

# BEAR Scotland

## M80 Stepps to Haggs DBFO Contract

### Winter Service Plan



M80 STEPPS TO HAGGS DBFO CONTRACT  
M80 DBFO-WINTER SERVICE PLAN

# Winter Service Plan

1 October 2018 to 15 May 2019



Controlled Copy No.....



## WINTER SERVICE PLAN – INDEX

<b>DOCUMENT APPROVAL/AUTHORISATION.....</b>	<b>5</b>
<b>REVISION STATUS .....</b>	<b>5</b>
<b>REGISTER OF CONTROLLED COPIES.....</b>	<b>7</b>
<b>1 INTRODUCTION.....</b>	<b>8</b>
1.1 WINTER SERVICE PERIOD .....	8
<b>2 MANAGEMENT ARRANGEMENTS.....</b>	<b>8</b>
2.1 WINTER SERVICE MANAGER.....	8
2.1.1 Name.....	8
2.1.2 Experience .....	9
2.1.3 Responsibilities .....	9
2.2 WINTER SERVICE DUTY STAFF .....	9
2.2.1 Winter Service Duty Officers.....	9
2.2.2 Winter Service Duty Controllers.....	10
2.2.3 Qualifications.....	10
2.2.4 Experience .....	10
2.2.5 Responsibilities .....	10
2.3 MONITORING ARRANGEMENTS.....	11
2.3.1 Monitoring Arrangements.....	11
2.3.2 Winter Control Room .....	12
2.4 PERSONNEL RESOURCES .....	13
2.5 CALL-OUT ARRANGEMENTS.....	13
2.5.1 Call-out arrangements during normal working hours.....	13
2.5.2 Call-out arrangements out with normal working hours .....	14
2.5.3 Contact arrangements during normal working hours.....	14
2.5.4 Contact arrangements out with normal working hours .....	14
2.5.5 Mobilisation times .....	14
2.6 COMMUNICATIONS EQUIPMENT .....	14
2.7 TRAINING FOR MANAGERS AND OTHER STAFF .....	15
2.7.1 Details of previous training.....	15
2.7.2 Details of proposed training .....	15
<b>3 WEATHER FORECASTING.....</b>	<b>16</b>
3.1 PURPOSE .....	16
3.2 METHODOLOGY .....	16
3.3 WEATHER FORECASTING SERVICE.....	16
3.3.1 Climatic Domains.....	17
3.3.2 Weather Radar.....	17
3.3.3 Ice sensors and weather forecast sites .....	17
3.3.4 Thermal mapping .....	17
3.3.5 Location Plans .....	18
3.4 COMPUTER SYSTEMS.....	18
<b>4 MONITORING ARRANGEMENTS FOR AREAS REQUIRING SPECIAL ATTENTION .....</b>	<b>19</b>
<b>5 DECISION MAKING .....</b>	<b>26</b>
5.1 ROLE OF THE WINTER SERVICE MANAGER .....	27
5.2 ROLE OF THE WINTER SERVICE DUTY OFFICER.....	27
5.2.1 Proposals for precautionary and additional de-icing treatments when low confidence forecasts shall be issued for variable road and weather conditions.....	28
5.2.2 Proposals for monitoring the effectiveness of de-icing materials .....	28
<b>6 LIAISON.....</b>	<b>29</b>
6.1 THE SCOTTISH MINISTERS.....	29
6.2 THE POLICE.....	30
6.3 TRAFFIC SCOTLAND OPERATOR.....	30



6.4	ADJACENT ROAD AND HIGHWAY AUTHORITIES.....	30
6.5	ADJACENT TRUNK ROAD OPERATING COMPANIES .....	30
6.6	NETWORK RAIL .....	31
<b>7</b>	<b>WINTER SERVICE PATROLS.....</b>	<b>31</b>
<b>8</b>	<b>PRECAUTIONARY TREATMENT ROUTES .....</b>	<b>31</b>
8.1	PRECAUTIONARY TREATMENT ROUTES .....	31
<b>9</b>	<b>SNOW AND ICE CLEARANCE .....</b>	<b>32</b>
9.1	SNOW CLEARING .....	32
<b>10</b>	<b>DE-ICING MATERIALS .....</b>	<b>34</b>
10.1	DETAILS.....	34
10.1.1	<i>Salt.....</i>	<i>34</i>
10.1.2	<i>Brine .....</i>	<i>35</i>
<b>11</b>	<b>WINTER CONSTRUCTIONAL PLANT .....</b>	<b>36</b>
11.1	FRONTLINE WINTER CONSTRUCTIONAL PLANT .....	36
11.2	RESERVE WINTER CONSTRUCTIONAL PLANT .....	37
11.3	ADDITIONAL WINTER CONSTRUCTIONAL PLANT .....	37
11.4	LOADING WINTER CONSTRUCTIONAL PLANT .....	38
11.5	CALIBRATION OF CONSTRUCTIONAL PLANT .....	38
<b>12</b>	<b>MAPS DRAWINGS AND GRAPHICAL INFORMATION.....</b>	<b>39</b>
12.1	MAPS.....	39
12.1.1	<i>Precautionary Treatment Route Maps.....</i>	<i>39</i>
12.1.2	<i>Forecast Station Location Map.....</i>	<i>39</i>
<b>13</b>	<b>COMPILING AND MAINTAINING RECORDS.....</b>	<b>39</b>
<b>14</b>	<b>SNOW POLES.....</b>	<b>40</b>
<b>15</b>	<b>SNOW GATES.....</b>	<b>40</b>
<b>16</b>	<b>VARIABLE MESSAGE SNOW AND ICE HIDDEN MESSAGE SIGNS .....</b>	<b>41</b>
<b>17</b>	<b>SALT BINS AND SELF HELP HEAPS .....</b>	<b>41</b>
<b>18</b>	<b>SALT MEASUREMENT APPARATUS.....</b>	<b>41</b>
18.1	DETAILS OF EQUIPMENT AND LOCATIONS AND AVAILABLE RECORDING METHODS .....	41
<b>ANNEX WSP 1 – NOT USED .....</b>		<b>42</b>
<b>ANNEX WSP 2 .....</b>		<b>43</b>
<b>ANNEX WSP 3 .....</b>		<b>51</b>
<b>ANNEX WSP 4 – NOT USED .....</b>		<b>52</b>
<b>ANNEX WSP 5 .....</b>		<b>53</b>
<b>ANNEX WSP 6 .....</b>		<b>55</b>
<b>ANNEX WSP 7 .....</b>		<b>56</b>
<b>ANNEX WSP 8 .....</b>		<b>49</b>
<b>ANNEX WSP 9 .....</b>	ERROR! BOOKMARK NOT DEFINED.	
<b>ANNEX WSP 10 .....</b>		<b>61</b>
<b>ANNEX WSP 11 .....</b>		<b>62</b>

## DOCUMENT APPROVAL/AUTHORISATION

	<i>Name</i>	<i>Date</i>
<b>Prepared By</b>	██████████	July 2018
<b>Checked By</b>	██████████	July 2018
<b>Authorised By</b>	██████████	July 2018

## REVISION STATUS

<i>REV.</i>	<i>Date</i>	<i>Revision Details</i>	<i>Checked</i>	<i>Authorised</i>
1	July 2011	Initial copy for submission	██	██
2	Aug 2011	Updated following JE review comments	██	██
3	Sept 2011	Updated following JE & TS review comments	██	██
4	July 2012	Updated Plan for 2012/ 2013 season	██	██
5	Sept 2012	Updated following TS review comments	██	██
6	July 2013	Updated plan for 2013/2014 season	██	██
DRAFT	July 2014	DRAFT plan for 2014/2015 season	██	██
7	Oct 2014	Updated following feedback	██	██
8	July 2015	Updated plan for 2015/2016 season	██	██
9	Dec 2015	Reserve Patrol vehicles removed	██	██
10	Jan 2016	Updates from JE comments	██	██
11	July 2016	Updated plan for 2016/2017 season	██	██
12	Aug 2016	Updates from JE comments	██	██
13	Sept 2016	Updates from JE comments	██	██
14	March 2017	Updates following change of personnel	██	██
15	April 2017	Updates to clarify frontline vehicles	██	██
16	July 2017	Update for 2017/2018 season	██	██
17	Sept 2017	Update following feedback	██	██
18	Jan 2018	Update following feedback	██	██

<b>Ref No :</b> M80DBFO-Winter Service Plan <b>Issue:</b> Draft <b>Related to:</b> M80DBFO	<u><b>M80 Stepps to Haggs O&amp;M Works Site</b></u> <b>Winter Service Plan</b> 2018-2019		
---	---	---	--

Draft	July 2018	Draft Plan for 2018/2019 season	■	■
19	06 Nov 2018	Updated Plan following feedback	■	■



## REGISTER OF CONTROLLED COPIES

Ref	Name of Holder	Designation	Company
1		Project Director	BEAR Scotland Ltd
2		M80 DBFO Operational / Winter Manager	BEAR Scotland Ltd
3		M80 DBFO Area Manager	Transport Scotland
4		Network Impacts Manager	Transport Scotland
5		Scottish Ministers Site Representative	PAG
6		Scottish Ministers Agent	PAG
7		Company Representative	HMG
8		South East Operating Company	Amey
9		South West Operating Company	Scotland TranServ
10		M8 DBFO	Scottish Roads Partnership
11		Winter Manager	North Lanarkshire Council
12		Winter Manager	Falkirk Council
13		Roads Policing	Police Scotland
14	Inspector, Operations	Force Control Room	Police Scotland
15	Operations Manager	Operations Manager	Traffic Scotland
16		NE Unit Operating Company Rep.	BEAR Scotland Ltd
17		NW Unit Operating Company Rep.	BEAR Scotland Ltd
18	Duty Officer	Duty Officer –	BEAR Scotland Ltd
19	Duty Officer	Duty Officer –	BEAR Scotland Ltd
20	Duty Officer	Duty Officer –	BEAR Scotland Ltd
21	Duty Officer	Duty Officer –	BEAR Scotland Ltd
22	Various (on rota)	Winter Control Room	BEAR Scotland Ltd

## 1 INTRODUCTION

This Winter Service Plan has been prepared by BEAR Scotland Ltd acting in their role as O&M Work Contractor to Highway Management (Scotland) Ltd., The Company otherwise known as HMG. Where references to BEAR Scotland Ltd are made within this document, these carry the same meaning as references to The Company or HMG.

BEAR Scotland Ltd is a Scottish Registered company with three shareholders (Jacobs, Breedon and Eurovia), who will carry out the Operation and Maintenance of the M80 O&M Works Site between Stepps and Hags on behalf of Highway Management (Scotland) Limited.

Whilst the Winter Service Plan is independent from the Emergency Response Plan, the two documents must be read in conjunction with each other to ensure the appropriate delivery of both the Winter and Emergency Response Services. This Winter Service Plan is in accordance with Schedule 4, Part 2, Appendices C and D and Schedule 4 Part 5 Series 2801AR to 2807AR of the O&M Works Contract. The BEAR Scotland winter service plan is updated annually following a review of the previous season with any incidents or lessons learned from previous winter incorporated into the latest issue. A debrief at end of each winter period is carried out with operatives and staff and any snow events are discussed. At the start of each winter season the winter service manager will have a meeting with operatives and Winter Service Duty Officers to discuss the previous winter season and any new additions to the winter service plan. A winter gang-pack is then briefed to operatives and Winter Service Duty Officers and each person is supplied with an individual copy. The session will be focused on areas that can be improved upon from previous winter season as well as detailing any improvements or innovations that will be implemented in the coming season.

### 1.1 Winter Service Period

The Winter Service Period for the M80 O&M Works Site will be from 1<sup>st</sup> October 2018 to 15<sup>th</sup> May 2019. If winter conditions shall occur out with this Winter Service Period BEAR Scotland shall provide and maintain the Winter Service in accordance with Schedule 4 Part 2 for the duration of such winter conditions. BEAR Scotland shall confirm the activation of this requirement with the Scottish Ministers representatives.

## 2 MANAGEMENT ARRANGEMENTS

### 2.1 Winter Service Manager

#### 2.1.1 Name

The Winter Service Manager for the M80 O&M Works Site will be [REDACTED].



## 2.1.2 Experience

████ is the Operational Manager for the M80 O&M Works Site. █████ has experience working on the South East and North West Trunk Road Contracts and has been the winter service manager for the M80DBFO since 2017. Between 2011 and 2015 he was also involved in providing the winter service on the M80 DBFO in his role as a Duty Officer.

