OPERATION AND MAINTENANCE

WINTER SERVICE PLAN

2016/17

Author:	Iain Campbell
Client:	Contracting Authority
Project:	Aberdeen Western Peripheral Route/Balmedie-Tipperty
O&M Contractor:	Balfour Beatty Regional Civil Engineering
Document Ref:	AWPR_BT/OPS/003/RSP
Revision:	7
Date:	July 2016

Document Approval		
Prepared by:	Name	Iain Campbell
	Title	Network Manager
	Signed	
	Date	July 2016
Checked by:	Name	Paul Machell
	Title	Foreman
	Signed	
	Date	July 2016
Reviewed by: (Aberdeen Roads Limited)	Name	Sarah J Marshall
	Title	Business Manager
	Signed	
	Date	28 July 2016

For the Contracting Authority's use

Action	Signature
Draft document submitted to the Contracting Authority	
Comments to Company from the Contracting Authority	
Final document submitted to the Contracting Authority	
Approval by Transport Scotland	
Strategy consented to by the Contracting Authority	

Revision history

Date	Revision	Author	Checked	Comments
November 2013	Draft	Graham Drummond		
August 2014	Preferred Bidder Stage for Restricted Services	Graham Drummond	Robert McDougall	Updated to reflect Restricted Services Period
January 2015	For issue	Iain Campbell	Robert McDougall	Updated to reflect ARL and revised gritting route
February 2015	For issue	Iain Campbell	Robert McDougall	Addition of Mutual Aid companies adjacent to works
20th July 2015	For issue (2015/16)	Iain Campbell	Paul Machell	Minor amendments
17th September 2015	For approval	Iain Campbell	Paul Machell	Amended following verbal comments from CA.
24 September 2015	For approval	Iain Campbell	Paul Machell	Amended to take account of echelon ploughing in event of BB plant breakdown. 'Back-up plant' renamed to 'reserve plant'.
July 2016	For Approval	Iain Campbell	Paul Machell	Amended for 2016/17 Winter Period and includes PTU1 (Craibstone)

Distribution list (by email)

Organisation	Recipient	Number of copies
Contracting Authority	Robert Galbraith	1
Aberdeen Roads Limited	Malcolm Findlay / Sarah Marshall	1
CA's Site Representative	Eric Macaulay	1
AWPR CJV – New Works Contractor	Graham Christie	1
Transport Scotland	Robin Jacobs	1
Aberdeen City Council	Doug Ritchie	1
Aberdeenshire Council	Ian Daniels	1
BEAR Scotland NE Unit	Hazel Moore	1
Police Scotland	Colin Findlay	1
Traffic Scotland	Patricia Wiggins	1
Winter Service Manager	Iain Campbell	1
Supervisor	Paul Machell	1

Contents

1. Introduction and policy

Aberdeen Roads Limited (ARL) is the concessionaire (the Company) for Aberdeen Western Peripheral Route/Balmedie-Tipperty Project (the Project) and has contracted Balfour Beatty Regional Civil Engineering (BBRCE) to undertake the role of Operation and Maintenance Contractor including the supply of all network management and maintenance services.

This document represents BBRCE's submission of its annual winter service plan (WSP) to the Contracting Authority, in accordance to Schedule 4, Part 2, O&M Works Requirement Section 3 "Winter Service – Operations and Management" and Part 5 of the Specification clauses 2801AR to 2808AR inclusive, as part of the Restricted Service requirements within Schedule 4 Part 11.

This WSP describes the procedures for dealing with winter service activities and is designed to provide a planned and co-ordinated response by BBRCE and its suppliers on behalf of ARL for the O&M Works Site which comprises;

- Restricted Services Route is the existing A90 from the junction with B999 to Ellon roundabout, south of Ellon at the B9005
- Phase 1 / PTU1 is the new Craibstone Roundabout on the existing A96 (as detailed in Schedule 19 of the Project Agreement)

The WSP has been compiled to reflect the consultations with the adjacent road authorities and emergency services and should be read in conjunction with the BBRCE Incident Response Plan.

Although the WSP becomes effective during the winter service period, 1 October to 15 May, BBRCE has made arrangements whereby, in the unlikely event of winter service being required out with that period, the WSP will be invoked to deliver an appropriate service to maintain a safe and operational network.

The majority and most frequent activity of winter service is the precautionary salting of roads to keep them free from ice and hoar frost. This is a routine activity, which is activated through a weather forecasting system and a computerised road weather information system.

BBRCE's response to frost and snow warnings is pre-planned as outlined within this document. On receipt of an adverse weather forecast the precautionary salting plans will be activated and put into operation by the Winter Service Duty Officer (WSDO) concerned.

BBRCE's objective is to initiate and manage procedures for dealing with winter conditions, enabling as far as reasonably possible the safe movement of traffic on the roads within the O&M Works Site.

BBRCE is responsible for the management of winter service in the areas detailed in appendix WSP1. In addition to the carriageway areas, the winter service plan covers footways, cycletracks and laybys as defined in appendix WSP7.

Precautionary salting routes for the network are provided in appendix WSP2.

It is BBRCE's intention that a consistent and co-ordinated service is achieved along the roads within the O&M Works Site, ensuring that available resources are deployed in an efficient manner. This will require liaison and co-ordination with the adjacent trunk road management unit[1] and local authorities and co-operation in route planning and working across administrative boundaries.

[1] Currently BEAR Scotland

It is BBRCE policy to endeavour that the roads within O&M Works Site are kept open to traffic and minimise disruption to road users.

BBRCE's operatives will be available for winter services in accordance with the WSP at least one month prior to commencement of the winter period.

The Winter Service Plan specific to the O&M Works Site will be submitted to the Contracting Authority and Transport Scotland for approval.

2. Management arrangements

2.1 Winter Service Manager

The Operational Manager will act as the Winter Service Manager (WSM) and has the delegated responsibility for winter service decisions and operational actions. The nominated person for the role of WSM will be:

Name: Iain Campbell

Qualifications: Meteogroup Basic Road Meteorology, Vaisala Scenario Training

Experience: 21 years' experience in construction and highway works

He has the necessary experience in delivering winter service operations to ensure competent supervision and responsibility for all aspects of the winter service.

The WSM has delegated and overall responsibility for the winter service decisions, operational actions and ensuring compliance with the contract and the following activities:

- Road weather information and weather forecasting service
- Collection and management of weather data
- Approval of daily winter service decision making
- Plant and communications
- De-icing material stock levels and storage
- Staff and operative training and rosters
- Maintaining records
- Daily and annual reporting

2.2 Winter service duty officers

The names, qualifications and experience of the winter service duty officers (WSDOs) are shown below:

WSDO 1		WSDO 2		WSDO 3	
Name:	Iain Campbell	Name:	Paul Machell	Name:	Xan Flynn
Qualifications:	Meteogroup weather forecast training VIASALA winter scenario training	Qualifications:	Meteogroup weather forecast training VIASALA winter scenario training	Qualifications:	Meteogroup weather forecast training VIASALA winter scenario training
Experience:	21 years construction and highway works	Experience:	16 years road maintenance experience	Experience:	1½ years experience of winter service duty officer.

The WSDOs are contacted either at the operations depot or by mobile telephone during working hours or out with working hours. Contact details of personnel resources, including staff and operatives and mobile telephone numbers, are highlighted in appendix WSP4. If the WSDO requires to be contacted in an emergency situation, contact can be made through the BBRCE emergency number 07827 281104.

The WSDO will have relevant experience and training to be responsible for receiving weather information, taking decisions and initiating appropriate action for all winter events that take place during the period for which he or she is on duty. The WSDO will have received, as a minimum, basic road meteorology training, which includes the interpretation of weather forecasts to make informed winter maintenance decisions. Training certificates will be available for inspection. The WSDO will also be trained in the use of the road weather information and monitoring system.

The WSDO will approach the implementation of the winter service plan to ensure that the best service is delivered at all times, with an appropriate response to the prevailing weather conditions. The decision-making algorithm in appendix WSP8 will be used to facilitate the process, but decisions will not be restricted to its recommendations or necessarily be in accordance with the action flowchart on appendix WSP9. The WSDO may require to do more depending on weather conditions at the time and being forecast.

For co-ordination purposes, a supplementary information sheet containing key contact names within the adjacent agents and authorities is included as appendix WSP10.

Consultation will take place with the North East Management Trunk Road Unit, Aberdeenshire and Aberdeen City Councils with regard to any boundary issues relating to precautionary gritting, and to ensure the O&M Works Site and adjacent roads are adequately serviced. These consultations will also include discussions regarding mutual aid arrangements.

2.3 Monitoring arrangements

During normal working hours, winter weather monitoring will be will be carried out by the WSDO at the depot, using an Internet link to the weather forecast provider and computerised road weather information system. In the event of a breakdown in the Internet link, access to the weather forecast provider will be maintained through wireless connection, using a smart phone or laptop with WiFi,

until such time as the link is re-established. Communication links will be maintained with the providers at all times via telephone.

Monitoring arrangements out with normal working hours will continue at the WSDO's home using an Internet link to the weather forecast provider and computerised road weather information systems. In the event of a breakdown in the Internet link, connection will again be maintained using a smart phone or laptop with WiFi.

In the event of power failure, the WSDO will call on the services of other WSDOs within and/or out with this specific contract such as M77/GSO or CNDR DBFO contracts. Communication links will be maintained with the providers at all times via telephone.

2.4 Personnel resources

The names of staff and labour resources are detailed in appendix WSP4 in the Winter Service Plan.

