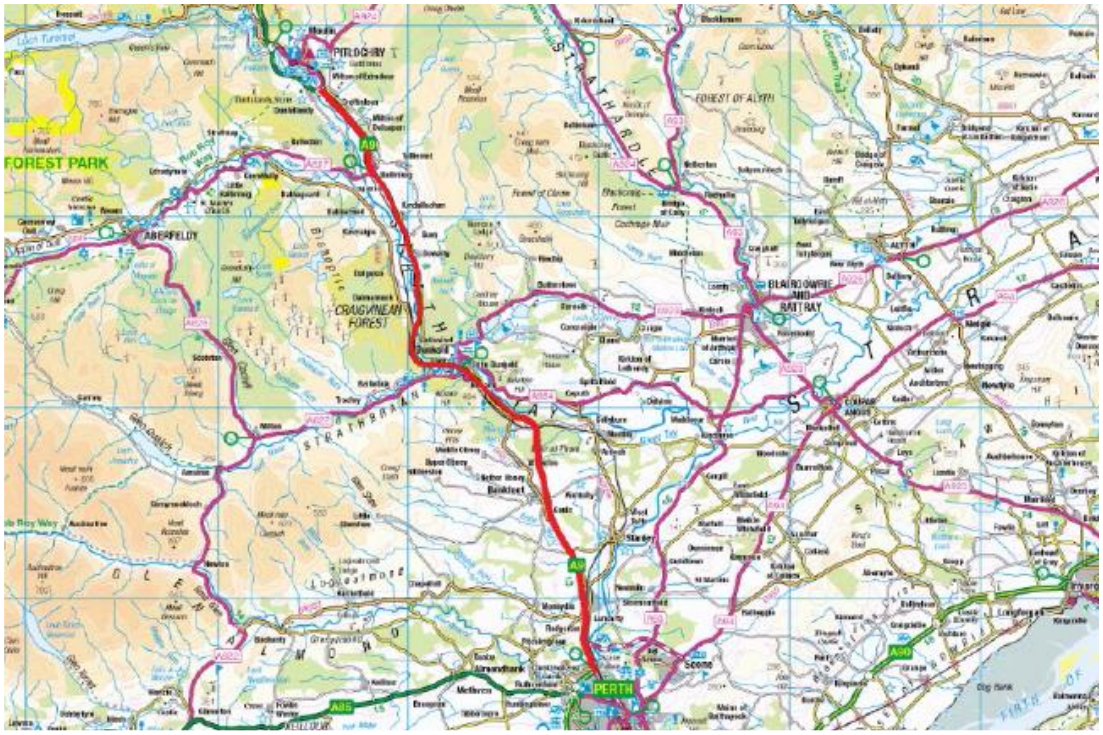
D = 62.0 km – Distance from 3. end of route to 1. depot

E (Efficiency of Route) = (100 / (A + B + D)) x C = (100 / 125.2) x 59.8 = 43.2%

Alternative Access: In the event of any blockage on the trunk road network that would require alternative access the frontline vehicle will treat to the point of the blockage and then use the local road network to reach the remainder of the route. A vehicle will be provided from the Killin depot by utilising the trunk road and local road network should access be required from an alternative depot.

Operation	Road	From	To	Distance (km)	Tonnage
Travel	U/C	Inveralmond Road	Inveralmond Roundabout	1	-
Travel	A9	Inveralmond Roundabout	Stanley Junction	6.1	-
SALT	A9	Stanley Jct N/bound offslip	Stanley Jct N/bound offslip	0.5	0.14
Turn	U/C	Stanley Junction	Stanley Junction	0.1	-
SALT	A9	Stanley Jct S/bound onslip	Stanley Jct S/bound onslip	0.5	0.14
SALT	A9	Stanley Junction	Inveralmond Roundabout	6.1	1.71
Travel	A9	Inveralmond Roundabout	Newhouse Road Roundabout	2	-
SALT	A85	Newhouse Road Roundabout (inc Roundabout)	A85 St Fillans	47	13.17
Travel	A85	A85 St Fillans	Crieff Road Roundabout	47	-
Travel	A9	Crieff Road Roundabout	Inveralmond Roundabout	2	-
Travel	U/C	Inveralmond Roundabout	Inveralmond Road	2	-
			Totals	**114.3**	**15.16**

Depot:	Perth	Route:	NW40R02
Spread Rate:	40 g/m²	**Route Length:**	106.5 km
Treatment Type:	Pre-wet salt	**Route Treated Length:**	52.0 km
Depot to Route:	2.0 km	**Route Time:**	109 mins
Depot to Route:	4 mins	**Route Coverage:**	15.45 tonnes
Route to Depot:	2.0 km	**Route Average Width:**	7.3 m
Route to Depot:	4 mins	**Route Average Speed:**	55 km/h



A = 2.0 km – Distance from 1. Depot to 2. Start of route (km) – (i.e dead time)

B = 106.5 km – Distance from 2. Start of route to 3. End of route (km) – (i.e including any dead time from start to end of route for junctions etc hence optimisation)

C = 52.0 km – Total Distance treated from 2. Start of route to 3. End of route (km)

D = 2.0 km – Distance from 3. End of route to 1. Depot

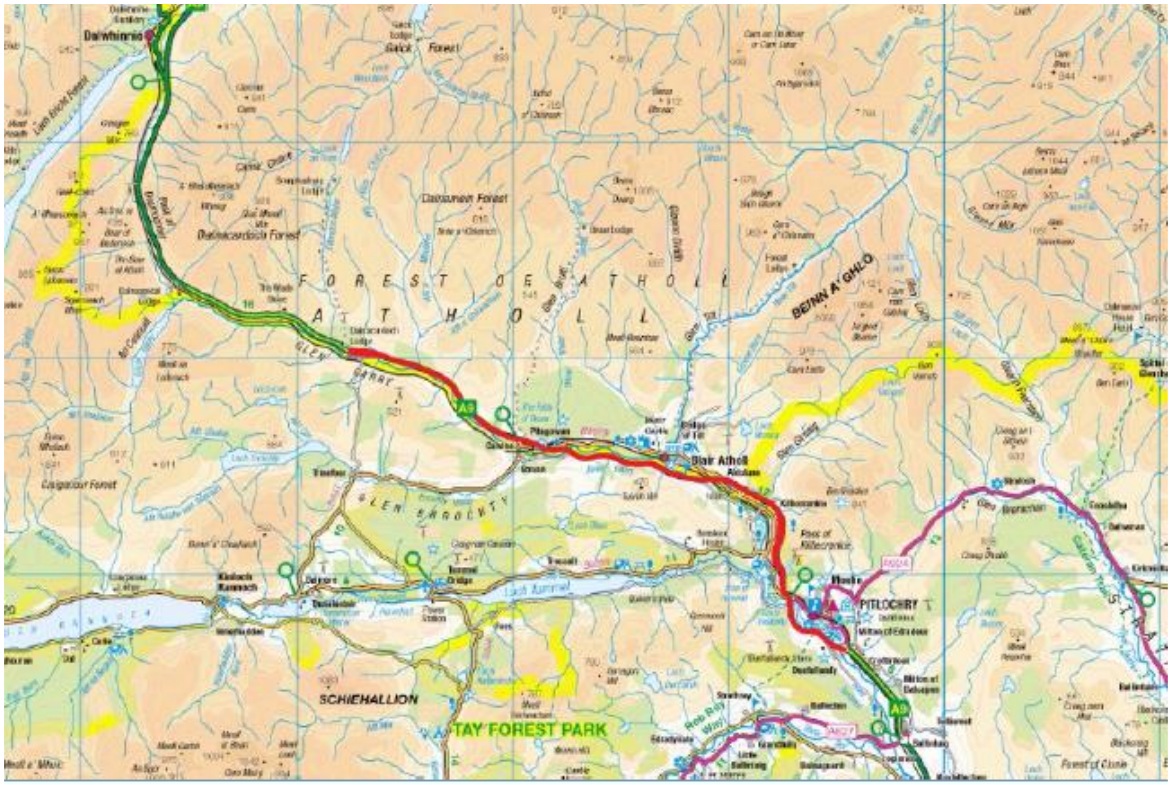
E (Efficiency of Route) = (100 / (A + B + D)) x C = (100 / 110.5) x 52.0 = 47%

Alternative Access: In the event of any blockage on the trunk road network that would require alternative access the frontline vehicle will treat to the point of the blockage and then use the local road network to reach the remainder of the route. A vehicle will be provided from the Ballinluig depot by utilising the trunk road and local road network should access be required from an alternative depot.

Operation	Road	From	To	Distance (km)	Tonnage
Travel	U/C	Inveralmond Road	Inveralmond Roundabout	1	
SALT	A9 (N/bound)	Inveralmond Roundabout	Pitlochry South Interchange	36	10.51
SALT	A924 / U/C	Pitlochry South Interchange (Start of N/bound off-slip)	Croftinloan North Junction	0.7	0.20
Travel	A9 (S/bound)	Croftinloan North Junction	Croftinloan South Junction	2	
SALT	A9 (S/bound)	A9 Croftinloan Junction	South End Pitlochry Dual	4	1.17
Travel	A9	South End Pitlochry Dual	Layby 20, Dalguise Junction	9	
SALT	Layby 20	Layby 20, Dalguise Junction	Layby 20, Dalguise Junction	0.1	0.03
Travel	A9	Layby 20, Dalguise Junction	North End Birnam Dual	6.5	
SALT	A9 (S/bound)	North End Birnam Dual	Stanley Junction (end of onslip)	9.1	2.66
Travel	A9 (S/bound)	Stanley Junction (end of onslip)	Inveralmond Roundabout	6.1	
Travel	A9 (N/bound)	Inveralmond Roundabout	N/bound off-slip to Luncarty	3.1	
SALT	A9	N/bound off-slip to Luncarty	Battleby Junction	0.3	0.09
TURN	U/C	Battleby Junction	Battleby Junction	0.1	
SALT	A9	N/bound on-slip from Luncarty	N/bound on-slip from Luncarty	0.1	0.03
Travel	A9	N/bound on-slip from Luncarty	N/Bound off-slip to Stanley	3.1	
Travel	A9	Stanley Jct N/bound offslip	Stanley Jct N/bound offslip	0.5	
TURN	U/C	Stanley Junction	Stanley Junction	0.1	
SALT	A9	Stanley Jct N/bound onslip	Stanley Jct N/bound onslip	0.5	0.15
Travel	A9	Stanley Jct N/bound	Bankfoot S Junction Offslip	1.6	
SALT	A9	Bankfoot S Junction Offslip	Bankfoot S Junction Offslip	0.3	0.09
TURN	U/C	Bankfoot	Bankfoot S Junction Onslip	0.1	

Operation	Road	From	To	Distance (km)	Tonnage
SALT	A9	Bankfoot S Junction Onslip	Bankfoot S Junction Onslip	0.2	0.06
Travel	A9	Bankfoot S Junction Onslip	Birnam Junction	8.1	
TURN	U/C	Birnam Junction	Birnam Junction	0.1	
Travel	A9	B867 Birnam Junction	Bankfoot N Junction Offslip	7	
SALT	A9 offslip	Bankfoot N Junction Offslip	Bankfoot N Junction Offslip	0.2	0.06
TURN	B867	Bankfoot N Junction Offslip	Turn at Innewan Gardens Junction	0.4	
SALT	A9 onslip	Innewan Gardens Junction	Bankfoot N Junction Onslip	0.4	0.12
Travel	A9	Bankfoot N Junction	Stanley Junction	2.7	
SALT	A9 offslip	Stanley Junction offslip	Stanley Junction offslip	0.5	0.15
Travel	B9099 (Link Road)	Stanley Junction via Luncarty	S/bound on-slip from Luncarty	3.2	
SALT	A9	S/bound on-slip from Luncarty	S/bound on-slip from Luncarty	0.5	0.15
Travel	A9 (S/bound)	S/bound on-slip from Luncarty	Inveralmond Roundabout	3	
Travel	U/C	Inveralmond Roundabout	Inveralmond Road	1	
			Totals	**111.6**	**15.45**

Depot:	Ballinluig	Route:	NW40R03
Spread Rate:	40 g/m²	**Route Length:**	79.0 km
Treatment Type:	Pre-wet salt	**Route Treated Length:**	52.0 km
Depot to Route:	1.0 km	**Route Time:**	94 mins
Depot to Route:	1 min	**Route Coverage:**	11.88 tonnes
Route to Depot:	1.0 km	**Route Average Width:**	7.5 m
Route to Depot:	1 min	**Route Average Speed:**	50 km/h



A = 1.0 km – Distance from 1. depot to 2. start of route (km) - (i.e dead time)

B = 79.0 km – Distance from 2. start of route to 3. end of route (km) – (i.e including any dead time from start to end of route for junctions etc hence optimisation)

C = 52.0 km – Total Distance treated from 2. start of route to 3. end of route (km)

D = 1.0 km – Distance from 3. end of route to 1. depot

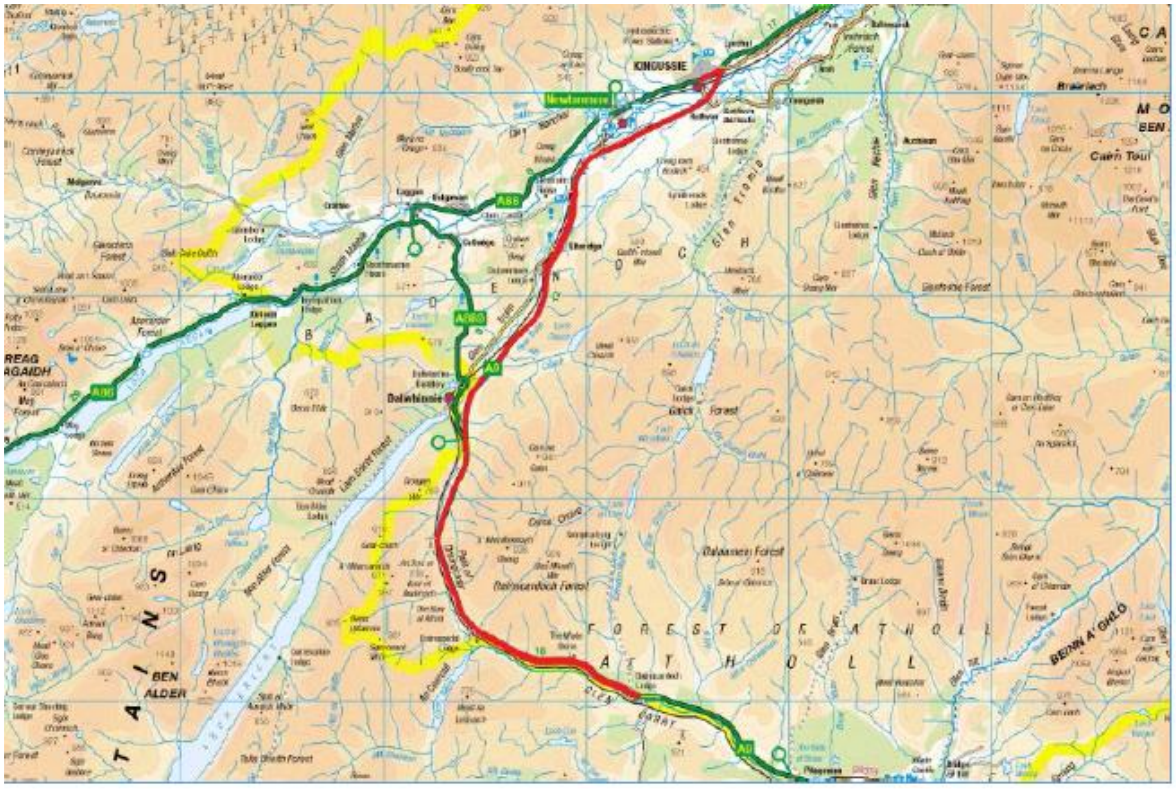
E (Efficiency of Route) = (100 / (A + B + D)) x C = (100 / 82) x 52.0 = 63%

Alternative Access: In the event of any blockage on the trunk road network that would require alternative access the frontline vehicle will treat to the point of the blockage and then use the local road network to reach the remainder of the route. A vehicle will be provided from the Kingussie depot by utilising the trunk road and local road network should access be required from an alternative depot.

Operation	Road	From	To	Distance (km)	Tonnage
Travel	A9 (N/bound)	Ballinluig Depot	Ballinluig N/bound Off Slip	1	-
SALT	A9 Off Slip	Ballinluig N/bound Off Slip	Ballinluig N/bound Off Slip	0.5	0.15
Travel		Ballinluig N/bound Off Slip	Ballinluig N/bound On Slip	0.1	-
SALT	A9 On Slip	Ballinluig N/bound On Slip	Ballinluig N/bound On Slip	0.5	0.15
Travel	A9	Ballinluig N/bound Off Slip	Pitlochry S Interchange	5	-
SALT	A9 (N/bound)	Pitlochry S Interchange	N End Pitlochry Dual	0.3	0.09
Travel	A9	N End Pitlochry Dual	Pitlochry N Interchange	3.5	-
SALT	A9 (N/bound)	Pitlochry N Interchange	Pitlochry N Interchange	0.5	0.15
SALT	A9	Pitlochry N Interchange	S End Killiecrankie Dual	1	0.3
SALT	A9 (N/bound)	S End Killiecrankie Dual	N End Killiecrankie Dual	3	0.9
SALT	A9	N End Killiecrankie Dual	B8079 Junction, Essengael	3	0.9
SALT	A9	Essengael Junction Off Slip	Essengael Junction Off Slip	0.3	0.09
SALT	A9	Essengael	A9 Trinafour	19	5.7
SALT	A9	A9 Trinafour	S End Drumochter Dual	1.2	0.36
Travel	A9	S End Drumochter Dual	Essengael Junction Off Slip	17	-
Travel	A9	B8079 Junction Essengael	N End Killiecrankie Dual	3	-
SALT	A9 (S/bound)	N End Killiecrankie Dual	S End Killiecrankie Dual	3	0.9
Travel	A9	S End Killiecrankie Dual	Pitlochry N Interchange	1	-
SALT	A9 (S/bound)	Pitlochry N Interchange Off Slip	Turn at A924 Jn, rejoin A9 on S/bound On Slip	0.5	0.15
Travel	A9	Pitlochry North Interchange	Turn at Foss Rd junction	1	-

Operation	Road	From	To	Distance (km)	Tonnage
Travel	A9	Foss Rd junction	Pitlochry N Interchange	1	-
SALT	A9 (N/bound)	Pitlochry N Interchange Off Slip	Turn at A924 Jn, rejoin A9 on N/bound On Slip	0.5	0.15
Travel	A9	Pitlochry N Interchange	Start of layby 41	1	-
SALT	Layby	Start of layby 41	End of layby 41	0.1	0.03
Travel	A9	End of layby 41	Turn at access opposite "Tigh'na'geat" , head south to Start of layby 42	1	-
SALT	Layby	Start of layby 42	End of layby 42	0.1	0.03
Travel	A9	End of layby 42	Pitlochry N Interchange	2	-
SALT	A9	Pitlochry N Interchange	N End Pitlochry Dual	3.5	1.05
SALT	A9 (S/bound)	N End Pitlochry Dual	Croftinloan Junction	2.5	0.75
Travel	A9 (S/bound)	Croftinloan Junction	Start of layby 34	3	-
SALT	Layby	Start of layby 34	End of layby 34	0.1	0.03
Travel	A9 (S/bound)	End of layby 34	South End Pitlochry Dual	1	-
Travel	A9	South End Pitlochry Dual	Ballinluig Depot	1	-
			Totals	**81.2**	**11.88**

Depot:	Kingussie	Route:	NW40R04
Spread Rate:	40 g/m²	**Route Length:**	74.4 km
Treatment Type:	Pre-wet salt	**Route Treated Length:**	52.2 km
Depot to Route:	1.0 km	**Route Time:**	84 mins
Depot to Route:	4 mins	**Route Coverage:**	15.25 tonnes
Route to Depot:	34.7 km	**Route Average Width:**	7.5 m
Route to Depot:	40 mins	**Route Average Speed:**	50 km/h



A = 1.0 km – Distance from 1. depot to 2. start of route (km) - (i.e dead time)

B = 74.4km – Distance from 2. start of route to 3. end of route (km) – (i.e including any dead time from start to end of route for junctions etc hence optimisation)

C = 52.2 km – Total Distance treated from 2. start of route to 3. end of route (km)

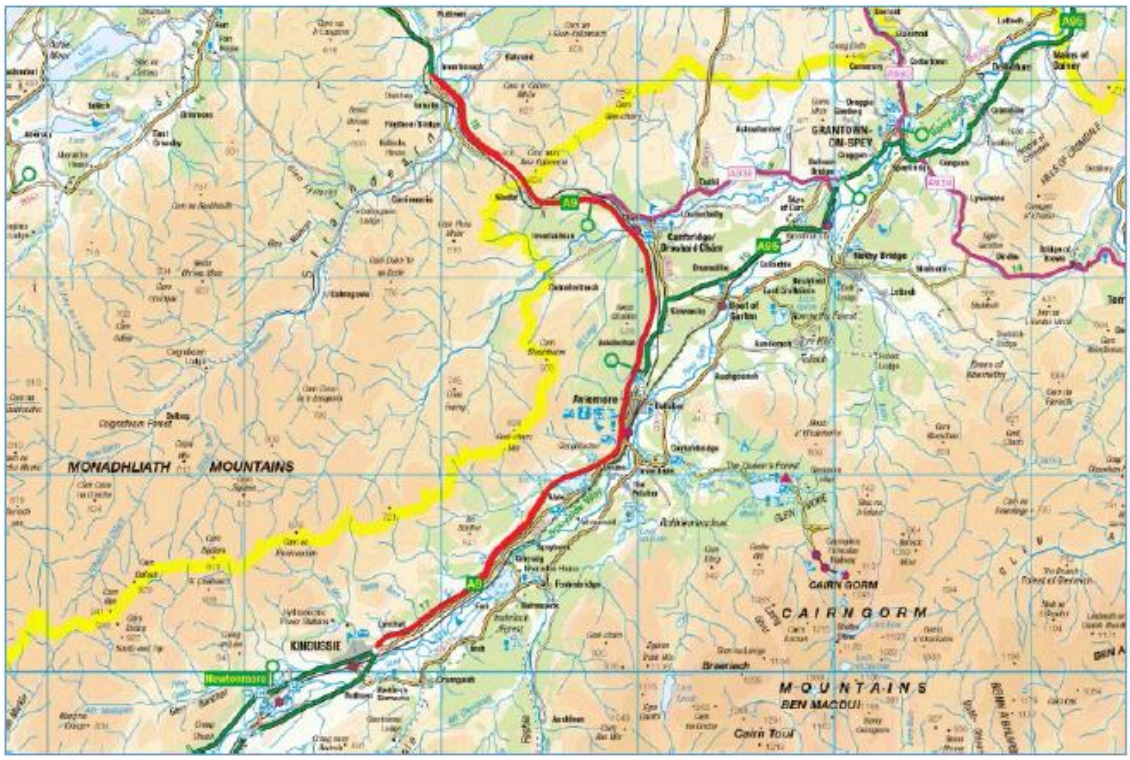
D = 34.7 km – Distance from 3. end of route to 1. depot

E (Efficiency of Route) = (100 / (A + B + D)) x C = (100 / 110.1) x 52.2 = 47.4%

Alternative Access: In the event of any blockage on the trunk road network that would require alternative access the frontline vehicle will treat to the point of the blockage and then use the local road network to reach the remainder of the route. A vehicle will be provided from the Ballinluig depot by utilising the trunk road and local road network should access be required from an alternative depot.

Operation	Road	From	To	Distance (km)	Tonnage
Travel	B970	Kingussie Depot	A86 Junction Kingussie	1.0	-
SALT	A86	B970 Junction	A9 Junction Southbound	1.3	0.38
SALT	A9	Southbound Slip Road	A9 Kerrow	0.1	0.03
SALT	A9	A9 Kerrow	Trinafour	42.6	12.45
SALT	A9 (N/bound)	Trinafour	End of Drumochter Dual N/B	8.2	2.39
Travel	A9	End of Drumochter Dual N/B	A9 South Junction Kerrow	33.2	-
Travel	A9	A86 S Junction Kerrow	B970 Junction	1.0	-
Travel	B970	A86 Junction	Kingussie Depot	0.5	-
			Totals	**87.9**	**15.25**

Depot:	Kingussie	Route:	NW40R05
Spread Rate:	40 g/m²	**Route Length:**	81.3 km
Treatment Type:	Pre-wet salt	**Route Treated Length:**	58.0 km
Depot to Route:	1.0 km	**Route Time:**	109 mins
Depot to Route:	3 mins	**Route Coverage:**	15.68 tonnes
Route to Depot:	2.0 km	**Route Average Width:**	7.0 m
Route to Depot:	6 mins	**Route Average Speed:**	55 km/h



A = 1.0 km – Distance from 1. Depot to 2. Start of route (km) – (i.e dead time)

B = 81.3 km – Distance from 2. Start of route to 3. End of route (km) – (i.e including any dead time from start to end of route for junctions etc hence optimisation)

C = 58.0 km – Total Distance treated from 2. Start of route to 3. End of route (km)

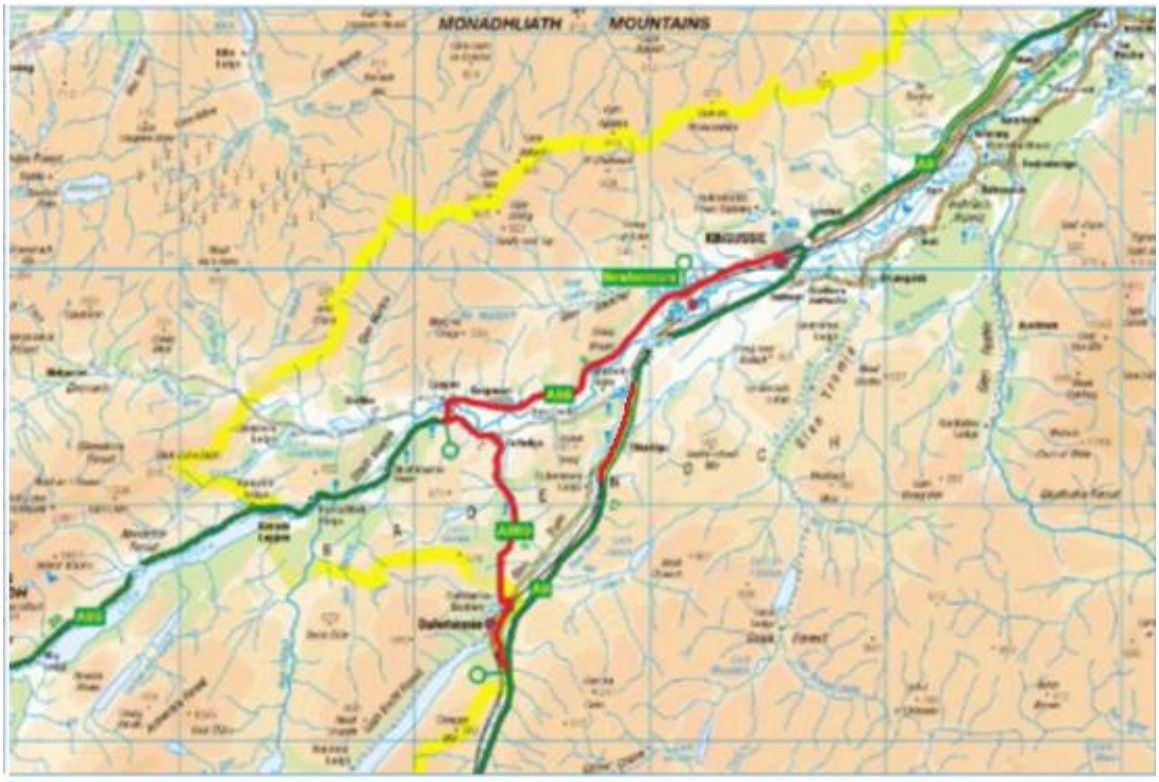
D = 2.0 km – Distance from 3. End of route to 1. Depot

E (Efficiency of Route) = (100 / (A + B + D)) x C = (100 / 84.3) x 58.0 = 69%

Alternative Access: In the event of any blockage on the trunk road network that would require alternative access the frontline vehicle will treat to the point of the blockage and then use the local road network to reach the remainder of the route. A vehicle will be provided from the Inverness depot by utilising the trunk road and local road network should access be required from an alternative depot.

Operation	Road	From	To	Distance (km)	Tonnage
Travel	B970 / A86	Kingussie Depot	A9 Junction Northound	1.0	-
SALT	A9	Northbound Slip Road	A9 Kerrow	0.2	0.06
SALT	A9	A9 Kerrow	S End Dalraddy to Kincraig Dual	5.5	1.54
SALT	A9 (N/bound)	S End Dalraddy to Kincraig Dual	N End Dalraddy to Kincraig Dual	7.2	2.02
SALT	A9	N End Dalraddy Dual	Slochd Summit	22.0	6.16
SALT	A9 (N/bound)	Slochd Summit	Tomatin	6.0	1.71
SALT	A9 (S/bound)	Tomatin	Slochd Summit	6.0	1.71
Travel	A9	Slochd Summit	N End Carrbridge WS 2+1	6.0	-
SALT	A9 (S/bound)	N End Carrbridge WS 2+1	S End Carrbridge WS 2+1	1.6	0.45
Travel	A9	S End Carrbridge WS 2+1	N End Dalraddy to Kincraig Dual	14.0	-
SALT	A9	N End Dalraddy to Kincraig Dual	S End Dalraddy to Kincraig Dual	7.2	2.02
Travel	A9	S End Dalraddy to Kincraig Dual	A86 North.Junction Kerrow	5.5	-
SALT	A86	Southbound Off Slip	Southbound Off Slip	0.1	0.03
Travel	A86	A9 North.Junction Kerrow	Kingussie Depot	2.0	-
			Totals	**84.3**	**15.68**

Depot:	Kingussie	Route:	NW40R06
Spread Rate:	40 g/m²	**Route Length:**	57.8 km
Treatment Type:	Pre-wet salt	**Route Treated Length:**	33.3 km
Depot to Route:	1.0 km	**Route Time:**	38 mins
Depot to Route:	2 mins	**Route Coverage:**	8.85 tonnes
Route to Depot:	25.5 km	**Route Average Width:**	6.0 m
Route to Depot:	35 mins	**Route Average Speed:**	50 km/h



A = 1.0 km – Distance from 1. depot to 2. start of route (km) - (i.e dead time)

B = 33.3 km – Distance from 2. start of route to 3. end of route (km) – (i.e including any dead time from start to end of route for junctions etc hence optimisation)

C = 33.3 km – Total Distance treated from 2. start of route to 3. end of route (km)

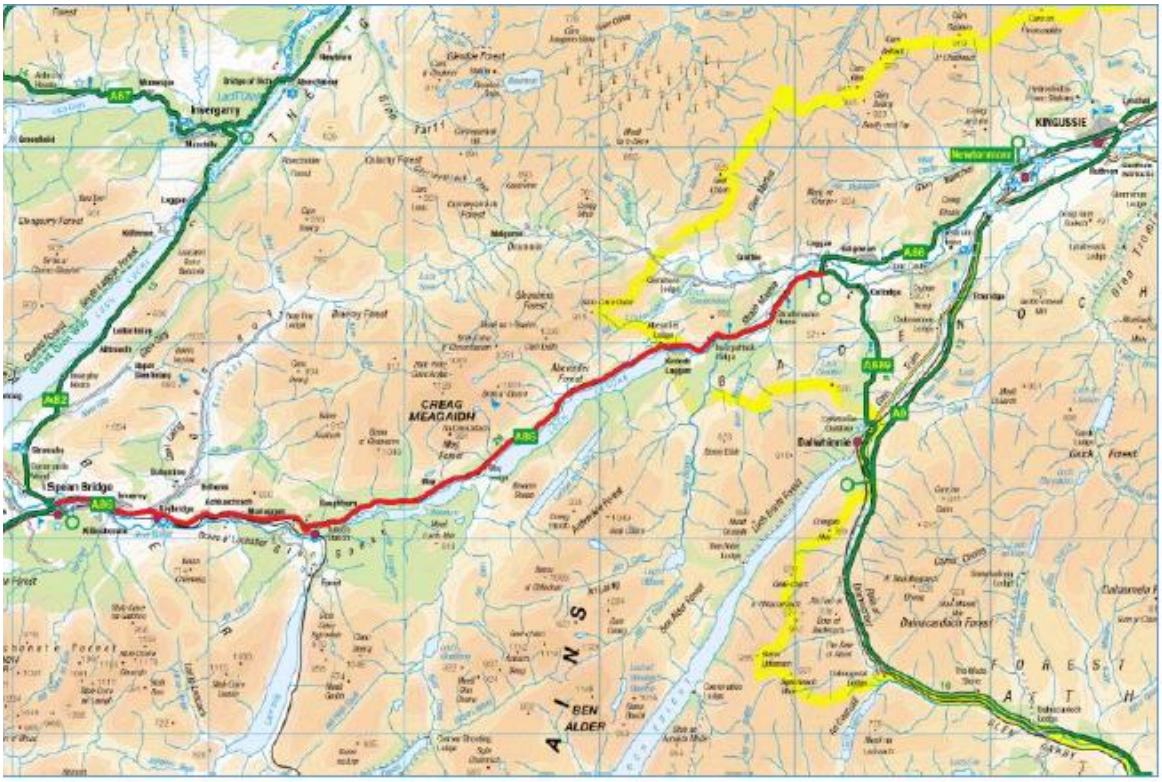
D = 25.5 km – Distance from 3. end of route to 1. depot

E (Efficiency of Route) = (100 / (A + B + D)) x C = (100 / 57.8) x 33.3 = 57.6%

Alternative Access: In the event of any blockage on the trunk road network that would require alternative access the frontline vehicle will treat to the point of the blockage and then use the local road network to reach the remainder of the route. A vehicle will be provided from the Ballinluig depot by utilising the trunk road and local road network should access be required from an alternative depot.