## 2.1.3 Responsibilities

The Winter Service Manager is responsible for producing the Winter Service Plan for approval by the Scottish Ministers. He is then responsible for the operation, review and development of that Plan throughout the Winter Service Period, thus ensuring the M80 O&M Works Site Company fully discharges its responsibilities under the contract.

The Winter Service Manager has overall responsibility for winter maintenance activities including but not limited to:

- collection and management of weather data;
- maintaining salt and glycol stock levels and their storage facilities;
- achieving response times for precautionary treatment and snow clearance;
- plant;
- communications;
- the ice prediction and weather radar software systems;
- training of staff and operatives;
- preparation and updating of rotas for Duty staff;
- maintaining electronic and manual records;
- providing winter service reports as required by Sch.4, Pt.2, Cl.3.2.4 (v);
- liaison with third parties;
- Assist the Scottish Ministers in the production of Winter Service publicity leaflet if required;
- Liaising with Transport Scotland's MART.

## 2.2 Winter Service Duty Staff

### 2.2.1 Winter Service Duty Officers

The Winter Service Manager will be supported by four Winter Service Duty Officers working on a rota basis, who will be available 24 hours per day throughout their week on duty. The primary responsibilities of the Winter Service Duty Officers are to interpret the weather forecast, make decisions on treatments, prepare the Daily Action Plan and ensure that actions are completed within the required timescales.

There will be four nominated Winter Service Duty Officers:



The Winter Service Duty Officer can be contacted on the Winter Control Room number provided in 2.3.2.

### **2.2.2 Winter Service Duty Controllers**

The Winter Service Duty Controllers will work on a rota basis in the Winter Control Room located in our Perth Office. There will be one Winter Service Duty Controller responsible for the M80 O&M Works Site at all times.

The Winter Service Duty Controllers work on a 24/7 basis throughout the Winter Service Period and will monitor the system, complete all records as required and remain in contact with all winter drivers ensuring any changes to road conditions are reported.

The Winter Service Duty Controllers for the M80 O&M Works Site are based in the Perth Control Room as part of a shared service with BEAR NE.

Additional resources may be available to assist at the Perth Control Room depending on road conditions.

### **2.2.3 Qualifications**

All of the Winter Service Duty Officers and Winter Service Duty Controllers mentioned in 2.2.1 and 2.2.2 are fully trained in basic road meteorology including the use and interpretation of ice prediction systems and the use of thermal mapping.

### **2.2.4 Experience**

All Winter Service Duty Officers will have previous experience of monitoring the road sensor system and making decisions on treatments, resulting from the receipt of the forecast information from the supplier. All newly trained Winter Service Duty Officers will be mentored by the Winter Service Manager or an experienced Winter Service Duty Officer until a detailed knowledge of particular conditions of the M80 O&M Works Site has been gained.

### **2.2.5 Responsibilities**

**Winter Service Duty Officer:** the role of the Winter Service Duty Officer is primarily to interpret the daily forecast received, liaise with the weather forecaster, decide on the required treatment and subsequently prepare the Daily Action Plan. Where it is not possible to predict adverse conditions, the Winter Service Duty Officer will be responsible for ensuring that the reactive requirements of the contract are implemented within the required timescales.

The Winter Service Duty Officer has the ability to mobilise additional support for the Winter Control Room if required and arrange resources with MART.

Where winter action is required, The Winter Duty Officer will contact and relay this information clearly to all Winter Drivers, and ensure the contractual requirements are met in relation to response and treatment times. The Winter Service Duty Officer will also manage each winter treatment operation from their relevant depot, ensuring all records are completed and stored electronically in the required shared drive, giving access to the Scottish Ministers via BEAR Scotland offices and depots, the customer access area of BEARNET. Hard copies are passed to Perth and Chryston for filing.

**Winter Service Duty Controller:** the Winter Service Duty Controller will be based in BEAR Scotland's Winter Control Room at Perth, with the primary responsibility of monitoring the ice prediction system and notifying the Winter Service Duty Officer of any changes to the initial weather forecast. The Winter Service Duty Controller is allowed to escalate any proposed action but cannot reduce this without prior agreement with the Winter Service Duty Officer. The Winter Service Duty Controller will be available to assist the Winter Service Duty Officer at all times, particularly where there is a high level of activity due to snow or other adverse conditions. The Winter Service Duty Controller will have the authority to call in the Winter Service Duty Officer as they deem necessary.

## 2.3 Monitoring Arrangements

### 2.3.1 Monitoring Arrangements

System monitoring will be carried out on a 24/7 basis by our dedicated Winter Service Duty Controllers based in the Winter Control Room in BEAR Scotland's Perth Office. The Winter Service Duty Controller will monitor road conditions and direct resources through the Winter Service Duty Officer as required, treating the carriageway to keep it free from snow and ice. They will monitor road conditions overnight from the Winter Control Room and assess conditions relative to the original forecast received, reporting any significant changes to the Winter Service Duty Officer.



As a fully trained member of staff, the Winter Service Duty Controller on night shift has the authority to escalate any decision made on treatment; however they cannot reduce this level of treatment without first gaining the agreement of the Winter Service Duty Officer.

The following aids will be used to assist in this process:

- contact with expert weather forecaster provider including “change triggers”;
- feedback from inspectors during normal working hours;
- monitoring of ice sensors;
- monitoring RST trend against forecast;
- use of ice station & Traffic Scotland cameras;
- weather radar;
- thermal maps where available;
- communications from external parties;
- mobile road surface temperature gauges fitted on patrol and both frontline vehicles.

The Winter Service Duty Controller will have direct access to the Winter Service Duty Officer at all times via a dedicated mobile telephone number. In the event of immediate adverse conditions, whilst it is the responsibility of the Winter Service Duty Officer, the Winter Service Duty Officer and / or the Winter Service Duty Controller will call out the relevant stand-by Winter Drivers directly, instructing them to undertake specified reactive treatment.

### 2.3.2 Winter Control Room



A joint M80 O&M Works Site / North East / North West Winter Control Room is based in BEAR Scotland's Perth Office and will be manned on a rota basis by a team of Winter Service Duty Controllers.

The Winter Control Room will operate 24 hours per day, 7 days per week throughout the year, with two members of staff on duty at all times. One of these Winter Service Duty

Controllers shall be responsible for the M80 O&M Works Site.

The following telephone number is answered by the Control Room staff:

[REDACTED]

The Winter Control Room shall have easy access to all relevant contact telephone numbers as well as access to winter maintenance systems such as Vaisala Bureau, Met Desk, Satellite tracking, (BEAR Scotland vehicles), communications log database, thermal maps and weather radar.

During periods of high operational activity on the network (snow clearance, extensive precautionary treatment etc.) the Winter Duty Controllers will be assisted by the Winter Duty

Officer as required. This decision will be taken by the Winter Service Duty Officer as determined by weather conditions. See also 2.2.5.

There will also be a dedicated telephone line for the emergency services within the Winter Control Room. This telephone number, only issued to the emergency services, will allow direct contact at all times between the emergency services and our Winter Service Duty Officer.

Additional resources, subject to circumstances, may also be deployed in the Perth Control room.

## **2.4 Personnel Resources**

The resources detailed below will be specific to the M80DBFO with exception to the duty controllers which will be shared with BEAR NE and will be the minimum numbers involved in delivering the Winter Service for the M80 Steps to Haggis O&M Works Site:

- 1 of Winter Service Manager; supported by
- 4 of Winter Service Duty Officers;
- 5 of Winter Service Duty Controllers;
- 8 of Winter Drivers;
- 2 of Winter Patrol Drivers.

## **2.5 Call-Out Arrangements**

### **2.5.1 Call-out arrangements during normal working hours**

A winter roster will be prepared at the beginning of the Winter Service Period for staff and operatives involved in the Winter Service for that period. The rota will include contact details for all personnel involved and controlled copies will be issued to each individual prior to the commencement of the Winter Service Period.

Any changes to the rota will be communicated to the Winter Service Duty Controllers for that week by the Winter Service Duty Officer via email, confirming changes and any revised contact details.

During normal working hours it will be the responsibility of the Winter Service Duty Officer 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 not anticipated that there will be a significant number of call-outs during working hours from the beginning of November until the end of March. A shift system will be in place making Winter Drivers immediately available on the O&M Works Site during the normal working week. In this context, the normal working week is defined as all hours Monday to Friday. From 1<sup>st</sup> October to 31<sup>st</sup> October and from 1<sup>st</sup> April to 15<sup>th</sup> May, the normal working day will be 08:00 to 16:30 hours Monday to Friday.

### **2.5.2 Call-out arrangements out with normal working hours**

It is the role of the Winter Service Duty Controller outside normal working hours to ensure and confirm that the appropriate Winter Drivers are contacted and advised of the required winter action treatment. The personnel on the rota at any point will have to be available at all times to commence treatment on the carriageway within 60 minutes of being contacted.

### **2.5.3 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 Winter Drivers are rostered for any given week, cognisance of this will be given when planning of their normal daily duties, ensuring that drivers can still have the ability to respond to any call to carry out a Winter Service action at short notice within the contractual response times.

### **2.5.4 Contact arrangements out with normal working hours**

A standby rota will be prepared, detailing which individuals will be utilised in the event of Winter Service action being required. Telephone contact numbers will be available for all individuals and will be held on the BEAR Scotland Intranet.

### **2.5.5 Mobilisation times**

BEAR Scotland's Chryston Depot has been sited in a location which easily accesses the M80 O&M Works Site gritting routes, and which is easily accessed by all Winter Drivers. This will ensure that Winter 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 will be pre-loaded on any night where an action is a possibility. It will be the responsibility of the depot supervisor to manage the pre loading of the spreaders.

## **2.6 Communications Equipment**

Good communication systems are essential for effective implementation of the Winter Service, and the following systems will be adopted:

- Telecommunications – land line and cellular GSM;
- Satellite tracking of BEAR Scotland vehicles;
- Email;
- Airwave system on all Winter Patrol vehicles.



All BEAR Scotland depots are contactable by both land line telephone and facsimile. In addition, all Winter Service Duty Officers, prime plant and winter maintenance vehicles will have individual GSM mobile telephones so that they can be contacted at all times. In the case of maintenance vehicles, hands-free mobile phones are fitted.

BEAR Scotland vehicles are fitted with an integrated satellite tracking system to deliver our communications needs and management system, and produce an auditable trail for the company.

BEAR Scotland implements a policy whereby all Duty Controllers, Officers and Supervisors will have a desktop personal computer or a laptop computer and will have their own individual email address. This is carried out by a Wide Area Network system in which the various secondary depots are linked by ISDN or analogue lines to the Central Office, which is in turn linked by Kilo stream or ISDN lines to the main central servers, which control the IT network.

Information and data can be exchanged quickly with our internal and external customers, Emergency Services, Statutory Authorities and between our shareholders utilising Microsoft Outlook email software.

## **2.7 Training for Managers and Other Staff**

### **2.7.1 Details of previous training**

All our current Winter Service Duty Officers and Winter Service Duty Controllers have been trained in Basic Road Meteorology and the use of Ice Prediction Systems. All our current Winter Drivers have been trained to SVQ/City & Guilds level or equivalent in winter maintenance.

### **2.7.2 Details of proposed training**

Prior to the commencement of the winter season a training programme shall be carried out for all personnel involved in providing the Winter Service, which shall include the following:

- Refresher training for Winter Service Duty Officers on decisions, communication, contract requirements, areas requiring special attention etc. provided by the Winter Service Manager;
- Seminar to Winter Drivers detailing routes, contract requirements, response times, treatment times, communication, health & safety, areas requiring special attention and the importance of providing good quality service. This again will be provided by the Winter Service Manager with any changes being made to areas of special attention also receiving updates in the form of toolbox talks or meetings ;

New recruits into providing the Winter Service shall be fully trained prior to any involvement in providing the Winter Service. All Winter Drivers shall be formally trained in the safer operation of

winter maintenance equipment, based on the standards set in SVQ/City & Guilds level or equivalent in winter maintenance;

- Basic Road Meteorology training, including the use and interpretation of ice prediction systems for new Winter Service Duty Officers and Controllers, as well as refresher training, where required, for existing Winter Service Duty Officers and Controllers;
- The Winter Service Duty Controllers have received external training entitled “Control Room Development Programme”, which covers areas such as effective communication, record keeping, dealing with people, handling complaints and problem solving;
- The Winter Service Duty Controllers have undergone an internal training programme including route tours, depot visits and use of the winter and emergency computer systems.