2.5 Call-out arrangements

All call-out arrangements during or out with normal working hours will be co-ordinated by the WSDO. He will ensure that a sufficient number of operatives are called and instructed to carry out the appropriate winter service. Mobilisation will be immediate with treatment commencing within one hour of the call. All contacts will be made via mobile telephone.

2.6 Communications equipment

At Full Services all winter service fleet vehicles will be fitted with hands free mobile telephone systems. The winter service patrols will also use the encrypted digital radio communications, Airwave. BBRCE will ensure that all codes of practice are adhered to in accordance with the licence.

2.7 Training for managers and other staff

The WSM and WSDOs have all received training in Basic Road Meteorology, provided by Meteogroup. Any new personnel will receive this training before assuming a position in the winter service team. All drivers are trained to City and Guild standard. The WSM will attend any annual winter conferences when required.

All winter service staff and operatives will be annually inducted into the Winter Service Plan and any required refresher training. Toolbox talks will be used to keep all staff up-to-date with any industrial innovation and technical advice regarding winter service.

3. Weather forecasting

3.1 Purpose

The purpose of the weather forecasting is to produce accurate information to allow the Winter Service Duty Officers to make an accurate winter decisions. This will allow the WSDO to plan the winter service operations during the following 24 hour period to ensure the safe movement of road users and to minimise delays caused by snow and ice.

3.2 Methodology

The weather forecasting service will be provided by Meteogroup. They will utilise information from the road ice sensors within the local area to give detailed forecasts for the climate domain.

3.3 Winter forecasting service

BBRCE will have access to an expert weather forecasting service, consented to in writing by the Contracting Authority, throughout the Contract Period.

From 1 October to 15 May, weather forecasts for a 24-hour period will be issued daily by the weather forecasting provider. These will be transmitted to the forecasting organisation's web-based viewer to facilitate interrogation of the disseminated data. The web-based viewer will be available at the operational depot and to all WSDOs and provide the following forecast data:

- By 1300 hours:
  - 24 hour forecast
  - 2-5 day outlook
  - Prediction graphs for outstations
- By 1900 hours:
  - Updated prediction graphs when the 1300 hours minimum road surface temperature prediction is below +3ºC

Further amendments as advised throughout the 24-hour period.

All amendments to the forecast will be advised by telephone from the weather forecast provider to the WSDO.

A portable computer will be available to the WSDO to enable access at all times to the weather forecasting and computerised road weather information systems which will act as a backup if in any occasion the web-based station is down.

A 24-hour consultancy service is available from Meteogroup, not only to answer specific queries, but also to be made aware of actions being taken in response to forecasts. This helps the forecaster in deciding the need to update information to BBRCE.

Meteogroup will confirm the number of climatic domains within the O&M Works Site which the roads pass through. The weather forecasting provider will, therefore, confirm that forecast provision will be based on the number of climatic domains.

Weather radar will be available via the Meteogroup website.

3.4 Computer system

The computerised road weather information system (CRWIS) will assist the WSDO in the decision making process for the winter operations. This system will be provided by Vaisala

The CRWIS will be set to poll road ice sensor outstations at 20-minute intervals during the winter service period and hourly at all other times.

The existing stations may be fitted with weather cameras which will be polled every ten minutes throughout the year, with the images delivered to the Traffic Scotland Service website.

The CRWIS has an archive facility which will back up the data from the system on a regular basis, allowing incoming road meteorology forecasts issued by the forecast provider to be captured and stored. The provider also backs up their whole system and information can be retrieved for the purpose of audit and any potential third party claims. All proposed actions will be sent out by e-mails to designated persons.

If in the unlikely event that the CRWIS fails for any reason, the WSDO can contact the 24-hour CRWIS helpdesk and/or the weather forecast provider consultancy service for assistance.

There are currently four existing weather stations within the vicinity of the project network, located at:

- A96 Tyrebagger (forecast site)
- A90 Bridge of Don
- A90 North Anderson Drive
- A90 Charleston

A location plan highlighting the stations is shown in appendix WSP6.

All road sensors will have pre and mid-season maintenance and calibration checks which will be carried out by BEAR Scotland, as the sensors are not located on the AWPR network. Any defects noted with sensors through Vaisala are reported during the weekly Transport Scotland Conference call.

If available, thermal mapping is an additional tool utilised in the decision making process for precautionary salting and is used to highlight potential cold spots on the network which may require treatment The thermal mapping system is driven from the forecast minimum temperatures with an updated thermal map produced at the time of each revised forecast.

All computer systems available will be able to interpret all winter service information with suitable software and accessibility at all times during the winter service period to all WSDOs as well as the WSM.

4. Monitoring arrangements for areas requiring special attention

Areas susceptible to frost and surface water runoff will be identified and highlighted in appendix WSP12 of this plan. Any susceptible areas which are reported to the WSDO by patrol and salting vehicle drivers will be included in the Winter Service Plan.

These areas will include:

- Areas susceptible to water runoff
- Differing surfacing materials
- Elevated sections of roads or bridges
- Sections of roads in low ground
- Sections of road with challenging geometry and vulnerable gradient
- Controlling access to key routes

Appendix WSP12 will be developed as areas are identified by treatment and patrol drivers on carrying out their winter service duties.

Salt heaps will be placed where vulnerable gradient are identified as problem areas and need special attention.

Traffic management arrangement will be in place for controlling access to key routes when required.

5. Adverse weather conditions

In extreme conditions of heavy snow, high winds, heavy rainfall or freezing rain, it is important that communications and decision making are carried out on time and accurate. During these adverse conditions experience on the roads will be communicated to all interested parties including Traffic Scotland through the automated diary facility and the MART if in operation. The form in WSP11 sets out the information required.

6. Decision making

6.1 Role of the Winter Service Manager

The WSM will be responsible for ensuring delivery of the winter service operation as set out in the winter service plan.

6.2 Role of the Winter Service Duty Officer

The WSDO will be responsible for:

- Collecting all weather forecast information and making winter decisions
- Recoding and instructing treatment based on decision taken
- Liaison with Contracting Authority, Police Scotland and neighbouring roads authorities and operating companies
- Monitoring actual weather and road conditions
- Amending treatments if required
- Keeping records of all communications, treatments, road blockages, weather and road conditions
- Responding to enquiries from the public and media
- Advising the WSM of conditions, when required

6.3 Decision process

For planning and operational purposes, three winter service periods are defined as follows:

High	The months of December, January and February, when severe conditions might reasonably be expected.
Low	The months of November and March, when severe conditions may occur.
Marginal	The months of October, April and May, when severe conditions are not expected, but will be continually monitored with appropriate action taken when required

Winter service operations will be undertaken by BBRCE from 1 October to 15 May. BBRCE will have appropriately qualified staff available to carry out all required winter service duties. BBRCE will have sufficient resources available on a normal and standby basis to cover precautionary salting actions within a total treatment and response time of three hours. Additional staff will be available to enable 24-hour continuous operation, when required. The definitions of the highlighted terms are:

Normal	On duty based at the depot during normal working hours.
Standby	Personnel available at the depot no more than one hour after being called out.
Continuous	On duty based at the depot on a 24-hour/day basis.

The WSDO will utilise the criteria for minimum precautionary treatment and salt spreading rates, when instructing treatment, as detailed in the following tables.

<table>
<tr><th colspan="2">Decision Matrix Guide</th><th colspan="3" rowspan="2">Predicted road conditions</th></tr>
<tr><th>Road surface temperature</th><th>Precipitation etc.</th></tr>
<tr><td>May fall below +1ºC</td><td>No rain
No hoar frost
No fog</td><td>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="5">Expected to fall below 1ºC</td><td>No rain
No hoar frost
No fog</td><td rowspan="3"></td><td></td><td></td></tr>
<tr><td>Expected hoar
Frost
Expected fog</td><td colspan="2">Salt before frost
(see note B)</td></tr>
<tr><td>Expected rain
BEFORE freezing</td><td colspan="3">Salt after rain stops</td></tr>
<tr><td>Expected rain
DURING freezing</td><td colspan="3">Salt before frost and after rain stops
(see note C)</td></tr>
<tr><td>Possible rain
Possible hoar
Frost
Possible fog</td><td colspan="2">Salt before frost</td><td>Monitor weather conditions</td></tr>
<tr><td colspan="2">Expected snow</td><td colspan="3">Salt before snow fall</td></tr>
<tr><td rowspan="3">Freezing rain</td><td rowspan="3">Before rain
During rain
After 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 warning 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 becomes 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. Please refer to appendix WSP14 for guidance when dealing with freezing rain.

Forecast weather	Frost susceptible/surface water run off area (g/m²)	Road surface wet (g/m²)
A. RST higher than plus 1 °C	0	0
B. RST lower than or equal to plus 1 °C but higher than minus 2 °C	10 to 20	10 to 20
C. RST lower than or equal to minus 2 °C but higher than minus 5 °C	10 to 20	10 to 20
D. RST lower than or equal to minus 5 °C	20	20
E. RST lower than or equal to plus 1 °C but higher than minus 2 °C following rain.	20	30
F. RST lower than or equal to minus 2 °C but higher than minus 5 °C following rain.	30	40
G. RST lower than or equal to minus 5 °C following rain.	40	40
H. Hoar frost	20	20
I. Freezing fog	10	20
J. Freezing rain	40 (See decision matrix)	40 (See decision matrix)
K. Snow accumulations up to 30mm	30	40
L. Snow accumulations over 30mm	40	40
M. Hard packed snow/ice	See clearance matrix	See clearance matrix

Precautionary treatment: liquid magnesium chloride spreading rates

Forecast conditions	Spread rate (l/m²)
Road surface temperature lower than or equal to +1°C but higher than -2°C	0.0156
Road surface temperature lower than or equal to -2°C but higher than - 5°C	0.0312
Frost and road surface temperature lower than -5°C	A minimum of 0.0312 which should be increased with manufacturer's recommendations
Snow	
Freezing conditions after rain	

Alternative de-icing agent spreading rates will be in accordance with manufacturers' recommendations.