Operation	Road	From	To	Distance (km)	Tonnage
Travel	B970	Kingussie Depot	A86 Junction Kingussie	1.0	-
SALT	A86	A86 Junction Kingussie	A86/ A889 Laggan	17.5	4.30
SALT	A889	A889/ A86 Junction	A889/ A9 Junction	13.8	3.39
Travel	A9	A889/ A9 Junction	Crubenmore Lodge	9.3	-
SALT	A9 (N/bound)	Crubenmore Lodge	Etteridge	4.0	1.16
Travel	A9	Etteridge	A9 Kingussie Junction	10.7	-
Travel	A86	A9 Kingussie Junction	A86 Junction Kingussie	1	-
Travel	B970	A86 Junction Kingussie	Kingussie Depot	0.5	-
			Totals	**57.8**	**8.85**

Depot:	Kingussie	Route:	NW40R07
Spread Rate:	40 g/m²	**Route Length:**	45.5 km
Treatment Type:	Pre-wet salt	**Route Treated Length:**	45.5 km
Depot to Route:	18.0 km	**Route Time:**	55 mins
Depot to Route:	22 mins	**Route Coverage:**	10.92 tonnes
Route to Depot:	64.0 km	**Route Average Width:**	6.0 m
Route to Depot:	70 mins	**Route Average Speed:**	50 km/h



A = 18.0 km – Distance from 1. depot to 2. start of route (km) - (i.e dead time)

B = 45.5 km – Distance from 2. start of route to 3. end of route (km) – (i.e including any dead time from start to end of route for junctions etc hence optimisation)

C = 45.5 km – Total Distance treated from 2. start of route to 3. end of route (km)

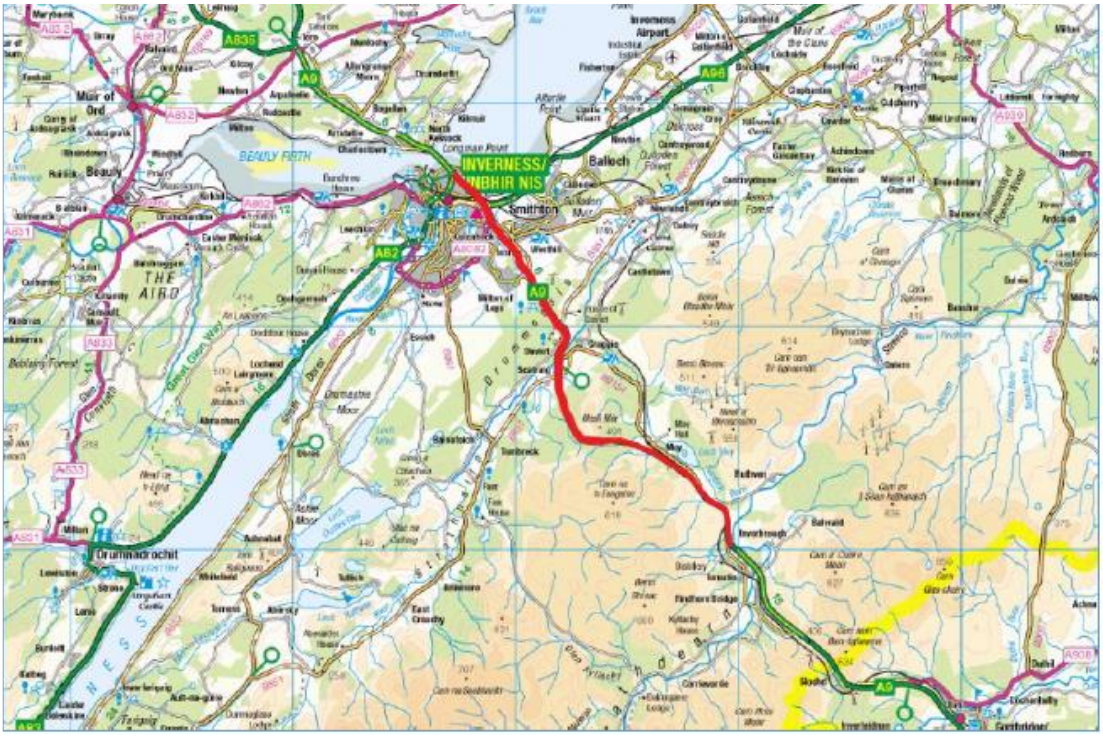
D = 64.0 km – Distance from 3. end of route to 1. depot

E (Efficiency of Route) = (100 / (A + B + D)) x C = (100 / 127.5) x 45.5 = 35.7%

Alternative Access: In the event of any blockage on the trunk road network that would require alternative access the frontline vehicle will treat to the point of the blockage and then use the local road network to reach the remainder of the route. A vehicle will be provided from the Fort William depot by utilising the trunk road and local road network should access be required from an alternative depot.

Operation	Road	From	To	Distance (km)	Tonnage
Travel	B970	Kingussie Depot	B970 Junction	0.5	-
Travel	A86	B970 Junction	A889 Laggan Junction	17.5	-
SALT	A86	A889 Laggan Junction	Spean Bridge	45.5	10.92
Travel	A86 / B970	Spean Bridge	Kingussie Depot	64.0	-
			Totals	**127.5**	**10.92**

Depot:	Inverness	Route:	NW40R08
Spread Rate:	40 g/m²	**Route Length:**	52.0 km
Treatment Type:	Pre-wet salt	**Route Treated Length:**	42.0 km
Depot to Route:	1.0 km	**Route Time:**	98 mins
Depot to Route:	2 mins	**Route Coverage:**	12.60 tonnes
Route to Depot:	2.0 km	**Route Average Width:**	7.5 m
Route to Depot:	4 mins	**Route Average Speed:**	50 km/h



A = 1.0 km – Distance from 1. depot to 2. start of route (km) - (i.e dead time)
B = 52.0 km – Distance from 2. start of route to 3. end of route (km) – (i.e including any dead time from start to end of route for junctions etc hence optimisation)
C = 42.0 km – Total Distance treated from 2. start of route to 3. end of route (km)
D = 2.0 km – Distance from 3. end of route to 1. depot
E (Efficiency of Route) = (100 / (A + B + D)) x C = (100 / 55) x 42.0 = 76.3%
Alternative Access: In the event of any blockage on the trunk road network that would require alternative access the frontline vehicle will treat to the point of the blockage and then use the local road network to reach the remainder of the route. A vehicle will be provided from the Kingussie depot by utilising the trunk road and local road network should access be required from an alternative depot.

Operation	Road	From	To	Distance (km)	Tonnage
Travel	Longman Road	Bridgepoint Depot	Longman Roundabout	1	-
SALT	A9 (S/bound)	Longman Roundabout (exc Roundabout)	Meall Mhor	15	4.50
SALT	A9	Meall Mhor	Tomatin Junction	6	1.80
Travel	A9	Tomatin	Moy WS 2+1	2	-
SALT	A9 (N/bound)	Moy WS 2+1	Moy WS 2+1	1	0.30
Travel	A9	Moy WS 2+1	Meall Mhor	3	-
SALT	A9 (N/bound)	Meall Mhor	A82 Longman Roundabout	16	4.80
Travel	A9	Longman Roundabout	Raigmore Interchange	1	-
SALT	A9	Southbound off Slip Road	Southbound on Slip Road	1	0.30
Travel	A9	Raigmore Interchange	B9006 Inshes Junction	1	-
SALT	A9	Southbound off Slip Road	B9006 Junction Culloden Road	1	0.30
Travel	B9006	A9 Slip Road	Beechwood Roundabout	1	-
Travel	B8082	Beechwood Roundabout	A9 northbound	1	-
SALT	A9	Northbound on Slip Road	Main A9 carriageway	1	0.30
Travel	A9	Beechwood	Raigmore Interchange	1	-
SALT	A9	Northbound off Slip Road	Northbound on Slip Road (inc Raigmore Roundabout)	1	0.30
Travel	A9	Raigmore Interchange	Longman Roundabout	1	-
Travel	A9 (N/bound)	Longman Roundabout	Bridgepoint Depot	0.5	-
			Totals	**54.5**	**12.60**

Depot:	Inverness	Route:	NW40R09
Spread Rate:	40 g/m² and	**Route Length:**	55.0 km
Treatment Type:	Pre-wet salt	**Route Treated Length:**	55.0 km
Depot to Route:	3.0 km	**Route Time:**	66 mins
Depot to Route:	5 mins	**Route Coverage:**	14.08 tonnes
Route to Depot:	58.0 km	**Route Average Width:**	6.4 m
Route to Depot:	65 mins	**Route Average Speed:**	50 km/h

A = 3.0 km – Distance from 1. Depot to 2. Start of route (km) – (i.e dead time)

B = 55.0 km – Distance from 2. Start of route to 3. End of route (km) – (i.e including any dead time from start to end of route for junctions etc hence optimisation)

C = 55.0 km – Total Distance treated from 2. Start of route to 3. End of route (km)

D = 58.0 km – Distance from 3. End of route to 1. Depot

E (Efficiency of Route) = (100 / (A + B + D)) x C = (100 / 116) x 55 = 47.4%

Alternative Access: In the event of any blockage on the trunk road network that would require alternative access the frontline vehicle will treat to the point of the blockage and then use the local road network to reach the remainder of the route. A vehicle will be provided from the Fort William depot by utilising the trunk road and local road network should access be required from an alternative depot.

Operation	Road	From	To	Distance (km)	Tonnage
Travel	Longman Road	Bridgepoint Depot	A82 Telford Street Roundabout Inverness	3	-
SALT	A82	Telford Street Roundabout (including roundabout)	A82 Fort Augustus (B862)	55	14.08
Travel	A82	A82 Fort Augustus (B862)	Telford Street Roundabout (including roundabout)	55	-
Travel	A82	Telford Street Roundabout (including roundabout)	Bridgepoint Depot	3	-
			Totals	**116**	**14.08**

Depot:	Inverness	Route:	NW40R10
Spread Rate:	40 g/m² and 0.0312 l/m²	**Route Length:**	81.9 km
Treatment Type:	Pre-wet salt and potassium acetate	**Route Treated Length:**	52.9 km
Depot to Route:	1.0 km	**Route Time:**	96 mins
Depot to Route:	4 mins	**Route Coverage:**	13.22 tonnes 1250 litres
Route to Depot:	1.0 km	**Route Average Width:**	7.0 m
Route to Depot:	4 mins	**Route Average Speed:**	50 km/h

A = 1.0 km – Distance from 1. Depot to 2. Start of route (km) – (i.e dead time)

B = 81.9 km – Distance from 2. Start of route to 3. End of route (km) – (i.e including any dead time from start to end of route for junctions etc hence optimisation)

C = 52.9 km – Total Distance treated from 2. Start of route to 3. End of route (km)

D = 1.0 km – Distance from 3. End of route to 1. Depot

E (Efficiency of Route) = (100 / (A + B + D)) x C = (100 / 83.9) x 52.9 = 63.0%

Alternative Access: In the event of any blockage on the trunk road network that would require alternative access the frontline vehicle will treat to the point of the blockage and then use the local road network to reach the remainder of the route. A vehicle will be provided from the Ullapool depot by utilising the trunk road and local road network should access be required from an alternative depot.

Operation	Road	From	To	Distance (km)	Tonnage
Travel	Longman Drive / Stadium Road	Bridgepoint Depot	Longman Roundabout	1	-
SALT	A9 (N/bound)	Longman Roundabout	200m south of Kessock Bridge	0.5	0.14
ACETATE	A9 (N/bound)	200m S of Kessock Bridge	North end Kessock Bridge	1.3	0.36
SALT	A9 (S/bound)	200m N of Kessock Bridge	Tore Roundabout	7.5	2.10
SALT	A9	Tore Roundabout (inc roundabout)	200m south of Cromarty Bridge	9	2.52
ACETATE	A9	200m south of Cromarty Bridge	Ardullie Roundabout	2.1	0.59
Travel	A9	Ardullie Roundabout	Tore Roundabout	11	-
SALT	A835	Tore Roundabout	A834 Contin	18	5.04
Travel	A835	A834 Contin	Tore Roundabout	18	-
SALT	A9 (S/bound)	Tore Roundabout	200m N of Kessock Bridge	7.5	2.10
ACETATE	A9 (S/bound)	200m N of Kessock Bridge	South end Kessock Bridge	1.3	0.36
SALT	A9 (S/bound)	South end Kessock Bridge	Longman Roundabout	0.7	0.20
SALT	A82 (W/bound)	Longman Roundabout	Shore Street Roundabout (exc roundabouts)	1.5	0.42
ACETATE	A82 (W/bound)	Shore Street Roundabout	Telford Street Roundabout	0.5	0.14
ACETATE	A82 (E/bound)	Telford Street Roundabout	Shore Street Roundabout	0.5	0.14
SALT	A82 (E/bound)	Shore Street Roundabout	Longman Roundabout (inc. Shore Street, Rose Street, Harbour Road & Longman Roundabouts)	2.5	0.70
Travel	Stadium Road / Longman Drive	Longman Roundabout	Bridgepoint Depot	1	-
			Totals	**83.9**	**14.81**

Depot:	Inverness	Route:	NW40R11
Spread Rate:	40 g/m²	**Route Length:**	59.0 km
Treatment Type:	Pre-wet salt	**Route Treated Length:**	59.0 km
Depot to Route:	28.0 km	**Route Time:**	71 mins
Depot to Route:	30.0 mins	**Route Coverage:**	15.34 tonnes
Route to Depot:	89.0 km	**Route Average Width:**	6.5 m
Route to Depot:	95 mins	**Route Average Speed:**	50 km/h

A = 28.0 km – Distance from 1. depot to 2. start of route (km) - (i.e dead time)
B = 59.0 km – Distance from 2. start of route to 3. end of route (km) – (i.e including any dead time from start to end of route for junctions etc hence optimisation)
C = 59.0 km – Total Distance treated from 2. start of route to 3. end of route (km)
D = 89.0 km – Distance from 3. end of route to 1. depot
E (Efficiency of Route) = (100 / (A + B + D)) x C = (100 / 176) x 59.0 = 33.5%
Alternative Access: In the event of any blockage on the trunk road network that would require alternative access the frontline vehicle will treat to the point of the blockage and then use the local road network to reach the remainder of the route. A vehicle will be provided from the Ullapool depot by utilising the trunk road and local road network should access be required from an alternative depot.

Operation	Road	From	To	Distance (km)	Tonnage
Travel	Longman Drive / Stadium Drive	Bridgepoint Depot	Longman Roundabout	1	-
Travel	A9	Longman Roundabout	Tore Roundabout	9	-
Travel	A835	Tore	A834 Contin	18	-
SALT	A835	A834 Contin	Ullapool	59	15.34
Travel	A835	Ullapool	Tore	79	-
Travel	A9	Tore	Longman Roundabout	9	-
Travel	Stadium Road / Longman Drive	Longman Roundabout	Bridgepoint Depot	1	-
			Totals	**176**	**15.34**

Depot:	Inverness	Route:	NW40R12
Spread Rate:	40 g/m² and 0.0312 l/m²	**Route Length:**	59.6 km
Treatment Type:	Pre-wet salt and potassium acetate	**Route Treated Length:**	57.2 km
Depot to Route:	22.0 km	**Route Time:**	64 mins
Depot to Route:	24 mins	**Route Coverage:**	14.07 tonnes 255 litres
Route to Depot:	87.0 km	**Route Average Width:**	6.5 m
Route to Depot:	95 mins	**Route Average Speed:**	50 km/h

A = 22.0 km – Distance from 1. Depot to 2. Start of route (km) – (i.e dead time)

B = 59.6 km – Distance from 2. Start of route to 3. End of route (km) – (i.e including any dead time from start to end of route for junctions etc hence optimisation)

C = 57.2 km – Total Distance treated from 2. Start of route to 3. End of route (km)

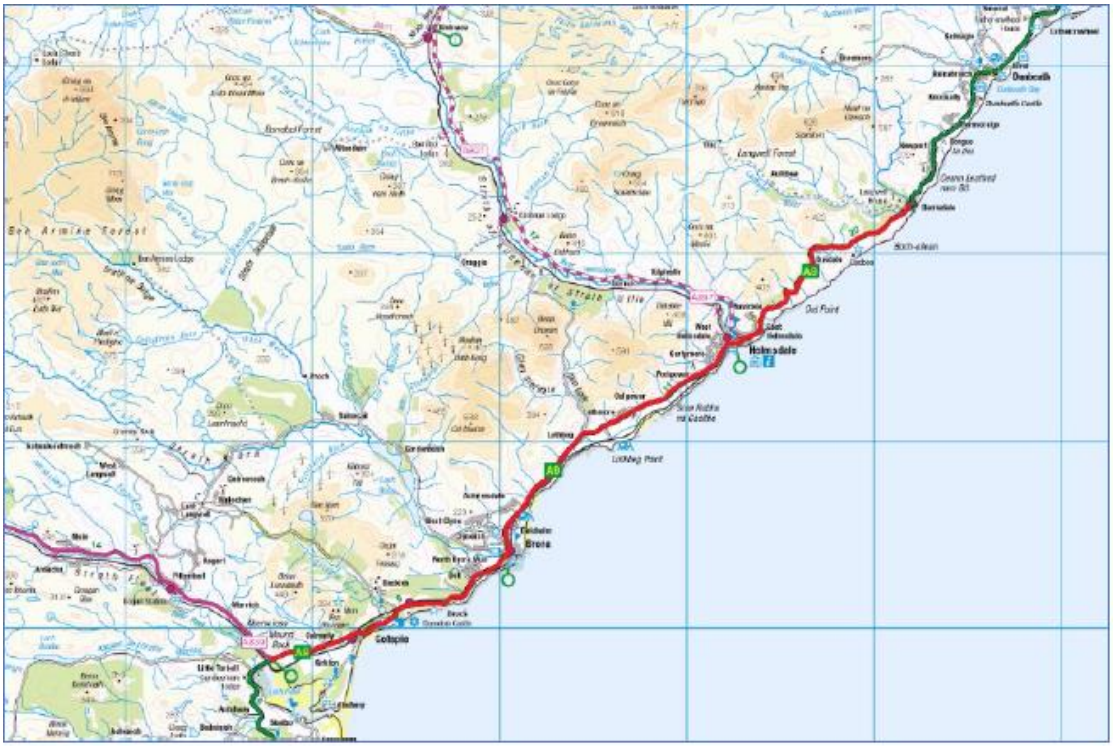
D = 87.0 km – Distance from 3. End of route to 1. Depot

E (Efficiency of Route) = (100 / (A + B + D)) x C = (100 / 168.6) x 57.2 = 33.9%

Alternative Access: In the event of any blockage on the trunk road network that would require alternative access the frontline vehicle will treat to the point of the blockage and then use the local road network to reach the remainder of the route. A vehicle will be provided from the Dunbeath depot by utilising the trunk road and local road network should access be required from an alternative depot.

Operation	Road	From	To	Distance (km)	Tonnage
Travel	Longman Road	Bridgepoint Depot	Tore Roundabout	11	-
Travel	A9	Tore Roundabout (inc roundabout)	200m south of Cromarty Bridge	9	-
Travel	A9	200m south of Cromarty Bridge	Ardullie Roundabout	2	-
SALT	A9	Ardullie Roundabout (inc Roundabout)	Glastullich Roundabout	17	4.28
SALT	A9	Glastullich Climbing Lane	Glastullich Climbing Lane	1.2	0.30
SALT	A9	Glastullich Climbing Lane	B9165 Junction	0.6	0.15
Travel	A9	B9165 Junction	Glastullich Climbing Lane	0.6	-
SALT	A9	Glastullich Climbing Lane	Glastullich Roundabout	1.2	0.30
SALT	A9	Glastullich Roundabout	Glastullich Roundabout	0.3	0.06
Travel	A9	Glastullich Roundabout	B9165 Junction	1.8	-
SALT	A9	B 9165 Junction	200m south of Dornoch Firth Crossing	9.6	2.42
ACETATE	A9	200m south of Dornoch Firth Crossing	200m north of Dornoch Firth Crossing	1.3	0.33
SALT	A9	200m north of Dornoch Firth Crossing	The Mound A839 Junction	26	6.55
Travel	A9	The Mound A839 Junction	Tore Roundabout	76	-
Travel	A862	Tore Roundabout	Bridgepoint Depot	11	-
			Totals	**168.6**	**14.40**

Depot:	Dunbeath	Route:	NW40R13
Spread Rate:	40 g/m²	**Route Length:**	49.0 km
Treatment Type:	Pre-wet salt	**Route Treated Length:**	49.0 km
Depot to Route:	9.0 km	**Route Time:**	58 mins
Depot to Route:	10 mins	**Route Coverage:**	11.76 tonnes
Route to Depot:	58.0 km	**Route Average Width:**	6.0 m
Route to Depot:	62 mins	**Route Average Speed:**	50 km/h



A = 9.0 km – Distance from 1. depot to 2. start of route (km) - (i.e dead time)

B = 49.0 km – Distance from 2. start of route to 3. end of route (km) – (i.e including any dead time from start to end of route for junctions etc hence optimisation)

C = 49.0 km – Total Distance treated from 2. start of route to 3. end of route (km)

D = 58.0 km – Distance from 3. end of route to 1. depot

E (Efficiency of Route) = (100 / (A + B + D)) x C = (100 / 116) x 49.0 = 42.2%

Alternative Access: In the event of any blockage on the trunk road network that would require alternative access the frontline vehicle will treat to the point of the blockage and then use the local road network to reach the remainder of the route. A vehicle will be provided from the Thurso depot by utilising the trunk road and local road network should access be required from an alternative depot.

Operation	Road	From	To	Distance (km)	Tonnage
Travel	U/C	Dunbeath Depot	Dunbeath	1	-
Travel	A9	Dunbeath	Berriedale	8	-
SALT	A9	Berriedale	The Mound A839 Junction	49	11.76
Travel	A9	The Mound A839 Junction	Dunbeath Depot	58	-
			Totals	**116**	**11.76**

Depot:	Dunbeath	Route:	NW40R14
Spread Rate:	40 g/m²	**Route Length:**	42.0 km
Treatment Type:	Pre-wet salt	**Route Treated Length:**	42.0 km
Depot to Route:	9.0 km	**Route Time:**	50 mins
Depot to Route:	10 mins	**Route Coverage:**	10.75 tonnes
Route to Depot:	39.0 km	**Route Average Width:**	6.4 m
Route to Depot:	45 mins	**Route Average Speed:**	50 km/h

A = 9.0 km – Distance from 1. Depot to 2. Start of route (km) – (i.e dead time)

B = 42.0 km – Distance from 2. Start of route to 3. End of route (km) – (i.e including any dead time from start to end of route for junctions etc hence optimisation)

C = 42.0km – Total Distance treated from 2. Start of route to 3. End of route (km)

D = 39.0 km – Distance from 3. End of route to 1. Depot

E (Efficiency of Route) = (100 / (A + B + D)) x C = (100 / 90) x 42.0 = 46.7%

Alternative Access: In the event of any blockage on the trunk road network that would require alternative access the frontline vehicle will treat to the point of the blockage and then use the local road network to reach the remainder of the route. A vehicle will be provided from the Inverness depot by utilising the trunk road and local road network should access be required from an alternative depot.

Operation	Road	From	To	Distance (km)	Tonnage
Travel	U/C	Dunbeath Depot	Dunbeath	1	-
Travel	A9	Dunbeath	Berriedale	8	-
SALT	A9	Berriedale	A99 Junction Latheron	15	3.84
SALT	A99	A99 Junction Latheron	Wick	27	6.91
Travel	A99/ A9	Wick	Dunbeath Depot	39	-
			Totals	**90**	**10.75**

Depot:	Dunbeath	Route:	NW40R15
Spread Rate:	40 g/m²	**Route Length:**	41.0 km
Treatment Type:	Pre-wet salt	**Route Treated Length:**	41.0 km
Depot to Route:	6.0 km	**Route Time:**	50 mins
Depot to Route:	8 mins	**Route Coverage:**	10.66 tonnes
Route to Depot:	47.0 km	**Route Average Width:**	6.3 m
Route to Depot:	55 mins	**Route Average Speed:**	50 km/h

A = 6.0 km – Distance from 1. depot to 2. start of route (km) - (i.e dead time)
B = 41.0 km – Distance from 2. start of route to 3. end of route (km) – (i.e including any dead time from start to end of route for junctions etc hence optimisation)
C = 41.0 km – Total Distance treated from 2. start of route to 3. end of route (km)
D = 47.0 km – Distance from 3. end of route to 1. depot
E (Efficiency of Route) = (100 / (A + B + D)) x C = (100 / 94) x 41.0 = 43.6%
Alternative Access: In the event of any blockage on the trunk road network that would require alternative access the frontline vehicle will treat to the point of the blockage and then use the local road network to reach the remainder of the route. A vehicle will be provided from the Thurso depot by utilising the trunk road and local road network should access be required from an alternative depot.

Operation	Road	From	To	Distance (km)	Tonnage
Travel	U/C	Dunbeath Depot	Dunbeath	1	-
Travel	A9	Dunbeath	A99 Junction Latheron	5	-
SALT	A9	A99 Junction Latheron	Scrabster	41	10.66
Travel	A9	Scrabster	Dunbeath Depot	47	-
			Totals	**94**	**10.66**

Depot:	Ardelve	Route:	NW40R16
Spread Rate:	40 g/m² and	**Route Length:**	54.0 km
Treatment Type:	Pre-wet salt	**Route Treated Length:**	54.0 km
Depot to Route:	38.0 km	**Route Time:**	61 mins
Depot to Route:	41 mins	**Route Coverage:**	12.96 tonnes
Route to Depot:	92.0 km	**Route Average Width:**	6.0 m
Route to Depot:	99 mins	**Route Average Speed:**	50 km/h

A = 38.0 km – Distance from 1. depot to 2. start of route (km) - (i.e dead time)

B = 54.0 km – Distance from 2. start of route to 3. end of route (km) – (i.e including any dead time from start to end of route for junctions etc hence optimisation)

C = 54.0 km – Total Distance treated from 2. start of route to 3. end of route (km)

D = 92.0 km – Distance from 3. end of route to 1. depot

E (Efficiency of Route) = (100 / (A + B + D)) x C = (100 /184) x 54.0 = 29.3%

Alternative Access: In the event of any blockage on the trunk road network that would require alternative access the frontline vehicle will treat to the point of the blockage and then use the local road network to reach the remainder of the route.

Operation	Road	From	To	Distance (km)	Tonnage
Travel	A87	Ardelve	A87 Moll Junction	38	-
SALT	A87	A87 Moll Junction	A87 Uig Pier	54	12.96
Travel	A87	A87 Uig Pier	Ardelve	92	-
			Totals	**184**	**12.96**

Depot:	Ardelve	Route:	NW40R17
Spread Rate:	40 g/m² and 0.0312 l/m²	**Route Length:**	61.6 km
Treatment Type:	Pre-wet salt and potassium acetate	**Route Treated Length:**	61.6 km
Depot to Route:	22.0 km	**Route Time:**	72 mins
Depot to Route:	26 mins	**Route Coverage:**	14.40 tonnes 350 litres
Route to Depot:	39.0 km	**Route Average Width:**	6.0 m
Route to Depot:	45 mins	**Route Average Speed:**	50 km/h

A = 22.0 km – Distance from 1. Depot to 2. Start of route (km) – (i.e dead time)

B = 61.6 km – Distance from 2. Start of route to 3. End of route (km) – (i.e including any dead time from start to end of route for junctions etc hence optimisation)

C = 61.6 km – Total Distance treated from 2. Start of route to 3. End of route (km)

D = 39.0 km – Distance from 3. End of route to 1. Depot

E (Efficiency of Route) = (100 / (A + B + D)) x C = (100 / 122.6) x 61.6 = 50.2%

Alternative Access: In the event of any blockage on the trunk road network that would require alternative access the frontline vehicle will treat to the point of the blockage and then use the local road network to reach the remainder of the route.

Operation	Road	From	To	Distance (km)	Tonnage
Travel	A87	Ardelve	A87 Glensheil Battlefield	22	-
SALT	A87	A87 Glensheil Battlefield	200m East of Carrick Bridge	35	8.40
ACETATE	A87	200m East of Carrick Bridge	Kyleakin Roundabout	1.6	0.32
SALT	A87	Kyleakin Roundabout	A87 Moll Junction	25	6.00
Travel	A87	A87 Moll Junction	Ardelve	39	-
			Totals	**122.6**	**14.72**

Depot:	Ardelve	Route:	NW40R18
Spread Rate:	40 g/m²	**Route Length:**	70.0 km
Treatment Type:	Pre-wet salt	**Route Treated Length:**	60.0 km
Depot to Route:	22.0 km	**Route Time:**	83 mins
Depot to Route:	26 mins	**Route Coverage:**	14.40 tonnes
Route to Depot:	67.0 km	**Route Average Width:**	6.0 m
Route to Depot:	75 mins	**Route Average Speed:**	50 km/h

A = 22.0 km – Distance from 1. depot to 2. start of route (km) - (i.e dead time)

B = 70.0 km – Distance from 2. start of route to 3. end of route (km) – (i.e including any dead time from start to end of route for junctions etc hence optimisation)

C = 60.0 km – Total Distance treated from 2. start of route to 3. end of route (km)

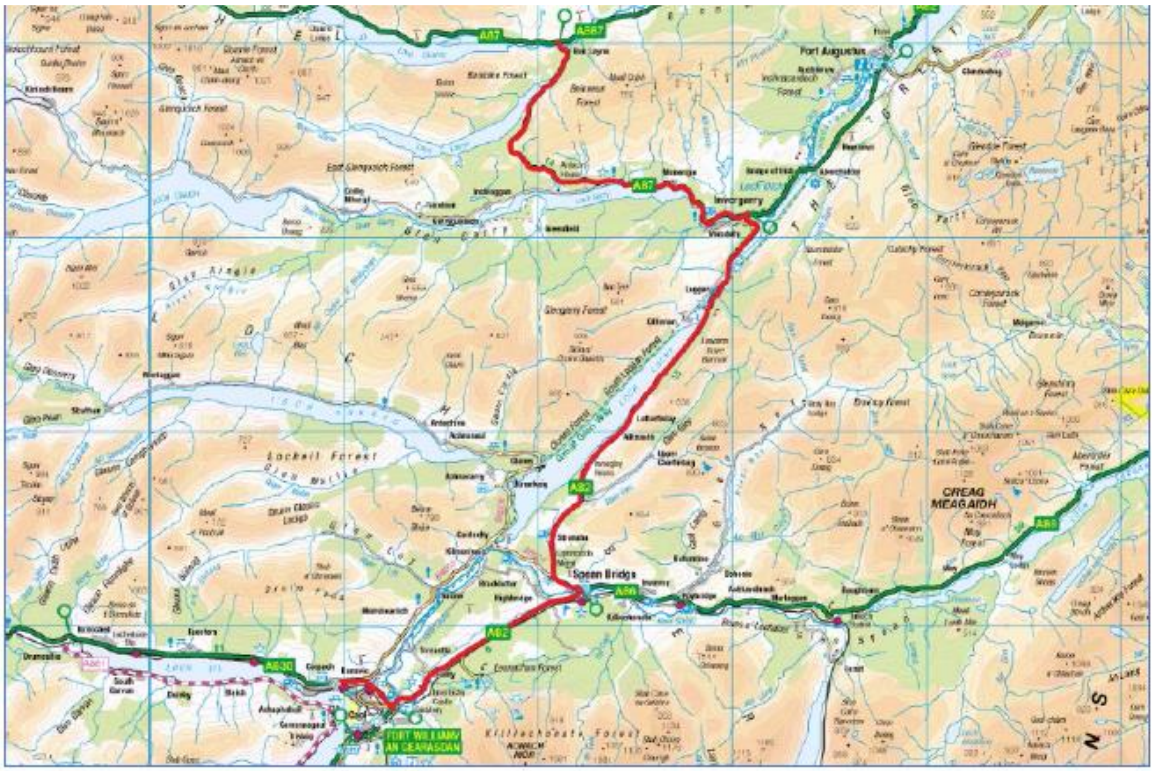
D = 67.0 km – Distance from 3. end of route to 1. depot

E (Efficiency of Route) = (100 / (A + B + D)) x C = (100 / 159) x 60.0 = 37.7%

Alternative Access: In the event of any blockage on the trunk road network that would require alternative access the frontline vehicle will treat to the point of the blockage and then use the local road network to reach the remainder of the route. A vehicle will be provided from the Fort William depot by utilising the trunk road and local road network should access be required from an alternative depot.

Operation	Road	From	To	Distance (km)	Tonnage
Travel	A87	Ardelve	A87 Glenshiel Battlefield	22	-
SALT	A87	A87 Glensheil Battlefield	A82 Invermoriston	48	11.52
Travel	A82	A82 Invermoriston	A82 Fort Augustus (B862)	10	-
SALT	A82	A82 Fort Augustus (B862)	A82 Invergarry	12	2.88
Travel	A87	A82 Invergarry	Ardelve	67	-
			Totals	**159**	**14.4**

Depot:	Corpach	Route:	NW40R19
Spread Rate:	40 g/m²	**Route Length:**	64.0 km
Treatment Type:	Pre-wet salt	**Route Treated Length:**	64.0 km
Depot to Route:	1.0 km	**Route Time:**	76 mins
Depot to Route:	2 mins	**Route Coverage:**	15.12 tonnes
Route to Depot:	65.0 km	**Route Average Width:**	6.0 m
Route to Depot:	77 mins	**Route Average Speed:**	50 km/h



A = 1.0 km – Distance from 1. depot to 2. start of route (km) - (i.e dead time)

B = 64.0 km – Distance from 2. start of route to 3. end of route (km) – (i.e including any dead time from start to end of route for junctions etc hence optimisation)

C = 64.0 km – Total Distance treated from 2. start of route to 3. end of route (km)

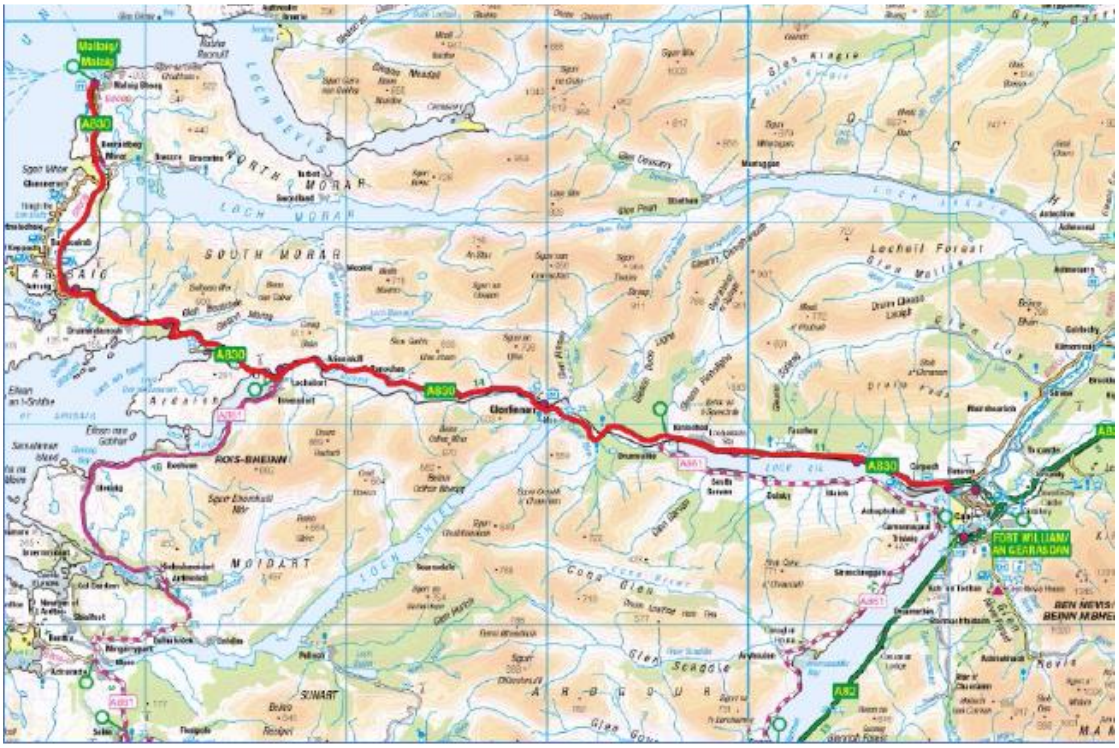
D = 65.0 km – Distance from 3. end of route to 1. depot

E (Efficiency of Route) = (100 / (A + B + D)) x C = (100 / 130) x 64.0 = 49.2%

Alternative Access: In the event of any blockage on the trunk road network that would require alternative access the frontline vehicle will treat to the point of the blockage and then use the local road network to reach the remainder of the route. A vehicle will be provided from the Ardelve depot by utilising the trunk road and local road network should access be required from an alternative depot.