### **3 WEATHER FORECASTING**

#### **3.1 Purpose**

It is the intention that the weather forecasts, which are provided by expert meteorologists, give the personnel involved in providing the winter service an accurate indication of forthcoming weather conditions, allowing them to prepare a winter Daily Action Plan which shall anticipate prevailing weather conditions and giving sufficient time in which to pre-treat the carriageway prior to the onset of snow or ice.

#### **3.2 Methodology**

The method used to produce both the short and long range weather forecasts is via a combination of a number of weather models. These models combine energy balance techniques with current and historic site specific information to provide the most accurate possible forecasts of future road conditions.

The road model forecasts can be updated as frequently as necessary using actual data from road sensors and data from comprehensive meteorological databases, which is monitored and updated by the Winter Service Duty Controllers and Winter Service Duty Officers 24 hours a day.

#### **3.3 Weather Forecasting Service**

An expert weather forecasting service will be provided by an established UK road forecast provider. The Forecast provider shall be MetDesk. The service will consist of the provision of the following:

- 36 hour forecast text;
- 36 hour forecast tables for each route within the unit;
- 2 to 10-day text forecast
- 2 to 5-day hazard table;
- Hourly updates to the 36 hour forecast tables;
- Evening and morning updates to the 36 hour text;
- Forecast consultancy/advisory service (24 hours a day, seven days a week);
- Time step thermal maps where available.

The above will allow the Winter Service Duty Officer to prepare a winter Daily Action Plan by 15:00 hours each day, advising of all carriageway pre-treatments to be carried out for that day. The Forecast systems providers Duty Forecaster can be contacted by telephone on a 24/7 basis.

### **3.3.1 Climatic Domains**

There will be one climatic domain exclusive to the M80 O&M Works Site, which will be driven by the following forecast domain:

- M80 Old Inns

### **3.3.2 Weather Radar**

Weather radar will be used via an internet based site, which gives a short range forecast up to 3 hours in advance, and with the facility to time-step the movement of the prevailing weather conditions. The radar will help to improve the accuracy of assessing the timing, nature and intensity of precipitation, particularly snowfall. The weather radar is part of the Duty Officer's decision making process and is subsequently monitored by the Winter Control Room staff.

### **3.3.3 Ice sensors and weather forecast sites**

The M80 Old Inns site within the M80 DBFO O&M Works Site shall be utilised.

### **3.3.4 Thermal mapping**



Transport Scotland do not currently use thermal mapping. The data from the road surface temperature sensors attached to the patrol and frontline fleet is used.

Thermal maps comprise digitised thermal fingerprints representing graphically variations in road surface temperatures along a route. By combining thermal map and forecast data, route maps can be produced indicating forecast minimum road surface temperatures along each route.

Digitised thermal mapping provides another useful tool for staff to supplement forecast data and local knowledge thereby aiding the decision making process for winter maintenance action, particularly on marginal nights and when partial salt runs are necessary. The maps can also be used to select suitable locations for additional outstations.

For effective use of thermal mapping, the digital map coverage of the M80 O&M Works Site must be maintained in a complete and up to date state. Where considered appropriate, recommendations on updating of thermal mapping will be made to the Scottish Ministers.

### **3.3.5 Location Plans**

The M80 Old Inns ice station is located between M80 Junction 5 Auchenkilns and Junction 6 Old Inns. A plan showing the location of the M80 Old Inns station is shown in Annex WSP 6.

## **3.4 Computer Systems**

There are a number of computer systems used to interrogate forecast and sensor data to enable the Winter Service Manager and Winter Service Duty Officers to make the most appropriate decisions for Winter Service actions. These computerised systems include the following:

Bureau service - for the collection of ice sensor data. The bureau service is provided by Vaisala and is comprised of a large central database which collects data from all ice sensors at up to 20 minute intervals. Our forecast systems providers 36 hour and 2-10-day weather forecasts are also stored on the bureau.

Vaisala RoadDSS Manager - Is a web based system which allows the Winter Service Manager, Winter Service Duty Officers and Winter Service Duty Controllers to interrogate the bureau via any computer terminal which has internet access, to give the most up to date conditions at the ice sensor location on the O&M Works Site. This allows them to make informed decisions in relation to winter service actions and direct resources appropriately. MetDesk forecasts can also be accessed from the bureau via the Vaisala RoadDSS Manager, allowing action plans to be created and these action plans to be monitored. Actual action plans are also recorded in the system and reports can be generated as required by running treatment and action reports for the required routes.

An internet based system supplied by the Forecast systems provider 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.

BEARnet is BEAR Scotland's company intranet which holds all the management System information and electronic records.

#### **4 MONITORING ARRANGEMENTS FOR AREAS REQUIRING SPECIAL ATTENTION**

During the Winter Service Period, drivers/inspectors will be instructed to pay particular attention to areas requiring special attention, and any problems identified shall be actioned appropriately and communicated to the Winter Duty Controllers, who shall record in the communications log such incidences as well as any actions carried out by the drivers. Lessons learned from previous winter's will be discussed and communicated as part of the pre winter seminar with particular attention to better communication and following the winter service plan with patrol vehicle being deployed at Areas Requiring Special Attention. . Anyone attending MART on behalf of the M80 DBFO will be briefed and made aware of the current Areas Requiring Special Attention.

Area Requiring Special Attention are known locations on the route, which in certain circumstances, are subject to some vehicles losing traction on the inclines. The actions required to limit the possibilities of this happening are noted below. The Areas are identified in Fig. 4/1 and detailed in Figs. 4/1a, 4/1b and 4/1c below.

The Duty Controller can monitor precipitation type and intensity and can instruct mobilisation of any frontline vehicle to patrol the route at any time.

Should the winter weather escalate to a more severe event, then under instruction from the winter manager, the snow plan will be implemented as per Annex WSP 12. This snow plan is under review and still to be approved. It will be issued via a further update to Winter Service Plan.

The patrol route driver has specific instructions to monitor the Areas Requiring Special Attention. A copy of Figure 4/1 will be provided within all frontline and patrol vehicles for drivers' reference

**Figure 4/1 – Areas Requiring Special Attention**

Area Requiring Special Attention	Assigned Sensor Station	Frost Susceptible, Gradient or Water Run-Off	Treatment Route	Patrol Route
M80 Castlecary to Old Inns SB	Old Inns	Gradient	M80DBFO01	M80DBFO-P
M80 Castlecary to Haggs On slip NB	Old Inns	Gradient	M80DBFO01	M80DBFO-P
M80 Auchenkilns to Old inns NB	Old Inns	Gradient	M80DBFO01	M80DBFO-P

## AREAS REQUIRING SPECIAL ATTENTION SCHEDULES



## AREAS REQUIRING SPECIAL ATTENTION SCHEDULE

Reference Number: ARSA/DBFO/M80/A – M80 Castlecary SB

Location	M80 Castlecary Arches to Old Inns SB
Grid Reference	Grid refs required – 278843, 678428 to 277261, 676686
Problem	Two and three laned motorway 2 miles in length with potential for articulated vehicles to lose traction on the incline.
Has this site experienced problems before or is it an identified risk?	Due to accumulation of snow there have been previous incidents of where articulated vehicles and rear wheel drive vehicles have lost traction.
Detailed Mitigation Measures	
Optional Mitigation Measures	<ul style="list-style-type: none"> <li>▪ Application of additional salt on inclines at driver's discretion or as instructed by the Duty Officer.</li> <li>▪ Front line treatment route (M80DBFO1) – driver awareness of the ARSA.</li> <li>▪ Patrol M80DBFO-P. (1 November to 31 March) – driver awareness of the ARSA and completion of record sheet.</li> <li>▪ Monitoring of conditions, including live feed from Chryston depot of the Traffic Scotland cameras at Old Inns, Banknock, Castlecary Bankhead and Haggs, by Duty Officers via the Traffic Scotland website and the weather station at Old Inns. Bear Scotland control room also have access to the live feeds from Traffic Scotland and can relay issues to Winter Service Manager/duty officers.</li> <li>▪ Pre-deployment of a Fasttrac vehicle</li> <li>▪ Ploughing, where applicable, to remove all snow covering</li> <li>▪ Enactment of snow plan</li> </ul>
When enacted	<p>The measures detailed above will be considered based on a forecast of significant snowfall in a short space of time with a high degree of forecaster confidence.</p> <p>In cases of low or medium forecaster confidence dialogue may be opened with HMG/Transport Scotland regarding extent of mitigation.</p>
Who enacts	Winter Service Duty Officer supported by Control Room.
Who will manage the response	Winter Service Manager or Duty Officer.
Are diversion routes to be used?	It may be possible to divert if Council roads are clear. However, should the local authority roads be deemed not fit for use then diverting traffic south on the M9 from Junction 9 towards the M8 and along the M8 corridor may be considered.



<b>Deployment of resources</b>	Available resources are detailed in Annex WSP 5.
<b>Use of VMS</b>	Contact Traffic Scotland to display information on relevant VMS signs approaching the M80 from the M9 & M876 to make drivers aware of
<b>Assistance from additional Transport Scotland resources</b>	Assistance from Transport Scotland Communications to agree message to be put out to the media.
<b>Assistance from External Sources</b>	<p>Assistance from Police Scotland in implementing road closures if deemed necessary.</p> <p>Assistance from BEAR Scotland NW and NE Units if deemed necessary.</p> <p>Assistance from other OC's, DBFO's or local authorities when enacting snow plan or additional resource requirements.</p>

Figure 4/1a: ARSA/M80 DBFO/M80/A – M80 Castlecary Arches to Old Inns SB

## AREAS REQUIRING SPECIAL ATTENTION SCHEDULE

Reference Number: ARSA/DBFO/M80/B – M80 Auchenkilns NB

<b>Location</b>	M80 Auchenkilns to Old Inns NB
<b>Grid Reference</b>	Grid refs required – 274532,674279 to 276989,676552
<b>Problem</b>	Two laned motorway 2 miles in length with potential for articulated vehicles to lose traction on the incline.
<b>Has this site experienced problems before or is it an identified risk?</b>	Due to accumulation of snow and run-off there has been previous incidents where an articulated vehicles and rear wheeled driven vehicles have lost traction..
<b>Detailed Mitigation Measures</b>	
<b>Optional Mitigation Measures</b>	<ul style="list-style-type: none"> <li>▪ Application of additional salt on inclines at driver's discretion or as instructed by the Duty Officer.</li> <li>▪ Front line treatment route (M80DBFO1) – driver awareness of the ARSA.</li> <li>▪ Patrol M80DBFO-P. (1 November to 31 March) – driver awareness of the ARSA and completion of record sheet.</li> <li>▪ Monitoring of conditions, including live feed from Chryston depot of the Traffic Scotland cameras at Auchenkilns, Seafar, Westerwood and Old Inns by Duty Officers on Traffic Scotland website. Bear Scotland control room also have access to the live feeds from Traffic Scotland and can relay issues to Winter Service Manager/duty officers.</li> <li>▪ Closure of on-slips northbound at Auchenkilns and Old Inns to allow traffic to flow more readily.</li> <li>▪ Ploughing, where applicable, to remove all snow covering</li> <li>▪ Enactment of snow plan</li> </ul>
<b>When enacted</b>	<p>The measures detailed above will be considered based on a forecast of significant snowfall in a short space of time with a high degree of forecaster confidence.</p> <p>In cases of low or medium forecaster confidence dialogue may be opened with HMG/Transport Scotland regarding extent of mitigation.</p>
<b>Who enacts</b>	Winter Service Duty Officer supported by Control Room.
<b>Who will manage the response</b>	Winter Service Manager or Duty Officer.
<b>Are diversion routes to be used?</b>	It may be possible to divert if Council roads are clear. However, should the local authority roads be deemed not fit for use then diverting traffic back along the M80/M73 toward the M8 from Auchenkilns junction may be considered.
<b>Deployment of resources</b>	Available resources are detailed in Annex WSP 5.