Snow or ice clearance salt spreading rates:

Clearance Matrix			
Minimum salt spread rates for snow or ice clearance			
	Treatment		
Road surface conditions	Spreading (g/m²) Salt	Ploughing	Blowing
Ice Formed	20 to 40	No	No
Snow covering of less than 30mm	20	Yes	No
Snow covering exceeds 30mm	20 to 40	Yes	No
Snow accumulations due to prolonged snowfall	20 to 40	Yes (continuous)	Where applicable
Hard packed snow/ice less than 20mm thick	20 to 40 (continuous treatments in a single pass during snowfall)	No	No
Hard packed snow/ice	Salt/abrasive (continuous treatments in a single pass during snowfall)	No	No

Note: The figures shown in the above tables are for dry salt applications

The text forecast provided by the weather forecast provider will be the primary factor in deciding upon the appropriate action to be taken.

All standard forms are proposed action and communications log are shown in appendix WSP11.

Treatment times for precautionary salting will not exceed two hours. The maximum combined response/treatment time during any winter service period will not exceed three hours. BBRCE will undertake internal audits of the winter operations to ensure that contractual response times are being achieved.

Outside normal working hours the winter service operations will be controlled by the WSDO, who has 24-hour communication access to the operational personnel.

Clear communication channels will be established between the WSDO, adjacent agents and authorities and Traffic Scotland by email and telephone. It is BBRCE's intention that a consistent approach to winter service operations can be established between adjacent agents and authorities, e.g. times of gritting. However, it should be noted that forecast information may vary between all parties; therefore, a consistent approach may not always be possible.

If the decisions and appropriate actions differ between the adjacent authorities, the WSDO will contact the weather forecaster and the authorities to ensure a correct and appropriate decision has been made for each party concerned.

Contact details for adjacent agents and authorities are detailed in appendix WSP10.

The WSDO will liaise with the appropriate persons and the media (if requested by Transport Scotland) on a day-to-day basis, as appropriate to the conditions.

BBRCE will distribute copies of proposed actions, by email, to adjacent agents, authorities and Police.

Full use will be made of the weather forecast and CRWIS to determine the optimum time to commence precautionary salting.

If any part of the network road surface has stone mastic asphalt, residual salt in an open texture surface will be negligible.

When the forecast is marginal and the confidence is low, the WSDO will err on the side of caution and instruct a precautionary treatment and/or additional de-icing treatments.

Following any precautionary treatment, the WSDO will monitor weather forecasts and actual weather conditions to ensure the on-going effectiveness of the treatment and to instruct further treatment if required. Actual weather conditions will be monitored through data from the computerised road weather information system and the forecast provider.

In the event of hoar frost, black ice or freezing fog being forecast, precautionary salting will be carried out even if the roads are dry. In the event of frost forecast after rain, precautionary salting will be delayed until cessation of precipitation to reduce loss of salt by runoff unless precipitation occurs at the time of forecast frost. In the event of precipitation occurring unexpectedly before forecast frost, all affected parts of the project roads will be inspected and, if required, corrective action will be taken before the forecast frost to re-salt any previously salted parts of the project road where salt has been lost due to runoff.

Should un-forecasted hoar frost or freezing fog occur causing the road surface to become icy, the WSDO will deploy callout treatment for immediate salting of any affected routes as soon as the conditions are reported, unless thawing is likely before salting can begin.

In the event of any queries regarding decisions made by the WSDOs or no treatment is planned when a red code readiness is forecast, then a senior member of staff will be informed.

The phenomenon of low temperatures combined with low humidity will usually occur during December and January when the general weather pattern is dominated by cold, relatively dry air, usually coming from a northerly or easterly direction accompanied by winds of between 15 and 30mph.

On receipt of forecasts suggesting a likely low temperature/low humidity event, the WSDO will consider this when instructing precautionary treatments by instructing pre-wetted salt.

Winter service records will be retained for the minimum period and will include, but will not be limited to, the following information:

- Weather reports
- Decisions and action taken
- Action taken
- Route length treated
- Response times
- Plant and manpower deployed
- Hours worked

- Salt usage
- Communication logs, number and nature of complaints
- Road sensor calibration certificates
- Winter constructional plant calibration certificates
- Actual salt stocks held including strategic salt stock records

6.4 Reports

Throughout the winter service period, the WSDO will prepare the following reports:

- Daily, before 0900 hours – a road condition statement that will include a summary of any overnight problems, actions taken, the present road condition and any ongoing actions
- A weekly summary of forecasts received, actions taken and daily salt usage and current salt stocks. Salt usage will be related to the daily forecast and will therefore cover the period 1200 hours – 1200 hours. The scheduled routine weather forecasts are accessible on the computer at any time. In the event of unscheduled forecast updates the forecasting organisation will inform the WSDO, who will in turn verify the changes on his or her own computer and notify the operatives of any change in the proposed action.
- Any major incident arising on the roads within the O&M Works Site as a result of winter conditions will be notified immediately to the Contracting Authority by telephone. A written report will be provided to the Contracting Authority, on request, within 12 hours of becoming aware of the incident.
- A winter service annual report including an executive summary will be produced by 31 May, in accordance with the Project Agreement. Prior to 15 June, the company will convene a meeting with the Contracting Authority to review the company's operations. In turn, a winter service plan will be submitted by 30 July containing proposals and recommendations for future winter service operations.

6.5 Road closures and snow gates operational procedures

All decisions regarding road closures will be the responsibility of the Police. Once a decision has been made to close any part of the network, BBRCE will assist the Police, as necessary, to implement the closure.

No snow gates are located within the O&M Works Site.

6.6 Activation of snow and ice and hidden message signs

No hidden message signs are within the O&M Works Site at this time.

BBRCE will liaise with the Traffic Scotland Service Provider to ensure that appropriate safety information and messages are conveyed to the road user utilising the variable message signs in operation throughout the O&M Works Site.

6.7 Mobile sensors

All front line spreaders will be fitted with air and road surface sensors that will be displayed to the drivers and feed live information to a website available to the WSDO.

7. Liaison

7.1 Contracting Authority

Contracting Authority staff will be informed daily of all the planned action for precautionary treatments. They will also be informed of adverse weather and/or severe travelling conditions which are likely to affect the public.

During periods of prolonged severe weather, the duty officer will liaise with the Contracting Authority at regular intervals to provide updates on the condition within the Project Roads.

If any of the Project Roads are closed by Police due to severe weather, the duty officer will advise the Contracting Authority by email notification.

Contact details for Contracting Authority staff are shown in appendix WSP10.

7.2 Transport Scotland

If required by Transport Scotland, BBRCE will form part of the Multi Agency Response Team (MART) in times of severe weather. MART strategy meetings will take place at the Traffic Scotland Control Centre in South Queensferry.

At the request of the Transport Scotland, the duty officer will take part in daily and weekly conference calls with Transport Scotland, Operating Companies and other DBFO companies.

Contact details for Transport Scotland staff are shown in appendix WSP10.

7.3 Police Scotland

BBRCE will work closely with the Police throughout the winter service period, informing them daily of all planned action for precautionary treatments.

In the event of adverse weather and/or severe travelling conditions, Police assistance may be necessary to assist in manoeuvring winter service fleet, assisting in road closures and dealing with abandoned vehicles.

Good communication with the Police is essential to relay any communication to MART and/or the media to provide the road user with important information.

Contact details for the Police are shown in appendix WSP10.

7.4 Traffic Scotland Operator

The Traffic Scotland Operator will be informed daily of all planned action for precautionary treatments.

During periods of adverse winter weather, Traffic Scotland will be informed by telephone and email of all known effects on the network to allow appropriate signage to be used to inform the travelling public.

Contact details for Traffic Scotland are shown in appendix WSP10.

7.5 Adjacent roads authorities

The adjacent roads authorities will be informed daily of all planned action for precautionary treatments.

Prior to the start of each winter period, liaison with the local authorities will be carried out to ensure that there is complete coverage of the network including the adjacent roads as well as side roads which are the responsibility of the O&M Works Contractor.

Contact details for the adjacent roads authorities are shown in appendix WSP10. These details will also be used if assistance or mutual aid is required.

7.6 Adjacent trunk road operating companies

The North East Trunk Road Unit will be informed on a daily basis of all planned action for precautionary treatments.

If treatment decisions differ to a great extent between the adjacent operating companies and local authorities, the WSDO will contact the appropriate person within each of the units to discuss a uniform approach to treatments. This is all based on the weather forecast provided.

At all times, BBRCE will take appropriate action necessary to ensure the safety of users of the project roads, irrespective of the treatment approach adopted by any third party.

Prior to the start of each winter period, liaison with the trunk road authorities will be carried out to ensure that there is complete coverage of the network including the adjacent roads

Contact details for the trunk road operating are shown in appendix WSP10. These details will also be used if assistance or mutual aid is required.

7.7 Network Rail

BBRCE will liaise with Network Rail to ensure that appropriate safety precautions are taken when snow ploughing or snow blowing operations are undertaken in the vicinity of the railway. Care will be taken to ensure that snow will not build up across or against railway tracks, gates, bridge parapets, fences, walls and other boundaries.

Where snow clearance is to be carried out adjacent to railway overhead electricity cables, special care will be exercised to ensure snow will not cause electrical short circuits or other damage.

There are no railway level crossings within the O&M Works Site.