Operation	Road	From	To	Distance (km)	Tonnage
Travel	U/C	Corpach Depot	A830 Corpach	1	-
SALT	A830	Corpach	A82 Junction Victoria Bridge	4	0.96
SALT	A82	A830 Junction	A86 Junction Spean Bridge	12	2.83
SALT	A82	A86 Junction Spean Bridge	A87 Junction Invergarry	27	6.37
SALT	A87	A87 Junction Invergarry	A87 Bunloyne	21	4.96
Travel	A87	A87 Bunloyne	A87 Junction Invergarry	21	-
Travel	A82	A87 Junction Invergarry	A830 Junction	39	-
Travel	A830	A830 Junction	Corpach Depot	5	-
			Totals	**130**	**15.12**

Depot:	Corpach	Route:	NW40R20
Spread Rate:	40 g/m²	**Route Length:**	62.0 km
Treatment Type:	Pre-wet salt	**Route Treated Length:**	62.0 km
Depot to Route:	1.0 km	**Route Time:**	74 mins
Depot to Route:	2 mins	**Route Coverage:**	15.62 tonnes
Route to Depot:	63.0 km	**Route Average Width:**	6.2 m
Route to Depot:	75 mins	**Route Average Speed:**	50 km/h



A = 1.0 km – Distance from 1. Depot to 2. Start of route (km) – (i.e dead time)

B = 62.0 km – Distance from 2. Start of route to 3. End of route (km) – (i.e including any dead time from start to end of route for junctions etc hence optimisation)

C = 62.0 km – Total Distance treated from 2. Start of route to 3. End of route (km)

D = 63.0 km – Distance from 3. End of route to 1. Depot

E (Efficiency of Route) = (100 / (A + B + D)) x C = (100 / 126) x 62.0 = 49.2%

Alternative Access: In the event of any blockage on the trunk road network that would require alternative access the frontline vehicle will treat to the point of the blockage and then use the local road network to reach the remainder of the route. A vehicle will be provided from the Mallaig depot by utilising the trunk road and local road network should access be required from an alternative depot.

Operation	Road	From	To	Distance (km)	Tonnage
Travel	U/C	Corpach Depot	A830 Corpach	1	-
SALT	A830	Corpach	Mallaig	62	15.62
Travel	A830	Mallaig	Corpach Depot	63	-
			Totals	**126**	**15.62**

Depot:	Corpach	Route:	NW40R21
Spread Rate:	40 g/m²	**Route Length:**	54.0 km
Treatment Type:	Pre-wet salt	**Route Treated Length:**	54.0 km
Depot to Route:	28.0 km	**Route Time:**	64 mins
Depot to Route:	35 mins	**Route Coverage:**	13.14 tonnes
Route to Depot:	82 km	**Route Average Width:**	6.2 m
Route to Depot:	99 mins	**Route Average Speed:**	50 km/h

A = 28.0 km – Distance from 1. depot to 2. start of route (km) - (i.e dead time)
B = 54.0 km – Distance from 2. start of route to 3. end of route (km) – (i.e including any dead time from start to end of route for junctions etc hence optimisation)
C = 54.0 km – Total Distance treated from 2. start of route to 3. end of route (km)
D = 82.0 km – Distance from 3. end of route to 1. depot
E (Efficiency of Route) = (100 / (A + B + D)) x C = (100 / 162) x 46.6 = 33.3%
Alternative Access: In the event of any blockage on the trunk road network that would require alternative access the frontline vehicle will treat to the point of the blockage and then use the local road network to reach the remainder of the route. A vehicle will be provided from the Killin depot by utilising the trunk road and local road network should access be required from an alternative depot.

Operation	Road	From	To	Distance (km)	Tonnage
Travel	U/C A830	Corpach Depot	A82 Junction Victoria Bridge	4	-
Travel	A82	A82 Junction Victoria Bridge	Nevis Bridge Roundabout	2	-
Travel	A82	Nevis Bridge Roundabout	A828 Roundabout	22	-
SALT	A82	A828 Roundabout (inc Roundabout)	A82 Glen Etive	23	5.60
SALT	A82	A82 Glen Etive	A82 Tyndrum	31	7.54
Travel	A82	A82 Tyndrum	A830 Junction	78	-
Travel	A830	A82 Junction Victoria Bridge	Corpach Depot	4	-
			Totals	**164**	**13.14**

Depot:	Oban	Route:	NW40R22
Spread Rate:	40 g/m²	**Route Length:**	68.5 km
Treatment Type:	Pre-wet salt	**Route Treated Length:**	66.0 km
Depot to Route:	10.0 km	**Route Time:**	72 mins
Depot to Route:	12 mins	**Route Coverage:**	15.76 tonnes
Route to Depot:	74.0 km	**Route Average Width:**	6.0 m
Route to Depot:	84 mins	**Route Average Speed:**	50 km/h

A = 10.0 km – Distance from 1. depot to 2. start of route (km) - (i.e dead time)

B = 68.5 km – Distance from 2. start of route to 3. end of route (km) – (i.e including any dead time from start to end of route for junctions etc hence optimisation)

C = 66.0 km – Total Distance treated from 2. start of route to 3. end of route (km)

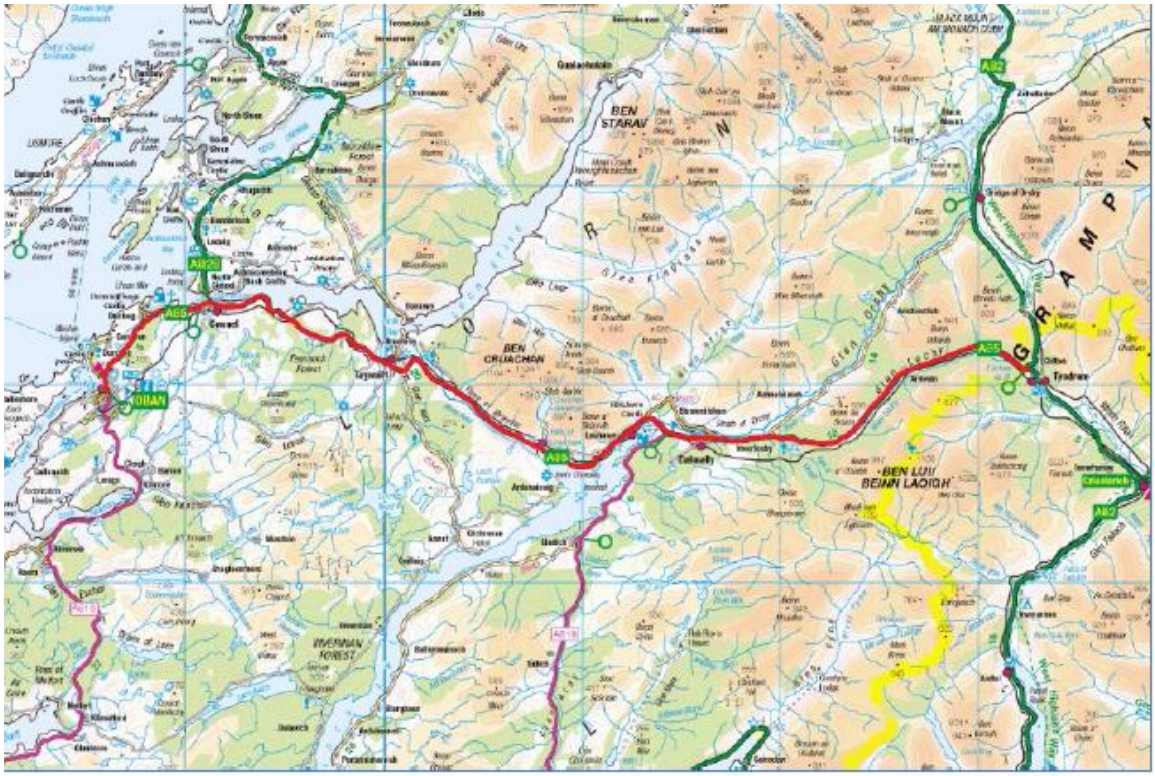
D = 74.0 km – Distance from 3. end of route to 1. depot

E (Efficiency of Route) = (100 / (A + B + D)) x C = (100 / 152.5) x 66.0 = 43.4%

Alternative Access: In the event of any blockage on the trunk road network that would require alternative access the frontline vehicle will treat to the point of the blockage and then use the local road network to reach the remainder of the route. A vehicle will be provided from the Corpach depot by utilising the trunk road and local road network should access be required from an alternative depot.

Operation	Road	From	To	Distance (km)	Tonnage
Travel	McCaig Road	Glenshalloch Ind Estate	Junction A816	1	-
Travel	A816	Junction A816	Argyll Square	2	-
Travel	A85 /A82 /A85	Argyll Square	End of two lane section (Gateway)	0.3	-
Travel	A85	End of two lane section (Gateway)	A828 Connel	6.7	-
SALT	A828	A828 Connel	A82 Ballachulish Roundabout	42	10.08
SALT	A82	A828 Ballachulish Roundabout	A82 West End Roundabout	20	4.80
SALT	A82	A82 West End Roundabout Start of Dual N/Bound	A82/ A830 Roundabout	3	0.72
Travel	A82	A82/ A830 Roundabout Turn at Roundabout	A82 Belford Road Start of Dual Southbound	2.5	-
SALT	A82	A82 Belford Road Start of Dual Southbound	A82 West End Roundabout	1	0.24
Travel	A82/ A828	A82 West End Roundabout	A828 Connel	64	-
Travel	A85	A828 Connel	Argyll Square	7	-
Travel	A816	Argyll Square	Junction A816	2	-
Travel	McCaig Road	Junction A816	Glenshalloch Ind Estate	1	-
			Totals	**152.5**	**15.84**

Depot:	Oban	Route:	NW40R23
Spread Rate:	40 g/m²	**Route Length:**	57.6 km
Treatment Type:	Pre-wet salt	**Route Treated Length:**	57.3 km
Depot to Route:	1.0 km	**Route Time:**	75 mins
Depot to Route:	5 mins	**Route Coverage:**	14.38 tonnes
Route to Depot:	61.0 km	**Route Average Width:**	6.2 m
Route to Depot:	80 mins	**Route Average Speed:**	50 km/h



A = 3.5 km – Distance from 1. Depot to 2. Start of route (km) – (i.e dead time)

B = 57.6 km – Distance from 2. Start of route to 3. End of route (km) – (i.e including any dead time from start to end of route for junctions etc hence optimisation)

C = 57.3 km – Total Distance treated from 2. Start of route to 3. End of route (km)

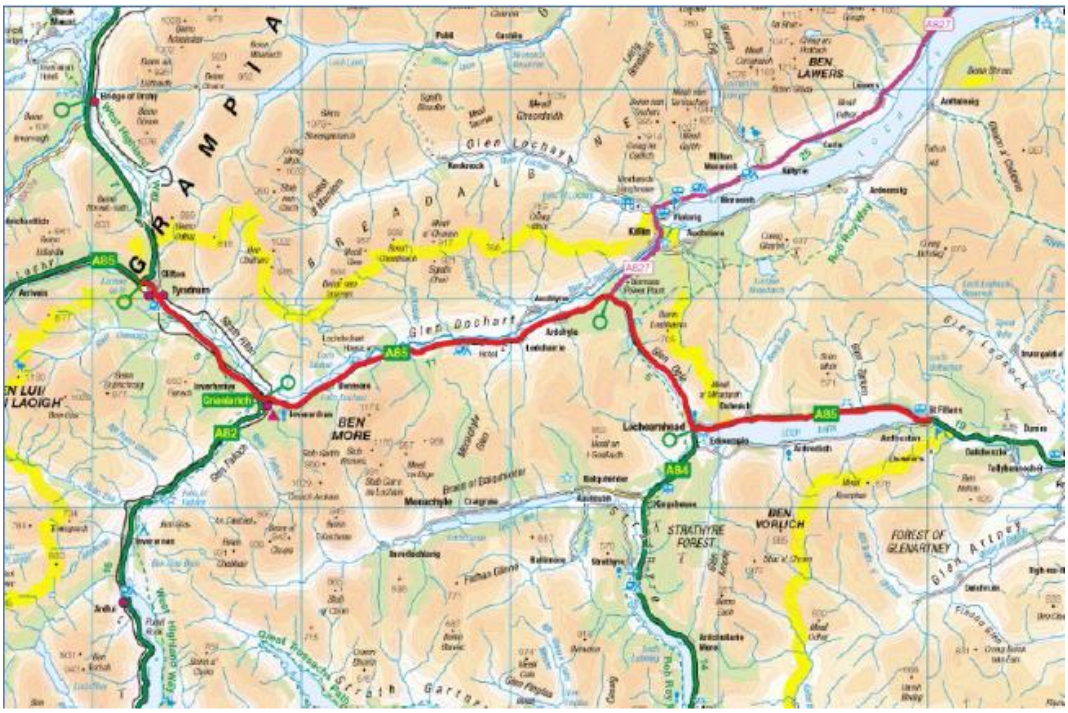
D = 61.0 km – Distance from 3. End of route to 1. Depot

E (Efficiency of Route) = (100 / (A + B + D)) x C = (100 / 122.1) x 57.6 = 47.2%

Alternative Access: In the event of any blockage on the trunk road network that would require alternative access the frontline vehicle will treat to the point of the blockage and then use the local road network to reach the remainder of the route. A vehicle will be provided from the Killin depot by utilising the trunk road and local road network should access be required from an alternative depot.

Operation	Road	From	To	Distance (km)	Tonnage
Travel	McCaig Road	Glenshalloch Ind Estate	Junction A816	1	-
Travel	A816	Junction A816	Argyll Square	2	-
Travel	A85	Argyll Square	Start of one way section (Gateway)	0.5	-
SALT	A85	Start of one way section (Gateway)	Dunollie Road Junction	0.5	0.13
SALT	A85	Dunollie Road Junction, Oban	Argyll Square (excluding roundabout)	0.8	0.20
Travel	A85 /A82/ A85	Argyll Square	End of two lane section (Gateway)	0.3	-
SALT	A85	End of two lane section (Gateway)	Tyndrum	56	14.05
Travel	A85	Tyndrum	Glenshalloch Ind Estate	61	-
			Totals	**122.1**	**14.38**

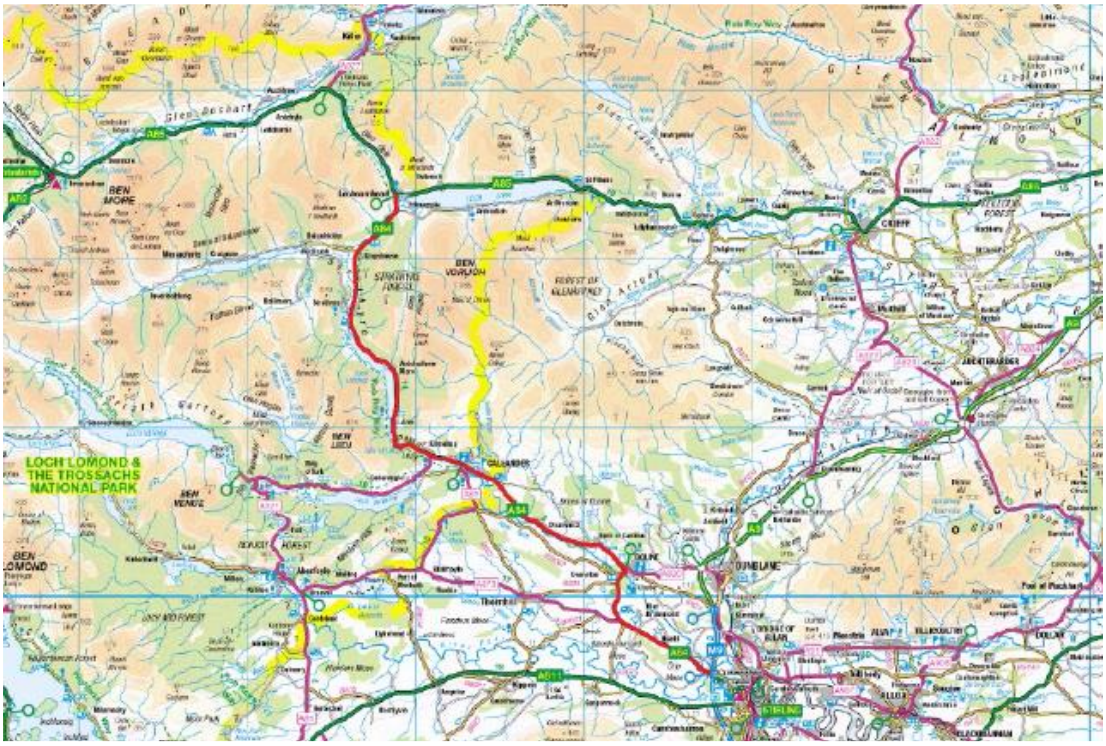
Depot:	Killin	Route:	NW40R24
Spread Rate:	40 g/m²	**Route Length:**	47.0 km
Treatment Type:	Pre-wet salt	**Route Treated Length:**	47.0 km
Depot to Route:	23.0 km	**Route Time:**	57 mins
Depot to Route:	27 mins	**Route Coverage:**	11.28 tonnes
Route to Depot:	30.0 km	**Route Average Width:**	6.3 m
Route to Depot:	38 mins	**Route Average Speed:**	50 km/h



A = 23.0 km – Distance from 1. depot to 2. start of route (km) - (i.e dead time)
B = 47.0 km – Distance from 2. start of route to 3. end of route (km) – (i.e including any dead time from start to end of route for junctions etc hence optimisation)
C = 47.0 km – Total Distance treated from 2. start of route to 3. end of route (km)
D = 30.0 km – Distance from 3. end of route to 1. depot
E (Efficiency of Route) = (100 / (A + B + D)) x C = (100 / 100) x 47.0 = 47.0%
Alternative Access: In the event of any blockage on the trunk road network that would require alternative access the frontline vehicle will treat to the point of the blockage and then use the local road network to reach the remainder of the route. A vehicle will be provided from the Oban depot by utilising the trunk road and local road network should access be required from an alternative depot.

Operation	Road	From	To	Distance (km)	Tonnage
Travel	A827	Killin	A85 Junction Lix Toll	3	-
Travel	A85	A85 Junction Lix Toll	A85 Lochearnhead	8	-
Travel	A85	A85 Lochearnhead	A85 St Fillans (South Loch Junction)	11	-
SALT	A85	A85 St Fillans (South Loch Junction)	A85 Lochearnhead	12	2.88
SALT	A85	A85 Lochearnhead	A85 Junction Lix Toll	8	1.92
SALT	A85	Lix Toll	A82 Junction Crianlarich	19	4.56
SALT	A82	A82 Junction Crianlarich	A82 Tyndrum	8	1.92
Travel	A82	A82 Tyndrum	A85 Junction Crianlarich	8	-
Travel	A85	A82 Junction Crianlarich	A85 Junction Lix Toll	19	-
Travel	A827	Lix Toll	Killin	3	-
			Totals	**100**	**11.28**

Depot:	Killin	Route:	NW40R25
Spread Rate:	40 g/m²	**Route Length:**	44.0 km
Treatment Type:	Pre-wet salt	**Route Treated Length:**	44.0 km
Depot to Route:	11.0 km	**Route Time:**	53 mins
Depot to Route:	17 mins	**Route Coverage:**	11.08 tonnes
Route to Depot:	55.0 km	**Route Average Width:**	6.3 m
Route to Depot:	66 mins	**Route Average Speed:**	50 km/h



A = 11.0 km – Distance from 1. depot to 2. start of route (km) - (i.e dead time)

B = 44.0 km – Distance from 2. start of route to 3. end of route (km) – (i.e including any dead time from start to end of route for junctions etc hence optimisation)

C = 44.0 km – Total Distance treated from 2. start of route to 3. end of route (km)

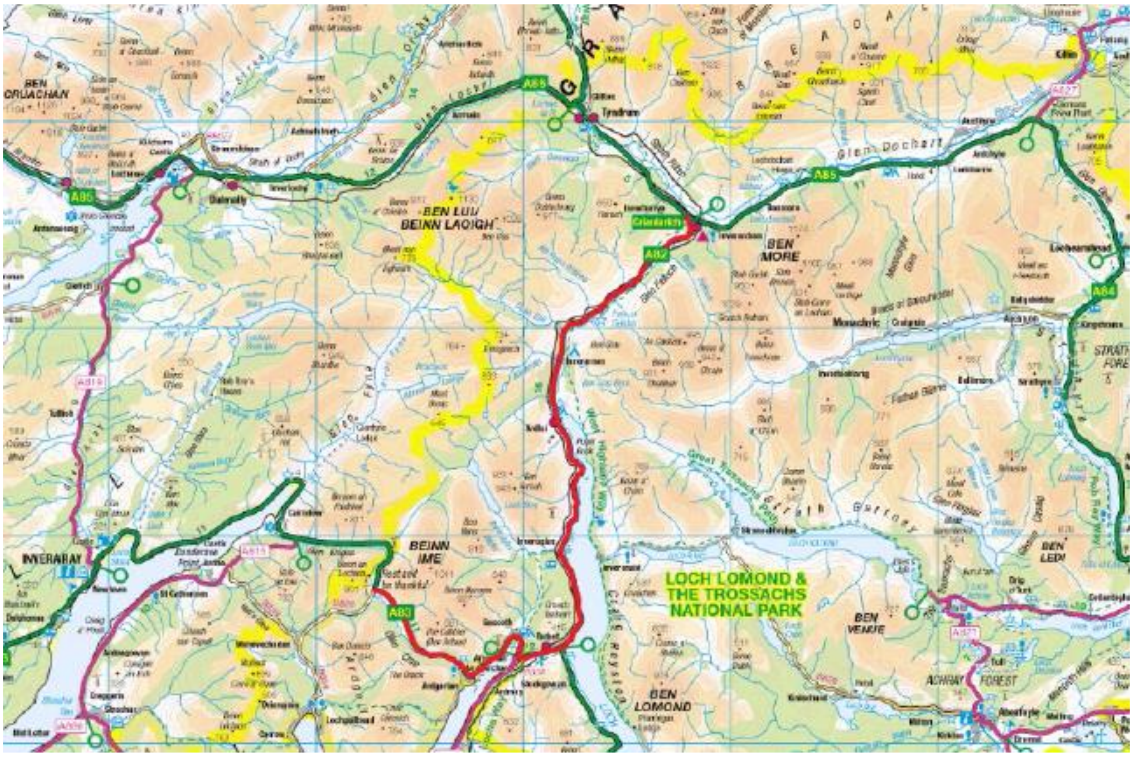
D = 55.0 km – Distance from 3. end of route to 1. depot

E (Efficiency of Route) = (100 / (A + B + D)) x C = (100 / 110) x 44.0 = 40%

Alternative Access: In the event of any blockage on the trunk road network that would require alternative access the frontline vehicle will treat to the point of the blockage and then use the local road network to reach the remainder of the route. A vehicle will be provided from the Perth depot by utilising the trunk road and local road network should access be required from an alternative depot.

Action	Road	From	To	Distance (km)	Tonnage
Travel	A827	Killin	A85 Junction Lix Toll	3	-
Travel	A85	A85 Junction Lix Toll	A85 Lochearnhead	8	-
SALT	A84	A84 Lochearnhead	A84 Kildean	44	11.08
Travel	A84	A84 Kildean	A84 Lochearnhead	44	-
Travel	A85	A85 Lochearnhead	A85 Junction Lix Toll	8	-
Travel	A827	Lix Toll	Killin	3	-
			Totals	**110**	**11.08**

Depot:	Killin	Route:	NW40R26
Spread Rate:	40 g/m²	**Route Length:**	40.0 km
Treatment Type:	Pre-wet salt	**Route Treated Length:**	40.0 km
Depot to Route:	22.0 km	**Route Time:**	53 mins
Depot to Route:	27 mins	**Route Coverage:**	10.4 tonnes
Route to Depot:	62.0 km	**Route Average Width:**	6.5 m
Route to Depot:	80 mins	**Route Average Speed:**	45 km/h



A = 22.0 km – Distance from 1. depot to 2. start of route (km) - (i.e dead time)

B = 40.0 km – Distance from 2. start of route to 3. end of route (km) – (i.e including any dead time from start to end of route for junctions etc hence optimisation)

C = 40.0 km – Total Distance treated from 2. start of route to 3. end of route (km)

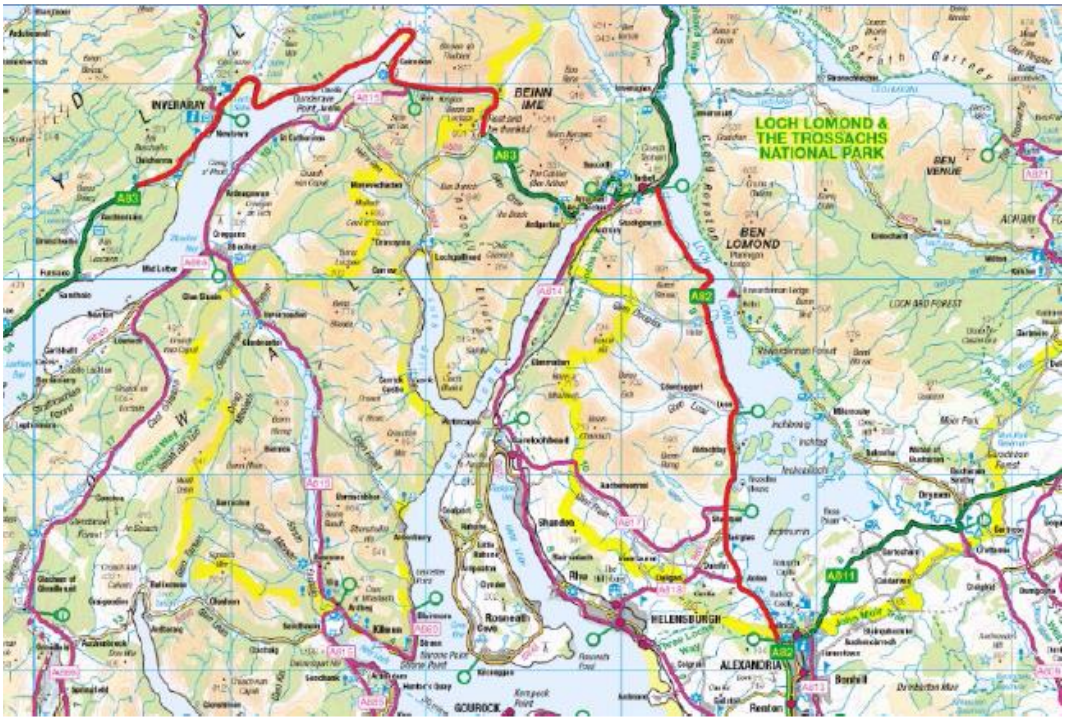
D = 62.0 km – Distance from 3. end of route to 1. depot

E (Efficiency of Route) = (100 / (A + B + D)) x C = (100 / 124) x 40 = 32.2%

Alternative Access: In the event of any blockage on the trunk road network that would require alternative access the frontline vehicle will treat to the point of the blockage and then use the local road network to reach the remainder of the route. A vehicle will be provided from the Inveraray depot by utilising the trunk road and local road network should access be required from an alternative depot.

Operation	Road	From	To	Distance (km)	Tonnage
Travel	A827	Killin	A85 Junction Lix Toll	3	-
Travel	A85	Lix Toll	A82 Junction Crianlarich	19	-
SALT	A83	A82 Crianlarich	A82 Junction Tarbet	27	7.02
SALT	A83	Tarbet	Rest and Be Thankful	13	3.38
Travel	A83	Rest and Be Thankful	A82 Junction Tarbet	13	-
Travel	A83	Tarbet	A82 Junction Crianlarich	27	-
Travel	A85	A82 Junction Crianlarich	A85 Junction Lix Toll	19	-
Travel	A827	Lix Toll	Killin	3	-
			Totals	**124**	**10.40**

Depot:	Inveraray	Route:	NW40R27
Spread Rate:	40 g/m²	**Route Length:**	77.8 km
Treatment Type:	Pre-wet salt	**Route Treated Length:**	57.8 km
Depot to Route:	9.0 km	**Route Time:**	93 mins
Depot to Route:	12 mins	**Route Coverage:**	14.61 tonnes
Route to Depot:	56.6 km	**Route Average Width:**	6.3 m
Route to Depot:	68 mins	**Route Average Speed:**	50 km/h



A = 9.0km – Distance from 1. depot to 2. start of route (km) - (i.e dead time)

B = 77.85 km – Distance from 2. start of route to 3. end of route (km) – (i.e including any dead time from start to end of route for junctions etc hence optimisation)

C = 57.85 km – Total Distance treated from 2. start of route to 3. end of route (km)

D = 56.6 km – Distance from 3. end of route to 1. depot

E (Efficiency of Route) = (100 / (A + B + D)) x C = (100 / 143.45) x 57.85 = 40.3%

Alternative Access: In the event of any blockage on the trunk road network that would require alternative access the frontline vehicle will treat to the point of the blockage and then use the local road network to reach the remainder of the route. A vehicle will be provided from the Killin depot by utilising the trunk road and local road network should access be required from an alternative depot.

Operation	Road	From	To	Distance (km)	Tonnage
Travel	U/C	Inveraray Depot	A83 Inveraray	1	-
Travel	U/C	A83 Inveraray	A83 Auchnagoul Junction	8	-
SALT	A83	A83 Auchnagoul Junction	Rest and Be Thankful	30	7.55
SALT	B828	A83/ B828 Junction	RABT Bus Turning Circle	0.2	0.06
Travel	A83	Rest and Be Thankful	A82 Junction Tarbet	13	-
SALT	A82	A83 Junction Tarbet	A811 Junction Tullichewan Roundabout, (exc Roundabout but inc northbound exit to Tullichewan roundabout and roundabout at B831 Arden Junction)	27	6.85
Travel	A82	Alexandria	Northbound entry to Arden roundabout	4	-
SALT	A82	South end Arden roundabout northbound entry	North end Arden roundabout northbound exit	0.1	0.03
Travel	A82	Arden	South end A817 Junction Island (Loch Lomond Golf Club)	3	-
SALT	A82	South end A817 Junction Splitter Island	North end A817 Junction Splitter Island	0.5	0.13
Travel	A82	A817 Junction	Tarbet	18	-
Travel	A83	Tarbet	Inveraray	37.6	-
Travel	U/C	Inveraray	Inveraray Depot	1	-
			Totals	**143.45**	**14.61**

Depot:	Inveraray	Route:	NW40R28
Spread Rate:	40 g/m²	**Route Length:**	63.0 km
Treatment Type:	Pre-wet salt	**Route Treated Length:**	63.0 km
Depot to Route:	9.0 km	**Route Time:**	76 mins
Depot to Route:	12 mins	**Route Coverage:**	15.12 tonnes
Route to Depot:	72 km	**Route Average Width:**	6.0 m
Route to Depot:	88 mins	**Route Average Speed:**	50 km/h

A = 9.0 km – Distance from 1. depot to 2. start of route (km) - (i.e dead time)
B = 63.0 km – Distance from 2. start of route to 3. end of route (km) – (i.e including any dead time from start to end of route for junctions etc hence optimisation)
C = 63.0km – Total Distance treated from 2. start of route to 3. end of route (km)
D = 72.0 km – Distance from 3. end of route to 1. depot
E (Efficiency of Route) = (100 / (A + B + D)) x C = (100 / 144) x 63.0 = 43.8%
Alternative Access: In the event of any blockage on the trunk road network that would require alternative access the frontline vehicle will treat to the point of the blockage and then use the local road network to reach the remainder of the route. A vehicle will be provided from the Machrihanish depot by utilising the trunk road and local road network should access be required from an alternative depot.

Operation	Road	From	To	Distance (km)	Tonnage
Travel	A83	Inveraray Depot	A83 Auchnagoul Junction	6	-
SALT	A83	A83 Auchnagoul Junction	Kennacraig Ferry Terminal Junction (inc all 3 roundabouts in Lochgilphead)	63	15.12
Travel	A83	Kennacraig	Inveraray	68	-
Travel	U/C	Inveraray	Inveraray Depot	1	-
			Totals	**138**	**15.12**

Depot:	Machrihanish	Route:	NW40R29
Spread Rate:	40 g/m²	**Route Length:**	60.4 km
Treatment Type:	Pre-wet salt	**Route Treated Length:**	57.4 km
Depot to Route:	6.8 km	**Route Time:**	76 mins
Depot to Route:	9 mins	**Route Coverage:**	14.28 tonnes
Route to Depot:	40.5 km	**Route Average Width:**	6.2 m
Route to Depot:	50 mins	**Route Average Speed:**	50 km/h

A = 6.8 km – Distance from 1. depot to 2. start of route (km) - (i.e dead time)

B = 60.4 km – Distance from 2. start of route to 3. end of route (km) – (i.e including any dead time from start to end of route for junctions etc hence optimisation)

C = 57.4 km – Total Distance treated from 2. start of route to 3. end of route (km)

D = 40.5 km – Distance from 3. end of route to 1. depot

E (Efficiency of Route) = (100 / (A + B + D)) x C = (100 / 107.7) x 57.4 = 53.3%

Alternative Access: In the event of any blockage on the trunk road network that would require alternative access the frontline vehicle will treat to the point of the blockage and then use the local road network to reach the remainder of the route. A vehicle will be provided from the Inveraray depot by utilising the trunk road and local road network should access be required from an alternative depot.

