highways england

Kier Highways
AREA 3

SEVERE WEATHER PLAN

2017 / 2018

DOCUMENT CONTROL AND DISTRIBUTION

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35	[redacted]	Kier Highways
36	[redacted]	Kier Highways
37	[redacted]	Kier Highways
38	[redacted]	South West Region
39	[redacted]	Area 4 A One +
40	[redacted]	M25 DBFO
41	[redacted]	M40 DBFO
42	[redacted]	Southwest Highways (A30/A35)
43	[redacted]	Hampshire County Council
44	[redacted]	Wiltshire County Council
45	[redacted]	Oxfordshire County Council
46	[redacted]	Oxfordshire County Council
47	[redacted]	Surrey County Council
48	[redacted]	Portsmouth City Council
49	[redacted]	West Berkshire Council
50	[redacted]	Thames Valley Police
51	[redacted]	Surrey Police
52	[redacted]	Hampshire Police
53	[redacted]	Wiltshire Police
54	[redacted]	Dorset Police
55	[redacted]	Reading Borough Council
56	[redacted]	Wokingham District Council
57	[redacted]	Bracknell Forest Borough Council
58	[redacted]	Royal Borough of Windsor & Maidenhead Council
59	[redacted]	Slough Borough Council
60	[redacted]	Buckinghamshire Council
61	[redacted]	Hampshire Police

The distribution list includes: relevant Service Provider staff, and sub-contractor staff, Highways England staff, Police authorities, adjacent local highway authorities, adjacent Highways England Service Providers (including DBFO companies) and any other key stakeholders such as weather forecast providers. The internal document distribution includes all decision makers and managers.

Electronic copies will be made available to Highways England Service Managers, and National Winter & Severe Weather Team prior to October 1st each year.

The above document control and document distribution tables have been amended to comply with individual organisations' own quality management procedures.

Documents will preferably be distributed electronically and, to preserve format and maintain document control and security, PDF format is recommended.

CONTENTS

1 INTRODUCTION

It is Highways England's policy to ensure, so far as is reasonably practicable, that safe passage on the Area Network is not endangered by snow or ice, and alert procedures and actions are taken to minimise risk to safe passage posed by fog, high temperatures, heavy rain and high winds.

This section of the Severe Weather Plan outlines the scope of the services provided, responsibilities for provision of those services and details the extent of the Area 3 Network on which the service is provided. The definitions and abbreviations are provided in Appendix B.1

This Severe Weather Plan for Area 3 describes the procedures and operational arrangements for the delivery of an effective Winter Service, to ensure safe passage for customers using the highway, and details the alert procedures and actions in the event of other Severe Weather. It is a mandatory requirement for the Service Provider to demonstrate their preparedness by developing this Severe Weather Plan. Instruction and contextual guidance to help the Service Provider compile the Severe Weather Plan is appended.

Kier Highways will ensure the operational activities contained in this plan dovetail with other Highways England Severe Weather Plans (e.g. Traffic Officer's Severe Weather Plan) and the Crisis Management Manual.

Severe Weather refers to any meteorological phenomena with the potential to endanger safe passage or cause disruption on the Area 3 Network, and includes snow, ice, heavy rain, high winds, and fog and high temperatures. As such year round planning is required to manage Severe Weather events in an appropriate manner.

Severe Weather Service comprises the operational and alert procedures, and actions necessary to ensure safe passage on the Area 3 Network is not endangered by Severe Weather, as far as is reasonably practicable. Winter Service is the element of Severe Weather Service which focuses on the routine precautionary and reactive treatments required to keep lanes on the Area 3 Network free of ice and snow.

The document serves a number of specific purposes:

- Contract Document - The Severe Weather Plan outlines contractual responsibilities of Highways England and their Service Provider.
- Quality Plan - The Severe Weather Plan forms part of Service Provider's quality or business management system.
- Contingency Plan - The Severe Weather Plan is linked with Highways England wider contingency arrangements.
- Operations Manual - The Severe Weather Plan describes the processes, procedures and operational arrangements for those responsible for delivering Winter Services and details the alert procedures and actions in the event of Severe Weather.
- Reference Document - The Severe Weather Plan is a comprehensive reference document.

1.1 Statement of service

Kier Highways will endeavour to fulfil Highways England Severe Weather Requirement within Area 3 in an efficient and safe manner to ensure, so far as is reasonably practicable, that safe passage on the Area Network is not endangered by snow or ice. Also that alert procedures and actions are taken to minimise risk to safe passage posed by fog, high temperatures, heavy rain and high winds.

1.1.1 Service performance requirement

The precautionary treatment level of service requirements are outlined in Section 6.1.1 and the snow clearance requirement is detailed in Section 6.1.2.

1.1.2 Continual improvement and service development

The Service Provider is required to take an evidence based approach to enable the continual improvement and service development. This should not only seek to address failure to achieve required outcome, but also opportunities that deliver value for our Customers and Key Stakeholders whilst demonstrating the efficient use of public funds. REPORTING provided by the Service Provider will be used for hot and cold de-briefs, as part of the development new research programmes, or identify areas of review, as part of the lessons learnt process, therefore it is essential that the information is complete and accurate.

1.2 Risk periods

The year round weather service provided through the Severe Weather Information Service (or 'SWIS') facilitates improved planning and warning for Severe Weather events. Certain weather types can be expected during particular risk periods, these are shown below for guidance. This does not absolve the Service Provider of the obligation to provide an appropriate service at any other time of the year if the need arises.

Weather Type	Risk Periods (months inclusive)
Snow, Ice and Freezing rain	October through to April
Heavy rain	January through to December
High winds (including Severe Gales and Storms)	September through to June
Fog	October through to January
High temperatures	June through to August

1.3 Service timetable

Key dates for the provision of reports and preparedness are summarised in the following table.

A checklist is provided in Appendix A.1.

Date	Who	Action
21 August	Service Provider	Submit Severe Weather Plan *hold point*
18 September	Highways England Service Manager, National Winter & Severe Weather Team	Check and accept Severe Weather Plan
30 September		Operational Summer Period concludes
1 October		Operational Winter Period commences
Monthly from 15 October	Service Provider	Complete and submit Non warranty defect report spreadsheet
No later than end of October	Service Provider	Completion of Snow Desk exercises
No later than end of November	Service Provider	Completion of Severe Weather briefings
Between 1 December and 31 March	Service Provider	Include daily Vehicle Off Road (VOR) numbers on defect reports
12th December	Service Provider	Feedback and action planning from exercises and briefings
1 March	Service Provider	Review and update the Winter Service Infrastructure Inventory.
30 April	Service Provider	Finalise list of lessons learnt (or update Severe Weather Action Plan (SWAP) to feed into the Operational Assessment Report
30 April		Operational Winter Period concludes
1 May		Operational Summer Period commences
14th April – 14th May	Service Provider	Winter & Severe Weather review
31 May	Service Provider	Submit Salt Restocking Plan *hold point*
15th May	Service Provider	Winter & Severe Weather report to Highways England (Operational Assessment Report)
30 June	Highways England Service Manager, National Winter & Severe Weather Team	Check and accept Salt Restocking Plan

1.4 Contractual arrangements

Winter Service duties including precautionary treatment, reactive treatment and snow clearance are the responsibility of Kier Highways.

Severe Weather duties including operational considerations, alert procedures and actions are the responsibility of Kier Highways.

1.5 Liability

Where arrangements are made with other service providers or Highway Authorities for Winter Service provision and Severe Weather actions to be provided by them on the Area 3 Network, it is the responsibility of Kier Highways to ensure such service has been carried out. Arrangements made do not absolve the Service Provider's obligations.

1.6 Area Network / Network / Project Road

1.6.1 Description of the Area 3 Network

The Area 3 Network is made up of approximately 237km (route length) of motorway and 259km (route length) of all-purpose trunk roads. Geographically the south of the area is a low lying coastal domain. Weather conditions to the west and north may be influenced by the higher ground of Salisbury Plain and the North Wessex Downs. Similarly the East of the area may be affected by the South and North Downs.

1.6.2 Extent of Area Network

The extent of the Area 3 Network covered by this plan is shown in the following table and also detailed in the Area Map at Appendix A.2

The key interfaces are defined in the interface drawings which are included within Appendix A.3.

Extent of the Area 3 Network		
Road	Extent	Length (km)
A27	From the M27 junc 12 to A259 Emsworth	7
A3	From B3029 Ockham to A3(M)	63
A3(M)	Whole	9
A31	From M27 junc 1 to A35 Bere Regis	51
A34	From M3 junc 9 to M40 junc 9	98
A303	From M3 junc 8 to A338 Shipton Bellinger	35
A308(M)	Whole	1
A404	From M40 junc 4 to A404(M)	12
A404(M)	Whole	4
M27	Whole	46
M271	Whole	4
M275	From M27 junc 12 to Tipnor Lake	1
M3	From Kitsmead over bridge to M27 junc 4	81
M4	From junc 5 to junc 15	92

Sections of three lane or more carriageway		
Road	Extent	Number of lanes
A27	From M27 to Eastern Road	3
A27	Eastern Road to A3(M)	4
A3	M25 to Guildford (Stoke Crossroads)	3
A3(M)	Purbrook to Bedhampton	3
A34	Chieveley to Donnington	4
M27	Junction 1 to 3	3
M27	Junction 3 to 4	4
M27	Junction 4 to 7	3
M27	Junction 7 to 8	4
M27	Junction 8 to 11	3
M27	Junction 11 to 12	4
M271	Lordshill to Redbridge	3
M3	Jct 4a – Kitsmead	4
M3	4a to Junction 8	3
M3 Bravo	102.0 to 98.0	3
M3	Junction 9 to 14	3

Sections of Smart Motorway (All Lane Running/Dynamic Hard Shoulder)			
Road	Type (ALR/DHS)	Extent	Length (km)
M3	ALR	Junction 4a – Kitsmead Gates (Area 3/5 Boundary)	15km

Footway and cycle track routes				
Category	From	To	Route Description	Map ID
3	A3 Dennis I/C (26.3)	M.P 27.5	Southbound	Route 1
3	A3 Egerton Road	A31	Southbound	Route 2
3	A3 Hindhead	Liphook	Southbound	Route 3
3	A3 Beechcroft Drive	Railway Bridge	Northbound	Route 4
3	A34 Weston On Green	A34 Kidlington	Southbound	Route 7
3	A34 Botley	A34 South Hinksey	Southbound	Route 8
3	A34 South Hinksey	A34 North Hinksey	Southbound	Route 9
3	A34 Weston On Green Start Of On slip	A34 Weston On Green End Of On slip	Northbound	Route 10
3	A34 Peartree Rdbt	A34 Peartree Rdbt	Roundabout	Route 11
3	A31 Start of Ringwood On slip	A31 End Of Ringwood On slip	Westbound	Route 5
3	A31 Start Of Ashley Heath On slip	A31 End Of Ashley Heath On slip	Westbound	Route 5
3	A31 m.p 24.3	A31 m.p 21.3	Eastbound	Route 6
3	A31 m.p 19.2	A31 m.p 18.6	Eastbound	Route 6

Maps of these footpath routes are held in a *Box of reference*

1.6.3 Area Network 3 Features

Kier Highways has identified the following network features that require special consideration with regard to weather within the Area 3 Network, and features that occur at boundary interfaces.

Details of each Network Feature are contained in Appendix A.4.

1.6.4 Vulnerable locations

Certain locations on the network are particularly vulnerable to severe weather conditions. In addition there are a number of locations where although problems may not have actually occurred, due to a number of factors they may be at increased risk of suffering problems during a severe weather event. These vulnerable locations (or trouble spots) requiring special consideration and mitigation measures within the Area 3 Network.

- Parts of the network at high altitude;
- Diversion routes that may be affected by severe weather;
- Areas prone to low temperature/low humidity conditions where special measures may be required;
- Sections of road of a gradient or road radii that may result in problems in certain conditions e.g. jack knifed lorries or HGVs failing to gain traction;
- Areas commonly prone to climatic conditions such as strong cross winds that would result in snow drifting, localised heavy snow patterns and overturned vehicles;
- Parts of the network at risk of flooding resulting in lane/road closures; Review contents of HADDMS on fluvial flood maps and flood hotspots. Where possible utilise the table in A.4, under Rivers, Streams, and Brooks.
- Any structures where differential treatments or special measures may be required;
- Low temperature, low humidity problem spots require mapping as these may require additional treatments;
- Areas where, from experience, particular problems arise where the service provision can be hampered, including traffic calming areas;
- Major transport hubs e.g. Heathrow Airport, Port of Dover etc.
- Areas of the network prone to accidents;
- Geotechnical assets to be considered when identifying vulnerable locations.

The following table shows the location and brief summary of the problem. Each is cross referenced to detailed individual site mitigation plans contained within Appendix A.5. These must be reviewed at a minimum annually. Additional symbols may be utilised on agreement with the National Winter and Severe Weather Team.

Vulnerable Locations			
Location	**Reference** *To individual mitigation plan*	**Problem**	
		Type	**Very brief summary**
M4 Membury	VL1	Heavy Snow 	Exposed Location with risk of drifting
A3 Liphook Bypass	VL2	Ice 	Exposed and subject to lower than average temperatures
A34 Gore Hill	VL3	Heavy Snow 	Long incline resulting in problems for HGV's in snow and ice.
A404 Bisham to Handy Cross	VL4	Ice 	Exposed gradient
A303 Thruxton	VL5	Ice 	Long exposed incline
A31 Castle Malwood Hill	VL6	Heavy Snow 	Incline
A3 Liphook and Petersfield Bypass	VL7	Ice 	Sand subsoil with increased risk of low temperature / low humidity conditions.
A3 Hogs Back	VL8	Heavy Snow 	Incline on high ground may cause difficulty for HGV's in snow conditions.
A3 Butser Hill	VL9	Heavy Snow 	Incline on high ground may cause difficulty for HGV's in snow conditions.
A34 approach to M40	VL10	Heavy Snow 	Incline on approach to junction may cause problems for HGV's
A34 / M4 Junction 13	VL11	Heavy Rain 	Balancing pond overtops after prolonged rainfall flooding slip road and roundabout.
A3 Hindhead Tunnel	VL12	Technology	Unique Environment & Technology to Area 3
A34 SB 0.4 – 0.2 (Kingsworthy to M3 Jcn 9)	VL13	Ice 	Hard water run in wet periods has the potential to lead to ice formation

2 ROLES AND RESPONSIBILITIES

Kier Highways is responsible for providing suitably trained and competent staff for the designated roles for delivery of a Severe Weather Service on the Area 3 Network.

2.1 Key Personnel

The following table identifies the key personnel responsible for delivery of the services defined within this document.

Function	Title	Name
Operations Manager	Severe Weather Manager	[redacted]
Severe Weather Coordination	Severe Weather Coordinator	[redacted]
Decision Maker / Bronze Manager	WMDO	[redacted]
Verifying Officer / Silver Manager	WMVO	[redacted]
Severe Weather Desk Leads	Network Manager Asset Delivery Manager Severe Weather Manager Asset Data Steward	[redacted]

2.1.1 Decision Maker

Severe Weather Manager – responsible for ensuring the delivery of the severe weather plan for Area 3 in accordance with the Severe Weather Plan. The decision to mobilise the severe weather desk is the severe weather manager's responsibility.

Winter Maintenance Duty officer – available 24/7 throughout the winter period is responsible for obtaining weather forecast information, proposing precautionary treatment and monitoring its effectiveness together with amending proposed treatments if required. In the event of severe weather the WMDO will escalate to the Severe Weather Manager.

Winter Maintenance Verifying Officer – An experienced winter practitioner will be available 24/7 throughout the winter period to confirm the action proposed by the WMDO.

Area Manager – or their representative will be responsible for receiving winter maintenance instructions on a geographical basis and ensuring supervisors and drivers respond appropriately.

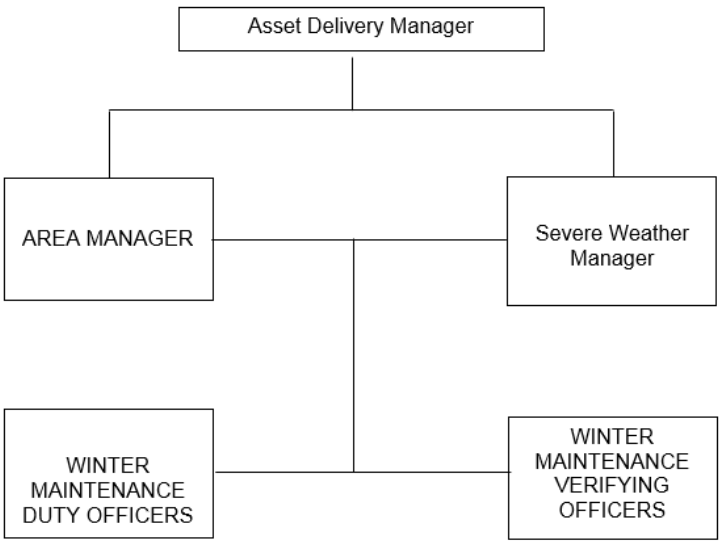
Winter Maintenance Supervisor –situated in each area to ensure the instructions are carried out at all times

2.1.2 Duty Rota

A list of decision makers is included at Appendix A.6.

The Decision Maker Duty Rota is held and distributed by the Area 3 NCC..

2.1.3 Organogram



2.2 Staffing levels

Kier Highways has 113 qualified drivers for Winter Service operations on the Area 3 network. This has been assessed by Kier Highways and considered sufficient to meet Highways England's AMOR requirement/DBFO contractual requirement to provide an effective Winter Service.

Rotas have been designed are in place to deal with planned precautionary, snow clearance, continuous treatment and freezing rain.

If required, additional resources may be mobilised from the Area 3 supply chain for ancillary winter tasks (e.g. supplementary plant, footway clearance and hand salting).

Kier Highways will mobilise for any severe weather event as detailed in Sub Process 4.02

Operatives are listed at Appendix A.7.

2.2.1 Training

All staff involved in managing and implementing winter services will receive appropriate instruction and training which includes.

- Familiarisation with the Severe Weather Plan
- Weather forecasting
- Effective decision-making
- Severe weather desk training

The Contractor's operatives, included in Appendix A.7, will be qualified to national standards for the operation of the Highways England Winter Fleet and a number will be qualified to operate snow blowers. Kier Highways have 3 trained persons that can operate the snow blower.

Any operatives with training qualifications due to expire during the winter period will be re-trained prior to the start of the winter period.'

All drivers of spreading vehicles are required to be in possession of an appropriate driving licence and be in possession of the Winter Maintenance Operators Qualification awarded by the City and Guilds Institute (Scheme 6157 and 6159).

All drivers involved in salt spreading/snowploughing will hold a minimum of LGV Class C licence.

All Winter Maintenance Duty Officers and Verifiers are required to attend a Basic Meteorology weather forecasting course. Subsequent Scenario type training will also be provided. WMDO's will be shadowed by an experienced Verifying officer until they are considered competent.

All training records are held on an electronic database.

Link to training database

Training Records are detailed at Appendix A.8.

2.3 Health and Safety

Kier Highways has a generic risk assessment and a safe working practice which is supplemented by toolbox talks to all operatives prior to and during season.

Link to Area 3 Health & Safety page

Precautionary treatment speed – where the road speed limit permits, the ideal treatment speed is 40mph. This speed is governed on the Highways England spreaders.

Ploughing speed – the ideal speed for ploughing is 25 mph but road conditions may indicate a slower speed.

Manning levels – sufficient resources will be maintained to allow for 24/7 operations.

Communications – by Airwave radio with a telephone as backup

Risk assessments must be undertaken by Service Providers to ensure the practices expected of operatives and other members of staff on the Network in such conditions as freezing rain are adequately recognised. Completed risk assessments are included within Appendix A.9 for the benefit of others, e.g. Traffic Officer Service.

2.4 Command and control process

Kier Highways will have available appropriately qualified staff to undertake all Winter Maintenance duties from 1st October to 30th April. Sufficient resource will be available on a normal and standby basis to cover precautionary salting actions within a total treatment and response time of 4 hours, 1 hour response and 3hour treatment and turnaround. Additional staff will be provided to enable a 24 hour continuous operation to be carried out. The definitions of highlighted terms are:

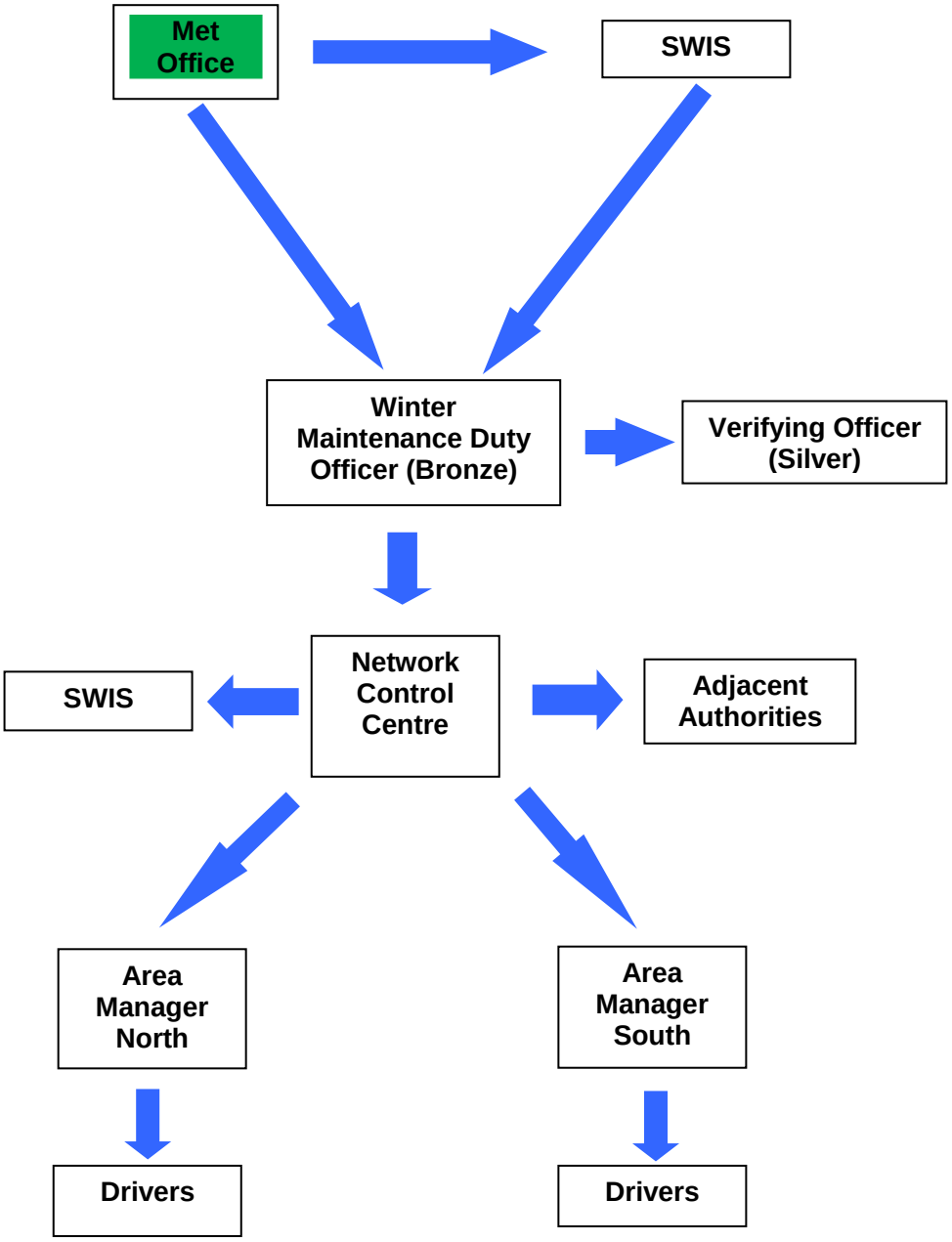
(a) Normal: On duty based at the depot during normal working hours.

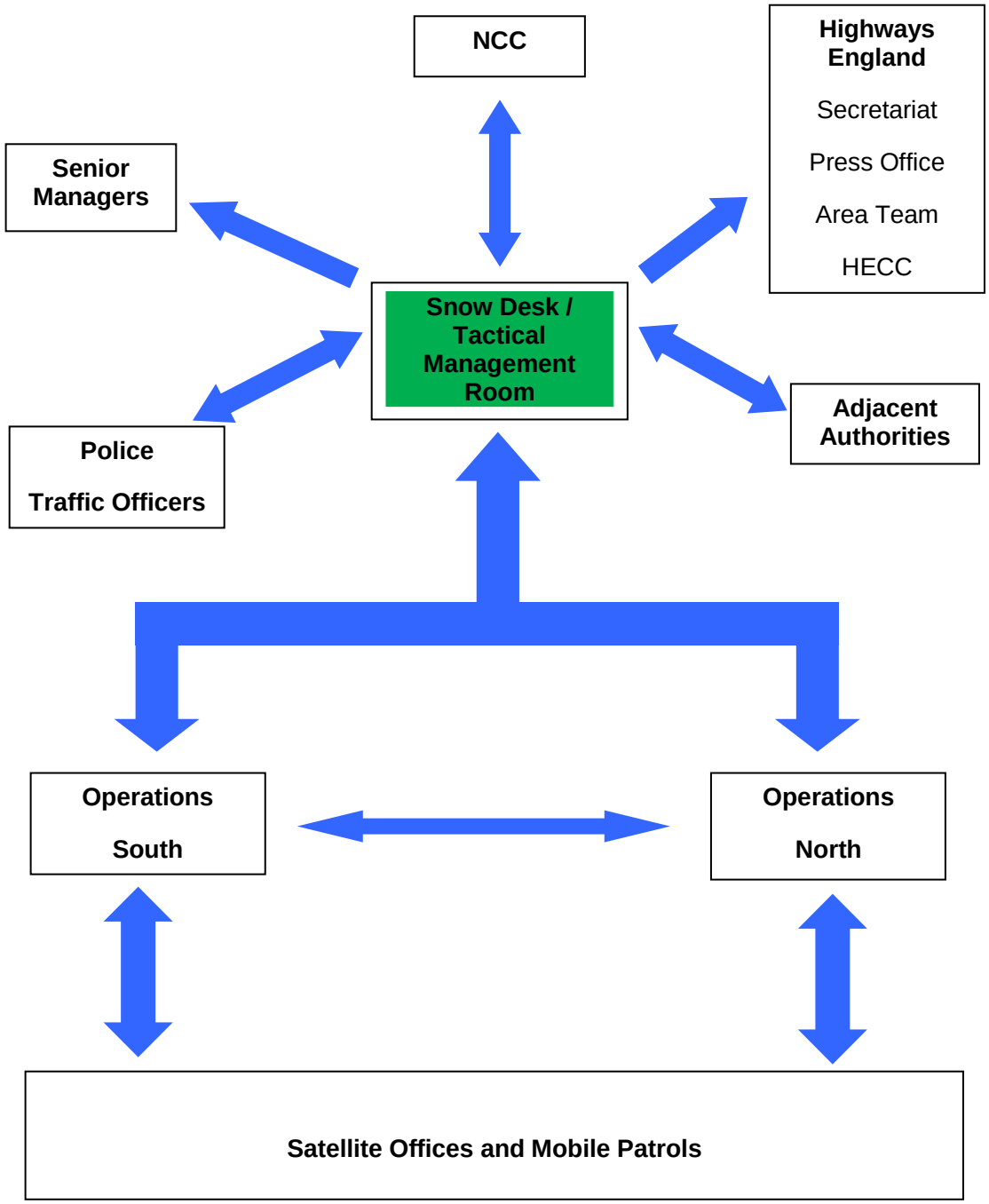
(b) Standby: Personnel committed to be available at the depot no more than one hour after being called out from home, or from elsewhere.

(c) Continuous: Personnel on duty based at the depot on a 24 hour/day basis comprising of a day shift and a nightshift each with a 12 hour duty.

(d) Call out: Off duty personnel available for duty as demand arises but without prior commitment to be available.

Severe Weather Action Dissemination





Operational procedures detailed in this Severe Weather Plan will be tested through a Severe Weather Desk exercise. Kier Highways will plan and execute a Severe Weather Desk exercise as per the service timetable (Section 1.3). This is to test the delivery and resilience of the Severe Weather Plan and identify areas for improvement. Planning for the exercise must be in consultation with the Service Manager, Emergency Planning Managers and the Winter & Severe Weather Team to ensure critical and vulnerable points in the service are tested Further details on the requirements are detailed in (Appendix B.2).

3 LIAISON AND ARRANGEMENTS

This section of the Severe Weather Plan contains Kier Highways arrangements for liaison and co-operation with key stakeholders to promote delivery of a consistent and co-ordinated service.

Kier Highways will hold Severe Weather briefing sessions prior to the end of November to ensure the relevant stakeholders are fully briefed. Feedback and actions will be reported to the National Winter and Severe Weather Team as per the service timetable (Section 1.3).

An example attendance register and summary of actions template are contained in Appendix B.2.

3.1 Liaison

The management of the Area 3 Network and the interface with other networks is essential to the consistent provision of Winter Service and actions in the event of Severe Weather. Liaison with Highways England Operations Directorate is also important to provide up to date customer-facing functions such as traffic information, active management of traffic flows and incident response.

3.1.1 Internal communication arrangements

Kier Highways will provide and maintain an effective telecommunications system between the Service Manager, the Service Provider's supervisory staff and operational vehicles. Mobile telephone communication should not be relied upon since these can become overloaded particularly during extreme conditions, or in the event of an incident causing major congestion.

The communication system for all Winter Service Vehicles and the back-up communication system for all Winter Service Vehicles include.

Internal communication is by Airwave radio and mobile telephone.

The arrangements for backup communications are mobile telephones

A comprehensive internal contact list can be found in Appendix A.10.

3.1.2 External communication arrangements

Kier Highways has established clear lines of communication and agreed contact names and numbers to ensure communication is possible at all times.

The following table indicates the contacts of stakeholders who are important to Kier Highways operational effectiveness.

Road	Location	Contact
A27	Interface	Area 4 Network Control Centre
A303 / M4	Interface	Area 2 Network Control Centre
A3 / M3 M4	Interface	Connect Plus M25 Network Control Centre
A34	A34 / M40 and A404/M40	UK Highways M40 Ltd
M4	M4 Junction 15	RMS (Gloucester) Ltd (DBFO A419/A417)
M27/275	Portsmouth	Colas (Portsmouth)
A31	Dorset	Dorset County Council
Various	Hampshire	Hampshire County Council
A34	Oxfordshire	Oxfordshire County Council
M27 / M271 / M3	Southampton	Southampton City Council
Various	Surrey	Surrey County Council
M4	Wiltshire	Wiltshire County Council
Various	East Region	Operations Manager – E RCC
Various	South East Region	Operations Manager – SE RCC
Various	South west region	Operations Manager – SW RCC
A31	Dorset	Dorset Police
M4 / A303	Wiltshire	Wiltshire Police
Various	Hampshire	Hampshire Police
Various	Thames Valley	Thames Valley Police
Various	Surrey	Surrey Police
M27	Junction 9	NATS (National Air Traffic Control Services)
M27	Junction 5	Southampton International Airport
M3	Junction 4a	TAG Farnborough Airport
Various	Various	Network Rail

A comprehensive external contact list can be found in Appendix A.11.

3.1.3 Liaison with major highway schemes

The table below details all major highway schemes that are in place within the Area 3 Network during the 2017/18 severe weather season

Road	Location (e.g. junction to junction)	Type of scheme	Contact
M4	J5-J12	SMART	[redacted]
M27	J3-J12	SMART	[redacted]
M27	J12	Structure	[redacted]
A303	Popham to Bullington X	Drainage	[redacted]
A303	Thruxton	Waterproofing	[redacted]
A303	Kimpton Quarley	Waterproofing	[redacted]
M4	J10 Slips	Structure	[redacted]
M4	River Loddon	Waterproofing	[redacted]
M27	Romsey Road Bridge	Structure	[redacted]
M3	J6 Bridge Repairs	Structure	[redacted]
M4	Tanners Copse	Waterproofing	[redacted]
M4	Furze Hill	Structure	[redacted]
A303	Picket Twenty	Waterproofing	[redacted]

3.1.4 Media liaison

In order to facilitate media liaison Kier Highways must make available to the Service Manager and/or Highways England Press Officers such information as requested. Direct liaison with the media must only take place when directed by the Service Manager.

3.2 Agreements

3.2.1 Mutual aid agreements

Mutual aid is where one service provider may have a resource issue, a second or third (etc.) service provider will assist in delivering the same goal. Mutual aid can be, from the sharing of resources such as salt, the sharing of facilities that may provide improved resilience of the Area 3 Network, or the provision of a full Winter Service to a particular part of another network. For example, there are local roads that Service Providers may treat to ensure their own operational effectiveness such as access routes to depots.

It can also be used to provide support to, or obtain support from, other network operators during times of stress, such as during Severe Weather, to the benefit of the road users. The provision of support at such times and capabilities of provision should be discussed and contact details agreed.

Agreements are in place with surrounding Areas 2, 4, & 5 and HCC

Kier Highways will document all requests for support from, or to, other operators and the subsequent decisions, with reasons, by completing the Mutual Aid Agreement forms. Completed forms can be found in Appendix A.12*)*.

Kier Highways will submit signed copies of completed forms to the Service Manager with additional copies issued to the provider/recipient of mutual aid. It is noted that mutual aid arrangements do not absolve Kier Highways obligations.

3.2.2 Cross boundary agreements

Kier Highways will ensure the cross boundary agreements are in place at the interface of the Area 3 Network and adjacent networks to ensure a consistent service that will not leave potentially important sections of either network untreated.

Kier Highways treat short sections of local authority roads giving access to the following compounds.

- Hook
- Bray Court
- Whitley Wood
- Shefford Woodlands

Additionally three ‘super P1’ routes have been designed to assist Hampshire County Council (if requested) during severe weather as and when resources become available, these routes are not precautionary routes, but may be introduced during a severe weather snow event. These can be found in Appendix A19

- HCC Route 1 - A31 Winchester to Alton
- HCC Route 2 – M27 Jct 9 Whiteley
- HCC Route 3 – M3 Jct 6 Basingstoke Ring Rd

3.3 Vehicle arrangements

3.3.1 Abandoned vehicle arrangements

Wherever possible the owners of abandoned vehicles will be contacted and requested to remove the vehicles, but where this is not possible, the specific details of the vehicles, its location and the reason why it needs to be moved will be provided to the Police / Traffic Officer / National Vehicle Recovery Manager (NVRM) and a log of all communications kept. The NVRM will provide an end-to-end vehicle recovery service. **Kier Highways must only move vehicles once an instruction from a Police/Traffic Officer has been received for each vehicle.**

Where owners do leave their information, details will be obtained by **Kier Highways** and logged with the Severe Weather Desk, NTOC and RCC.

Arrangements for the removal and storage of abandoned vehicles will ordinarily be removed under the direction of, or with the assistance of Highways England through its National Vehicle Recovery Manager (NVRM). Additional Guidance is detailed in section 4.2 of the Traffic Officer Service and Service Provider Joint Operating Principles.

3.3.2 Incidents involving Winter Service Vehicles

Any incident involving Highways England owned vehicles will be reported to the Service Manager and the National Severe Weather Specialist. The report must be made on form HA 20001 and must be submitted as soon as possible but no later than before 0900 hours the following working day. Where the accident involves a fatality or serious injury the report must be made immediately.

3.4 Escalation arrangements

3.4.1 Highways England's Crisis Management Manual

The Crisis Management Manual (CMM) provides guidance on managing Highways England response to crises and emergencies. Severe weather events make up a significant proportion of the events that trigger the CMM escalation steps. The four stages of escalation are as follows:

1. Regional Alert - when a significant weather event is expected that potentially could cause disruption on the network a Regional Alert will be declared. Monitoring will be heightened and telephone conferences will take place (coordinated through a Regional Silver Group) to ensure we are as prepared as possible prior to the arrival of the forecast weather. Service Providers will be required to provide information and to dial into telephone conferences in line with normal expectations. The Regional Alert process does not change responsibilities within each service type (i.e. service responders will remain fully responsible for managing and delivering their own service), but will act to better coordinate the individual responses to ensure a more effective combined response as well as to provide the most accurate information to road users.

2. Regional Response - this stage is declared to signify that Highways England is now fully responding to a Severe Weather event with formal Silver level coordination. Where forewarning was received of the event and a course of action(s) planned (through the activation of a Regional Alert) the Regional Response stage reflects that planning has ended and those actions are now being put into force. Alternatively the event could occur with no warning, resulting in an immediate escalation from Routine Operations to Regional Response. A Regional Silver Group will coordinate the response through a series of teleconferences. As per Regional Alert, Service Providers will be required to provide information and dial into the Regional Silver Group teleconferences.

3. National Response - if the Strategic Road Network (SRN) is severely affected where sections of the network are closed or road users have become trapped, and are likely to be so for some time or overnight, a duty Executive Director of Highways England can escalate to a National Response. The profile of the event is thus raised, with the Duty Executive Director appointed to lead the response through a Highways England Gold Group. The strategic objectives set by this group will be used by Regional Silver Groups to ensure the overall organisation objectives are met. The event will be more visible both inside and outside Highways England. During this stage information reporting and the need to dial-in to or attend meetings will be similar to a Regional Alert/Regional Response although possibly at an increased frequency but still in line with normal expectations.

4. National Coordination – This is not a crisis management stage. It is a secretariat support function provided by the National Resilience and Security Team within Highways England– each Highways England region will continue to determine their crisis management stage as appropriate. This is likely to be declared in advance of a widespread Severe Weather event affecting more than one region. This facilitates coordination across regions as well as providing an accurate national picture of network conditions to inform road users, DfT and Ministers. Service Provider activity would be the same as during a Regional Alert/Regional Response which may be operating in the region.

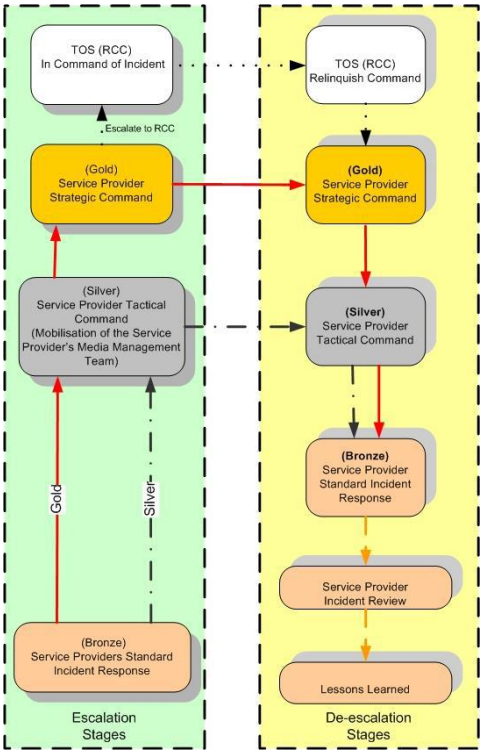
A key component in the success of any response is accurate and timely information. Appropriate processes are required to continuously monitor and manage the effectiveness of the Severe Weather Service.

During a Severe Weather event conditions may deteriorate to a point where the continuous and safe operation of the network may be placed at risk. The CMM processes will facilitate an early identification of a potential interruption to the network operation with appropriate responses triggered. Any decision to close a route during severe weather should only be made by the identified Highways England commander at the time.