7.8 Pipeline companies

BBRCE will liaise with pipeline companies to ensure that appropriate precautions are taken when snow ploughing or snow blowing operations are undertaken in the vicinity of the pipelines. Care will be taken to ensure that snow will not build up across the structures of the pipeline and to maintain access at all times

7.9 Private landowners

BBRCE will liaise, when required, with private landowners to ensure there are no issues with adjacent land.

8. Mutual aid arrangements

Mutual aid can be provided in various sources and from various third parties to and from the Company. This section will be further developed before the start of the first winter season.

BBRCE will investigate various sources for labour, plant and rock salt within its own organisation, the Balfour Beatty Group and the ARL consortium partners, as well as locally from the adjacent local roads authorities, trunk road management units, and Transport Scotland strategic salt stocks.

Balfour Beatty is a member of the Scotland TranServ Joint Venture Company which can be relied upon to provide mutual aid, should the need arise.

BBRCE will arrange a start-of-season meeting as well as the contracted end-of-season meeting. The adjacent authorities and North East Management Unit will be invited to attend to discuss what

level of mutual aid would be required and to develop a resilience plan between the interested parties. This plan can then be reviewed and the end of the season and modified, where required, for the following winter service period.

If BBRCE receives a request for mutual aid from any organisation, adjacent authority, operating company, service station or local airport, etc., for the supply of salt and/or equipment, this will be reviewed by BBRCE and will be dependent on the circumstances at the time.

Contact details for mutual aid providers will be provided in Appendix WSP10.

9. Winter service patrols

The main purpose of winter service patrols shall be to identify sections of the route where ice may be forming at an early stage and provide advance warning of potential adverse conditions.

When the forecast provider is predicting road surface temperatures of +3ºC or below, winter service patrols will be instructed.

The winter service patrol routes are detailed in Appendix WSP2.

Operatives will follow a prescribed route for the patrol in a loaded pre-wetted gritter. The gritters will concentrate to patrolling all carriageways, excluding the slip roads. Should ice/hoar frost be encountered, the duty operatives will notify the WSDO and seek further instruction. This will provide immediate treatment when instructed.

Usually, patrols will be undertaken during the period 1 November to 31 March inclusive. The winter service patrols will operate from 02:00 to 10:00 hours as the forecast road temperatures dictates. These patrols will be completed within the one hour.

Where patrols are instructed, they will take place not less than one hour driving and cover the whole patrol route with one hour standby throughout the period where the road temperature remains below 3ºC. It should be noted that patrols may also be instructed at the discretion of the WSDO outside this period should marginal conditions prevail. The patrols will be able to attend any location within 30 minutes of receiving a call from the WSDO.

If the situation cannot be resolved by the winter patrols, the operative will inform the WSDO and additional resources will be deployed to address the problem.

During the hours of 02:00 hours and 10:00 hours, the patrol vehicle will only be used for the sole use of patrolling. During all other times these vehicles may be used to assist in snow and/or ice clearance operations.

Maps and descriptions of the patrol routes and relevant monitoring forms are provided in Appendix WSP2.

10. Treatment routes

Maps and descriptions of the salting routes for 10, 20 and 40 gramme treatments and depot location are detailed in appendix WSP2.

All treatments will be carried out on a single pass within a two-hour period.

Prior to the commencement of pre-salting operations, salt spreading plant will be subject to dry running to ensure compliance with the salting route duration requirements and to prove mechanical worthiness. Dry running will include for the fitting of ploughs and other associated equipment. Records of dry runs will be produced.

All treatment routes will be treated from available access points. This will be dependent on any road closures or blockages which have occurred. At present, no locations have been identified where alternative access cannot be obtained.

11. Snow and ice clearance

When a snow warning is received, precautionary salting will be carried out on all routes. Snowploughs will be fitted to appropriate vehicles on commencement of snowfall.

Snowploughing will not normally take place if the depth of snow is less than 30mm.

If precautionary salting has been carried out before the snowfall and the depth of snow reaches 30mm then ploughing with simultaneous salting will be carried out.

If precautionary salting has not been carried out and the depth of snow is less than 30mm, salting only will be carried out.

If precautionary salting has not been carried out and the depth of snow exceeds 30mm, simultaneous salting and ploughing will be undertaken.

On dual carriageways and multi-lane roads, echelon ploughing will be used, when required. Only the right hand lane will be ploughed to the central reservation and will be undertaken in such a manner as to not deposit snow from more than two lanes into the central reserve. No snow will be deposited onto areas below elevated carriageways, multi-level or grade separated junctions.

Ploughing of slip roads will be undertaken as soon as practically possible following the clearance of the main carriageway nearside lane so as to ensure a single lane (each way) of the network is operable. Only when this single lane of network has been secured will ploughing operations commence in the offside lanes of dual carriageways and slip roads.

Lighter falls may call for ploughing where local drifting has occurred or to remove snow not dispersed by traffic, e.g. where traffic is reluctant to use offside lanes or at night when traffic is light.

Ploughing will continue for as long as necessary to clear all routes. It is important that the whole of the O&M Works roads and associated roads are cleared and that no area is abandoned for the sake of concentrating resources on localised areas. In all cases, therefore, the defined precautionary salting routes will be adhered to for snow ploughing. Where conditions demand a more intensive treatment in specific areas, a reserve vehicle will be called out to attend such areas.

Where reasonably practical, ploughing will be undertaken to join with neighbouring authorities operations to provide consistent clearance of the larger network. BBRCE will endeavour to advise adjacent authorities when ploughing operations are to commence.

In all ploughing conditions, care will be taken to ensure that any resulting windrows are kept to a minimum and removed as soon as possible so not to obstruct the flow of water to highway drainage outlets and to ensure that road marking and road studs are visible.

It may not be possible to remove deep accumulations of snow or snowdrifts by normal ploughing and the use of other mechanical plant, including snow blowers, may be necessary.

In exceptionally adverse conditions, BBRCE will instigate previously arranged plans to use other plant and labour such as farmers' tractors and loading shovels and plant hires as described in appendix WSP5.

Periods of exceptionally heavy snowfall may require temporary storage of accumulated snow. The WSDO will decide the most appropriate storage option, based on the prevailing conditions, which

could include stockpiling within depot/layby holding areas or using alternative storage facilities either on or off site.

Should extreme conditions persist and road closures have to be considered, then the WSDO will consult with the Police and contact Traffic Scotland staff and advise them accordingly. There are no snow gates on this network.

Although salt will melt ice and snow at temperatures as low as -20ºC, the amount required to be effective at temperatures below -10ºC becomes environmentally and economically undesirable. Salt will therefore be applied at the rates shown in section 5.3 – Decision Process.

Use of salt alone to treat hard packed snow and ice must be carried out with caution as this can cause and uneven and slippery surface in low temperatures. In exceptional circumstances, a single size abrasive aggregate will be applied either separately or mixed with the salt. This application is purely to assist traction and does nothing to clear snow or ice and its use will be discontinued as soon as possible to avoid blocking of gullies and drains on thawing.

Precautionary treatments will be carried out on footways when surface temperatures are forecast to fall to less than or equal to +1°C or when snow is expected. This operation will be carried out separately to the carriageway treatment.

The response times for clearing snow or ice from footways, footbridges and cycling facilities will be as follows:

- Footways and footbridges will be cleared of all snow and ice by 08:00 or within two hours of snow ceasing to fall during the period of 06:00 to 18:00 hours
- Cycling facilities will be cleared of all snow and ice by 17:00 hours the following weekday (if the following day is a Saturday or Sunday then the area will be cleared on the next Monday)

The extents of the area of treatments for non-motorised user facilities are shown in appendix WSP12.

Arrangements will be made to keep drains and drainage channels clear to deal with floodwater in the event of a rapid thaw.

After periods of snow and frost, arrangements will be made to inspect the roads for frost damage and, where necessary in the interests of safety, carry out temporary or permanent repair.

Maintenance works will be undertaken by the operatives in accordance with BBRCE health and safety risk assessments and method statements.

During periods of prolonged snow events, once the main project roads are completely free of snow and the footway, cycle ways and footbridges have been attended to, BBRCE will progress to clearing the access roads identified in the Land Made Available drawings in accordance with the level of service for access roads.

12. De-icing materials

Salt will be kept dry under a covered enclosure and should not exceed a moisture content greater than 4%. Dry salt is easier to handle and can be more accurately spread at the specified rates with the equipment available.

Runoff from the salt will be collected by a positive drainage system, approved by SEPA, within the depot.

Steps will be taken to ensure that salt is correctly rotated in use and that old salt is not allowed to accumulate at the end of each season.

All salt for treatment purposes will be ordered through BBRCE.

BBRCE will arrange for salt stocks to be periodically tested at monthly intervals to the current British Standard (BS 3247) for grading and, in addition, for moisture content and density, and will endeavour to arrange that testing commences at the beginning of each season, or will only order salt from quality assured suppliers. As a minimum, the salt will be tested at the base, centre and top of the stockpile.

Close monitoring of salt stocks will be carried out and monthly reported to the Contracting Authority. Details of the salt stock monitoring reports which will be produced are provided in Appendix WSP3.

When conditions are appropriate, pre-wetted salt will be applied as treatment to the carriageway. The percentage of brine added to dry 6.3mm salt will not exceed 30% of the total spread material (70% salt/30% brine solution).

When temperatures are forecast to fall below -15°C the fully saturated brine will be diluted by the addition of water.

Sufficient brine will be stored at the depot. These stores will be replenished within two hours of being depleted.