Operation	Road	From	To	Distance (km)	Tonnage
Travel	U/C	Depot	A83 Machrihanish Jct	1.5	-
Travel	A83 (S/bound)	A83 Machrihanish Jct	A83 Lochend Street	4.5	-
Travel	Lochend Street	A83 Lochend Street	Kinloch Road	0.2	-
Travel	Kinloch Road	Kinloch Road	Royal Hotel Roundabout	0.6	-
SALT	Hall Street	Royal Hotel Roundabout	S/ bound Hall Street Dual Carriageway Campbeltown Ferry Terminal	0.3	0.07
SALT	Hall Street	Turn Campbeltown Ferry Terminal	S/ bound Hall Street Dual Carriageway Campbeltown Ferry Terminal	0.3	0.07
SALT	Kinloch Road	Royal Hotel Roundabout	Lochend Street	0.6	0.15
SALT	Lochend Street	Kinloch Road	A83/ Lochend Street JCT	0.2	0.05
SALT	A83 N/ bound	A83/ Lochend Street JCT	Kennacraig	51	12.70
Travel	A83	Kennacraig	Gartnagrenach	3	-
SALT	A83	Gartnagrenach	Clachan Hill	5	1.23
Travel	A83	Clachan Hill	A83 Machrihanish Jct	39	-
Travel	U/C	A83 Machrihanish Jct	Depot	1.5	-
			Totals	**107.7**	**14.28**

Appendix WSP2 – Precautionary Footway Treatment Routes

This table and the subsequent route cards have been prepared as per the requirements of Table 6.10.3 of Schedule 2 Appendix 6 Attachment 6.10.

Depot:	**Dunbeath**	**Route:**	**NWFW01**
Spread Rate:	0.0312 l/m²	**Route Length:**	N/A
Treatment Type:	Brine	**Route Treated Length:**	6.03 km
Depot to Route:	12.4 km	**Route Time:**	N/A
Depot to Route:	11 mins	**Route Coverage:**	434 litres
Route to Depot:	26.8 km	**Route Average Width:**	1.8 m
Route to Depot:	24 mins	**Route Average Speed:**	N/A

Location Number	Route	Location	Name of street / side of street to be treated	Details of Footway		Route Centreline Length (m)
				Start	Finish	Category A
60	A99	Lybster		10492/20 ch 1720 (Start of Footway)	10492/25 ch 155 (End of Footway)	335
59	A99	Wick		10492/95 ch 5950 (Speed Limit Signs)	10492/96 ch 460 (West Banks Ave)	580
				10492/96 ch 460 (West Banks Avenue)	10492/96 ch 730 (End of Trunk Road)	270
54	A9	Thurso & Scrabster		10515/50 ch 3905 (Speed Limit Signs)	10530/05 ch 225 (Janet Street)	460
				10530/05 ch 225 (Janet Street)	10530/11 ch 50 (Olrig Street, Thurso)	335
				10530/11 ch 50 (Olrig Street, Thurso)	10535/05 ch 2140 (Ferry Terminal)	3170
55	A9	Helmsdale		10485/85 ch 1360 (Speed Limit Signs)	10489/10 ch 50 (End of Footway)	390
56	A9	Portgower		10485/55 ch 3180 (Start of Footway)	10485/75 ch 260 (End of Footway)	490

Depot:	Brora	Route:	NWFW02
Spread Rate:	0.0312 l/m²	**Route Length:**	N/A
Treatment Type:	Brine	**Route Treated Length:**	4.44 km
Depot to Route:	1.0 km	**Route Time:**	N/A
Depot to Route:	2 mins	**Route Coverage:**	320 litres
Route to Depot:	10.9 km	**Route Average Width:**	1.8 m
Route to Depot:	10 mins	**Route Average Speed:**	N/A

Location Number	Route	Location	Name of street / side of street to be treated	Details of Footway		Route Centreline Length (m)
				Start	Finish	Category A
57	A9	Brora		10482/40 ch 3540 (Bus Stop)	10483/05 ch 430 (Gow r Street)	500
				10483/05 ch 430 (Gower Street)	10483/50 ch 225 (Filling Station)	545
				10483/50 ch 225 (Filling Station)	10485/05 ch 45 (45m north of Clynelish Rd)	1100
58	A9	Golspie		10480/06 ch 4720 (Speed Limit Signs)	10480/65 ch 555 (War Memorial)	815
				10480/65 ch 555 (War Memorial)	10480/65 ch 1510 (Duke Street)	955
				10480/65 ch 1510 (Duke Street)	10482/05 ch 115 (Speed Limit Signs)	525

Depot:	Inverness	Route:	NWFW03
Spread Rate:	0.0312 l/m²	**Route Length:**	N/A
Treatment Type:	Brine	**Route Treated Length:**	15.86 km
Depot to Route:	3.0 km	**Route Time:**	N/A
Depot to Route:	5 mins	**Route Coverage:**	1142 litres
Route to Depot:	90 km	**Route Average Width:**	1.8 m
Route to Depot:	85 mins	**Route Average Speed:**	N/A

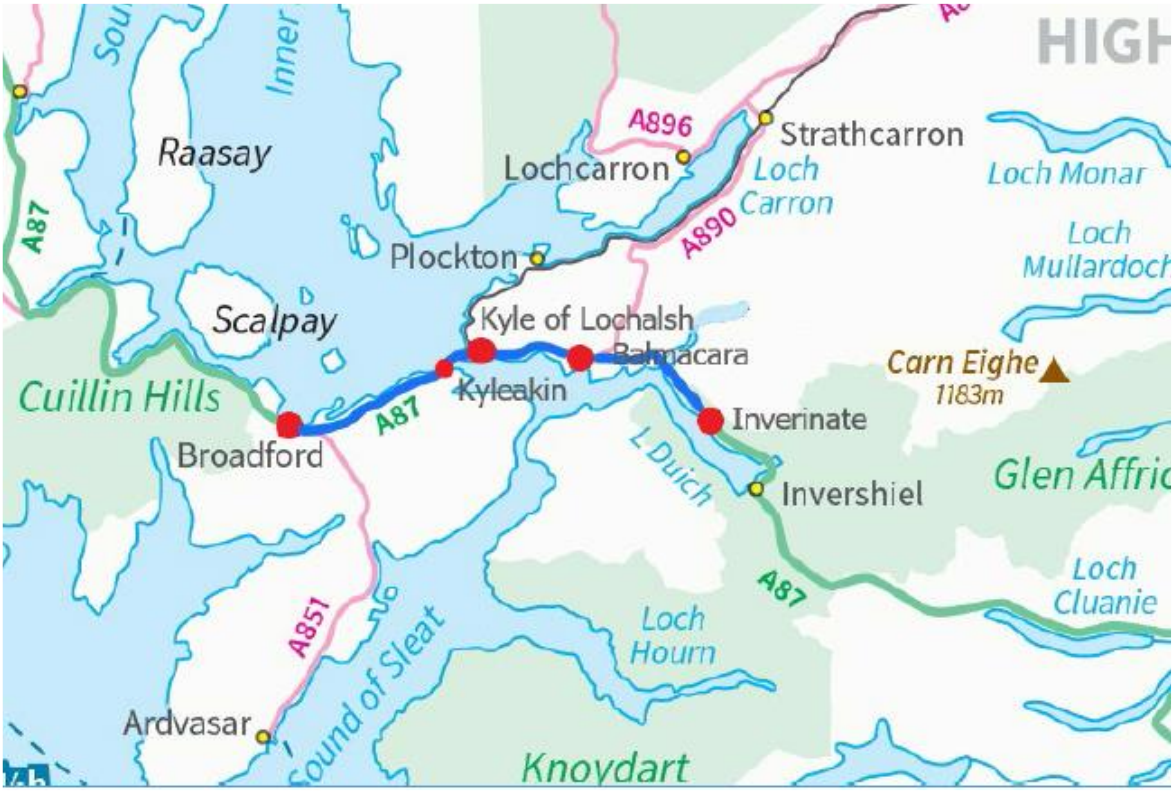
Location Number	Route	Location	Name of street / side of street to be treated	Details of Footway		Route Centreline Length (m)
				Start	Finish	Category A
10	A82	Inverness		10890/90 ch 2460 (Speed Limit Signs)	10892/05 ch 1240 (THC HQ)	1700
				10892/05 ch 1240 (THC HQ)	10892/05 ch 1515 (Kenneth St Junction)	420
				10892/05 ch 1515 (Kenneth St Junction)	10898/05 (Rose St Roundabout)	1400
				10898/05 (Rose St Roundabout)	10899/05 (Harbour Road Roundabout)	1100
				10899/05 (Harbour Road Roundabout)	**1**0899/50 ch 150 (Speed Limit Signs)	700
7	A82	Fort Augustus		10877/75 ch 3740 (Speed Limit Signs)	10880/05 ch 545 (Speed Limit Signs)	1585
8	A82/ A887	Invermoriston		10880/80 ch 1792 (Speed Limit Signs)	10880/80 ch 2273 (Junction with A887)	481
				10885/05 ch 0 (Junction with A887)	10885/05 ch 172 (Speed Limit Signs)	172
				12805/05 ch 0 (Junction with A82)	12805/05 ch 632 (Speed Limit Signs)	632
9	A82	Drumnadrochit		10885/60 ch 3610 (Speed Limit Signs)	10890/05 ch 320 (Speed Limit Signs)	1890
23	A835	Contin		18004/50 ch 760 (Start of Footway)	18006/06 ch 472 (Speed Limit Signs)	1232
24	A835	Garve		18006/76 ch 3217 (Start of Footway)	18008/06 ch 250 (End of Footway)	760

Location Number	Route	Location	Name of street / side of street to be treated	Details of Footway		Route Centreline Length (m)
				Start	Finish	Category A
25	A835/ A893	Ullapool		18012/75 ch 3000 (Braes Junction)	18012/75 ch 4020 (A835/A893 Jct)	1020
				18014/05 ch 0 (A835/A893 Jct)	18014/05 ch 370 (Ferry Terminal)	370

Depot:	Kingussie	Route:	NWFW04
Spread Rate:	0.0312 l/m²	**Route Length:**	N/A
Treatment Type:	Brine	**Route Treated Length:**	3.9 km
Depot to Route:	2.0 km	**Route Time:**	N/A
Depot to Route:	4 mins	**Route Coverage:**	281 litres
Route to Depot:	25 km	**Route Average Width:**	1.8 m
Route to Depot:	25 mins	**Route Average Speed:**	N/A

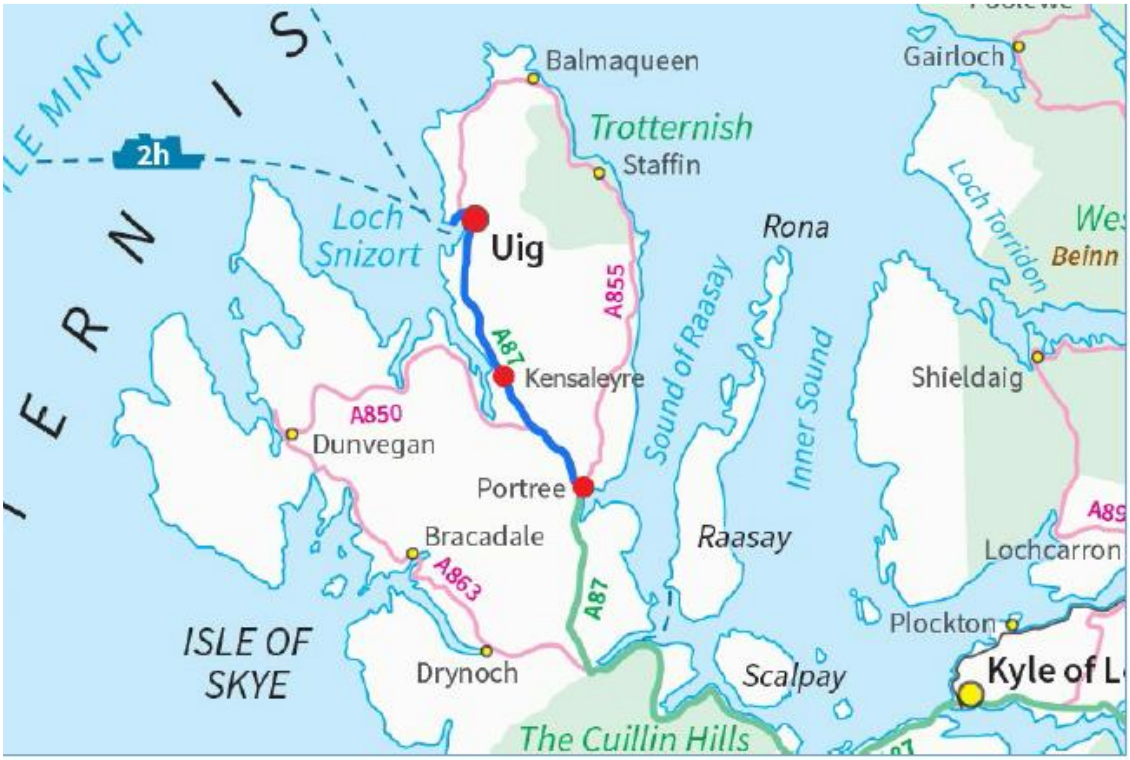
Location Number	Route	Location	Name of street / side of street to be treated	Details of Footway		Route Centreline Length (m)
				Start	Finish	Category A
43	A86	Kingussie		12915/40 ch 0 (Speed Limit Signs)	12915/40 ch 265 (Manse Road)	265
				12915/40 ch 265 (Manse Road)	12915/40 ch 795 (Station Road)	530
				12920/05 ch 0 (Station Road)	12920/05 ch 465 (Speed Limit Signs)	465
44	A86	Newtonmore		12920/10 ch 2730 (Speed Limit Signs)	12920/70 ch 965 (Primary School)	1191
				12920/70 ch 965 (Primary School)	12920/70 ch 1353 (B9150 Jct)	388
				12925/05 ch 0 (B9150 Jct)	12925/05 ch 25 (End of Footway)	25
				12925/05 ch 200 (Hotel Entrance)	12925/05 ch 450 (End of Footway)	250
53	A889	Dalwhinnie		12705/20 ch 145 (Opposite Hotel)	12705/20 ch 922 (Speed Limit Signs)	777

Depot:	Ardelve	Route:	NWFW05
Spread Rate:	0.0312 l/m²	**Route Length:**	N/A
Treatment Type:	Brine	**Route Treated Length:**	6.57 km
Depot to Route:	7.0 km	**Route Time:**	N/A
Depot to Route:	9 mins	**Route Coverage:**	473 litres
Route to Depot:	49 km	**Route Average Width:**	1.8 m
Route to Depot:	45 mins	**Route Average Speed:**	N/A



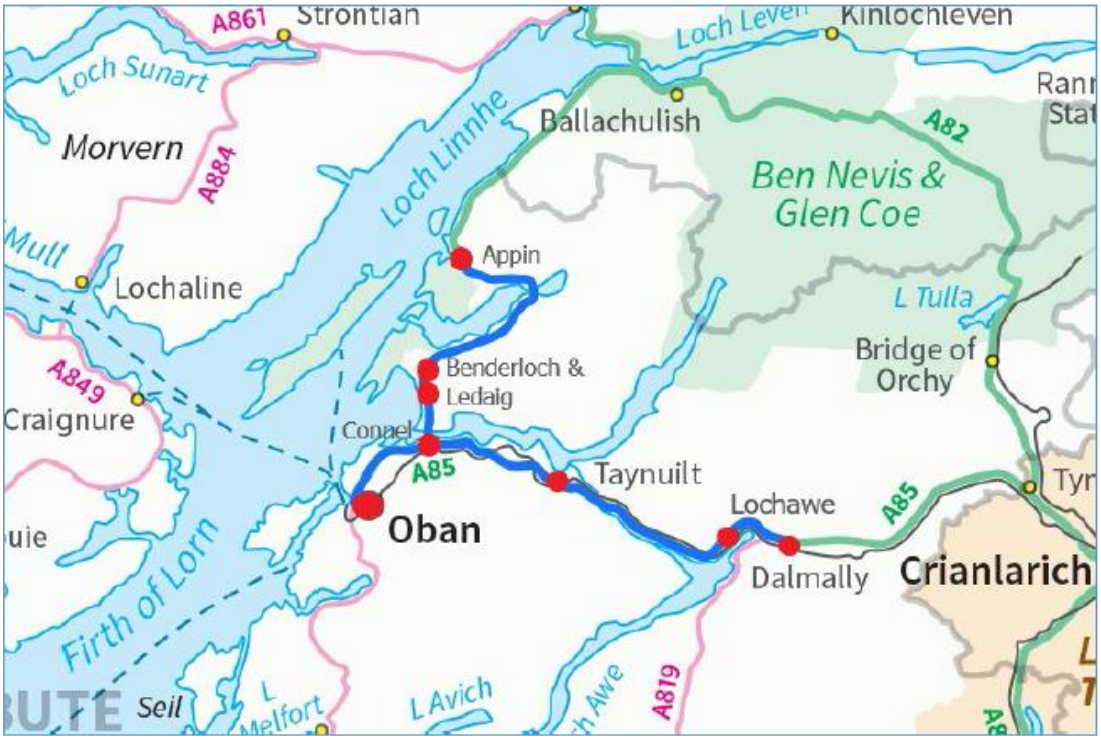
Location Number	Route	Location	Name of street / side of street to be treated	Details of Footway		Route Centreline Length (m)
				Start	Finish	Category A
48	A87	Broadford		17430/05 ch 0 (A851 Jct)	17440/15 ch 40 (Junction)	2826
49	A87	Kyle of Lochalsh & Kyleakin		17410/96 ch 0 (Speed Limit Signs)	17412/30 ch 90 (Toll Station)	1269
				17415/05 ch 0 (Bridge Barrier)	17415/20 ch 210 (Restaurant Entrance)	319
50	A87	Balmacara		17410/00 ch 2700 (Speed Limit Signs)	17410/00 ch 3200 (Speed Limit Signs)	500
51	A87	Inverinate		17406/00 ch 3850 (Speed Limit Signs)	17406/00 ch 4630 (Glebe Road Jct)	780
				17406/00 ch 6500 (Access to House)	17406/00 ch 7375 (Local Road Jct)	875

Depot:	Ardelve	Route:	NWFW06
Spread Rate:	0.0312 l/m²	**Route Length:**	N/A
Treatment Type:	Brine	**Route Treated Length:**	5.55 km
Depot to Route:	2.0 km	**Route Time:**	N/A
Depot to Route:	4 mins	**Route Coverage:**	400 litres
Route to Depot:	25 km	**Route Average Width:**	1.8 m
Route to Depot:	25 mins	**Route Average Speed:**	N/A



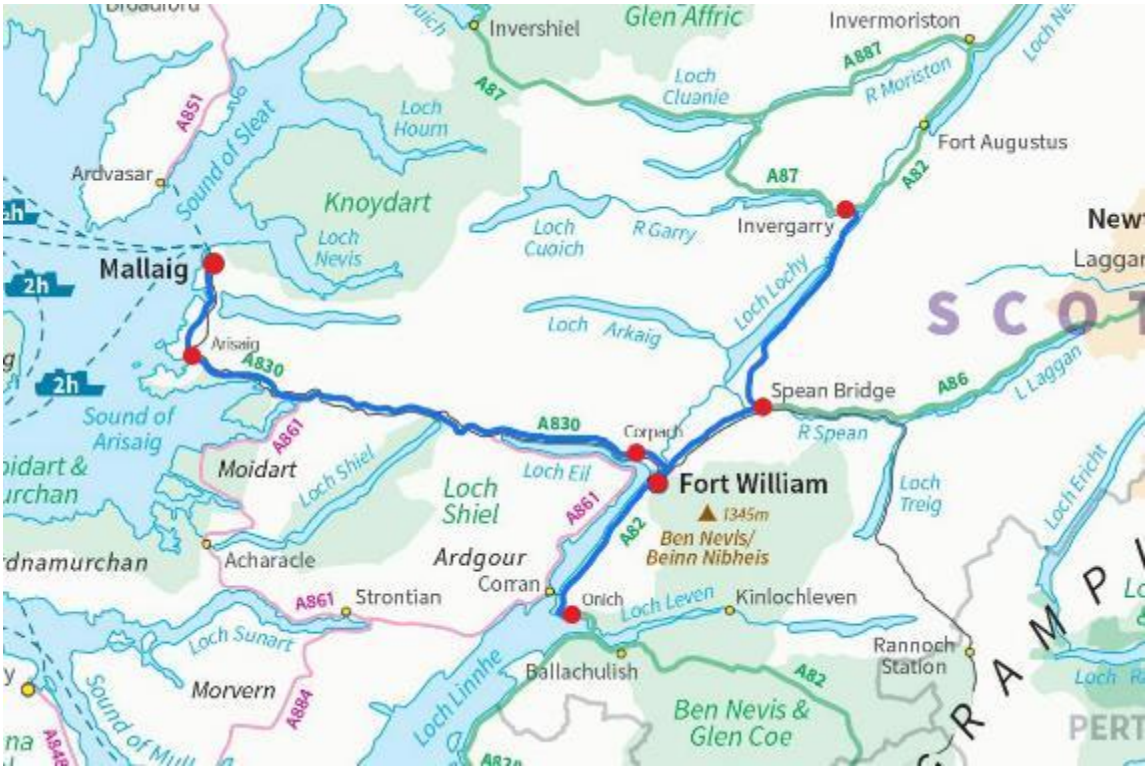
Location Number	Route	Location	Name of street / side of street to be treated	Details of Footway		Route Centreline Length (m)
				Start	Finish	Category A
47	A87	Portree		17465/05 ch 1815 (Speed Limit Signs)	17475/05 ch 340 (Junction)	1901
46	A87	Kensaleyre		17485/05 ch 990 (Speed Limit Signs)	17485/05 ch 1990 (End of Footw ay)	1000
45	A87	Uig		17493/60 ch 65 (Start of Footw ay)	17495/05 ch 1322 (End of Trunk Road)	2647

Depot:	Oban	Route:	NWFW07
Spread Rate:	0.0312 l/m²	**Route Length:**	N/A
Treatment Type:	Brine	**Route Treated Length:**	10.99 km
Depot to Route:	4.0 km	**Route Time:**	N/A
Depot to Route:	7 mins	**Route Coverage:**	791 litres
Route to Depot:	39.8 km	**Route Average Width:**	1.8 m
Route to Depot:	40 mins	**Route Average Speed:**	N/A



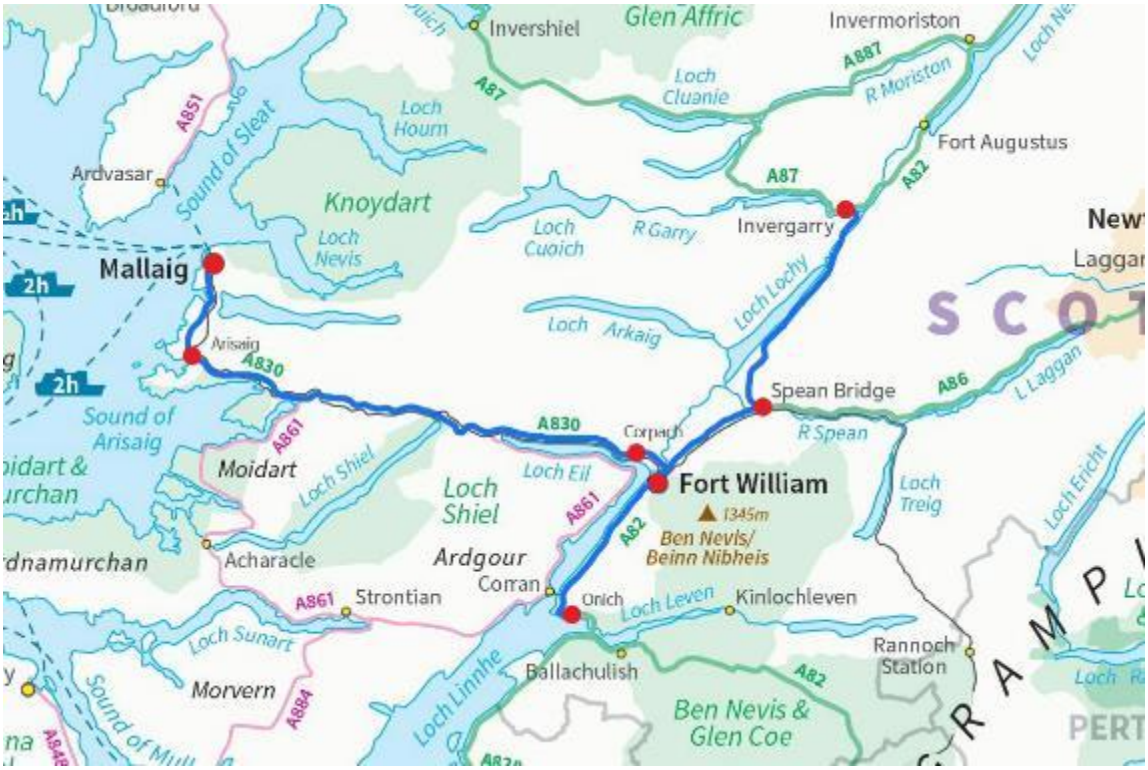
Location Number	Route	Location	Name of street / side of street to be treated	Details of Footway		Route Centreline Length (m)
				Start	Finish	Category A
32	A85	Oban		11940/05 ch 815 (Speed Limit Signs)	11940/34 ch 490 (Dunollie Road)	605
				11940/71 ch 0 (Dunollie Road)	11940/56 ch 0 (Corran Esplanade)	1090
				11940/89 ch 0	11940/94 ch 130 (End of Trunk Road)	290
33	A85/ A828	Connel		11920/80 ch 5790 (Speed Limit Signs)	11930/05 ch 580 (Speed Limit Signs)	1810
				17010/05 ch 0 (A85 Jct)	17010/06 ch 220 (Speed Limit Signs)	890
11	A828	Appin		17020/87 ch 2150 (Church)	17030/05 ch 390 (Bridge)	440
12	A828	Benderloch & Ledaig		17010/33 ch 70 (Start of Footway)	17010/33 ch 1170 (Junction)	1100
34	A85	Taynuilt		11920/52 ch 2890 (Junction)	11920/65 ch 830 (End of Footway)	1740
35	A85	Lochawe		11920/05 ch 1955 (Speed Limit Signs)	11920/18 ch 550 (Filling Station)	2045
36	A85	Dalmally		11910/80 ch 2450 (Start of Footway)	11910/80 ch 3430 (Dalmally Jct)	980

Depot:	Corpach	Route:	NWFW08
Spread Rate:	0.0312 l/m²	**Route Length:**	N/A
Treatment Type:	Brine	**Route Treated Length:**	18.26 km
Depot to Route:	3.0 km	**Route Time:**	N/A
Depot to Route:	5 mins	**Route Coverage:**	1315 litres
Route to Depot:	24 km	**Route Average Width:**	1.8 m
Route to Depot:	25 mins	**Route Average Speed:**	N/A



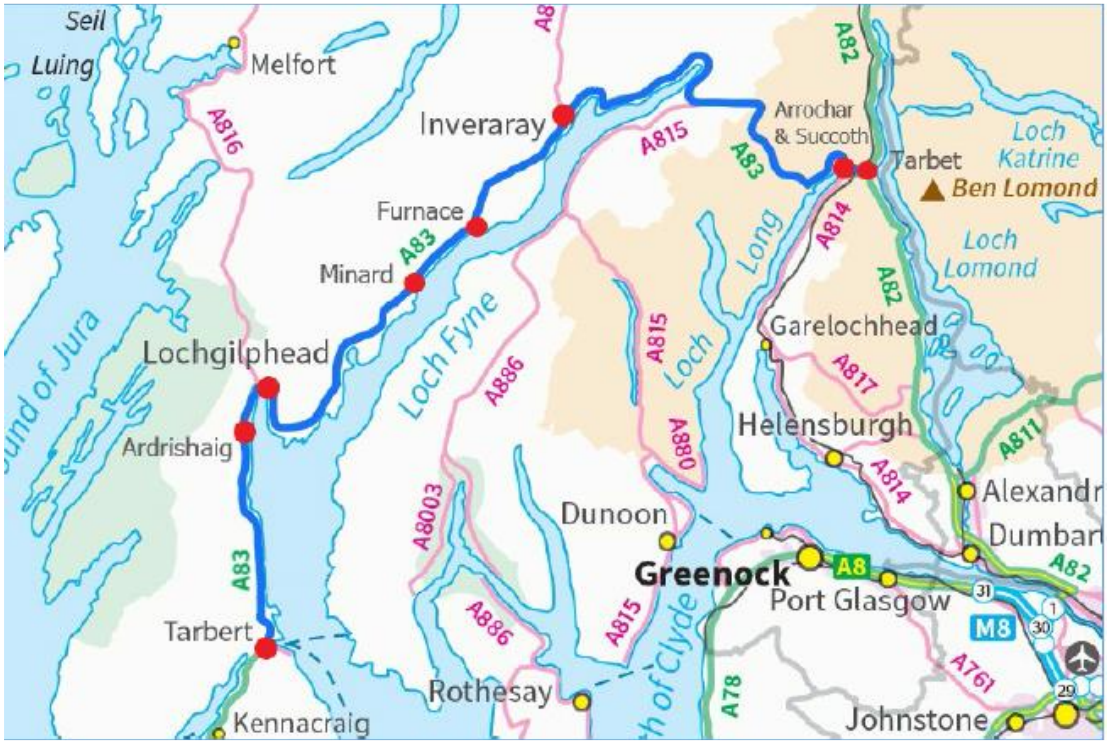
Location Number	Route	Location	Name of street / side of street to be treated	Details of Footway		Route Centreline Length (m)
				Start	Finish	Category A
32	A85	Oban		11940/05 ch 815 (Speed Limit Signs)	11940/34 ch 490 (Dunollie Road)	605
				11940/71 ch 0 (Dunollie Road)	11940/56 ch 0 (Corran Esplanade)	1090
				11940/89 ch 0	11940/94 ch 130 (End of Trunk Road)	290
33	A85/ A828	Connel		11920/80 ch 5790 (Speed Limit Signs)	11930/05 ch 580 (Speed Limit Signs)	1810
				17010/05 ch 0 (A85 Jct)	17010/06 ch 220 (Speed Limit Signs)	890
11	A828	Appin		17020/87 ch 2150 (Church)	17030/05 ch 390 (Bridge)	440
12	A828	Benderloch & Ledaig		17010/33 ch 70 (Start of Footway)	17010/33 ch 1170 (Junction)	1100
34	A85	Taynuilt		11920/52 ch 2890 (Junction)	11920/65 ch 830 (End of Footway)	1740
35	A85	Lochawe		11920/05 ch 1955 (Speed Limit Signs)	11920/18 ch 550 (Filling Station)	2045
36	A85	Dalmally		11910/80 ch 2450 (Start of Footway)	11910/80 ch 3430 (Dalmally Jct)	980

Depot:	Corpach	Route:	NWFW08
Spread Rate:	0.0312 l/m²	**Route Length:**	N/A
Treatment Type:	Brine	**Route Treated Length:**	18.26 km
Depot to Route:	3.0 km	**Route Time:**	N/A
Depot to Route:	5 mins	**Route Coverage:**	1315 litres
Route to Depot:	24 km	**Route Average Width:**	1.8 m
Route to Depot:	25 mins	**Route Average Speed:**	N/A



Location Number	Route	Location	Name of street / side of street to be treated	Details of Footway		Route Centreline Length (m)
				Start	Finish	Category A
22	A830	Corpach		17205/00 ch 350 (Speed Limit Signs)	17205/15 ch 30 (Speed Limit Signs)	2370
20	A830	Mallaig		17215/61 ch 1400 (Speed Limit Sign)	17215/61 ch 1630 (End of Trunk Road)	230
21	A830	Arisaig		(Speed Limit Sign)	(Speed Limit Sign)	495
5	A82/ A830	Fort William		10866/10 ch 8355 (Speed Limit Signs)	10869/00 ch 315 (Access to Trading Estate)	7831
				17202/00 ch 0 (Loch Bridge Jct)	17202/00 ch 560 (Speed Limit Signs)	560
4	A82	Onich		10864/00 ch 2645 (Speed Limit Signs)	10864/70 ch 295 (Speed Limit Signs)	1540
6	A82/ A86	Spean Bridge		10869/95 ch 355 (Speed Limit Signs)	10870/00 ch 305 (Speed Limit Signs)	690
				12960/90 ch 10 (Junction)	12960/90 ch 493 (A82 Jct)	483
52	A87	Invergarry		17400/00 ch 60 (Speed Limit Signs)	17400/15 ch 65 (Speed Limit Signs)	1235

Depot:	Inveraray	Route:	NWFW09
Spread Rate:	0.0312 l/m²	**Route Length:**	N/A
Treatment Type:	Brine	**Route Treated Length:**	12.24 km
Depot to Route:	1.0 km	**Route Time:**	N/A
Depot to Route:	2 mins	**Route Coverage:**	880 litres
Route to Depot:	39.5 km	**Route Average Width:**	1.8 m
Route to Depot:	40 mins	**Route Average Speed:**	N/A



Location Number	Route	Location	Name of street/side of street to be treated	Details of Footway		Route Centreline Length (m)
				Start	Finish	Category A
18	A83	Inveraray		16520/85 ch 2770 (Start of Footway)	16530/05 ch 140 (Start of Main Street)	150
				16530/05 ch 140 (Start of Main Street)	16530/06 ch 90 (Church)	90
				16530/06 ch 90 (Church)	16530/10 ch 410 (Speed Limit Signs)	1000
13	A83	Tarbert		16570/05 ch 20 (Start of Footway)	16570/06 ch 256 (End of Footway)	1232
14	A83	Ardrishaig		16555/06 ch 626 (Ardrishaig Sign)	16565/05 ch 481 (Speed Limit Sign)	2938
15	A83	Lochgilphead		16540/94 ch 0 (Speed Limit Signs)	16540/94 ch 240 (Manse Brae)	240
				16540/94 ch 240 (Manse Brae)	16540/95 ch 325 (Lorne Street)	505
				16540/95 ch 325 (Lorne Street)	16540/95 ch 455 (Speed Limit Sign)	130
16	A83	Minard		16540/19 ch 0 (Speed Limit Signs)	16540/19 ch 970 (End of Footway)	970
17	A83	Furnace		16540/05 ch 0 (Start of Footway)	16540/05 ch 515 (End of Footway)	515
19	A83	Arrochar & Succoth		16501/05 ch 2075 (Speed Limit Signs)	16512/05 ch 520 (Speed Limit Signs)	1895
1	A82/ A83	Tarbet		10826/70 ch 3795 (Speed Limit Signs)	10827/05 ch 415 (Filling Station)	870
				16501/05 ch 0 (A82 Jct)	16501/05 ch 990 (Speed Limit Signs)	990
				17202/00 ch 0 (Loch Bridge Jct)	17202/00 ch 560 (Speed Limit Signs)	560