Contingency Plan Escalation Procedure

The Contingency Plan will be implemented when the Kier Highways Standard Incident Response Procedures are unable to contain an incident, to the extent that any of the Multi Agency Common Incident Objectives are threatened and the situation is likely to deteriorate further and become out of control without tactical or strategic intervention. The escalation will see the Highways England Crisis Management Manual (CMM) activated as it adopts the same procedures as the Contingency Plan. When the Severe Weather Alert reaches the Regional Alert Level (2) the WMDO & WMVO should contact the Highways England Emergency Planning Manager (EPM) or Officer (EPO) to review the current Incident Command Level to see whether it needs further escalation. The nature of the Severe Weather Alerts need close monitoring and the CMM escalating further from Regional Alert through to National Response.

The Gold Silver Bronze (GSB) Command structure provides a system for escalating incident command to higher levels of command authority when required. Similarly, when these higher authority levels are no longer required the system allows for de-escalation to the most appropriate level of command. In the event of a Severe Weather Desk being in operation, there is a requirement for a Regional Alert to be raised as per the Crisis Management Manual. Kier Highways will fully support the CMM escalation process and participate in the conference calls to ensure all relevant information is provided.



3.4.2 Activation of the Area 3 Network Incident Response Plan

The Area 3 Network Incident Response Plan (IRP) must be activated when a staff member becomes aware of a major or critical incident taking place and they must immediately put in place the actions outlined within the IRP.

Link to IRP

INCIDENT OBJECTIVES

Saving and protecting life

Relieving suffering

Protecting property

Providing the public with timely information

Containing the emergency – limiting its spread

Maintaining critical services

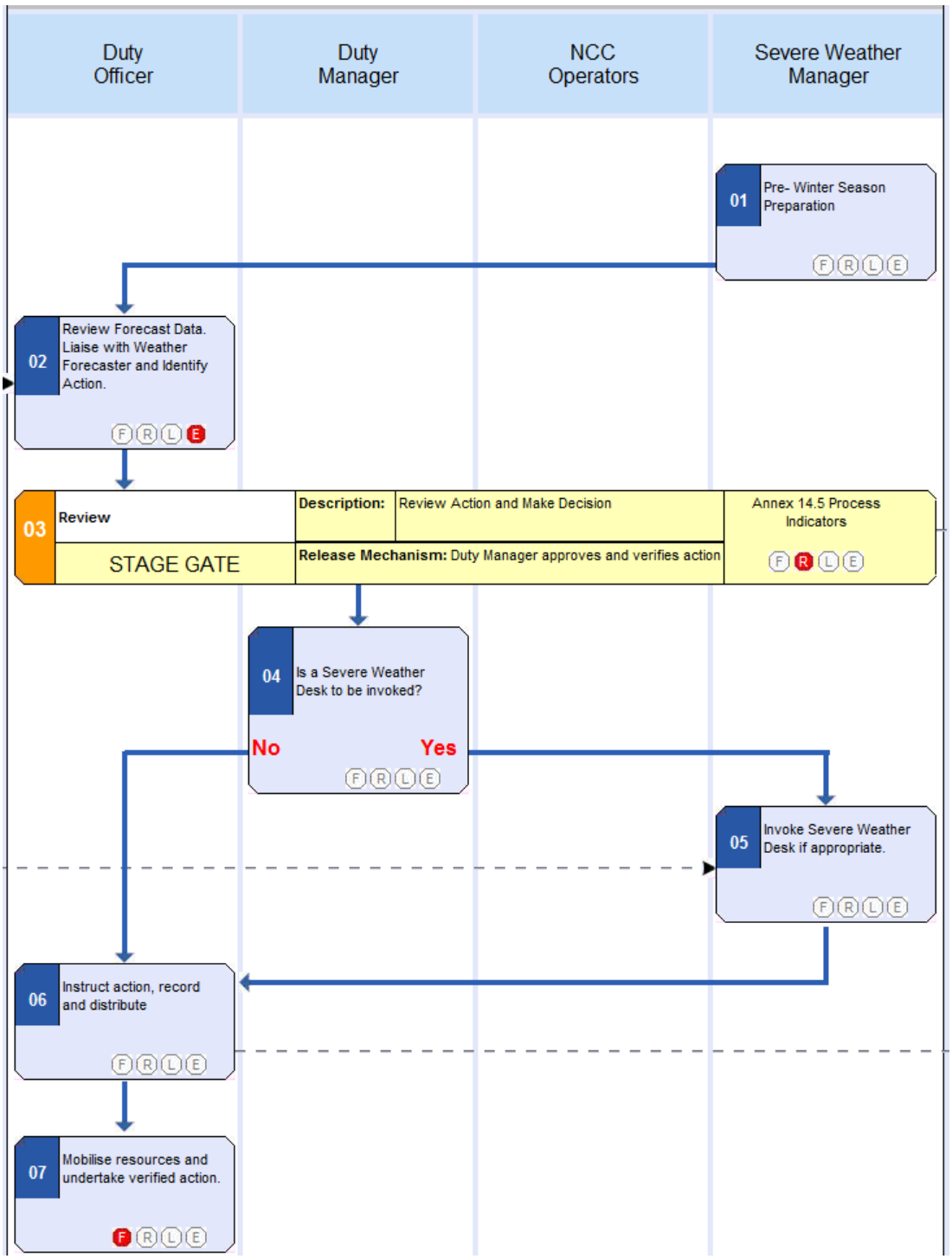
Maintaining normal services at an appropriate level

Protecting health and safety of personnel

Safeguarding the environment
Promoting self-help and recovery
Restoring normality as soon as possible

3.4.3 Severe Weather Desk establishment

The Severe Weather Desk must be established prior to the forecasted commencement of Severe Weather that could cause disruption to the Area 3 Network or as soon as possible in the event of un-forecast Severe Weather.



The Severe Weather Desk will be established at Easton Lane with alternative facilities at Hindhead Primary Tunnel Service Building (PTSB).

The Severe Weather Desk/control room will have the ability to communicate directly with motoring organisations and local authorities and to listen to/watch local news/traffic media.

Where decisions, and their implications, require strategic oversight they will be referred to the Service Manager.

If the forecast indicates that snow fall is to be for a prolonged period leading to accumulations of snow on the network, the decision to introduce continuous 24 hour working will be made by the Severe Weather Manager.

When the decision to implement continuous working is made, a Severe Weather Desk will be set up to act as the main Winter Maintenance Control.

In addition the Severe Weather Manager will meet with key operational staff to assess the likely impact of the event and resources required. Consideration will be given to mobilisation of the supply chain to provide additional effort and also the use of scouting crews across the area to further enhance the monitoring of weather and network conditions.

Where the information contained in the forecast indicates a risk of conditions that may deteriorate to a point where snowfall will impact on the network, consideration will be given to establishing a shadow severe weather desk. Where conditions are not fully confirmed or severe weather is expected but has not yet materialised the implementation of a shadow severe weather desk will allow the service provider to have all resources in place and escalate to full severe weather desk as required.

The Severe Weather Desk Duty Rota is included at Appendix A.13.

3.5 Weather information

The Severe Weather Information Service (SWIS) provides Highways England and its partners with a single, consistent set of weather and winter treatment information to help determine and mitigate the impact of routine and extreme weather events. This service is available to all Highways England staff and its partners, including DBFO companies, and other key stakeholders.

The SWIS web user interface makes severe weather information available in a format tailored to support the tasks undertaken by each group of end users. End users can access combinations of weather information, severe weather reporting information and vehicle logging information that are relevant to the tasks they are undertaking. Such tasks include:

- Maintain awareness of Severe Weather and Winter Service activities;
- Manage treatments;
- Manage Winter Service Vehicles;
- Manage Severe Weather Desks;
- Manage / maintain awareness of business continuity;
- Manage National / Strategic / Local Authority Salt Stocks;
- Manage / maintain awareness of Environmental Sensor Station (ESS) faults;
- Manage / maintain awareness of Winter Service Vehicle data-logging unit faults;
- Manage third party claims; &
- Manage performance.

SWIS will continue to obtain environmental weather condition data from meteorological ESS located on the Area 3 Network and associated weather forecast information.

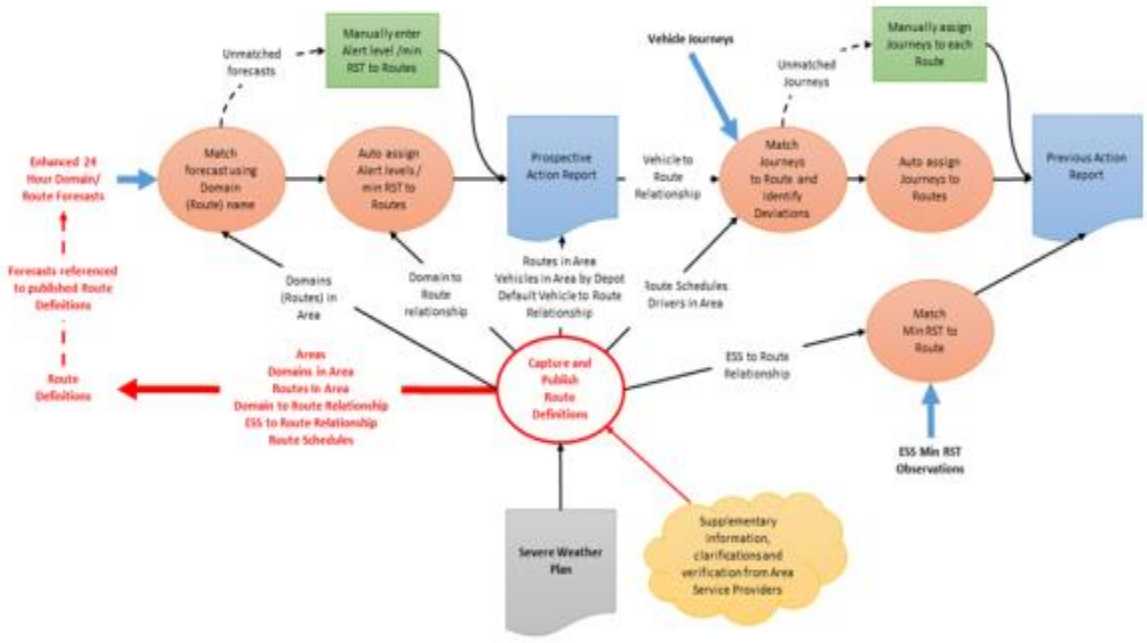
SWIS is accessible via [redacted]

Faults on SWIS must be reported as soon as possible to the appropriate maintenance contractor. Contact details can be found in Appendix A.11.

3.5.1 SWIS Configuration Data

SWIS is designed to optimise efficiency for winter maintenance decision making. When the configuration data is available and correct, key attributes such as the weather forecast text, weather forecast alert levels, and both forecast and observed minimum road surface temperatures, will be auto-populated within the associated prospective and / or previous action report, saving decision makers time. However, the performance of SWIS is dependent upon the quality of the configuration data provided by the Areas in the Severe Weather Plans.

The current SWIS data flow is illustrated in the figure below, where the data flows are represented by arrows, the key system processes by orange ovals, manual fall-back processes by green rectangles and key documents by blue and grey printout symbols.



The SWIS attempts to match the name of each route or domain in the 24 Hour Area Forecast to a Winter Service Route by matching each route/domain field in the weather forecast with the name of each Winter Service Route in the Area.

Where a route based forecast is suppled, the SWIS expects a one to one match between the content of each of the domain/route name fields in the forecast and each of the Winter Service Routes in the Area.

Where a domain based forecast is supplied, the SWIS expects a one to one match between the content of each of the domain/route name fields in the forecast and each of the domains in the Area. It uses a many to one relationship to match each domain name to one or more routes in accordance with the relationships indicated in the relevant Severe Weather Plan. A route is assigned with the worst case domain forecast associated with it.

If SWIS is unable to match content as illustrated and described above, the manual fall-back processes must be completed prior to submitting the relevant prospective or previous action report – meaning that these reports will take longer to complete.

The National Winter & Severe Weather Team will support the process to collate all required configuration data during the Operational Summer Period.

3.5.2 Weather Forecasting

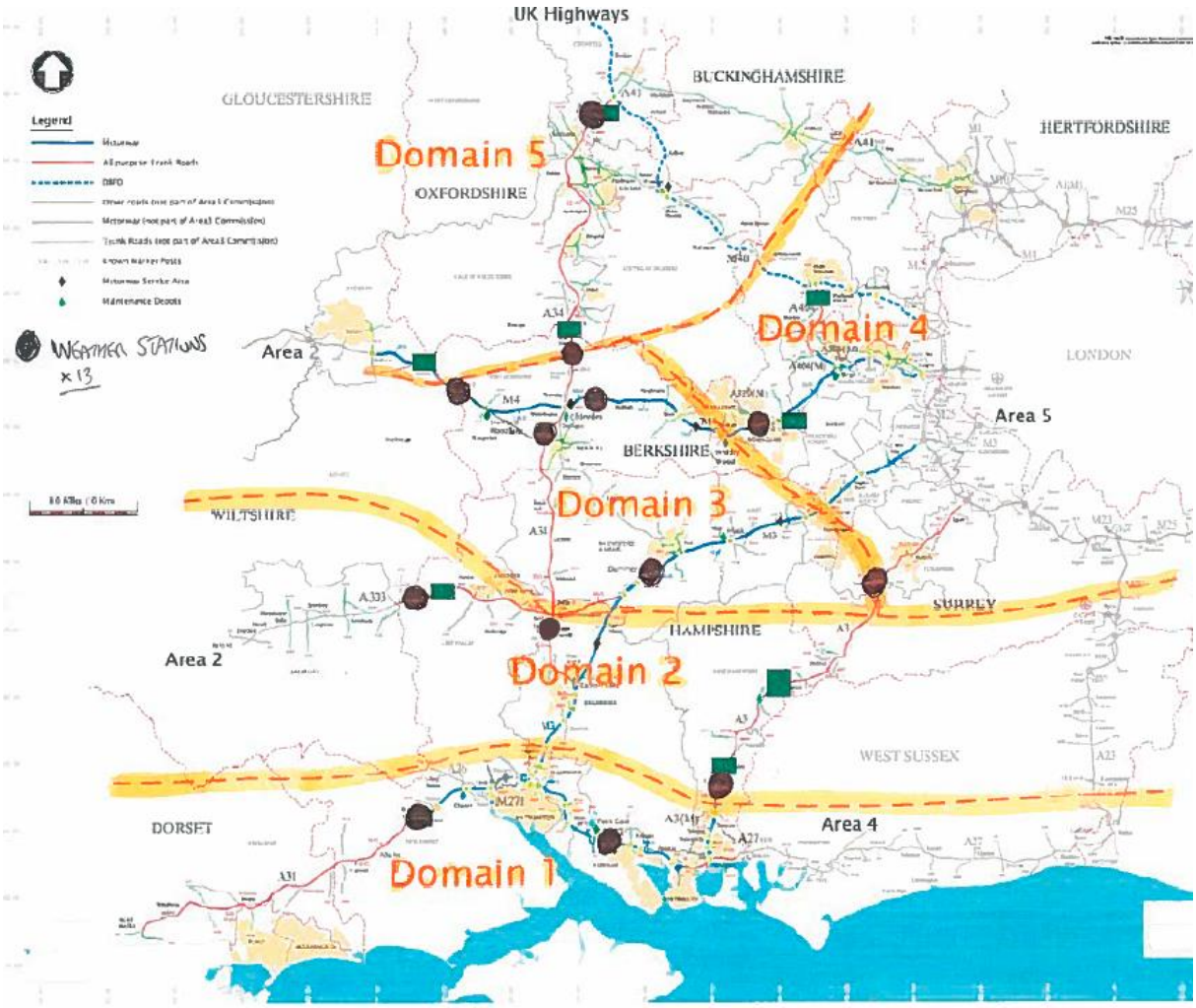
Kier Highways has appointed Met Office to provide the forecast requirement detailed in Appendix B.3.

Additionally flood warning alerts are received from the Environment Agency and flash warnings of severe weather are received from the Met Office through their National Severe Weather warning Service.

Although Domains are detailed as below, Kier Highways receive route based forecasting, giving better cost efficiencies and enhancing resilience.

3.5.3 National Domain Network of Environmental Sensor Stations

The domain map is shown below.



3.5.4 Domain arrangements

Domain arrangements are described in the following table and detailed on the Area Map in Appendix A.2.

Domain	Outstations	Routes
1	Bere Regis, Stoney Cross, Park Gate	EL01, OW01, OW02, OW03,OW04, PG01, PG02, PG03,
2	Thruxton, Chalton	D01, D02, D03, EL01, EL02, LM01, LM02, LM03, LM04, OW01, OW02
3	Membury, Chieveley, Newbury By-pass, Basingstoke	CV01, CV02, D01, D02, EL01, EL03, H01, H02,H03 LW01, LW02, SW01, SW02
4	Shurlock Row, Shackleford, Handy Cross	BC01, H01, H02, H03, LM01, LM02, LW01, LW02
5	Weston on the Green, Abingdon, East Ilsley.	CV02, CV03, CV04, EL01, SW01, SW02

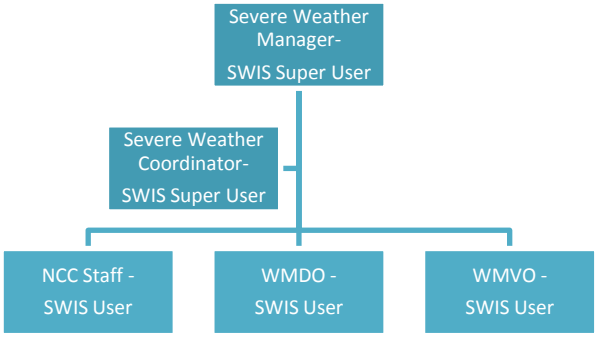
4 REPORTING

4.1 Severe Weather Reporting

Kier Highways will notify Highways England, Met Office, Police, adjacent Service Providers, NTOC Embedded Forecaster and local highway authorities of all prospective Winter Service treatments.

Kier Highways will, as soon as practicable, notify Highways England, Met Office, Police, adjacent Service Providers, NTOC Embedded Forecaster and local highway authorities of other actions including changes to prospective treatments.

The SWIS, provided by Highways England, will be used throughout the Operational Winter Period for the above notifications and for confirmation of treatments. SWIS must be kept up to date with plant, salt and fuel resilience to ensure a true and accurate representation of the current situation.



The Severe weather manager and coordinator will manage access rights and training for SWIS.

During the Winter Period SWIS reporting will include as a minimum:

- Daily updates by 1000 hours with salt stock capability, Area Operational Reserve Winter Service Vehicle levels, and fuel status, where there is a possibility of fuel disruption. Additional reports submitted in the event of a change to salt stock capability, status of fuel levels or in the event of an Area Operational Reserve vehicle being used or relocated.
- A “Full” or “No Action” report submitted by 1600 hours each day which details the prospective actions to be undertaken in the following 24 hour period. However, where a decision was made after 1600 hours or a previous decision was changed, the appropriate report must be submitted within 30 minutes of a decision, and no later than the proposed start time of the prospective treatment.
- A “Previous Action” report to confirm all the actions undertaken since the submission of the last “Full” or “No Action” report. This daily report(s) must be submitted by 1000 hours on the following day, but, where possible, submitted within 30 minutes of the treatment being completed.
- An hourly update, when Severe Weather Desk is in operation.

Kier Highways will monitor salt stocks (and stocks of other appropriate materials) regularly during the Operational Winter Period and report using SWIS Severe Weather reporting

Kier Highways will notify Highways England, Met Office, Police, adjacent Service Providers, NTOC Embedded Forecaster and local highway authorities of all prospective actions.

Kier Highways will report the number of Severe Weather events that required treatment/actions within the Area 3 Network.

4.2 Additional reporting

Kier Highways will submit details of all non-warranty defects and maintenance for Highways England owned Winter Service Vehicles for the previous calendar month by the 15th of each month. Submissions will be made using the spreadsheet available from the National Winter & Severe Weather Team.

Kier Highways will submit vehicle off road (VOR) figures on defect reports for all Highways England owned Winter Service Vehicles, to the National Winter & Severe Weather Team. This will be done either using SWIS or via a Spreadsheet. Template spreadsheets are available on request from [redacted]

Back up reporting forms can be found in Appendix A.14.

Reports will be used for hot and cold de-briefs, as part of developing new research programmes, or identifying areas for review, as part of the lessons learnt process, therefore it is essential that the information is complete and accurate.

4.3 Records

Collection of good quality records covering decisions made together with reasons, and advice and information provided is fundamental especially to defend against liability claims made in respect of Winter Service and any actions taken in the case of Severe Weather.

Information	Record Content	Format	Storage Media	Retention Period
Weather Forecast	All	SWIS	Electronic	6 years
Actual Weather Conditions	All	SWIS	Electronic	6 years
Reports received	All	MS Excel	Electronic	6 years
Decisions made	All	MS Word	Electronic	6 years
Instructions made	All	MS Excel	Electronic	6 years
Confirmations	All	MS Excel	Electronic	6 years
Actions taken	All	MS Excel	Electronic	6 years
Liaison and communications log	All	MS Excel	Electronic	6 years
Telephone conversations including with forecast provider	All records	MS Excel	Electronic	6 years
Material usage	All	MS Excel	Electronic	6 years
Fleet breakdowns	All	MS Excel	Electronic	6 years
Times taken to complete treatments	All records	MS Excel	Electronic	6 years
Vehicle data logging records - Times taken to complete treatments/actions; This includes the archiving/saving of Service Provider Summary reports, HA Gritting Detailed reports, and HA Gritting Summary reports as generated by the Masternaut data logging system	All records	MHTML	Electronic	6 years
Use of additional resources (including reserve Winter Service Vehicles and mutual aid)	All records	MS Excel	Electronic	6 years
Road Closures/blockages due to weather conditions	All records	MS Excel	Electronic	6 years
End of season records (e.g. accuracy of weather information, lessons learnt or Severe Weather Action Plan (SWAP).	All records	PDF	Electronic	6 years
Complaints received relating to conditions due to weather	All records	MS Excel	Electronic	6 years

4.4 Review

Kier Highways will submit an Operational Assessment Report and provide associated feedback as stipulated in the Service Timetable in Section 1.3. Details on the OAR report are contained within *Box of reference*

5 MATERIALS, STORAGE AND VEHICLES

This section of the Severe Weather Plan contains details of the resources available for delivery of a Severe Weather Service on the Area 3 Network including reserve / contingency arrangements.

Highways England will make available Depots, vehicles, plant and equipment as appropriate to the form of contractual arrangement and may make available additional reserve resources if the Service Provider requires them due to breakdowns or operational difficulties.

Kier Highways is responsible for providing the other resources including staff, materials, and brine production equipment and storage.

Kier Highways is responsible for preparing and ensuring all Depots, equipment and plant operate efficiently.

5.1 Depots and facilities

An inventory relating to Kier Highways Depot, facilities and the Area Operational Winter Service Vehicles (including Operational Reserve) plus National Reserve Winter Service Vehicles is stored in an MS Excel spreadsheet as provided by Highways England. This inventory will be provided periodically for update to reflect any changes.

Kier Highways will review and update the MS Excel Spreadsheet inventory at intervals set out in the Service Timetable in Section 1.3.

5.1.1 Depots

Details of depots and other facilities covering the Area 3 Network are provided in the depots and facilities schedule at Appendix A15

5.1.2 Fuel

The fuel type (including grade) and details of supply and storage arrangements including minimum stock levels and supply contingency and pump maintenance arrangements are detailed at Appendix A16

Kier Highways will monitor fuel stock levels regularly during the Operational Winter Period and report using SWIS as per requirements in Section 4.1.

5.2 Treatment Materials

Contextual guidance on treatment materials including storage are contained in Appendix B.4.

Kier Highways will utilise the following de-icing/anti-icing materials to deliver an effective Winter Service on the Area 3 network.

Potassium acetate will be used on the approaches to Hindhead Tunnel. During periods of prolonged and extreme low temperatures, consideration will be given to the use of magnesium chloride. The cost and environmental impact of this material will also be considered along with the guidance given in the relevant treatment matrix.

- 6mm down salt to BS3247: 2011
- brine solution with an optimum and maximum sodium chloride concentration of 23% and no less than 20%

- marine salt
- 8-10 mm salt
- potassium acetate
- 6-8mm sharp sand

Kier Highways note that the National Winter Service Research Group (NWSRG) has developed "Treatments for Extreme Cold" in their Practical Guide for Winter Service

The Acetate spread pattern is calibrated to 20g/m2 to a width of 3.5m, after that each lane is set to 7.0m (lane 2) and 10.5m (lane 3) using the information supplied by the HE calibration sheet.

5.2.1 Material Storage and brine production

Details are included in Appendix A.17

5.2.2 Salt management

Details are included in Appendix A.17.

5.2.3 Supply arrangements

Details are included in Appendix A.17.

5.2.4 Reserve and contingency arrangements

Details are included in Appendix A. 17.

5.3 Vehicles and Plant

Details on spreaders, ploughs, loading shovels, snow blowers, pumps, jetting equipment, sweepers and other specialist plant used in Severe Weather in the Area 3 Network can be found in Appendix A.18.

5.3.1 Operational Reserve Winter Service Vehicle and contingency arrangements

Details and procedures for the use of the reserve Winter Service Vehicles including details of arrangements for transporting vehicles between compounds, Including requirements and instructions are provided in Appendix A.18.

5.3.2 Vehicle maintenance arrangements

Details of the maintenance arrangements for both Highways England and Service Provider vehicles including Requirements and instructions are provided in Appendix A.18.

5.3.3 Vehicle breakdown and recovery arrangements

Details are included in Appendix A.18.

5.3.4 Vehicle Preparation

Details are included in Appendix A.18.

5.3.5 Arrangements with supply chain partners

Details are included in Appendix A.18.

6 WINTER SERVICE ROUTE PLANNING

This section of the Severe Weather Plan contains details on Kier Highways Winter Service Routes (WSR) for use in the delivery of Winter Service on the Area 3 Network.

The Area 3 Network is made up of approximately 237km (route length) of motorway and 259km (route length) of all-purpose trunk roads. Geographically the south of the area is a low lying coastal domain. Weather conditions to the west and north may be influenced by the higher ground of Salisbury Plain and the North Wessex Downs. Similarly the East of the area may be affected by the South and North Downs.

Kier Highways will plan, design and continually review the WSR to ensure they are optimised to be as efficient as possible in terms of treatment lengths and time to undertake treatment.

An effective Winter Service can respond to a change in the forecast in a timely manner. For this reason the initial response is defined as the maximum permitted time taken from the decision to treat until the Winter Service Vehicles are loaded, staffed and ready to leave the depot.

Initial response time is 1 hour.

Precautionary treatment is most effective when carried out in advance of and as close to forecast freezing time (to minimise the loss of salt due to trafficking). Therefore, the precautionary treatment and turnaround time is defined as the maximum permitted time for the following cycle: leaving the depot, treating the route, returning to a depot and being ready to leave the depot for the next treatment*.

The AMOR requirement for Precautionary Treatment and Turnaround time is 3 hours

6.1 Winter Service Route Design

Kier Highways will liaise closely with adjacent Highway Authorities and other stakeholders when designing WSR for precautionary and reactive treatment to ensure consistency and continuity of Winter Service operations on all sections of the Area 3 Network and with adjacent highway networks, including footways and cycle tracks.

Any (single) treatment route shall be designed to accommodate a dry treatment at 20g/m^2, and a pre-wet treatment at 18g/m^2 when conditions dictate.

For hard shoulder, carriageway marginal strips or emergency refuge areas anti-icing/de-icing material coverage should be 50% at the full rate of spread. The Service Provider should give consideration to the creation of a simple database of start and finish times to enable reports to be quickly generated and provided as required by the Service Manager. Designs of WSR for anti-icing/de-icing precautionary treatment, should allow for full coverage of the specified or instructed rate of spread of anti-icing/de-icing materials over the full width of all areas of carriageway, including LBS1 of a Smart Motorway.

Kier Highways will take into consideration the impact from the following, where applicable, when designing the WSR (not exhaustive):

- Physical constraints such as tunnels, over bridges, operations near railways, solid vertical barriers, geometry and traffic calming areas;
- Potential need for different requirements on different lanes of the carriageway;
- Need for variation in anti-icing/de-icing material, application frequency, spread rates, spread patterns, free running and wastage factors;

- Major schemes;
- Route classification;
- Smart Motorways with hard shoulder running;
- Network Features;
- Vulnerable locations;
- Depot constraints– such as a number of routes operating from one site, restrictions this might place on the reloading operation and the time needed to achieve the requirements.
- Depot access problems due to localised congestion caused by severe weather;
- Variation in traffic flow;
- Poor weather conditions; and
- Carrying snowplough blades on precautionary treatment runs.

In the event of a depot becoming unavailable, operations will continue from the nearest suitable depot. Operational reserve vehicles may be used to provide additional effort to ensure service delivery is not adversely affected. Vehicles will operate from the nearest depot so as not to affect service delivery times.

Kier Highways have designed WSR for precautionary treatment of carriageways, allowing for full coverage of the specified or instructed rate of spread of anti-icing/de-icing materials over the full width of all areas of carriageway. For hard shoulder (on non-Smart Motorway sections) or carriageway marginal strips anti-icing/de-icing material coverage must be 50% of the width at a full rate of spread.

Kier Highways have designed routes to ensure that no gap in treatments between route or network boundaries can occur.

Kier Highways have developed a schedule covering winter maintenance depot business continuity, covering the approach to be taken when experiencing conditions recorded in the last two points above. Consideration has been made as to how winter service routes will be maintained when a depot becomes unavailable, but the allocated fleet is available, and for instances where neither the depot facility nor its allocated fleet is available.

Link to Business Continuity Plan

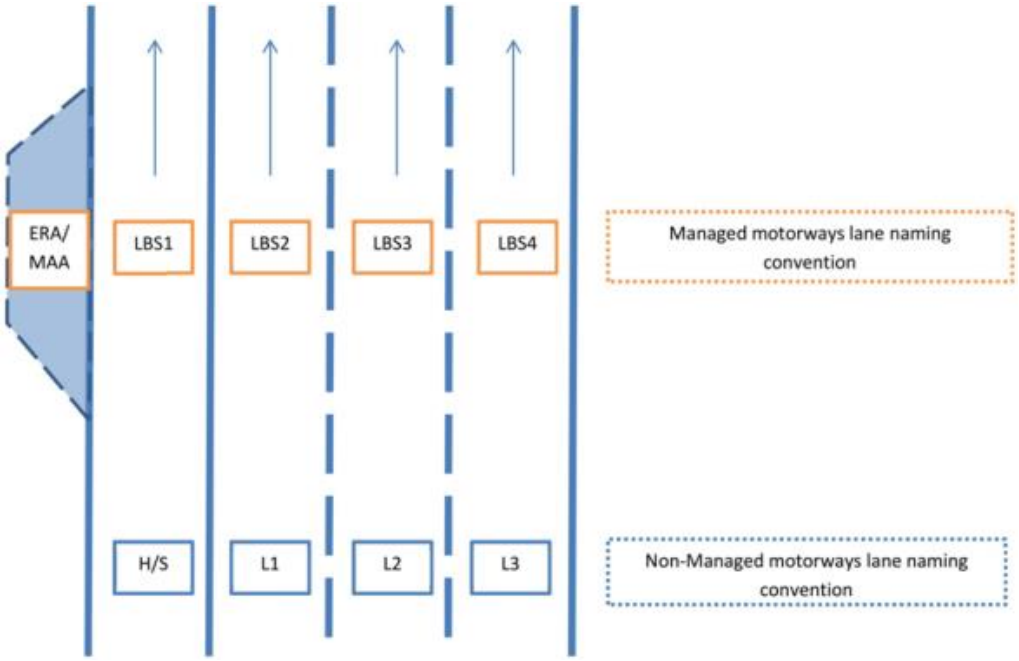
6.1.1 Precautionary Treatment Routes

Kier Highways has designed WSR for planned precautionary treatments to meet the precautionary treatment requirement (detailed in the following table). The target treatment time for each route and turnaround time is stated on the route schedule and drawing (Appendix **Error! Reference source not found.**).

The precautionary treatment and turnaround time stated by the Service Provider (to include leaving the depot, treating the route, returning to a depot and being ready to leave the depot ready for the next treatment) will be used as a metric.

Particular note should be taken of the section of M3 SMART motorway. Kier Highways will treat all LBS (lane below signal) lanes as live trafficked lanes. Therefore the treatment on the SMART Motorway will be undertaken from LBS1 & LBS3 as follows:-

- From LBS1 for LBS 1 & LBS2
- From LBS3 for LBS 3 & LBS4
- Emergency Refuge Areas (ERA's) will be treated by manual activation of the HS button in the gritter cab while a gritter passes either layby type during precautionary treatment, while travelling in LBS1.



Precautionary treatment requirement			
Route classification	Red	Amber	Green
Criteria	All lanes (including slip roads) to be kept clear of ice, as far as reasonably practicable		

6.1.2 Reactive Treatments / Snow Clearance Routes

Reactive treatments or snow clearance can take longer than precautionary treatment, therefore snow routes have been designed to achieve the clearance requirement detailed in the following table and mitigate excessive driver hours. The snow clearance plan should be coordinated with the RCC and care taken to ensure consistency across boundaries between Service Providers.

Prior to the onset of forecast snow conditions, the Severe Weather Manager will meet with key operational staff to assess the likely impact, severity and duration. Consideration will be given to the number of additional drivers required to provide extra effort.

These drivers will not be allocated to routes but will be positioned strategically to allow flexibility in response to the actual conditions as they develop. Should the forecast indicate an area wide snow event, additional drivers per shift may be allocated. Available operational and operational reserve vehicles may be utilised dependant on the severity of the event.

Kier Highways has in total 41 Winter Service Vehicles (including Operational Reserve Vehicles) available for use of which 29 have been allocated as Operational Winter Service Vehicles to cover the planned precautionary Winter Service Routes. 12 vehicles are designated as Operational Reserve Vehicles.

In addition to the Area Operational Winter Service Vehicles, a further 2 vehicles, which form part of the complement of Winter Service Vehicles within the Area are designated as National Reserve Vehicles. Special conditions, as set out in Appendix B5 to their usage.

Snow Blowers are additional to the Area Operational Winter Service Vehicles, within Area 3, one is available for use.

Kier Strategic Highways will adopt the procedures for Operational Reserve Vehicles in relation to their use. Up to 12 operational reserve vehicles may be used to provide extra effort as required during snow events. Additionally, extra effort may be allocated from the supply chain.

Kier Strategic Highways has designed reactive treatment / snow routes to ensure an efficient delivery of the Winter Service in accordance with the contractual requirements stated in the table below.

Additionally three ‘super P1’ routes have been designed to assist Hampshire County Council (if requested) during severe weather as and when resources become available, these routes are not precautionary routes, but may be introduced during a severe weather snow event.

These can be found in Appendix 19

- HCC Route 1 - A31 Winchester to Alton
- HCC Route 2 – M27 Jct 9 Whitely
- HCC Route 3 – M3 Jct 6 Basingstoke Ring Rd

Snow clearance requirement							
Route classification	Red		Amber		Green		Slip and link roads
Number of existing lanes	1 or 2	3 or more	1 or 2	3 or more	1 or 2	3 or more	Not applicable
Criteria	minimum number of lanes to be kept clear of snow, as far as reasonably practicable						
Between the hours of 06:00 - 20:00	1	2	1	2	1	1	1
Between the hours of 20:00 - 06:00	1	2	1	1	1	1	1
Following the cessation of snow all lanes are to be clear of snow within	12 hours		18 hours		24 hours		In accordance with route classification


Route Classification
RED
AMBER
GREEN
notes:
Cheltenham
Oxford
Swindon
Reading
Newbury
Basingstoke
Winchester
Twyford Down
Southampton
Fareham
Portsmouth
Salisbury
Watford
LONDON
Guildford
Maidstone
Eastbourne
Brighton
WILTSHIRE
HAMPSHIRE
WEST SUSSEX
EAST SUSSEX
A34
M4
M3
A303
A3
A31
M27
M271
A27
M275
A3(M)
A404
A404(M)
A308(M)

Numerous major maintenance schemes require the installation of lengths of vertical concrete/other solid barrier throughout the motorway and trunk road network which can pose problems regarding snow clearance. New guidance provided in AMM 89/07 or the Network Management Manual as appropriate provides the relevant information for dealing with snowfall in circumstances where traditional ploughing techniques may not be applicable due to the presence of a vertical concrete barrier.

Kier Highways will consider whether any lanes may need to be abandoned during periods of prolonged heavy snowfall due to the problems associated with ploughing adjacent to vertical concrete barriers.

When conditions dictate it is recognised that it is acceptable to plough snow from lane 2 to the right and sacrifice one or more running lanes to stack snow whilst keeping the maximum number of lanes available to traffic for each route classification and maintaining access and egress.

Kier Highways have produced a schedule identifying the locations of vertical concrete/other solid barrier on their network and a clearance plan for each location is included within the Severe Weather Plan as Appendix 20. This schedule also cross references to Appendix 19 - route drawings and schedules.

Kier Highways will give special consideration to snow clearance where solid vertical barriers are present and will take account of the information contained in AMM 89/07.

6.2 Winter Service Route Summary

Summary of WSR for carriageways, footways, cycle tracks and other such areas used by pedestrians and cyclists is provided in the following table.

Winter Service Route Summary				
Route Id	**Route type**	**Treatment type**	**Length (km)**	**Turnaround time (mins)**
SW01	Carriageway	Precautionary	66	180
SW02	Carriageway	Precautionary	85	180
CV01	Carriageway	Precautionary	103	180
CV02	Carriageway	Precautionary	86	180
CV03	Carriageway	Precautionary	107	180
CV04	Carriageway	Precautionary	122	180
LW01	Carriageway	Precautionary	117	180
LW02	Carriageway	Precautionary	118	180
BC01	Carriageway	Precautionary	110	180
H01	Carriageway	Precautionary	95	180
H02	Carriageway	Precautionary	106	180
H03	Carriageway	Precautionary	75	180
D01	Carriageway	Precautionary	80	180
D02	Carriageway	Precautionary	101	180
D03	Carriageway	Precautionary	119	180
EL01	Carriageway	Precautionary	80	180
EL02	Carriageway	Precautionary	78	180
EL03	Carriageway	Precautionary	119	180
OW01	Carriageway	Precautionary	67	180
OW02	Carriageway	Precautionary	96	180
OW03	Carriageway	Precautionary	112	180
OW04	Carriageway	Precautionary	127	180
PG01	Carriageway	Precautionary	80	180
PG02	Carriageway	Precautionary	77	180
PG03	Carriageway	Precautionary	69	180
LM01	Carriageway	Precautionary	106	180
LM02	Carriageway	Precautionary	96	180
LM03	Carriageway	Precautionary	92	180
LM04	Carriageway	Precautionary	93	180

The detailed schedules for each WSR including drawings are provided in Appendix **Error! Reference source not found.**.

7 WINTER DECISION AND TREATMENT MATRICES

Decisions are made in the interest of service delivery and continuity, and takes account of weather conditions informed by the SWIS and decision information, where applicable, from adjacent Service Providers and relevant Local Highway Authorities.

Consideration may be given to the impact of traffic flows to ensure effective treatment.

All decisions will be subject to continuous monitoring, recording and review.

All Winter Service decisions are evidence based and will be made in accordance with the guidance contained within the following decision and treatment matrices. A guide to repeat treatments has been made available in Appendix B – Supporting Information (B8 Repeat Treatments Guide).

Suggested decision and treatment matrices for precautionary treatment are shown in the following pages. Service Providers can modify these if necessary to suit their own specific local circumstances. Where changes have been made an explanation to justify the changes must be provided.

During periods of forecast severe weather Kier Highways must remain in contact with The Met Office and should also take account of information from staff out on the Area 3 Network, Traffic Officer Service and CCTV when making decisions.