Alternative de-icing materials may be required for use in extreme circumstances. BBRCE will store 5,000 litres of alternative de-icing material for use and will replenish the stock before it is reduced to a minimum of 2,000 litres.

Details of salt stockpiles are included as appendix WSP3. Records of salt usage and stockpiles will be closely monitored and recorded weekly on the Scottish Salt Group website portal during the winter period.

13. Winter constructional plant

All frontline, reserve and additional winter service plant described in appendix WSP5 will be used for winter service functions on the O&M Works Site roads and associated roads. Salt spreading vehicles used on the network will be fitted with data logger and utilise GPRS satellite positioning when operational.

Major servicing of the vehicles, including the reserve vehicle, will take place before 1 October.

Routine servicing, comprising a daily vehicle check when operational and an eight-weekly vehicle inspection will be undertaken.

BBRCE will appoint a vehicle maintenance company that will be available on call 24-hours per day during the whole winter maintenance season to deal with any defects of the gritting vehicle, spreading equipment or loading shovel.

All vehicles, plant and equipment will be provided by Balfour Beatty Fleet Services and available for use at the depot during the winter service period. Biannual calibration checks will be carried out during September and January. Calibration checks will also be carried out on any spreader that has undergone repair to the hopper and spinner mechanism, prior to it coming back into service.

All winter service vehicles will have a radio or hands free telephone and on-board data capture equipment within each vehicle.

All additional winter constructional plant will be sourced from Balfour Beatty Fleet Services, local quarry operators, contractor operators, haulage companies. A list of additional resources is detailed in appendix WSP5.

In the event of extreme conditions, additional resources will be brought in including the use a snow blowers if required from specified suppliers as described in appendix WSP5.

BBRCE will have access to the Scottish Ministers' two icebreakers (Raiko P16) and these will be available on a priority basis, as determined by the Scottish Ministers.

14. Welfare kits

All winter service patrol vehicles will carry welfare kits to be distributed to stranded motorists. The vehicles will have on board a minimum of 24 kits, which will include the following:

- Space blankets
- Bottles of water
- Energy bars

15. Compounds, depots and facilities

The operations described within this Winter Service Plan will be run from the operational depot in the Aberdeenshire Council Roads Department Compound in Ellon.

A schedule and location plan will be detailed in Appendix WSP2.

16. Maps, drawings and geographical information

All maps, drawing and graphical information are shown on the appendices including precautionary treatments, forecast site location and road sensors.

17. Compiling and maintaining records

The following list details the records which will be kept electronically and held on site:

- Daily winter service sheets
- Communications sheet
- Accidents resulting from weather conditions
- Complaints resulting from weather conditions
- Dry run records
- Downtime records for vehicles, hardware and software
- Summary of road blockages
- Operator's log
- Salt usage
- 24 period reports on planned and previous treatment

Appendix WSP11 contains copies of all the proposed forms to be used.

18. Variable message, snow, ice and hidden message signs

At present, there are no snow, ice or hidden message signs proposed within the O&M Works Site.

In the event of severe weather conditions and/or any road being blocked due to an accident or snow, the WSDO will contact the Traffic Scotland Service Provider to request that appropriate traffic and safety information is displayed on the Traffic Scotland variable message signs.

19. Salt bins and self-help salt heap

Salt bins or heaps will not be used unless particular problems such as regular water flow from a verge, occurs. In such cases temporary use of a salt bin or heap will be made until a permanent solution can be found.

In exceptional circumstances where it would benefit the service to road users, the use of salt bins containing grit or a mixture of salt and grit may be considered for difficult footway areas, i.e. approaches to footbridges and subways, well used footpaths on steep gradients, etc. Their use should be considered carefully, bearing in mind the resources available for spreading grit and the subsequent increased cleansing requirements.

Any salt bins installed within the O&M Works Site will be monitored during the weekly safety inspections and replenished where necessary.

20. Salt measurement apparatus

Measuring facilities will be available at the loading point to establish total quantities of de-icing materials being used on each precautionary treatment.

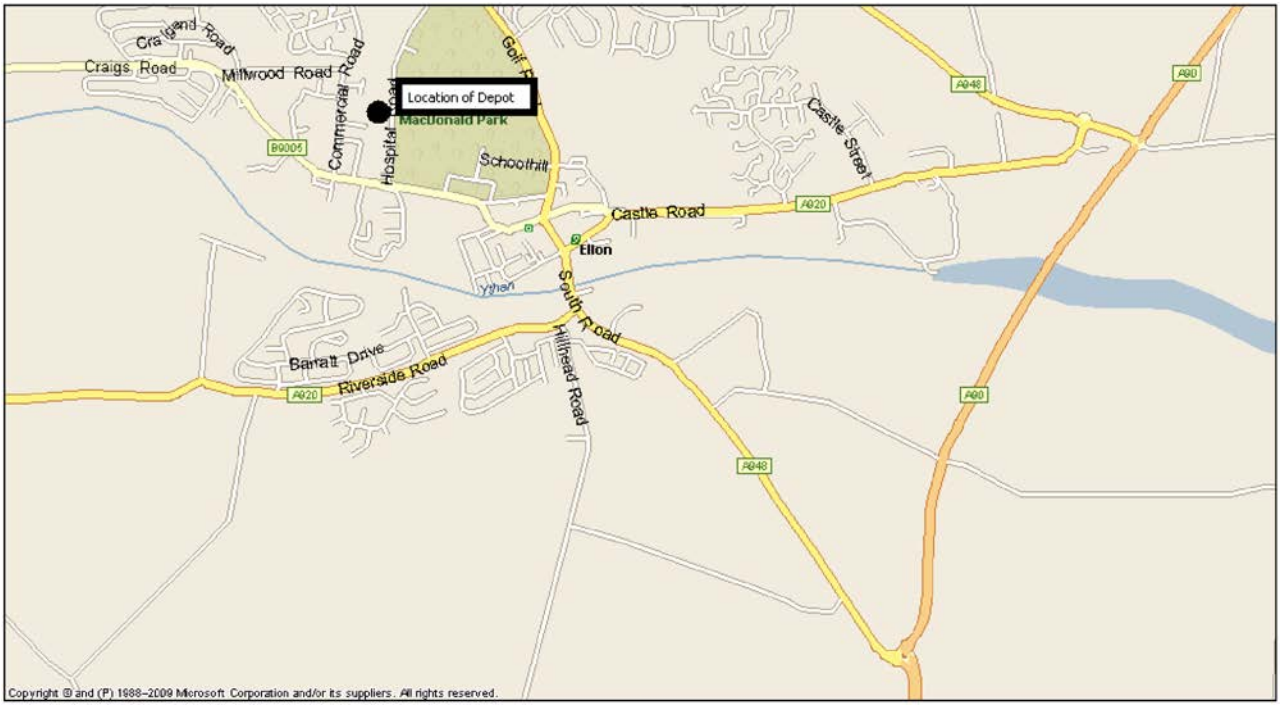
Appendix WSP1: Areas of responsibility

Ref	Route length (km)	Full description
A	17.2 km	A90 Junction with B999 to Ellon Roundabout, South of Ellon
B	0.58 km	Craibstone Roundabout (PTU1)

Appendix WSP2: Treatment salting and patrol routes

The routes defined below will be followed in order to treat the Project Roads during the winter season.

Depot location



The Winter Service will be delivered from a depot within the Aberdeenshire Council Roads Department Compound, Hospital Road, Ellon.

Route 1: Restricted Services

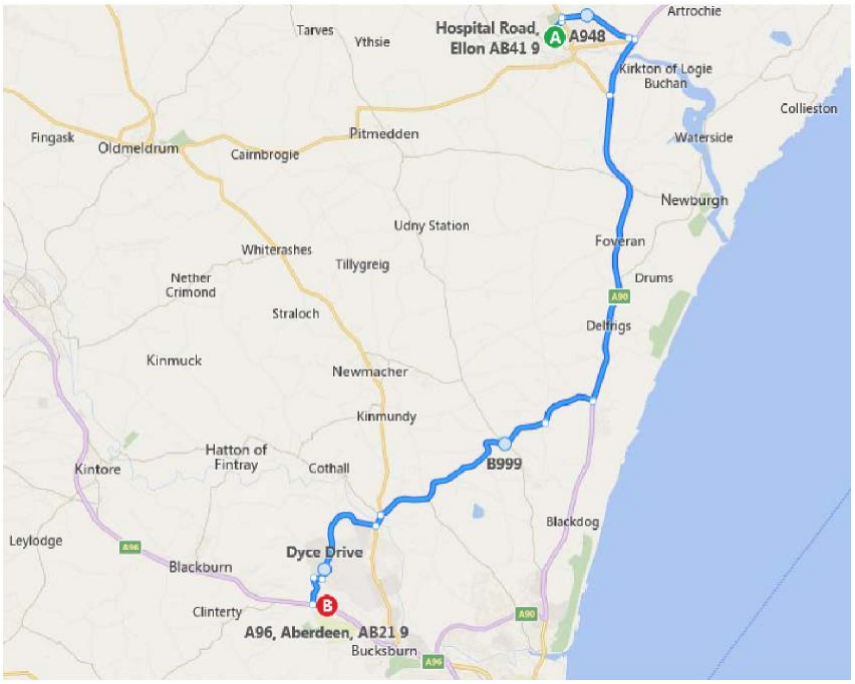
Precautionary salting route	Restricted Service
Road	A90 Ellon Roundabout to Bridge of Don

Depot	Aberdeenshire Council Roads Department Depot, Hospital Road, Ellon
Description	A90
Depot to route (km)	5.8km
De-icing length (km)	24.5km
Average speed (km/h)	48km/h
Route time (mins)	38 minutes
Route to depot (km)	5.8km
Average width of route (m)	9.3m
Route tonnage at: • 10 g/m² • 20 g/m² • 40 g/m²	 • 1.77t • 3.54t • 7.08t
Treatment type	Wet salting