<b>Use of VMS</b>	Contact Traffic Scotland to display information on all available VMS signs on approaches to M80DBFO including signage on M8 and M73/M74. Additional mobile VMS signage may be considered as part of the snow plan.
<b>Assistance from additional Transport Scotland resources</b>	Assistance from Transport Scotland Communications to agree message to be put out to the media.
<b>Assistance from External Sources</b>	<p>Assistance from Police Scotland in implementing road closures if deemed necessary.</p> <p>Assistance from BEAR Scotland NW and NE Units if deemed necessary.</p> <p>Vehicle Recovery through Police Scotland Contracts if vehicles become stuck.</p> <p>Assistance from other OC's, DBFO's or local authorities when enacting snow plan or additional resource requirements.</p>

Figure 4/1b: ARSA/M80 DBFO/M80/B – M80 Auchenkilns to Old Inns NB

#### AREAS REQUIRING SPECIAL ATTENTION SCHEDULE

Reference Number: ARSA/DBFO/M80/C – M80 Castlecary NB

<b>Location</b>	M80 Castlecary Arches to Haggs on slip NB
<b>Grid Reference</b>	Grid refs required – 278787,678138 to 278988,679570
<b>Problem</b>	Two and three laned motorway 1 mile in length with potential for articulated vehicles to lose traction on the incline.
<b>Has this site experienced problems before or is it an identified risk?</b>	Due to accumulation of snow and run-off there have been previous incidents where an articulated vehicles and rear wheeled drive vehicles have lost traction
<b>Detailed Mitigation Measures</b>	
<b>Optional Mitigation Measures</b>	<ul style="list-style-type: none"> <li>▪ Application of additional salt on inclines at driver's discretion or as instructed by the Duty Officer.</li> <li>▪ Front line treatment route (M80DBFO1) – driver awareness of the ARSA.</li> <li>▪ Patrol M80DBFO-P (1 November to 31 March) – driver awareness of the ARSA and completion of record sheet.</li> <li>▪ Monitoring of conditions, including live feed from Chryston depot of the Traffic Scotland cameras at Castlecary, Banknock, Bankhead and Haggs, by Duty Officers on the Traffic Scotland website Bear Scotland control room also have access to the live feeds from Traffic Scotland and can relay issues to Winter Service Manager/duty officers.</li> <li>▪ Closure of on-slip northbound at Castlecary and Haggs to allow traffic to flow more readily.</li> <li>▪ Ploughing, where applicable, to remove all snow covering</li> <li>▪ Pre-deployment of Fasttrac vehicle</li> <li>▪ Enactment of snow plan.</li> </ul>
<b>When enacted</b>	<p>The measures detailed above will be considered based on a forecast of significant snowfall in a short space of time with a high degree of forecaster confidence.</p> <p>In cases of low or medium forecaster confidence dialogue may be opened with HMG/Transport Scotland regarding extent of mitigation.</p>
<b>Who enacts</b>	Winter Service Duty Officer supported by Control Room.
<b>Who will manage the response</b>	Winter Service Manager or Duty Officer.
<b>Are diversion routes to be used?</b>	It may be possible to divert if Council roads are clear. However, should the local authority roads be deemed not fit for use then diverting traffic back along the M80/M73 toward the M8 from Auchenkilns junction may be considered.



<b>Deployment of resources</b>	Available resources are detailed in Annex WSP 5.
<b>Use of VMS</b>	Contact Traffic Scotland to display information on all available VMS signs on approaches to M80DBFO including signage on M8 and M73/M74. Additional mobile VMS signage may be considered as part of the snow plan
<b>Assistance from additional Transport Scotland resources</b>	Assistance from Transport Scotland Communications to agree message to be put out to the media.
<b>Assistance from External Sources</b>	<p>Assistance from Police Scotland in implementing road closures if deemed necessary.</p> <p>Assistance from BEAR Scotland NW and NE Units if deemed necessary.</p> <p>Assistance from other OC's, DBFO's or local authorities when enacting snow plan or additional resource requirements.</p>

Figure 4/1/c: ARSA/M80 DBFO/M80/C – M80 Castlecary Arches to Haggs Onslip NB

## 5 DECISION MAKING



## 5.1 Role of the Winter Service Manager

The role of the Winter Service 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 free from snow and ice.

It will be the duty of the Winter Service Manager to hold regular reviews throughout the Winter Service period in order to address any issues that may have arisen in implementing the Winter Service. This will take the form of de-briefings to all key staff regarding nights where difficult road conditions have been experienced. The philosophy will be to have a 'preventive' approach rather than 'reactive' approach in all decision making.

Consequently, the Winter Service Manager will always be apprised of the Daily Action Plan, which will be developed and authorised by the Winter Service Duty Officer as detailed in section 2.2.1.

The Winter Service Manager is responsible for ensuring the ice detection system is monitored, including updated forecasts, to assess whether any changes are required to the Daily Action Plan. Where any changes to the Daily Action Plan are considered necessary, the Winter Service Duty Officer will relay this to the Winter Service Manager, Winter Service Duty Controllers and Winter Drivers, confirming the change.

The Winter Service Duty Controllers will assist the Winter Service Duty Officer in monitoring the ice detection system. The Winter Service Duty Controllers will contact the Winter Service Duty Officer if there is any significant change from the forecast road surface temperatures and precipitation. Particularly overnight, the Winter Service Duty Controllers can upgrade actions if conditions deteriorate. The Winter Service Duty Controllers cannot cancel actions without the Winter Service Duty Officer's consent.

## 5.2 Role of the Winter Service Duty Officer

The Winter Service Duty Officer is responsible for all operational matters, including the deployment of all resources (as well as any additional resources required during adverse conditions) and preparation of the Daily Action Plan.

Duty Officers are responsible for the maintenance and updating of operational records including but not limited to the following:

- treatment decisions and how decisions were taken, when and by whom;
- treatment records;
- mobile sensor records;
- material usage;
- road closure locations and times;
- logs of communications to and from vehicles on route;

- software faults;
- electronic data from data loggers;
- back up paper records.

In practical terms, the Winter Service Duty Controllers will collate much of this information on the Duty Officer's behalf.

### **5.2.1 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 a Daily Action Plan prepared each day by 15:00 hours following receipt of an expert weather forecast relayed through the ice prediction system. Treatments will be in accordance with the treatment matrices detailed in WSP 7 as per Sch 4 App B. Thereafter, and in particular where forecasts are of low confidence, conditions will continue to be monitored by Winter Service Duty Controllers; where conditions require further precautionary treatments, these will be ordered whether part of the action plan or not.

### **5.2.2 Proposals for monitoring the effectiveness of de-icing materials**

Winter Service Duty Officers and Winter Service Duty Controllers will use a variety of methods in order to assist in assessing the effectiveness of the de-icing materials which have been spread on the carriageway. These methods are as follows:

- Ice stations detail residual salt and give alarms to indicate low residual salt under certain conditions. It should, however, be remembered that particularly in drying out conditions, such readings may be unreliable;
- Warnings and alarms from all available ice stations;
- Experience of local areas and previous actions;
- Advice from weather forecasters, particularly on likely precipitation (use of weather radar) which may cause salt to be washed from carriageway;
- Feedback from spreader drivers, patrols and mobile sensors;
- Feedback from external parties such as the Police.

All of the above can be used by the Winter Service Duty Officers and Controllers to make an informed decision regarding the status of residual salt on the carriageway, and whether further pre-treatment is necessary.

On occasions when freezing rain is forecast by MetDesk BEAR Scotland will, as far as is practically possible, ensure a precautionary treatment has been undertaken prior to the times forecast for this rain as per the matrix and with reference to HA 62/05 'Guidance for dealing with Freeing Rain'

## 6 LIAISON

Our plans for liaison with people and organisations are as follows:

### 6.1 The Scottish Ministers

At the completion of each winter season BEAR Scotland will prepare an annual report in accordance with Schedule 4, Part 2, Clause 3.2.4. This report will be submitted to the Scottish Ministers prior to 31<sup>st</sup> May, and within 14 days an annual review meeting will be held to discuss the contents of the report and BEAR Scotland's performance in the immediately preceding Winter Service Period ending 15<sup>th</sup> May. Comments will be taken into consideration by BEAR Scotland in the preparation of the Winter Service Plan for the forthcoming Winter Service period, and amendments to the previous Winter Service Plan made prior to submission by 31<sup>st</sup> July. Further changes to the Winter Service Plan and addition of a snow plan are to be discussed with further updates to the plan expected.

On a daily basis, BEAR Scotland's winter Daily Action Plan will be submitted to the Scottish Ministers. During periods of prolonged severe weather, BEAR Scotland will update the Scottish Ministers at regular intervals as to conditions on the M80 O&M Works Site. If a road is closed due to severe weather conditions, the Scottish Ministers will be immediately informed by telephone call, which shall subsequently be confirmed in writing via email within 12 hours of the closure.

Throughout the Winter Service Period, a weekly winter conference call will be convened by Transport Scotland. Generally, this call will involve Transport Scotland, Operating Companies, DBFO Companies, Traffic Scotland, Police Scotland and the Met Office in order to discuss the winter service and any incidents in the preceding week as well as any perceived issues in the upcoming week. Prior to the conference call, BEAR Scotland shall submit a Weekly Winter Report to Transport Scotland following receipt of the daily forecast each Thursday.

BEAR Scotland will also liaise with Transport Scotland's Multi Agency Response Team (MART) as directed by Transport Scotland. There will normally be a daily conference call between Transport Scotland, Operating Companies and DBFO companies prior to and during a severe weather event. Details of daily plant and resources may be requested. BEAR Scotland will have a presence in MART when requested by Transport Scotland. The M80 DBFO will be represented by a member of staff from either the North East or North West Units.

In discussion with HMG/Transport Scotland, BEAR Scotland may send an additional resource to the MART when disruption is anticipated on the M80 DBFO due to severe winter weather. The M80 DBFO representative will be fully briefed and made aware of the Areas Requiring Special Attention following discussions with the Winter Service Duty Officer or Winter Manager

throughout any disruption period and when possible this member of staff will have previous knowledge of the M80DBFO.

## **6.2 The Police**

In the compilation of the annual Winter Service Plan (WSP) a meeting will be held with the Police to capture all views so that any amendments can be introduced into the WSP prior to submission to the Scottish Ministers for their approval. The meeting shall take the form of a review of the draft WSP for the forthcoming season and provide a forum in which Police Scotland can comment on what, in their opinion, may be improved upon.

During the winter season it is essential that good communication lines are maintained between BEAR Scotland and local Police. This is particularly the case during periods of severe weather. A dedicated phone line shall be implemented for the Emergency Services, the number for which will be known only to the Emergency Services, so that Winter Service Duty Controllers can clearly distinguish between general calls and any calls from the Emergency Services including Police Scotland

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

## **6.3 Traffic Scotland Operator**

BEAR Scotland in conjunction with the Police ensure that during periods of severe weather, a consistent message is given to the Traffic Scotland Operator in order that accurate messages can be displayed on the variable message signs and also accurate information can be relayed to the public through Traffic Scotland's web site.

BEAR Scotland's winter Daily Action Plan will be submitted to the Traffic Scotland Operator on a daily basis.

## **6.4 Adjacent Road and Highway Authorities**

Adjacent local authorities will be consulted prior to the start of the Winter Service period.

BEAR Scotland will issue its winter Daily Action Plan to all adjacent road and highway authorities on a daily basis. Winter issues shall also be an item on the agenda at liaison meetings with all adjacent road and highway authorities.

## **6.5 Adjacent Trunk Road Operating Companies**

Adjacent Trunk Road Operating Companies will be consulted prior to the start of the Winter Service period.

BEAR Scotland shall issue its winter Daily Action Plan to all adjacent Trunk Road Operating Companies on a daily basis.

Winter issues shall also be an item on the agenda at liaison meetings with all adjacent Trunk Road Operating Companies.

## 6.6 Network Rail

There are no railway crossings on the M80 O&M Works Site; however BEAR Scotland's winter Daily Action Plan shall be submitted to Network Rail on a daily basis.

## 7 WINTER SERVICE PATROLS



Where instructed, a Winter Service Patrol shall operate between 1<sup>st</sup> November and March 31<sup>st</sup> during the Winter Service Period. The Winter Service Patrol shall operate on the network between the hours of 2am and 10am when road surface temperatures are forecast to be less than 3°C. The route time shall not exceed 1 hour and shall have a 30 minute response

time. The Patrol route is shown in Annex WSP 11.