7.1 Decision Matrix

<table>
<tr><th colspan="2"></th><th colspan="3">Predicted Road Conditions</th></tr>
<tr><th>Road Surface Temperature</th><th>Precipitation etc.</th><th>Wet</th><th>Wet Patches</th><th>Dry</th></tr>
<tr><td>May fall below 1°C</td><td>No rain
No hoar frost
No fog</td><td rowspan="3">Salt before frost</td><td rowspan="2">Salt before frost
(see note 1)</td><td rowspan="2">No action likely, monitor weather
(see note 1)</td></tr>
<tr><td rowspan="5">Expected to fall below 1°C
(see note 4)</td><td>No rain
No hoar frost
No fog</td></tr>
<tr><td>Expected hoar frost
Expected fog</td><td colspan="2">Salt before frost
(see note 2)</td></tr>
<tr><td>Expected rain BEFORE freezing</td><td colspan="3">Salt after rain stops</td></tr>
<tr><td>Expected rain DURING freezing</td><td colspan="3">Salt before frost and after rain stops
(see note 3)</td></tr>
<tr><td>Possible rain
Possible hoar frost
Possible fog</td><td colspan="2">Salt before frost (see note 2)</td><td>Monitor weather conditions</td></tr>
<tr><td colspan="2">Expected snow</td><td colspan="3">Salt before snow fall (see note 4)</td></tr>
<tr><td rowspan="3">Freezing Rain</td><td>Before rain</td><td colspan="3">Salt before rainfall (see notes 3 and 4)</td></tr>
<tr><td>During rain</td><td colspan="3">Salt during rainfall (see notes 3 and 4)</td></tr>
<tr><td>After rain</td><td colspan="3">Salt after rainfall (see notes 3 and 4)</td></tr>
<tr><td colspan="5">The decision to undertake precautionary treatments should, if appropriate, be adjusted to take account of residual salt or surface moisture.
The decision to undertake repeat treatments should take the guidance provided in Appendix B.8 into account</td></tr>
<tr><td colspan="5">Notes:
1) Particular attention should be given to any possibility of water running across carriageways and such locations should be monitored and treated as required.
2) When a weather warning contains reference to expected hoarfrost considerable deposits of frost are likely to occur and close monitoring will be required. Particular attention should be given to the timing of precautionary treatments due to the possibility that salt deposited on a dry road may be dispersed before it can become effective. Moisture from hoar frost may reduce the duration that treatments are effective. Repeat treatments may be required (see Appendix B.8).
3) Under these circumstances rain will freeze on contact with surfaces and full pre-treatment should be provided even on dry roads. This is a most serious condition and should be monitored closely and continuously throughout the danger period.
4) The effectiveness of salt decreases as temperatures fall and effective treatments may not be guaranteed with salt towards the lower end of the temperature band. The use of alternative treatment materials must be considered when spreading at (the lower of air or road surface) temperatures below -7ºC or below -5ºC in low humidity conditions (relative humidity <80%).</td></tr>
</table>

7.2 Treatment Matrix Guide

	Weather Conditions Road Surface Conditions Road Surface Temperature (RST)	Air Temp	Treatment	
			Dry Salting (g/m^2)	Pre-wetted Salting (g/m^2)
Spread rates for pre-wetted salt are the combined weight of dry rock salt and brine combined at 70:30 proportions by weight respectively with a brine concentration between 20% and 23%. Treatments should be carried out, whenever possible, after traffic has dispersed standing water. Successive half rate treatments (for both pre-wet and dry salt operations) should be considered for lightly trafficked roads, or on more heavily trafficked roads at times of low traffic e.g. Sunday mornings, at the lower end of temperature bands indicated. The effectiveness of salt decreases as temperatures fall and effective treatments may not be guaranteed with salt towards the lower end of the temperature band. The use of alternative treatment materials must be considered when spreading at (the lower of air or road surface) temperatures below -7ºC or below -5ºC in low humidity conditions (relative humidity <80%). Pre-wetted salt is the preferred treatment for all precautionary treatments whenever possible, including before snowfall. The rate of spread for precautionary treatments may, if appropriate, be adjusted to take account of residual salt or surface moisture. The spread rates are not applicable to very wet roads, when there is standing water or spray generated, or for hoar frosts. In these conditions roads should be closely monitored and consideration given to increasing the spread rate, making successive treatments or both.				
1.	Frost or forecast frost RST at or above -2°C		8	8
2.	Frost or forecast frost RST below - 2°C and above - 5°C and dry or damp road conditions		10	9
3.	Frost or forecast frost RST below - 2°C and above - 5°C and wet road conditions		16	15
4.	Frost or forecast frost RST at or below - 5°C and above -10°C and dry or damp road conditions		18	18
5.	Frost or forecast frost RST at or below - 5°C and above -10°C and wet road conditions (existing or anticipated)		2 x 15	2 x 15
6.	Light snow forecast <10 mm		20	18
7.	Medium/heavy snow or freezing rain forecast		2 x 20	2 x 18
When ice has formed or snow is lying dry salting is the preferred treatment unless the road is closed to traffic when pre-wetted salting may be used. Pre-wetted salting is the preferred treatment in advance of such conditions. For snow covering forecast to exceed 30mm ploughing should be conducted early enough to ensure snow accumulations do not exceed 10mm. The rates in the table are for precautionary salt treatment prior to snowfall which is essential to form a debonding layer and aid snow clearance.				
8.	Freezing rain falling		20 (successive)	
9.	After freezing rain		20	
10.	Ice formed (minor accumulations)	> -5°C	20	
11	Ice formed	≤ -5°C	2 x 20	
12.	Hard packed snow/ice	> -8°C	20 (successive)	
13.	Hard packed snow/ice	≤ -8°C	salt/abrasive (successive)	

7.3 Extreme Cold Precautionary Treatment Matrix

Alternative treatments when RST below -7°C at time of spreading (or, especially for dry salt spreading, when RST below -5°C at time of spreading for low humidity conditions)								
Conditions: Frost or Forecast Frost								
Dry rock salt component (by weight)		**70%**				**96%**	**100%**	
Liquid component (by weight)		**Magnesium chloride brine (30%)**	**Calcium chloride brine (30%)**	**ABP Brine [2] (30%)**	**Sodium chloride brine (30%)**	**Alternative [3] added before loading (4%)**		
Weather Conditions Road Surface Temperature (RST)	**Road Surface Conditions**	**PRE-WET SPREADING [1] (g/m^2)**				**DRY SPREADING (g/m^2)**		
RST at or below -5°C and above -7°C (Only for low humidity conditions <80%)	Dry or damp road	11	11	10	13	14	14	
	Wet road	18	19	17	21	22	22	
RST at or below - 7°C and above - 10°C	Dry or damp road	16	17	16	21	20	22	
	Wet road	27	28	26	35	34	37	
RST at or below - 10°C and above - 12°C	Dry or damp road	21	22	20	29	26	30	
	Wet road	35	36	34	49	43	50	
RST at or below - 12°C	Dry or damp road	27	29	27	41	33	41	
	Wet road	46	48	45	68	56	68	

Notes:

- **Higher spread rates may require more than one pass to achieve, which Service Providers should make allowance for.**
- **A follow up treatment of 50% of the recommended spread rate should be considered in lightly trafficked areas at the lower end of the temperature bands indicated.**
- **To take account of residual salt during periods of sustained freezing, when surfaces are well drained and there is no melt water or ice present, rates of spread for treatments carried out within 6 hours of previous treatments may be 50% of the rates in the table.**

1) **Spread rates for pre-wet spreading are the weight of the dry salt and brine combined in the ratio 70% dry salt to 30% liquid component.**
2) **Alternative liquid means either: magnesium chloride brine; calcium chloride brine; ABP Brine or; magnesium chloride brine plus ABP liquid. See definitions at Appendix B.4.**

7.4 Extreme Cold Precautionary Treatment Matrix - before snow and freezing rain

Alternative treatments <u>when RST</u> below -7°C at time of spreading (or, especially for dry salt spreading, when RST below -5°C at time of spreading for low humidity conditions)						
Conditions: Forecast Light Snow or Moderate / Heavy Snow and Freezing Rain [1]						
Dry rock salt component (by weight)	**70%**				**96%**	**100%**
Liquid component (by weight)	**Magnesium chloride brine (30%)**	**Calcium chloride brine (30%)**	**ABP brine [3] (30%)**	**Sodium chloride brine (30%)**	**Alternative [4] added before loading (4%)**	
Weather Conditions Road Surface Temperature (RST)	**PRE-WET SPREADING [2] (g/m^2)**				**DRY SPREADING (g/m^2)**	
RST at or below -5°C and above -7°C (Only for low humidity conditions <80%)	23	24	22	28	28	28
RST at or below - 7°C and above - 10°C	33	35	32	40	40	43
RST at or below - 10°C and above - 12°C	39	41	38	47	47	52
RST at or below - 12°C	47	50	47	58	58	70

Notes:

- ► **Higher spread rates may require more than one pass to achieve, which Service Providers should make allowance for.**

1) **Treatments for moderate / heavy snow and freezing rain are as for light snow plus a follow-up treatment at half the recommended spread rates when no treatments in previous six hours.**
2) **Spread rates for pre-wet spreading are the weight of the dry salt and brine combined in the ratio 70% dry salt to 30% liquid component.**
3) **Alternative liquid means either: magnesium chloride brine; calcium chloride brine; ABP Brine or; magnesium chloride brine plus ABP liquid. See definitions at Appendix B.4.**

7.5 Extreme Cold Reactive Treatment Matrix - for compacted snow or ice

Alternative treatments <u>when RST</u> below -7°C at time of spreading (or, especially for dry salt spreading, when RST below -5°C at time of spreading for low humidity conditions)							
Conditions: Compacted Snow or Ice							
Dry rock salt component (by weight)	**0%**	**70%**				**96%**	**100%**
Liquid component (by weight)	**Magnesium chloride brine plus ABP (100%)**	**Magnesium chloride brine (30%)**	**Calcium chloride brine (30%)**	**ABP brine [3] (30%)**	**Sodium chloride brine (30%)**	**Alternative [4] added before loading (4%)**	
Weather Conditions Road Surface Temperature (RST)	**LIQUID SPREADING [1] (g/m^2)**	**PRE-WET SPREADING [2] (g/m^2)**				**DRY SPREADING (g/m^2)**	
RST at or below -5°C and above -7°C (Only for low humidity conditions <80%)	24	28	29	27	34	28	28
RST at or below - 7°C and above - 10°C	24	40	42	38	48	40	43
RST at or below - 10°C and above - 12°C	30	46	49	46	56	47	52
RST at or below - 12°C	36	56	61	56	76	58	70

Notes:

- **Higher spread rates may require more than one pass to achieve, which Service Providers should make allowance for.**
- **As much material as possible should be removed by ploughing before applying de-icers.**
- **It may not be possible to treat and de-bond from the road surface ice / compacted snow layers exceeding 20mm thickness. Abrasives should be used until conditions become more favourable for de-icing.**
- **Frequent patrols should be made to determine the effectiveness of treatments and when further follow-up treatments are required.**
- **If the surface melts and becomes slippery an initial treatment of abrasives should be applied at a rate of 40g/m^2 and successive treatments at 20g/m^2 until an acceptable level of friction is restored. Care should be taken to make further applications where ice or snow melts and refreezes later leaving abrasives beneath the ice surface and therefore ineffective.**
- **The use of alternative de-icers can provide effective treatments in a shorter time scale than dry salt and salt pre-wetted with sodium chloride brine.**

1) **Liquid only treatments identified in this table must only be spread from a dribble bar in discrete lines across the carriageway. This treatment may also be used in conjunction with rock salt spread at 20g/m^2.**
2) **Spread rates for pre-wet spreading are the weight of the dry salt and brine combined in the ratio 70% dry salt to 30% liquid component.**
3) **Alternative liquid means either: magnesium chloride brine; calcium chloride brine; ABP brine or; magnesium chloride brine plus ABP liquid. See definitions at Appendix B.4.**

7.6 Footway and cycle track treatment snow clearance

Category (see 0)	Overnight Frost Conditions *overnight forecast temperatures below zero but not extending beyond 8am*	Daytime Frost Conditions *overnight forecast temperatures below zero extending beyond 8am*	Extended Frost Conditions *forecast temperatures remaining below zero throughout daylight hours*	Snow Events
1a	Precautionary treatment		Monitor and further treatment as required	Snow removal must commence when resources come available from carriageway treatments. Endeavours must be made to complete clearance within 12 hours of cessation of snowfall, subject to availability of resources
1	No treatment	Reactive treatment (by 8am of that same day)	Monitor and further treatment as required	Snow removal must commence when resources come available from carriageway treatments. Endeavours must be made to complete clearance within 24 hours of cessation of snowfall, subject to availability of resources
2	No treatment	Reactive treatment (by 8am of that same day)	Monitor and further treatment as required	Snow removal must commence when resources come available from carriageway treatments. Endeavours must be made to complete clearance within 48 hours of cessation of snowfall, subject to availability of resources
3	No treatment	No treatment	Reactive treatment (by noon of that same day)	Snow removal must commence when resources come available from carriageway treatments. Endeavours must be made to complete clearance within 5 days of cessation of snowfall, subject to availability of resources
4	No treatment	No treatment	Reactive treatment not normally undertaken other than in response to specific circumstances	

8 ACTIONS FOR WEATHER CONDITIONS

This section of the Severe Weather Plan contains Kier Highways detailed operational procedures for Winter Service and alert procedures and actions in the event of other Severe Weather on the Area 3 Network.

For operational management, the Kier Highways has divided Area 3 into 2 geographical areas – North and South Areas. A total of 10 depots are used throughout the Area with operational management for each of the 2 areas being provided at Chieveley and Park Gate respectively.

During severe weather events, Kier Highways may provide extra supervision for operational depots as required.

North

- Bray Court
- Whitley Wood
- Chieveley
- Shefford Woodlands
- Easton Lane

South

- Hook
- Dummer
- Park Gate
- Ower
- Longmoor

Kier Highways' principal Severe Weather Service management is located at Easton Lane depot. In the event of the onset or forecast of severe weather, the Network Manager or Severe Weather Manager will mobilise the Area 3 Contingency plan.

The vulnerable locations table will be referred to in section 1.6.4 and appendix A.5, where guidance on specific severe weather events and controls are detailed.

8.1 Precautionary treatment

The effectiveness of precautionary treatments can be significantly affected by how the treatment is applied. The following sections cover Kier Highways' procedures for precautionary treatment using the appropriate treatment material for each part of the Area 3 Network.

Routes used by spreading vehicles will follow the appropriate WSR in Appendix **Error! Reference source not found.**. Kier Highways will aim to apply treatment as close, as is practicable, to the forecast time of freezing, while allowing sufficient time for the salt to form brine. In particular applying treatments during the early evening, to protect against a forecast of ice forming in the early hours of the following morning, will be avoided. Where treatment is required the most appropriate treatment type and spreading techniques will be used.

The following sections have been developed taking into consideration the information in Appendices B.3, B.4, B.6, B.7 and B.8.

8.1.1 Treatment type

Highways England preferred treatment is pre-wetted salt, though other materials may be appropriate for specific conditions or circumstances.

The preferred precautionary treatment in Area 3 is pre-wetted salt. Where this is not available dry salt will be used at the rate of spread indicated in section 7.

Kier Highways will select the most appropriate material suitable for use across the Area 3 Network taking into consideration the location and forecasted weather condition to maximise the effectiveness of the precautionary treatment as detailed below.

The use of pre-wetted salt provides the following advantages over dry salting:

- Better salt distribution across and along the carriageway
- Lower salt loss during spreading and due to trafficking after spreading
- Increased dissolution, in particular for colder temperatures

For treatments on very wet roads and /or when precipitation has occurred after spreading, repeat treatments are required and spreading dry salt in these circumstances will not prevent the need for these repeat treatments.

The approaches to Hindhead Tunnel will be treated with potassium acetate.

In extreme situations, an abrasive material (sharp sand or similar) may be mixed with the rock salt to assist with vehicle traction and the breaking down of packed snow.

Section 5.2 and Appendix A.19 includes details of the treatment type(s) across the Area 3 Network e.g. dry salt, pre-wetted salt, and potassium acetate, including where the selected option might need to be changed and the reasons for it.

8.1.2 Spreading techniques and operational considerations

Consideration will be given to the network information in section 1.6, vulnerable locations identified in section 1.6.4 and special considerations in appendix A4 and section 8.2.2

Salt applied to a road surface after rain may be diluted and its effectiveness reduced. Treatment must be increased in accordance with the treatment matrix in section 7.2.

Pre-wetting techniques are effective in preventing ice forming on road surfaces at temperatures down to below -10°C. In the event of sustained extreme temperatures, an initial increase in the frequency and/or the rate of spread of successive pre-salt treatments will be carried out. However, for each drop below -5°C the amount of salt needed to maintain the equivalent melting affect increases by about 14g/m². Where the increased application of salt becomes impractical, environmentally damaging and/or ineffective, consideration will be given to the use of calcium chloride for brine production. Calcium chloride in solution with water lowers the freezing point as low as -52°C.

This action will not normally be considered unless temperatures below -10°C are expected to be sustained for more than 48 hours. Calcium Chloride is also highly corrosive and should only be used if considered necessary. Approval to procure the calcium chloride will be sought through the WSM in consultation with the Severe Weather Manager.

Kier Highways will give special consideration to the treatments required before during and after freezing rain and must take account of the information contained in AMM120/09.

On receipt of a forecast of freezing rain, Highways England, Highways England Traffic Officers, Police, RCC and adjacent service providers will be informed. A severe weather desk will be mobilised and contact will be maintained with the Met Office to monitor the approach of the freezing rain conditions in order to optimise precautionary treatment timing. Salt will be applied at 20grms or 18grms pre-wetted prior to the onset of freezing rain and treatment will continue at 20grms throughout the event when it is safe to do so. Communication between the severe weather desk and NILO will be maintained to ensure accurate and up-to-date information on current conditions is available to the media.

Cross winds may cause drifting during and after snowfall. Kier Highways will monitor these conditions and target scouting as necessary.

Kier Highways will give special consideration to the treatment of Thin Surfacing and must take account of the information contained in the AMM 36/02.

Thin surfacing has proliferated to the extent that all routes now include extensive areas of the material. Treatment shall be at the same rate of spread as that for HRA (Hot Rolled Asphalt). However, treatment shall be carried out as close to the onset of freezing conditions as is reasonably practicable. WMDO's will take account of the current known accuracy of the time of freezing included in meteorological forecasting.

Residual salt should not be considered effective beyond 12 hours of application.

Congestion during peak traffic flows may impact on salt distribution across the carriageway. Treatments at this time should be avoided where possible but forecast meteorological conditions must be the prime consideration for all treatment decisions

Refer to Appendix B6 which include details of the spreading techniques, for different types of carriageway and location, including the considerations for the material being used

Kier Highways will, where feasible, treat only targeted areas of the Area 3 Network based on where ice formation is forecast.

8.2 Reactionary treatment for snow and ice

The effectiveness of treatments of snow and ice can be significantly affected by the method of application of the treatment. The following sections cover Kier Highways operational techniques for the removal of snow and ice. The techniques include ploughing, blowing, the use of snow fences and snow gates together with changes to the methods of application of treatment materials when snow or ice is already present on the paved area. Guidance is provided in Appendix B.7.

It is important that all routes are cleared, in accordance with the snow clearance requirement provided within Section 6.1.2, and that no area is abandoned for the sake of concentrating resources to one or two problem areas. Any decision for route closure or abandonment can only be made by the Highways England incident commander, to be advised within the improved coordination process. In all cases therefore the defined treatment routes will be adhered to, and where conditions demand a more intensive treatment in specific areas, this will be achieved by calling out Area Operational Reserve Winter Service Vehicles for those areas.

The following sections have been developed taking into consideration the information in Appendices B.3, B.4, B.6, B.7 and B.8.

8.2.1 Ploughing and snow clearance techniques

Kier Highways clearance plan for each SVB location is given in Appendix A.20. This schedule should also be cross referenced to Appendix **Error! Reference source not found.** – Winter Service route schedules and drawings.

Kier Highways clearance plan for each Smart Motorway section is given in Appendix A.21. This schedule must also be cross referenced to Appendix **Error! Reference source not found.** – Winter Service route schedules and drawings.

Kier Highways will take into consideration information contained in AMM69. Snow clearance will be in accordance with the network Maintenance Manual and the Routine and Winter Service code. Where snow begins to settle, salt will be used to disperse this and ploughing should commence as soon as sufficient snow has settled on the carriageway with ploughs set in accordance with AMM69.

Snow will normally be ploughed to the nearside with the exception of 3 or 4 lane motorways where the offside lane may be ploughed to the central reserve when space permits. In the event of the central reserve being full, or at locations where there is a vertical concrete barrier, echelon ploughing techniques will be employed to move snow to the nearside.

When there is sufficient time to complete precautionary treatment prior to the forecast commencement of snowfall, this treatment will be undertaken and ploughs will be fitted on completion. On all other occasions, ploughs will be fitted prior to precautionary treatment.

Snow clearance and solid vertical barriers

Numerous major maintenance schemes require the installation of lengths of vertical concrete/other solid barrier throughout the motorway and trunk road network which can pose problems regarding snow clearance. New guidance provided in AMM 89/07 or the Network Management Manual as appropriate provides the relevant information for dealing with snowfall in circumstances where traditional ploughing techniques may not be applicable due to the presence of a vertical concrete barrier.

Kier Highways will consider whether any lanes may need to be abandoned during periods of prolonged heavy snowfall due to the problems associated with ploughing adjacent to vertical concrete barriers.

When conditions dictate, it is recognised that it is acceptable to plough snow from lane 2 to the right and sacrifice one or more running lanes to stack snow whilst keeping the maximum number of lanes available to traffic for each route classification and maintaining access and egress.

Kier Highways have produced a schedule identifying the locations of vertical concrete/other solid barrier on their network and a clearance plan for each location is included within the Severe Weather Plan as Appendix 20. This schedule also cross references to Appendix 19 - route drawings and schedules.

Kier Highways will give special consideration to snow clearance where solid vertical barriers are present and will take account of the information contained in AMM 89/07.

Cross winds may cause drifting during and after snowfall. Kier Highways will monitor these conditions and target scouting as necessary. Where drifting and the build-up of snow cannot be removed by ploughing, the Area 3 supply chain will be engaged to provide labour and plant to enable bulk removal.

During thaw conditions, consideration will be given to mitigation measures at locations where there is a known risk of run off with a potential to refreeze.

There are no traffic calming measures in place on the Area 3 Network.

Appendix B.7 includes details and procedures for ploughing, including clearly defined decision points for the fitment of ploughs and commencement of ploughing.

8.2.2 Spreading techniques

The special considerations in Section 8.1.2 where applicable have been considered when completing this section.

Reactive treatment to footways and cycle tracks may be by manual or mechanical spreaders

Where parts of the network are wider than three lanes wide, the nearside and off side of the carriageway will be treated independently to ensure adequate salt coverage to all lanes.

Precautionary treatments adjacent to Hindhead tunnel will be by purpose built combi spreaders using potassium acetate on the approach to the tunnel portals.

The approaches to Hindhead Tunnel will be treated with potassium acetate as detailed in route card LM01 (Appendix A.19). It is not anticipated that treatment will be required within the tunnel bore. However, conditions will be monitored and treatment with potassium acetate may be instructed by exception.

8.2.3 Aftercare and follow up treatments

Once all running lanes of carriageways are free from snow and ice, ploughing will commence on hard shoulders, lay-bys and access roads.

At the end of a severe weather event, the carriageway should be inspected for damage with particular attention paid to any build-up of debris in gullies, grips etc. Footways and cycle ways will be prioritised in accordance with section 7.6.

8.2.4 Arrangements for use of blowers

Kier Highways can use snow blowers allocated to the Area 3 Network without prior approval but must ensure the use is notified. National procedures for management of the Area Operational Reserve Winter Service Vehicles and National Reserve Vehicles are in Appendix B.5.

Where the equipment is to be brought in from another area the Service Delivery Manager will liaise, as necessary, with the National Winter Specialist and other relevant parties.

Kier Highways has 3 operatives qualified to operate snow blowers, the link to the Kier Highways training database is detailed at Appendix A.7. This can be viewed by request of Highways England. In addition to this all training records will be added to the *Box of reference*

The National Reserve Snow Blower is based at the Hook Motorway Compound. Due to its slow travel speed, it is unsuitable for travelling to and from its base. If the need arises, a low loader vehicle supplied from the Area 3 supply chain will be used to transport it.

8.3 Freezing rain / rain falling on extremely cold surfaces

8.3.1 Operational considerations

Kier Highways will give special consideration to the treatments required before during and after freezing rain and must take account of the information contained in AMM120/09.

Guidance contained in AMM120/09 will be followed.

On receipt of a forecast of freezing rain, Highways England, Highways England Traffic Officers, Police, RCC and adjacent service providers will be informed.

A severe weather desk will be mobilised and contact will be maintained with the Met Office to monitor the approach of the freezing rain conditions in order to optimise precautionary treatment timing.

Where possible, two applications of salt at 20grms will be made prior to the onset of freezing rain and treatment will continue at 20grms throughout the event where safe to do so.

Communication between the severe weather desk and NILO will be maintained to ensure accurate and up-to-date information on current conditions is available to the media. VMS on gantries will be used where possible.

The vulnerable locations table will be referred to in section 1.6.4 and appendix A5 where guidance on specific severe weather events and controls are detailed

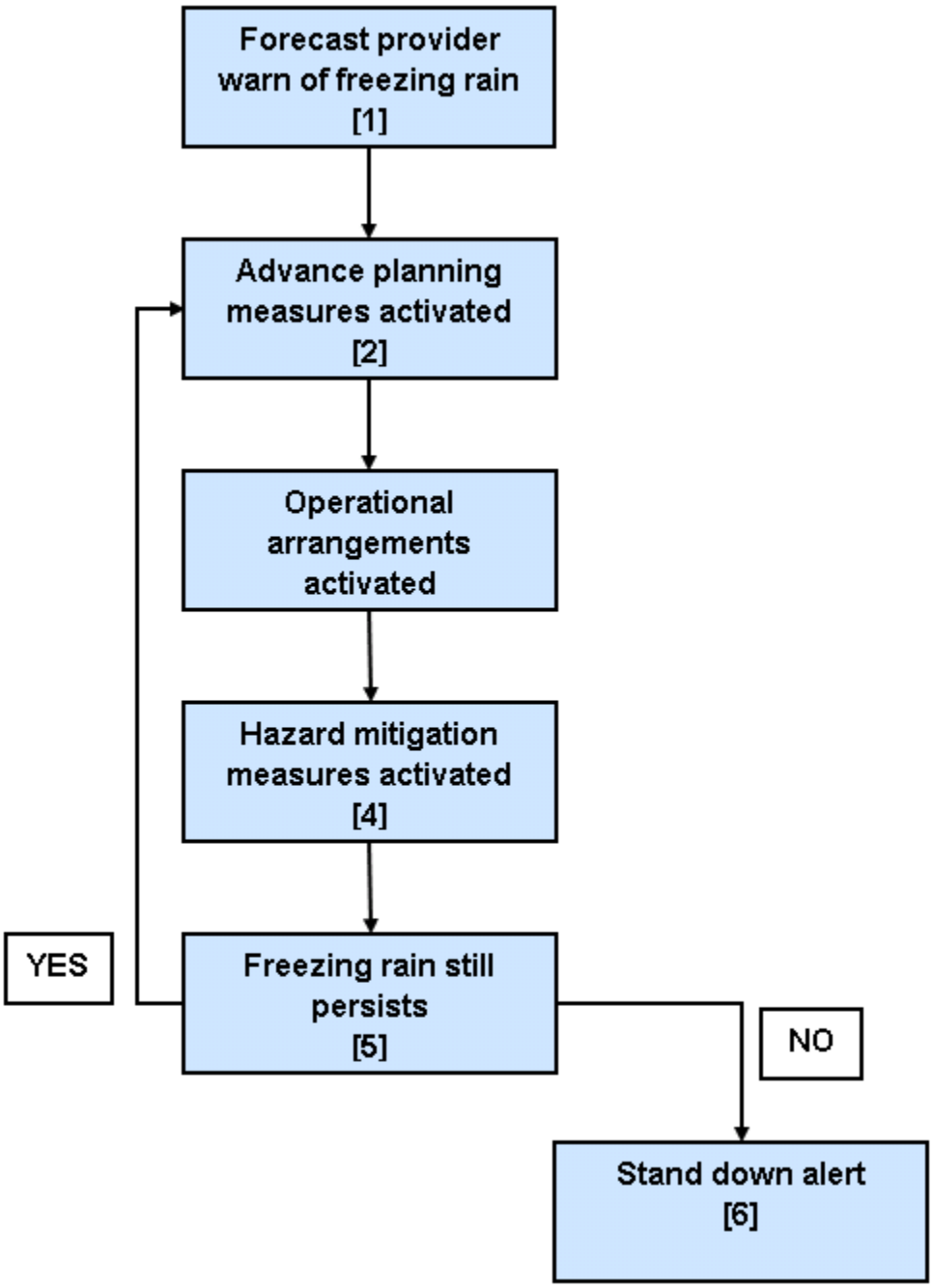
8.3.2 Hazard mitigation

The nature of freezing rain means that treatments will have virtually no effect initially and ice will form on the carriageway. Rain falling on extremely cold surfaces can produce similar effects. Mitigation of the hazard is therefore a significant aspect of the actions taken in response to freezing rain or rain falling on extremely cold surfaces. The main action is to inform road users of the hazard where available fixed or mobile Variable Message Signs (VMS) will be used as detailed in Appendix B.6.

More proactive measures such as closing the road as the rain arrives and holding the traffic (rather than diverting) until such times as it is deemed safe to proceed may be considered. Such considerations will need to be made on a local basis taking into account local circumstances.

Kier Highways will liaise with Police Control Offices (PCOs) and / or RCCs to provide advance warning to recovery companies when any incidents occur as a result of the freezing rain or rain falling on extremely cold surfaces.

Appendix B.6 details the approach that will be taken by Kier Highways. A severe weather desk will be initiated if required, and control's implemented as detailed in section 3.4.3


Forecast provider warn of freezing rain [1]
Advance planning measures activated [2]
Operational arrangements activated
Hazard mitigation measures activated [4]
YES
Freezing rain still persists [5]
NO
Stand down alert [6]

8.4 High winds (including Severe Gales and Storms)

High winds/severe gales can occur at any time of year but are most likely from September through to June.

The vulnerable locations table will be referred to in section 1.6.4 and appendix 5 where guidance on specific severe weather events and controls are detailed

List of known windblown high risk areas

- A31 St Leonards
- A34 Kingsworthy Link

Extra resource for response/recovery will be increased where required.

8.4.1 Operational considerations

Duty Managers, Duty Supervisors and NCC Operators will follow the Severe Weather Desk Escalation Flow Chart.

Managers and supervisors of any schemes on the network will be given advance warning by the Duty Manager of impending severe weather. On receipt of this warning they must either remove or ensure all traffic management equipment is secure enough to withstand the forecast conditions; site staff must ensure that any traffic management equipment remaining is patrolled on a regular basis during the severe weather period.

The NCC may, under instruction from the Duty Manager, deploy additional patrol vehicles and supply chain providers of chain saw crews and tractors to the vulnerable areas of the network where tree damage is most likely to occur. Crews will patrol their areas clearing all storm related debris and provide the NCC with regular network condition updates.

When a severe weather warning for severe gales or storm force winds is predicted the following actions will be taken:-

- Instruct all relevant resources teams to check and report on the condition of road signs, street light columns, etc.
- Increase security of roadworks traffic management left on the network.
- Remove loose and insecure debris from the network.
- Increase monitoring levels for high winds in excess of 30mph and move to Severe Weather Desk when appropriate.
- Where possible remove all temporary roadworks and associated traffic management from the network.
- Request RCC to display relevant text on Variable Message Signs.
- Confirm the resources teams are aware of forecast event and the relevant teams are equipped with relevant signs and equipment.

All roadside Environmental Sensor Sites (ESS) include an anemometer to measure mean and gust wind speeds. The normal frequency of reporting is maximum and average wind speed over each 10 minute period. All data from the ESS is received and displayed on the SWIS website.

Any debris which is required to be moved from the carriageway in accordance with contractual operating procedures. Secondary response for tree clearance will be supplied by our supply chain partners.

8.5 Heavy rain

8.5.1 Pumping, jetting and clearance techniques

Duty Managers, Duty Supervisors and NCC Operators will follow the Severe Weather Desk Escalation Flow Chart.

Area 3 does not have any adjacent areas specifically identified for pumping floodwaters. In the event of serious flooding, the nearest most appropriate low lying or available watercourse will be used.

The vulnerable locations table will be referred to in section 1.6.4 and appendix A.5 where guidance on specific severe weather events and controls are detailed. The high risk areas in relation Heavy rain can be found by following the Link to high risk areas – Trash screens/Culverts/Flooding hotspots

The Severe Weather Manager will ensure that high risk areas are monitored and checked. Additional crews will be made available where required and the supply chain engaged dependant on the level of response/recovery required.

8.5.2 Operational considerations

Duty Managers, Duty Supervisors and NCC Operators will follow the Severe Weather Desk Escalation Flow Chart.

Managers and supervisors of any schemes on the network will be given advance warning by the Duty Manager of impending severe weather. On receipt of this warning, they must either remove or ensure all traffic management equipment is secure enough to withstand the forecast conditions; site staff must ensure that any traffic management equipment remaining is patrolled on a regular basis during the severe weather period.

All depots must ensure adequate stocks of sandbags are available for emergency use, and Asset Incident Watchman (AIW's) will carry as many as possible at all times together with 'Flood Warning' boards and drainage rods.

Supply chain partners who are able to provide pumping equipment will be given an early warning that they may be mobilised.

The NCC may, under instruction from the Duty Manager, deploy additional patrol vehicles to the vulnerable areas of the network considered to be at risk from flooding. Crews will patrol their areas ensuring gully gratings and channels are clear of debris and functioning and provide the NCC with regular network condition updates.

The NCC will discuss with the NTOC activation of the network VMS with appropriate messages. In addition to feedback from crews and staff out on the network, all available CCTV will be displayed in the NCC to help the Severe Weather Desk Team appreciate and monitor actual weather conditions.

If conditions begin to deteriorate to the point where Kier Highways resource is becoming stretched, the Duty Manager will contact adjoining areas (Areas 2, 4, and 5) and the LHA's to request assistance. At this point the early stages of the Contingency Plan will be implemented by the Duty Manager and the SERCC's must be informed, Police Gold Control may already be operational by this time and they will make any strategic decisions regarding the closure of parts of the network.

Kier Highways will consider and review the information contained within HADDMS on fluvial flood maps and flood hot spots.

8.5.3 After care and follow up treatments

Kier Highways will ensure that the entire network is resumed to normal as soon as is practicably possible following a severe weather event, the priority for clearance will be as follows:

- Main carriageways
- Slip roads and lay-bys
- Lorry Parks and Service Area Accesses
- Footways and cycle tracks

Additional crews will be made available where required and the supply chain engaged dependant on the level of response/recovery required.

8.6 Fog

Kier Highways will undertake the following specific measures as appropriate to mitigate the hazard:

- Where available fixed or mobile VMS should be used to warn road users of the hazard. The existing established procedures for requesting VMS settings to be made should be followed well in advance. The following legend is currently the most appropriate to use – 'FOG SLOW DOWN'. This will require arrangements and protocols to be established with the appropriate RCC.
- National Incident Liaison Officer (NILO) and/or Highways England Press Officer should be contacted in order that the local media can be advised as necessary.
- Where available use of variable mandatory speed limits should be considered. This will require arrangements and protocols to be established with the appropriate Police Control office or RCC as part of the advance planning procedures.

8.7 High temperatures

In the event of high temperatures where vehicles and occupants are static on the motorways and trunk roads for long periods of time, Kier Highways will provide support and assistance to the RCC and the Police as requested.

It is not anticipated that the Area 3 network is at risk from surface melting in high temperatures. In the event of isolated fatting problems occurring at old surface dressed sites, the area will be treated with dust to prevent the plucking action of chippings. After prolonged high temperatures, the network should be monitored for accelerated rutting.

In the event that dust is required, there is a stock pile in the M27 Junction 2 Ower Depot.

APPENDIX A - SCHEDULES

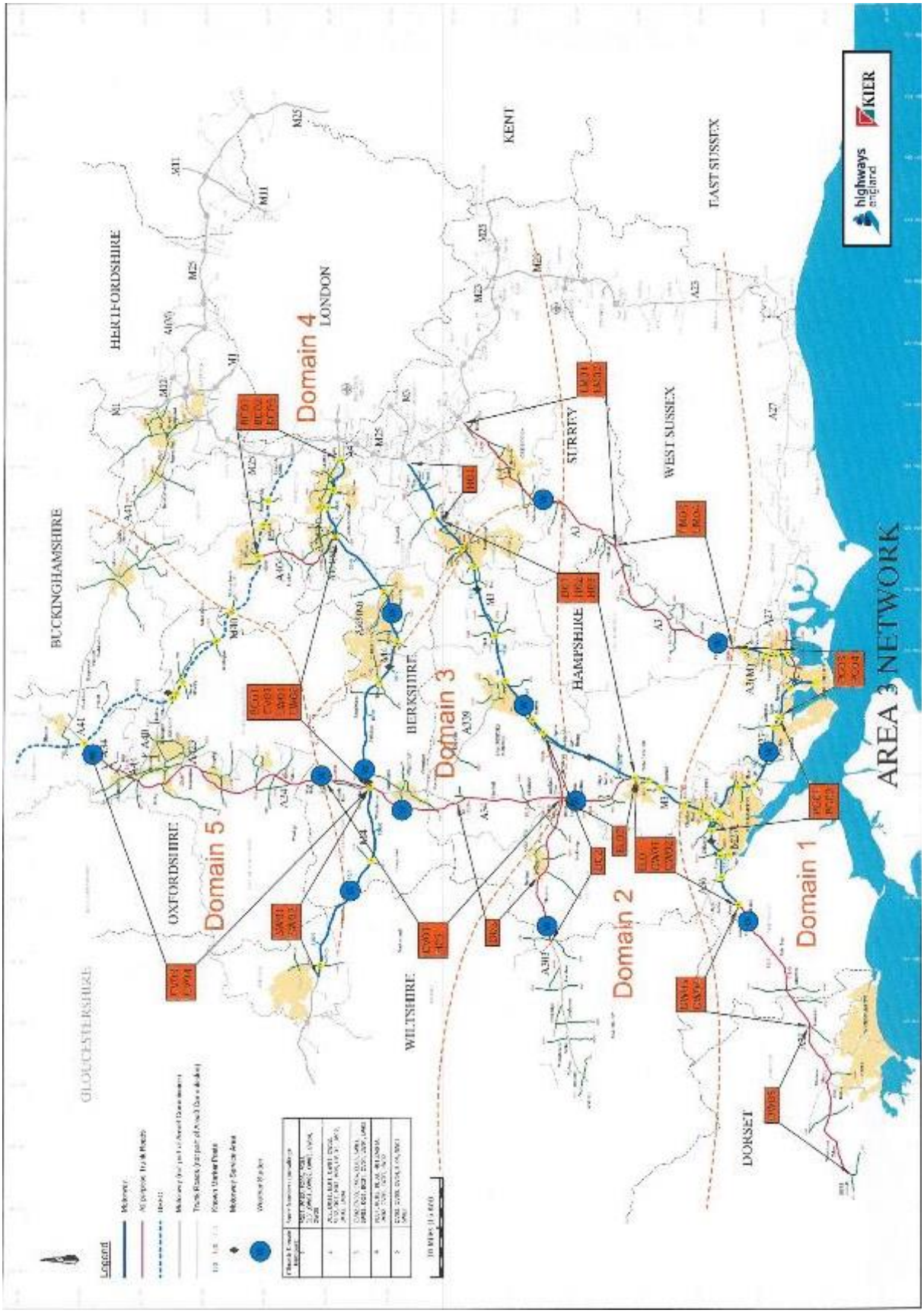
NOTE:

To reduce the size of the Severe Weather Plan, the Service Provider may include certain appendices within a box of reference and not append these directly to the plan. Where this is applicable a note has been added at the start of the Appendix. The Service Provider must agree an acceptable approach with the Service Manager and confirm the location of the box of reference.