Route number	Route 1	Route description	A90 – Ellon Roundabout to Bridge of Don (Restricted Services)
Base compound	Aberdeenshire Roads Department Depot, Hospital Road. Ellon		

Part	Description	Action (Travel/Treat)
1	Travel to roundabout at Ellon	Travel
2	From start of dual carriageway southbound to end of dual carriageway	Treat
3	From start of single carriageway to start of dual carriageway, at Balmedie	Treat
4	From start of dual carriageway at Balmedie to B999	Treat
5	Turn at B999 roundabout and back up dual carriageway to Balmedie	Treat
6	Free travel north between dual carriageway sections	Travel
7	from start of dual carriageway to Ellon roundabout	Treat
8	End of route, return to depot	Travel

Route 2: Craibstone Roundabout

Precautionary salting route	PTU1
Road	Craibstone Roundabout
	
Depot	Aberdeenshire Council Roads Department Depot, Hospital Road, Ellon
Description	A96 (O&M Road)
Depot to route (km)	32.5km
De-icing length (km)	0.58km
Average speed (km/h)	48km/h
Route time (mins)	41 minutes
Route to depot (km)	32.5km
Average width of route (m)	13.2m
Route tonnage at: • 10 g/m² • 20 g/m² • 40 g/m²	 • 0.076t • 0.152t • 0.304t
Treatment type	Wet salting

Route number	2	Route description	Craibstone Roundabout (PTU1)
Base compound	Aberdeenshire Roads Department Depot, Hospital Road. Ellon		

Part	Description	Action (Travel/Treat)
1	Travel to roundabout at Ellon	Travel
2	Ellon to A90/B977 Junction	Travel
3	B977 Junction to Junction with B999	Travel
4	Turn to B977 toward Dyce	Travel
5	Turn left on A947, travel to junction turn onto Dyce Drive.	Travel
6	Travel to Junction with A96	Travel
7	Travel North on A96 to Craibstone Roundabout	Travel
8	Treat Roundabout and AWPR Access Road (50m)	Treat
9	End of route, return to depot	Travel

Patrol routes

Road number	Location	Category
A90	Ellon roundabout to junction with B999 and PTU1 Craibstone	A

Category	A	
Route	Restricted Services Patrol & PTU1	
Depot	Aberdeenshire Roads Department Depot, Hospital Road, Ellon	
Description	Ellon roundabout to B999 junction with A90 to Craibstone Roundabout.	
Depot to route (km)	5.8km	
Time to route (mins)	6mins	
Patrol length (km)	32.5km	
Average speed (km/hr)	50km/hr	
Route time (mins)	40 mins	
Route to depot (km)	5.8km	

Winter Service Patrol Report Record

Patrol Route…… Date…… Information checked by……

Winter Service Patrol start and end time	Weather conditions for Winter Service Patrol route		Assessed road condition (by driver) (X)				Assessed residual salt level (by driver) (X)			Action implemented (use symbols provided below)*						Route salted prior to patrol (X)		
	Air (°C)	Road Surface temp. (°C)	Snow	Icy	Wet	Dry	High	Medium	Low	Action code	Treatment type	Spread rate (g/m^2)	Approx. location of salting or other action	Treatment start time	Treatment end time	Yes	No	Time of salting

*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 (e.g. dead dog, fallen tree, and other obstructions) from surface.

7 Pre-wetted salt

8 Dry salt

9 Potassium acetate

Appendix WSP3: Salt stocks

Operational salt stock levels

O&M Works Site Minimum Salt Stock Levels	
Period	Tonnes
Between 1 October and 15 December	200
Between 15 December and 1 March	
At 1 March	

De-icing material, e.g. dry salt/ABP	Location	Type (barn/open)	Minimum (tonnes) at 1 October
Dry rock salt	Aberdeenshire Council Roads Department Compound, Ellon	Covered	200

Brine production and storage

Location	Type (saturator/storage only)	Capacity (L)	Minimum (l)
Aberdeenshire Council Roads Department Compound, Ellon	Saturator Ecosol	3000	5000

Salt stock monitoring report

Reporting month:	
Salt used during reporting period	
Actual salt stocks held at the end of the reporting period	
Salt orders placed and deliveries received during reporting period	
Salt orders expected during next reporting period (include imports, dates deliveries expected & tonnage expected)	
Forecast usage during next reporting period	
Any other items to report (such as reduced treatment networks, any notable arrangements with local authorities, etc.)	

The salt stock monitoring report information will be entered on the Traffic Scotland Salt Stock monitoring web portal on a weekly basis through the winter period.

Appendix WSP4: Maintenance staff and operatives

Name	Address	Qualification	Mobile telephone number
Balfour Beatty Regional Civil Engineering			
Iain Campbell	c/o Balfour Beatty Depot, Aberdeenshire Council Roads Department Depot, Hospital Road , Ellon	BEng(Hons) Civil Engineering Meteogroup weather forecast training VIASALA winter scenario training	07796 610 293
Paul Machell		Meteogroup weather forecast training VIASALA winter scenario training	07816 236 662
Xan Flynn		Meteogroup weather forecast training VIASALA winter scenario training	07773 199 778

Table 4.1: Staff

Name	Address	Telephone number	Mobile telephone number
Robert McCaig	c/o Balfour Beatty Depot, Aberdeenshire Council Roads Department Depot, Hospital Road, Ellon	01358 729923	07826 655 878
Alec Brisbane			07791 760 414
Michael McCaig			07801432 344
Paul Machell (Reserve Driver)			07816 236 662

Table 4.2: Operatives

Appendix WSP5: Winter service constructional plant

Front line winter constructional plant permanently available and located in the O&M Works Site for the Winter Service for carriageways will be as detailed in table 5.1.

Type of winter constructional plant and registration number	Depot location	Vehicle capacity	Number of vehicles	Plant use
Gritter	Aberdeenshire Council Roads Department Compound, Ellon	6m³	1	Carriageway spreading

Table 5.1: Frontline winter constructional plant available for winter service for carriageways

Type and registration number	Depot Location	Specification including capacity	Quantity
Gritters	Aberdeenshire Council Roads Department Compound, Ellon	6m³ pre-wetted spreader(s)	1

Table 5.2 Winter Service plant for Category A patrols

Type of winter constructional plant and registration number	Depot location	Vehicle capacity	Number of vehicles	Plant use
None				

Table 5.3: Frontline winter constructional plant available for winter service for non-motorised facilities

Type of winter construction al plant and registration number	Depot location	Vehicle capacity	Number of vehicles	Plant use
Pre-wet gritter	Ellon Depot	6m³ capacity	1No	Back up spreader
Pre-wet gritter	M77/GSO & CNDR	9m³ capacity	4 No	N/A
Gritter and plough	Aberdeenshire Council, Ellon	Various	1 No	Echelon ploughing in the event of BB plant breakdown

Table 5.4: Reserve winter constructional plant available for winter service for carriageways, non-motorised facilities

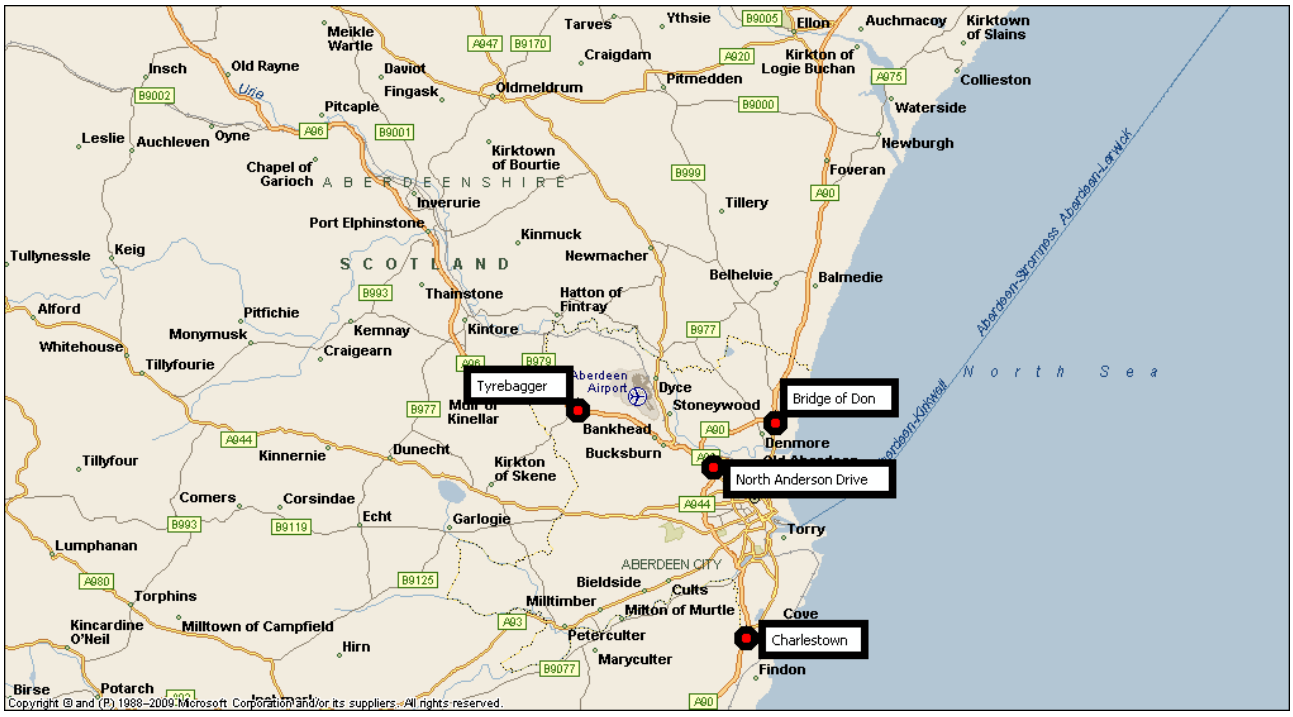
Type of winter construction al plant and registration number	Depot location and operator	Vehicle capacity	Number of vehicles	Provider name and mobilisation arrangement details where third party provider
Trucks and telehandler	Balfour Beatty Fleet Services Depot			Balfour Beatty Fleet Services