## 8 PRECAUTIONARY TREATMENT

### 8.1 Precautionary Treatment Routes

Two precautionary treatment routes for the M80 O&M Works Site have been identified, and associated route cards provided as given in Annex WSP 2. Treatment Routes include all hard shoulders and also associated slip roads at Junctions 3, 4, 4a, 5, 6, 6a and 7 of the M80 and Junction 3 of the M73 up to the Local or adjoining Authority Boundary. Dedicated slip roads form the 3 and 4 lane sections and are treated separately from the mainline carriageway.

- (i) The routes have been designed to ensure that treatment time can be completed within 2 hours of commencement. Furthermore, the routes have been assessed to ensure that the contractual response time in paragraph 3.10.1 of Part 2 of Schedule 4 of one hour will be met. In the design of the routes, due cognisance has been taken of likely driver's locations, and the need to ensure that rotas are carefully managed in this regard. On some occasions it may be necessary to pre-load spreading vehicles as instructed by the Winter Service Manager.



- (ii) Should, for any reason, the normal access to a route be blocked, both treatment routes can be accessed by making use of diversion routes using the local authority road network, or from an alternative depot if necessary.
- (iii) Treatment of all precautionary routes will include areas deemed to be contiguous and included in the total width of the main carriageway

It is proposed that the precautionary treatment routes will generally be carried out in order to ensure that all carriageways with negative texture surfaces will be treated as close as is practicable to the time forecast for road surface temperatures to be at less than or equal to +1°C.

Whilst BEAR Scotland will comply fully with the requirement in paragraph 3.3.3 of Schedule 4 Part 2 for three trained Winter Drivers to be available for each item of frontline Winter Constructional Plant, it is also proposed that there will be a rota of four Winter Drivers for the precautionary treatment routes in order to fully comply with driver's hours regulations.

## **9 SNOW AND ICE CLEARANCE**

### **9.1 Snow Clearing**

As soon as the Winter Service Duty Controller, Duty Officer or Manager becomes aware that snow is falling or if the forecasting organisation advises the Winter Service Duty Officer through the consultancy service that snow is about to fall, resources will be mobilised from the depot to reach the route within one hour of making the decision. They will remain on the route except for re-loading breaks or change of shifts, until such time as the road is cleared.

Where the accumulation of snow is expected to be less than 20mm deep, one vehicle will be deployed to treat each route. Where, however, snow is expected to accumulate to a depth greater than 20mm, reserve vehicles will be deployed as appropriate. In advance of any predicted snow conditions, snow ploughs shall be mounted to winter constructional vehicles as required.



Where extreme conditions are experienced such that there is a possibility of roads being closed, the Winter Service Duty Officer can deploy additional resources. In relation to clearance of ice that has already formed, the Winter Service Duty Officer will deploy whatever resources are deemed necessary based on the reports from patrols, Police or drivers sent out as a result of ice prediction site monitoring.

Where ploughing is required but is not at levels where additional vehicles have been deployed, echelon ploughing will still be carried out on all dual carriageway sections.

In snow conditions, BEAR Scotland will give priority to clearing lanes of snow, removing it to the verge-side carriageway channels, and ensuring that entry and exit points, including slip roads to the Trunk Road Network are not blocked. Clearance of snow from the hard shoulder will be carried out only after the main carriageway has been cleared of snow.

During and after prolonged snowfall, continuous ploughing will be utilised to prevent snow build-up and compaction by traffic. Snow blowers can be deployed where deep accumulations have occurred due to prolonged snowfall or drifting.

Where hard-packed snow and ice have formed and cannot be removed by ploughing, 5mm sharp sand will be added to the salt at a ratio of 1:1 and successive treatments at a spread rate of 20 to 40g/m<sup>2</sup> will be undertaken to aid vehicular traction. Treatment with pure salt will be reverted to as soon as the hard packed material has been removed.

In addition to the frontline and reserve spreaders, BEAR Scotland can call upon additional labour and plant resources to enhance our snow clearing capacity. These consist of Fastrac vehicles, ice breaking machinery, snow blowers, vehicles capable of having a snowplough blade fitted, and mechanical excavators.

Any decision to close a road will be taken by the Police. This decision will generally be relayed by the Police to the Winter Service Duty Officer using the dedicated phone line. The Winter Service Duty Officer is responsible for liaison with the police.

The Winter Service Manager, HMG, the Scottish Ministers and Traffic Scotland will be informed immediately by telephone and in writing via email within 12 hours of any decision to close a road, or of other major problems encountered within the M80 O&M Works Site due to winter weather conditions. Liaison will also take place through MART with Transport Scotland.

Police Scotland, in co-ordination with MART, BEAR and Traffic Scotland, will normally notify the other Emergency Services of any road closures and will arrange for the provision of advance warning signs. Traffic Scotland will activate variable message signs where appropriate. BEAR Scotland will also communicate via social media any adverse weather conditions that are being experienced on the network

The Winter Service Duty Officer will also notify the local Roads Authorities of any relevant trunk road closures.

During periods of prolonged snowfall, additional staff will be deployed in the Winter Service Control Room and continual shifts will be employed for winter maintenance operations at relevant BEAR Scotland depots. The period for which continual shifts apply will be agreed between the Winter Service Manager and the Winter Service Duty Officers and may not need to be applied concurrently at all depots, as weather conditions may be localised and not affecting all areas. In such cases, careful consideration will be given to the movement of resources between depots.

## 10 DE-ICING MATERIALS

### 10.1 Details

Pre-wetted salt will be used as a de-icing material on the M80 O&M Works Site carriageways for the Winter Service Period.

#### 10.1.1 Salt

Rock salt shall be 6.3mm grading particle size complying with BS3247 or equivalent, treated with an anti-caking agent and will be sourced from recognised suppliers. Samples will be obtained for laboratory testing to ensure compliance with this standard.

Salt storage will be such that the stockpiles do not become contaminated with foreign matter, and that the salt storage and loading/discharge operations do not adversely affect the adjacent environment. It is also important that salt is stored in conditions which allow the moisture contents defined in the contract to be achieved.

Arrangements will be put in place with a UKAS-accredited testing agency to carry out testing of new deliveries of salt on arrival and monthly tests on existing salt stockpiles. At times of high usage, the monthly test may coincide with the testing of new salt. All testing reports will be sent to the Winter Service Manager who will authorise the salt as “fit for use”.



Where there are any non-conformances arising from the test results, the Winter Service Manager will be responsible for closing these out by detailing the action(s) necessary to ensure compliance with the contract. This may, where appropriate, involve the use of enhanced salting rates.

In the event of salt moisture content reaching an unacceptable level, this material will be set aside and replaced with salt with acceptable moisture content.

Rock salt complying with BS3247 “Salt for spreading on highways for winter maintenance” will be sourced from recognised suppliers. This salt shall be transferred by either road or ship as appropriate for each depot location.

A salt management strategy is in place which takes into account minimum salt stock levels at the depot detailed in WSP 3. This details the minimum level of salt that will be held at the depot at any time throughout the winter period. The strategy will be to maintain adequate stocks at the depot and to regularly top up the stockpiles as necessary. This will be achieved by utilising salt stocks from

other BEAR Scotland depots (primarily Perth) when required. Rigorous reporting of salt usage will enable accurate reporting of stock levels held at the depot. Should this strategy change on the M80 O&M Works site, the Scottish Ministers will be notified of our procedure. This document will be subsequently updated and resubmitted for approval. BEAR Scotland will report salt stocks to the Scottish ministers on a monthly basis between September to June and weekly basis during November and March. These updates will be provided on the DFT portal.

### 10.1.2 Brine

Salt Saturators will be installed at each depot for the production of brine. The brine will have a minimum concentration of 23% dissolved sodium chloride. This level of salt concentration is measured automatically on the digital read out screen but will also be tested and recorded on a daily basis by a member of the Operations Team.

These daily checks of the concentration of the brine solution shall be carried out at each depot using a saturation meter and the results shall be stored electronically at each depot.

Salt used in the production of brine shall be as specified by the manufacturer of the relevant salt saturator for each depot.

BEAR Scotland shall monitor the levels of salt and brine being utilised and shall include the related data in the contract required Monthly and Annual reports.

Brine will be stored both in the salt saturator and also each spreading vehicle will be re-filled immediately after treatment undertaken, thus acting as a further storage facility. This maximises the volume of brine available at any time, ensuring an immediate response to any treatment decision.

Operational staff and operatives at BEAR Scotland's Chryston depot will be given the responsibility for daily checks of the concentration of the brine solution. These checks shall be carried out using a saturation meter, and the results passed to the Winter Service Duty Controllers who will store these electronically. Original records of these checks will be retained at BEAR Scotland's Chryston depot.

Brine added to salt during spreading operations shall be 30% of the total spread material by weight (70% salt, 30% brine solution) and the brine solution shall be of a minimum concentration of 23% dissolved sodium chloride, except where forecast temperatures are to fall below minus 15 °C.

Where temperatures are forecast to below minus 15°C the fully saturated brine shall be diluted by the addition of 5%-10% water to prevent re-crystallisation of the salt. The addition of water shall be

undertaken in such a manner that ensures the water and brine is thoroughly mixed to produce a consistent concentration of brine.

As soon as the temperature rises above minus 15°C a return to an application of fully saturated brine solution shall be employed.

## 11 WINTER CONSTRUCTIONAL PLANT

BEAR Scotland's Fleet Manager is responsible for all matters relating to servicing and maintenance of winter plant, and will ensure that all winter maintenance plant is properly maintained, including:

- drafting and implementing proactive maintenance regimes for specialist items of plant and equipment in accordance with F.T.A., DoT and Operator's Licence requirements;
- training drivers and mechanics on the plant they operate and maintain;
- fully resourced static and mobile workshops, including standby rotas for management and fitters;
- ensuring the fleet is effectively maintained and used in the manner for which it was intended;
- undertaking weekly checks and filing defect reports on all plant;
- calibration of salt spreading plant in September and January in accordance with the manufacturers' recommendations. All calibrations shall be carried out by an independent third party in the manner described in 11.5.

All Winter Fleet and Incident Support vehicles will carry a supply of 24 space blankets, 24 bottles of water and 24 energy bars.

### 11.1 Frontline Winter Constructional Plant





There will be two frontline vehicles located at the Chryston depot as detailed in Annex WSP 5 Table 1.

## **11.2 Reserve Winter Constructional Plant**

There will be two reserve vehicles located at the Chryston depot as detailed in Annex WSP 5 Table 2.

## **11.3 Additional Winter Constructional Plant**

Additional winter constructional plant is detailed in Annex WSP 5 Table 4.

When additional winter constructional plant is required for assisting with clearance of snow or ice, this shall be anticipated by the Winter Service Duty Officer from the assessment of the long range 2-10 day weather forecast provided by MetDesk As well as additional salt spreaders and snow ploughing machinery, BEAR Scotland will be able to utilise a specialist ice breaking machine to assist with winter activities as required throughout the Winter Service Period.

On receipt of a forecast which predicts a major snowfall, the Winter Service Duty Officer shall contact all parties involved in providing additional winter constructional plant and a rota with contact details of all operatives involved shall be created and communicated to the Winter

Service Manager and Winter Service Duty Officers via email. Once conditions reach the stage that these additional resources are required, the Winter Service Duty Officer shall call the appropriate operatives and give clear instructions on what they are required to do. Details of all actions shall be recorded in the appropriate electronic log.

Where advance notice is not received in relation to extreme conditions, the timescale of a maximum of four hours until the additional resource is operating at the required location will still be met. The contractual terms entered into with the hauliers who will provide this service will also stipulate that they must make the resources available as requested; their readiness to provide vehicles with the appropriate prioritisation will be checked at the start of each Winter Service Period.

#### **11.4 Loading Winter Constructional Plant**



A JCB 530/70 Telescopic Loader or similar will be located at BEAR Scotland's Chryston depot for the purpose of loading all winter constructional plant. See Annex WSP5 Table 5.

#### **11.5 Calibration of Constructional Plant**

BEAR Scotland will arrange for the calibration of all of its salt spreading equipment in September and January of each year. Calibration will be carried out in accordance with the requirements of

BS1622 or equivalent manufacturers' recommendations. Calibration Certificates will be held in the Central Office. Calibration records will also be uploaded to the Sharepoint Intranet.

As pre-wetted salt is being used to treat the carriageway, the condition in BS1622 Appendix A performance test states that the calibration test will be carried out on a still day. BEAR Scotland propose to perform Appendix B static discharge performance test in conjunction with Appendix C road discharge performance test from BS1622 to verify calibration of the spreaders. Calibration will be fully carried out in accordance with the manufacturers' recommendations and will be independently tested and certified.