A.1 AUDIT CHECKLIST

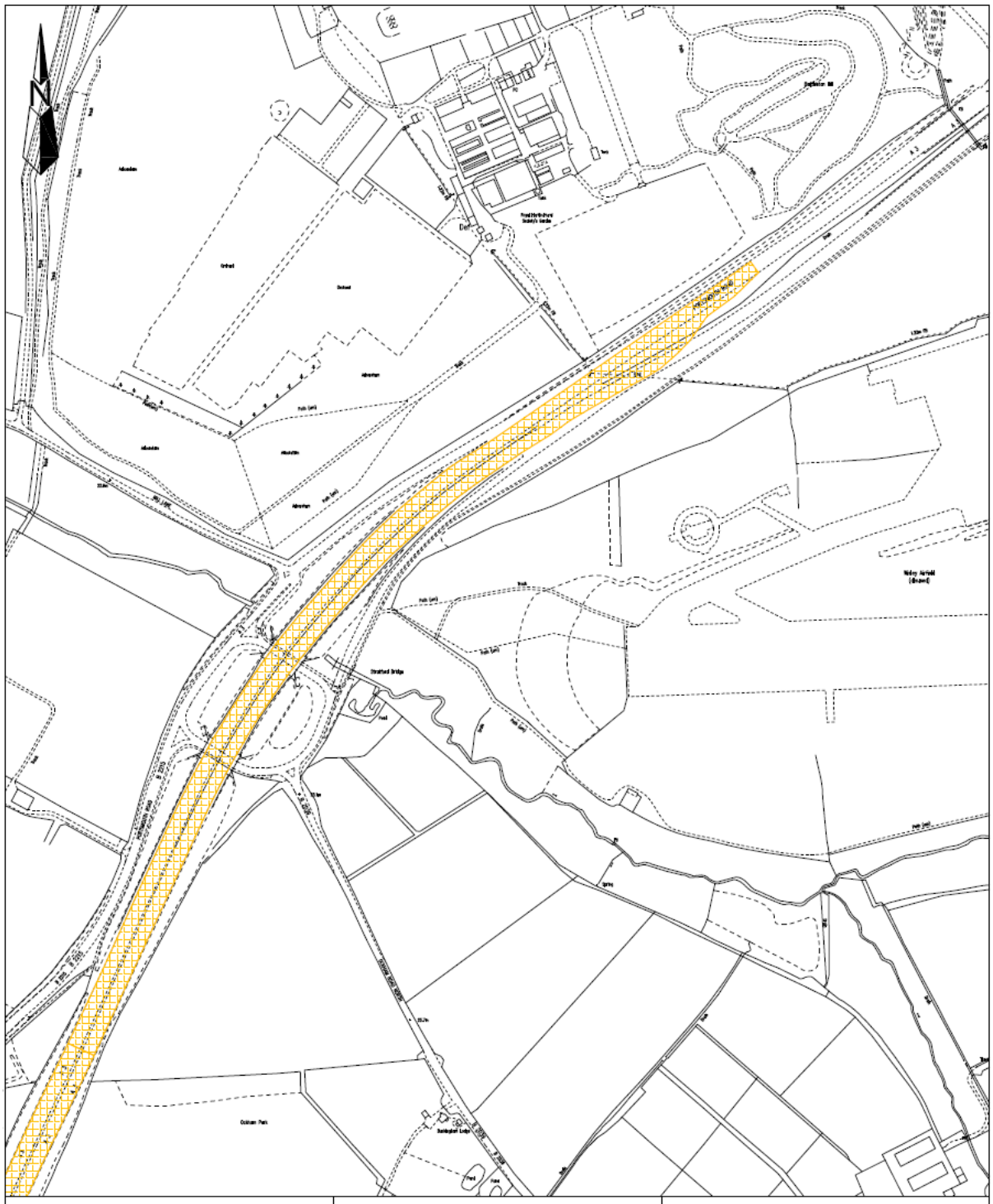
Activity	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY
Submit Severe Weather Plan	By 21st											
Severe Weather Plan accepted by Highways England		By 18th										
Completion of Severe Weather Desk Exercise and Briefings			SWD by 31st	Briefings by 30th								
Feedback and action planning from exercises and briefings					By 12th							
Complete and submit salt Capability Spreadsheet (contract specific)			By 1st	By 1st	By 1st	By 1st	By 1st	By 1st	By 1st			
Complete and submit Non warranty defects report spreadsheet			By 15th	By 15th	By 15th	By 15th	By 15th	By 15th	By 15th			
Submit vehicle off road report					Daily	Daily	Daily	Daily				
SWIS reporting requirements			Daily	Daily	Daily	Daily	Daily	Daily	Daily			
Review and update winter Service and severe weather infrastructure database								1st				
Finalise list of key issues to feed into lessons learnt process									By 30th			
End of season Winter and severe weather review										By 14th		
Winter and Severe weather report to Highways England (Operational Assessment report)										By 15th		
Submit salt restocking plan										By 31th		
Salt restocking plan approval by Highways England											By 30th	
Salt restocking plan in place											By 30th	

A.2 AREA MAP


AREA 3 NETWORK
Domain 1
Domain 2
Domain 3
Domain 4
Domain 5
highways england
KIER
BUCKINGHAMSHIRE
HERTFORDSHIRE
LONDON
KENT
EAST SUSSEX
SURREY
WEST SUSSEX
HAMPSHIRE
BERKSHIRE
OXFORDSHIRE
WILTSHIRE
GLOUCESTERSHIRE
DORSET
Legend

Legend
Motorway
All purpose Trunk Roads
Connecting Roads (not part of Area 3 Network)
Motorway (not part of Area 3 Network)
Other Roads (not part of Area 3 Network)
Marker Posts
County Boundary
District Council Boundary
Police Force Boundary
Hertfordshire Police
Thames Valley Police
Surrey Police
Sussex Police
Hampshire Police
Wiltshire Police
Dorset Police
BUCKINGHAMSHIRE
OXFORDSHIRE
GLOUCESTERSHIRE
BERKSHIRE
WILTSHIRE
HAMPSHIRE
SURREY
WEST SUSSEX

A.3 INTERFACE DRAWINGS



Safe Roads:	Reliable Journeys:	Informed Travellers:

highways england / KIER			Project: Area 3 Maintenance Responsibility Area 3 Interface Maps		
Status: FOR CONSTRUCTION			© Crown copyright. All rights reserved Highways Agency 100018928	Drawing Title: A3 Wisley IC	
HMD 29.07.09 Drawn by & date	IAB 6/8/14 Checked by & date	IAB 6/8/14 Approved by & date	Scale (at A4 size) 1:5000 @A4	Issuing Office: Easton lane [redacted]	Drawing number: 3/Winter/DR/Map9 / Revision

A404(M)
Refer to M4 drawings
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SECTION 2
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Highways Agency Boundary (with no physical demarcation).
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highways england
KIER
Area 3 Commission
Highway Boundary Plans
Route A404(M) (Sheet 1)
200661/A404(M)/01
1:2500 @ A3
PRE

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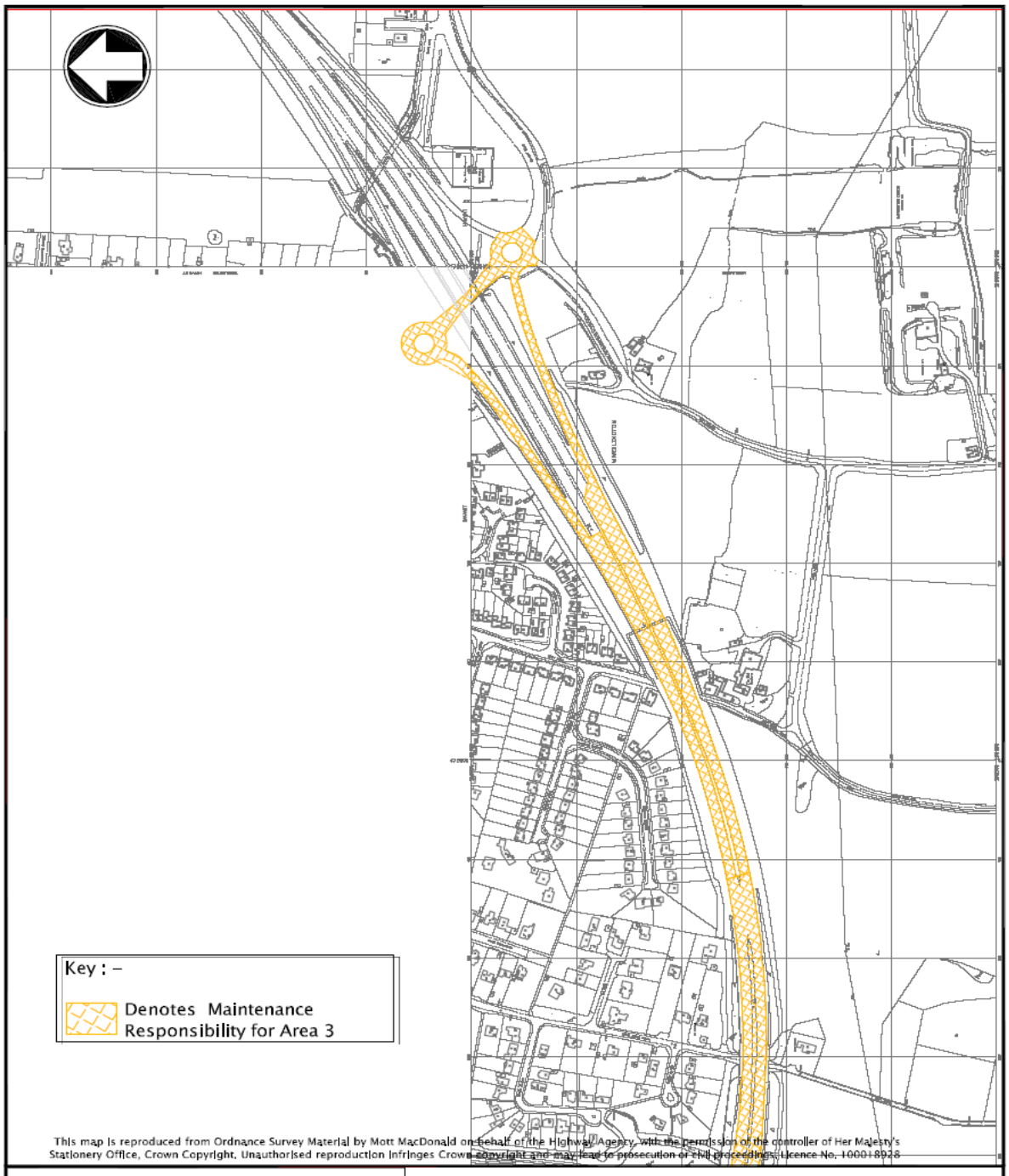

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Area 3 Maintenance Responsibility
Area 3 Interface Maps
A27-mp54.3 Warblington I.C.

highways england

KIER

Date	Drawn	Checked	Approved	Scale	Drawing No.	Rev	Status
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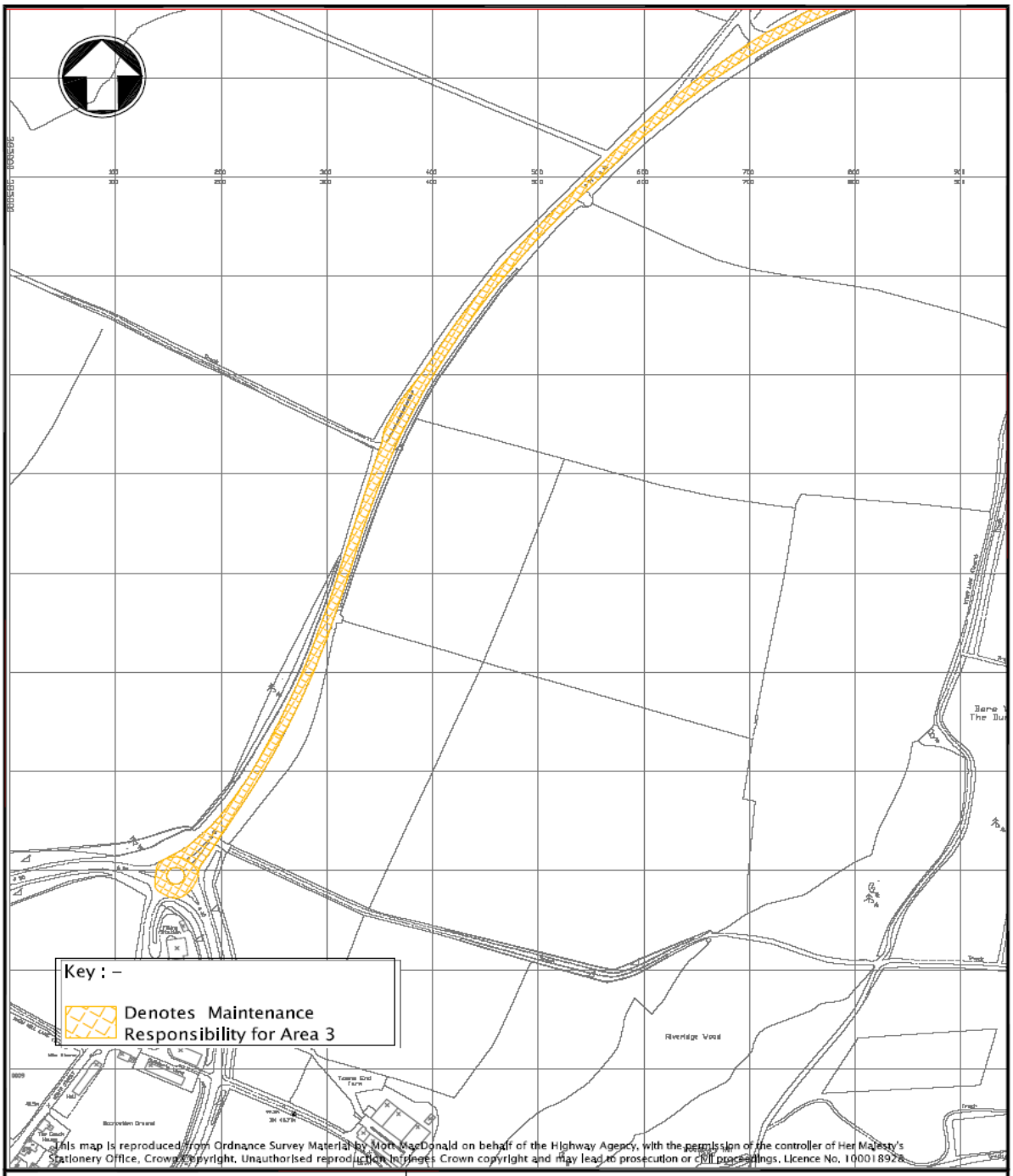

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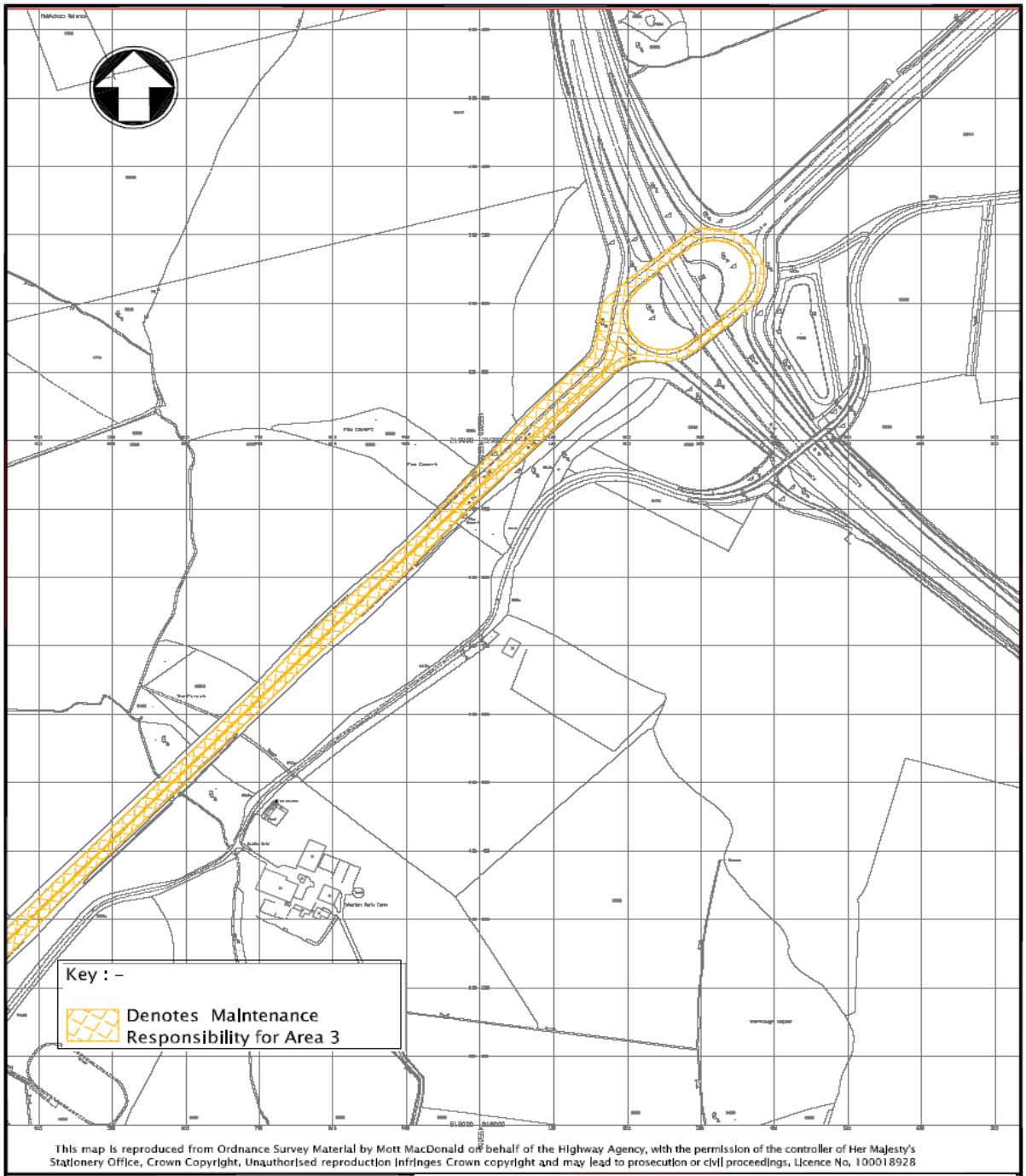

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Area 3 Maintenance Responsibility
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highways england

KIER

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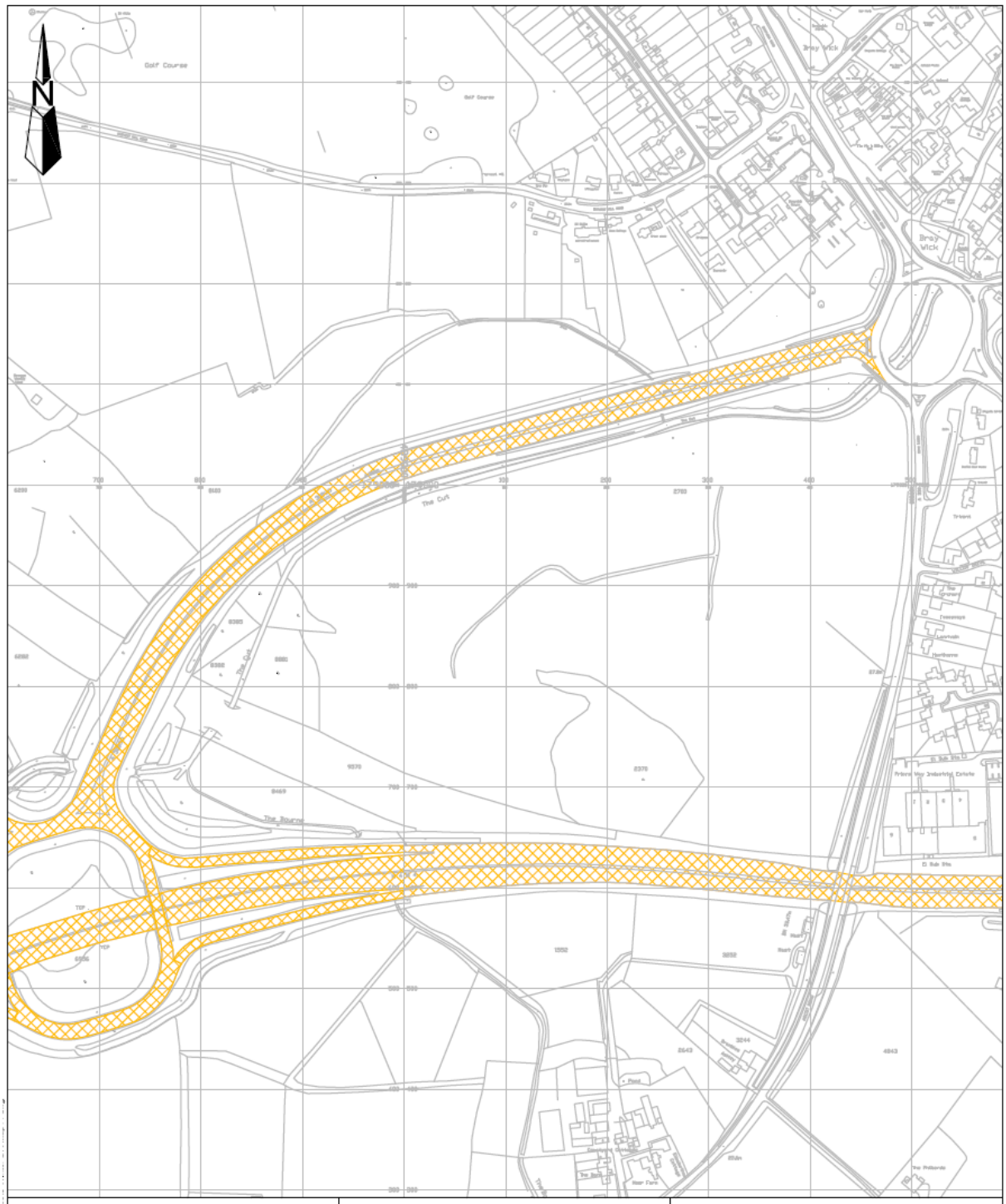

Safe Roads:	Reliable Journeys:	Informed Travellers:

highways england | KIER

Project	Area 3 Maintenance Responsibility Area 3 Interface Maps
Drawing Title	A308(M)
Status FOR CONSTRUCTION	© Crown copyright, All rights reserved Highways Agency 100018928

HMD 29,07,09 Drawn by & date	IAB 6/8/14 Checked by & date	IAB 6/8/14 Approved by & date	Scale (at A4 size) 1:5000	Issuing Office Easton lane	Drawing number 3/WInter/DR/Map11	Revision

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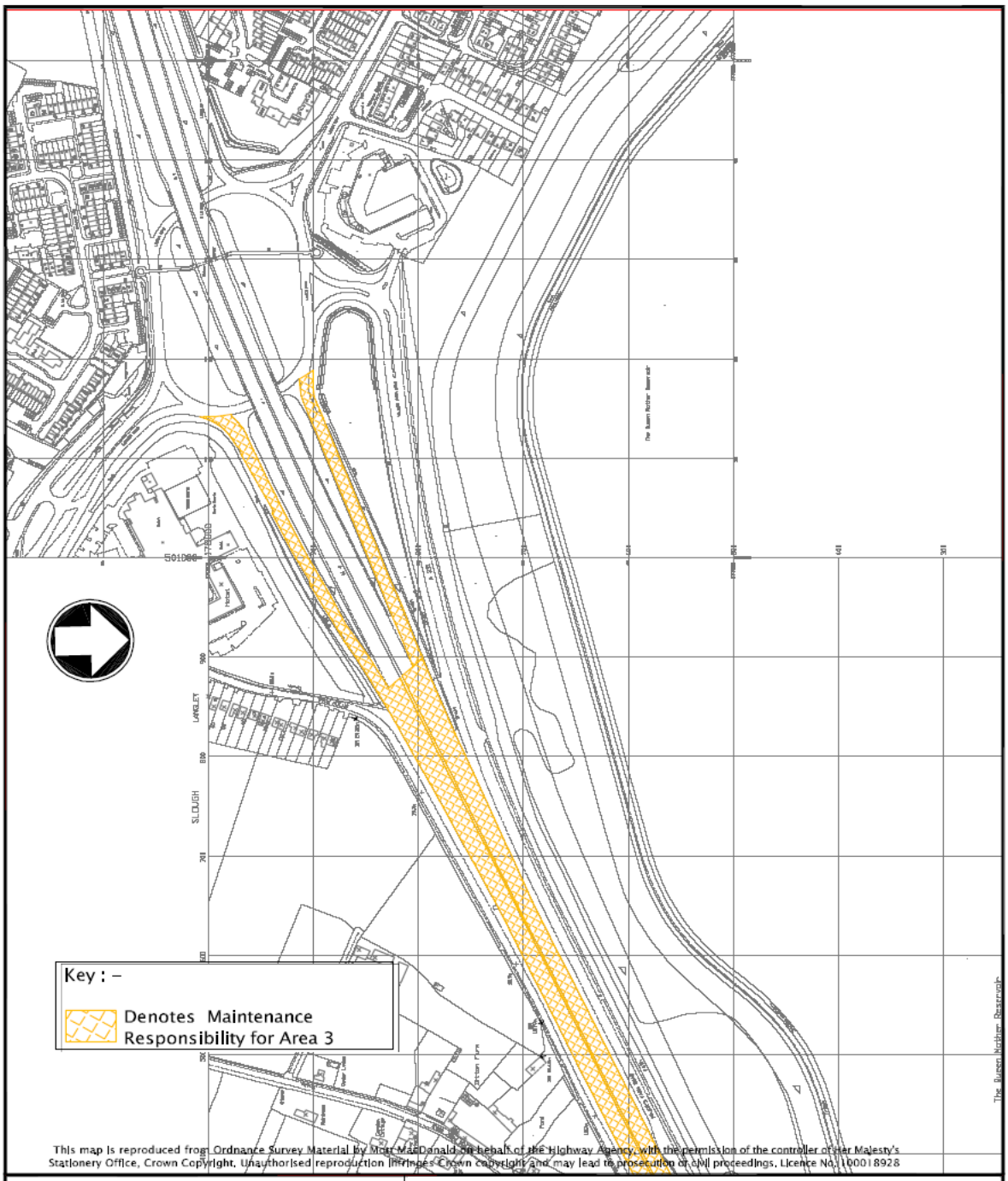

Title

Area 3 Maintenance Responsibility
Area 3 Interface Maps
M4-J5

highways england

KIER

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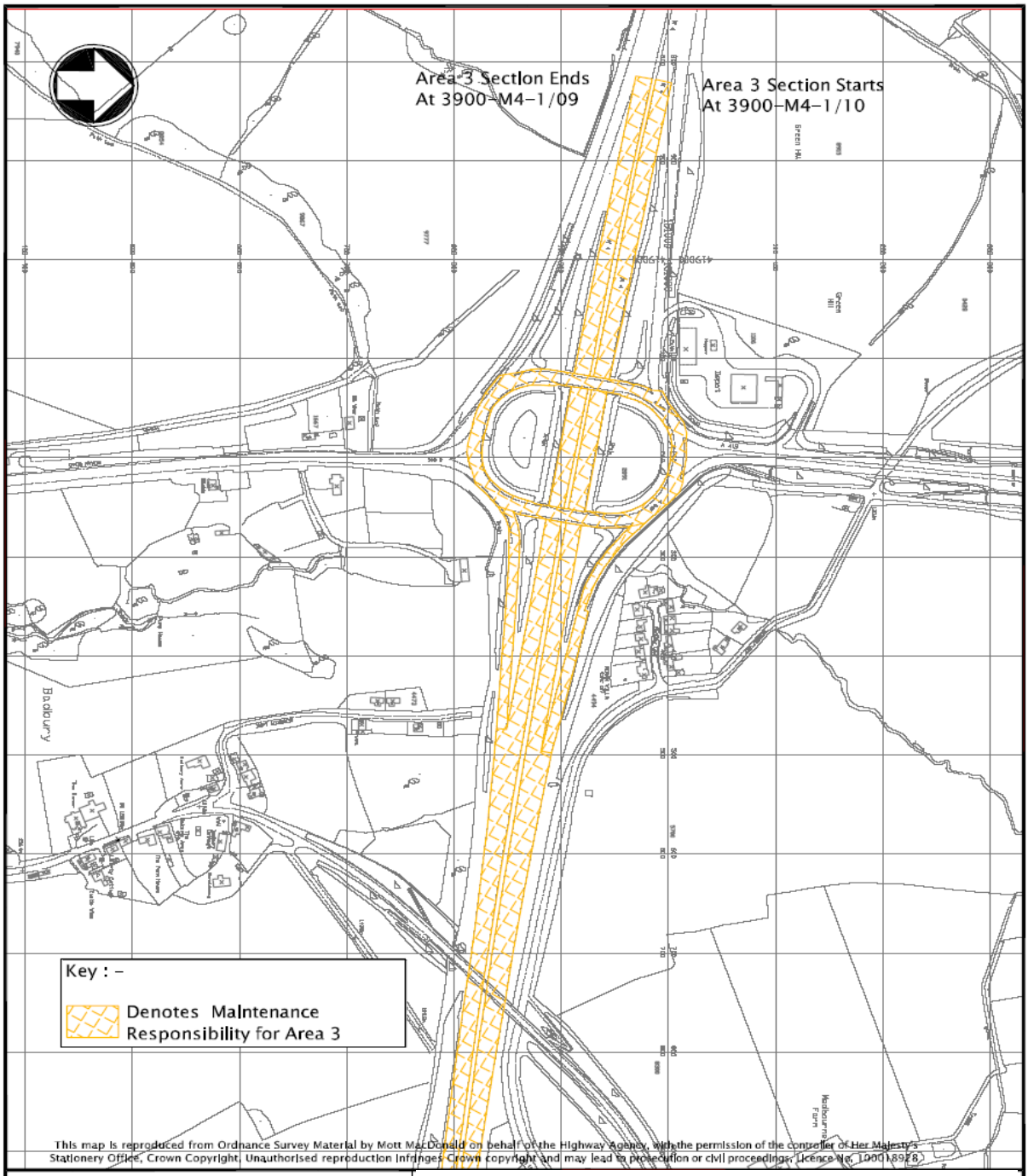

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Area 3 Maintenance Responsibility
Area 3 Interface Maps
M4-J15

highways england

KIER

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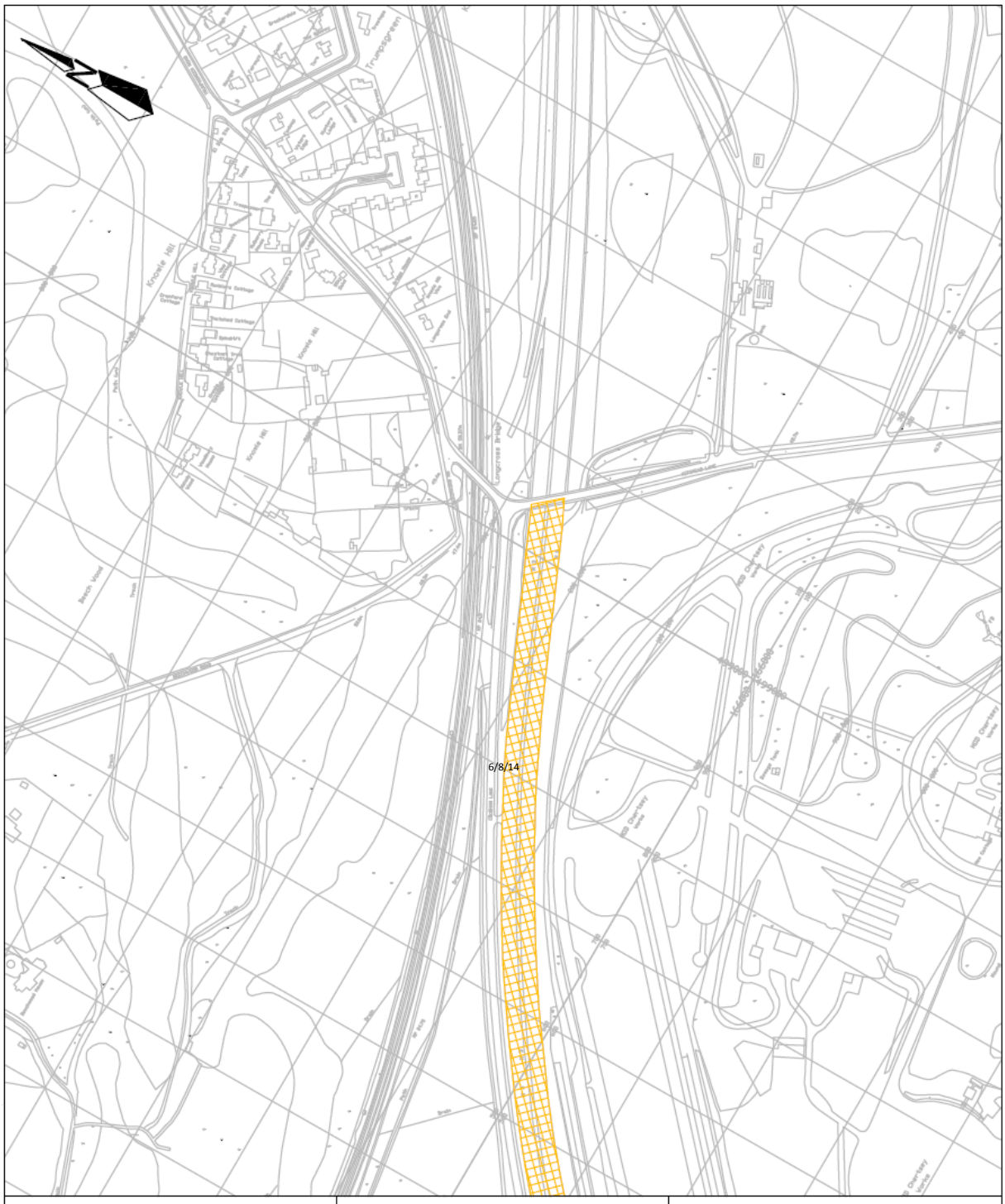

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highways england KIER

Project: Area 3 Maintenance Responsibility Area 3 Interface Maps

Drawing Title: M3 mp37.0

Status: FOR CONSTRUCTION

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SECTION 24
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Highway Boundary Plans
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Area 3 Commission
Highway Boundary Plans
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1:2500 @ A3
200661/M27/47a
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SECTION 47a

SECTION 1
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P1
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Highway Boundary Plans
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200661/M271/04
1:2500 @ A3
P1
PRE
highways england
KIER
SECTION 3
SECTION 4

A.4 NETWORK FEATURES

Emergency Crossings

Road	Location	Type
M4	108.7	Removable Barrier
M4	111.8	Removable Barrier
M4	115.7	Removable Barrier
M4	119.9	Removable Barrier
M3	71.3	Removable Barrier
A27	51.8	Removable Barrier
M27	11.9 + 40	Removable Barrier
M27	13.9 + 40	Removable Barrier
M27	21.9 + 15	Removable Barrier
M27	41.6	Removable Barrier
A3	Hindhead Tunnel North Portal	Removable Barrier
A3	Hindhead Tunnel South Portal	Removable Barrier

Emergency Refuge Areas

Road	Location	Type
M3	36.6 – 36.7 SB	Emergency Refuge Area
M3	38.5 – 38.6 SB	Emergency Refuge Area
M3	41.0 – 41.1 SB	Emergency Refuge Area
M3	43.2 – 43.3 SB	Emergency Refuge Area
M3	47.7 – 47.8 SB	Emergency Refuge Area
M3	50.2 to 50.3 SB	Emergency Refuge Area
M3	50.5 – 50.4 NB	Emergency Refuge Area
M3	47.9 – 47.8 NB	Emergency Refuge Area
M3	43.3 – 43.2 NB	Emergency Refuge Area
M3	41.0 – 41.0 NB	Emergency Refuge Area
M3	38.6 – 38.5 NB	Emergency Refuge Area
M3	36.7 – 36.6 NB	Emergency Refuge Area

Solid Vertical Barrier

Solid Vertical barriers are inspected in accordance with AMOR contractual requirements.

Road	Location	Length
A3	Guildford, Junc A31	800
A3	Guildford, Wooden Bridge	200
M27	Junc 3-4	4090
M27	Junc 11	3200
A27	Havant Bypass	3300
M3	Junc 4a – Kitsmead	19000
M4	Junc 14 - 15	8900

Traffic Calming Areas

Road	Location	Type
None		

Smart Motorway Sections

The following table highlights the location and length of Smart Motorway sections that exist on the Area 3 Network.

Road	Location	Type	Length
M3	Jct 4a - Kitsmead	ALR	15km

Detailed guidance on Smart Motorway Sections with Hard Shoulder Running is contained within this plan. Outlined below are a few, but not exhaustive list of considerations Kier Highways will address as part the effective delivery of the Severe Weather Service.

- The presence of solid vertical barriers can present operational difficulties to snow ploughing which will potentially result in snow being stacked on lanes adjacent to them.
    - Kier Highways will consider whether any lanes may need to be abandoned during heavy snow whilst keeping the maximum number of lanes available to traffic and maintaining access and egress.
    - Stacked snow must still be able to be removed at the earliest opportunity.
- Areas susceptible to run off with the potential to re-freeze.

    - For example on Smart motorway sections if in the provider plan the Lane Below Signal 1 (LBS 1) remains open, can the adjacent marginal strip area retain any 'run-off' without comprising the running lanes?
    - Existing guidance states particular attention must be paid to lengths of road that are known to be susceptible to 'run-off' water from verges or central reserves and at joints between porous and impermeable surfacing.
- If the provider plan calls for the abandonment of LBS 1 in heavy snow fall, they must include details of arrangements for moving vehicles including equipment to be used, procedures to be followed and contact details for relevant organisations and supply chain.
    - They must also clearly detail arrangement for dealing with merge and diverge arrangements as well as ERAs. They must also work with Regional Control Centres in defining what message signs and signals will utilised to display warning information, or inform motorists of lanes that are not available for use.
    - These activities will need to interface effectively and efficiently with both Emergency Responder and Traffic Officer Service severe weather response plans i.e. M25 Operation 'Traction' and 'Side-line'.
- If the provider plans determines clearance of all heavy snowfall to adjacent verge areas, the implication of this need to be considered.
    - For example would storage of heavy snowfall a verge area impact on technology cabinets, safety, boundary fencing, sign visibility, soft estate, etc, would this present any short or long term issue that needs to be addressed

Snow Gates

No Snow gates exist on the area 3 network

Road	Location	Type
None		

Snow Fences

No Snow gates exist on the area 3 network

Road	Location	Type
None		

Snow Storage

The following table shows the locations where snow removed from the Area 3 Network is to be stockpiled.

Road	Location	Approval sought
M3	Redundant Slips at Dummer	Not Required
M27	Redundant Slips at Meon	Not Required

A34	Redundant Slips at Drayton	Not Required
A3	Redundant weighbridge at Burpham	Not Required

Rivers, Streams and Brooks

The following table shows the location of rivers, tributaries and flood plains which historically have caused flooding on the Area 3 Network.