Depot:	Killin	Route:	NWFW10
Spread Rate:	0.0312 l/m²	**Route Length:**	N/A
Treatment Type:	Brine	**Route Treated Length:**	9.86 km
Depot to Route:	29.9 km	**Route Time:**	N/A
Depot to Route:	30 mins	**Route Coverage:**	710 litres
Route to Depot:	23.6 km	**Route Average Width:**	1.8 m
Route to Depot:	25 mins	**Route Average Speed:**	N/A

Location Number	Route	Location	Name of street / side of street to be treated	Details of Footway		Route Centreline Length (m)
				Start	Finish	Category A
2	A82/ A85	Crianlarich		10836/80 ch 1340 (House Access)	10836/93 ch 335 (Railway Yard Access)	345
				10836/93 ch 545 (Railway Bridge)	10837/04 ch 380 (End of Footway)	465
				16302/82 ch 2590 (Speed Limit Signs)	16302/95 ch 470 (A82 Jct)	690
3	A82	Tyndrum		10837/65 ch 2295 (Speed Limit Signs)	10837/65 ch 2835 (Filling Station)	540
26	A84	Doune		16212/68 ch 0 (Speed Limit Signs)	16213/04 ch 212 (Speed Limit Signs)	1122
27	A84	Burn of Cambus		16213/06 ch 940 (Speed Limit Signs)	16213/06 ch 1595 (Speed Limit Signs)	655
28	A84	Callander		16215/05 ch 0 (Speed Limit Signs)	16215/38 ch 115 (Menteith Crescent)	975
				16215/38 ch 115 (Menteith Crescent)	16220/04 ch 120 (Ancaster Road)	825
				16220/05 ch 0 (Ancaster Road)	16220/05 ch 830 (Speed Limit Signs)	830
29	A84	Kilmahog		16220/48 ch 584 (Start of Footw ay)	16220/48 ch 895 (End of Footw ay)	311
30	A84	Strathyre		16225/51 ch 2705 (Start of Footway)	16225/58 ch 610 (End of Footway)	665
31	A84/ A85	Lochearnhea d		16225/94 ch 0 (Speed Limit Signs)	16225/94 ch 570 (A85 Jct)	570
				13930/81 ch 585 (Start of Footway)	16301/03 ch 190 (End of Footway)	743
37	A85	St. Fillans		13925/58 ch 0 (Junction)	13925/58 ch 1390 (Junction)	1390

Depot:	Perth	Route:	NWFW11
Spread Rate:	0.0312 l/m²	**Route Length:**	N/A
Treatment Type:	Brine	**Route Treated Length:**	7.3 km
Depot to Route:	3.0 km	**Route Time:**	N/A
Depot to Route:	5 mins	**Route Coverage:**	526 litres
Route to Depot:	38 km	**Route Average Width:**	1.8 m
Route to Depot:	38 mins	**Route Average Speed:**	N/A

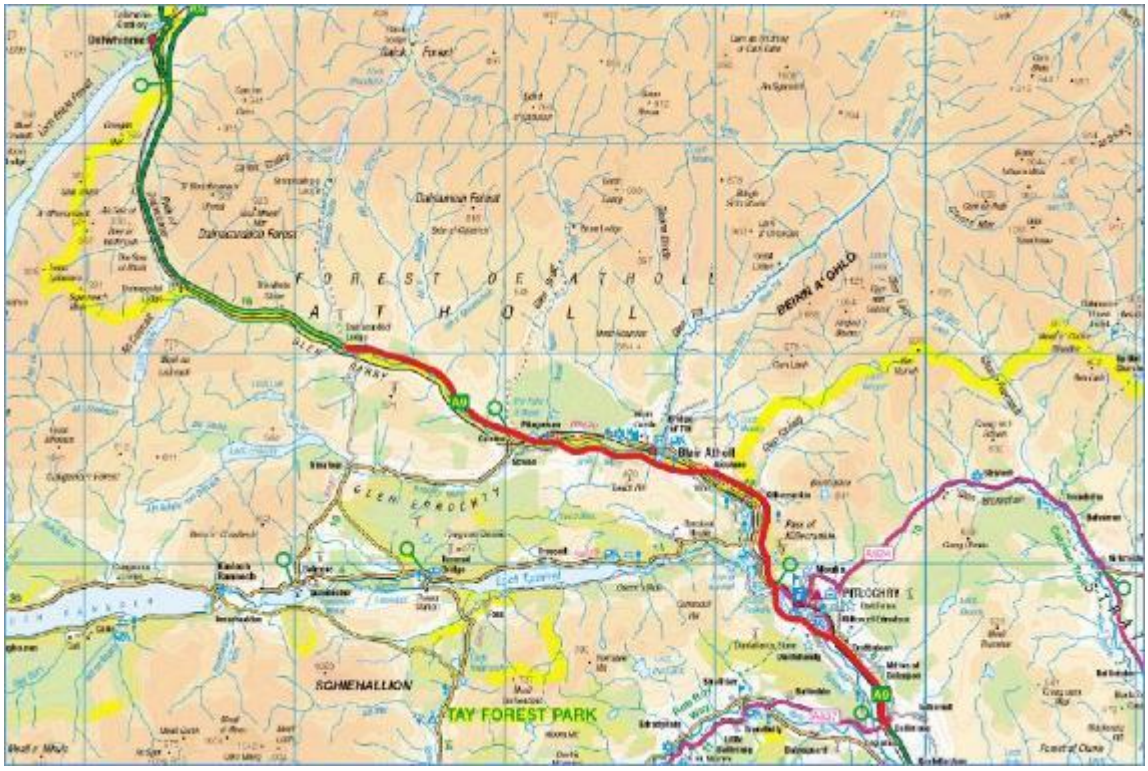
Location Number	Route	Location	Name of street / side of street to be treated	Details of Footway		Route Centreline Length (m)
				Start	Finish	Category A
42	A85	Perth & Huntingtower		13905/10 ch 0 (Roundabout)	13910/07 ch 20 (Speed Limit Signs)	809
				13910/07 ch 620 (Speed Limit Signs)	13910/10 ch 90 (End of Footw ay)	1153
41	A85	Methven		13910/27 ch 150 .. (Start of Footw ay)	13910/37 ch 70 (Speed Limit Signs)	1072
40	A85	Gilmerton		13910/99 ch 45 (Junction)	13915/05 ch 178 (Speed Limit Signs)	382
39	A85	Crieff		13915/60 ch 0 (Speed Limit Signs)	13915/60 ch 905 (Dollerie Street)	905
				13915/67 ch 0 (Dollerie Street)	13915/80 ch 130 (Burrell Street)	738
				13915/80 ch 130 (Burrell Street)	13920/10 ch 872 (Speed Limit Signs)	956
38	A85	Comrie		13920/85 ch 0 (Speed Limit Signs)	13925/07 ch 365 (Bridge Jct)	1263

Appendix WSP3 – Winter Patrol Routes

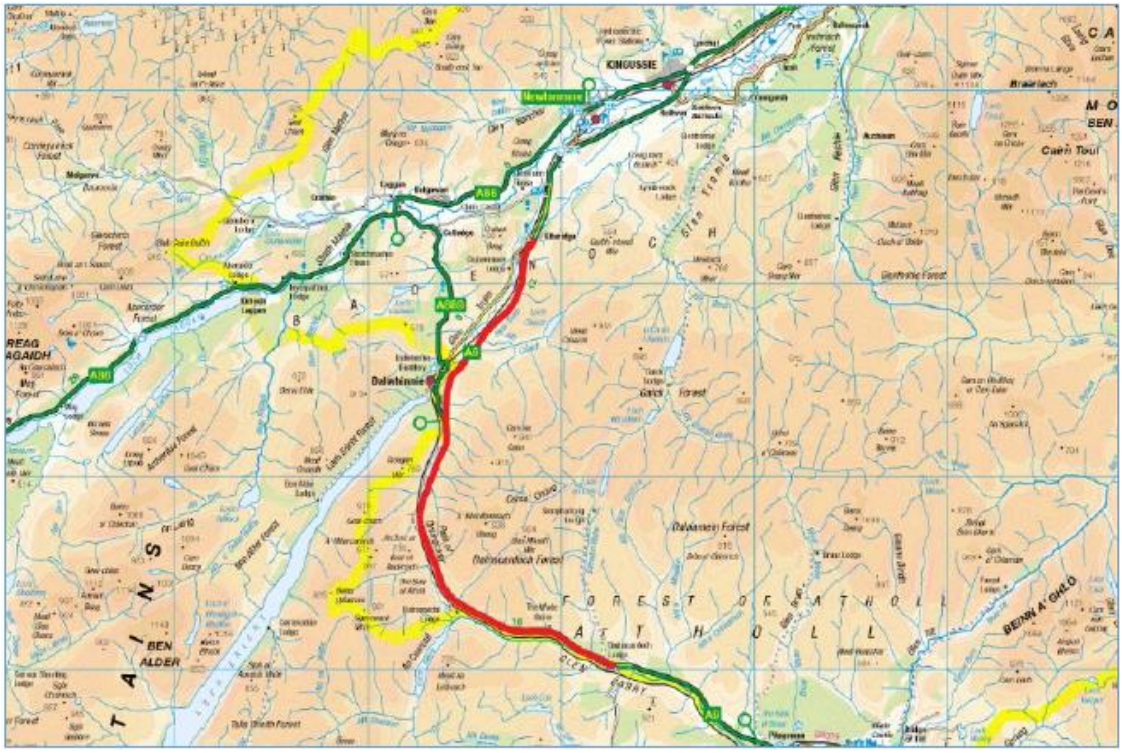
Appendix WSP3 Category A and B Patrol Routes

Depot:	**Perth**	**Route:**	**NWPA01**
Description:	A9 Perth – Ballinluig – Perth		
Category:	A		

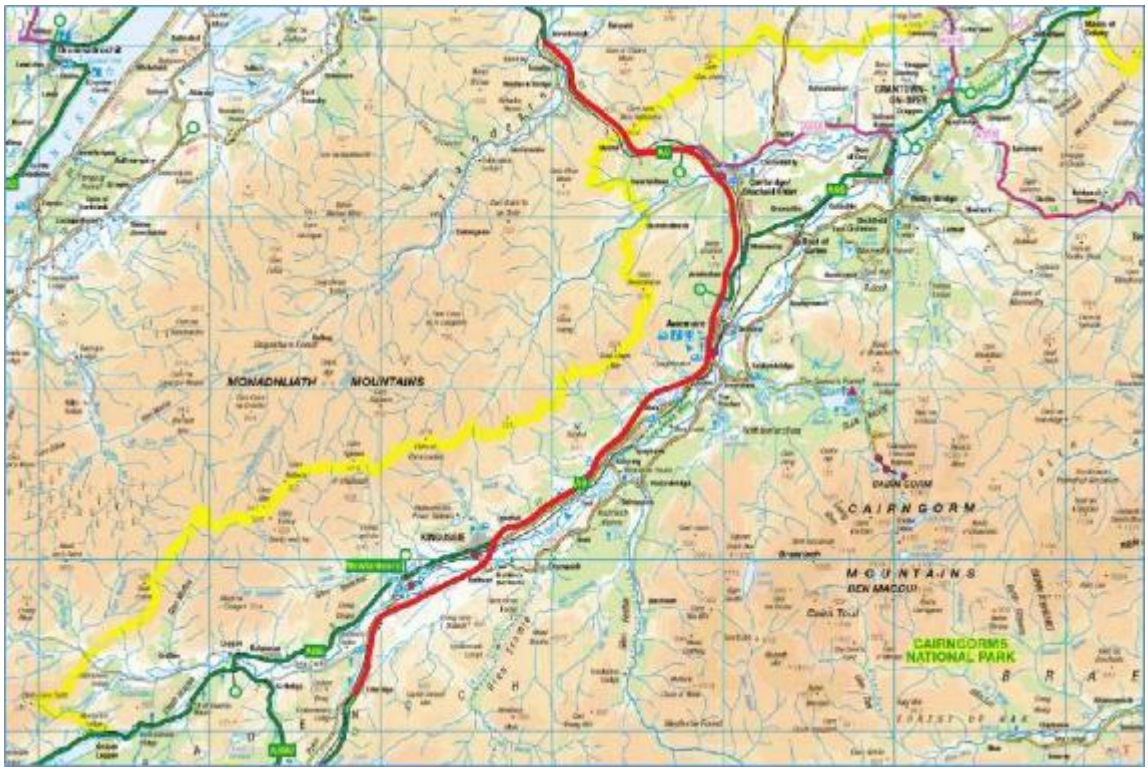
Depot:	**Ballinluig**	**Route:**	**NWPA02**
Description:	A9 Ballinluig – Dalnacardoch – Pitlochry - Ballinluig		
Category:	A		



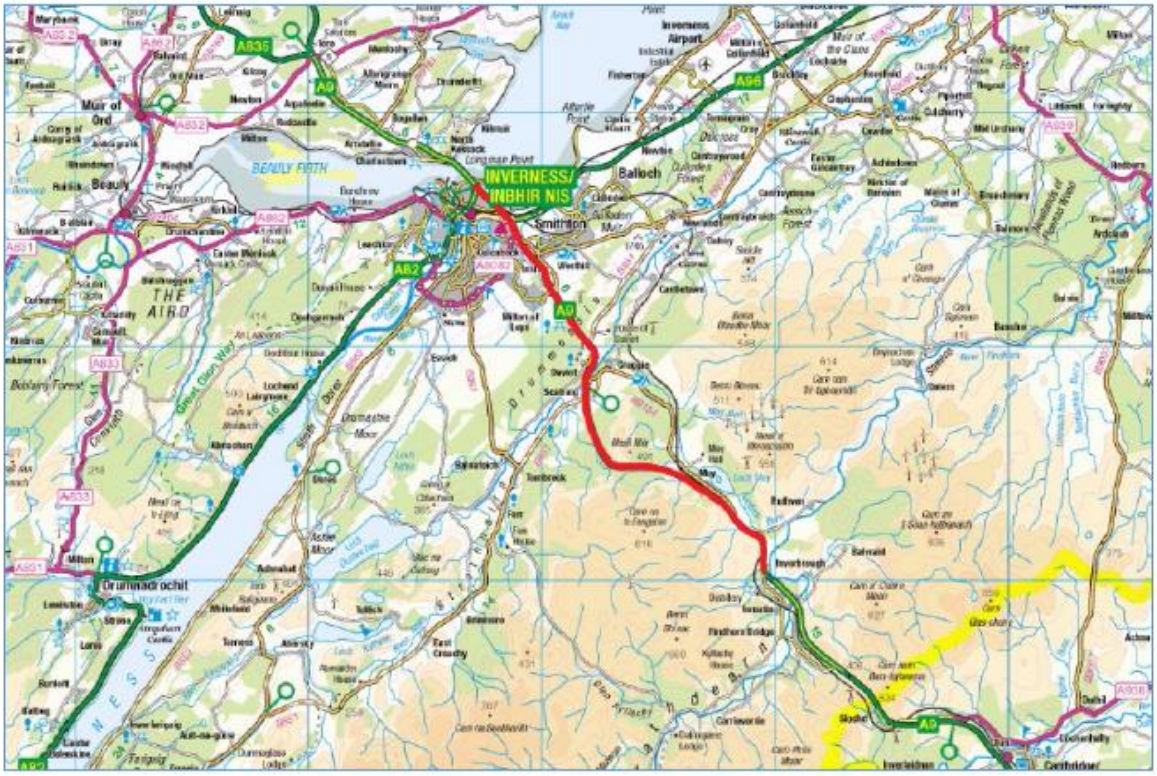
Depot:	**Kingussie**	**Route:**	**NWPA03**
Description:	A9 Crubenmore – Dalnacardoch - Crubenmore		
Category:	A		



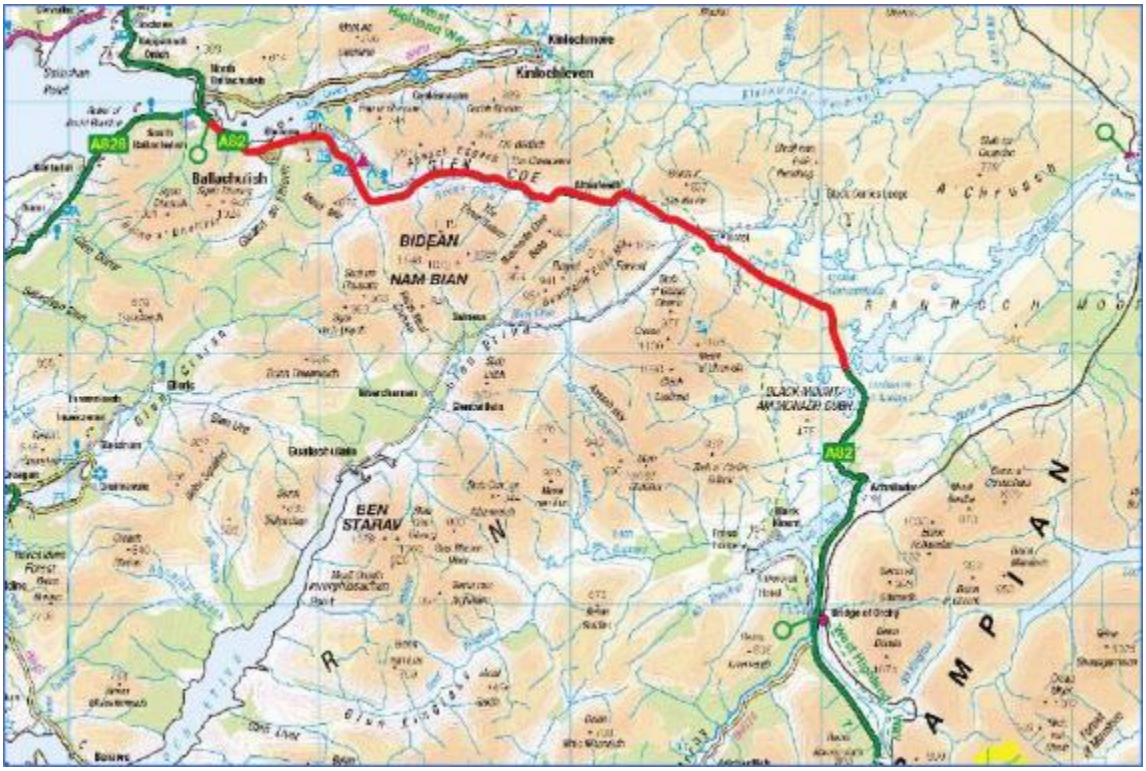
Depot:	**Kingussie**	**Route:**	**NWPA04**
Description:	A9 Crubenmore – Tomatin - Crubenmore		
Category:	A		



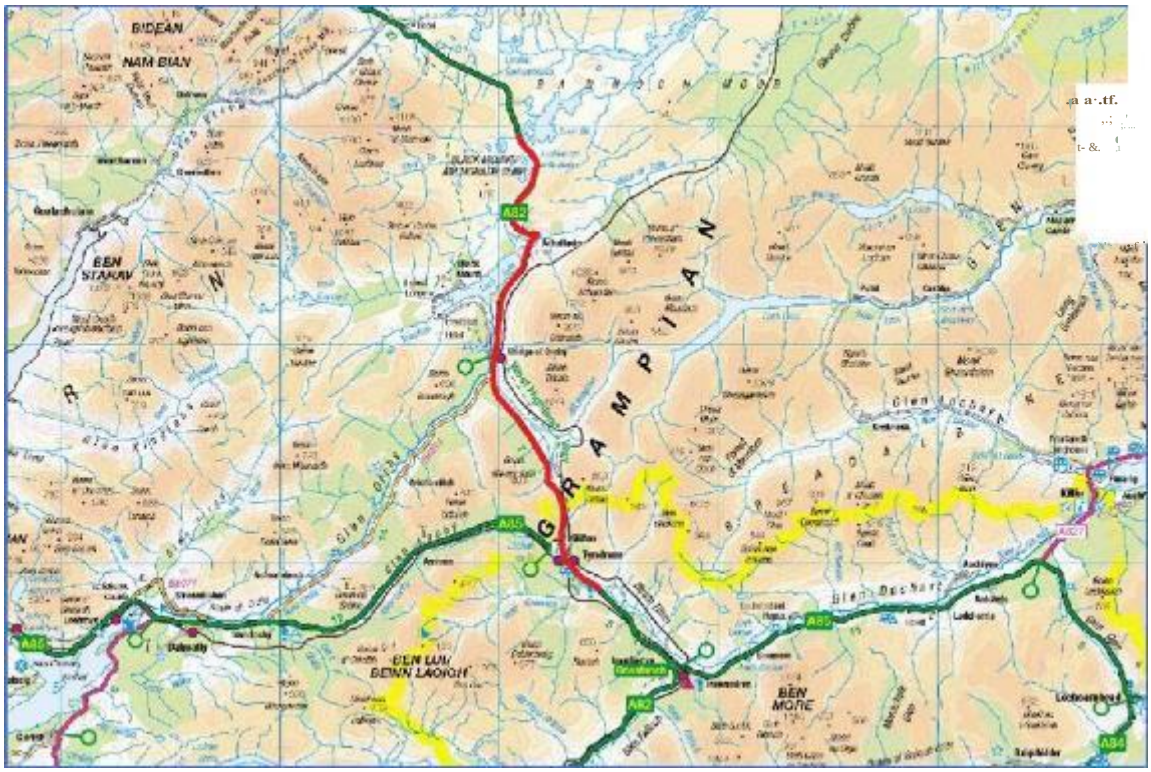
Depot:	**Inverness**	**Route:**	**NWPA05**
Description:	A9 Inverness– Tomatin - Inverness		
Category:	A		



Depot:	**Corpach**	**Route:**	**NWPA06**
Description:	A82 Ballachulish Rbdt – Stob Dearg Viewpoint – Ballachulish Rdbt		
Category:	A		



Depot:	**Killin**	**Route:**	**NWPA07**
Description:	A82 Dalrigh Car Park – Stob Dearg Viewpoint – Dalrigh Car Park		
Category:	A		



Depot:	**Inveraray**	**Route:**	**NWPA08**
Description:	A82 Tarbet - Dalrigh Car Park – Tarbet		
Category:	A		

Depot:	**Brora**	**Route:**	**NWPB01**
Description:	A9 Brora – Thurso (ferry port) - Brora		
Category:	B		

Depot:	**Inverness**	**Route:**	**NWPB02**
Description:	A9 Inverness – Brora – Inverness		
Category:	B		

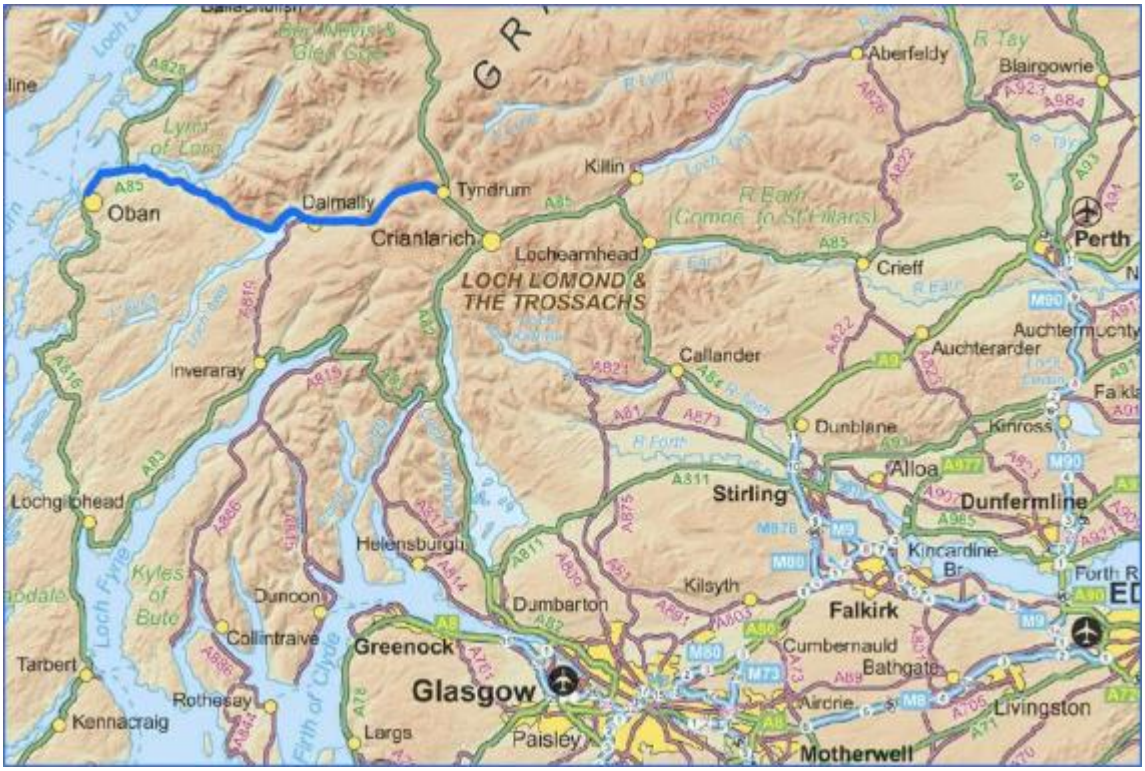
Depot:	**Inverness**	**Route:**	**NWPB03**
Description:	A835 Contin – Ullapool – Contin		
Category:	B		

Depot:	**Inverness**	**Route:**	**NWPB04**
Description:	A82 / A887 Inverness – Bun Loyne – Inverness		
Category:	B		

Depot:	**Ardelve**	**Route:**	**NWPB05**
Description:	A87 Shiel Bridge – Bun Loyne – Invergarry – Bunloyne – Shiel Bridge		
Category:	B		

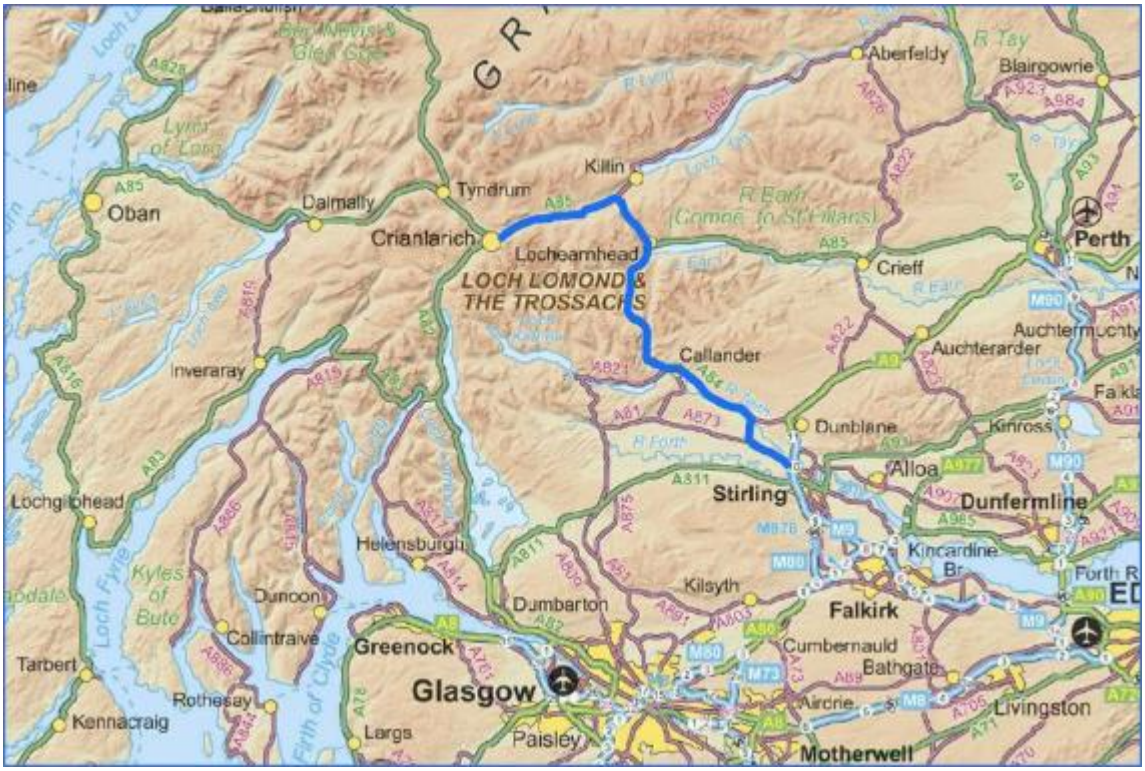
Depot:	**Corpach**	**Route:**	**NWPB06**
Description:	A82 Fort Willliam (Lochybridge) – Invermoriston – Lochybridge		
Category:	B		

Depot:	**Oban**	**Route:**	**NWPB07**
Description:	A85 Oban – Tyndrum – Oban		
Category:	B		

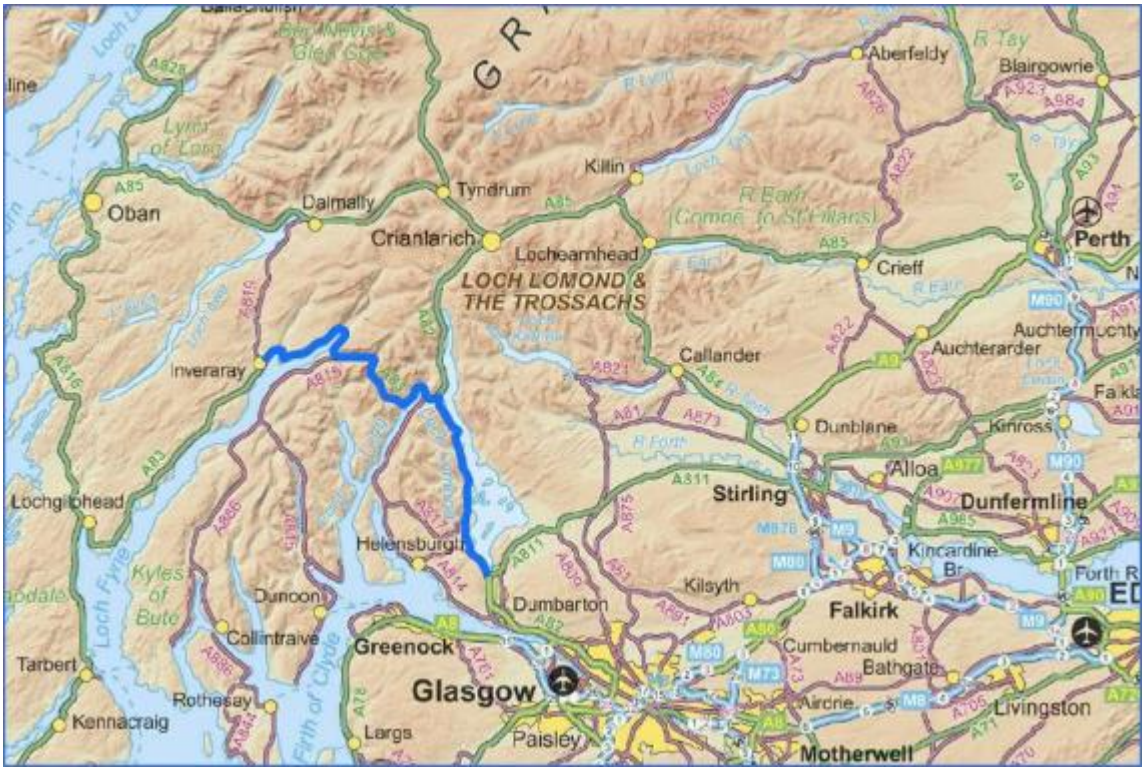


Depot:	**Perth**	**Route:**	**NWPB08**
Description:	A85 Perth – Lochearnhead - Perth		
Category:	B		

Depot:	**Killin**	**Route:**	**NWPB09**
Description:	A85 / A84 Crianlarich – Craigforth – Crianlarich		
Category:	B		

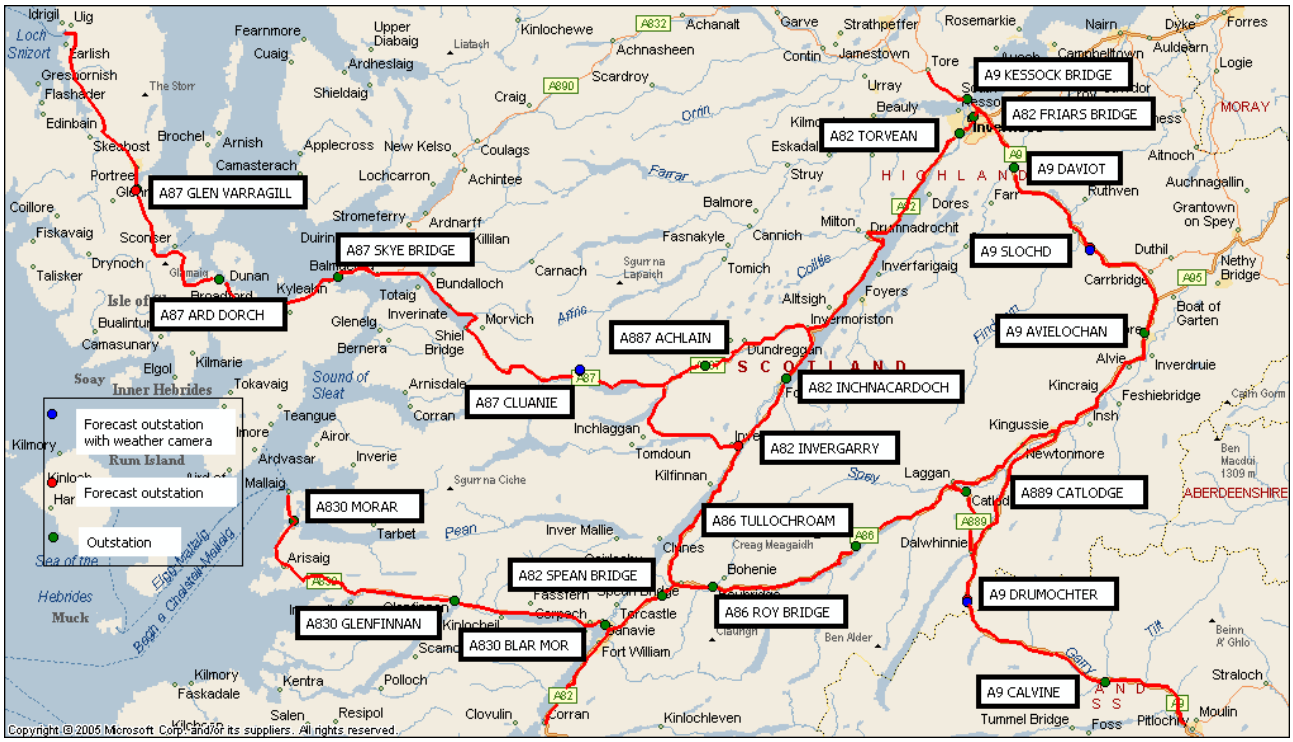


Depot:	**Inveraray**	**Route:**	**NWPB10**
Description:	A83 Inveraray – Stoneymollan Rdbt – Inveraray		
Category:	B		