Calibration will ensure that the spread width settings provide for the full carriageway width being treated with salt. Re-calibration and testing will take place after repairs to the spreading equipment and at any time doubts over the accuracy of spreading are indicated from salting records.

The Winter Service Manager will liaise with the Fleet Manager, who is responsible for ensuring all calibrations are carried out as planned. The Winter Service Manager will also be present at the dynamic testing required at the pre-season calibration. This will be carried out in accordance with BS1622 Test C.

## **12 MAPS DRAWINGS AND GRAPHICAL INFORMATION**

### **12.1 Maps**

#### **12.1.1 Precautionary Treatment Route Maps**

Maps showing the general layout of the M80 O&M Works Site are included in Annex WSP2.

#### **12.1.2 Forecast Station Location Map**

A location map showing the site of the M80 Old Inns station for the M80 O&M Works Site is given in Annex WSP 6.

## **13 COMPILING AND MAINTAINING RECORDS**

Records of decisions, amendments to decisions, actions taken and patrol communications will all be maintained on electronic logs in the Winter Control Room. It is the responsibility of the Winter Service Duty Officer to ensure all winter records (electronic and paper copies) are collected and maintained in a suitable format. Winter Records will be available to the Scottish Ministers Representatives via the BEARNET client access page for the M80DBFO.

The vehicle data logs will be interrogated for effectiveness and efficiency of the operations. A daily report on the preceding day's winter maintenance operations will be submitted to the Winter Service Manager for perusal and action where required.

In addition, records as detailed in Appendix C of Part 2 of Schedule 4 will be held in appropriate electronic logs.

The following list identifies daily records which will be held electronically in accordance with Schedule 4 Part 2 Clause 3.2.3:

- a) Decisions taken when and by whom;
- b) Planned and actual treatment records;
- c) Planned and actual response times achieved;
- d) Planned and actual commencement times;
- e) Planned and actual route times;
- f) Planned and actual spread rates;
- g) Winter Constructional Plant down time and software faults;
- h) Winter Service plant deployment records (including global positioning system records)  
driver operator logs and recording of telephone calls;
- i) Logs of telephone, e-mail and two way communication calls;
- j) Loading point de-icing stocks and replenishment orders;
- k) Ice prediction system records;
- l) Weather forecasts and actual weather experienced;
- m) Complaints from members of the public and other road users;
- n) Accidents resulting from winter conditions;
- o) Road closures due to winter conditions;
- p) Weights and volumes as appropriate from de-icing material(s) spread for each route;
- q) A log of hours for each operative spent on "call out" or "standby"; and
- r) Winter patrol records.

A shared area will be set up on the BEAR Scotland central computer server where all appropriate files to which the Scottish Ministers require access will be stored. These files will be updated as per the contractual requirements to ensure the data is as up to date as possible. The remote access for all files stored on the shared area shall be "Read only" to ensure the integrity of files.

## **14 SNOW POLES**

There are currently no snow poles within the M80 O&M Works Site.

## **15 SNOW GATES**



There are currently no snow gates within the M80 O&M Works Site.

## **16 VARIABLE MESSAGE SNOW AND ICE HIDDEN MESSAGE SIGNS**

Variable message signs are in place throughout the M80 Stepps to Haggs O&M Works Site, including the M73/M80 Link Road. Following liaison with Traffic Scotland / Transport Scotland, and when circumstances permit, these signs will be utilised to relay information to the travelling public as to any predicted adverse weather conditions or current incidents on the M80 Stepps to Haggs DBFO relating to winter. Traffic Scotland operate and maintain all variable message signs on the M80 O&M Works Site.

## **17 SALT BINS AND SELF HELP HEAPS**

There are currently no salt bins nor self help heaps within the M80 O&M Works Site.



## **18 SALT MEASUREMENT APPARATUS**

### **18.1 Details of equipment and locations and available recording methods**

BEAR Scotland has a weighbridge at their Chryston Depot in order to accurately record the quantities of salt being used.

The measure can provide an electronic printout which will be held as a winter record. The facility will be calibrated strictly in accordance with manufacturer's instructions by an external sub contractor.



<p><b>Ref No :</b> M80DBFO-Winter Service Plan <b>Issue:</b> Draft <b>Related to:</b> M80DBFO</p>	<p><b><u>M80 Stepps to Haggs O&amp;M Works Site</u></b> <b>Winter Service Plan</b> 2018-2019</p>		
---	--	---	--

## Annex WSP 1 – Not Used

## Annex WSP 2

### Precautionary Salting Routes

**Table 1**

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
1	Chryston	M80 DBFO Route 1	9.7	13.3	43.6	56.3	80.2	9.2	See route details
2	Chryston	M80 DBFO Route 2	6.8	8.3	24.1	55.9	87.3	6.5	See route details

**Table 2**

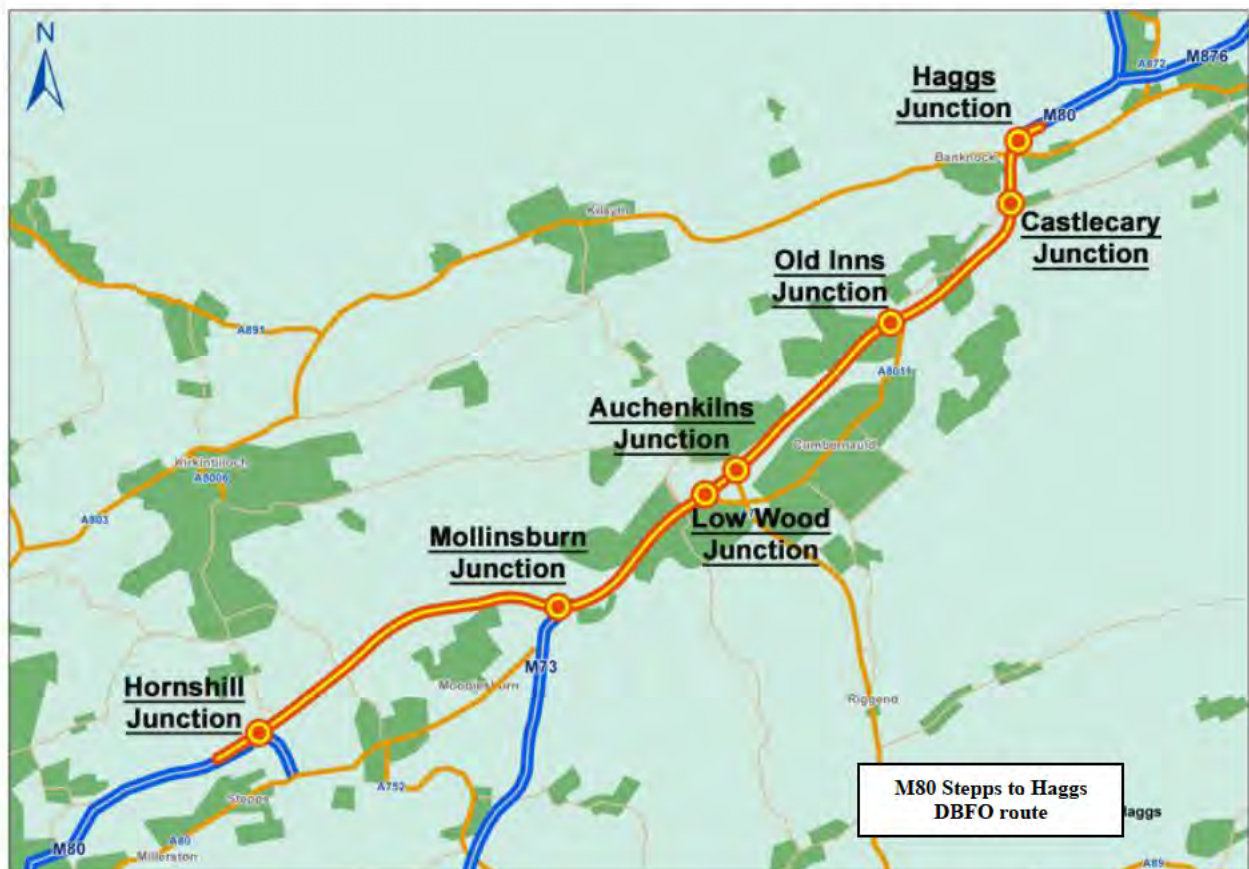
Route	Average Width of Route	Route Tonnage @ 10g/m <sup>2</sup>	Route Tonnage @ 20g/m <sup>2</sup>	Treatment Type
1	10	4.4	8.7	Pre-wetted salt
2	10	2.4	4.8	Pre-wetted salt

**Route: Route 1**

Spread Rate: Up to 20g/m<sup>2</sup>

Treatment Type: Pre-wetted Salt

Depot	Chryston	Route Efficiency (%)	57.9%
		Route Length (km)	75.3
Depot to Route (km)	9.7	Route Treated Length (km)	43.6
Depot to Route (mins)	13.3	Route Time (mins)	80.2
		Route Tonnage (t)	8.7
Route to Depot (km)	9.2	Route Average Width (m)	10
Route to Depot (mins)	10.6	Route Average Speed (km/hr)	56.3



**Alternative Access:** In the event of any interruption to the network which would require alternative access, the frontline vehicle will treat the network to the point of blockage and then use the local road network to circumvent the blockage.



Route 1

Step	Salt/Travel	Route	Distance (km)	Time (mins)	Salt Usage at 20g/m <sup>2</sup> (tonnes)
1	Travel	Depot to start of Westfield N/B off slip from M80 via Gartferry Road, A752, A80, Crowwood Rdbt. and Jct.3.	9.7	13.33	0.00
START OF ROUTE					
2	Salt	Westfield N/B off slip to end (left side of splitter island).	0.5	0.49	0.10
3	Travel	From end of slip road to start of Westfield S/B on slip (right side of splitter island) via Deerdykes Rdbt.	1.4	3.74	0.00
4	Salt	Right side of splitter island on Westfield S/B on slip on to M80 S/B.	0.7	0.69	0.14
5	Salt	M80 S/B from end of Westfield on slip to end of DBFO route at Jct.2 Robroyston.	7	6.86	1.40
6	Travel	S/B from end of DBFO route to start of N/B DBFO route via M80 Jct.1.	8.2	8.11	0.00
7	Salt	N/B from start of DBFO route to splitter island on Westfield N/B off slip.	7.2	7.06	1.44
8	Salt	Right side of splitter island on Westfield N/B off slip.	0.05	0.06	0.01
9	Travel	From end of Westfield N/B off slip to start of Westfield S/B on slip (left side of splitter island).	0.5	2.62	0.00
10	Salt	Left side of splitter island on Westfield S/B on slip.	0.05	0.06	0.01
11	Travel	S/B to start of Jct.3 S/B off slip.	4.5	4.41	0.00
12	Salt	Jct.3 S/B off slip to roundabout.	0.43	0.42	0.09
13	Travel	Enter Jct.3 Roundabout and take exit for M80 S/B.	0.15	0.69	0.00
14	Salt	Jct.3 S/B on slip to M80.	0.6	0.59	0.12
15	Travel	S/B from end of Jct.3 on slip to start of Jct.2 off slip.	1.5	1.47	0.00
16	Salt	Jct.2 S/B off slip to end.	0.45	0.44	0.09
17	Travel	From end of Jct.2 S/B off slip to start of Jct.2 N/B on slip.	0.4	1.00	0.00
18	Salt	Jct.2 N/B on slip to M80.	0.42	0.41	0.08

Step	Salt/Travel	Route	Distance (km)	Time (mins)	Salt Usage at 20g/m <sup>2</sup> (tonnes)
19	Travel	N/B from end of Jct.2 N/B on slip to start of Jct.3 N/B off slip.	1.7	1.67	0.00
20	Salt	Jct.3 N/B off slip to roundabout.	0.6	0.59	0.12
21	Travel	Enter Jct.3 Roundabout and take exit for M80 N/B.	0.15	0.65	0.00
22	Salt	Jct.3 N/B on slip to M80.	0.6	0.59	0.12
23	Travel	N/B from end of Jct.3 N/B on slip to start of Westfield N/B off slip.	4.2	4.12	0.00
24	Salt	N/B from start of Westfield off slip to start of Haggs N/B off slip.	11.7	11.47	2.34
25	Salt	N/B from start of Haggs N/B off slip to end of Haggs N/B on slip.	0.53	0.52	0.13
26	Salt	N/B from end of Haggs N/B on slip to end of DBFO route.	0.25	0.25	0.05
27	Travel	N/B from end of DBFO route north of Haggs to M876 Jct.1, turn then return S/B to start of DBFO route north of Haggs.	9	8.99	0.00
28	Salt	S/B from start of DBFO route to Westfield S/B on slip.	12.5	12.26	2.50
END OF ROUTE					
29	Travel	Back to depot via M80 Jct.3, Crowwood Rdbt., Muirhead, Gartferry Road.	9.2	10.62	0.00