Details of water courses and areas subject to flooding from seepage of water onto the carriageway from adjacent land have also be included. Refer to 1.6.4 and A.5 for controls.

Road	Location	Cause	Type
A34	Mp 0.2 – 0.4	Water from M3 northbound on-slip and Depot discharges across A34 southbound, causing flooding at MP0.4 - 0.5	Hard surface run-off

Coastal Defence

There are no locations of coastal areas that exist on the Area 3 Network that are subject to flooding.

Road	Location	Type
None		

Bridges, Open Areas and Forest Areas

The following table shows the location of forests and areas of trees most susceptible to high winds that exist on the Area 3 Network. Details of bridges and open areas subject to strong cross winds are also be included.

Road	Location	Type
M27	River Hamble	Cross winds
M27	Junction 12	Cross winds
A31	St Leonards	Cross Winds
A34	Kingsworthy	Cross winds
A34	Three Maids Hill - Litchfield	Cross winds

A.5 VULNERABLE LOCATIONS SCHEDULE

VUNERABLE LOCATIONS SCHEDULE	
Reference Number: VL1	
Location	M4 Junctions 14 -15 Membury
Problem	Exposed location with risk of drifting snow
Is the problem particularly HGV related (Yes / No)	No
Has this site experienced problems before or is it an identified risk?	No
Detailed Mitigation Measures	
When enacted	Additional effort vehicles will be provided.
Who enacts	Severe weather desk
Who will manage the response	Severe weather desk
Are diversion routes to be used?	No
Pre-deployment of resources	None
Use of VMS	VMS signs available via SW and SE RCC
Other measures put in place	None
Assistance from Service Provider resources	From Shefford Woodlands or Chieveley
Assistance from additional Highways england resources	Mutual Aid may be requested from Area 2
Assistance from External Sources	TOS will provide escort if resources are available.

VUNERABLE LOCATIONS SCHEDULE	
Reference Number: VL2	
Location	A3 Liphook By-pass
Problem	Exposed location section of road which is subject to lower than average temperatures
Is the problem particularly HGV related (Yes / No)	No
Has this site experienced problems before or is it an identified risk?	No
Detailed Mitigation Measures	
When enacted	Marginal Nights
Who enacts	WMDO
Who will manage the response	WMDO
Are diversion routes to be used?	No
Pre-deployment of resources	None
Use of VMS	No
Other measures put in place	Temperatures to be monitored
Assistance from Service Provider resources	None
Assistance from additional Highways england resources	None
Assistance from External Sources	None

VUNERABLE LOCATIONS SCHEDULE	
Reference Number: VL3	
Location	A34 Gore Hill (Ridgeway)
Problem	Long incline
Is the problem particularly HGV related (Yes / No)	Yes, HGV's suffer lack of traction during snow and ice conditions
Has this site experienced problems before or is it an identified risk?	Yes. HGV's lose traction and jack knife causing full c/way closure
Detailed Mitigation Measures	
When enacted	PT 360 excavator with low loader will be pre-positioned
Who enacts	SWM if forecast indicates significant snowfall risk.
Who will manage the response	SWM / Operations Manager via supply chain
Are diversion routes to be used?	No
Pre-deployment of resources	PT 360 excavator with low loader will be pre-positioned
Use of VMS	None available
Other measures put in place	None
Assistance from Service Provider resources	Labour and plant to be supplied by supply chain
Assistance from additional Highways england resources	None
Assistance from External Sources	Escort may be requested from Thames Valley Police or ERCC. Additional loading facilities are available at Milton Common (OCC)

VUNERABLE LOCATIONS SCHEDULE	
Reference Number: VL4	
Location	A404 Bisham – Handy Cross
Problem	Exposed Gradient
Is the problem particularly HGV related (Yes / No)	No
Has this site experienced problems before or is it an identified risk?	Yes. Lightly trafficked road overnight.
Detailed Mitigation Measures	
When enacted	Additional effort may be provided during snowfall
Who enacts	Severe weather desk on receipt of intelligence from scouts.
Who will manage the response	Severe weather desk will mobilise additional vie Area Manager
Are diversion routes to be used?	No
Pre-deployment of resources	None
Use of VMS	None available
Other measures put in place	None
Assistance from Service Provider resources	Additional effort vehicles are available at Bray Court
Assistance from additional Highways england resources	None
Assistance from External Sources	None

VUNERABLE LOCATIONS SCHEDULE	
Reference Number: VL5	
Location	A303 Thruxton
Problem	Long incline at exposed location
Is the problem particularly HGV related (Yes / No)	No
Has this site experienced problems before or is it an identified risk?	No
Detailed Mitigation Measures	
When enacted	Additional effort may be provided during snowfall
Who enacts	Severe weather desk on receipt of intelligence from scouts.
Who will manage the response	Severe weather desk will mobilise additional via Area Manager
Are diversion routes to be used?	No
Pre-deployment of resources	None
Use of VMS	None available
Other measures put in place	None
Assistance from Service Provider resources	Additional effort vehicles are available at Dummer
Assistance from additional Highways england resources	None
Assistance from External Sources	None

VUNERABLE LOCATIONS SCHEDULE	
Reference Number: VL6	
Location	A31 Malwood Hill (Minstead)
Problem	Long incline
Is the problem particularly HGV related (Yes / No)	Yes, HGV's suffer lack of traction during snow and ice conditions
Has this site experienced problems before or is it an identified risk?	Yes. HGV's lose traction and jacknife causing full c/way closure
Detailed Mitigation Measures	
When enacted	PT 360 excavator with low loader will be pre-positioned
Who enacts	SWM if forecast indicates significant snowfall risk.
Who will manage the response	SWM / Operations Manager via supply chain
Are diversion routes to be used?	No
Pre-deployment of resources	PT 360 excavator with low loader will be pre-positioned
Use of VMS	VMS signs available on M27 approach
Other measures put in place	None
Assistance from Service Provider resources	Labour and plant to be supplied by supply chain
Assistance from additional Highways england resources	None
Assistance from External Sources	Escort may be requested from Hampshire Police or SE RCC.

VUNERABLE LOCATIONS SCHEDULE	
Reference Number: VL7	
Location	A3 Liphook & Petersfield By-pass
Problem	Sand subsoil with increased risk of low temperature / low humidity conditions
Is the problem particularly HGV related (Yes / No)	No
Has this site experienced problems before or is it an identified risk?	Yes. Problems have occurred during periods of low temperature and low humidity
Detailed Mitigation Measures	
When enacted	WMDO are aware of potential and therefore pay particular attention to this site during low temperature and low humidity conditions
Who enacts	WMDO
Who will manage the response	WMDO
Are diversion routes to be used?	No
Pre-deployment of resources	None
Use of VMS	N/A
Other measures put in place	None
Assistance from Service Provider resources	None
Assistance from additional Highways england resources	None
Assistance from External Sources	None

VUNERABLE LOCATIONS SCHEDULE	
Reference Number: VL8	
Location	A3 Hogs Back
Problem	Long incline
Is the problem particularly HGV related (Yes / No)	Yes, HGV's suffer lack of traction during snow and ice conditions
Has this site experienced problems before or is it an identified risk?	Yes. HGV's lose traction causing full c/way closure.
Detailed Mitigation Measures	
When enacted	PT 360 excavator with low loader will be pre-positioned
Who enacts	SWM if forecast indicates significant snowfall risk.
Who will manage the response	SWM / Operations Manager via supply chain
Are diversion routes to be used?	No
Pre-deployment of resources	PT 360 excavator with low loader will be pre-positioned
Use of VMS	None available
Other measures put in place	None
Assistance from Service Provider resources	Labour and plant to be supplied by supply chain. Additional effort vehicles are available from Park Gate.
Assistance from additional Highways england resources	None
Assistance from External Sources	Escort may be requested from Hampshire Police or SE RCC.

VUNERABLE LOCATIONS SCHEDULE	
Reference Number: VL9	
Location	A3 Butser Hill
Problem	Long incline
Is the problem particularly HGV related (Yes / No)	Yes, HGV's suffer lack of traction during snow and ice conditions
Has this site experienced problems before or is it an identified risk?	Yes. HGV's lose traction and jacknife causing full c/way closure. In 2009/10 the A3 was closed overnight
Detailed Mitigation Measures	
When enacted	PT 360 excavator with low loader will be pre-positioned
Who enacts	SWM if forecast indicates significant snowfall risk.
Who will manage the response	SWM / Operations Manager via supply chain
Are diversion routes to be used?	No
Pre-deployment of resources	PT 360 excavator with low loader will be pre-positioned
Use of VMS	None available
Other measures put in place	None
Assistance from Service Provider resources	Labour and plant to be supplied by supply chain. Additional effort vehicles are available from Park Gate.
Assistance from additional Highways england resources	None
Assistance from External Sources	Escort may be requested from Hampshire Police or SE RCC.

VUNERABLE LOCATIONS SCHEDULE	
Reference Number: VL10	
Location	A34 approach to M40
Problem	Incline on approach to M40 Junction 9
Is the problem particularly HGV related (Yes / No)	Yes, HGV's may be unable to negotiate the gradient during heavy snowfall
Has this site experienced problems before or is it an identified risk?	Yes. In December 2010 heavy snowfall coincided with tailbacks from an incident on the M40 and Xmas shoppers from Bicester Village. This resulted difficulty in treating the carriageway with a consequent build-up of packed snow and ice. Extensive overnight congestion ensued.
Detailed Mitigation Measures	
When enacted	PT 360 excavator on a low loader will be strategically located to attend incidents of this type.
Who enacts	SWM if forecast indicates significant snowfall risk.
Who will manage the response	Severe Weather desk
Are diversion routes to be used?	No
Pre-deployment of resources	PT 360 excavator on a low loader will be strategically located at Hook
Use of VMS	VMS signs to be activated by ERCC
Other measures put in place	A multi-agency recovery plan has been developed for the A34.
Assistance from Service Provider resources	Labour and plant to be supplied by supply chain. Additional effort vehicles are available Chieveley, Whitley Wood and Bray Court.
Assistance from additional Highways england resources	None
Assistance from External Sources	Escort may be requested from Thames Valley Police or ERCC. Additional loading facilities are available at Milton Common (OCC)

VUNERABLE LOCATIONS SCHEDULE	
Reference Number: VL11	
Location	M4 Chieveley B Off Slip
Problem	Balancing pond has insufficient capacity to cope with prolonged heavy rainfall leading to flooding to the off slip and A34 roundabout.
Is the problem particularly HGV related (Yes / No)	No
Has this site experienced problems before or is it an identified risk?	Yes
Detailed Mitigation Measures	
When enacted	Over pump pond to local watercourse. Sand bagging to be placed adjacent to slip road to reduce water flow. Salt berm to be added together with spot salting during freeze risk. Lane 1 closure to be established during sub-zero periods.
Who enacts	Severe Weather Manager
Who will manage the response	SWM / Area Manager
Are diversion routes to be used?	No
Pre-deployment of resources	6” pump is on site
Use of VMS	Yes
Other measures put in place	None
Assistance from Service Provider resources	Plant to be supplied by supply chain. Sand bags and salt available from Chieveley depot.
Assistance from additional Highways england resources	None
Assistance from External Sources	None

VUNERABLE LOCATIONS SCHEDULE	
Reference Number: VL12	
Location	A3 Hindhead Tunnel
Problem	Unique environment & technology to Area 3
Is the problem particularly HGV related (Yes / No)	No
Has this site experienced problems before or is it an identified risk?	Identified as risk due to location. Access to control centre following snowfall. Tunnel closure during snowfall event also poses a risk
Detailed Mitigation Measures	
When enacted	When heavy snowfall that will affect the area is forecast
Who enacts	Severe weather desk
Who will manage the response	Severe weather desk
Are diversion routes to be used?	Diversion routes will be used if the tunnel closes as per ONDR
Pre-deployment of resources	4x4 vehicles to be made available for the safe access and egress of tunnel staff so normal working can take place
Use of VMS	VMS signs available via Hindhead Tunnel control room.
Other measures put in place	Should tunnel close, communication with local authority to take place advising that ONDR will be used.
Assistance from Service Provider resources	Dependant on tunnel closure type emergency services, incident response teams and severe weather vehicles may still be able to use the tunnel under lower speed restrictions
Assistance from additional Highways england resources	Local media communications. Severe weather desk to address
Assistance from External Sources	None

VUNERABLE LOCATIONS SCHEDULE	
Reference Number: VL13	
Location	A34 Mp 0.2 – 0.4 South bound
Problem	Hard water run off - Water from M3 northbound on-slip and Depot discharges across A34 southbound, causing flooding at MP0.4 - 0.5. In colder periods this could lead to reduced effectiveness of salt.
Is the problem particularly HGV related (Yes / No)	No
Has this site experienced problems before or is it an identified risk?	Yes
Detailed Mitigation Measures	
When enacted	Increased salt spread rate for this section during each treatment. Refer to Appendix B4, Where accurate information is not available, especially if ice formation is suspected, it is recommended that top-up treatments are made at the maximum spread rate that can be achieved with pre-wet spreaders, namely 20g/m^2 for two-lane spreading.
Who enacts	WMDO
Who will manage the response	WMDO / Area Manager
Are diversion routes to be used?	No
Pre-deployment of resources	N/A
Use of VMS	Yes
Other measures put in place	None. Where Ice is reported to have formed Consider using Potassium Acetate (Solution). This gives Immediate action on ice Effective for up to 48 hours to - 15°C in suitable weather conditions
Assistance from Service Provider resources	In house resource to be utilised.
Assistance from additional Highways england resources	None
Assistance from External Sources	None

A.6 DECISION MAKER DUTY ROTA

Current duty rotas are maintained and held by the NCC ([redacted]). The following staff are included in the rotas

Title	Name
WMDO	[redacted]
WMVO	[redacted]

A.7 OPERATIVES SCHEDULE

Training records are held on an electronic database.

Link to training database

A.8 TRAINING RECORDS

Training records are held on an electronic database.

Link to training database

A.9 RISK ASSESSMENTS

Risk assessments are held electronically on Kier Highways IMS system.

Link to Area 3 Health & Safety page

A.10 INTERNAL CONTACT LIST

Position	Contact Details	
	Normal Office hours	Outside Normal Office Hours
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]

A.11 EXTERNAL CONTACT LIST

Name	Role	Organisation	Telephone	Fax	Email
[redacted]	[redacted]	[redacted]	[redacted]		
[redacted]	[redacted]	[redacted]	[redacted]		
[redacted]	[redacted]	[redacted]	[redacted]		
[redacted]	[redacted]	[redacted]	[redacted]		
	[redacted]	[redacted]	[redacted]		
	[redacted]	[redacted]	[redacted]		
[redacted]	[redacted]		[redacted]		
[redacted]	[redacted]	[redacted]	[redacted]		
[redacted]	[redacted]	[redacted]	[redacted]		
[redacted]	[redacted]	[redacted]	[redacted]		
[redacted]	[redacted]	[redacted]	[redacted]		
[redacted]	[redacted]	[redacted]	[redacted]		
[redacted]	[redacted]	[redacted]	[redacted]		
[redacted]	[redacted]	[redacted]	[redacted]		
[redacted]	[redacted]	[redacted]	[redacted]		
[redacted]	[redacted]	[redacted]	[redacted]		
[redacted]	[redacted]	[redacted]	[redacted]		
[redacted]	[redacted]	[redacted]	[redacted]		
[redacted]	[redacted]	[redacted]	[redacted]		
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]		

[redacted]	[redacted]	[redacted]			
[redacted]	[redacted]	[redacted]	[redacted]		
[redacted]	[redacted]	[redacted]	[redacted]		
[redacted]	[redacted]	[redacted]	[redacted]		
[redacted]	[redacted]	[redacted]	[redacted]		
[redacted]	[redacted]	[redacted]	[redacted]		
[redacted]	[redacted]	[redacted]	[redacted]		
[redacted]	[redacted]	[redacted]	[redacted]		
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[redacted]	[redacted]	[redacted]	[redacted]		
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[redacted]	[redacted]	[redacted]	[redacted]		
[redacted]	[redacted]	[redacted]	[redacted]		
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]		

Hampshire Transport Standby Rota for Kier Area 3

South = Park Gate, Ower, Longmoor, Easton Lane.			North = Hook, Whitley Wood, Bray Court, Chieveley, Shefford	
Week commencing	**Name**	**Telephone**	**Name**	**Contact**
2nd October	J[redacted]	[redacted]	[redacted]	[redacted]
9th October	[redacted]	[redacted]	[redacted]	[redacted]1151
16th October	[redacted]	[redacted]	[redacted]	[redacted]
23rd October	[redacted]	[redacted]	[redacted]	[redacted]
30th October	[redacted]	[redacted]	[redacted]	[redacted]
6th November	[redacted]	[redacted]	[redacted]	[redacted]
13th November	[redacted]	[redacted]	[redacted]	[redacted]
20th November	[redacted]	[redacted]	[redacted]	[redacted]
27th November	[redacted]	[redacted]	[redacted]	[redacted]
4th December	[redacted]	[redacted]	[redacted]	[redacted]
11th December	[redacted]	[redacted]	[redacted]	[redacted]
18th December	[redacted]	[redacted]	[redacted]	[redacted]
25th December	[redacted]	[redacted]	[redacted]	[redacted]
1st January	[redacted]	[redacted]	[redacted]	[redacted]
8th January	[redacted]	[redacted]	[redacted]	[redacted]
15th January	[redacted]	[redacted]	[redacted]	[redacted]
22nd January	[redacted]	[redacted]	[redacted]	[redacted]
29th January	[redacted]	[redacted]	[redacted]	[redacted]
5th February	[redacted]	[redacted]	[redacted]	[redacted]
12th February	[redacted]	[redacted]	[redacted]	[redacted]
19th February	[redacted]	[redacted]	[redacted]	[redacted]
26th February	[redacted]	[redacted]	[redacted]	[redacted]
5th March	[redacted]	[redacted]	[redacted]	[redacted]
12th March	[redacted]	[redacted]	[redacted]	[redacted]
19Th March	[redacted]	[redacted]	[redacted]	[redacted]
26th March	[redacted]	[redacted]	[redacted]	[redacted]
2nd April	[redacted]	[redacted]	[redacted]	[redacted]
9th April	[redacted]	[redacted]	[redacted]	[redacted]
16th April	[redacted]	[redacted]	[redacted]	[redacted]
23rd April	[redacted]	[redacted]	[redacted]	[redacted]

A.12 MUTUAL AID AGREEMENTS

Pre-Season mutual aid agreements are held in a *Box of reference*

Area 3 Mutual aid requests sent to adjoining areas

Request Sent To.	Mutual Aid Requested.
South West Region	Emergency provision of salt, brine and fuel, and assistance between the following cross boundary depots, Wylye Depot and Ower Depot on the A36, Wylye Depot and Dummer Depot on the A303 and Badbury Depot and Shefford Woodlands Depot on the M4
Area 4	Ford Depot to assist operations on the A27.emergency provisions of salt, brine and fuel.
M25 DBFO	Leatherhead Depot to assist operations on the A3 between Guildford and the M25. Denham Depot to assist M4 Jcn 5 to 8/9 and A404 from M40 Jcn 4 to M4 Jcn 8/9 Emergency provision of salt and brine

Area 3 Mutual aid requests received from adjoining areas:

Request Received From	Mutual Aid Requested.
Area 4	Park Gate Depot to assist operations in emergency situations on the A27 and emergency provisions of salt, brine and fuel.
M25 DBFO	Hook Depot to assist operations on the M25 Jcn 11 to 13.Emergency provision of salt and brine. Secondary redeployment of route SUX1 in case of loss Sunbury Depot. Bray Depot to assist operations on the M25 Jcn 13 to 17.Emergency provision of salt and brine. Secondary redeployment of route DEX5 in the event of loss of Denham Depot.

A.13 SEVERE WEATHER DESK DUTY ROTA

	First call Days	First Call nights	Second call Days	Second Call nights
Lead	[redacted]	[redacted]	[redacted]	[redacted]
Support	[redacted]	[redacted]	[redacted]	[redacted]
Support	[redacted]	[redacted]	[redacted]	[redacted]

A.14 BACK UP REPORTING FORMS

These forms or Kier Highways equivalents will only be used where the SWIS system cannot be used for reporting. The forms are illustrated below.

Stand-alone forms can be found within the *Box of reference*.

This Appendix includes the following standard forms:

i. Notification of Proposed Treatments

ii. Daily Operational Update

iii. Hourly Operational Update

[Service Provider name and logo]	**[Service Provider address line 1]** **[Service Provider address line 2]** **[Service Provider address line 3]** **[Service Provider address line 4]** **[Service Provider telephone]** **[Service Provider fax]** **[Service Provider email]**
Distribution list	
[Name, organisation, fax number/email]	

NOTIFICATION OF PROPOSED TREATMENTS **for [Area/DBFO Route]**				
For the 24 hour period started at 12:00 hrs on				
Minimum Air Temperature	Minimum RST	Time RST zero		
Winter Service Action Required:	YES		NO	
Proposed Treatment				
Route No	Route Description	Spread Rate (g/m^2)	Start Time	Comments
Additional Comments				

Actioned by:		Verified by:	
Date & Time:		Date & Time:	

[Service Provider name and logo]	**[Service Provider address line 1]** **[Service Provider address line 2]** **[Service Provider address line 3]** **[Service Provider address line 4]** **[Service Provider telephone]** **[Service Provider fax]** **[Service Provider email]**
To	
[Highways England Service Manager]	

DAILY OPERATIONAL REPORT
for [Area/DBFO Route]

For the 24 hour period started at 12:00 hrs on	

Operational Summary

Route No	Proposed Treatment			Actual Treatment			Comments
	Spread Rate (g/m^2)	Start Time	Finish Time	Spread Rate (g/m^2)	Start Time	Finish Time	

Additional Comments

Recorded by:	

[Service Provider name and logo]	[Service Provider address line 1] [Service Provider address line 2] [Service Provider address line 3] [Service Provider address line 4] [Service Provider telephone] [Service Provider fax] [Service Provider email]
To	
[Highways England Service Manager]	

HOURLY OPERATIONAL UPDATE **for [Area/DBFO Route]**		
Date	Time	
Network Summary		
Network Status Summary		
Road No	Condition	Ongoing Operations
Operational Report		
Recorded by:		

A.15 DEPOTS AND FACILITIES SCHEDULE

Compounds, Depots and Facilities Schedule						
Compound, Depot or Facility Name	Owner	Postal Address	Purpose	Access Arrangements	Contact Details	Facilities
Park Gate Depot	Highways England / Kier Highways	M27 Junction 9 Park Gate Hampshire PO15 6SA	General Maintenance Depot	Direct access to interchange; Public Highway	[redacted]	Male Toilet Female Toilet Disabled Toilet Broadband Drying-Room Showers Air Compressor Pressure Wash Weigh-Bridge Staff Mess
Dummer Depot	Highways England / Kier	M3 Jct 7 Hampshire RG25 2AD	General Maintenance Depot	A30; Public Highway	[redacted]	Male Toilet Female Toilet Disabled Toilet Broadband Drying-Room Showers Air Compressor Pressure Wash Weigh-Bridge Staff Mess
Hazel Grove Lodge	Highways England / Kier	Old Portsmouth Road Hazel Grove Hindhead GU26 6BQ	Staff Offices	Old Portsmouth Road : Public Highway	[redacted]	Male Toilet Female Toilet Broadband Staff Mess
Hook Depot	Hants County Council / Highways England / Kier	Hook Compound M3 Jct 5 Hook Hampshire RG27 9DD	General Maintenance Depot	A287; Public Highway	[redacted]	Male Toilet Female Toilet Disabled Toilet Broadband Drying-Room Showers Air Compressor Pressure Wash Weigh-Bridge Staff Mess
Longmoor	MOD Camp / Highways England / Kier	Longmoor Compound A3 Longmoor Surrey GU33 6EL	Storage	MoD access and A325; MoD plus Public Highway	[redacted]	Male Toilet Drying-Room Staff Mess
Ower Training Centre	Highways England / Kier	Ower Motorway Compound M27 Jct 2	Staff Training Centre & Offices	A326; Public Highway	[redacted]	Male Toilet Female Toilet Disabled Toilet Broadband Staff Mess
Ower Depot	Highways England / Kier	Ower Motorway Compound M27 Jct 2	General Maintenance Depot	A326; Public Highway	[redacted]	Male Toilet Female Toilet Broadband Drying-Room Showers Air Compressor Pressure Wash Weigh-Bridge Staff Mess
Hindhead Tunnel PTSB	Highways England / Kier	Boundless Road	Tunnel Service	A3 Southbound	[redacted]	Male Toilet Female Toilet

		Brook Godalming Surrey GU8 5LF	Building			Disabled Toilet Broadband Drying-Room Showers Staff Mess
Hindhead Tunnel STSB	Highways England / Kier	Secondary Tunnel Services Building Hindhead Tunnel Surrey GU8 5LF	Tunnel Service Building	A3 Northbound	[redacted]	Male Toilet Female Toilet Disabled Toilet Broadband Drying-Room Showers Staff Mess
Shefford Woodlands Depot	Highways England / Kier	Shefford Woodlands M4 Jct 14 Lovelock Lane Hungerford Newtown Berkshire RG17 7ED	General Maintenance Depot	M4 Jct 14	[redacted]	Male Toilet Drying-Room Showers Air Compressor Pressure Wash Weigh-Bridge Staff Mess
Chieveley Depot	Highways England / Kier / Volker	M4 Jct 13 Oxford Rd Hermitage Thatcham Berkshire RG18 9XX	General Maintenance Depot	M4 Jct 13 / A34 Chieveley Rdbt	[redacted]	Male Toilet Female Toilet Disabled Toilet Broadband Drying-Room Showers Air Compressor Pressure Wash Weigh-Bridge Staff Mess
Whitley Wood Depot	Highways England / Kier	351 Whitley Wood Rd Reading Berkshire RG2 8FS	General Maintenance Depot	Whitley Wood Rd off of M4 Jct 11	[redacted]	Male Toilet Female Toilet Disabled Toilet Broadband Drying-Room Showers Pressure Wash Weigh-Bridge Staff Mess
Bray Depot	Highways England / Kier	M4 Jct 8/9 Motorway Compound Priors Way Maidenhead Berkshire SL6 2HT	General Maintenance Depot	Priors Way off of Priors Road	[redacted]	Male Toilet Drying-Room Showers Pressure Wash Weigh-Bridge Staff Mess
Easton Lane Depot	Highways England / Kier	M3 Jct 9 Winchester Hampshire S023 7TY	General Maintenance	Access Via A34 Southbound or M3 Jct 9 N/B On-slip	[redacted]	Male Toilet Female Toilet Disabled Toilet Broadband Drying-Room Showers Air Compressor Pressure Wash Weigh-Bridge Staff Mess

A.16 FUEL, PUMP MAINTENANCE AND CONTINGENCY ARRANGEMENTS

Kier Highways will monitor fuel stock levels regularly during the Operational Winter Period and report using SWIS as per requirements in Section 4.1.

Depot	Supplier	Gas Oil		Derv (EN590)		Comments
		Max (l)	Min (l)	Max (l)	Min (l)	
Bray	Watson Petroleum	10,000	3000	10,000	3000	
Chieveley	Watson Petroleum	10,000	3000	10,000	3000	
Dummer	Watson Petroleum	10,000	3000	10,000	3000	
Easton Lane	Watson Petroleum	10,000	3000	10,000	3000	
Hook	n/a	7000	n/a	22000	n/a	Supplied & managed by HCC
Longmoor	Watson Petroleum	3000	500	n/a	n/a	Additional bowser will be considered during severe conditions.
Ower	Watson Petroleum	10,000	3000	10,000	3000	
Park Gate	Watson Petroleum	10,000	3000	10,000	3000	
Shefford woodlands	Watson Petroleum	10,000	3000	10,000	3000	
Whitley Wood	Watson Petroleum	10,000	3000	10,000	3000	

Depot	**Contingency Arrangements**	**Pump Maintenance Arrangements**
Bray Court	Whitley Wood	Cameron Forecourt
Chieveley	Shefford Woodlands or Whitley Wood	Cameron Forecourt
Dummer	Easton Lane or Hook	Cameron Forecourt
Easton Lane	Dummer or Park Gate	Cameron Forecourt
Hook	Dummer	N/A (HCC Facility)
Ower	Easton Lane or Park Gate	Cameron Forecourt
Park Gate	Easton Lane or Ower	Cameron Forecourt
Shefford Woodlands	Chieveley	Cameron Forecourt
Whitley Wood	Chieveley or Bray Court	Cameron Forecourt
Longmoor	Park Gate	Cameron Forecourt

A.17 SALT MANAGEMENT & SALT RE-STOCKING PLAN

Material storage and brine production

Details of storage locations and facilities in the Area 3 network are listed below:

Salt Storage				
Location	Storage Type	Material	Capacity (tonnes)	Min (tonnes)
Salt	Bray	Barn	2000 t	500 t
Salt	Chieveley	Barn	2000 t	500 t
Salt	Dummer	Barn	2500 t	500 t
Salt	Easton Lane	Barn	3600 t	1000 t
Salt	Hook	Barn	5000 t	1500 t
Salt	Ower	Barn	2000 t	500 t
Salt	Park Gate	Barn	3500 t	1000 t
Salt	Shefford Woodlands	Barn	2200 t	500 t
Salt	Whitley Wood	Barn	2500 t	250 t
Salt	Longmoor	Open	1500 t	250 t
Other De-icing Materials *(brine / ABP / potassium acetate / $CaCl_2$ / $MgCl_2$ etc.)*				
Location	Storage Type	Material type	Capacity (tonnes or litres)	Min (tonnes or litres)
Potassium Acetate	Longmoor	Tank	10000l	500l
Brine Production				
Location	**Equipment Type**		**Capacity (Litres)**	**Material Type**
Bray	Saturator and brine facility		10,000 Litres	White salt
Chieveley	Saturator and brine facility		10,000 Litres	White salt
Dummer	Saturator and brine facility		10,000 Litres	White salt
Easton Lane	Saturator and brine facility		10,000 Litres	White salt
Hook	Saturator and brine facility		10,000 Litres	White salt
Ower	Saturator and brine facility		10,000 Litres	White salt
Park Gate	Saturator and brine facility		10,000 Litres	White salt
Shefford Woodlands	Saturator and brine facility		10,000 Litres	White salt
Whitley Wood	Saturator and brine facility		10,000 Litres	White salt

The overall minimum stock will not be less than the contractual minimum shown in appendix B.4.

The minimum stock levels also include 10500t held on behalf of Highways England.

Salt stored in the open at Longmoor will be adequately covered to prevent degradation and minimise wash off.

There are no salt heaps or salt bins on the Area 3 network.

Consideration may be given to the strategic placement of 1 tonne bags prior to the onset of severe weather conditions. See Appendix A.5 vulnerable locations

Compounds, depots and facilities schedule is shown in A.15

Salt management

Kier Highways will develop and submit a Salt Restocking Plan (Service Timetable Section 1.3), providing evidence for supply arrangements, including a recommended Reporting Threshold profile (with supporting evidence). Service Providers should review this in line with the Minimum Contractual Salt Stock Levels (Appendix B.4). A template for Service Providers to complete is contained on the following pages.

The Salt Restocking Plan is to be submitted by 31st May, to the Service Manager & National Winter & Severe Weather Team ([redacted])

The Salt restocking plan will be updated and included within the draft Severe Weather plan by 18/08/16

Supply arrangements

Kier Highways will complete the restocking plan as provided on the following pages. This details all salt supply arrangements and stock levels applicable to the area.

Salt is provided and managed by Kier Highways as part of the Area 3 ASC Contract with Highways England.

Kier Highways will include details of supply arrangements including a primary and secondary supplier. Detailed evidence must be given to confirm the contract with the supplier(s) is/are in place and that materials can be sourced in a timely manner. Details of stock control arrangements to ensure continuous holding of appropriate stock, including alternative treatment materials, must also be documented (refer to Minimum Contractual Salt Stock Levels in Appendix B.4).

The principal supplier is Salt Union, stock usage is monitored against pre-defined levels and topped up accordingly. Additionally, resources are available from the Supply Chain for stock movement within Area 3 or collection if necessary.

Area 3 also has separate National Reserve Salt Barns holding approx. 50,000 tonnes. Salt domes in Dummer and Ower depots house the reserve stock of 25,000t per dome.

Kier Highways will use the Re-stocking plan template to document all salt supply arrangements.

Reserve and contingency arrangements

Kier Highways will use the restocking plan template to document all reserve/contingency salt supply arrangements.

In the event of Regional or National control of salt supply, alternative suppliers have been approached and supply contracts established to mitigate re-supply problems in the event that

Salt Union were unable to sustain stocks. Supply Contracts have been set up with Cleveland Potash, Irish Salt Sales, Salinity and NGS. Everything reasonably practicable will be done to source these alternative supplies in the event of a shortage.

Kier Highways will use the Re-stocking plan template below to document all reserve/contingency salt supply arrangements.

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SALT RESTOCKING PLAN

REPORTING THRESHOLD PROFILE		
Date (from)	Date (To)	Reporting threshold (Days)
1 October 2017	31 October 2017	6
1 November 2017	30 November 2017	7
1 December 2017	31 December 2017	10
1 January 2018	31 January 2018	9
1 February 2018	28 February 2018	7
1 March 2018	31 March 2018	6
1 April 2018	30 April 2018	6

SALT RE-STOCKING PLAN	
Primary Salt Supplier: Compass Minerals	
De icing material	6mm rock salt and 6mm marine salt
Quantity of de-icer required for winter season	16,617 tonnes currently in stock. A summer restock of 8383 tonnes will bring the opening stock level for the coming season to 25000 tonnes.
Re-supply arrangements	Call off orders totalling 10000 tonnes are to be placed for in season top ups.
Stock control arrangements	Salt usage is measured and logged after each treatment.
Secondary Salt Supplier: Irish Salt Sales	
De icing material	6mm rock salt and 6mm marine salt
Quantity of de-icer required for winter season by depot	Due to high stock levels at start of season and Robust Arrangements with our primary supplier, Sub contract arrangements have been put in place with Irish Salt Sales
Re-supply arrangements	N/A
Stock control arrangements	Salt usage is measured and logged after each treatment.
Reserve and Contingency Supplier: Cleveland Potash	
De icing material	6mm Marine Salt/6mm Rock Salt
Quantity of de-icer required for winter season by depot	Dependant on the severity of the winter.
Re-supply arrangements	Sub contract arrangements have been put in place with Cleveland Potash and Salinity which will be called upon if other suppliers are unable to meet demand.
Stock control arrangements	Salt usage is measured and logged after each treatment.
Primary Supplier: Peacock Salt	
De icing material	White Salt
Quantity of de-icer required for winter season by depot	Dependant on the severity of the winter and usage of current stocks
Re-supply arrangements	Sub contract arrangements have been put in place with Peacock Salt
Stock control arrangements	White salt stocks monitored and distributed internally until restock required
Primary Supplier: Safecote	
De icing material	Potassium Acetate
Quantity of de-icer required for winter season by depot	Dependant on the severity of the winter and usage of current stocks of which Area 3 currently have a stock of 6,000 litres within the 10,000 litre capacity storage tank.
Re-supply arrangements	Sub contract arrangements have been put in place with Safecote
Stock control arrangements	Regular tank readings are taken ensuring stock maintained

Salt									
Location	Type	Capacity (tonnes or litres)	31.05.17 Level	01.10.17 Proposed level	Level as at 18.08.17*	Proposed level at of sign off of plan	Date you will achieve your 01.10.17 proposed level	Min (tonnes or litres)	01.10.17 Proposed level achieved
Bray	Barn	2000 T	1231 T	1731 T	1731 T	1731 T	29/9/2017	500 T	
Chieveley	Barn	2000 T	925 T	2025 T	2025 T	2025 T	29/9/2017	500 T	
Dummer	Barn	2500 T	1403 T	2303 T	2303 T	2303 T	29/9/2017	500 T	
Easton Lane	Barn	3600 T	2741 T	3441 T	3441 T	3441 T	29/9/2017	1000 T	
Hook	Barn	5000 T	4136 T	4136 T	4136 T	4136 T	Complete	1500 T	YES
Longmoor	Open	1500 T	393 T	1593 T	1593 T	1593 T	29/9/2017	250 T	
Ower	Barn	2000 T	785 T	2085 T	2085 T	2085 T	29/9/2017	500 T	
Park Gate	Barn	3500 T	2442 T	3342 T	3342 T	3342 T	29/9/2017	1000 T	
Shefford Woodlands	Barn	2200 T	1144 T	2044 T	2044 T	2044 T	29/9/2017	500 T	
Whitley Wood	Barn	2500 T	1418 T	2301 T	2301 T	2301 T	29/9/2017	250 T	

The table above is to be updated at the points recorded above.

* or date of submission of draft SWP

A.18 VEHICLES AND PLANT SCHEDULE

Vehicles and plant

Kier Highways has in total 41 Winter Service Vehicles (including Operational Reserve Vehicles) available for use of which 29 have been allocated as Operational Winter Service Vehicles to cover the planned precautionary Winter Service Routes. 12 vehicles are designated as Operational Reserve Vehicles as detailed in the tables below.