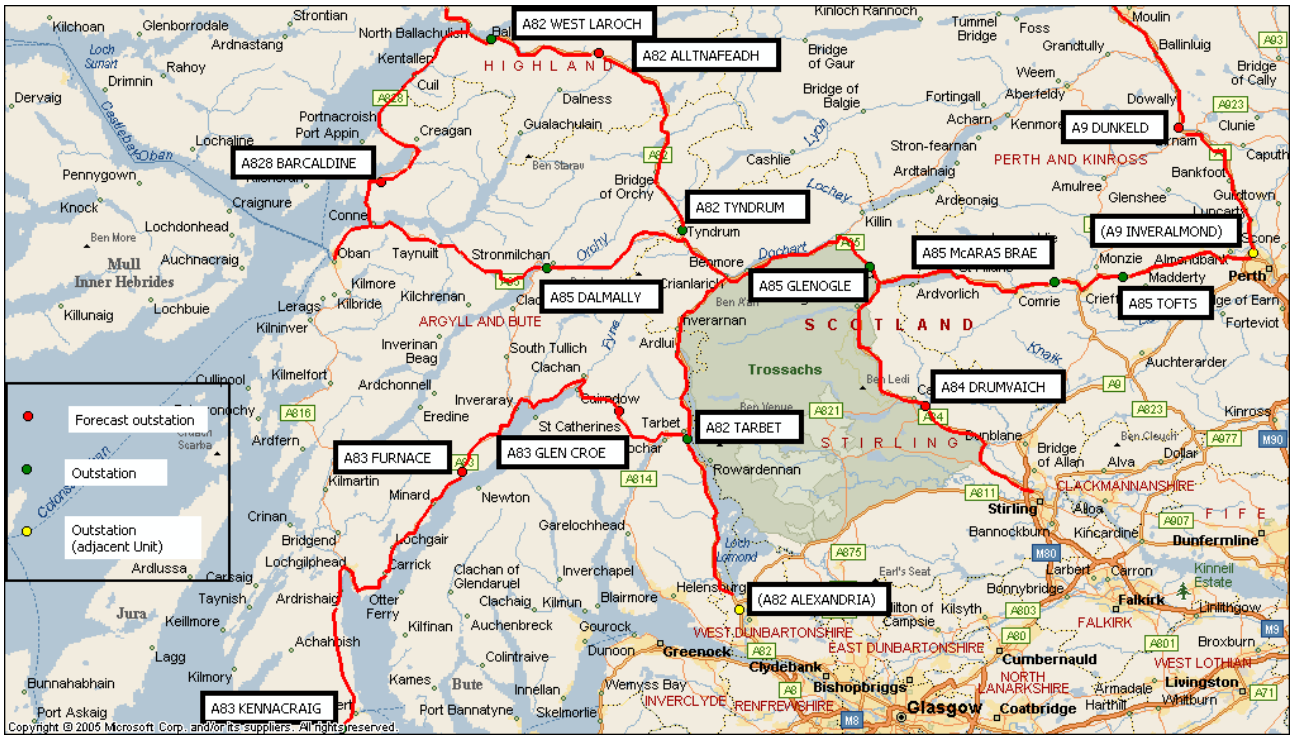


Appendix WSP4 – Location of Weather Stations and Cameras

Road Sensor Locations (North)



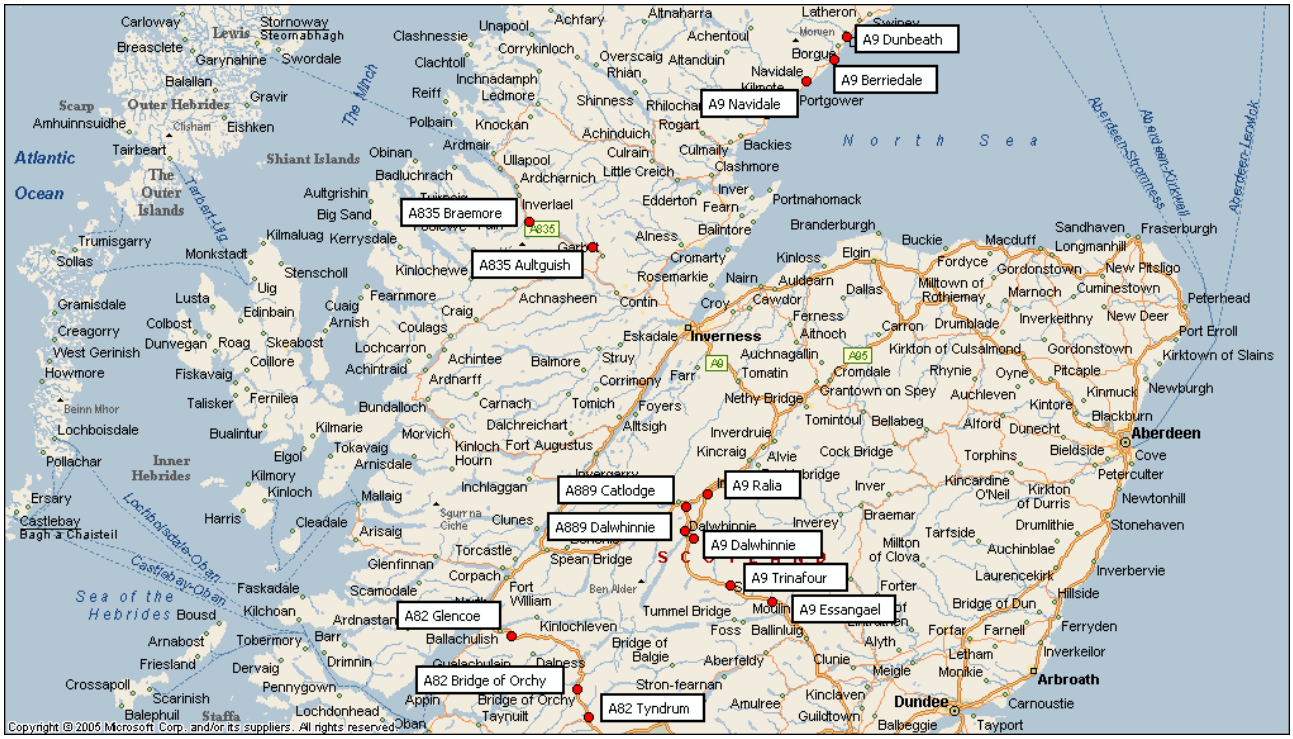
Road Sensor Locations (Central)



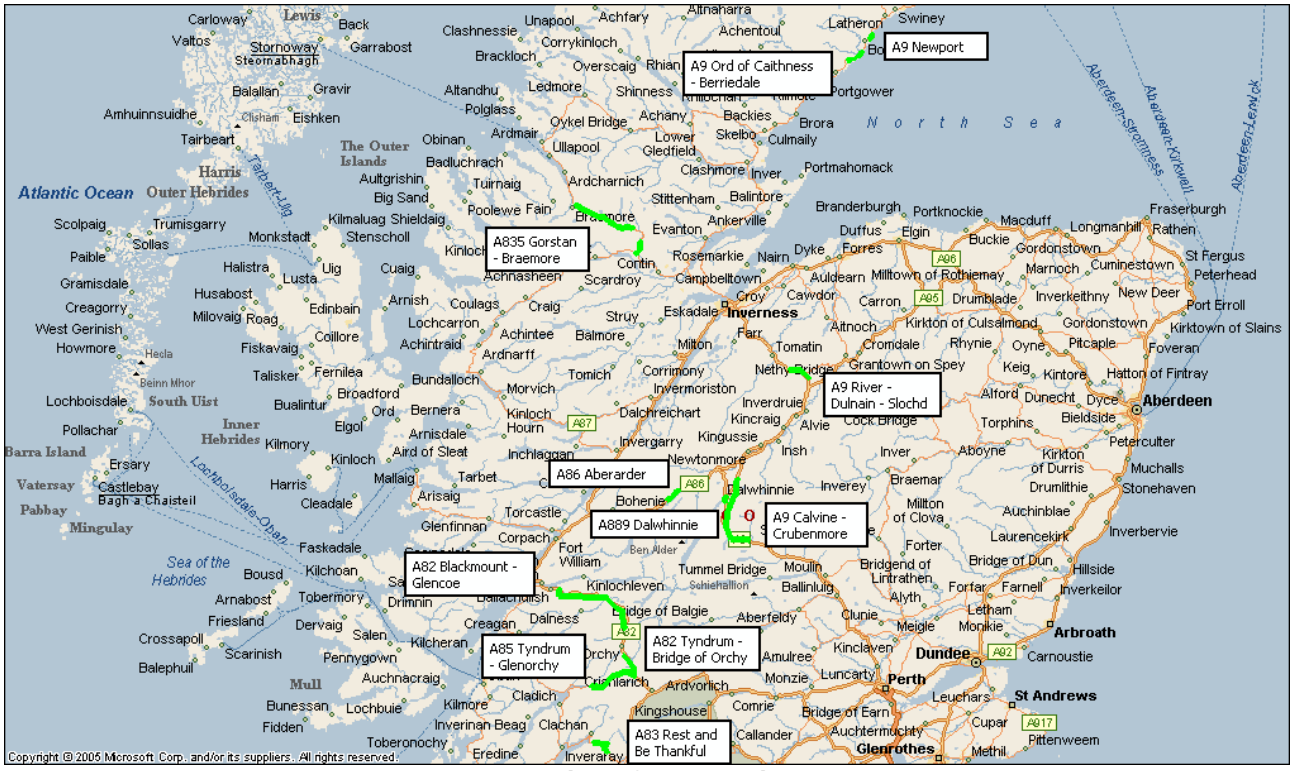
Road Sensor Locations (South)

Road Sensor Locations (South West)

Appendix WSP5 – Location of Metal Swing Snow Gates and Snow Poles

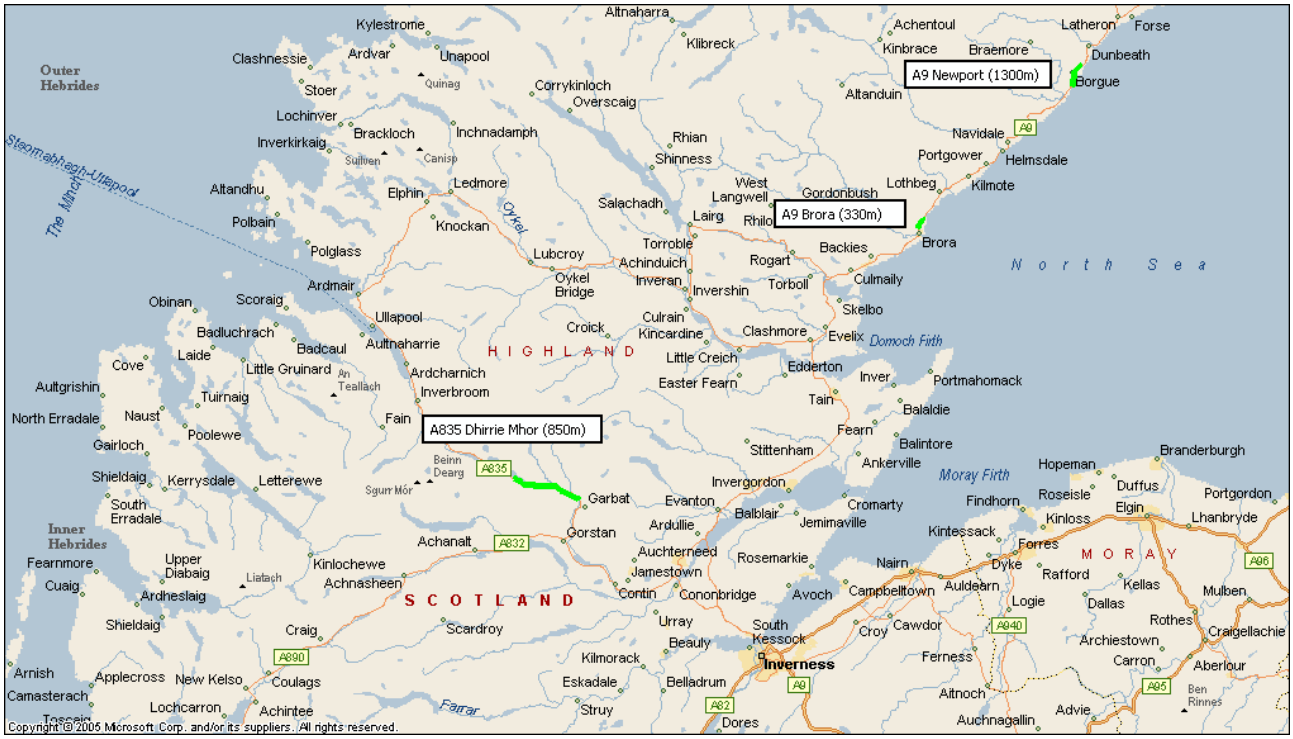


Locations of Metal Swing Snow Gates

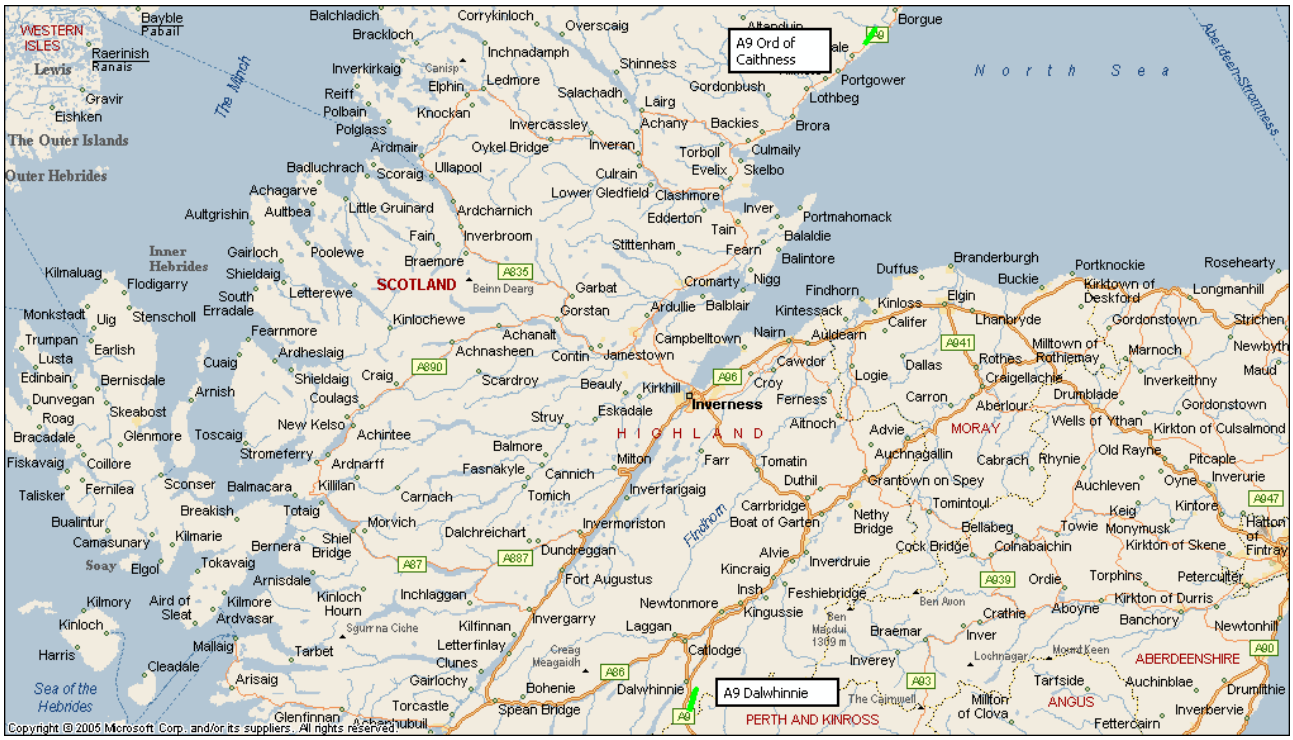


Location of Snow Poles

Appendix WSP6 – Location of Snow Fences and Shelter Belts



Location of Snow Fences **Note: No new Snow fences proposed this season.**

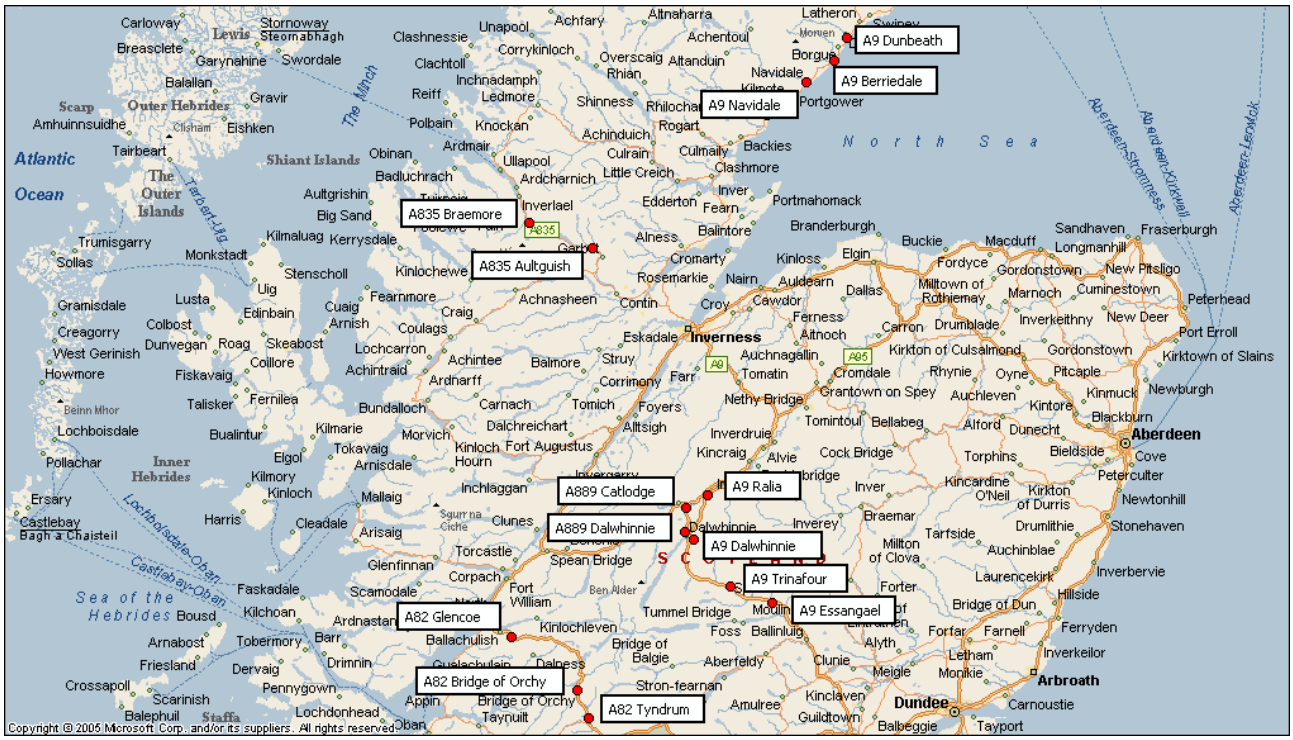


Location of Shelter Belts **Note: No new Shelter belts proposed this season.**

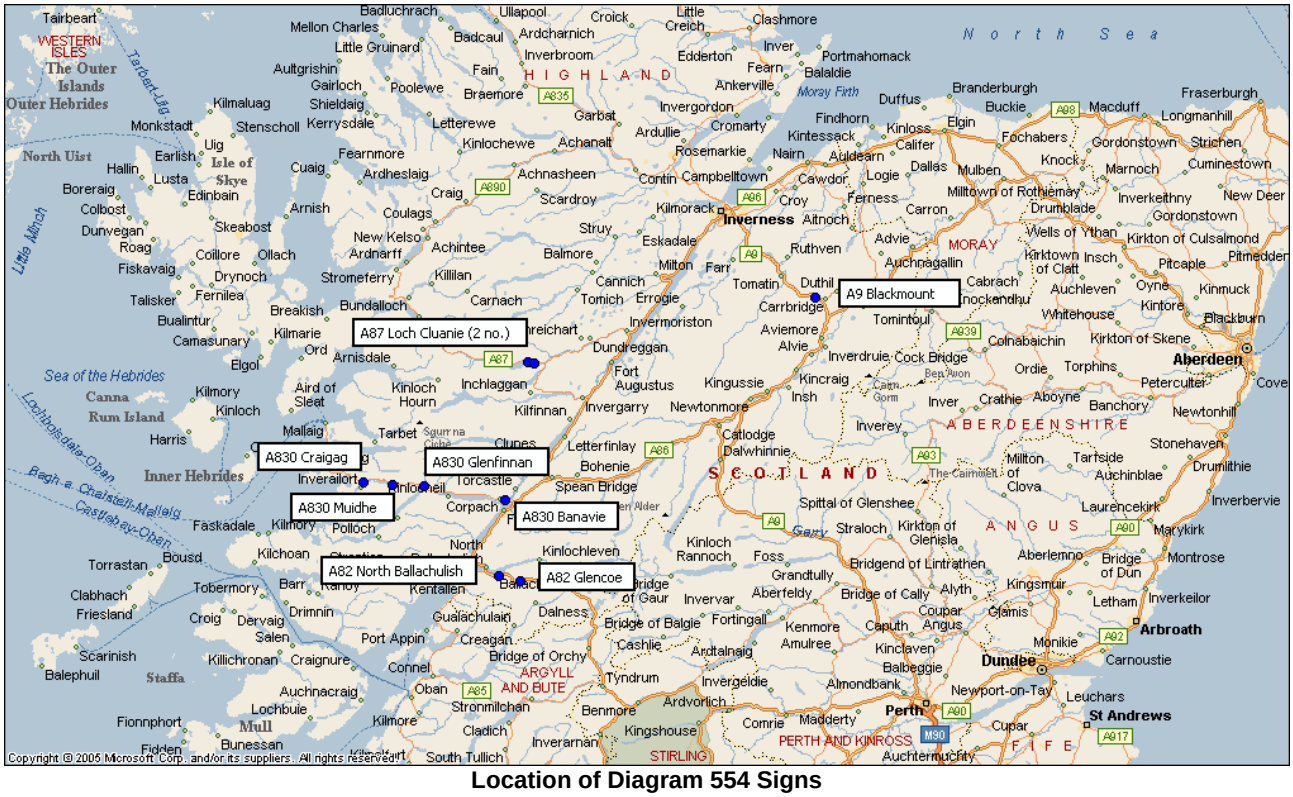
Appendix WSP7 – Schedule and Location of Snow and Ice Hidden Message Signs

Schedule of Snow and Ice Hidden Message Signs

Road Number	Location	Detailed Description of Sign
A82	Tyndrum	Metal Swing Snow Gate
A82	Bridge of Orchy	Metal Swing Snow Gate
A82	Glencoe Garage	Sign Type 554
A82	North Ballachullish	Sign Type 554
A82	Clifton	Metal Swing Snow Gate
A82	Glencoe Police Station	Metal Swing Snow Gate
A830	Muidhe	Sign Type 554
A830	Craigag Bridge	Sign Type 554
A830	Glenfinnan	Sign Type 554
A830	Banavie	Sign Type 554
A835	Altguish Hotel	Metal Swing Snow Gate
A835	Braemore Junction	Metal Swing Snow Gate
A87	Cluanie (2 no.)	Sign Type 554
A9	Berriedale	Metal Swing Snow Gate
A9	Dunbeath	Metal Swing Snow Gate
A9	Daviot Brae N/B Left Verge	Sign Type 554
A9	Daviot Brae N/B Central Reservation	Sign Type 554
A9	Drummossie Brae S/B Left Verge	Sign Type 554
A9	Drummossie S/B Central Reservation	Sign Type 554
A9	Slochd Summit	Sign Type 554
A9	Blackmount Junction	Sign Type 554
A9	Dalwhinnie Junction	Metal Swing Snow Gate
A9	Blair Atholl South Junction	Metal Swing Snow Gate
A9	Navidale	Metal Swing Snow Gate
A9	Ralia Junction	Metal Swing Snow Gate
A9	Trinafour Northbound	Metal Swing Snow Gate
A9	Trinafour Southbound	Metal Swing Snow Gate
A9	Essangael	Metal Swing Snow Gate



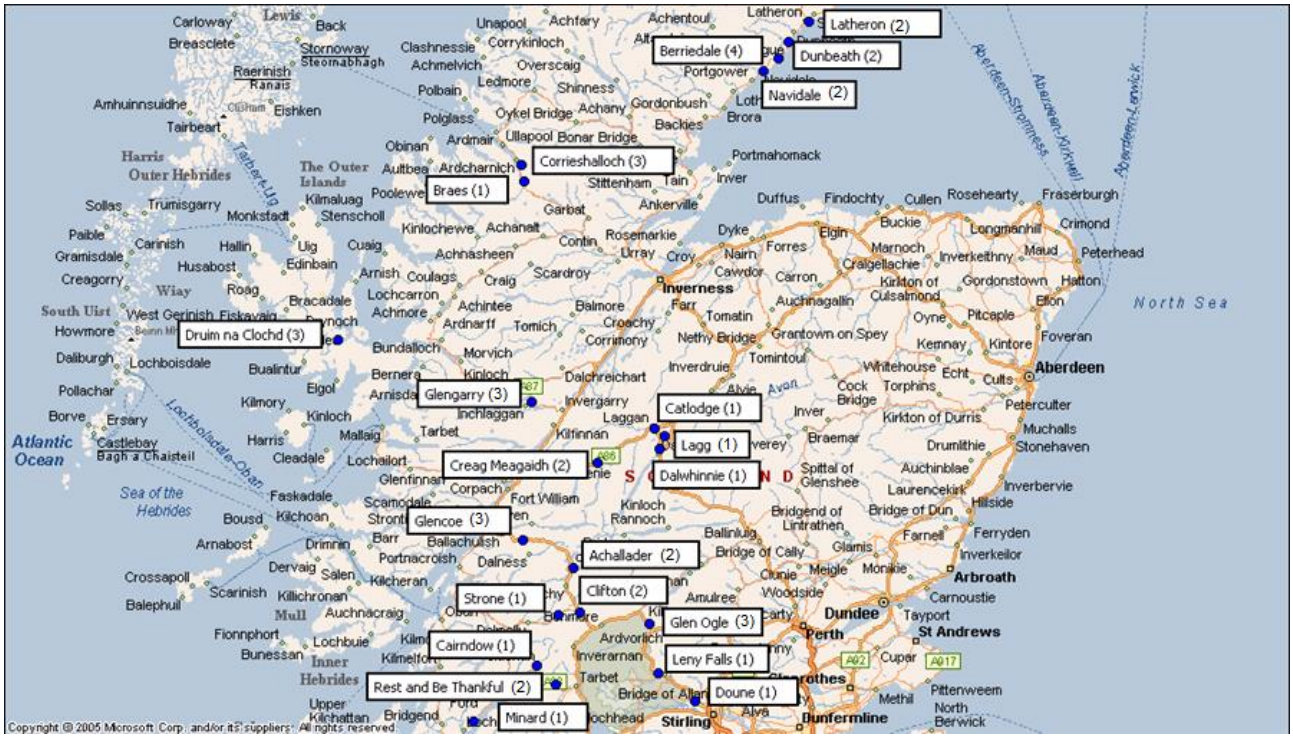
Location of Snow Gate Signs



Location of Diagram 554 Signs

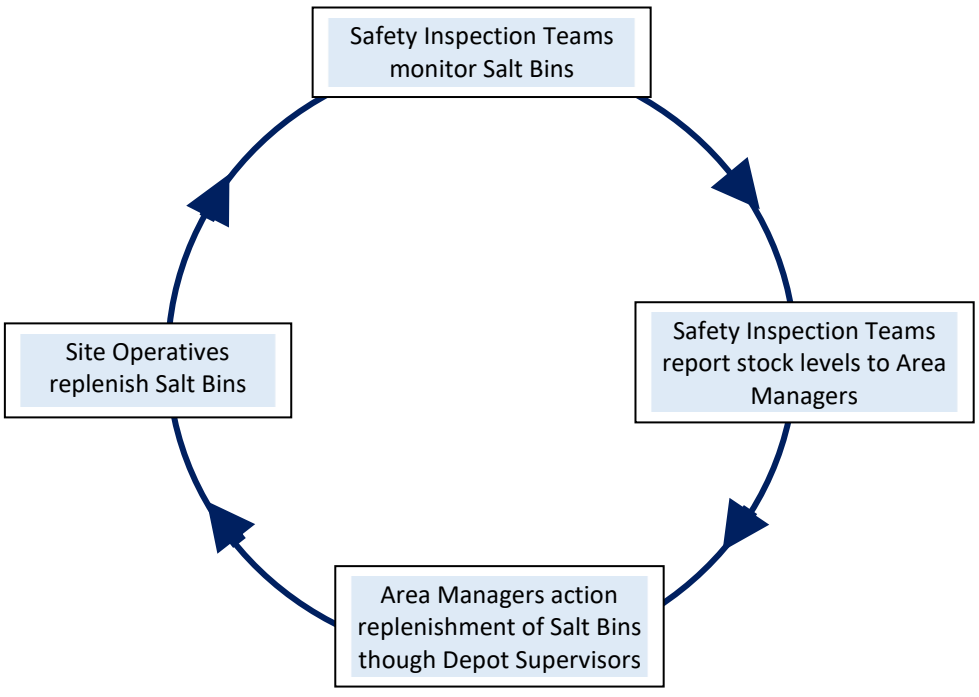
Appendix WSP8 – Location of Salt Bins

A rationalisation exercise carried out on the North West Unit during 2008 resulted in the elimination of self-help salt heaps on both environmental and safety grounds. We intend to continue using existing locations at present. This will be updated and reviewed at the end of each winter season.



Locations of Salt Bins

These will be stocked by 30 September each year and stock levels monitored and replenished as required throughout the period. At the end of each winter season salt bins will be taken back to depots and stored. Maintenance will be recorded on Form 402NW.



Road Number	Salt Bins (Number)
A9	12
A99	0
A82	7
A83	4
A830	0
A835	4
A84	2
A85	4
A86	3
A87	6
A887	0
A889	2
A893	0
A828	0
Total	**42**

Appendix WSP9 – Arrangements and Mitigation Measures for Dealing with Specific Vulnerable Locations

Table of Specific Vulnerable Locations

Reference Number:	Location:	Vulnerability Type	Precautionary Treatment Route: (40g/m²)
VL/NW/A835/SCH1	A835 Aultguish Inn to Corrieshalloch Brae	Gradient / Drifting	40-11
VL/NW/A9/SCH1	A9 Dalwhinnie to Trinafour	Drifting	40-04
VL/NW/A9/SCH2	A9 Ord of Caithness (Helmsdale to Berriedale)	Gradient / Drifting	40-13
VL/NW/A9/SCH3	A9 Findhorn Bridge to Blackmount junction	Gradient / Drifting	40-05
VL/NW/A9/SCH4	A9 Drumossie Brae Southbound	Gradient	40-08
VL/NW/A9/SCH5	A9 Drumochter	Avalanche	40-04
VL/NW/A82/SCH1	A82 Glencoe to Tyndrum	Gradient / Drifting	40-21

Reserve fleet/additional winter plant will be mobilised where the forecast indicates any snow accumulations as per Schedule 2 Section 6.2.31 on a vulnerable location with a significant gradient. All other plant will be deployed as required based on Appendix WSP17 Snow Forecast Resource Deployment Matrix or as instructed by Transport Scotland in relation to Snow Plans.

Reference Number	**VL/NW/A835/SCH1**
Location	**A835 Aultguish Inn to Corrieshalloch Brae.**
Grid Reference	237292, 870735 to 219388, 881395.
Problem	Single carriageway 13 miles in length at high altitude (284m) prone to snow accumulations, drifting and jack-knifing of articulated spreaders on steep inclines.
Has this site experienced problems before or is it an identified risk?	Due to accumulation of snow road has been closed in previous winters.
Detailed Mitigation Measures	
Optional Mitigation Measures	▪ Salt Bins positioned at Corrieshalloch Brae and replenished as necessary. Application of additional salt on inclines at drivers discretion. ▪ Consideration to the application of Safecote/Brine pre-wetting mix (Alternative De-icer) if very low temperatures are forecast. ▪ 40g treatment route 40-11 ▪ Cat B Patrol 2. (1st November to 31st March) ▪ Monitoring of conditions, including cameras at Aultguish and Braemore, by Duty Supervisor. ▪ Deployment of reserve vehicles, located as identified below.

Reference Number	VL/NW/A835/SCH1
Location	**A835 Aultguish Inn to Corrieshalloch Brae.**
	▪ Use of patrol vehicles outwith scheduled patrol times. ▪ Deployment of snow blower from Kingussie Depot. ▪ Representative deployed to MART. ▪ Deployment of vehicles with welfare kits as standard.
When enacted	The measures detailed above will be in place prior to the event based on a forecast of significant snow fall in a short space of time with a high degree of forecaster confidence. In cases of low or medium forecaster confidence dialogue may be opened with Transport Scotland regarding extent of mitigation. Reactive implementation when monitoring of conditions indicates requirement.
Who enacts	Winter Service Duty Supervisor supported by WSDO.
Who will manage the response	Severe Weather Managersupported by WSDO
Are diversion routes to be used?	No alternative diversion route available. Westbound vehicles will be stacked or turned at Aultguish. Eastbound vehicles will be turned at Braemore.
Deployment of resources	The following resources are available for deployment: 1 frontline spreader/plough (Bridgepoint), 1 patrol spreader/plough (Bridgepoint), 1 alternative access spreader/plough (Ullapool), 1 reserve spreader/plough (Bridgepoint), and 1 snowblower (Kingussie) deployed between Aultguish and Corrieshalloch, exact locations at Duty Supervisor discretion.
Use of VMS	Contact Traffic Scotland to display messages on VMS/A10 and VMS/X2.
Other measures put in place	Closure of Metal Swing snow gates at Aultguish and Braemore.
Assistance from additional Transport Scotland resources	Assistance from Transport Scotland Communications to agree message out to be put out to the media.
Assistance from External Sources	Assistance from Police Scotland in implementing road closures if deemed necessary. End of Route Driver based at Ullapool. Vehicle Recovery through Police Scotland Contracts if vehicles become stuck.