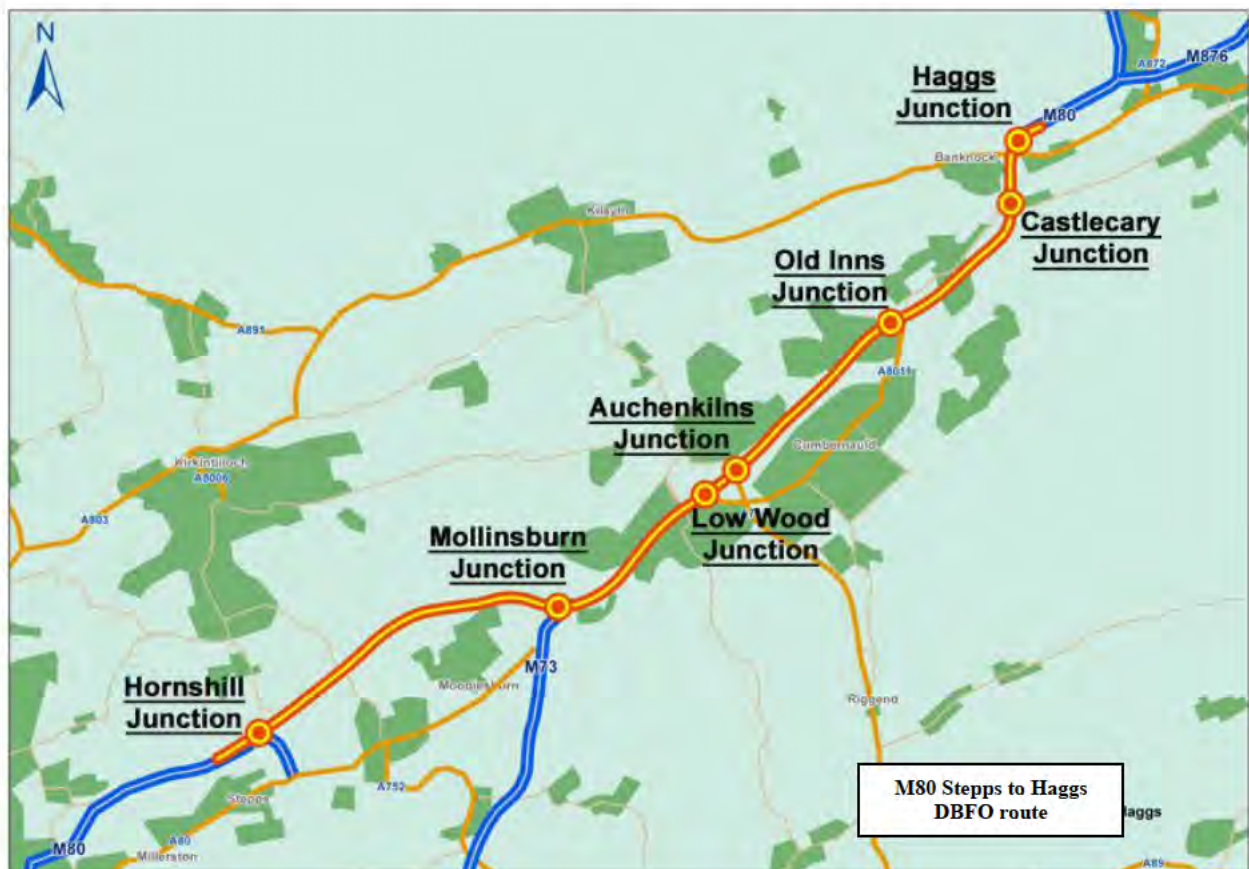


**Route: Route 2**

Spread Rate: Up to 20g/m<sup>2</sup>

Treatment Type: Pre-wetted Salt

Depot	Chryston	Route Efficiency (%)	29.7%
		Route Length (km)	81.3
Depot to Route (km)	6.8	Route Treated Length (km)	24.1
Depot to Route (mins)	8.4	Route Time (mins)	87.3
		Route Tonnage (t)	4.83
Route to Depot (km)	6.5	Route Average Width (m)	10
Route to Depot (mins)	11.7	Route Average Speed (km/hr)	55.9



**Alternative Access:** In the event of any interruption to the network which would require alternative access, the frontline vehicle will treat the network to the point of blockage and then use the local road network to circumvent the blockage.

Route 2

Step	Salt/Travel	Route	Distance (km)	Time (mins)	Salt Usage at 20g/m <sup>2</sup> (tonnes)
1	Travel	Depot to start of Lowwoods N/B off slip via Gartferry Road, Westfield link and M73 N/B.	6.8	8.34	0.00
START OF ROUTE					
2	Salt	Lowwoods N/B off slip to A8011 (taking right fork on the slip).	0.9	0.88	0.18
3	Travel	From end of Lowwoods N/B off slip to start of Lowwoods S/B on slip via Condorrat Ring Road.	1.1	2.37	0.00
4	Salt	Lowwoods S/B on slip to M80.	0.55	0.54	0.11
5	Salt	S/B from end of Lowwoods S/B on slip to start of M73 link road in dedicated lane.	1.5	1.47	0.30
6	Salt	S/B from start of M73 link road to end of DBFO route on M73 S/B.	2.7	2.65	0.54
7	Travel	S/B from end of DBFO route to Jct.2a, turn then return to start of DBFO route on M73 N/B.	5.2	4.46	0.00
8	Salt	N/B from start of DBFO route taking right lane at lane split prior to M80 merge, on to lane 1 at M80 merge then on to start of Lowwoods N/B off slip.	3.6	3.53	0.72
9	Travel	N/B from start of Lowwoods N/B off slip to start of Auchenkilns N/B off slip.	0.6	0.40	0.00
10	Salt	Auchenkilns N/B off slip to roundabout then take 2nd exit to start of Auchenkilns N/B on slip.	0.45	0.44	0.09
11	Salt	Auchenkilns N/B on slip to A80.	0.6	0.59	0.12
12	Travel	N/B from end of Auchenkilns N/B on slip to start of Old Inns N/B off slip.	2.4	1.60	0.00
13	Salt	Old Inns N/B off slip to end, then turn round on Old Inns Rdbt. to start of Old Inns N/B on slip.	0.7	1.25	0.14
14	Salt	Old Inns N/B on slip to M80.	0.67	0.71	0.13
15	Travel	N/B from end of Old Inns N/B on slip to start of N/B emergency lane prior to Castlecary Arches.	2.05	2.01	0.00
16	Salt	N/B emergency lane at Castlecary Arches.	0.25	0.31	0.05
17	Travel	N/B from end of N/B emergency lane at Castlecary Arches to start of Haggs N/B off slip.	0.95	0.93	0.00



Step	Salt/Travel	Route	Distance (km)	Time (mins)	Salt Usage at 20g/m <sup>2</sup> (tonnes)
18	Salt	Hags N/B off slip to end.	0.5	0.53	0.10
19	Travel	S/B on A803 to mini-roundabout in Hags and turn round to start of Hags N/B on slip	0.55	1.68	0.00
20	Salt	Hags N/B on slip to end.	0.6	0.64	0.12
21	Salt	N/B from end of Hags N/B on slip to end of DBFO route in lane 1.	0.25	0.25	0.05
22	Travel	N/B from end of DBFO route to M876 Jct.1, turn S/B then on to start of S/B DBFO route north of Hags.	9	8.71	0.00
23	Salt	S/B dedicated lane on to Hags S/B off slip to end from start of DBFO route, then turn on mini-roundabout to start of Hags S/B on slip.	0.75	0.74	0.15
24	Salt	Hags S/B on slip to dedicated lane for Castle Cary.	0.36	0.38	0.07
25	Salt	S/B dedicated lane for Castle Cary from end of Hags S/B on slip to start of Castle Cary S/B off slip.	0.64	0.68	0.13
26	Salt	Castle Cary S/B off slip taking right side of splitter island.	0.3	0.37	0.06
27	Travel	B816 over M80 to start of Castle Cary N/B on slip.	0.35	0.84	0.00
28	Salt	Castle Cary N/B on slip (1st slip) to lane 1 of M80 N/B.	0.27	0.26	0.05
29	Salt	N/B from end of Castle Cary N/B on slip to start of Hags off slip in lane 1.	0.85	0.83	0.17
30	Travel	From start of Hags N/B off slip to start of splitter island on Castle Cary S/B off slip via Hags.	2.45	3.28	0.00
31	Salt	Top of Castle Cary S/B off slip to left of splitter island & turn left.	0.08	0.08	0.02
32	Travel	Travel & turn at 1st available point (NOT IN VILLAGE!!) back along B816 to start of Castle Cary N/B on slip (old bus gate).	4.4	6.10	0.00
33	Salt	Castle Cary N/B on slip (old bus gate slip).	0.07	0.07	0.01
34	Travel	From Castle Cary N/B on slip to Hags, turn, then S/B to start of S/B emergency lane at Castle Cary Arches.	3	3.48	0.00
35	Salt	S/B emergency lane at Castle Cary Arches on to dedicated lane for Old Inns to start of Old Inns off slip.	1.92	1.88	0.38
36	Salt	Old Inns S/B off slip going left at splitter island (Cumbernauld-bound).	0.95	1.01	0.19



**M80 Stepps to Haggs O&M Works Site**  
**Winter Service Plan**  
2018-2019



Step	Salt/Travel	Route	Distance (km)	Time (mins)	Salt Usage at 20g/m <sup>2</sup> (tonnes)
37	Travel	From end of Old Inns S/B off slip to start of splitter island on Old Inns S/B off slip via Cumbernauld Village, Old Inns N/B on slip, M80 N/B, Haggs, then M80 S/B.	10.3	12.97	0.00
38	Salt	Right side of splitter island on Old Inns S/B off slip to traffic lights on A8011.	0.03	0.03	0.01
39	Travel	From end of Old Inns S/B off slip to start of Old Inns S/B on slip.	0.02	1.02	0.00
40	Salt	Old Inns S/B on slip.	0.45	0.48	0.09
41	Travel	S/B from end of Old Inns S/B on slip to start of Auchenkilns S/B off slip.	3.1	2.06	0.00
42	Salt	Auchenkilns S/B off slip to roundabout and take 2nd exit to start of Auchenkilns S/B on slip.	0.55	0.54	0.11
43	Salt	Auchenkilns S/B on slip to M80.	0.36	0.35	0.07
44	Travel	S/B from end of Auchenkilns S/B on slip to start of Mollinsburn S/B off slip.	2.8	1.86	0.00
45	Salt	Mollinsburn S/B off slip then turn round on mini-roundabout to start of Mollinsburn S/B on slip.	0.42	0.91	0.08
46	Salt	Mollinsburn S/B on slip to end.	0.57	0.56	0.11
47	Travel	S/B from end of Mollinsburn S/B on slip to M73 Jct.2a, turn N/B then to start of Westfield N/B off slip on M73.	6.8	6.07	0.00
48	Salt	Westfield N/B off slip to roundabout then turn to start of Westfield N/B on slip.	0.67	1.16	0.13
49	Salt	Westfield N/B on slip to M73.	0.44	0.43	0.09
50	Travel	N/B from end of Westfield N/B on slip to start of left split in road at the lane split prior to the M80 merge.	1.05	0.87	0.00
51	Salt	N/B on left lane following lane split prior to the M80 merge to end.	0.83	0.81	0.17
52	Travel	N/B from end of M73 on slip to start of left split in road on Lowwoods N/B off slip.	1.03	0.77	0.00
53	Salt	Left split in road on Lowwoods N/B off slip to the A8011.	0.39	0.38	0.08
END OF ROUTE					
52	Travel	Back to depot via Westfield Road and Gartferry Road.	6.5	11.65	0.00