Area Operational Winter Service Vehicle Schedule						
Owner	Location	Type	Capacity	VRN or ID	Plough No	Route
HE	Bray	MAN 6x4	9 cu m	WX08 VPU	34-62-1-113	BC01
KH	Bray	Telehandler	N/A	RV63 VTU	N/A	N/A
HE	Chieveley	MAN 6x4	9 cu m	WX08 MUA	34-62-1-117	CV01
HE	Chieveley	MAN 6x4	9 cu m	WX08 MUW	34-62-1-134	CV02
HE	Chieveley	MAN 6x4	9 cu m	WX08 MTY	34-62-1-013	CV03
HE	Chieveley	MAN 4x4	6 cu m	WX08 WUW	34-62-1-125	CV04
KH	Chieveley	Telehandler	N/A	RV63 VTT	N/A	N/A
HE	Dummer	MAN 6x4	9 cu m	WX08 MTF	34-62-1-015	D01
HE	Dummer	MAN 6x4	9 cu m	WX08 MUY	34-62-1-022	D02
HE	Dummer	MAN 6x4	9 cu m	WX08 MUV	34-62-1-027	D03
KH	Dummer	Telehandler	N/A	RV63 VTY	N/A	N/A
HE	Easton Lane	MAN 6x4	9 cu m	WX08 VOT	34-62-1-014	EL01
HE	Easton Lane	MAN 4x4	6 cu m	WX08 MUU	34-62-1-110	EL02
HE	Easton Lane	MAN 4x4	6 cu m	WX08 VPL	30-62-1-118	EL03
KH	Easton Lane	Telehandler	N/A	RV63 VTP	N/A	N/A
HE	Hook	MAN 6x4	9 cu m	WX08 VOU	34-62-1-047	H01
HE	Hook	MAN 6x4	9 cu m	WX08 VPG	34-62-1-037	H02
HE	Hook	MAN 6x4	9 cu m	WX08 VPD	34-62-1-044	HO3
KH	Hook	Telehandler	N/A	RV63 VTZ	N/A	N/A
HE	Longmoor	MAN 6x4	9 cu m	WM09 FFO	34-62-1-054	LM01
HE	Longmoor	MAN 6x4	9 cu m	WX08 MUE	34-62-1-127	LM02
HE	Longmoor	MAN 4x4	6 cu m	WX08 VOV	34-62-1-036	LM03
HE	Longmoor	MAN 6x4	9 cu m	WX08 MTK	34-62-1-119	LM04
KH	Longmoor	Telehandler	N/A	TBC	N/A	N/A

HE	Ower	MAN 4x4	6 cu m	WX08 VPC	34-62-1-060	OW01
HE	Ower	MAN 6x4	9 cu m	WX08 MWO	34-62-1-092	OW02
HE	Ower	MAN 6x4	9 cu m	WX08 MWU	34-62-1-057	OW03
HE	Ower	MAN 4x4	6 cu m	WX08MWP	34-62-1-156	OW04
KH	Ower	Telehandler	N/A	RV63 VUA	N/A	N/A
HE	Park Gate	MAN 6x4	9 cu m	WX08 VPJ	34-62-1-090	PG01
HE	Park Gate	MAN 6x4	9 cu m	WX08 VPA	34-62-1-091	PG02
HE	Park Gate	MAN 6x4	9 cu m	WX08 VPE	34-62-1-088	PG03
KH	Park Gate	Telehandler	N/A	RV63 VTX	N/A	N/A
HE	Shefford Woodlands	MAN 6x4	9 cu m	WX08 MVN	34-62-1-017	SW01
HE	Shefford Woodlands	MAN 6x4	9 cu m	WX08 MUP	34-62-1-103	SW02
KH	Shefford Woodlands	Telehandler	N/A	RV63 VTW	N/A	N/A
HE	Whitley Wood	MAN 6x4	9 cu m	WX08 MVG	34-62-1-087	LW01
HE	Whitley Wood	MAN 6x4	9 cu m	WX08 VPY	34-62-1-089	LW02
KH	Whitley Wood	Telehandler	N/A	TBC	N/A	N/A

Area Operational Reserve Winter Service Vehicle Schedule					
Owner	Location	Type	Capacity	VRN or ID	Plough No
HE	Bray	MAN 6x4	9 cu m	WX08 VPW	34-62-1-005
HE	Bray	MAN 4x4	6 cu m	WX08 XKS	34-62-1-096
HE	Chieveley	MAN 4x4	6 cu m	WX08 XKN	34-62-1-106
HE	Hook	MAN 6x4	9 cu m	WX08 VPK	34-62-1-043
HE	Hook	MAN 4x4	6 cu m	WX08 MSU	34-62-1-133
HE	Longmoor	MAN 4x4	6 cu m	WX08 MRY	34-62-1-063
HE	Longmoor	MAN 6x4	9 cu m	WX08 VPZ	34-62-1-041
HE	Ower	MAN 4x4	6 cu m	WX08MWV	34-62-1-073
HE	Park Gate	MAN 4x4	6 cu m	WX08 VRC	34-62-1-132
HE	Park Gate	MAN 6x4	9 cu m	WX08 MVM	34-62-1-010

HE	Shefford Woodland	MAN 6x4	9 cu m	WX08 MVL	34-62-1-087
HE	Whitley Wood	MAN 6x4	9 cu m	WX08 MUO	34-62-1-112
HE	Ower	A1	N/A	N/A	34-62-1-122
HE	Ower	B1	N/A	N/A	30-62-1-013
HE	Ower	A1	N/A	N/A	34-62-1-107
HE	Park Gate	A1	N/A	N/A	34-62-1-045
HE	Chieveley	A1	N/A	N/A	34-62-1-030
HE	Chieveley	A1	N/A	N/A	34-62-1-049
HE	Bray	A1	N/A	N/A	34-62-1-084
HE	Whitley Wood	A1	N/A	N/A	34-62-1-087
HE	Easton Lane	A1	N/A	N/A	34-62-1-110
HE	Easton Lane	A1	N/A	N/A	34-62-1-017
HE	Dummer	B1	N/A	N/A	30-62-1-009
HE	Hook	A1	N/A	N/A	34-62-1-040

Operational Reserve Winter Service Vehicle and contingency arrangements

Kier Highways can use the Area Operational Reserve Winter Service Vehicles allocated to their Area 3 Network without prior approval but must ensure the use is notified up to agreed predetermined level of 10. National procedures for management of the both Operational Reserve Winter Service Vehicles and National Reserve Vehicles are in Appendix B.5.

In the event of a vehicle breakdown, the Duty Supervisor will be informed so that the defect can be logged and HTM deployed. In this instance, there may be a requirement to utilise one of the operational reserve vehicles. The Supervisor will consider the location and suitability of the replacement vehicle in terms of the treatment that is required. If it is identified that an operational vehicle is required from a different compound, the supervisor will deploy the necessary resource to assist with the transport between compounds.

The number of Area Operational Reserve Winter Service Vehicles and the agreed Reserve Threshold trigger level is provided in the table below

Reserve Vehicles	Area 3
Number of Operational Reserve Vehicles	12
Reserve Threshold – Number utilised	9

National Reserve Winter Service vehicles

In addition to the Area Operational Winter Service Vehicles, a further 2 vehicles, which form part of the complement of Winter Service Vehicles within the Area are designated as National Reserve Vehicles. Special conditions, as set out in Appendix B.5, attach to their usage.

National Reserve Winter Service Vehicle (Based in Area 3) Schedule					
Owner	Location	Type	Capacity	VRN or ID	Plough No
HE	**Chieveley**	**MAN 4x4**	**6 cu m**	**WX08 WUL**	**34-62-1-042**
HE	**Ower**	**MAN 4x4**	**6 cu m**	**WX08 MWY**	**34-62-1-073**

Extra effort vehicles, additional plant and Specialist Equipment

Extra effort vehicles are listed in the table below. Supply chain extra effort can be called upon as the response/recovery dictates.

Extra Effort Vehicle / Specialist equipment Schedule					
Owner	Location	Type	Capacity (if applicable)	VRN or ID	Plough No (if applicable)
Kier Highways	Chieveley	Sweeper	n/a	LO63 HWM	n/a
Kier Highways	Parkgate	Sweeper	n/a	LK63 OFD	n/a
Kier Highways	Area Wide	Gully Sucker	n/a	GK63 NCV	n/a
Kier Highways	Dummer	Safety fence rig with crane	n/a	LX15 RVA	n/a
Kier Highways	Dummer	Safety fence rig with crane	n/a	WX58 AKP	n/a
Kier Highways	Shefford Woodlands	Safety fence rig with crane	n/a	WX58 AKU	n/a
Kier Highways	Shefford Woodlands	Safety fence rig with crane	n/a	WX58 AKO	n/a
Highways England	Dummer	Drainage Pump	2” PUMP	N/A	n/a
Highways England	Chieveley	Drainage Pump	6” PUMP	N/A	n/a

Snowblowers

Snow Blowers are additional to the Area Operational Winter Service Vehicles, within Area 3, one vehicle is available for use. Kier Highways will adopt the procedures for Operational Reserve Vehicles in relation to its use.

Snow Blower Schedule			
Owner	Location	Type	VRN or ID
Highways England	Hook	ROLBA	C833 CYF

Vehicle maintenance arrangements

Kier Highways will maintain vehicles in accordance with ASC Service Information Annex 7

Maintenance of the winter fleet, including Kier Strategic Highways loading shovels, comprises the following categories;

- Driver, Operator tasks,
- Planned periodic maintenance,
- Painting and preservation
- Breakdown and repair

Kier Highways have employed Hampshire Transport Management (HTM) on a subcontract basis to undertake maintenance activities on the HE Winter fleet.

This will include all planned and unplanned maintenance together with painting and preservation works. All major maintenance activities will be carried out at HTM premises.

Contact details are included in appendices *A.10 and A.11*

Defect and accident reporting will be carried out in accordance with the Area 3 Service Information, Annex 07 Employer's Vehicles.

Kier Highways will wash down vehicles as soon as is practicable after each use.

Vehicle breakdown and recovery arrangements

Breakdown and recovery of the winter fleet will be managed by Hampshire Transport Management under a 24/7 call-out arrangement during the winter season. Contact details are included in *Appendices A.10 and A.11*. The out of hours call out rota is detailed in *Appendix A.11*

Hampshire Transport Management are capable of undertaking all aspects of vehicle recovery and roadside repair to the vehicles

Vehicle Preparation

Calibration of the vehicle spreaders will be checked whilst C servicing is undertaken. All ploughs will be fitted and removed from the vehicles as part of the pre-season dummy run.

Calibration certificates will be held by Kier Highways for review by the service manager as required

Hampshire Transport Management manage vehicle preparation arrangements including checks and calibration for full operational use, and checks on fitting and removing of ploughs to all vehicles so equipped.

As a minimum, spread calibration is undertaken pre-season and on change of treatment material.

Arrangements with supply chain partners

R&W are able to provide vehicles for the bulk movement of salt or snow

R&W and Carnell's are able to provide vehicles for the movement of excavators complete with low loaders if required.

A low loader will also be made available to transport the Highways England snow blower if required

A.19 WINTER SERVICE ROUTE SCHEDULES AND DRAWINGS

All route drawings are detailed on route cards accompanied by CAD drawings. The CAD drawings are held on the electronic data base due to their file size & scale.

Link to CAD drawings

Area North Routes	Area South Routes	HCC Route Name
BC01	D01	P1 – Route 1- A31
CV01	D02	P1 – Route 2 – Whiteley
CV02	D03	P1 – Route 3 - Basingstoke
CV03	H01	
CV04	H02	
EL01	H03	
EL02	LM01	
EL03	LM02	
LW01	LM03	
LW02	LM04	
SW01	OW01	
SW02	OW02	
	OW03	
	OW04	
	PG01	
	PG02	
	PG03	

BC01

Area 3 Winter Service Route Schedule 2017/2018			
Route Number	BC01	Route Description	A404T,A404M,M4
Base Compound	Bray Court	Vehicle Type	MAN 6 x 4
Forecast Domain or Route Name	Domain 4	Associated ESS	N/A
Salt Usage @ 20gm Dry	10.09 Tonnes	Vehicle VRN	[redacted]
Route Design Time	1 Hour 55 Mins	Vehicle Capacity	9m
Turnaround Time	20 Mins	Precautionary Time	2 Hours 40 Mins
Special Route Features			

Part	Description	No Of Lanes	Action Travel/Treat	Lane Position	Lane To Treat	Distance (Travel)	Distance (Treat)	Distance (Cumulative)
1	Leave Bray Depot to A308M Roundabout		Travel			1,015		1,015
2	A308M Roundabout to M4 Junction 8/9	2	Salt	1	1,2		966	1,981
3	M4 Junction 8/9 Roundabout to A404M NN	3	Salt	2	1,2,3		500	2,481
4	M4 Junction 8/9 roundabout to A404M Junction 9a (Cox Green) NB offslip		Travel			1,270		3,751
5	A404M NB offslip and NB onslip	2	Salt	1	1,2		300	4,051
6	End A404M Junction 9a NB onslip to start A404M Junction 9b (Thicket) NB offslip		Travel			2,500		6,551
7	Start Thicket NB Offslip main carriageway to A404/M40 Junction 4 Roundabout	2	Salt	1	1,2		11,064	17,615
8	M40 Junction 4 roundabout around outer section of roundabout return to A404 SB	3	Salt	2	1,2,3		680	18,295
9	Start A404T SB to Bisham Roundabout (A308)	2	Salt	1	1,2		3,720	22,015
10	Salt Bisham roundabout to A404T NB exit	2	Salt	1	1,2		250	22,265
11	A404T Bisham roundabout to Marlow (A4155) NB offslip		Travel			2,750		25,015
12	Marlow NB Offslip and NB Onslip	2	Salt	1	1,2		1,150	26,165
13	End Marlow NB onslip to A404/M40 Junction 4 Roundabout		Travel			2,716		28,881
14	M40 Junction 4 roundabout through inner section of roundabout return to A404 SB	3	Salt	2	1,2,3		680	29,561
15	A404T/M40 Junction 4 Roundabout to A404 Marlow (A4155) SB offslip		Travel			3,041		32,602
16	Marlow SB Offslip and SB onslip	2	Salt	1	1,2		930	33,532
17	End Marlow SB Onslip to A404 Bisham roundabout (A308)		Travel			2,686		36,218
18	A404T Bisham roundabout to start Burchetts Green (A4130) SB offslip	2	Salt	1	1,2		1,273	37,491
19	Burchetts Green SB offslip and NB onslip via overbridge	2	Salt	1	1,2		1,298	38,789
20	Travel A404 NB turn at Bisham and return A404 SB to start of Burchetts Green (A4130) SB offslip		Travel			2,508		41,297
21	Start A4130 SB Offslip main carriageway to A404M Junction 9b (Thicket) SB offslip	2	Salt	1	1,2		3,196	44,493
22	Thicket SB Offslip and SB onslip	2	Salt	1	1,2		809	45,302
23	End Thicket SB onslip to Start A404M Junction 9a (Shoppenhanger) SB offslip		Travel			1,890		47,192
24	Shoppenhanger SB offslip and SB onslip	2	Salt	1	1,2		872	48,064

25	End Shoppenhanger SB onslip turn at M4 Junction 8/9 roundabout and return to start of A404M NB		Travel			1,297		49,361
26	Start A404M NB main carriageway to Start A404M Junction 9b (Thicket) NB offslip	2	Salt	1	1,2		3,190	52,551
27	Thicket NB Offslip and NB onslip	2	Salt	1	1,2		729	53,280
28	End Thicket NB onslip to A404 Burchetts Green (A4130) NB Offslip		Travel			1,144		54,424
29	Burchetts Green NB offslip and SB Onslip via overbridge	2	Salt	1	1,2		880	55,304
30	End Burchetts Green SB Onslip to start A404M Junction 9b Thicket SB offslip		Travel			930		56,234
31	Start Thicket SB Offslip main carriageway to M4 Junction 8/9 roundabout	2	Salt	1	1,2		4,000	60,234
32	End A404M to start M4 Junction 8/9 EB Onslip		Travel			350		60,584
33	M4 Junction 8/9 EB Onslip	2	Salt	1	1,2		670	61,254
34	End M4 Junction 8/9 EB onslip ro start M4 Junction 7 EB offslip		Travel			4,010		65,264
35	Start M4 Junction 7 Eb offslip main carriageway to start M4 Junction 5 EB offslip	3	Salt	2	1,2,3,HS		7,759	73,023
36	M4 Junction 5 EB Offslip	2	Salt	1	1,2		550	73,573
37	End M4 Junction 5 EB offslip turn at Junction 5 and return M4 Wb to start of Junction 6 WB offslip		Travel			5,608		79,181
38	M4 Junction 6 WB offslip and WB onslip	2	Salt	1	1,2		1,392	80,573
39	End M4 Junction 6 WB onslip to Start Junction 7 Wb offslip		Travel			2,016		82,589
40	M4 Junction 7 WB offslip to EB merge	2	Salt	1	1,2		1,204	83,793
41	Turn at Huntercombe roundabout and return to start M4 Junction 7 EB onslip		Travel			675		84,468
42	M4 Junction 7 EB onslip	2	Salt	1	1,2		938	85,406
43	End M4 Junction 7 EB onslip to start M4 Junction 6 EB offslip		Travel			1,678		87,084
44	M4 Junction 6 EB off and EB onslip	2	Salt	1	1,2		1,308	88,392
45	End M4 Junction 6 EB offslip to start of M4 Junction 5 WB onlip via Junction 5		Travel			5,593		93,985
46	M4 Junction 5 WB Onslip	2	Salt	1	1,2		616	94,601
47	End M4 Junction 5 WB onslip main carriageway to end of M4 Junction 7 WB onslip merge	3	Salt	2	1,2,3,HS		8,859	103,460
48	End M4 Junction 7 Wb onslip to start M4 Junction 8/9 WB offslip		Travel				3,874	107,334
49	M4 Junction 8/9 WB offslip	3	Salt	2	1,2,3		500	107,834
50	End M4 Junction 8/9 Wb Offslip to start of A308M		Travel			475		108,309
51	Start of A308m to A308 Roundabout	2	Salt	1	1,2		965	109,274
52	Return to Bray Depot		Travel			1,015		110,289
					Totals (Metres)	45,167	65,122	110,289

CV01

Area 3 Winter Service Route Schedule 2017/2018			
Route Number	CV01	Route Description	M4
Base Compound	Chieveley	Vehicle Type	MAN 6 x 4
Forecast Domain or Route Name	Domains 3,4	Associated ESS	N/A
Salt Usage @ 20gm Dry	9.44 Tonnes	Vehicle VRN	[redacted]
Route Design Time	1 Hour 25 Mins	Vehicle Capacity	9m
Turnaround Time	20 Mins	Precautionary Time	2 Hours 40 Mins
Special Route Features			

Part	Description	No Of Lanes	Action Travel/Treat	Lane Position	Lane To Treat	Distance (Travel)	Distance (Treat)	Distance (Cumulative)
1	Leave Chieveley Depot join M4 WB turn at Junction 14 and return EB to start of		Travel			25,543		25,543
2	From start Junction 13 EB offslip M4 main carriageway to M4 Junction 11 Including Junction 11 EB Offslip	3	Salt	2	1,2,3,HS		26,377	51,920
3	End Junction 11 EB offslip to Start of Junction 11 WB Onslip		Travel			488		52,408
4	Start Junction 11 WB Onslip to end Junction 11 WB Onslip	2	Salt	1	1,2		449	52,857
5	End Junction 11 WB Onslip to start Reading Services WB offslip	3	Salt	2	1,2,3,HS		3,500	56,357
6	Start Reading Services WB offslip to end WB onslip via Services	2	Salt	1	1,2		420	56,777
7	End of Reading Services WB onslip to start of Junction 12 WB Onslip via Junction 12 WB Offslip		Travel			3,095		59,872
8	Start Junction 12 WB Onslip to end Junction 12 WB Onslip	2	Salt	1	1,2		726	60,598
9	End Junction 12 WB onslip to start Junction 13 WB Offslip		Travel			17,700		78,298
10	Start Junction 13 WB offslip main carriageway to end Junction 13 WB Onslip	3	Salt	2	1,2,3,HS		873	79,171
11	End Junction 13 WB onslip turn at Junction 14 and return EB to Chieveley Depot		Travel			24,136		103,307
					Totals (Metres)	70,962	32,345	103,307

CV02

Area 3 Winter Service Route Schedule 2017/2018			
Route Number	CV02	Route Description	A34 Main & Slips
Base Compound	Chieveley	Vehicle Type	MAN 6 x 4
Forecast Domain or Route Name	Domains 3,5	Associated ESS	Newbury Bypass, East Ilsley
Salt Usage @ 20gm Dry	5.96 Tonnes	Vehicle VRN	[redacted]
Route Design Time	1 Hour 15 Mins	Vehicle Capacity	9m
Turnaround Time	20 Mins	Precautionary Time	2 Hours 40 Mins
Special Route Features			

Part	Description	No Of Lanes	Action Travel/Treat	Lane Position	Lane To Treat	Distance (Travel)	Distance (Treat)	Distance (Cumulative)
1	Leave Chieveley Depot to M4 Junction 13 roundabout		Travel			250		250
2	M4 Junction 13 roundabout join A34 SB main carriageway to end A34 Beacon Hill SB onslip merge	2	Salt	1	1,2		17,600	17,850
3	End A34 Beacon Hill exit at Litchfield SB turn and rejoin A34 NB Litchfield		Travel			4,950		22,800
4	A34 Litchfield NB onslip to start of A34 Tothill (B4640) NB offslip		Travel			8,180		30,980
5	A34 Tothill NB offslip and NB onslip	2	Salt	1	1,2		1,000	31,980
6	End Tothill NB onslip to start A34 Wash Common (A343) NB offslip		Travel			2,080		34,060
7	A34 Wash Common NB off and NB onslip	1	Salt	1	1		300	34,360
8	End Wash Common NB Onslip to start A34 Speen (A4) NB offslip		Travel			5,450		39,810
9	A34 Speen NB offslip and NB Onslip	1	Salt	1	1		700	40,510
10	End Speen NB onslip to start of A34 NB slip to M4		Travel			5,000		45,510
11	A34 NB Offslip to M4 and NB onslip to A34 from M4 Jcn 13 R'bout	2	Salt	1	1,2		2,760	48,270
12	End A34 NB onslip to Start A34 East Ilsley NB offslip		Travel			6,500		54,770
13	A34 East Ilsley NB offslip and NB onslip	1	Salt	1	1		315	55,085
14	End East Ilsley NB onslip to start A34 West Ilsley NB Offslip		Travel			2,970		58,055
15	A34 West Ilsley NB offslip and NB onslip	2	Salt	1	1,2		400	58,455
16	End West Ilsley NB onslip to start A34 Chilton NB offslip (A4185)		Travel			1,170		59,625
17	A34 Chilton NB Offslip and SB onslip	2	Salt	1	1,2		520	60,145
18	End A34 Chilton SB onslip main carriageway to start of SB Offslip to M4	2	Salt	1	1,2		13,384	73,529
19	Start of A34 SB offslip to M4 Junction 13 to roundabout at Junction 13	2	Salt	1	1,2		875	74,404
20	M4 Junction 13 Roundabout to start of Chieveley Services SB offslip		Travel			300		74,704
21	Chievely Services SB offslip and SB onslip	1	Salt	1	1		650	75,354
22	End Chieveley Services SB onslip travel to A339 Vodafone roundabout return to A34 Oxford RD NB offslip		Travel			6,850		82,204
23	A34 Oxford Road (Chieveley Services) NB offslip and NB onslip	1	Salt	1	1		400	82,604
24	End A34 Oxford NB onslip to start A34 Graces Lane (Chieveley Village) NB offslip via Junction 13 R'bout		Travel			650		83,254
25	A34 Graces Lane NB offslip and SB Onslip	2	Salt	1	1,2		1,400	84,654
26	Return to Chieveley Dept		Travel			1,200		85,854
					Totals (Metres)	45,550	40,304	85,854

CV03

Area 3 Winter Service Route Schedule 2017/2018			
Route Number	CV03	Route Description	A34 Main & Slips
Base Compound	Chieveley	Vehicle Type	MAN 6 x 4
Forecast Domain or Route Name	Domains 3,5	Associated ESS	Abingdon Weston On The Green
Salt Usage @ 20gm Dry	9.44 Tonnes	Vehicle VRN	[redacted]
Route Design Time	1 Hour 38 Mins	Vehicle Capacity	9m
Turnaround Time	20 Mins	Precautionary Time	2 Hours 40 Mins
Special Route Features			

Part	Description	No Of Lanes	Action Travel/Treat	Lane Position	Lane To Treat	Distance (Travel)	Distance (Treat)	Distance (Cumulative)
1	From Chieveley depot head North on A34 to the start of West Ilsley (Bury Lane) NB		Travel			12,035		12,035
2	From start of West Ilsley (Bury Lane) NB offslip salt main A34 to M40 Junction 9	2	Salt	1	1,2		42,200	54,235
3	Continue around M40 Junction 9 roundabout and rejoin A34 SB, continue to A34 Hinksey (A423) SB onslip merge	2	Salt	1	1,2		20,900	75,135
4	Hinksey SB onslip to A34 Marcham (A415) SB Offslip		Travel			7,000		82,135
5	A34 Marcham SB Off and SB Onslips	2	Salt	1	1,2		1,150	83,285
6	A34 Marcham SB Onslip to A34 Milton (A4130) SB offslip		Travel			4,900		88,185
7	A34 Milton SB offslip and SB onslip	2	Salt	1	1,2		850	89,035
8	A34 Milton SB onslip to A34 Chilton(A4185) SB offslip		Travel			6,500		95,535
9	A34 Chilton SB offslip to Chilton roundabout	2	Salt	1	1,2		550	96,085
10	A34 Chilton roundabout to Chieveley Depot via A34		Travel			10,800		106,885
					Totals (Metres)	41,235	65,650	106,885

CV04

Area 3 Winter Service Route Schedule 2017/2018			
Route Number	CV04	Route Description	A34 Main & Slips
Base Compound	Chieveley	Vehicle Type	MAN 4 x 4
Forecast Domain or Route Name	Domains 3,5	Associated ESS	Abingdon Weston On The Green
Salt Usage @ 20gm Dry	7.50 Tonnes	Vehicle VRN	[redacted]
Route Design Time	1 Hour 40Mins	Vehicle Capacity	6m
Turnaround Time	20 Mins	Precautionary Time	2 Hours 40 Mins
Special Route Features			

Part	Description	No Of Lanes	Action Travel/Treat	Lane Position	Lane To Treat	Distance (Travel)	Distance (Treat)	Distance (Cumulative)
1	Start Chieveley Depot head North on A34 to start of Chilton (A4185) NB onslip via NB offslip		Travel			11,335		11,335
2	Chilton NB Onslip	2	Salt	1	1,2		650	11,985
3	End Chilton NB Onslip to start of A34 Milton (A4130) NB offslip		Travel			6,500		18,485
4	Milton NB Offslip and NB Onslip	2	Salt	1	1,2		535	19,020
5	End Milton NB onslip to start of A34 Marcham (A415) NB offslip		Travel			5,400		24,420
6	Marcham NB offslip and NB onslip	2	Salt	1	1,2		1,100	25,520
7	End Marcham NB onslip to start A34 Hinksey (A423) NB offslip		Travel			7,150		32,670
8	Hinksey NB offslip and NB onslip	2	Salt	1	1,2		1,032	33,702
9	End Hinksey NB onslip to start of A34 Botley (A420) NB offslip		Travel			3,182		36,884
10	Botley NB offslip and NB onslip	2	Salt	1	1,2		769	37,653
11	End Botley NB onslip to start of A34 Peartree (A44) NB offslip		Travel			3,836		41,489
12	Peartree NB offslip and NB onslip	2	Salt	1	1,2		1,053	42,542
13	End Peartree NB onslip to start of A34 Islip (B4207) NB offslip		Travel			5,005		47,547
14	Islip NB offslip and NB onslip	1	Salt	1	1		580	48,127
15	End Islip NB onslip to start of A34 Weston On The Green (B340) NB offslip		Travel			1,845		49,972
16	Weston On The Green NB offslip and NB onslip	1	Salt	1	1		561	50,533
17	End of Weston On The Green NB onslip to M40 Junction 9 roundabout return A34 southbound to start of A34 Weston On The Green (B340) SB offslip		Travel			3,920		54,453
18	Weston On The Green SB offslip and SB onslip	1	Salt	1	1		487	54,940
19	End Weston On The Green SB onslip to start of A34 Islip (B4207) SB offslip		Travel			2,756		57,696
20	Islip SB offslip and SB onslip	1	Salt	1	1		609	58,305

21	End Islip SB onslip to star of A34 Kidlington SB offslip		Travel			619		58,924
22	Kidlington SB Offslip	1	Salt	1	1		400	59,324
23	End Kidlington SB offslip to start of A34 Gosforth NB Onslip via roundabout		Travel			4,550		63,874
24	Gosforth NB onslip	1	Salt	1	1		626	64,500
25	End Gosforth NB onslip turn at Islip and return to start of A34 Peartree (A44) SB		Travel			6,740		71,240
26	Peartree SB offslip and SB onslip	2	Salt	1	1,2		856	72,096
27	End of Peartree SB onslip to start of A34 Botley (A420) SB offslip		Travel			3,925		76,021
28	Botley SB offslip and SB onslip	2	Salt	1	1,2		883	76,904
29	End Botley SB onslip to start A34 Hinksey (A423) SB Offslip		Travel			3,163		80,067
30	Hinksey SB offslip and SB onslip	2	Salt	1	1,2		1,040	81,107
31	End Hinksey SB Onslip to start of A34 Abingdon North (A4183) SB Offslip		Travel			3,028		84,135
32	Abingdon North SB offslip	2	Salt	1	1,2		529	84,664
33	End Abingdon North SB Offslip to start A34 Abingdon North NB onslip		Travel			150		84,814
34	Abingdon North NB Onslip	2	Salt	1	1,2		588	85,402
35	End Abingdon North NB onslip turn at A34 Hinksey (A423) and return on A34 SB to end of Hinksey (A423) SB onslip		Travel			4,155		89,557
36	End Hinksey SB Onslip main A34 carriageway to A34 Chilton (A4185) SB onslip merge	2	Salt	1	1,2		20,218	109,775
37	End Chilton SB onslip return to Chieveley Depot		Travel			12,440		122,215
					Totals (Metres)	89,699	32,516	122,215

D01

Area 3 Winter Service Route Schedule 2017/2018			
Route Number	D01	Route Description	M3 Main & Slips
Base Compound	Dummer	Vehicle Type	MAN 6 x 4
Forecast Domain or Route Name	Domains 2;3	Associated ESS	Basingstoke
Salt Usage @ 20gm Dry	9.75 Tonnes	Vehicle VRN	[redacted]
Route Design Time	1 Hour 21 Mins	Vehicle Capacity	9m
Turnaround Time	20 Mins	Precautionary Time	2 Hours 40 Mins
Special Route Features			

Part	Description	No Of Lanes	Action Travel/Treat	Lane Position	Lane To Treat	Distance (Travel)	Distance (Treat)	Distance (Cumulative)
1	Leave Dummer Depot to start M3 Jcn 8 SB offslip to A303		Travel			1,594		1,594
2	Start M3 Junction 8 Down A303 to start of Micheldever WB offslip		Travel			6,345		7,939
3	Micheldever WB offlsip	2	Salt	1	1,2		340	8,279
4	Turn at return A303 EB to Airfield entrance							8,279
5	From Airfield entrance onslip to merge with A303 EB	1	Salt	1	1		479	8,758
6	End Micheldever EB onslip to start Crematorium EB offslip		Travel			2,047		10,805
7	Start of Crematorium EB offslip salt main carriageway to M3 merge	2	Salt	1	1,2		2,478	13,283
8	Continue salting main M3 carriageway to M3 Junction 6 NB offslip	3	Salt	2	1,2,3,HS		9,060	22,343
9	M3 Junction 6 NB offslip and SB Onslip Including Junction 6 Roundabout	2	Salt	1	1,2		1,553	23,896
10	End M3 Junction 6 SB Onslip continue main M3 carriageway to start M3 Junction 11 SB offslip	3	Salt	2	1,2,3,HS		31,386	55,282
11	M3 Junction 11 SB offslip and NB onslip	2	Salt	1	1,2		1,468	56,750
12	End M3 Junction 11 NB onslip to Start M3 Junction 9 NB offslip		Travel			2,993		59,743
13	M3 Junction 9 NB offslip and NB onslip	2	Salt	1	1,2		1,352	61,095
14	End M3 NB onslip to start Winchester Services NB offslip		Travel			4,994		66,089
15	M3 Winchester Services NB offslip and NB onslip	1	Salt	1	1		760	66,849
16	End Winchester Services NB onslip return to Dummer Depot via M3 Junction 7		Travel			12,816		79,665
					Totals (Metres)	30,789	48,876	79,665

D02

Area 3 Winter Service Route Schedule 2017/2018			
Route Number	D02	Route Description	M3 Main & Slips
Base Compound	Dummer	Vehicle Type	MAN 6 x 4
Forecast Domain or Route Name	Domains 2;3	Associated ESS	Thruxton Hill
Salt Usage @ 20gm Dry	9.44 Tonnes	Vehicle VRN	[redacted]
Route Design Time	1 Hour 41 Mins	Vehicle Capacity	9m
Turnaround Time	20 Mins	Precautionary Time	2 Hours 40 Mins
Special Route Features			

Part	Description	No Of Lanes	Action Travel/Treat	Lane Position	Lane To Treat	Distance (Travel)	Distance (Treat)	Distance (Cumulative)
1	Leave Dummer Depot travel down A33/A30 to A303 Crematorium WB onslip		Travel			2,197		2,197
2	A303 A30 WB Onslip	2	Salt	1	1,2		1,066	3,263
3	End A303 A30 WB Onslip to start A303 Bullington WB offslip		Travel			12,146		15,409
4	Start A303 Bullington WB offslip main A303 carriageway to start Thruxton Circuit	2	Salt	1	1,2		20,081	35,490
5	Thruxton Circuit WB offslip	2	Salt	1	1,2		444	35,934
6	End A303 Thruxton Circuit WB offslip to start Thruxton Circuit EB onslip		Travel			2,000		37,934
7	Thruxton Circuit EB onslip	2	Salt	1	1,2		721	38,655
8	End Thruxton Circuit EB onslip to start of Thruxton Village EB offslip		Travel			1,662		40,317
9	Thruxton Village EB Offslip	1	Salt	1	1		218	40,535
10	End Thruxton Village EB Offslip to start Thruxton Village WB onslip		Travel			1,000		41,535
11	Thruxton Village WB onslip	1	Salt	1	1		170	41,705
12	Thruxton Village WB onslip to start of Thruxton Circuit WB offslip		Travel			1,805		43,510
13	Start Thruxton Circuit WB offslip main A303 carriageway to start Parkhouse (A338) WB offslip	2	Salt	1	1,2		4,732	48,242
14	Parkhouse WB Offslip and EB onslip including links	2	Salt	1	1,2		1,512	49,754
15	End Parkhouse EB onslip main A303 carriageway to start A303 Salisbury Rd(A343) EB offslip	2	Salt	1	1,2		11,548	61,302
16	Salisbury Rd EB Offslip and link	2	Salt	1	1,2		1,038	62,340
17	End Salisbury RD EB offslip to start Salisbury Rd WB onslip		Travel			1,000		63,340
18	Salisbury Rd WB onslip	1	Salt	1	1		799	64,139
19	End Salisbury RD WB onslip to start A303 Hundred Acre WB offslip		Travel			78		64,217
20	Hundred Acre WB offslip and WB onslip	2	Salt	1	1,2		1,568	65,785
21	End Hundred Acre WB Onslip to Thruxton Village WB offslip		Travel			3,522		69,307
22	Thruxton Village WB offslip	1	Salt	1	1		143	69,450
23	End Thruxton Village WB offslip to start Thruxton Village EB onslip		Travel			1,000		70,450
24	Thruxton Village EB onslip	1	Salt	1	1		157	70,607
25	End Thruxton Village EB onslip to start of A303 Hundred Acre EB offslip		Travel			3,750		74,357
26	Hundred Acre EB offslip and EB onslip	2	Salt	1	1,2		1,221	75,578
27	End Hundred Acre EB onslip to start of A303 Salisbury Rd (A343) EB offslip		Travel			116		75,694
28	Start Salisbury Rd EB offslip main carriageway to start A303 A30 EB offslip	2	Salt	1	1,2		22,618	98,312
29	A30 EB offslip	1	Salt	1	1		918	99,230
30	Return to Dummer Depot Via A30/A33		Travel			2,000		101,230
					Totals (Metres)	32,276	68,954	101,230

D03

Area 3 Winter Service Route Schedule 2017/2018			
Route Number	D03	Route Description	A303,A34 Main & Slips
Base Compound	Dummer	Vehicle Type	MAN 6 x 4
Forecast Domain or Route Name	Domains 2;3	Associated ESS	N/A
Salt Usage @ 20gm Dry	6.90 Tonnes	Vehicle VRN	[redacted]
Route Design Time	1 Hour 57 Mins	Vehicle Capacity	9m
Turnaround Time	20 Mins	Precautionary Time	2 Hours 40 Mins
Special Route Features			

Part	Description	No Of Lanes	Action Travel/Treat	Lane Position	Lane To Treat	Distance (Travel)	Distance (Treat)	Distance (Cumulative)
1	Leave Dummer Depot to start M3 Jcn 8 SB offslip to A303		Travel			2,935		2,935
2	Start M3 Junction 8 SB offslip continue salting onto A303 to Bullington (A34) WB Offslip	2	Salt	1	1,2		11,343	14,278
3	A34 WB Offslip and Bullington link road to join A34 NB	2	Salt	1	1,2		1,134	15,412
4	End A34 NB onslip to start of A34 Burghclere NB offslip	2	Salt	1	1,2		15,593	31,005
5	Burghclere NB offslip and SB onslip	2	Salt	1	1,2		850	31,855
6	End Burghclere SB onslip to end Winchester Rd SB onslip merge	2	Salt	1	1,2		11,600	43,455
7	End Winchester Rd SB onslip to start A34 Bullington SB offslip		Travel			4,500		47,955
8	Bullington SB offslip and SB Onslip	2	Salt	1	1,2		609	48,564
9	End Bullington SB onslip to start Sutton Scotney Services SB offslip		Travel			1,690		50,254
10	Sutton Scotney SB Offslip and SB Onslip	2	Salt	1	1,2		564	50,818
11	End Sutton Scotney SB onslip to start A34 Three Maids (B3420) SB offslip		Travel			5,840		56,658
12	Three Maids SB offslip and SB onslip	2	Salt	1	1,2		658	57,316
13	End Three Maids SB onslip to M3 Jcn 9 turn and return A34 NB to start Three Maids NB offslip		Travel			10,665		67,981
14	Three Maids NB offslip and NB onslip	2	Salt	1	1,2		971	68,952
15	End Three Maids NB onslip to start Sutton Scotney Services NB offslip		Travel			5,900		74,852
16	Sutton Scotney NB Offslip and NB onslip	2	Salt	1	1,2		554	75,406
17	End Sutton Scotney NB onslip to start A303 EB NB Offslip		Travel			1,973		77,379
18	A34 NB Offslip to A303 EB to merge with A303 EB	2	Salt	1	1,2		412	77,791
19	End A303 EB merge to A303 Overton Rd EB Offslip		Travel			6,240		84,031
20	Overton Road EB offslip and WB onslip	2	Salt	1	1,2		837	84,868
21	End Overton RD WB Onslip to end Bullington WB offslip		Travel			5,871		90,739
22	End Bullington WB offslip around A30 roundabout and rejoin A303 WB	2	Salt	1	1,2		866	91,605
23	End Bullington A303 WB Onslip to Barton Stacey WB offslip		Travel			1,870		93,475
24	Barton Stacey WB offslip and EB onslip	2	Salt	1	1,2		806	94,281
25	End Barton Stacey EB onslip to start A303 Micheldever EB offslip		Travel			7,994		102,275
26	Micheldever EB offslip and WB onslip	2	Salt	1	1,2		789	103,064
27	End Micheldever WB onslip to Start Norton WB offslip		Travel			4,424		107,488
28	Norton WB offslip and EB Onslip	2	Salt	1	1,2		173	107,661
29	End Norton EB Onslip return to Dummer Depot via M3 Junction 7		Travel			11,777		119,438
					Totals (Metres)	71,679	47,759	119,438

EL01

Area 3 Winter Service Route Schedule 2017/2018			
Route Number	EL01	Route Description	M3 Main & Slips
Base Compound	Easton Lane	Vehicle Type	MAN 6 x 4
Forecast Domain or Route Name	Domains 1,2;3	Associated ESS	Basingstoke
Salt Usage @ 20gm Dry	7.48 Tonnes	Vehicle VRN	[redacted]
Route Design Time	1 Hour 21 Mins	Vehicle Capacity	9m
Turnaround Time	20 Mins	Precautionary Time	2 Hours 40 Mins
Special Route Features			

Part	Description	No Of Lanes	Action Travel/Treat	Lane Position	Lane To Treat	Distance (Travel)	Distance (Treat)	Distance (Cumulative)
1	Leave Easton Lane Depot to Start of M3 Junction 9 SB onslip		Travel			450		450
2	M3 Junction 9 SB onslip	2	Salt	1	1,2		305	755
3	End M3 Junction 9 SB onlsip to start of M3 Junction 11 SB offslip		Travel			3,840		4,595
4	Start of M3 Junction 11 SB offslip to start of the second M3 Junction 14 SB offslip	3	Salt				9,538	14,133
5	M3 Junction 14 Second SB offslip and Junction 14 NB onslip to M3 Via Chilworth (Clock) roundabout	2	Salt	1	1,2		4,288	8,883
6	End M3 Junction 14 NB onslip to start M3 Junction 13 NB Offslip		Travel			1,250		10,133
7	M3 Junction 13 NB offslip and SB onslip	2	Salt	1	1,2		950	11,083
8	End Junction 13 SB onslip to start off A33 Link Offslip		Travel			1,421		12,504
9	A33 Link road to merge point with Junction 14 SB offslip	2	Salt	1	1,2		470	12,974
10	Travel via Chilworth(clock) roundabout back to start of M3 Junction 10 NB offslip		Travel			14,800		27,774
11	Start M3 Junction 10 NB offslip main carriageway to start M3 Junction 7 NB offslip	3	Salt	2	1.2,3,HS		22,366	50,140
12	M3 Junction 7 NB offslip and SB onslip	2	Salt	1	1,2		1,454	51,594
13	End M3 Junction 7 SB onslip to start M3 Winchester Services SB offslip		Travel			12,590		64,184
14	M3 Winchester Services SB offslip and SB onslip	1	Salt	1	1		250	64,434
15	End M3 Winchester Services SB onslip to start of M3 Junction 9 SB offslip		Travel			5,340		69,774
16	M3 Junction 9 SB offslip	2	Salt	1	1,2		388	70,162
17	Return to Easton lane Depot		Travel			650		70,812
					Totals (Metres)	40,341	40,009	80,350