Table 5.5: Additional winter constructional plant provided through contingency arrangements with another party

Type of winter construction al plant and registration number	Depot location and operator	Vehicle capacity	Number of vehicles
Telehandler	Balfour Beatty Compound, Aberdeenshire Council Road Department Depot	7m	1

Table 5.6: Loading winter constructional plant permanently available at each loading point

Appendix WSP6: Location plan of weather stations



Appendix WSP7: Additional snow removal areas

High: To be carried out when all carriageway lanes open

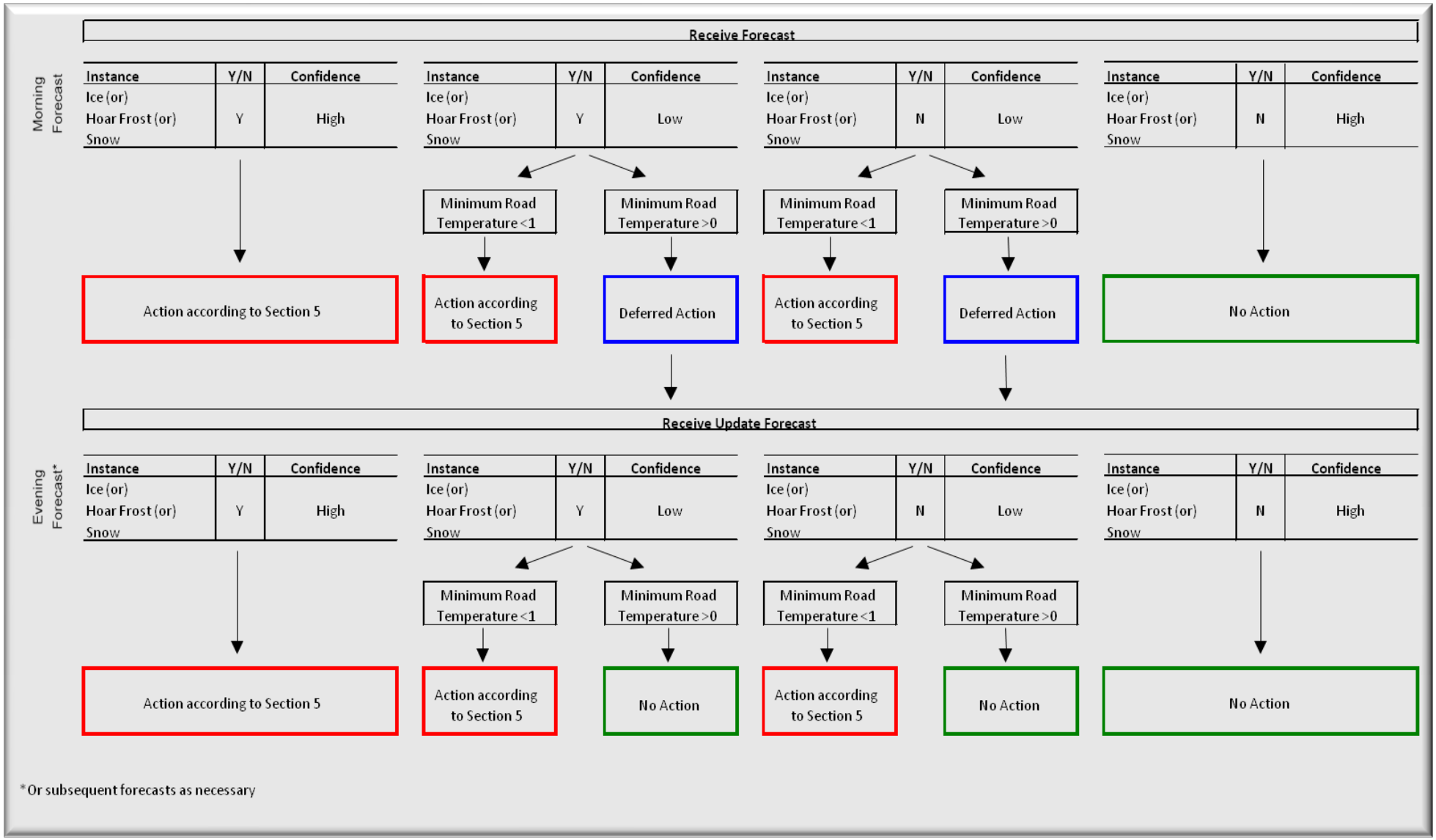
Medium: To be carried out when High priorities complete

Low: To be carried out when Medium priorities complete

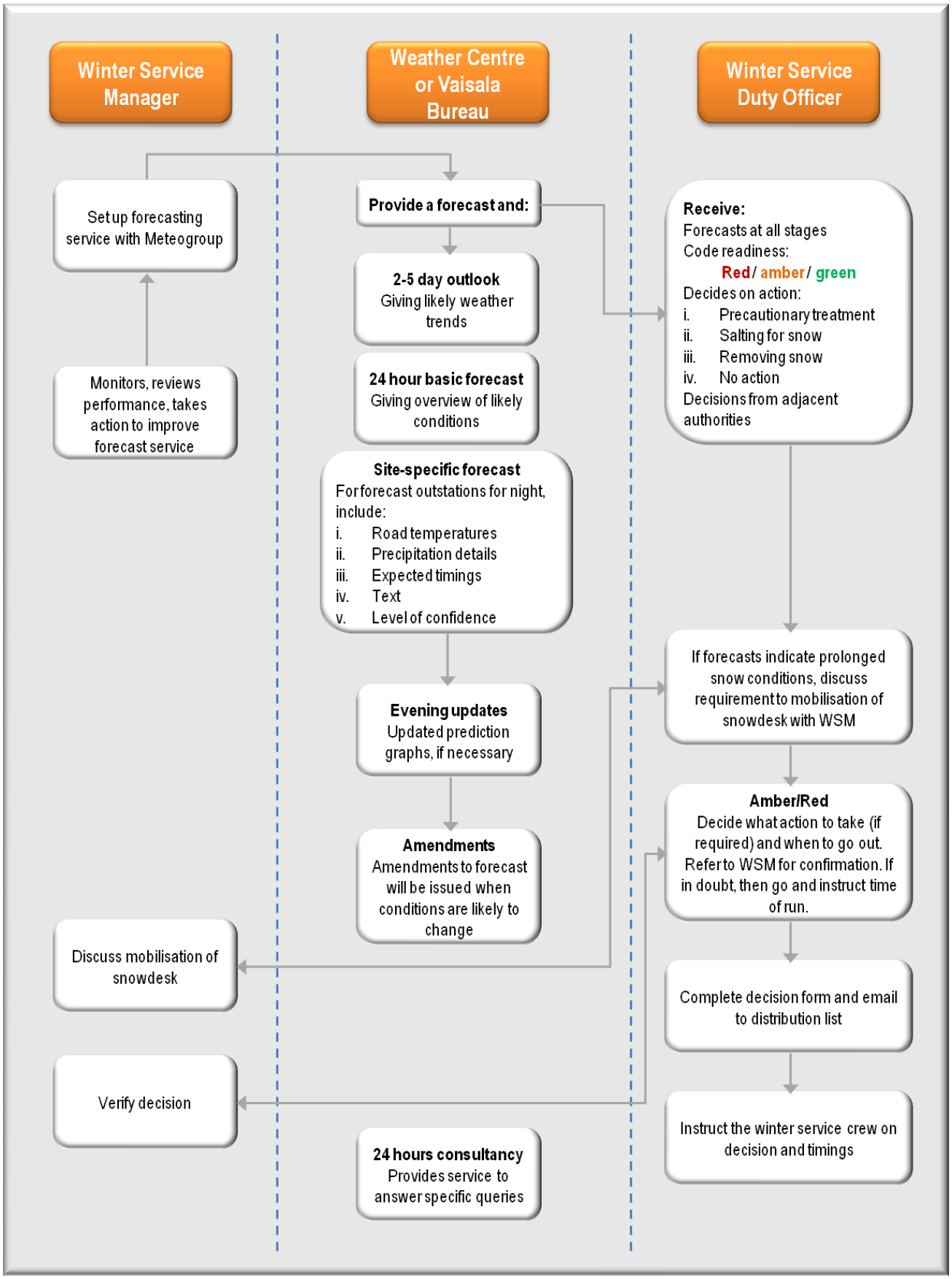
	Layby		Layby footway		Other comments
Priority	Northbound	Southbound	Northbound	Southbound	
High Priority					
Medium Priority					
Low Priority					
High Priority					
Medium Priority					
Low Priority					
High Priority					
Medium Priority					

	Layby		Layby footway		Other comments
Priority	Northbound	Southbound	Northbound	Southbound	
Low Priority					
High Priority					
Medium Priority					
Low Priority					