Reference Number	VL/NW/A9/SCH1
Location	**A9 Dalwhinnie to Trinafour - Cuaich to South end of Trinafour Dual Carriageway.**
Grid Reference	273250, 770268 to 265657, 787025
Problem	Single and Dual carriageway 12.5 miles in length at high altitude (467m) prone to snow accumulations, drifting and reduced visibility due to wind blown snow.
Has this site experienced problems before or is it an identified risk?	Due to accumulation of snow road has been closed in previous winters.
Detailed Mitigation Measures	
Optional Mitigation Measures	• Application of additional salt on inclines at drivers discretion. • Consideration to the application of Safecote / Brine pre-wetting mix (Alternative De-icer) if very low temperatures are forecast. • 40g treatment route 40-04 • Cat A patrols PA-2 and PA-3. (1st November to 31st March) • Monitoring of conditions, including camera at Drumochter, by Duty Supervisor. • Deployment of reserve vehicles, located as identified below. • Use of patrol vehicles outwith scheduled patrol times. • Deployment of snow blower from Kingussie Depot. Pre-deployment to Dalwhinnie where possible. • Representative deployed to MART • Deployment of vehicles with welfare kits as standard.
When enacted	The measures detailed above will be in place prior to the event based on a forecast of significant snow fall in a short space of time with a high degree of forecaster confidence. In cases of low or medium forecaster confidence dialogue may be opened with Transport Scotland regarding extent of mitigation. Reactive implementation when monitoring of conditions indicates requirement.
Who enacts	Winter Service Duty Supervisor supported by WSDO.
Who will manage the response	Severe Weather Manager supported by WSDO
Are diversion routes to be used?	No alternative diversion route available. Northbound vehicles will be stopped at Trinafour and Blair Atholl. Vehicles to be stacked at Bruar and Blair Atholl. Southbound vehicles will be stopped at Dalwhinnie and Ralia. Vehicles to be stacked at Dalwhinnie, Ralia/Newtonmore and on A9 Southbound.
Deployment of resources	The following resources are available for deployment: 1 frontline spreader/plough (Kingussie), 1 patrol spreader/ploughs (1 no. Kingussie and 1 no. Ballinluig), 2 reserve spreader/ploughs (Kingussie), and

Reference Number	VL/NW/A9/SCH1
Location	**A9 Dalwhinnie to Trinafour - Cuaich to South end of Trinafour Dual Carriageway.**
	1 snowblower (Kingussie) deployed between Cuaich and Trinafour, exact locations at Duty Supervisor discretion.
Use of VMS	Contact Traffic Scotland to display messages on VMS/A1, VMS/A7, VMS/A5, VMS/A2 and VMS/A3.
Other measures put in place	Closure of Closure of Metal Swing snow gates at Blair Atholl, Trinafour, Ralia and Dalwhinnie.
Assistance from additional Transport Scotland resources	Assistance from Transport Scotland Communications to agree message to be put out to the media.
Assistance from External Sources	Assistance from Police Scotland in implementing road closures if deemed necessary. Vehicle Recovery through Police Scotland Contracts if vehicles become stuck.

Reference Number	VL/NW/A9/SCH2
Location	**A9 Ord of Caithness (Helmsdale to Berriedale)**
Grid Reference	303863, 915827 to 310708, 921728
Problem	Single carriageway and climbing lane prone to snow accumulations, drifting and jack-knifing of articulated vehicles on steep inclines.
Has this site experienced problems before or is it an identified risk?	Due to accumulation of snow road has been closed in previous winters.
Detailed Mitigation Measures	
Optional Mitigation Measures	▪ Application of additional salt on inclines at drivers discretion. ▪ Consideration to the application of Safecote/Brine pre-wetting mix (Alternative De-icer) if very low temperatures are forecast. ▪ 40g treatment route 40-13 ▪ Cat B PB-1 (1st November to 31st March). ▪ Monitoring of conditions, including cameras at Ord Ousdale by Duty Supervisor. ▪ Deployment of reserve vehicles, located as identified below. ▪ Use of patrol vehicles outwith scheduled patrol times. ▪ Representative deployed to MART. ▪ Deployment of vehicles with welfare kits as standard.
When enacted	The measures detailed above will be in place prior to the event based on a forecast of significant snow fall in a short space of time with a high degree of forecaster confidence.

Reference Number	VL/NW/A9/SCH2
Location	**A9 Ord of Caithness (Helmsdale to Berriedale)**
	In cases of low or medium forecaster confidence dialogue may be opened with Transport Scotland regarding extent of mitigation. Reactive implementation when monitoring of conditions indicates requirement.
Who enacts	Winter Service Duty Supervisor supported by WSDO.
Who will manage the response	Severe Weather Manager supported by Duty WSDO
Are diversion routes to be used?	No alternative diversion route available. Northbound vehicles will be stacked or turned at Helmsdale. Southbound vehicles will be stacked or turned at Dunbeath.
Deployment of resources	The following resources are available for deployment: 1 frontline spreader/plough (Dunbeath), 1 patrol spreader/plough (Brora), 1 alternative access spreader/plough (Thurso), 1 reserve spreader/plough (Dunbeath), and 1 snowblower (Kingussie) deployed locations at Duty Supervisor discretion.
Use of VMS	Contact Traffic Scotland to display messages on VMS X4, X5 and X6.
Other measures put in place	Closure of Closure of Metal Swing snow gates at Navidale and Berriedale.
Assistance from additional Transport Scotland resources	Assistance from Transport Scotland Communications to agree message out to be put out to the media.
Assistance from External Sources	Assistance from Police Scotland in implementing road closures if deemed necessary. Local Authority (The Highland Council) driver based at Thurso. Vehicle Recovery through Police Scotland Contracts if vehicles become stuck.

Reference Number	VL/NW/A9/SCH3
Location	**A9 Findhorn Bridge to Blackmount junction.**
Grid Reference	280734, 829049 to 287587, 824066.

Reference Number	VL/NW/A9/SCH3
Location	**A9 Findhorn Bridge to Blackmount junction.**
Problem	Single and dual carriageway 10 miles in length at high altitude (409m) prone to snow accumulations, drifting and jack-knifing of articulated vehicles on steep inclines.
Has this site experienced problems before or is it an identified risk?	Due to accumulation of snow road has been closed in previous winters.
Detailed Mitigation Measures	
Optional Mitigation Measures	▪ Consideration to the application of Safecote/Brine pre-wetting mix (Alternative De-icer) if very low temperatures are forecast. ▪ 40g treatment route 40-05 ▪ Cat A patrol PA-4. (1st November to 31st March) ▪ Monitoring of conditions, including cameras at Slochd by Duty Supervisor. ▪ Deployment of reserve vehicles, located as identified below. ▪ Use of patrol vehicles outwith scheduled patrol times. ▪ Deployment of snow blower from Kingussie Depot. Pre-deployment where possible. ▪ Representative deployed to MART. ▪ Deployment of vehicles with welfare kits as standard.
When enacted	The measures detailed above will be in place prior to the event based on a forecast of significant snow fall in a short space of time with a high degree of forecaster confidence. In cases of low or medium forecaster confidence dialogue may be opened with Transport Scotland regarding extent of mitigation. Reactive implementation when monitoring of conditions indicates requirement.
Who enacts	Winter Service Duty Supervisor supported by WSDO.
Who will manage the response	Severe Weather Manager supported by WSDO.
Are diversion routes to be used?	A86 – A939 – A95 Or, alternative carriageway on Dual under Police convoy
Deployment of resources	The following resources are available for deployment: 2 frontline spreader/plough (1 no. Kingussie 1 no. Bridgepoint), 2 patrol spreader/plough (1 no.Kingussie 1 no. Bridgepoint), 1 reserve spreader/plough (1 no. Kingussie 1 no. Bridgepoint), and 1 snowblower (Kingussie) deployed to location at Duty Supervisor discretion.
Use of VMS	Contact Traffic Scotland to display messages on A4 and A14
Other measures put in place	Traffic held at A9 Longman and Aviemore if required or diversion routes unsuitable due to conditions

Reference Number	VL/NW/A9/SCH3
Location	**A9 Findhorn Bridge to Blackmount junction.**
Assistance from additional Transport Scotland resources	Assistance from Transport Scotland Communications to agree message out to be put out to the media.
Assistance from External Sources	Assistance from Police Scotland and The Highland Council in implementing road closures if deemed necessary. Vehicle Recovery through Police Scotland Contracts if vehicles become stuck.

Reference Number	VL/NW/A9/SCH 4
Location	**A9 Drummossie Brae Southbound**
Grid Reference	269148, 844432 to 270871, 841754
Problem	Southbound dual carriageway 3 miles in length at high altitude (210m) prone to snow accumulations, drifting and jack-knifing of articulated vehicles on steep inclines.
Has this site experienced problems before or is it an identified risk?	Due to accumulation of snow road has been closed in previous winters.
Detailed Mitigation Measures	
Optional Mitigation Measures	▪ Application of additional salt on inclines at drivers discretion. ▪ Consideration to the application of Safecote/Brine pre-wetting mix (Alternative De-icer) if very low temperatures are forecast. ▪ 40g treatment route 40-08 ▪ Cat A patrol PA-4. (1st November to 31st March) ▪ Monitoring of conditions, including cameras at Seafield and Daviot, by Duty Supervisor. ▪ Deployment of reserve vehicles, located as identified below. ▪ Use of patrol vehicles outwith scheduled patrol times. ▪ Deployment of snow blower from Kingussie Depot. Pre-deployment to Inshes where possible. ▪ Representative deployed to MART. ▪ Deployment of vehicles with welfare kits as standard.
When enacted	The measures detailed above will be in place prior to the event based on a forecast of significant snow fall in a short space of time with a high degree of forecaster confidence. In cases of low or medium forecaster confidence dialogue may be opened with Transport Scotland regarding extent of mitigation. Reactive implementation when monitoring of conditions indicates requirement.
Who enacts	Winter Service Duty Supervisor supported by WSDO.
Who will manage the response	Severe Weather Manager supported by WSDO.

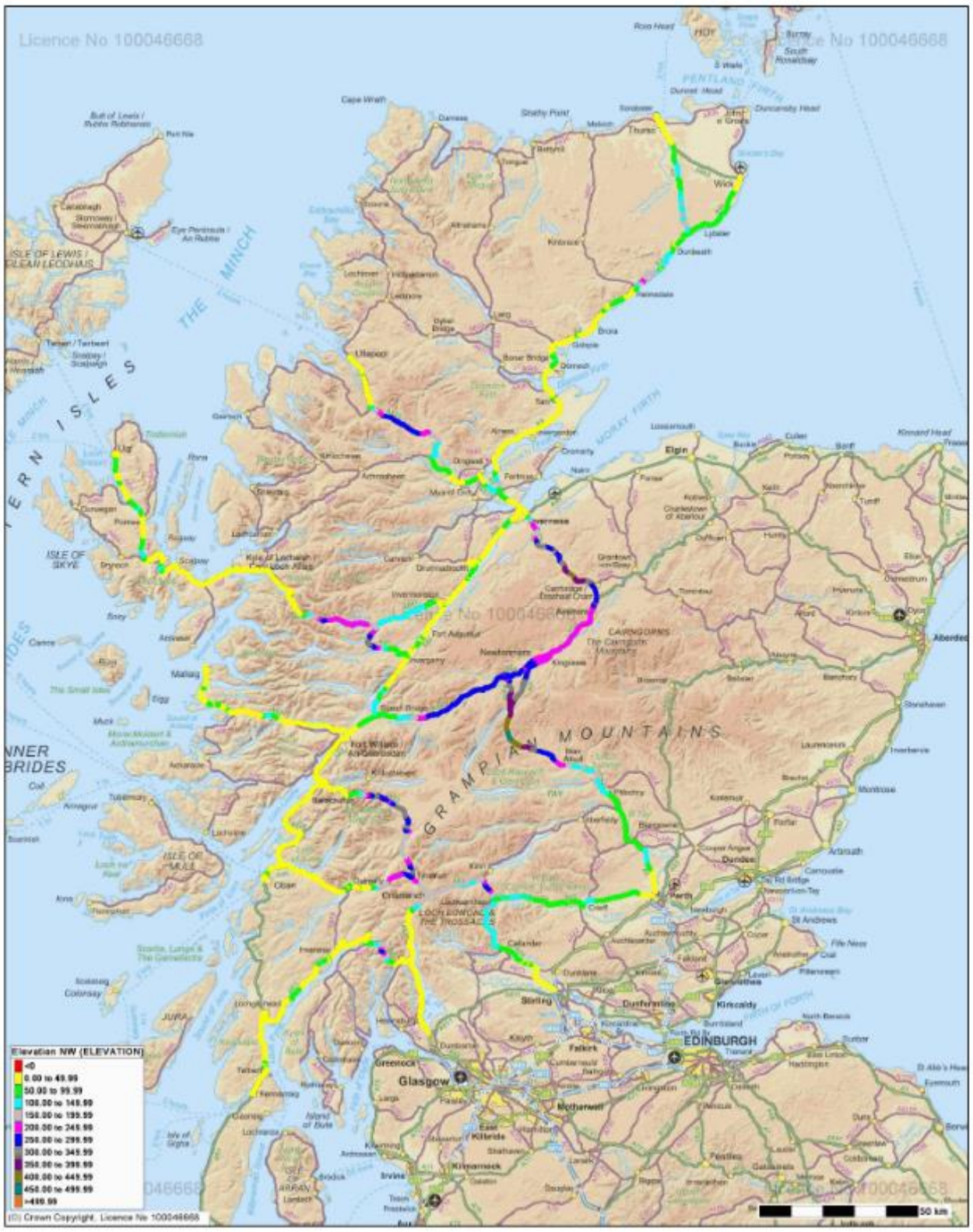
Reference Number	VL/NW/A9/SCH 4
Location	**A9 Drummossie Brae Southbound**
Are diversion routes to be used?	No alternative diversion route available.
Deployment of resources	The following resources are available for deployment: 1 frontline spreader/plough (Inverness), 1 patrol spreader/plough (Inverness), 1 alternative access spreader/plough (Kingussie), 1 reserve spreader/plough (Inverness), and 1 snowblower (Kingussie) deployed, exact locations at Duty Supervisor discretion.
Use of VMS	Contact Traffic Scotland to display messages on VMS/A11, A6, A8 and A9
Other measures put in place	Southbound vehicles stacked on A9 SB
Assistance from additional Transport Scotland resources	Assistance from Transport Scotland Communications to agree message out to be put out to the media.
Assistance from External Sources	Assistance from Police Scotland in implementing road closures if deemed necessary. Vehicle Recovery through Police Scotland Contracts if vehicles become stuck.

Reference Number	VL/NW/A9/SCH5
Location	**A9 Drumochter Pass**
Grid Reference	NN667 772
Problem	In close proximity to high slopes which during long periods of snow present a moderate avalanche risk
Has this site experienced problems before or is it an identified risk?	In 2009-2010 the same issue happened.
Detailed Mitigation Measures	
Optional Mitigation Measures	▪ Monitoring of conditions via link provided by SAIS by WSDO during pronged heavy snowfall. ▪ Deployment of vehicles with welfare kits as standard.
When enacted	The measures detailed above will be in place prior to the event based on a forecast of significant snow fall in a short space of time with a high degree of forecaster confidence.
Who enacts	WSDO.
Who will manage the response	Severe Weather Manager Supported by the WSDO.
Are diversion routes to be used?	No alternative diversion route available.
Deployment of resources	The following resources are available for deployment: 1 frontline spreader/plough (Kingussie), 1 patrol spreader/plough (Kingussie), 1 alternative access spreader/plough (Ballinluig), 1 reserve spreader/plough (Kingussie), and 1 snowblower (Kingussie).
Other measures put in place	Closure of Closure of Metal Swing snow gates at Trinafour and Dalwhinnie
Assistance from additional Transport Scotland resources	Assistance from Transport Scotland Communications to agree message out to be put out to the media.
Assistance from External Sources	Assistance from Police Scotland in implementing road closures if deemed necessary. Vehicle Recovery through Police Scotland Contracts if vehicles become stuck.

Reference Number	VL/NW/A82/SCH1
Location	**A82 Glencoe to Tyndrum**
Grid Reference	209902, 758663 to 232529, 730739.
Problem	Single carriageway 48 miles in length at high altitude (350m) prone to snow accumulations, drifting and jack-knifing of articulated vehicles on steep inclines.
Has this site experienced problems before or is it an identified risk?	Due to accumulation of snow road has been closed in previous winters.
Detailed Mitigation Measures	
Optional Mitigation Measures	▪ Salt Bins positioned at Blackmount and Glencoe replenished as necessary. Application of additional salt on inclines at drivers discretion. ▪ Snow Depot at Ballachulish. ▪ 40g treatment route 40-21 ▪ Cat B patrol PB-5. (1st November to 31st March) ▪ Monitoring of conditions, including cameras at Alt na Feadh and Tyndrum by Duty Supervisor. ▪ Deployment of reserve vehicles, located as identified below. ▪ Use of patrol vehicles outwith scheduled patrol times. ▪ Deployment of snow blower from Killin Depot. Pre-deployment where possible. ▪ Representative deployed to MART. ▪ Deployment of vehicles with welfare kits as standard.
When enacted	The measures detailed above will be in place prior to the event based on a forecast of significant snow fall in a short space of time with a high degree of forecaster confidence. In cases of low or medium forecaster confidence dialogue may be opened with Transport Scotland regarding extent of mitigation. Reactive implementation when monitoring of conditions indicates requirement.
Who enacts	Winter Service Duty Supervisor supported by WSDO.
Who will manage the response	Severe Weather Manager supported by WSDO.
Are diversion routes to be used?	A828 – A85 (Height restrictions Connel Bridge)
Deployment of resources	The following resources are available for deployment: 1 reserve spreader/plough (Corpach) 1 reserve spreader/ Plough (Killin), and 1 snowblower (Killin) deployed at Duty Supervisor discretion.
Use of VMS	Contact Traffic Scotland to display messages on C3 and C6

Reference Number	VL/NW/A82/SCH1
Location	**A82 Glencoe to Tyndrum**
Other measures put in place	Closure of Closure of Metal Swing snow gates at Glencoe and Tyndrum.
Assistance from additional Transport Scotland resources	Assistance from Transport Scotland Communications to agree message out to be put out to the media.
Assistance from External Sources	Assistance from Police Scotland in implementing road closures if deemed necessary. Vehicle Recovery through Police Scotland Contracts if vehicles become stuck.

Appendix WSP10 – Route Altitude Map



Appendix WSP11 – Daily Winter Action Plan (Planned and Actual)

PLANNED

The Daily Winter Action Plan is generated and emailled directly from Vaisala Manager in a template format, as below.

NW Winter DAP [*Date*] [*x*] Frontline [*x*] Patrol [x] Add/Res MIN RST [*Min RST*] SNOW [*YES/NO*]

Action Summary

[*Summary of Actions for the next 24-hour period*]

Created by [*Winter Service Duty Officer*], Approved by [*Severe Weather Manager/ Duty Severe Weather Managers*]

Weather Forecast [*Headline*]

[*Confidence Level*]

[*General Synopsis*]

Snow Summary

[*Snow Forecast*]

All - Action Plans

[*Table as generated by Vaisala Manager*]

Route	Action	Cause	Start Time	Forecast Min Road Temp	Forecast Time Crossing Zero	Forecast Time Returning Above Zero	Residual Salt	Matrix Used
20R01	No Action	No Hazard	01.08.2022 12:00	5.0			NA	Yes
20R02	No Action	No Hazard	01.08.2022 12:00	5.0			NA	Yes
20R03	No Action	No Hazard	01.08.2022 12:00	5.0			NA	Yes
20R04	No Action	No Hazard	01.08.2022 12:00	5.0			NA	Yes
20R05	No Action	No Hazard	01.08.2022 12:00	5.0			NA	Yes
20R06	No Action	No Hazard	01.08.2022 12:00	5.0			NA	Yes
20R07	No Action	No Hazard	01.08.2022 12:00	5.0			NA	Yes
20R12	No Action	No Hazard	01.08.2022 12:00	5.0			NA	Yes
20R13	No Action	No Hazard	01.08.2022 12:00	5.0			NA	Yes
20R14	No Action	No Hazard	01.08.2022 12:00	5.0			NA	Yes

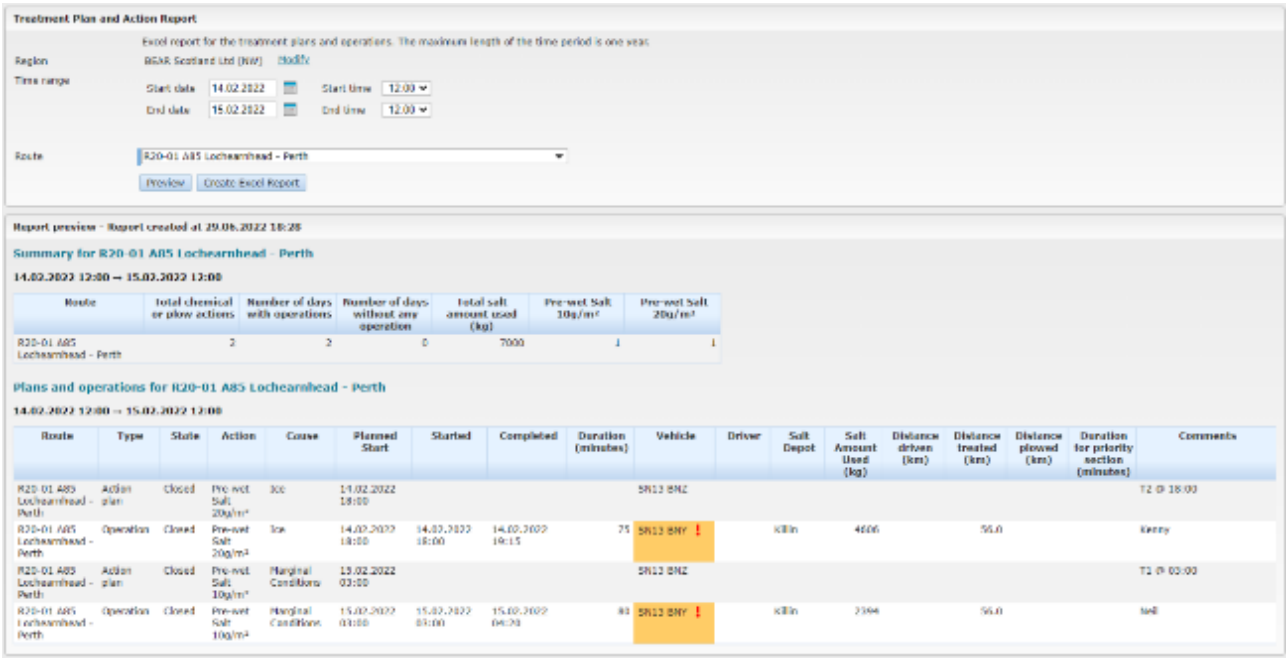
--
This message was sent by [WSDO]/BEAR Scotland Ltd (NW) via Vaisala RoadDSS Manager system.

ACTUAL

The Actual Actions are recorded and stored electronically in Vaisala Manager. These can be called up by generating a Treatment Plan and Action Report for the required time period.

A screenshot showing the output from Vaisala Manager is below. The Reports can also be exported in Excel format.

EXAMPLE FROM NORTH WEST CONTRACT



Treatment Plan and Action Report

Excel report for the treatment plans and operations. The maximum length of the time period is one year.

Region: BEAR Scotland Ltd (NW) Modify

Time range: Start date 14.02.2022 Start time 12:00 — End date 15.02.2022 End time 12:00

Route: R20-01 A85 Lochearnhead - Perth

Preview | Create Excel Report

Report preview - Report created at 29.06.2022 10:28

Summary for R20-01 A85 Lochearnhead - Perth

14.02.2022 12:00 – 15.02.2022 12:00

Route	Total chemical or plow actions	Number of days with operations	Number of days without any operation	Total salt amount used (kg)	Pre-wet Salt 10g/m²	Pre-wet Salt 20g/m²
R20-01 A85 Lochearnhead - Perth	3	3	0	7000	1	1

Plans and operations for R20-01 A85 Lochearnhead - Perth

14.02.2022 12:00 – 15.02.2022 12:00

Route	Type	State	Action	Cause	Planned Start	Started	Completed	Duration (minutes)	Vehicle	Driver	Salt Depot	Salt Amount Used (kg)	Distance driven (km)	Distance treated (km)	Distance plowed (km)	Duration for priority section (minutes)	Comments
R20-01 A85 Lochearnhead - Perth	Action plan	Closed	Pre-wet Salt 20g/m²	Ice	14.02.2022 18:00				SN13 BNZ								T2 @ 18:00
R20-01 A85 Lochearnhead - Perth	Operation	Closed	Pre-wet Salt 20g/m²	Ice	14.02.2022 18:00	14.02.2022 18:00	14.02.2022 19:15	75	SN13 BNY !		Killin	4600		55.0			Kerry
R20-01 A85 Lochearnhead - Perth	Action plan	Closed	Pre-wet Salt 10g/m²	Marginal Conditions	15.02.2022 03:00				SN13 BNZ								T1 @ 03:00
R20-01 A85 Lochearnhead - Perth	Operation	Closed	Pre-wet Salt 10g/m²	Marginal Conditions	15.02.2022 03:00	15.02.2022 03:00	15.02.2022 04:20	80	SN13 BNY !		Killin	2300		55.0			test

Appendix WSP 12 – Winter Service Plant

Table 6.1.6 – Front line Winter Service Plant permanently available and located in the Unit for Winter Service for carriageways

Depot / Plant	Front-Line Treatment 4 axle rigid / 32 tonnes / 2 axle drive – 12m³ Fixed Body	Front-Line Treatment 4 axle rigid / 32 tonnes / 2 axle drive – 12m³ / 1000 litres Fixed Body	Front-Line Treatment 3 axle rigid / 26 tonnes / 2 axle drive – 9m³ Fixed Body	Winter Service Patrol 3 axle rigid / 26 tonnes / 2 axle drive – 6m³ / 3000 litres Fixed Body	Winter Service Patrol 2 axle rigid / 18 Tonnes / 1 axle drive – 6m³ Fixed Body	Front-line Loading Plant Loading Shovel (5 tonne)
DUNBEATH	SO23 EWL	-	SN69 WSL SN69 WSY	-	SM72 CHH	1
BRORA	-	-	-	-	-	-
INVERNESS	SN23 YPC SN23 JUE	SN73 YOD SN73 YOE	SM72 LHR	SN73 YTV	SM72 CHG SM72 CHJ	1
KINGUSSIE	SM23 UNW SM23 JUF SM23 JNO	-	SN69 WSX SN69 WTDSN69 WSW	-		1
ARDELVE	SM23 EWK SM23 JOH	SN73 YOC	SN69 WSU	-	SM72 CHK	1
CORPACH	SN23 YPA SN23 YPD SL23 HPP	-	-	-	SM72 UZJ SM72 UZH	1
BALLACHULISH	-	-	-	-	-	1
OBAN	SM23 JSZ SO23 GZE	-	-	-	SM72 CHL	1
INVERARAY	SO23 LSL SO23 LSN	-	-	-	SM72 CHZ SM72 LHJ	1
MACHRIHANISH	SM23JNN	-	-	-	-	1
KILLIN	SM23 UOA	-	SN69 WSZ SN69 WTA	-	SM72 LHH SN23 YPE	1
PERTH	SL23 HMZ SN73 YJJ	-	-	-	SM72 CJE SM72 CJF	1
BALLINLUIG	SN73 YFB	-	-	-	SM72 LHG	1

Note: Vehicles may be moved between depots for operational reasons.

Table 6.1.7– Front line Winter Service Plant permanently available and located in the Unit for the Winter Service for footways footbridges and cycling facilities

Depot / Plant	**Front line Footpath Treatment** 3.5 Tonne Pick Up with 500l Hilltip Sprayer	**Front line Footpath Treatment** John Deere Footpath Tractor with 200l Hilltip Sprayer	**Frontline/Snow clearing Footpath Treatment** John Deere Footpath Tractor with Hopper/Spreader
DUNBEATH	1 – PO24 XVD	-	1 - SP13 AEX
BRORA	-	1 - SL23 DXW	-
INVERNESS	1 – PF73 OGV	1 - SL23 DXT	1 - SP13 AHA
KINGUSSIE	-	1 - SL23 DXX	1 - SP13 AEU
ARDELVE	1 – PO24 XYZ	-	1 - SL23 DXU
CORPACH	1 – PF73 OHE	1 - SL23 DXV	1 - SP13 AHE
BALLACHULISH	-	-	-
OBAN	-	1 - SL23 KXS	1 - SP13 AEO
INVERARAY	1 – PL73 XAH	-	1-SP13 AHF
MACHRIHANISH	-	-	-
KILLIN	-	1 - SL23 DXR	1 - SP13 AHC
PERTH	2 – PF73 OHB PF73 KJN	-	1 - SL23 DXS
BALLINLUIG	-	-	-

Table 6.1.7b– Reserve Winter Service Plant permanently available and located in the Unit for the Winter Service for footways footbridges and cycling facilities

Depot / Plant	Reserve Walk Behind 50l Sprayer
DUNBEATH	1
BRORA	
INVERNESS	1
KINGUSSIE	1
ARDELVE	1
CORPACH	1
BALLACHULISH	
OBAN	1
INVERARAY	1
MACHRIHANISH	
KILLIN	1
PERTH	1
BALLINLUIG	

Table 6.1.8 – Reserve Winter Service Plant permanently available and located in the Unit for Winter Service for carriageways footways footbridges and cycling facilities

	Reserve 4 axles rigid / 32 Tonnes / 2- axle drive – 12m³ Demount	**Reserve** 4 axles rigid / 32 Tonnes / 2- axle drive – 12m³ / 1000 litres Fixed Body	**Reserve** 3 axles rigid / 26 Tonnes / 2- axle drive – 9m³ Demount	**Reserve** 2 axles rigid / 18 Tonnes / 1- axle drive – 6m³ Demount	**Snowblowers** 600 t/hr capacity	**Snowblowers** HSS760 ETD Honda Snow Blower Electric Start or equivalent (45 t/hr)
DUNBEATH	SO23 GZK	-	-	-	-	-
BRORA	-	-	-	-	-	-
INVERNESS	SL23 HNK	SN73 YOF	-	SM73 GJJ	1	-
KINGUSSIE	-	-	SM73 GJF	-	2	1
ARDELVE	-	-	-	-	-	-
CORPACH	SN73 YGR	-	-	SM73 GJO	-	-
BALLACHULISH	-	-	-	-	-	-
OBAN	-	-	-	-	-	-
INVERARAY	SO23 RDU	-	-	-	-	-
MACHRIHANISH	-	-	-	-	-	-
KILLIN	-	-	SN73 YTW	SM73 GJG	1	1
PERTH	SN73 YHE	-	-	SM73 GJK	-	1
BALLINLUIG	-	-	-	-	-	-

Note: Vehicles may be moved between depots for operational reasons.

Table 6.1.9 – Additional Winter Service Plant

Type of Winter Service Plant & Reg Number	Depot Location or Third Party Operator and Location	Number of Vehicles	Mobilisation Time in Hours
Massey Ferguson MF6495, SY56 AXM	Marcus McBain, Aviemore	1	4
Massey Ferguson MF6616, BX64 NHJ	Marcus McBain, Aviemore	1	4
JCB Fastrac SP68 CXH	Perth	1	4
JCB Fastrac SP19 ABX	Perth	1	4
JCB Fastrac SP15 CPF	Inverness	1	1
Valtra SY23 AXC	Kingussie	1	1
Valtra SY23 AXD	Kingussie	1	1
JCB Fastrac SP15 CPK	Killin	1	1
Raiko Ice Breaker, N/A	Inverness	1	4
JCB Fastrac with Plough	Euan Ogg Rothes	1	2
JCB Fastrac with Plough	Currie Contractors Keith	4	3
Snow Blower Tractor Mounted	Currie Contractors Keith	1	3

Appendix WSP13 – Examples of Forms Completed by Winter Maintenance Operational Staff

Winter Driver's Record

Winter Drivers Record		
Document:	Form: #406	ACTION PLAN DATE:
Issue:	#9	/ /
Related to:	All Contracts	

Depot		Vehicle Reg:		Time called out for Unplanned Action	

AutoRoute	Yes	No	Route Card	20	40	Route No	

Brine Used	Yes	No	If No Brine Why?	

Alternative De-icer Used	Yes	No	Routes which require Potassium Acetate:	South East Unit: SE20-15, SE40-22.
Amount Used (lts)				North West Unit: NW20-07, NW20-10, NW20-14, NW40-10, NW40-12, NW40-17
Frontline Patrol (FLP)	Yes	No	If Route requires Potassium Acetate has it been used? YES / NO	Amount used (ltr)	If not why?

Weight when loaded	
Time Left Depot	
Start of Action – Date	
Start of Action – Time	
End of Action – Date	
End of Action – Time	
Time returned to Depot	
Weight on Return	

Note: In table below enter treatment code in appropriate column.
State approx. treated length (km) and locations for part-route treatments.

Action Taken	Planned	Unplanned
T1: Treatment 10 g/m^2		
T1.5: Treatment 15 g/m^2		
T2: Treatment 20 g/m^2		
T3: Treatment 30 g/m^2		
T4: Treatment 40 g/m^2		
TE: Treatment Potassium Acetate		
TF - Plough / salt whole route		
TP - Plough / salt part route detail below		
T'P: Treatment part route '= 1,2,3,4 or E		
Area's Req. Special Attention treated at 40 g/m^2	Yes	No

Part route treatment				
	1. from		to	
	2. from		to	
	3. from		to	
	4. from		to	

Rate of Spread (g/m^2)		Spread Width (m)	

Did Planned Action commence on time? Yes / No / Not applicable
Did Unplanned Action commence within 1 hour of call out? Yes / No / Not applicable
Was pre-treatment completed within 2 hours? Yes / No / Not applicable

If "No" to any of the above, give reasons/comment:

I confirm that the above is a true and accurate record of the Winter Maintenance action carried out. I claim that the above hours worked on unplanned treatment are exempt from UK domestic driver's hours restrictions.