EL02

Area 3 Winter Service Route Schedule 2017/2018			
Route Number	EL02	Route Description	A34 / A303 Main & Slips
Base Compound	Easton Lane	Vehicle Type	MAN 4 x 4
Forecast Domain or Route Name	Domain 2	Associated ESS	Thruxton Hill
Salt Usage @ 20gm Dry	6.40 Tonnes	Vehicle VRN	[redacted]
Route Design Time	1 Hour 25 Mins	Vehicle Capacity	6m
Turnaround Time	20 Mins	Precautionary Time	2 Hours 40 Mins
Special Route Features			

Part	Description	No Of Lanes	Action Travel/Treat	Lane Position	Lane To Treat	Distance (Travel)	Distance (Treat)	Distance (Cumulative)
1	Leave Easton Lane Depot to M3 Junction 9 Roundabout NB exit to A34		Travel			400		400
2	A34 Main carriageway to merge with A303 WB via Bullington NB offslip	2	Salt	1	1,2		14,049	14,449
3	End A34/A303 Merge to Barton Stacey WB Offslip		Travel			1,870		16,319
4	A303 Barton Stacey WB offslip and WB onslip	2	Salt	1	1,2		871	17,190
5	End Barton Stacey WB onslip to start Longparish (B3048) WB offslip		Travel			2,850		20,040
6	A303 Longparish WB offslip and WB onslip	1	Salt	1	1		410	20,450
7	End Longparish WB onslip to start of A303 Picket Twenty (A3093) WB offslip		Travel			2,840		23,290
8	A303 Picket Twenty WB offslip and WB onslip including link and roundabout	2	Salt	1	1,2		3,987	27,277
9	End Picket Twenty WB onslip to start A303 Winchester Road (A3057) WB offslip		Travel			2,200		29,477
10	A303 Winchester Rd WB offslip and WB onslip	1	Salt	1	1		850	30,327
11	End Winchester Rd WB onslip to start A303 Salisbury Rd (A343) WB offslip		Travel			1,510		31,837
12	A303 Salisbury Road WB offslip and EB onslip	1	Salt	1	1		1,477	33,314
13	End of Salisbury Rd EB onslip to start A303 Winchester Rd (A3057) EB offslip		Travel			3,013		36,327
14	A303 Winchester RD EB offslip and EB onslip	2	Salt	1	1,2		457	36,784
15	End Winchester Rd EB onslip to start A303 Picket Twenty (A3093) EB offslip		Travel			1,600		38,384
16	A303 Picket Twenty EB offslip and EB onslip	2	Salt	1	1,2		1,321	39,705
17	End Picket Twenty EB onslip to start A303 Longparish (B3048) EB offslip		Travel			3,100		42,805
18	A303 Longparish EB offslip and EB onslip	1	Salt	1	1		420	43,225
19	End Longparish EB onslip to start of Barton Stacey EB Offslip		Travel			2,300		45,525
20	A303 Barton Stacey EB offslip and EB onslip	2	Salt	1	1,2		444	45,969
21	End Barton Stacey EB onslip to start Bullington (A34) EB offslip		Travel			2,330		48,299
22	A303 Bullington EB offslip and A34 NB onslip	2	Salt	1	1,2		400	48,699
23	A34 NB onslip to start of A34 Whitchurch NB offslip		Travel			4,340		53,039
24	A34 Whitchurch NB offslip and SB onslip	2	Salt	1	1,2		1,180	54,219
25	End Whichurch SB onslip continue main A34 main carriageway to M3 Junction 9 Roundabout	2	Salt	1	1,2		17,736	71,955
26	M3 Junction 9 Roundabout return A34 NB to start of A33 Kingsworthy Link		Travel			1,955		73,910
27	A33 Kingsworthy Link to turn point at London Rd (Cart & Horses)	2	Salt	1	1,2		881	74,791
28	A33 Kingsworthy Link to merge point with A34 SB	2	Salt	1	1,2		1,520	76,311
29	Return to Easton Lane Depot		Travel			1,080		77,391
					Totals (Metres)	31,388	46,003	77,391

EL03

Area 3 Winter Service Route Schedule 2017/2018			
Route Number	EL03	Route Description	A34 Main & Slips
Base Compound	Easton Lane	Vehicle Type	MAN 4 x 4
Forecast Domain or Route Name	Domains 3,5	Associated ESS	Newbury Bypass East Ilsley
Salt Usage @ 20gm Dry	5.24 Tonnes	Vehicle VRN	[redacted]
Route Design Time	1 Hour 50 Mins	Vehicle Capacity	6m
Turnaround Time	20 Mins	Precautionary Time	2 Hours 40 Mins
Special Route Features			

Part	Description	No Of Lanes	Action Travel/Treat	Lane Position	Lane To Treat	Distance (Travel)	Distance (Treat)	Distance (Cumulative)
1	Leave Easton Lane Depot travel A34 NB to A303W Offslip		Travel			13,996		13,996
2	Start A303W Offslip salt A34 main carriageway to end A303/A34 NB onslip	2	Salt	1	1,2		824	14,820
3	End A303/A34 NB onslip to A34 Litchfield NB offslip		Travel			6,670		21,490
4	A34 Litchfield NB offslip and NB onslip	2	Salt	1	1,2		562	22,052
5	End Litchfield NB onslip to start A34 Burghclere NB offslip		Travel			4,400		26,452
6	Start A34 Burghclere NB offslip salt main carriageway to farm access Ashridge Farm NB M.P 50.4	2	Salt	1	1,2		20,400	46,852
7	Via Ashridge Farm access road rejoin A34 SB		Travel			300		47,152
8	Ashridge Road Farm access to start A34 Beedon SB offslip		Travel			300		47,452
9	A34 Beedon SB offslip and NB onslip	2	Salt	1	1,2		1,215	48,667
10	End A34 Beedon NB onslip continue A34 main carriageway to start of A34 West Ilsley NB offslip	2	Salt	1	1,2		6,700	55,367
11	From end A34 West Ilsley NB offslip, Turn at Chilton (A4185) NB and return A34 SB to start West Ilsley SB offslip		Travel			4,450		59,817
12	A34 West Ilsley SB offslip and SB onslip	2	Salt	1	1,2		1,010	60,827
13	End West Ilsley SB onslip to Start A34 East Ilsley offslip		Travel			2,200		63,027
14	East Ilsley SB offslip and SB onslip (Via East Ilsley village)	2	Salt	1	1,2		600	63,627
15	End East Ilsley SB onslip to start of A34 SB offslip to M4		Travel			7,000		70,627
16	Start of A34 SB offslip to M4,continue A34 main carriageway to A34 SB merge point from M4 link (4 lane section)	2	Salt	1	1,2		1,000	71,627
17	From A34 4 lane section merge to A34 Speen (A4) SB offslip		Travel			4,500		76,127
18	A34 Speen SB offslip and SB onslip	2	Salt	1	1,2		959	77,086
19	End Speen SB onslip to start of A34 Wash Common (A343) SB offslip		Travel			5,600		82,686
20	A34 Wash Common SB offslip and SB onslip	1	Salt	1	1		636	83,322
21	End A34 Wash Common SB onslip to start A34 Tothill (B4460) SB offslip		Travel			1,850		85,172
22	A34 Tothill SB offslip and SB onslip	1	Salt	1	1		1,163	86,335
23	End Tothill SB onslip to start A34 Litchfield SB offslip		Travel			7400		93,735
24	A34 Litchfield SB offslip and SB onslip	2	Salt	1	1,2		999	94,734
25	Return to Easton Lane Depot		Travel			24,817		119,551
					Totals (Metres)	83,483	36,068	119,551

H01

Area 3 Winter Service Route Schedule 2017/2018			
Route Number	H01	Route Description	M3 Main & Slips
Base Compound	Hook	Vehicle Type	MAN 6 x 4
Forecast Domain or Route Name	Domains 3,4	Associated ESS	Basingstoke
Salt Usage @ 20gm Dry	10.50 Tonnes	Vehicle VRN	[redacted]
Route Design Time	1 Hour 25 Mins	Vehicle Capacity	9m
Turnaround Time	20 Mins	Precautionary Time	2 Hours 40 Mins
Special Route Features	SMART Motorway		

Part	Description	No Of Lanes	Action Travel/Treat	Lane Position	Lane To Treat	Distance (Travel)	Distance (Treat)	Distance (Cumulative)
1	Leave Hook Depot to start M3 Junction 5 SB Onslip		Travel			1,580		1,580
2	M3 Junction 5 SB Onslip	2	Salt	1	1,2		666	2,246
3	End M3 Junction 5 SB onslip to start M3 Junction 6 SB offslip	3	Salt	2	1,2,3,HS		6,800	9,046
4	M3 Junction 6 SB offslip continue salting Blackdam link to A30W turn and return to start of M3 Junction 6 NB onslip	2	Salt	1	1,2		3,100	12,146
5	M3 Junction 6 NB onslip	2	Salt	1	1,2		656	12,802
6	End M3 Junction 6 NB onslip main carriageway to end M3 Junction 5 NB onslip merge	3	Salt	2	1,2,3,HS		7,572	20,374
7	End M3 Junction 5 NB onslip to start M3 Fleet Services NB offslip		Travel			6,755		27,129
8	M3 Fleet Services NB offslip and NB onslip	2	Salt	1	1,2		661	27,790
9	End M3 Fleet Services NB onslip to start of M3 Junction 4a NB offslip		Travel			2,981		30,771
10	M3 Junction 4a NB offslip and NB onslip	2	Salt	1	1,2		1,423	32,194
11	End M3 Junction 4a NB onslip to start M3 Junction 4 NB offslip		Travel			1,890		34,084
12	M3 Junction 4 NB offslip and NB onslip	2	Salt	1	1,2		1,271	35,355
13	End M3 Junction 4 NB onslip to start M3 Junction 3 NB offslip		Travel			5,994		41,349
14	Start of M3 Junction 3 NB offslip main carriageway to M3 Kitsmead (Treating Lane's 1 & 2 Only)	4	Salt	1	1,2		9,022	50,371
15	M3 Kitsmead Lane to M3 Junction 2 (M25)		Travel			3,100		53,471
16	Travel Anti-Clockwise on M25,turn at M25 Junction 11 and return Clockwise M25 to		Travel			5,500		58,971
17	M3 Junction 2 to Kitsmead Lane		Travel			3,100		62,071
18	M3 Kitsmead to Start M3 Junction 4 SB offslip (Treating Lane's 1 & 2 only)	4	Salt	1	1,2		15,118	77,189
19	M3 Junction 4 SB offslip and SB onslip	2	Salt	1	1,2		1,453	78,642
20	End M3 Junction 4 SB onslip to start M3 Junction 4a SB offslip		Travel			3,408		82,050
21	M3 Junction 4a SB offslip and SB onslip	2	Salt	1	1,2		1,493	83,543
22	End M3 Junction 4a SB onslip to start M3 Fleet Services SB offslip		Travel			2,866		86,409
23	M3 Fleet Services SB offslip and SB onslip	2	Salt	1	1,2		754	87,163
24	End M3 Fleet Services SB onslip to start M3 Junction 5 SB offslip		Travel			6,477		93,640
25	M3 Junction 5 SB offslip	2	Salt	1	1,2		576	94,216
26	Return to Hook Depot		Travel			1,200		95,416
					Totals (Metres)	44,851	50,565	95,416

H02

Area 3 Winter Service Route Schedule 2017/2018			
Route Number	H02	Route Description	M3 Main & Slips
Base Compound	Hook	Vehicle Type	MAN 6 x 4
Forecast Domain or Route Name	Domains 3,4	Associated ESS	Basingstoke
Salt Usage @ 20gm Dry	10.20 Tonnes	Vehicle VRN	[redacted]
Route Design Time	1 Hour 35 Mins	Vehicle Capacity	9m
Turnaround Time	20 Mins	Precautionary Time	2 Hours 40 Mins
Special Route Features			

Part	Description	No Of Lanes	Action Travel/Treat	Lane Position	Lane To Treat	Distance (Travel)	Distance (Treat)	Distance (Cumulative)
1	Leave Hook Depot to start M3 Junction 5 NB onslip		Travel			1,300		1,300
2	M3 Junction 5 NB onslip	2	Salt	1	1,2		685	1,985
3	Continue M3 main carriageway to start M3 Junction 3 NB offslip	3	Salt	2	1,2,3,HS		21,438	23,423
4	From start M3 Junction 3 NB offslip salt designated NB offslip	2	Salt	1	1,2		866	24,289
5	M3 Junction 3 NB onslip	2	Salt	1	1,2		793	25,082
6	From end M3 Junction 3 NB onslip to M25 turn and return M3 SB to start M3 Junction 3 SB Offslip		Travel			25,786		50,868
7	From start M3 Junction 3 SB offslip salt designated SB offslip	2	Salt	1	1,2		950	51,818
8	M3 Junction 3 SB onslip	2	Salt	1	1,2		660	52,478
9	End M3 Junction 3 SB onslip to start M3 Junction 4 SB offslip		Travel			5,811		58,289
10	Start M3 Junction 4 SB offslip main M3 carriageway to end M3 Junction 5 SB onslip merge	3	Salt	2	1,2,3,HS		16,368	74,657
11	End M3 Junction 5 SB onslip to start M3 Junction 6 SB offslip		Travel			6,238		80,895
12	Start M3 Junction 6 SB offslip main M3 carriageway to end M3 Junction 6 SB onslip merge	3	Salt	2	1,2,3,HS		1,324	82,219
13	End M3 Junction 6 SB Onslip to start M3 Junction 7 SB offslip		Travel			6,590		88,809
14	M3 Junction 7 SB offslip turn and Junction 7 NB onslip	2	Salt	1	1,2		1,174	89,983
15	End M3 Junction 7 NB onslip to start M3 Junction 6 NB offslip		Travel			6,522		96,505
16	Start M3 Junction 6 NB offslip main M3 carriageway to end M3 Junction 6 NB	3	Salt	2	1,2,3,HS		1,324	97,829
17	End M3 Junction 6 NB onslip to strat M3 Junction 5 NB offslip		Travel			6,162		103,991
18	M3 Junction 5 NB offslip	2	Salt	1	1,2		583	104,574
19	Return to Hook Depot		Travel			1,200		105,774
					Totals (Metres)	59,609	46,165	105,774

H03

Area 3 Winter Service Route Schedule 2017/2018			
Route Number	H03	Route Description	M3 ALR Section
Base Compound	Hook	Vehicle Type	MAN 6 x 4
Forecast Domain or Route Name	Domains 3,4	Associated ESS	Basingstoke
Salt Usage @ 20gm Dry	6.50 Tonnes	Vehicle VRN	[redacted]
Route Design Time	1 Hour 25 Mins	Vehicle Capacity	9m
Turnaround Time	20 Mins	Precautionary Time	2 Hours 40 Mins
Special Route Features	Smart Motorway		

Part	Description	No Of Lanes	Action Travel/Treat	Lane Position	Lane To Treat	Distance (Travel)	Distance (Treat)	Distance (Cumulative)
1	Leave Hook Depot and travel to M3 Junction 5 roundabout and join M3 NB		Travel			1,580		1,580
2	M3 Junction 5 to end of M3 Junction 4a NB onslip merge (Start of All Lanes Running)		Travel			11,700		13,280
3	End M3 Junction 4a NB Merge (Start ALR) to Kitsmead Lane (End of ALR) (Treating Lane's 3 & 4 Only)	4	Salt	3	3,4		18,700	31,980
4	M3 Kitsmead Lane to M3 Junction 2 (M25)		Travel			3,100		35,080
5	Travel Anti-Clockwise on M25,turn at M25 Junction 11 and return Clockwise M25 to Junction 12.Rejoining M3 SB		Travel			5,500		40,580
6	M3 Junction 2 to Kitsmead Lane (Start of ALR)		Travel			3,100		43,680
7	M3 Kitsmead Lane to M3 Junction 4a SB offslip (End of ALR) (Treating Lane's 3 & 4 Only)	4	Salt	3	3,4		18,750	62,430
8	End of M3 Jcn 4a SB offslip (End of ALR) return to Hook Depot via M3 Junction 5		Travel			13,000		75,430
					Totals (Metres)	37,980	37,450	75,430

LM01

Area 3 Winter Service Route Schedule 2017/2018			
Route Number	LM01	Route Description	A3 Main & Slips
Base Compound	Longmoor	Vehicle Type	MAN 6 x 4 Combi
Forecast Domain or Route Name	Domains 2,3,4	Associated ESS	A3 Shackleford
Salt Usage @ 20gm Dry	8.20 Tonnes	Vehicle VRN	[redacted]
Route Design Time	1 Hour 51 Mins	Vehicle Capacity	9m
Turnaround Time	20 Mins	Precautionary Time	2 Hours 40 Mins
Special Route Features			

Part	Description	No Of Lanes	Action Travel/Treat	Lane Position	Lane To Treat	Distance (Travel)	Distance (Treat)	Distance (Cumulative)
1	Leave Longmoor and join A3 NB		Travel			600		600
2	End A3 Longmoor NB onslip main carriageway to 200 metres prior to Hindhead Tunnel	2	Salt	1	1,2		8,800	9,400
3	200 Metres prior to tunnel upto tunnel entrance	2	Liquid	1	1,2		200	9,600
4	Travel through tunnel		Travel			1,900		11,500
5	From exit of tunnel for 200 metres	2	Liquid	1	1,2		200	11,700
6	Continue A3 main cariageway until merge point of Ockham NB onslip	2	Salt	1	1,2		33,200	44,900
7	End of Ockham NB onslip turn at M25 Junction 10 return A3 SB to start Ripley Services SB offslip		Travel			4,100		49,000
8	A3 Ripley Services SB offslip and SB onslip	2	Salt	1	1,2		849	49,849
9	End Ripley Services SB onslip to start A3 Guildford N SB Offslip		Travel					49,849
10	A3 Guildford N SB offslip and Guildford S SB onslip Via A25	2	Salt	1	1,2	1,500	943	52,292
11	End A3 Guildford S SB onslip to Start A3 Cathedral SB offslip		Travel			1,700		53,992
12	A3 Cathedral SB offslip and SB onslip	2	Salt	1	1,2		420	54,412
13	End Cathedral SB onslip to start A3 Stag Hill (A31 Hogs back) SB offslip		Travel			3,000		57,412
14	A3 Stag Hill SB offslip and NB onslip (Via cut through on A31)	2	Salt	1	1,2	1,950	1,792	61,154
15	End A3 Stag Hill NB onslip to start A3 Onslow Village NB onslip via offslip		Travel			1,554		62,708
16	A3 Onslow Village NB onslip	1	Salt	1	1		50	62,758
17	End A3 Onslow Village NB onslip to at Dennis and return A3 to start A3 Stag Hill SB onslip via A31 Hogs Back		Travel			6,240		68,998
18	A3 Stag Hill SB onslip	1	Salt	1	1		243	69,241
19	End A3 Stag Hill SB onslip to start A3 Godalming SB offslip		Travel			467		69,708
20	A3 Godalming SB offslip and SB onslip	1	Salt	1	1		1,155	70,863

21	End A3 Godalming SB onslip to start A3 Hurtmore SB offslip		Travel			1,798		72,661
22	A3 Hurtmore SB offslip and SB onslip	1	Salt	1	1		600	73,261
23	End A3 Hurtmore SB onslip to start A3 Milford SB offslip		Travel			1,656		74,917
24	A3 Milford SB offslip and SB onslip	1	Salt	1	1		900	75,817
25	End A3 Milford SB onslip exit at Thursley return NB		Travel			3,114		78,931
26	A3 Thursley NB to A3 Milford NB Offslip		Travel			3,609		82,540
27	A3 Milford to start A3 Portsmouth Rd SB onslip via A283		Travel			2,200		84,740
28	A3 Portsmouth Rd SB onslip	1	Salt	1	1		467	85,207
29	End A3 Portsmouth Rd SB onslip to start A3 Thursley SB offslip		Travel			1,732		86,939
30	A3 Thursley SB offslip and SB onslip	2	Salt	1	1,2		977	87,916
31	End A3 Thursley SB onslip to 200 Metres prior to Hindhead Tunnel		Travel			3,000		90,916
32	200 Metres prior to tunnel upto tunnel entrance	2	Liquid	1	1,2		200	91,116
33	Travel through tunnel		Travel			1,900		93,016
34	From exit of tunnel for 200 metres	2	Liquid	1	1,2		200	93,216
35	A3 200 metres from tunnel to A3 Hazel Grove SB offslip		Travel			1,000		94,216
36	A3 Hazel Grove SB offslip and SB onslip	2	Salt	1	1,2		1,000	95,216
37	End A3 Hazel Grove SB onslip to start A3 Spaniard Access		Travel			1,500		96,716
38	A3 Spaniard Access	2	Salt	1	1,2		160	96,876
39	End A3 Spaniard Access to start A3 Liphook SB offslip		Travel			2,300		99,176
40	A3 Liphook SB offslip and SB onslip	2	Salt	1	1,2		1,138	100,314
41	End A3 Liphook SB onslip to start A3 Griggs Green SB offslip		Travel			2,672		102,986
42	A3 Griggs Green SB offslip and SB onslip	1	Salt	1	1		635	103,621
43	Return to Longmoor Camp		Travel			2,258		105,879
					Totals (Metres)	51,750	54,129	105,879

LM02

Area 3 Winter Service Route Schedule 2017/2018			
Route Number	LM02	Route Description	A3 Main & Slips
Base Compound	Longmoor	Vehicle Type	MAN 6 x 4
Forecast Domain or Route Name	Domains 2,3,4	Associated ESS	A3 Shackleford
Salt Usage @ 20gm Dry	7.20 Tonnes	Vehicle VRN	[redacted]
Route Design Time	1 Hour 32 Mins	Vehicle Capacity	9m
Turnaround Time	20 Mins	Precautionary Time	2 Hours 40 Mins
Special Route Features			

Part	Description	No Of Lanes	Action Travel/Treat	Lane Position	Lane To Treat	Distance (Travel)	Distance (Treat)	Distance (Cumulative)
1	Leave Longmoor Camp to Start A3 Longmoor NB onslip		Travel			600		600
2	A3 Longmoor NB onslip	1	Salt	1	1		262	862
3	End A3 Longmoor NB onslip to start A3 Griggs Green NB offslip		Travel			2,202		3,064
4	A3 Griggs Green NB offslip and NB onslip	1	Salt	1	1	2,754	1,234	7,052
5	End A3 Griggs Green NB onslip to start A3 Liphook NB offslip		Travel			2,754		9,806
6	A3 Liphook NB offslip and NB onslip via London Rd	1	Salt	1	1	1,000	1,068	11,874
7	End A3 Liphook NB onslip to start A3 Hazel Grove NB offslip		Travel			1,000		12,874
8	A3 Hazel Grove NB offslip and NB onslip	1	Salt	1	1		1,000	13,874
9	End A3 Hazel Grove NB onslip to start A3 Thursley NB offslip		Travel			8,781		22,655
10	A3 Thursley NB offslip and NB onslip	2	Salt	1	1,2		680	23,335
11	End A3 Thursley NB onslip to start A3 Milford NB offslip		Travel			2,036		25,371
12	A3 Milford NB offslip and NB onslip	1	Salt	1	1		1,120	26,491
13	End A3 Milford NB onslip to start A3 Hurtmore NB offslip		Travel			1,302		27,793
14	A3 Hurtmore NB offslip and NB onslip	1	Salt	1	1		484	28,277
15	End A3 Hurtmore NB onslip to start A3 Godalming NB offslip		Travel			1,896		30,173
16	A3 Godalming NB offslip and NB onslip	1	Salt	1	1		864	31,037
17	End A3 Godalming NB onslip to start A3 Cathedral (St Johns) NB offslip		Travel			3,348		34,385
18	A3 Cathedral (St Johns) NB offslip	2	Salt	1	1,2		607	34,992
19	End A3 Cathedral (St Johns) NB offslip turn at Cathedral roundabout return to first A3 NB onslip (Short one)		Travel			900		35,892

20	A3 NB onslip (Short One)	1	Salt	1	1		313	36,205
21	End A3 Cathedral NB onslip to start A3 Guildford S NB offslip		Travel			803		37,008
22	A3 Guildford S NB offslip	2	Salt	1	1,2		317	37,325
23	End A3 Guildford S NB offslip to start A3 Guildford N NB onslip via A25 Guildford		Travel			1,500		38,825
24	A3 Guildford N NB onslip	2	Salt	1	1,2		650	39,475
25	End A3 Guildford N NB onslip to start A3 Send NB offslip		Travel			4,517		43,992
26	A3 Send NB offslip and SB onslip via Send village	2	Salt	1	1,2	1,500	868	46,360
27	End A3 Send SB Onslip to A3 Burpham SB offslip		Travel			2,257		48,617
28	A3 Burpham SB offslip and NB onslip via Clay Lane	2	Salt	1	1,2	1,300	1,327	51,244
29	End A3 Burpham NB onslip to start A3 Ripley Services NB offslip		Travel			4,513		55,757
30	A3 Ripley Services NB offslip and NB onslip	2	Salt	1	1,2		715	56,472
31	End A3 Ripley Services NB onslip to start A3 Ockham SB offslip via M25 Junction 10		Travel			7,000		63,472
32	Start A3 Ockham SB offslip main carriageway to start A3 Stoke SB offslip	3	Salt	2	1,2,3		9,602	73,074
33	Start A3 Stoke SB offslip continue main carriageway to 200 metres prior to Hindhead Tunnel	2	Salt	1	1,2		18,984	92,058
34	A3 SB 200 Metres prior to Hindhead tunnel to 200 metres after tunnel SB		Travel			1,900		93,958
35	A3 200 Metres SB after Hindhead Tunnel main carriageway to start A3 Longmoor SB offslip	2	Salt	1	1,2		1,568	95,526
36	A3 Longmoor SB offslip to Entrance to Longmoor Camp	1	Salt	1	1		335	95,861
37	Return To Longmoor Camp		Travel			200		96,061
					Totals (Metres)	54,063	41,998	96,061

LM03

Area 3 Winter Service Route Schedule 2017/2018			
Route Number	LM03	Route Description	A3 Main & Slips
Base Compound	Longmoor	Vehicle Type	MAN 6 x 4
Forecast Domain or Route Name	Domains 1,2	Associated ESS	A3 Chalton
Salt Usage @ 20gm Dry	8.20 Tonnes	Vehicle VRN	[redacted]
Route Design Time	1 Hour 30 Mins	Vehicle Capacity	9m
Turnaround Time	20 Mins	Precautionary Time	2 Hours 40 Mins
Special Route Features			

Part	Description	No Of Lanes	Action Travel/Treat	Lane Position	Lane To Treat	Distance (Travel)	Distance (Treat)	Distance (Cumulative)
1	Leave Longmoor Camp to End A3 Longmoor SB offslip		Travel			222		222
2	End A3 Longmoor SB offslip to start A3 Longmoor SB on slip via link	2	Salt	1	1,2		285	507
3	A3 Longmoor SB onslip	2	Salt	1	1,2		396	903
4	End A3 Longmoor SB onslip to A3 Hamp Barn roundabout		Travel			2,245		3,148
5	Circuit Ham Barn Roundabout	2	Salt	1	1,2		252	3,400
6	A3 Ham Barn roundabout SB to start A3 Liss SB offslip		Travel			2,301		5,701
7	A3 Liss SB offslip and SB onslip	2	Salt	1	1,2		753	6,454
8	End A3 Liss SB onslip to start A3 Sheet SB offslip		Travel			2,165		8,619
9	A3 Sheet SB offslip and NB onslip including links	2	Salt	1	1,2		2,148	10,767
10	End A3 Shet NB onslip to start A3 Liss Garden Centre SB onslip via Flexcombe		Travel			2,934		13,701
11	A3 Liss Garden Centre SB onslip	1	Salt	1	1		396	14,097
12	End A3 Liss Garden Centre SB onslip to Start A3 Sheet SB onslip via Sheet SB offslip		Travel			3,045		17,142
13	A3 Sheet SB onslip	1	Salt	1	1		560	17,702
14	End A3 Sheet SB onslip to start A3 Petersfield Industrial Estate SB offslip		Travel			1,330		19,032
15	A3 Petersfield Industrial Estate SB offslip and SB onslip	1	Salt	1	1		964	19,996
16	End A3 Petersfield Industrial Estate SB onslip to start A3 Buriton SB offslip		Travel			2,386		22,382
17	A3 Buriton SB offlisp and SB onslip including links	2	Salt	1	1,2		852	23,234
18	End A3 Buriton SB onslip to start A3 QE Country Park SB offslip		Travel			2,574		25,808

19	A3 QE Country Park SB offslip and SB onslip	1	Salt	1	1		430	26,238
20	End A3 QE Country Park SB onslip to start A3 Chalton SB offslip		Travel			1,552		27,790
21	A3 Chalton SB offslip and SB onslip	2	Salt	1	1,2		685	28,475
22	End A3 Chalton SB onslip to start A3 Horndean SB offslip		Travel			2,866		31,341
23	A3 Horndean SB offslip and NB onslip	2	Salt	1	1,2		812	32,153
24	End A3 Horndean NB onslip turn at A3 Chalton return A3 SB to start A3M Junction 2 SB offslip		Travel			11,193		43,346
25	A3M Junction 2 SB offslip and SB onslip	2	Salt	1	1,2		1,138	44,484
26	End A3M Junction 2 SB onslip to start A3M Junction 3 SB offslip		Travel			2,419		46,903
27	A3M Junction 3 SB offslip and SB onslip	2	Salt	1	1,2		1,063	47,966
28	End A3M Junction 3 SB onslip to start A27 Bedhampton offslip to A3M NB via A27 Eastern Rd		Travel			8,361		56,327
29	Start A27 Bedhampton offslip to A3M NB continue main carriageway to the end of A3M	2	Salt	1	1,2		8,850	65,177
30	End A3M continue main carriageway to end A3 Longmoor NB onslip merge	2	Salt	1	1,2		20,858	86,035
31	Return to Longmoor Camp via Griggs Green and return SB		Travel			5,558		91,593
					Totals (Metres)	51,151	40,442	91,593

LM04

Area 3 Winter Service Route Schedule 2017/2018			
Route Number	LM04	Route Description	A3 & A27
Base Compound	Longmoor	Vehicle Type	MAN 6 x 4
Forecast Domain or Route Name	Domains 1;2	Associated ESS	A3 Chalton
Salt Usage @ 20gm Dry	5.50 Tonnes	Vehicle VRN	[redacted]
Route Design Time	1 Hour 30 Mins	Vehicle Capacity	9m
Turnaround Time	20 Mins	Precautionary Time	2 Hours 40 Mins
Special Route Features			

Part	Description	No Of Lanes	Action Travel/Treat	Lane Position	Lane To Treat	Distance (Travel)	Distance (Treat)	Distance (Cumulative)
1	Leave Longmoor depot travel to end A3 Longmoor SB onslip		Travel			500		500
2	End A3 Longmoor SB onslip main carriageway to start A3M	2	Salt	1	1,2		20,500	21,000
3	Start A3M main carriageway to A3M A27 Junction	2	Salt	1	1,2		9,362	30,362
4	Turn at A27 and return to start A3M Junction 3 NB offslip		Travel			8,200		38,562
5	A3M Junction 3 NB offslip and NB onslip	2	Salt	1	1,2		1,098	39,660
6	End A3M Junction 3 NB onslip to start A3M Junction 2 NB offslip		Travel			2,396		42,056
7	A3M Junction 2 NB offslip and NB onslip	2	Salt	1	1,2		1,130	43,186
8	End A3M Junction 2 NB onslip to start A3 Chalton NB offslip		Travel			4,652		47,838
9	A3 Chalton NB offslip and NB Onslip	2	Salt	1	1,2		605	48,443
10	End A3 Chalton NB onslip to start A3 QE Country Park NB offslip		Travel			450		48,893
11	A3 QE Country Park NB offslip and NB onslip	2	Salt	1	1,2		513	49,406
12	End A3 NB onslip to start A3 Buriton NB offslip		Travel			2,437		51,843
13	A3 Buriton NB offslip and NB onslip	2	Salt	1	1,2		905	52,748
14	End A3 Buriton NB onslip to start A3 Berelands NB offslip		Travel			2,189		54,937
15	A3 Berelands NB offslip and NB onslip	2	Salt	1	1,2		1,044	55,981
16	End A3 Berelands NB onsip to start A3 Sheet NB offslip		Travel			1,088		57,069
17	A3 Sheet NB offslip and NB onslip including link	2	Salt	1	1,2		1,877	58,946
18	End A3 Sheet NB onslip to start A3 Flexcombe NB onslip		Travel			2,430		61,376
19	A3 Flexcombe NB offslip and NB onslip	1	Salt	1	1		600	61,976
20	End A3 Flexcombe NB onslip to start Longmoor I/C NB offslip		Travel			4,397		66,373
21	A3 Longmoor NB offslip and NB onslip	2	Salt	2	1,2		416	66,789
22	End A3 Longmoor NB onslip to start A3 Hammer lane NB offslip		Travel			8,697		75,486
23	A3 Hammer Lane NB offslip	1	Salt	1	1		100	75,586
24	End A3 Hammer Lane NB offslip turn at Hammer Lane and return A3 SB to start A3 Longmoor SB offslip		Travel			11,898		87,484
25	Start A3 Longmoor SB offslip main carriageway to end of Longmoor SB onslip merge	2	Salt	1	1,2		500	87,984
26	End of A3 Longmoor SB onslip turn at A3 Hambarn roundabout and return to Longmoor Depot		Travel			5,383		93,367
					Totals (Metres)	54,717	38,650	93,367

LW01

Area 3 Winter Service Route Schedule 2017/2018			
Route Number	LW01	Route Description	M4 MAIN & SLIPS
Base Compound	Whitley Wood	Vehicle Type	MAN 6 x 4
Forecast Domain or Route Name	Domains 3,4	Associated ESS	M4 Junction 10 Shurlock Row
Salt Usage @ 20gm Dry	10.06 Tonnes	Vehicle VRN	[redacted]
Route Design Time	1 Hour 34 Mins	Vehicle Capacity	9m
Turnaround Time	20 Mins	Precautionary Time	2 Hours 40 Mins
Special Route Features			

Part	Description	No Of Lanes	Action Travel/Treat	Lane Position	Lane To Treat	Distance (Travel)	Distance (Treat)	Distance (Cumulative)
1	Leave Whitley Wood Depot travel to start of M4 Jcn 11 EB onslip		Travel			356		356
2	M4 Junction 11 EB onlsip	2	Salt	1	1,2		714	1,070
3	End M4 Junction 11 EB onslip main carriageway to start M4 Junction 8/9 EB offslip	3	Salt	2	1,2,3,HS		20,176	21,246
4	M4 Junction 8/9 EB Offslip	2	Salt	1	1,2		502	21,748
5	End of M4 Junction 8/9 EB Offslip to start M4 Junction 8/9 WB onslip		Travel			487		22,235
6	M4 Junction 8/9 WB onslip	2	Salt	1	1,2		650	22,885
7	End M4 Junction 8/9 WB onslip main carriageway to M4 Junction 11 WB onslip merge	3	Salt	2	1,2,3,HS		20,850	43,735
8	End M4 Junction 11 WB onslip to start Junction 12 WB offslip		Travel			5,999		49,734
9	M4 Junction 12 WB offslip	2	Salt	1	1,2		510	50,244
10	End M4 Junction 12 WB Offslip to start M4 Junction 12 EB onslip		Travel			450		50,694
11	M4 Junction 12 EB onslip	2	Salt	1	1,2		662	51,356
12	End M4 Junction 12 EB onslip to start M4 Junction 11 EB offslip		Travel			5,986		57,342
13	Start M4 Junction 11 EB Offslip main carriageway to end M4 Junction 11 EB onslip merge	3	Salt	2	1,2,3,HS		1,243	58,585
14	End M4 Junction 11 EB onslip to start M4 Junction 10 EB offslip - Link 7		Travel			7,106		65,691
15	M4 Junction 10 EB Off Link 7 to end of merge with A329M SB	2	Salt	1	1,2		2,032	67,723
16	Travel A329M SB turn at Coppid Beech roundabout and return A329M NB to Start of M4 Junction 10 EB Onslip - Link 5		Travel			7,400		75,123
17	M4 Junction 10 EB onslip - Link 5	2	Salt	1	1,2		990	76,113
18	End M4 Junction 10 EB onslip turn at M4 Junction 8/9 and return WB to start M4 Junction 10 WB offslip - Link 8		Travel			22,636		98,749
19	Junction 10 WB Offslip Link 8 to end of merge with A329M NB	2	Salt	1	1,2		2,032	100,781
20	End Link 8 turn at Winnersh interchange and return A329M SB to start of M4 Junction 10 WB onslip - Link 6		Travel			5,603		106,384
21	M4 Junction 10 WB Onslip Link 6	2	Salt	1	1,2		1,235	107,619
22	End M4 Junction 10 WB Onslip to start M4 Junction 11 WB offslip		Travel			7,846		115,465
23	M4 Junction 11 WB Offslip	2	Salt	1	1,2		563	116,028
24	End Junction 11 WB offslip return to Whitley Wood Depot		Travel			800		116,828
					Totals (Metres)	64,669	52,159	116,828

LW02

Area 3 Winter Service Route Schedule 2017/2018			
Route Number	LW02	Route Description	M4 MAIN & SLIPS
Base Compound	Whitley Wood	Vehicle Type	MAN 6 x 4
Forecast Domain or Route Name	Domains 3,4	Associated ESS	M4 Junction 10 Shurlock Row
Salt Usage @ 20gm Dry	8.60 Tonnes	Vehicle VRN	[redacted]
Route Design Time	1 Hour 30 Mins	Vehicle Capacity	9m
Turnaround Time	20 Mins	Precautionary Time	2 Hours 40 Mins
Special Route Features			