Appendix WSP8: Winter service decision making algorithm



Appendix WSP9: Actions flowchart



Appendix WSP10: Adjacent agents and authorities contact list

Name of organisation	Telephone numbers	Mobile numbers
Aberdeen Roads Limited		
Head Office	0207 121 3780	07971 311 913
Transport Scotland		
Head Office – Stewart Leggett	0141 272 7380	
Balfour Beatty Regional Civil Engineering		
Office hours (Ellon Depot)	01358 729 923	07796 610 293
Out-of-office hours and emergency (24hour)	07827 281 104	07796 610 293 I Campbell 07816 236 662 P Machell
Adjacent authorities		
Aberdeen City Council	01224 523484	
Aberdeenshire Council	01467 628104	07770 643 894
North East Trunk Road Management Unit	0845 413 0199	
Weather centre		
Duty weather forecaster – Meteogroup	0845 603 0563	
Duty weather forecaster – Meteogroup – back up number	0207 963 7574	
Ice station bureau – Viasala	0121 683 1269	
Police Scotland		
Operations room	01224 306 405	
Traffic management and abnormal loads		
Traffic Scotland Operator		
Operations room	0131 203 8700	
Media		
AA	0906 88 4322	
RAC	01922 437000	
BBC Scotland	01224 384888	

Name of organisation	Telephone numbers	Mobile numbers
Scottish Television	0141 300 3000	
BBC Radio Scotland	0500 929500	
Radio Northsound	01224 337000	
Original 106fm	01224 294860	
Others		
BBRCE – Press Officer – Louise McCulloch	020 7216 6846	07814 693 057
Aberdeen Roads Press Officer – Stephanie Mills	0207 121 3791	07738 786 256
Mutual aid contacts		
BEAR Scotland NE	0845 413 0199	
Aberdeenshire Roads Department	01358 726 416	
Aberdeen City Council	01224 523484	
Scotland TranServ SW Unit	0141 218 3800	
M77/GSO DBFO	0141 639 8638	
CNDR DBFO	01228 713050	

Appendix WSP11: Forms

Daily Winter Service Sheet			
Winter Service Officer:		Tel no:	
Out of hours tel no:		Fax no:	
Winter service action for 24 hour period from 12:00 on:		[date]	
Minimum road surface temperature:		ºC	
Minimum air temperature:		ºC	
Time RST below zero:			
Decision:			
Patrol required:			
Time of action:			
Rate of salting:			
Other information:			

Communications log sheet				
Period	From noon _____ to the Noon of _____		Winter Service Duty Officer	
Date	Time	From	To	Decision/instruction/communication

Accidents resulting from weather conditions					
Period:	For the month of				
Date and time of accident	Details of accident	Details of damage	Details of driver	Details of action taken	Winter Service Duty Officer

Complaints resulting from weather conditions				
Period:	For the month of .....……			
Date and time of complaint	Details of complainant	Details of complaint	Details of action taken	Winter Service Duty Officer

Dry run record sheet			
General details			
Date:		Gritter Reg:	
Driver: (print name)		Supervisor: (print name)	
Gritter check			
Defects found on gritter			
Fitting of snow plough blades			
Start time for fitting:		End time for fitting:	
Duration of fitting:			
Defects found on snow plough blade			
Problems in fitting			
Route details			
Route number			
Time out of depot		Time start route	
Time finish route		Time back to depot	
Start milometer		End milometer	
Route time		Actual length	
Planned time		Planned length	
Difference		Difference	
Problems found on route			
Signed Operator		Signed Supervisor	
Date		Date	

Vehicle, hardware and software downtime					
Period:	For the month of				
Date and time	Details of vehicle, hardware, software	Fault	Downtime	Comments	Winter Service Duty Officer

Road blockages					
Period:	For the month of				
Date and time	Location	Length of road blocked	Time of road re-opening	Comments	Winter Service Duty Officer

Operator's log record sheet			
General details			
Date:		Gritter Reg:	
Driver: (print name)		Supervisor: (print name)	
Gritter check			
Defects found on gritter			
Fitting of snow plough blades			
Start time for fitting:		End time for fitting:	
Duration of fitting:			
Defects found on snow plough blade			
Problems in fitting			
Route details			
Route number			
Time out of depot		Time start route	
Time finish route		Time back to depot	
Start milometer		End milometer	
Route time		Actual length	
Planned time		Planned length	
Difference		Difference	
Problems found on route		Grit used	
Signed Operator		Signed Supervisor	
Date		Date	

Gritting and salt usage					
Period:	For the month of				
Date	Route 1	Route 2	Route 3	Route 4	Salt used
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
Totals					

Required for the Severe Weather Bulletin Board for the Automated Diary Facility					
Period:	For the month of				
Route	Location	Road Status	Comments	Information Room	Last Status Change
		Road open	Snow passable with care	Police Scotland	
			Icy conditions Passable with care		
			Single lane operation Passable with care		
			Route not recommended unless journey is absolutely necessary		
		Road closed	Heavy snow		
			Drifted snow		
			Road estimated to re-open at…….	Trunk Road Operator	
		Road re-opened	Passable with care		
			Single lane operation Passable with care		
			Route not recommended unless journey is absolutely necessary		

Appendix WSP12: Locations for special treatment

Frost susceptible areas

Route	No.	Direction	Location	Seepage possible	Susceptible to frost
A90		Both	Foveran Village		Y

The Project Roads will be inspected regularly and this appendix will be updated and issued as an addendum to the document when required.

Water runoff locations

Road number	Location
A90	North and southbound 500m south of Foveran Village
A90	At the junction of Trump International with the A90
A90	300m north of Cock & Bull Restaurant (Orrock Junction)
A90	200m south of Blackdog Junction (southbound only)

Gradient locations

Road number	Location
None known	

Appendix WSP13: Not used

Appendix WSP14: Guidance on dealing with freezing rain

Introduction

Freezing rain in this country is a rare but an exceptionally dangerous condition. It occurs when rain falls through a layer of cold air near to the surface. The precipitation can begin as either rain and/or snow but becomes rain when it passes through a warm layer. The rain then enters a very cold layer of air close to the surface. It does not freeze immediately but forms ‘black ice’ on contact with any road surfaces that are below freezing temperature.

Objective

The object of this guidance is to promote consistent and effective action planning for dealing with situations of freezing rain by all service providers.

This guidance document has been prepared to assist Network Managers in their task of ensuring that the necessary actions and procedures are put into place to deal with the occurrence of freezing rain.

Guidance on dealing with ‘freezing rain’

This advice has been prepared to assist service providers in developing procedures for taking the necessary actions both in advance of and during an occurrence of freezing rain. The advice is not intended to prescriptively define how freezing rain should be dealt with, as this is an issue for the individual service provider and is dependent on local circumstances.

It is recognised that the prediction of freezing rain is difficult and the action necessary to deal with it is problematic but service providers need to consider and plan actions to be taken when such events occur. It is important that all details of the actions intended for dealing with the phenomenon of freezing rain are documented in Winter Service Plans.

Considering the limits in the effectiveness of treatments in dealing with freezing rain it is essential that all practical measures be 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:

Advance planning

Advance planning includes consideration of the potential impact of freezing rain and development of contingency arrangements to mitigate the effects. These contingency arrangements should be documented in the Winter Service Plan. Other aspects of advance planning include training and exercises.

Specific measures that should be considered include:

1. Prior to the commencement of the winter season, agreement should be reached with the local police authorities and, where applicable, the Regional Control Centres (RCCs) on procedures for dealing with occurrences of freezing rain and any incidents that may occur during or following such conditions.
2. Outline operational arrangements should be developed and documented within the Winter Service Plan. Although the adverse effects of freezing rain can impact across any part of the

network particular consideration should be given to those parts where the impact may be more significant such as on gradients or difficult alignments.

Operational arrangements

Operational arrangements should include details of treatment regimes. In general, freezing rain should be treated in a similar manner to snow, i.e. treatment in advance of and during the event and then treatment following as required.

Specific measures that should be considered include:

1. If the condition of freezing rain is anticipated contact with the Police, RCC, adjoining service providers and Local Authorities is to be made to acquaint them of the possibility and the proposed action.
2. Prior to the arrival of the freezing rain a pre-treatment is to be made in the same manner as would be made prior to snow falling.
3. Constant monitoring of the situation is to be made and an additional treatment is to be carried out immediately the rain commences and continued until such time that the rain has ceased or the temperature of the road has risen above freezing.
4. Freezing rain usually occurs along the line of an incoming warm front. If possible, 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. Use should be made of weather radar where available, to help determine the timing of treatment. Consideration should 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.
5. Some salt will inevitably be lost during and following treatment and therefore careful consideration needs to be given to the requirement for continued successive treatments.

Hazard mitigation

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. The main action is to inform road users of the hazard but more pro-active measures might be required. For example, consideration should be given to closing the road as the rain arrives and holding the traffic (rather than diverting) until such times as it is deemed safe to proceed. Such considerations will need to be made on a local basis taking into account local circumstances.

Specific measures that should be considered include:

1. Where available fixed or mobile Variable Message Signs should be used to warn road users of the hazard. The existing established procedures for requesting VMS settings to be made should be followed well in advance. The following legend is currently the most appropriate for use in these circumstances:

2. Roads, Transport Scotland and/or the Traffic Scotland Service Provider press officer should be contacted in order that the local media can be advised as necessary.
3. Where available, use of variable mandatory speed limits should be considered. This will require arrangements and protocols to be established with the appropriate Police Control Office (PCO) as part of the advance planning procedures.

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 any incidents occur as a result of the freezing rain. This may, for example, include liaison with PCOs to provide advance warning to recovery companies. Procedures for giving such advance warning would need to be established in advance with PCOs and documented within the Winter Service Plan.