Signed (Driver): **Name:** **Date:**

FOR SUPERVISORS USE ONLY

Supervisors Comments:

Document reason(s) for non-conformity, if applicable:

I have checked the above report and consider that the work has been undertaken in accordance with the specification and is a true and accurate record of the Winter Maintenance action carried out

Signed (Supervisor): **Name:** **Date:**

NOTE: Completed form to be scanned and electronically returned to Control Room

Patrol Route Records

Drivers Patrol Route A1 (Ex Perth)	
Document:	Form #182
Issue:	#5
Related to:	NMC NW

ACTION PLAN DATE	UNIQUE ID:
____/____/____	

Route: 1. Inveralmond 2. Ballinluig 3. Inveralmond

Print Drivers Name ..... **Sign Drivers Name-** ..... **Date:** .....

Vehicle Reg ..... **Start Weight** ..... **End Weight** .....

Patrol 1- start 02:00 **Start Time**..... **End Time**..... Route Treated Prior to Patrol: Yes / No Time of Treatment.....

Location	Time	Air Temp	RST	Road Condition (snow/icy/wet/dry)	Assessed Residual Salt (H/M/L/unknown)	Action* Code	Treatment Type #	Spread Rate	Approx Location of Salting or Other Action	Treatment Time Start	Treatment Time End
Inveralmond					unknown						
Ballinluig					unknown						
Inveralmond					unknown						

Patrol 2- start 04:00 **Start Time**..... **End Time**..... Route Treated Prior to Patrol: Yes / No Time of Treatment.....

Location	Time	Air Temp	RST	Road Condition (snow/icy/wet/dry)	Assessed Residual Salt (H/M/L/unknown)	Action* Code	Treatment Type #	Spread Rate	Approx Location of Salting or Other Action	Treatment Time Start	Treatment Time End
Inveralmond					unknown						
Ballinluig					unknown						
Inveralmond					unknown						

Patrol 3- start 06:00 **Start Time**..... **End Time**..... Route Treated Prior to Patrol: Yes / No Time of Treatment.....

Location	Time	Air Temp	RST	Road Condition (snow/icy/wet/dry)	Assessed Residual Salt (H/M/L/unknown)	Action* Code	Treatment Type #	Spread Rate	Approx Location of Salting or Other Action	Treatment Time Start	Treatment Time End
Inveralmond					unknown						
Ballinluig					unknown						
Inveralmond					unknown						

Patrol 4- start 08:00 **Start Time**..... **End Time**..... Route Treated Prior to Patrol: Yes / No Time of Treatment.....

Location	Time	Air Temp	RST	Road Condition (snow/icy/wet/dry)	Assessed Residual Salt (H/M/L/unknown)	Action* Code	Treatment Type #	Spread Rate	Approx Location of Salting or Other Action	Treatment Time Start	Treatment Time End
Inveralmond					unknown						
Ballinluig					unknown						
Inveralmond					unknown						

***Action symbols:**

1 Spot treatment as instructed by the Winter Service Duty Officer
2 Spot treatment as determined by driver
3 Route treatment as advised by the Winter Service Duty Officer
4 Route treatment as determined by driver
5 Attend to runoff or seepage on surface
6 Remove obstruction eg dead dog, fallen tree, and other obstructions

#Treatment type:

7 Pre-wetted Salt
8 Dry Salt
9 Potassium Acetate

Notes:

- Sitting locations and timings may alter dependent on weather
- Where required additional notes on actions taken or issues identified should be included on the reverse of this sheet

Drivers Patrol Route A1 (Ex Perth)	
Document:	Form #182
Issue:	#5
Related to:	NMC NW

ACTION PLAN DATE	UNIQUE ID:
____/____/____	

Additional Notes (where required):

Patrol 1- start 02:00
Patrol 2- start 04:00
Patrol 3- start 06:00
Patrol 4- start 08:00

Appendix WSP14 (Table 6.1.11) – Operating Company's Compounds, Depots and Facilities

Compound, Depot / Facility	Owner	Postal Address	Purpose	Access Arrange-ments	Contact Details	Facilities
Dunbeath	Stuart Wyndham Murray Threipland (& spouse)	Markethill Houstry Road Dunbeath Caithness KW6	Operational and Winter Depot	A9 24 hours	Depot Supervisor	Office Welfare/ Mess
Brora	The Highland Council	Harbour Road Brora, KW9	Operational and Winter Depot	A9 24 hours	Dunbeath / Inverness Depot Supervisor	Office Welfare / Mess
Inverness	Ark Estates Scotland Limited	Bridgepoint House, 23a Longman Drive, Inverness, IV1 1SU	Operational and Winter Depot	A82 and A9 24 hours	Depot Supervisor	Office Welfare/ Mess
Ardelve	The Highland Council	Unit 3B, Ardelve Industrial Estate Kyle Highland IV40 8DY	Operational and Winter Depot	A87 24 hours	Depot Supervisor	Office Welfare/ Mess
Corpach,	Boyd Brothers Limited	Corpach Depot, Fort William, Highland, PH33	Operational and Winter Depot	A830 24 hours	Depot Supervisor	Office Welfare/ Mess
Kingussie	The Highland Council	Market Lane, Kingussie Highland PH21	Operational and Winter Depot	A86 24 hours	Depot Supervisor	Office Welfare/ Mess
Ballinluig	Robert Laird Contractors	Tulliemet Farm, Ballinluig, Pitlochry PH9 0NN	Winter Depot	A9 24 hours	Perth Depot Supervisor	Welfare/ Mess
Killin	Stirling Council	Station Road Depot, Killin, Stirling FK21	Operational and Winter Depot	A827/A85 24 hours	Depot Supervisor	Office Welfare/ Mess
Oban	Strathclyde Scaffolding Services	Strathclyde Scaffolding, Glenshellach, Oban PA34	Operational and Winter Depot	A85 24 hours	Depot Supervisor	Office Welfare/ Mess
Inveraray	Argyll and Bute Council	Chalmers Court, Inveraray, Argyl and Bute PA32	Operational and Winter Depot	A83 24 hours	Depot Supervisor	Office Welfare/ Mess

Compound, Depot / Facility	Owner	Postal Address	Purpose	Access Arrange-ments	Contact Details	Facilities
Perth	Morris Leslie Plant Limited	Inveralmond Rd, Inveralmond Industrial, Estate, Perth, Perth and Kinross PH1	Central Office, Operational and Winter Depot	A9 24 hours	Depot Supervisor	Office Welfare/ Mess
Machrihanish	MACC Developments	Machrihanish Airbase Campbeltown Argyll PA28 6NU	Operational and Winter Depot	A83 24 hours	Depot Supervisor	Office Welfare/ Mess
Ballachulish	Georope Limited	West Quarry, West Laroch Ballachulish Inverness-shire PH49 4JP	Strategic Salt Depot	A82 24 hours	Corpach Depot Supervisor	Welfare/ Mess

Appendix WSP15 – Decision Matrices for Winter Service

Table 6.11.1 – Decision Matrix for Winter Service

<table>
<tr><th rowspan="2">Road Surface Temperature</th><th colspan="3">Predicted Road Conditions</th></tr>
<tr><th>Wet</th><th>Wet Patches</th><th>Dry</th></tr>
<tr><td>May fall below 1°C</td><td rowspan="2">Salt before frost</td><td>Salt before frost (See note A)</td><td>No action likely, monitor weather (See note A)</td></tr>
<tr><td rowspan="4">Expected to fall below 1°C</td><td colspan="2">Salt before frost (see note B)</td></tr>
<tr><td colspan="3">Salt after rain stops</td></tr>
<tr><td colspan="3">Salt before frost and after rain stops (see note C)</td></tr>
<tr><td colspan="2">Salt before frost</td><td>Monitor weather conditions</td></tr>
<tr><td>Expected snow</td><td colspan="3">Salt before snow</td></tr>
<tr><td rowspan="3">Freezing Rain</td><td colspan="3">Salt before rainfall (see note C)</td></tr>
<tr><td colspan="3">Salt during rainfall (see note C)</td></tr>
<tr><td colspan="3">Salt after rainfall (see note C)</td></tr>
</table>

Notes:

a) Particular attention should be given to any possibility of water running across carriageways and such locations should be monitored and treated as required.
b) When a weather forecast contains reference to expected hoarfrost considerable deposits of frost are likely to occur and close monitoring will be required. Particular attention should be given to the timing of precautionary treatments due to the possibility that salt deposited on a dry road may be dispersed before it can become effective.
c) Under these circumstances rain will freeze on contact with running surfaces and full pre-treatment should be provided even on dry roads. This is a most serious condition and should be monitored closely and continuously throughout the danger period.

Table 6.11.2 sets out the spread rates for precautionary treatments. Rate of spread for precautionary treatments should not be adjusted to take account of residual salt or surface moisture unless stated otherwise.

The rates in the table below are for precautionary salt treatment prior to snowfall that is essential to form a de-bonding layer and snow clearance.

Table 6.11.2 – Treatment Matrix Spread Rates for Precautionary Treatments

Item	Forecast weather condition	Dry or damp road (g/m^2)	Road Surface Wet / Frost Susceptible / Surface Water Run-off Area (g/m^2)
1	RST higher than plus 1°C	0	0
2	RST lower than or equal to plus 1°C but higher than minus 2°C	10	20
3	RST lower than or equal to minus 2°C but higher than minus 5°C	15	30
4	RST lower than or equal to minus 5°C (or see TS alternative de-icer guidance)	30	40
5	Freezing Fog	Add 5 to Item 1 to 4 as applicable	Add 10 to Item 1 to 3 as applicable; otherwise as per item 4.
6	Freezing Rain	40	40
7	Snow Accumulations of any depth	40	40

Table 6.11.3 – Precautionary Treatment Potassium Acetate Spreading Rates

Item	Conditions forecast	Spread Rate (litres/square metre)
1	Road surface temperature lower than or equal to plus 1°C but higher than minus 2°C	0.0156
2	Road surface temperature lower than or equal to minus 2°C but higher than minus 5°C	0.0312
3	Frost and road surface temperature lower than	a minimum of 0.0312 which should be increased with manufacturer's recommendations
4	-5°C	
5	Snow	
6	Freezing conditions after rain	

Table 6.11.4 – Snow or Ice Clearance Salt Spreading Rates

Road Surface Condition	Treatment				
	Spreading Salt (g/m^2)	Ploughing	Blowing	Alternative De-Icer	Ice Breaker
Ice Formed	40	No	No	Where Applicable	No
Snow covering of less than 30mm	40	Yes	No	No	No
Snow covering exceeds 30mm	40	Yes	No	No	No
Snow accumulations due to prolonged snowfall	40	Yes (continuous)	Where applicable	No	No
Hard packed snow/ice less than 20mm thick	40 (successive treatments)	No	No	No	Where applicable
Hard packed snow/ice	salt/abrasive (successive)	No	No	Yes	Yes

Table 6.12.1 Snow Clearance

Condition Criteria	Category A Patrol Routes		Non Category A Patrol Routes	
	Dual Carriageways		Dual Carriageways	Dual Wide Single 2+1 & Single Carriageways
	Number of Existing Lanes		Number of Existing Lanes	
	2	3 or More	2	1 or 2 (WS 2 + 1)
	Minimum number of lanes in each direction free from ice and snow as far as is reasonably practicable		Minimum number of lanes in each direction free from ice and snow as far as is reasonably practicable (Except where snow gates)	
Snow at any time	1	2	1	1
Following clearance of minimum lanes or the cessation of snow fall all lanes are to be clear of snow	3 hours	3 hours	3 hours	3 hours

Table 6.12.2 Road Surface Wetness

Definition	Description	Water film thickness (for when using WFT instrumentation)
Dry Road	A road that shows no signs of water or dampness at the surface but may be just detectably darker. It may have moisture contained in pores below the surface that is not 'pumped' to the surface by traffic.	0 to 0.03mm (=0-30 g/m^2)
Damp Road	A road which is clearly dark but traffic does not generate any spray. This would be typical of a well-drained road when there has been no rainfall after 6 hours before the treatment time.	0.03 to 0.05mm (=30 – 50g/m^2)
Wet Road	A road on which traffic produces fine spray but not small water droplets. This would be typical of a well-drained road when there has been rainfall up to 3 hours before the treatment time.	0.05 to 0.1mm (=50 – 100g/m^2)
Very Wet Road and Flowing Water on Road	A road on which traffic produces droplets of water in the air to visibly flowing water on the surface	Greater than 0.1mm (=>100 g/m^2)

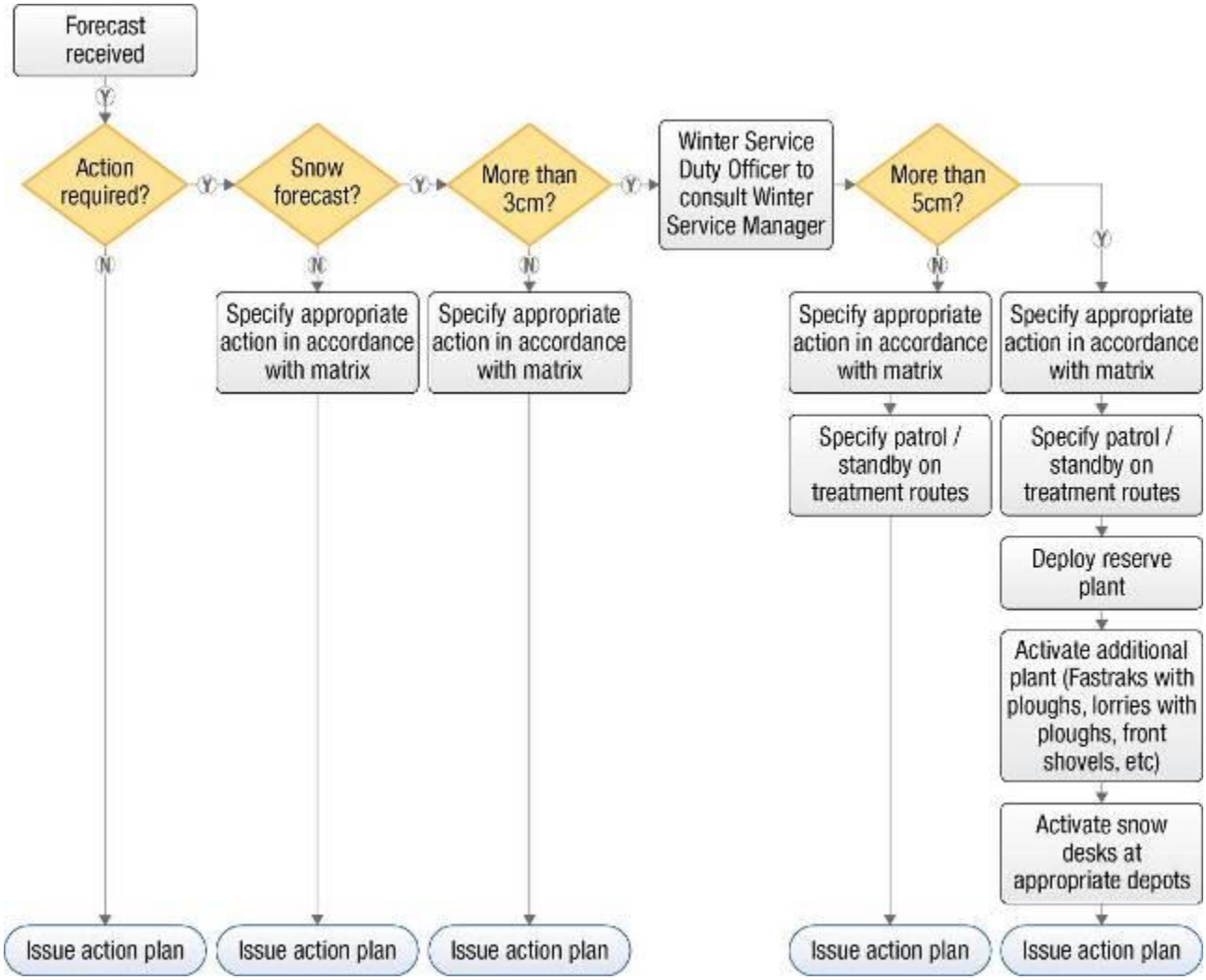
Appendix WSP16 (Table 6.10.2) – Footways, Footbridges and Cycleways – Response Times and Clearance Requirements for Snow or Ice Occurring Together

Table 6.10.2 – Footways, Footbridges and Cycleways – Response Times and Clearance Requirements for Snow or Ice Occurring Together.

Categories	Requirements		
	General	Between 06.00 and 19.00 hours	Treatments out with daytime hours
A	Between the hours of 06.00 and 19.00, commence snow clearing as soon as practicable to prevent compaction by traffic. Ploughing should be continuous thereafter to prevent a build-up of snow.	Clear all snow within 2 hours of snow ceasing to fall. On wide routes, 1.2 metre minimum width shall be cleared initially.	Clear snow when required by the Director.

Appendix WSP17 – Snow Forecast Resource Deployment Matrix

The following domain specific snow event escalation matrix will be used. Consultation will still need to take into account the forecast confidence level, altitude and timing.



Appendix WSP18 – De-icing Materials

Dry Salt

Location	Function	Rock Salt Quantity	Marine Salt Quantity
Dunbeath	Operational	3,000 T	40 T
Brora	Operational	-	-
Inverness	Operational	7,000 T	60 T
Kingussie	Operational	5,000 T	60 T
Ardelve	Operational	2,500 T	40 T
Oban	Operational	1,600 T	30 T
Corpach	Operational	3,000 T	60 T
Ballachulish	Operational	600 T	
Inveraray	Operational	2,000 T	30 T
Machrihanish	Operational	2500 T	30 T
Killin	Operational	2,600 T	60 T
Ballinluig	Operational	800 T	30 T
Perth	Operational	5000 T	60 T
Total		**35,600 T**	**540 T**
Minimum Stock Level (80%)		**28, 480 T**	**432 T**

Alternative De-icers

De-icer Type	Location	Structure Type	Min (tonnes / litres) at 1st October
Magnesium Chloride (or similar proprietary product)	Dunbeath	Storage Shed	5000 L
	Inverness	Storage Shed	10000 L
	Kingussie	Storage Shed	7000 L
	Ardelve	Storage Shed	5000 L
	Corpach	Storage Shed	5000 L
	Oban	Storage Shed	3000 L
	Inveraray	Storage Shed	3000 L
	Machrihanish	Storage Shed	2000 L
	Killin	Storage Shed	5000 L
	Perth	Storage Shed	3000 L
	Ballinluig	Storage Shed	2000 L
	Total		**50,000 L**
	Minimum Stock Level		**30,000 L**

Brine Capacity

Location	Type (Saturator / Storage only)	Capacity (litres)	Minimum Capacity (litres)
Dunbeath	Saturator and storage	20,000 and 20,000	16,415
Inverness	Saturator and storage	20,000 and 40,000	43,596
Kingussie	Saturator and storage	20,000 and 40,000	34,203
Ardelve	Saturator and storage	20,000 and 20,000	20,000
Corpach	Saturator and storage	20,000 and 40,000	32,454

Oban	Saturator and storage	20,000 and 20,000	13,617
Inveraray	Saturator and storage	20,000 and 20,000	21,798
Machrihanish	Saturator	20,000	10,926
Killin	Saturator and storage	20,000 and 40,000	28,767
Perth	Saturator and storage	20,000 and 40,000	24,543
Ballinluig	Saturator	20,000	8,181
Brora	Saturator	10,000	384

Appendix WSP19 – Carriageway Snow and Ice Clearance Procedures

Carriageway Surfaces

BEAR Scotland will, so far as is reasonably practicable, ensure sufficient resources are available to prevent snow or ice from remaining on the Network, and put into place specific arrangements to ensure that these resources will be available as and when required.

The WSDO, in discussion with the Severe Weather Manager, will determine, from the 2-5 day weather forecast, the requirements to mobilise additional resources. Winter Service shifts and the preparation of de-icing and ploughing equipment will be instructed by the WSDO. Conditions and de-icing spread rates for snow and ice clearance of carriageways are detailed in Appendix WSP15.

The clearance procedure for dual carriageways will be echelon ploughing (2 or more vehicles moving in the same direction, one behind each other on different lanes). Ploughing techniques to be adopted are shown below.

Ploughing Techniques (Carriageway surfaces)
2 Lane dual carriageway without hardshoulders: The method of clearance, on both carriageways, should be: (a) plough the left-hand lane to the verge; (b) plough the right-hand lane to the central reservation
2 Lane dual carriageway with hardshoulders: The method of clearance, on both carriageways, should be: (a) plough the left-hand lane to the hardshoulder; (b) plough the right-hand lane to the central reservation; (c) plough the hardshoulder to the verge

Appendix WSP20 – North West Salt Tonnage Targets

40 g/m2 Treatment Routes						
Route	Min. Tonnage (-10%)		Target Tonnage		Max. Tonnage (+10% for guidance only)	
	T4	T3	T4	T3	T4	T3
40-1	13.64	10.22	15.16	11.36	16.67	12.50
40-2	13.90	10.42	15.45	11.58	16.99	12.74
40-3	10.69	8.02	11.88	8.91	13.07	9.80
40-4	13.72	10.29	15.25	11.44	16.77	12.58
40-5	14.11	10.58	15.68	11.76	17.25	12.94
40-6	7.96	5.98	8.85	6.64	9.74	7.30
40-7	9.83	7.13	10.92	7.92	12.01	8.71
40-8	11.34	8.51	12.60	9.45	13.86	10.40
40-9	12.67	9.50	14.08	10.56	15.49	11.62
40-10	12.10	9.07	13.44	10.08	14.78	11.09
40-11	13.81	10.36	15.34	11.51	16.87	12.66
40-12	12.64	9.48	14.04	10.53	15.44	11.58
40-13	10.58	7.94	11.76	8.82	12.94	9.70
40-14	9.68	7.25	10.75	8.06	11.83	8.87
40-15	9.59	7.20	10.66	8.00	11.73	8.80
40-16	11.66	8.75	12.96	9.72	14.26	10.69
40-17	12.96	9.72	14.40	10.80	15.84	11.88
40-18	12.96	9.72	14.40	10.80	15.84	11.88
40-19	13.61	10.21	15.12	11.34	16.63	12.47
40-20	14.04	10.53	15.60	11.70	17.16	12.87
40-21	11.83	8.87	13.14	9.86	14.45	10.85
40-22	14.18	10.64	15.76	11.82	17.34	1300
40-23	12.94	9.71	14.38	10.79	15.82	11.87
40-24	9.75	7.31	10.83	8.12	11.91	8.93
40-25	9.97	7.48	11.08	8.31	12.19	9.14
40-26	9.36	7.02	10.40	7.80	11.44	8.58
40-27	13.15	9.86	14.61	10.96	16.07	12.06
40-28	13.61	10.21	15.12	11.34	16.63	12.47
40-29	11.70	8.78	13.00	9.75	14.30	10.73

40 g/m2 Treatment Routes						
Route	Min. Tonnage (-10%)		Target Tonnage		Max. Tonnage (+10% for guidance only)	
	T4	T2	T4	T2	T4	T2
40-1	13.64	6.82	15.16	7.58	16.67	8.33
40-2	13.90	6.95	15.45	7.72	16.99	8.49
40-3	10.69	5.35	11.88	5.94	13.07	6.53
40-4	13.72	6.85	15.25	7.62	16.77	8.38
40-5	14.11	7.06	15.68	7.84	17.25	8.62
40-6	7.96	5.97	8.85	6.64	9.73	7.30
40-7	9.83	4.75	10.92	5.28	12.01	5.81
40-8	11.34	5.67	12.60	6.30	13.86	6.93
40-9	12.67	6.34	14.08	7.04	15.49	7.74
40-10	12.10	6.05	13.44	6.72	14.78	7.39
40-11	13.81	6.90	15.34	7.67	16.87	8.44
40-12	12.64	6.32	14.04	7.02	15.44	7.72
40-13	10.58	5.29	11.76	5.88	12.94	6.47
40-14	9.68	4.84	10.75	5.38	11.83	5.92
40-15	9.59	4.80	10.66	5.33	11.73	5.86
40-16	11.66	5.83	12.96	6.48	14.26	7.13
40-17	12.96	6.48	14.40	7.20	15.84	7.92
40-18	12.96	6.48	14.40	7.20	15.84	7.92
40-19	13.61	6.80	15.12	7.56	16.63	8.32
40-20	14.04	7.02	15.60	7.80	17.16	8.58
40-21	11.83	5.92	13.14	6.57	14.45	7.22
40-22	14.18	7.09	15.76	7.88	17.34	8.67
40-23	12.94	6.47	14.38	7.19	15.82	7.91
40-24	9.75	4.88	10.83	5.42	11.91	5.96
40-25	9.97	4.99	11.08	5.54	12.19	6.09
40-26	9.36	4.68	10.40	5.20	11.44	5.72
40-27	13.15	6.58	14.61	7.31	16.07	8.04
40-28	13.61	6.80	15.12	7.56	16.63	8.32
40-29	11.70	5.85	13.00	6.50	14.30	7.15

Appendix WSP 21 – Winter Drivers' Rotas

Rotas will be made available prior to the start of the Winter Service Period and thereafter held on Sharepoint, which will be remotely accessible by all winter service duty staff, Transport Scotland and PAG.

Link to rotas is : Rotas

Appendix WSP22 Salt Resilience Days per Depot

Depot	Current Salt Stock (A) (tonnes)	Resilience (2 x 40 g/m^2 treatments per route, salt only) (B) (tonnes)	Number of Resilience Days (C) C = A/B (tonnes)
Perth	5000	61.22	73
Ballinluig	800	23.72	25
Killin	2600	64.62	40
Inveraray	2000	59.46	33
Machrihanish	2500	26.00	77
Oban	1600	60.28	26
Corpach	3000	87.72	34
Kingussie	5000	100.24	49
Inverness	7000	139.00	50
Ardelve	2500	83.52	30
Dunbeath	3000	66.34	45
Ballachulish	600	NA	NA
Brora	NA	NA	NA
Totals	**35,600**	**772.12**	**45**

Appendix WSP 23 - Winter Service/ISU/TRISS – Action Plan Resilence Risks for Winter 2024/25

Introduction

With the risk of Covid-19 likely to continue through winter 2023/24 it is essential that consideration contingency plans are in place to ensure the winter service along with incident response is maintained at all times.

Scenarios

There are three scenarios for consideration are:-

1. Widespread impact across the business meaning say 30% of our winter team are either diagnosed Covid-19 positive or in isolation due to 'Test and Protect' system for tracking and tracing those potentially at risk.
2. A depot-based outbreak whereby a single team are badly affected again with diagnosed cases and those in isolation.
3. Further to 2, a full depot being required by health authorities to close.

Consideration needs to be given to how each of these situations would be managed for winter operatives and staff.

Avoidance

Avoidance of infection is the first place is the starting point of any risk management process. This is managed by the implementation of the BEAR Scotland Covid-19 Safe Operating Procedure. This was published in June 2020 and has been utilised to date to help minimise the opportunities for the spreading of Covid-19 within our employees. It is regularly updated in line with Government Guidance.

The main general controls are:-

	Controls	Action By
1	Prompt reporting of sickness, particularly with Covid-style symptoms and encouragement to stay at home if ill.	Health and Safety Manager to refresh promotion of Safe Operating Procedure
2	Good hygiene and enhanced cleaning regime in offices, depots and vehicles with plentiful supplies of handwash and other cleaning products.	Health and Safety Manager to refresh promotion of Safe Operating Procedure
3	Good physical distancing to reduce the opportunities for infection and also to limit those who would be impacted by the Test and Protect protocols. (Test and Protect captures people who have been in close contact with the diagnosed individual.)	Health and Safety Manager to refresh promotion of Safe Operating Procedure
4	All employees to be encouraged to act in line with government guidance in their daily lives.	Managing Director to promote through staff newsletter

Additional Winter and ISU /TRISS controls are:-

	Controls	Action by
1	Winter, TRISS and ISU Drivers to limit contract with the wider circle of colleagues where possible and limit time in communal depot offices or bothies.	Managed by Operations Managers and implemented and monitored by Depot Supervisors
2	TRISS/ISU operative pairings to remain as constant as possible, working as a work family	Managed by Operations Managers and implemented and monitored by Depot Supervisors
3	Vehicle foggers to be available in each depot to regularly disinfect spreaders, TRISS and ISU vehicles every third day.	Purchased by IMS, managed by Operations Managers and implemented and monitored by Depot Supervisors

Additional Resources

The key to managing the three scenarios for the loss of employees, due to either infection or isolation, is to have a range of options for increasing the availability of drivers. Each depot should target having options to increase operative numbers by 30% to counter any reduction. The full isolation of a depot would be covered by this, plus similar resources from nearby depots and potentially a centrally located hit squad.

The most appropriate method of increasing availability will depend on the scale of the impact and the timing in relation to severe weather. The following hierarchy should be used to backfill for absent operatives. The identification of resource will start in the local depot then move to adjacent depots, across units as required:-

	Source of additional operatives	Action required	Action by
1	Any non-rostered drivers including appropriately qualified landscaping staff, supervisors and other members of staff	Identify each dept. Undertake refresher training	Operations Managers
2	Off duty patrol and frontline drivers	Manage locally	Supervisors
3	Employ Zero-hours drivers if possible	Recruit additional drivers to be used as and when required. Training required.	Ops Managers and HR
4	Driver agencies with preference for experienced drivers	Agree arrangements with regularly used agencies for ad-hoc use. Training or refresher training as required.	Ops Managers and HR
5	Other driver suppliers	Identify further sub-contractors, farmers	Operations Managers
6	Hit squads	Identify groups of individuals in each unit area prepared to relocate for a period to a severely impacted depot in the unit or across unit.	Operations Managers

TRISS/ISU Resources

Similar back up plans should also be drawn up to cater for impacts on TRISS/ISU operatives.

Winter Staff

Winter staff should follow the Covid Safe Operating Procedure. Control Room staff should continue to operate in separate control rooms and WSDOs should work out-with either control room, within adjacent offices.

Contingencies for absent staff exist within the wider workforce which previous experience of both roles. The Operations Managers and Duty Severe Weather Managers are capable of taking on the Severe Weather Manager duties assisted by their respective counterparts in the South East unit.

Appendix WSP24 – Resilience Precautionary Treatment Routes

Route No.	Depot	Description	Depot to Route (km)	Time to Route (mins)	Salting Length (km)	Aver Speed (km/hr)	Route Time (mins)	Route to Depot (km)	Alternative Access	Average Width of Route	Route Tonnage	Spread Rate (g/m2)	Treatment type
20-C1	Dunbeath	A9 Latheron - A99 Latheron - Wick - Burn of Wilk Wind farm - A9 Scrabster - Latheron - Tain ASDA Jct	5.3	6.8	152.2	47	240.6	79.5	Inverness	6.5	16.0	16	Pre-wet
20-C2	Inverness	A9 Tomatin - Tain ASDA Jct - then - SB Duals	1	1.3	111.8	47	190.2	2.3	Dunbeath	7.0	15.0	19	Pre-wet & Acetate
20-C3	Inverness	A835 Tore - Ullapool - then - A82 Longman Rbt - Invermoriston	9.6	12.8	156.5	45	181.7	46.3	Kingussie	6.5	16.0	16	Pre-wet
20-C4	Kingussie	A86 Kingussie - A889 Laggan Jct - Dalwhinnie - then - A86 Laggan Jct - A82 Spean Bridge - A87 Invergarry - A887 Bunloyne Jct - A82 Invermoriston - A82 Invergarry	1	1.2	159.5	50	225.0	82.9	Inverness	6.2	16.0	16	Pre-wet
20-C5	Ardelve	A87 Bunloyne Jct - Uig	45.6	54.7	138.8	50	165.6	92.4	Fort William	6.5	15.0	17	Pre-wet & Acetate
20-C6	Fort William	A830 Mallaig - A82 Nevis Rbt -	60.9	73.1	126.5	50	136.4	52.2	Ardelve	6.3	16.0	20	Pre-wet

Route No.	Depot	Description	Depot to Route (km)	Time to Route (mins)	Salting Length (km)	Aver Speed (km/hr)	Route Time (mins)	Route to Depot (km)	Alternative Access	Average Width of Route	Route Tonnage	Spread Rate (g/m2)	Treatment type
		Glencoe Ski Centre											
20-C7	Kingussie	A9 Kincraig - Tomatin - then - SB Duals to Kincraig - Blair Athol Sth Jct- then - NB Duals	5.5	6.3	134.1	52	256.7	2.6	Inverness	7.0	16.0	17	Pre-wet
20-C8	Killin	A85 Lochearnhead - Perth - then - A9 Inveralmond - Blair Athol Sth Jct	12.1	14.5	119.7	50	188.0	67.6	Perth	7.0	16.0	19	Pre-wet
20-C9	Oban	A85 Oban - A82 Tyndrum - Glencoe Ski Centre - then - A828 Ballachulish - A85 Connel	1	1.2	135.5	50	182.8	7.8	Oban	6.1	16.0	19	Pre-wet
20-C10	Perth	A84 Craig Forth - A85 Lochearnhead - A82 Crianlarich - A83 Tarbet - RABT Bus Circle - A82 Tarbet - Alexandria Rbt	53.2	70.9	135.3	45	233.2	101	Killin	6.2	16.0	19	Pre-wet
20-C11	Inveraray	A83 - RABT Bus Circle - Campbeltown	24.3	29.2	142.7	50	171.2	118	Oban	6.2	16.0	18	Pre-wet

Appendix WSP25 – Consultation Certificate (#25NW)

CERTIFICATE NUMBER: ConsultC NMC NW WSP 24/25

Order Reference : N/A ……Scheme Identifier: N/A …….

Scheme Title: N/A …….. Route: N/A …..

1. We hereby certify to the Scottish Ministers in respect of:

Schedule 2 Section 6 Winter Service

that we have consulted with ……. (Name of Consultee) and have ascertained that they have no objections to the document as listed in part 2. below.

We agree that the words and phrases herein, unless otherwise stated, have the same meaning as attributed to them in this Contract between the Scottish Ministers and the Operating Company.

Signed ……..

Firm BEAR Scotland Limited …….
(On behalf of Operating Company)

Name …… Date …… ……
(Block Capitals)

2. LIST OF CONSTRUCTION DOCUMENTS

Draft Winter Service Plan for the North West Unit 2024/25

3. DECLARATION BY …….(Name of Consultee)

On behalf of ……..(Name of Organisation) I confirm that:

(i) consultations referred to above have been completed as indicated above.

(ii) …….. (Name of Organisation) has no objections to the document listed in part 2. of this Consultation Certificate, and

(iii) the document listed in part 2. of this Consultation Certificate meet all known requirements of the consultee

Signed ……..

Name …….
(Block Capitals)

duly authorised to sign on behalf of ……(Name of Consultee)

Date ……..