## Annex WSP 3

**Table 1 – Minimum Salt Levels**



Unit		
Minimum stock level at 1 <sup>st</sup> October (tonnes)	Minimum stock level at 15 <sup>h</sup> December (tonnes)	Minimum stock level at 1 <sup>st</sup> March (tonnes)
600	800	400

### Actual Salt Levels to be provided

**Table 2 – Actual Salt Stock Levels**

1100 tonnes Chryston
Additional 1900 tonnes available across BEAR Scotland's depot network



<p><b>Ref No :</b> M80DBFO-Winter Service Plan  <b>Issue:</b> Draft  <b>Related to:</b> M80DBFO</p>	<p><b><u>M80 Stepps to Haggs O&amp;M Works Site</u></b>  <b>Winter Service Plan</b>  2018-2019</p>		
---	--	---	--

## Annex WSP 4 – Not Used

## Annex WSP 5

### Winter Service Constructional Plant

**Table 1:**

**Frontline Winter Constructional Plant permanently available and located in Chryston Depot for Winter Service for carriageways.**

Type of Winter Constructional Plant	Depot Location	Vehicle Capacity	No of Vehicles	Plant Use	Reg.
6 X 4 32T GVW	Chryston	12 m <sup>3</sup>	1	Nil	PN65 EWG
6 X 4 32T GVW	Chryston	12 m <sup>3</sup>	1	Nil	PN65 EWH

**Table 2:**

**Reserve Winter Constructional Plant permanently available and located in Chryston Depot for Winter Service for carriageways.**

Type of Winter Constructional Plant	Depot Location	Vehicle Capacity	No of Vehicles	Plant Use	Reg.
6 X 4 26T GVW	Chryston	9 m <sup>3</sup>	1	Nil	SV57 BJX
6 X 4 26T GVW	Chryston	9 m <sup>3</sup>	1	Nil	YG68 DJE

**Table 3:**


**Reserve Winter Constructional Plant permanently available and located in Chryston Depot for Winter Service for non-motorised user facilities (not applicable in full services).**

Type of Winter Constructional Plant	Depot Location	Vehicle Capacity	No of Vehicles	Plant Use
Nil				

**Table 4:**

**Additional Winter Constructional Plant.**

Type of Winter Constructional Plant & Registration No	Depot Location & Operator	No of Vehicles	Vehicle Capacity	Registration No.	Mobilisation time in hours from Perth
6X4 26T GVW (Shared Resource)	Perth (BEAR Scotland)	2	9m <sup>3</sup>	Various depending on available vehicle in Perth	4
Rolba 400D Snowblower	Perth (BEAR Scotland)	1	N/A	N/A	4

<b>Ref No :</b> M80DBFO-Winter Service Plan <b>Issue:</b> Draft <b>Related to:</b> M80DBFO	<b><u>M80 Stepps to Haggs O&amp;M Works Site</u></b> <b>Winter Service Plan</b> 2018-2019		
--	---	--	--

(Shared Resource)					
Raiko Ice Breaker	Transport Scotand	1		N/A	2

**Table 5:**

**Loading Winter Constructional Plant permanently available and located in the M80 O&M Works Site at the loading point.**

Type of Winter Constructional Plant & Registration No	Depot Location	Vehicle Capacity	No of Vehicles	Registration No.
JCB 530/70 Telescopic Loader	Chryston	1.5 m <sup>3</sup> bucket	1	N/A

**Table 6:**

**Winter Constructional Plant permanently available and located in Chryston Depot for Winter Service Patrols.**

Type Winter Constructional Plant	Depot Location	Vehicle Capacity	No of Vehicles	Registration Number
6 X 4 18T GVW	Chryston	6 m <sup>3</sup>	1	SN65 FVS







## Annex WSP 7

**Table 1: Forecast weather and road condition status**

This table sets out the forecast weather and road condition status codes used in Schedule 4, Part 2, Appendix B, Table 2.

Forecast Weather	
A Road surface temperature $\geq$ plus 1°C	G Road surface temperature below minus 5°C following rain
B Road surface temperature between plus 1°C and minus 2°C	H Hoar Frost
C Road surface temperature between minus 2°C and minus 5°C	I Freezing fog
D Road Surface temperature below 5°C	J Freezing rain
E Road surface temperature between plus 1°C and minus 2°C following rain	K Snow accumulations up to 30 millimetres
	L Snow accumulation over 30 millimetres
F Road surface temperature between plus 2°C and minus 5°C following rain	M Hard packed snow/ice
Road Conditions Status	
1. Road surface dry	
2. Frost susceptible area/known surface water run-off	
3 Road surface wet	

## Requirements for De-icing Material Spread Rates (CONTINUED)

**Table 2: Precautionary treatment salt spreading rates**

This table gives the criteria for precautionary treatment and minimum salt spreading rates. The forecast weather and road conditions status codes are defined in Schedule 4, Part 2, Appendix B, Table 1.

Forecast Weather	Road Conditions Status		
	1 Dry Road Surface (grammes per square metre)	2 Frost susceptible /surface water run off area (grammes per square metre)	3 Road Surface Wet (grammes per square metre)
A	0	0	0
B	0	10 to 20	10 to 20
C	0	10 to 20	10 to 20
D	0	20	20
E	0	20	30
F	0	30	40
G	0	40	40
H	10	20	20
I	10	10	20
J	10	40	40
K	10	30	40
L	10	40	40
M	10	40	40

## Requirements for De-icing Material Spread Rates (CONTINUED)

**Table 3: Snow or ice clearance salt spreading rates**

This table gives the minimum requirements for salt spreading rates for snow and ice clearance.

Road Surface Condition	Air Temperature	Treatment		
		Spreading (grammes per square metre)	Ploughing	Blowing
		Salt		
Ice Formed	Less than or equal to minus 5°C and stable	20 to 40	No	No
Snow covering exceeds 30 millimetres	Less than or equal to minus 5°C and stable	20	Yes	No
Snow covering exceeds 30 millimetres	Less than or equal to minus 5°C and dropping	20 to 40	Yes	Yes
Snow accumulating due to prolonged falls	Less than or equal to minus 5°C and stable	20 to 40	Yes (Continuous)	Where applicable
Hard packed snow/ice less than 20 millimetres thick	Greater than or equal to minus 5°C	20 to 40 (successive treatments)	No	No



## Annex WSP 8

### Daily Winter Action Plan – Planned

#### Action Summary

Summary of actions for the next 24hrs

#### Weather Forecast

Headline and confidence level

General Synopsis

#### Snow Summary

Snow Forecast

### M80 DBFO All Routes - Action Plans

Route	Action	Cause	Start Time
M80 DBFO Route 1	No Action	No Hazard	15.05.2018 14:00
M80 DBFO Route 2	No Action	No Hazard	15.05.2018 14:00

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





## Annex WSP 10

### Winter Drivers Record



#### WINTER DRIVERS RECORD

Document: OPS-F06  
Issue: 3  
Page No: 1 of 1  
Related to: Winter Service Plan

DEPOT:

ROUTE:

VEHICLE REG.:

Weight when loaded

Time called out for Unplanned Action

Brine Used Yes/ No

If not Why?

Time Left Depot

Start of Action Date   
Time

End of Action Date   
Time

Time returned to Depot

Weight on Return

Rate of Spread (gms/sq m)

Width of Spread (m)

Salt Grading: Fine

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

Action Taken	Planned	Unplanned
T1: Treatment 10 gms/sq.m.		
T2: Treatment 20 gms/sq.m.		
T3: Treatment 30 gms/sq.m.		
T4: Treatment 40 gms/sq.m.		
TE: Treatment Ethylene Glycol		
TF - Plough/salt whole route as necessary		
TP - Plough/salt part route as necessary		
T*P: Treatment part route		

Part route treatment	1. from <input type="text"/> to <input type="text"/>
	2. from <input type="text"/> to <input type="text"/>
	3. from <input type="text"/> to <input type="text"/>

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-conformance, 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

Signed (Supervisor):

Name:

Date:

**NOTE:** Completed form to be returned to Control room in Perth depot

## **Annex WSP 11**

### **Motorway Patrols- These are not Treatment Routes**

<b>M80 DBFO Patrol Route</b>	
<b>Step 1</b>	M80 Junction 4 Westfield S/B to Junction 2 Robroyston
<b>Step 2</b>	Turn around at Junction 2 Robroyston
<b>Step 3</b>	M80 Junction 2 Robroyston N/B to Junction 7 Haggs (including ARSA B&C)
<b>Step 4</b>	Turn around at M876 Junction 1 Checkbar
<b>Step 5</b>	M80 Junction 7 Haggs S/B to M73 S/B extent (including ARSA A)
<b>Step 6</b>	Turn around at M73 Junction 2a Gartcosh
<b>Step 7</b>	M73 extension N/B to M80
<b>Step 8</b>	Turn around at M80 Junction 5 Auchenkilns
<b>Step 9</b>	M80 Junction 5 Auchenkilns S/B to Junction 4 Westfield

<b>Print Drivers Name</b>		<b>Sign Drivers Name</b>	
<b>Start Weight</b>		<b>End Weight</b>	
<b>Date:</b>		<b>Vehicle Reg:</b>	

#### **Patrol 1 (Main Carriageway) - start 02:00**

Start Time..... End Time.....

<b>Location</b>	<b>Time</b>	<b>RST</b>	<b>Air Temp</b>	<b>Road/ Weather Conditions</b>	<b>Comments</b>
Jct 4 Westfield					
Jct 2 Robroyston					
ARSA B (Run-off) Auchenkilns to Old Inns					
Jct 6 Old Inns					
ARSA C (Run-off) Castlecary Arches to Haggs					
Jct 7 Haggs					
ARSA A (Run-off) Castlecary to Old Inns					
Mollinsburn (M73)					
Jct 4 Westfield					



**Patrol 2 (Slip Roads) - start 04:00**

Start Time..... End Time.....

Location	Time	RST	Air Temp	Road/ Weather Conditions	Comments
Jct 4 Westfield					
Jct 2 Robroyston					
ARSA B (Run-off) Auchenklins to Old Inns					
Jct 6 Old Inns					
ARSA C (Run-off) Castlecary Arches to Haggs					
Jct 7 Haggs					
ARSA A (Run-off) Castlecary to Old Inns					
Mollinsburn (M73)					
Jct 4 Westfield					

**Patrol 3 (Main Carriageway) - start 06:00**

Start Time..... End Time.....

Location	Time	RST	Air Temp	Road/ Weather Conditions	Comments
Jct 4 Westfield					
Jct 2 Robroyston					
ARSA B (Run-off) Auchenklins to Old Inns					
Jct 6 Old Inns					
ARSA C (Run-off) Castlecary Arches to Haggs					
Jct 7 Haggs					
ARSA A (Run-off) Castlecary to Old Inns					
Mollinsburn (M73)					
Jct 4 Westfield					



**Patrol 4 (Slip Roads) - start 08:00**

Start Time..... End Time.....

Location	Time	RST	Air Temp	Road/ Weather Conditions	Comments
Jct 4 Westfield					
Jct 2 Robroyston					
ARSA B (Run-off) Auchenkilns to Old Inns					
Jct 6 Old Inns					
ARSA C (Run-off) Castlecary Arches to Haggs					
Jct 7 Haggs					
ARSA A (Run-off) Castlecary to Old Inns					
Mollinsburn (M73)					
Jct 4 Westfield					

**NOTES:**

- Information must be returned to Control Room every patrol.
  - When not Patrolling wait at Auchenkilns Overbridge unless otherwise instructed.
  - Return to Depot at 10:00hrs.
- Areas Requiring Special Attention (ARSA) –these areas to be specifically checked for run-off.

<p><b>Ref No :</b> M80DBFO-Winter Service Plan <b>Issue:</b> Draft <b>Related to:</b> M80DBFO</p>	<p><u><b>M80 Stepps to Haggs O&amp;M Works Site</b></u> <b>Winter Service Plan</b> 2018-2019</p>		
---	--	---	--

Ref No : M80DBFO-Winter  
Service Plan  
Issue: Draft  
Related to: M80DBFO

**M80 Stepps to Haggs O&M Works Site**  
**Winter Service Plan**  
2018-2019



BEAR Scotland Limited  
Chryston Depot  
Auchengeich Road  
Chryston  
North Lanarkshire  
G69 0JL



Develop • Deliver • Sustain