Part	Description	No Of Lanes	Action Travel/Treat	Lane Position	Lane To Treat	Distance (Travel)	Distance (Treat)	Distance (Cumulative)
1	Leave Whitley Wood Depot,join M4 WB to start of Reading Services WB offslip		Travel			4,508		4,508
2	Start Reading Services WB offslip main carriageway to start M4 Junction 13 WB offslip	3	Salt				18,358	22,866
3	M4 Junction 13 WB offslip	3	Salt				729	23,595
4	M4 Junction 13 WB offslip to start M4 Junction 13 EB onslip		Travel			400		23,995
5	M4 Junction 13 EB onslip	2	Salt				709	24,704
6	End M4 Junction 13 EB onslip to start M4 Junction 12 EB offslip		Travel			17,527		42,231
7	M4 Junction 12 EB offslip	2	Salt				508	42,739
8	End M4 Junction 12 EB offslip to start M4 Reading Services EB offslip via Junction 12 EB onslip		Travel			2,554		45,293
9	M4 Reading Services EB Offslip and EB Onslip	2	Salt				625	45,918
10	End Reading Services EB on to Start M4 Junction 10 EB offslip - Link 3		Travel			12,571		58,489
11	M4 Junction 10 WB Offslip Link 3 To A329M NB merge	2	Salt				437	58,926
12	End Link 3 merge turn at A329M Winnersh interchange and return A329M SB to Start M4 Junction 10 EB onslip - Link 4		Travel			5,520		64,446
13	M4 Junction 10 EB Onslip - Link 4	2	Salt				1,305	65,751
14	End M4 Junction 10 EB onslip to start M4 Junction 8/9 EB offslip		Travel			10,628		76,379
15	Start M4 Junction 8/9 EB offslip main carriageway to start M4 Junction 7 EB offslip	3	Salt				5,329	81,708
16	M4 Junction 7 EB offslip to Huntercombe Roundabout	2	Salt				1,169	82,877
17	Huntercombe Roundabout to end M4 Junction 7 WB onslip	2	Salt				1,403	84,280
18	End M4 Junction 7 WB onslip main carriageway to end M4 Junction 8/9 WB onslip merge	3	Salt				5,161	89,441
19	End M4 Junction 8/9 WB onslip to start M4 Junction 10 WB offslip - Link 1		Travel			10,306		99,747
20	M4 Junction 10 Link 1 to A329M SB merge	2	Salt				1,285	101,032
21	End Link 1 merge turn at A329M Coppid Beech and return A329M NB to Start M4 Junction 10 WB onslip - Link 2		Travel			7,400		108,432
22	M4 Junction 10 WB onslip - Link 2	2	Salt				1,235	109,667
23	Return to Whitley Wood Depot Via M4 Junction 11 WB Offslip		Travel			8,314		117,981
					Totals (Metres)	79,728	38,253	117,981

OW01

Area 3 Winter Service Route Schedule 2017/2018			
Route Number	OW01	Route Description	M27 & M3 Main & Slips
Base Compound	Ower	Vehicle Type	MAN 6 x 4
Forecast Domain or Route Name	Domains 1,2	Associated ESS	N/A
Salt Usage @ 20gm Dry	7.06 Tonnes	Vehicle VRN	[redacted]
Route Design Time	1 Hour 04 Mins	Vehicle Capacity	9m
Turnaround Time	20 Mins	Precautionary Time	2 Hours 40 Mins
Special Route Features			

Part	Description	No Of Lanes	Action Travel/Treat	Lane Position	Lane To Treat	Distance (Travel)	Distance (Treat)	Distance (Cumulative)
1	Leave Ower Depot to start of M27 Junction 2 EB onslip		Travel			1,945		1,945
2	M27 Junction 2 EB onslip	2	Salt	1	1,2		342	2,287
3	End M27 Junction 2 EB onslip to start Junction 3 EB offslip		Travel			2,900		5,187
4	Start M27 Junction 3 EB offslip to start of M3 Junction 10 NB offslip via the J Link	3	Salt	2	1,2,3,HS		19,121	24,308
5	M3 Junction 10 NB offslip and SB onslip including link road	2	Salt	1	1,2		1,206	25,514
6	End of M3 Junction 10 SB onslip to start M3 Junction 12 SB offslip		Travel			7,410		32,924
7	M3 Junction 12 SB offslip and SB onslip including roundabout	2	Salt	1	1,2		603	33,527
8	End M3 Junction 12 SB onslip to start M3 Junction 13 SB offslip		Travel			2,150		35,677
9	M3 Junction 13 SB offslip and NB onslip	2	Salt	1	1,2	270	769	36,716
10	End M3 Junction 13 NB onslip to start M3 Junction 12 NB offslip		Travel			2,510		39,226
11	M3 Junction 12 NB offslip and NB onslip	2	Salt	1	1,2		562	39,788
12	End M3 Junction 12 NB onslip to start M3 Junction 11 NB offslip		Travel			4,400		44,188
13	M3 Junction 11 NB offslip and SB onslip including roundabout	2	Salt	1	1,2		1,385	45,573
14	End M3 Junction 11 SB onslip to start of Junction 13 SB offslip to A33/M27 WB		Travel			7,928		53,501
15	Start M3 Junction 13 SB offslip to M27 Junction 3 WB onslip merge	3	Salt	2	1,2,3,HS		7,937	61,438
16	End M27 Junction 3 WB onslip to start M27 Junction 2 WB offslip		Travel			2,900		64,338
17	M27 Junction 2 WB offslip	2	Salt	1	1,2		298	64,636
18	Return to Ower Depot		Travel			2,135		66,771
					Totals (Metres)	34,548	32,223	66,771

OW02

Area 3 Winter Service Route Schedule 2017/2018			
Route Number	OW02	Route Description	M27/M271 Main & Slips
Base Compound	Ower	Vehicle Type	MAN 6 x 4
Forecast Domain or Route Name	Domains 1,2	Associated ESS	N/A
Salt Usage @ 20gm Dry	9.50 Tonnes	Vehicle VRN	[redacted]
Route Design Time	1 Hour 40 Mins	Vehicle Capacity	9m
Turnaround Time	20 Mins	Precautionary Time	2 Hours 40 Mins
Special Route Features			

Part	Description	No Of Lanes	Action Travel/Treat	Lane Position	Lane To Treat	Distance (Travel)	Distance (Treat)	Distance (Cumulative)
1	Leave Ower Depot To M27 Junction 2 Roundabout		Travel			1,890		1,890
2	M27 Junction 2 Roundabout and WB onslip	2	Salt	1	1,2		593	2,483
3	End M27 Junction 2 WB onslip to start M27 Junction 1 WB offslip	3	Salt	2	1,2,3,HS		4,460	6,943
4	M27 Junction 1 WB offslip and EB onslip including roundabout	3	Salt	2	1,2,3,HS		2,968	9,911
5	Start M27 Junction 1 EB onslip main carriageway to start M27 Junction 3 EB offslip	3	Salt	2	1,2,3,HS		8,270	18,181
6	M27 Junction 3 EB offslip and roundabout	2	Salt	1	1,2		416	18,597
7	M27 Junction 3 EB onslip designated lane to M27 Junction 4 J link to M3 (Lane 1	1	Salt	1	1		4,135	22,732
8	Start M27 Jcn 4 J link to M3 Junction 13 NB offslip		Travel			3,777		26,509
9	Turn at M3 Junction 13 and return SB to bifurcation point of M3/M27 WB		Travel			4,887		31,396
10	Start Bifurcation point M3/M27 WB to start of M27 Junction 3 WB offslip (Lane 1	1	Salt	1	1		3,861	35,257
11	M27 Junction 3 WB offslip	2	Salt	1	1,2		500	35,757
12	M271 Roundabout SB to Redbridge Roundabout	2	Salt	1	1,2		1,730	37,487
13	Redbridge Roundabout NB to Romsey (A3057) roundabout	2	Salt	1	1,2		3,630	41,117
14	Romsey Roundabout SB to M27 Junction 3 roundabout	2	Salt	1	1,2		1,600	42,717
15	From M27 Junction 3 M271 SB to Start Lordshill SB offslip		Travel			1,862		44,579
16	M271 Lordshill SB offslip and SB onslip	2	Salt	1	1,2		980	45,559
17	End Lordshill SB onslip to Redbridge roundabout		Travel			800		46,359

18	Turn at Redbridge roundabout return NB to start Lordshill NB offslip		Travel			800		47,159
19	Lordshill NB offslip and NB onslip	2	Salt	1	1,2		970	48,129
20	End Lordshill NB onslip to start M27 Junction 3 EB onslip		Travel			1,700		49,829
21	Start M27 Junction 3 EB onslip to start M27 Rownhams Services EB offslip		Travel			1,047		50,876
22	M27 Rownhams EB offslip and EB onslip	2	Salt	1	1,2		1,897	52,773
23	End Rownhams EB Onslip to start M27 Junction 4 EB offslip		Travel			783		53,556
24	Start M27 Junction 4 EB offslip to end of Junction 5 EB onslip	2	Salt	1	1,2		5,418	58,974
25	End M27 Junction 5 EB onslip to M27 Junction 7 exit and return WB to Start M27 Junction 5 WB offslip		Travel			12,337		71,311
26	Start M27 Junction 5 WB offslip to end M27 Junction 4 WB onslip	2	Salt	1	1,2		5,974	77,285
27	End M27 Junction 4 WB onslip to start Rownhams Services WB offslip		Travel			357		77,642
28	M27 Rownhams WB offslip and WB onslip	2	Salt	1	1,2		1,637	79,279
29	End M27 Rownhams WB onslip to start M27 Junction 3 WB onslip via WB offslip		Travel			906		80,185
30	M27 Junction 3 WB Onslip	2	Salt	1	1,2		486	80,671
31	End M27 Junction 3 WB onslip main carriageway to M27 Junction 2 WB onslip merge	3	Salt	2	1,2,3,HS		4,334	85,005
32	End M27 Junction 2 WB onslip to start M27 Junction 1 exit and return EB to start M27 Junction 2 EB offslip		Travel			9,478		94,483
33	M27 Junction 2 EB offslip	2	Salt	1	1,2		312	94,795
34	Return to Ower Depot		Travel			1,500		96,295
					Totals (Metres)	42,124	54,171	96,295

OW03

Area 3 Winter Service Route Schedule 2017/2018			
Route Number	OW03	Route Description	A31 Main & Slips
Base Compound	Ower	Vehicle Type	MAN 4 x 4
Forecast Domain or Route Name	Domain 1	Associated ESS	A31 Stoney Cross
Salt Usage @ 20gm Dry	6.50 Tonnes	Vehicle VRN	[redacted]
Route Design Time	1 Hour 45 Mins	Vehicle Capacity	6m
Turnaround Time	20 Mins	Precautionary Time	2 Hours 40 Mins
Special Route Features			

Part	Description	No Of Lanes	Action Travel/Treat	Lane Position	Lane To Treat	Distance (Travel)	Distance (Treat)	Distance (Cumulative)
1	Leave Ower Depot join M27 WB to start of Junction 1 WB offslip		Travel			6,943		6,943
2	Start M27 Junction 1 WB offslip main carriageway to start 4 lane section at A31 Ringwood (A338N)	2	Salt	1	1,2		20,250	27,193
3	Start 4 lane section at Ringwood (A338N) to start of Ashley Heath (A338) WB offslip (Lanes 1&2 Only)	4	Salt	1	1,2		2,130	29,323
4	A31 Ashley Heath WB offslip and WB onslip	2	Salt	1	1,2		800	30,123
5	End A31 Ashley Heath WB onslip turn at Woolsbridge roundabout return A31 EB to start Ashley Heath EB offslip		Travel			4,100		34,223
6	A31 Ashley Heath EB Offslip around roundabout and EB onslip	2	Salt	1	1,2		1,400	35,623
7	End A31 Ashley Heath EB Onslip main carriageway to start Ringwood EB offslip (Lanes 1&2 Only)	4	Salt	1	1,2		1,100	36,723
8	Start of A31 Ringwood EB offslip move to lane 3 Continue Main A31 carriageway to M27 Junction 1 EB offslip	2	Salt	1	1,2		17,256	53,979
9	M27 Junction 1 EB offslip and WB onslip	2	Salt	1	1,2		811	54,790
10	End M27 Junction 1 WB onslip to start A31 Burley Services WB offslip		Travel			12,100		66,890
11	A31 Burley Services WB Offslip under the underpass to EB slips roundabout and return to salt WB Onslip	2	Salt	1	1,2		1,361	68,251
12	End Burley Services WB onslip to start A31 Southampton Rd (Poulner) WB offslip		Travel			2,490		70,741
13	A31 Southampton Rd (Poulner) WB offslip and WB onslip	2	Salt	1	1,2		612	71,353
14	End of A31 Southampton Rd WB onslip to start A31 Ringwood (A338) WB offslip		Travel			1,000		72,353
15	A31 Ringwood WB offslip and WB onslip	2	Salt	1	1,2		997	73,350
16	End A31 Ringwood WB onslip to start A31 Verwood (B3081) WB offslip		Travel			787		74,137
17	A31 Verwood WB offslip and Verwood EB onslip	2	Salt	1	1,2		339	74,476

18	End A31 Verwood EB onslip to start A31 Ringwood EB offslip		Travel			850		75,326
19	A31 Ringwood EB offslip to start Ringwood WB onslip	2	Salt	1	1,2		900	76,226
20	Rejoin A31 WB turn at Ashley Heath roundabout and return EB to start A31 Verwood (B3081) EB offslip		Travel			2,100		78,326
21	A31 Verwood EB offslip and WB onslip	2	Salt	1	1,2		922	79,248
22	End A31 Verwood WB onslip to Ashley Heath Roundabout return EB to start A31 Ringwood EB onslip (via offslip)		Travel			2,300		81,548
23	A31 Ringwood EB onslip	2	Salt	1	1,2		600	82,148
24	End A31 Ringwood EB onslip to start A31 Southampton Rd (Poulner Hill) EB offslip		Travel			1,800		83,948
25	A31 Southampton Rd (Poulner) EB offslip and EB onslip	2	Salt	1	1,2		220	84,168
26	End A31 Southampton Rd EB onslip to start A31 Burley Services EB offslip		Travel			2,350		86,518
27	A31 Burley Services EB offslip and EB onslip	2	Salt	1	1,2		600	87,118
28	End A31 Burley Services EB onslip to start M27 Junction 1 EB offslip		Travel			12,000		99,118
29	Start M27 Junction 1 EB offslip main carriageway to end of M27 Junction 1 EB onslip	3	Salt	2	1,2,3,HS		750	99,868
30	Return to Ower Depot		Travel			12,000		111,868
					Totals (Metres)	60,820	51,048	111,868

OW04

Area 3 Winter Service Route Schedule 2017/2018			
Route Number	OW04	Route Description	A31 Main & Slips
Base Compound	Ower	Vehicle Type	MAN 4 x 4
Forecast Domain or Route Name	Domain 1	Associated ESS	A31 Stoney Cross
Salt Usage @ 20gm Dry	5.70 Tonnes	Vehicle VRN	[redacted]
Route Design Time	1 Hour 50 Mins	Vehicle Capacity	6m
Turnaround Time	20 Mins	Precautionary Time	2 Hours 40 Mins
Special Route Features			

Part	Description	No Of Lanes	Action Travel/Treat	Lane Position	Lane To Treat	Distance (Travel)	Distance (Treat)	Distance (Cumulative)
1	Leave Ower Depot Join M27 WB to start of A31 4 lane section at Ringwood		Travel			25,000		25,000
2	Start A31 4 lane section Ringwood WB main carriageway to Ashley Heath interchange (Lanes 3 & 4 only)	4	Salt	3	3,4		1,600	26,600
3	Continue A31 WB main carriageway to Bere Regis roundabout	2	Salt	1	1,2		33,000	59,600
4	Turn at Bere Regis roundabout return A31 EB to Roundhouse (A350) roundabout		Travel			11,500		71,100
5	A31 Roundhouse (A350) approach,roundabout and departure EB	2	Salt	1	1,2		465	71,565
6	A31 Roundhouse (A350) to A31 Lake Gates (B3078) Roundabout		Travel			4,940		76,505
7	A31 Lake Gates (B3078) Roundabout approach,roundabout and departure EB	2	Salt	1	1,2		242	76,747
8	A31 Lake Gates (B3078) To A31 Merley(A349) Roundabout		Travel			2,000		78,747
9	A31 Merley(A349) Roundabout approach,roundabout and departure EB	2	Salt	1	1,2		160	78,907
10	A31 Merley(A349) to A31 Canford Bottom (B3073) Roundabout		Travel			3,340		82,247
11	A31 Canford Bottom (B3073) Roundabout approach,middle dual section and departure EB	2	Salt	1	1,2		495	82,742
12	A31 Canford Bottom (B3073) to A31 Ameysford Roundabout		Travel			2,990		85,732
13	A31 Ameysford Roundabout approach,roundabout and departure EB	2	Salt	1	1,2		255	85,987
14	From A31 Ameysford Roundabout main carriageway to A31 Palmersford (A348) roundabout	2	Salt	1	1,2		2,445	88,432
15	A31 Palmersford (A348) roundabout approach,roundabout and departure returning A31 WB	2	Salt	1	1,2		200	88,632

16	A31 Palmersford (A348) roundabout WB to start A31 Westmoors WB offslip		Travel			1,350		89,982
17	A31 Westmoors WB offslip and WB onslip including mini roundabout	2	Salt	1	1,2		440	90,422
18	A31 Westmoors WB onslip to Ameysford roundabout turn return A31 EB to start Westmoors EB offslip		Travel			2,850		93,272
19	A31 Westmoors EB offslip and EB onslip including mini roundabout	2	Salt	1	1,2		440	93,712
20	A31 Westmoors to A31 Palmersford (A348) Roundabout		Travel			1,300		95,012
21	From A31 Palmersford (A348) EB Exit main carriageway to A31 Azalea Roundabout	2	Salt	1	1,2		884	95,896
22	Circle A31 Azalea roundabout and continue main A31 carriageway EB to A31 Boundary lane Roundabout	2	Salt	1	1,2		870	96,766
23	Circle A31 Boundary Lane roundabout and continue main A31 carriageway EB to A31 Woolsbridge Roundabout	2	Salt	1	1,2		1,639	98,405
24	Circle A31 Woolsbridge Roundabout and continue main A31 carriageway EB to A31 Ashley Heath start of 4 lane section	2	Salt	1	1,2		1,400	99,805
25	Start A31 4 lane section Ringwood EB main carriageway to A31 end of 4 lane section (Lanes 3 & 4 only)	4	Salt	3	3,4		1,800	101,605
26	Return to Ower Depot		Travel			25,000		126,605
					Totals (Metres)	80,270	46,335	126,605

PG01

Area 3 Winter Service Route Schedule 2017/2018			
Route Number	PG01	Route Description	M27
Base Compound	Park Gate	Vehicle Type	MAN 6 x 4
Forecast Domain or Route Name	Domain 1	Associated ESS	M27 Park Gate
Salt Usage @ 20gm Dry	9.45 Tonnes	Vehicle VRN	[redacted]
Route Design Time	1 Hour 20 Mins	Vehicle Capacity	9m
Turnaround Time	20 Mins	Precautionary Time	2 Hours 40 Mins
Special Route Features			

Part	Description	No Of Lanes	Action Travel/Treat	Lane Position	Lane To Treat	Distance (Travel)	Distance (Treat)	Distance (Cumulative)
1	Leave Park Gate Depot to start of M27 Junction 9 WB onslip		Travel			589		589
2	M27 Junction 9 WB Onslip	2	Salt	1	1,2		1,083	1,672
3	End M27 Junction 9 WB onslip continue M27 main carriageway to M27 Junction 5 WB offslip	3	Salt	2	1,2,3,HS		13,107	14,779
4	M27 Junction 5 WB offslip and WB onslip	2	Salt	1	1,2		1,360	16,139
5	End M27 Junction 5 WB onslip salt dedicated lane 1 to start M27 Junction 4 L Link	4	Salt	1	1		1,800	17,939
6	M27 Junction 4 NB L Link to M3 merge	2	Salt	1	1,2		2,782	20,721
7	From M3 merge exit at M3 Junction 12 return SB to start M3 Junction 14 K Link to Airport		Travel			2,828		23,549
8	Start M3 Junction 14 K Link main carriageway to start M27 Junction 5 EB offslip	3	Salt	2	1,2,3,HS		557	24,106
9	M27 Junction 5 EB offslip	2	Salt	1	1,2		800	24,906
10	M27 Junction 5 EB onslip	2	Salt	2	2		750	25,656
11	End M27 Junction 5 EB onslip continue main cariageway to end M27 Junction 9 EB on merge	3	Salt	2	1,2,3,HS		13,023	38,679
12	End M27 Junction 9 EB exit at M27 Junction 11 return WB to start M27 Junction 8 WB offslip		Travel			18,924		57,603
13	M27 Junction 8 WB offslip and WB onslip	2	Salt	1	1,2		1,089	58,692
14	End M27 Junction 8 WB onslip salt designated lane 1 to start M27 Junction 7 WB offslip	4	Salt	1	1		1,055	59,747
15	M27 Junction 7 WB offslip and WB onslip	2	Salt	1	1,2		1,347	61,094
16	End M27 Junction 7 WB onslip exit at M27 Junction 5 WB		Travel			4,196		65,290
17	From M27 Junction 5 roundabout to Eastleigh Parkway airport roundabout turn and return to M27 Junction 5 roundabout		Travel			1,000		66,290
18	M27 Junction 5 EB onslip dedicated lane	2	Salt	1	1		900	67,190
19	End M27 Junction 5 EB onslip to M27 Junction 7 EB offslip		Travel			4,371		71,561
20	M27 Junction 7 EB offslip and EB onslip	2	Salt	1	1,2		992	72,553
21	End M27 Junction 7 EB onslip salt designated lane 1 to start M27 Junction 8 EB offslip	4	Salt	1	1		986	73,539
22	M27 Junction 8 EB offslip and EB onslip	2	Salt	1	1,2		1,231	74,770
23	End M27 Junction 8 EB onslip to start M27 Junction 9 EB offslip		Travel			4,021		78,791
24	M27 Junction 9 EB offslip	2	Salt	1	1,2		539	79,330
25	Return to Park Gate Depot		Travel			600		79,930
					Totals (Metres)	36,529	43,401	79,930

PG02

Area 3 Winter Service Route Schedule 2017/2018			
Route Number	PG02	Route Description	M27 / M275
Base Compound	Park Gate	Vehicle Type	MAN 6 x 4
Forecast Domain or Route Name	Domain 1	Associated ESS	M27 Park Gate
Salt Usage @ 20gm Dry	9.50 Tonnes	Vehicle VRN	[redacted]
Route Design Time	1 Hour 15 Mins	Vehicle Capacity	9m
Turnaround Time	20 Mins	Precautionary Time	2 Hours 40 Mins
Special Route Features			

Part	Description	No Of Lanes	Action Travel/Treat	Lane Position	Lane To Treat	Distance (Travel)	Distance (Treat)	Distance (Cumulative)
1	Leave Park Gate Depot to start M27 Junction 9 EB onslip		Travel			524		524
2	M27 Junction 9 EB onslip	2	Salt	1	1,2		719	1,243
3	End M27 Junction 9 EB onslip main carriageway to start M27 Junction 12 EB offslip H Link	3	Salt	2	1,2,3,HS		11,522	12,765
4	M27 Junction 12 EB offslip H Link keep left	2	Salt	1	1,2		1,035	13,800
5	End M27 Junction 12 EB offslip turn at Tesco roundabout and return to traffic lights M27 Onslips		Travel			2,300		16,100
6	Start Traffic lights to M275 SB Tipnor Lake Bridge M.P 46.4 via J Link	2	Salt	1	1,2		1,898	17,998
7	From Tipnor Lake Bridge turn at Tipnor Roundabout and return NB to Tipnor Lake Bridge 46.4		Travel			800		18,798
8	M275 Tipnor Lake Bridge M.P 46.4 to end of M27 Junction 12 M Link Traffic lights	2	Salt	1	1,2		2,526	21,324
9	From M27 Junction 12 traffic lights turn right via IBM turn and return to M27 Junction 12 traffic lights		Travel			2,300		23,624
10	From M27 Junction 12 traffic lights M27 Junction 12 G link to M27 WB merge	2	Salt	1	1,2		1,812	25,436
11	End M27 Junction 12 WB onslip to start M27 4 lane section M.P 43.5		Travel			1,600		27,036
12	Start M27 WB 4 lane section MP 43.5 to end 4 lane section MP 41.8	4	Salt	1	1		1,700	28,736
13	End M27 4 lane section to start M27 Junction 11 WB offslip		Travel			3,870		32,606
14	M27 Junction 11 WB offslip and WB onslip	2	Salt	1	1,2		1,434	34,040

15	End M27 Junction 11 WB onslip to start M27 Junction 10 WB offslip		Travel			893		34,933
16	M27 Junction 10 WB offslip and EB onslip	2	Salt	1	1,2		1,540	36,473
17	End M27 Junction 10 EB onslip to start M27 Junction 11 EB offslip		Travel			5,547		42,020
18	M27 Junction 11 EB offslip and EB onslip	2	Salt	1	1,2		1,134	43,154
19	From end M27 Junction 11 EB onslip (Tigertail) main carriageway to end 4 lane section MP 41.9	4	Salt	1	1		2,000	45,154
20	End M27 4 lane section EB to start M27 junction 12 EB offslip J Link		Travel			2,100		47,254
21	Start M27 Junction 12 EB offslip continue main carriageway (J Link) to merge with L Link	2	Salt	1	1,2		1,800	49,054
22	From L Link/J Link merge turn at Tipnor Bridge roundabout and return NB to start of M275 K link EB		Travel			1,600		50,654
23	Start of M275 K link to M27 EB merge Portsbridge	2	Salt	1	1,2		1,248	51,902
24	End M27 EB merge turn at A27 Eastern Road return to start of M275 L link		Travel			1,300		53,202
25	M275 L Link to Tipnor Lake Bridge MP 46.4	2	Salt	1	1,2		1,100	54,302
26	From Tipnor Lake Bridge turn at Tipnor Roundabout and return NB to start of M Link to M27 WB		Travel			1,500		55,802
27	M Link to M27 WB merge	2	Salt	1	1,2		700	56,502
28	From M link merge with M27 to end of M27 G link onslip merge with M27		Travel			600		57,102
29	M27 G Link onslip merge main main carriageway to end M27 Junction 9 WB onslip merge	3	Salt	1	1,2,3,HS		9,490	66,592
30	Return to Park Gate Depot via Junction 8		Travel			10,300		76,892
					Totals (Metres)	35,234	41,658	76,892

PG03

Area 3 Winter Service Route Schedule 2017/2018			
Route Number	PG03	Route Description	M27 / A27 / A3M
Base Compound	Park Gate	Vehicle Type	MAN 6 x 4
Forecast Domain or Route Name	Domain 1	Associated ESS	M27 Park Gate
Salt Usage @ 20gm Dry	9.00 Tonnes	Vehicle VRN	[redacted]
Route Design Time	1 Hour 05 Mins	Vehicle Capacity	9m
Turnaround Time	20 Mins	Precautionary Time	2 Hours 40 Mins
Special Route Features			

Part	Description	No Of Lanes	Action Travel/Treat	Lane Position	Lane To Treat	Distance (Travel)	Distance (Treat)	Distance (Cumulative)
1	Leave Park Gate Depot travel M27 Eb to start M27 Junction 12 EB offslip		Travel			12,300		12,300
2	Start M27 Junction 12 EB offslip main carriageway to A27 Warblington MP 54.0	3	Salt	2	1,2,3		10,200	22,500
3	A27 Warblington EB offslip	2	Salt	1	1,2		400	22,900
4	A27 Warblington WB Onslip	2	Salt	1	1,2		400	23,300
5	End A27 Warblington WB onslip to start A27 Hillsea WB offslip	3	Salt	2	1,2,3		8,277	31,577
6	A27 Hillsea WB offslip and EB onslip	2	Salt	1	1,2		950	32,527
7	End A27 Hillsea EB onslip to start of A27 Eastern Road EB offslip		Travel			673		33,200
8	A27 Eastern Road EB offslip and EB onslip	2	Salt	1	1,2		1,076	34,276
9	End A27 Eastern RD EB onslip main carriageway to start of A3M Junction 5 NB Offslip	4	Salt	1	1		1,600	35,876
10	A3M Junction 5 NB offslip and NB onslip	2	Salt	1	1,2		1,000	36,876
11	End A3M Junction 5 NB onslip main carriageway to start A3M Junction 4 NB offslip	4	Salt	1	1		702	37,578
12	A3M Junction 4 NB offslip and SB onslip	2	Salt	1	1,2		910	38,488
13	End A3M Junction 4 SB onslip main carriageway to start A3M Junction 5 SB offslip	4	Salt	1	1		700	39,188
14	A3M Junction 5 SB offslip to Bedhampton roundabout to Broadmarsh Link back to Bedhampton via Teardrop	2	Salt	1	1,2		1,450	40,638
15	Bedhampton Roundabout to start A27 EB Broadmarsh onslip		Travel			700		41,338

16	Start A27 Broadmarsh EB onslip	2	Salt	1	1,2		635	41,973
17	End A27 Broadmarsh EB onslip to start A27 Langstone EB offslip		Travel			540		42,513
18	A27 Langstone EB offslip and EB onslip	2	Salt	1	1,2		1,201	43,714
19	End A27 Langstone EB onslip to start A27 Langstone WB offslip via Warblington		Travel			1,679		45,393
20	A27 Langstone WB offslip and WB onslip	2	Salt	1	1,2		1,284	46,677
21	End A27 Langstone WB onslip to start A27 Broadmarsh WB offslip		Travel			486		47,163
22	A27 Broadmarsh (Harts Farm) WB offslip and WB onslip	2	Salt	1	1,2		1,541	48,704
23	End A27 Broadmarsh WB onslip main carriageway to A27 Eastern Rd WB offslip	4	Salt	1	1		1,147	49,851
24	A27 Eastern Rd WB offslip and WB onslip	2	Salt	1	1,2		1,214	51,065
25	End A27 Eastern Rd WB onslip to start A27 Hillsea WB offslip		Travel			709		51,774
26	Start A27 Hillsea WB offslip to end M27 Junction 12 G Link merge	3	Salt	2	1,2,3		3,100	54,874
27	End M27 G Link onslip merge to start M27 Junction 9 WB offslip		Travel			12,107		66,981
28	M27 Junction 9 WB offslip	2	Salt	1	1,2		1,800	68,781
29	Return to Park Gate Depot		Travel				700	69,481
					Totals (Metres)	29,194	40,287	69,481

SW01

Area 3 Winter Service Route Schedule 2017/2018			
Route Number	SW01	Route Description	M4 MAIN & SLIPS
Base Compound	Shefford Woodlands	Vehicle Type	MAN 6 x 4
Forecast Domain or Route Name	Domains 3,5	Associated ESS	M4 Chieveley Membury
Salt Usage @ 20gm Dry	8.50 Tonnes	Vehicle VRN	[redacted]
Route Design Time	1 Hour 5 Mins	Vehicle Capacity	9m
Turnaround Time	20 Mins	Precautionary Time	2 Hours 40 Mins
Special Route Features			

Part	Description	No Of Lanes	Action Travel/Treat	Lane Position	Lane To Treat	Distance (Travel)	Distance (Treat)	Distance (Cumulative)
1	Leave Shefford Depot to start of M4 Junction 14 WB onslip		Travel			1,920		1,920
2	Start Junction 14 WB onslip to end Junction 14 WB Onslip	2	Salt	1	1,2		798	2,718
3	End Junction 14 WB Onslip to start Membury ServicesWB offslip		Travel			5,400		8,118
4	Membury Services WB Offslip and WB Onslip Via Services	2	Salt	1	1,2		637	8,755
5	End Membury Services WB onslip to start Junction 15 WB Offslip		Travel			12,800		21,555
6	Start Junction 15 WB offslip to end Junction 15 EB onslip via Junction 15 roundabout	2	Salt	1	1,2		1,434	22,989
7	End Junction 15 EB onslip main carriageway to start Junction 13 EB offslip	3	Salt	2	1,2,3,HS		28,063	51,052
8	Start Junction 13 EB offslip to end Junction 13 EB offslip	3	Salt	2	1,2,3,HS		500	51,552
9	End Junction 13 EB offslip to start of Junction 13 WB onslip via roundabout		Travel			465		52,017
10	Start Junction 13 WB onslip to end Junction 13 WB Onslip	2	Salt	1	1,2		773	52,790
11	End Junction 13 WB onslip to start Junction 14 WB offslip		Travel			11,500		64,290
12	Start Junction 14 WB offslip to end Junction 14 WB offslip	2	Salt	1	1,2		555	64,845
13	End Junction 14 WB offslip to Shefford Depot		Travel			1,500		66,345
					Totals (Metres)	33,585	32,760	66,345

SW02

Area 3 Winter Service Route Schedule 2017/2018			
Route Number	SW02	Route Description	M4 MAIN & SLIPS
Base Compound	Shefford Woodlands	Vehicle Type	MAN 6 x 4
Forecast Domain or Route Name	Domains 3,5	Associated ESS	M4 Chieveley Membury
Salt Usage @ 20gm Dry	8.50 Tonnes	Vehicle VRN	[redacted]
Route Design Time	1 Hour 10 Mins	Vehicle Capacity	9m
Turnaround Time	20 Mins	Precautionary Time	2 Hours 40 Mins
Special Route Features			

Part	Description	No Of Lanes	Action Travel/Treat	Lane Position	Lane To Treat	Distance (Travel)	Distance (Treat)	Distance (Cumulative)
1	Leave Shefford Depot To Start of M4 Junction 14 EB Onslip		Travel			1,805		1,805
2	Jcn 14 EB Onslip	2	Salt	1	1,2		400	2,205
3	End Junction 14 EB Onslip to start M4 Welford EB Offslip					8,000		10,205
4	Welford EB offslip and EB onslip	1	Salt	1	1		300	10,505
5	End Welford EB Onslip off to M4 Junction 13 EB offslip exit and return on M4 WB via roundabout to end of WB onslip		Travel			4,400		14,905
6	End M4 Junction 13 WB onslip main carriageway to end of M4 junction 15 WB onslip merge	3	Salt	2	1,2,3,HS		30,874	45,779
7	End M4 Junction 15 WB onslip to end M4 Junction 16 WB offslip		Travel			8,790		54,569
8	End M4 Junction 16 WB offslip around roundabout rejoin M4 EB to start of M4 Junction 15 EB offslip		Travel			9,270		63,839
9	Start M4 Junction 15 EB offslip main carriageway to M4 Junction 15 EB onslip merge	3	Salt	2	1,2,3,HS		1,200	65,039
10	End M4 Junction 15 EB onslip to start M4 Membury Services EB offslip		Travel			12,800		77,839
11	Membury Services EB offslip and EB onslip	2	Salt	1	1,2		495	78,334
12	End Membury EB onslip to start M4 Junction 14 EB offslip		Travel			5,360		83,694
13	M4 Junction 14 EB Offslip	2	Salt	1	1,2		450	84,144
14	Return to Shefford Woodlands Depot		Travel			1,775		85,919
					Totals (Metres)	52,200	33,719	85,919

A.20 SOLID VERTICAL BARRIER SCHEDULE AND CLEARANCE PLAN

Solid Vertical Barrier Location Schedule	
Solid Vertical Barrier Reference Number: 1/ Area 3 ASC / Kier Highways	
Location	A3 Guildford Jct A31 Hogs Back
Cross Sectional Position	Central Reservation
Distance from Adjacent Running Lane	1
Construction of Adjacent Verge	Grass
Number of Running Lanes	2
Hard Shoulder Details	N/A - APTR
Slip Roads Present	A31 Merges at Hogs Back, Various Residential Entrances on N/S
Large Hatching Areas	Large Hatching adjacent to A31 Merge
Resources Required for Echelon Ploughing	Winter Service Vehicles will be used along with Depot and/or National Reserve vehicles based on the circumstances of the situation and other on-going issues on other parts of the network. Vehicles from other depots may be utilised based on severity of other areas.
VMS Available	VMS signs will be used where available to compliment Police / HATO presence if deemed necessary.
Additional Non-Dedicated Vehicles	No non-dedicated vehicles will be used under this operation, other than the resources listed above.
Assistance from External Sources	Echelon Ploughing should be undertaken under the protection of a rolling block. Assistance with this operation will be sought from the relevant RCC or Police.

Solid Vertical Barrier Location Schedule	
Solid Vertical Barrier Reference Number: 2/ Area 3 ASC / Kier Highways	
Location	A3 Guildford Wooden Bridge
Cross Sectional Position	Central Reservation
Distance from Adjacent Running Lane	1
Construction of Adjacent Verge	Grass
Number of Running Lanes	2
Hard Shoulder Details	N/A - APTR
Slip Roads Present	None
Large Hatching Areas	None
Resources Required for Echelon Ploughing	Winter Service Vehicles will be used along with Depot and/or National Reserve vehicles based on the circumstances of the situation and other on-going issues on other parts of the network. Vehicles from other depots may be utilised based on severity of other areas.
VMS Available	VMS signs will be used where available to compliment Police / HATO presence if deemed necessary.
Additional Non-Dedicated Vehicles	No non-dedicated vehicles will be used under this operation, other than the resources listed above.
Assistance from External Sources	Echelon Ploughing should be undertaken under the protection of a rolling block. Assistance with this operation will be sought from the relevant RCC or Police.

Solid Vertical Barrier Location Schedule	
Solid Vertical Barrier Reference Number: 3/ Area 3 ASC / Kier Highways	
Location	M27 Junction 3 – 4 M.P 11.0 – 15.1
Cross Sectional Position	Central Reservation
Distance from Adjacent Running Lane	1
Construction of Adjacent Verge	Hard Shoulder
Number of Running Lanes	3
Hard Shoulder Details	Standard Width Hard Shoulder – No note-worthy features
Slip Roads Present	None
Large Hatching Areas	None
Resources Required for Echelon Ploughing	Winter Service Vehicles will be used along with Depot and/or National Reserve vehicles based on the circumstances of the situation and other on-going issues on other parts of the network. Vehicles from other depots may be utilised based on severity of other areas.
VMS Available	VMS signs will be used where available to compliment Police / HATO presence if deemed necessary.
Additional Non-Dedicated Vehicles	No non-dedicated vehicles will be used under this operation, other than the resources listed above.
Assistance from External Sources	Echelon Ploughing should be undertaken under the protection of a rolling block. Assistance with this operation will be sought from the relevant RCC or Police.

Solid Vertical Barrier Location Schedule	
Solid Vertical Barrier Reference Number: 4/ Area 3 ASC / Kier Highways	
Location	M27 Junction 11 M.P 40.3 – 43.5
Cross Sectional Position	Central Reservation
Distance from Adjacent Running Lane	1
Construction of Adjacent Verge	Hard Shoulder
Number of Running Lanes	3
Hard Shoulder Details	Standard Width Hard Shoulder – No note-worthy features
Slip Roads Present	None
Large Hatching Areas	None
Resources Required for Echelon Ploughing	Winter Service Vehicles will be used along with Depot and/or National Reserve vehicles based on the circumstances of the situation and other on-going issues on other parts of the network. Vehicles from other depots may be utilised based on severity of other areas.
VMS Available	VMS signs will be used where available to compliment Police / HATO presence if deemed necessary.
Additional Non-Dedicated Vehicles	No non-dedicated vehicles will be used under this operation, other than the resources listed above.
Assistance from External Sources	Echelon Ploughing should be undertaken under the protection of a rolling block. Assistance with this operation will be sought from the relevant RCC or Police.

Solid Vertical Barrier Location Schedule	
Solid Vertical Barrier Reference Number: 5/ Area 3 ASC / Kier Highways	
Location	A27 Havant Bypass M.P 50.7 – 54.0
Cross Sectional Position	Central Reservation
Distance from Adjacent Running Lane	1
Construction of Adjacent Verge	Grass
Number of Running Lanes	2
Hard Shoulder Details	N/A
Slip Roads Present	None
Large Hatching Areas	None
Resources Required for Echelon Ploughing	Winter Service Vehicles will be used along with Depot and/or National Reserve vehicles based on the circumstances of the situation and other on-going issues on other parts of the network. Vehicles from other depots may be utilised based on severity of other areas.
VMS Available	VMS signs will be used where available to compliment Police / HATO presence if deemed necessary.
Additional Non-Dedicated Vehicles	No non-dedicated vehicles will be used under this operation, other than the resources listed above.
Assistance from External Sources	Echelon Ploughing should be undertaken under the protection of a rolling block. Assistance with this operation will be sought from the relevant RCC or Police.

Solid Vertical Barrier Location Schedule	
Solid Vertical Barrier Reference Number: 6 / Area 3 ASC / Kier Highways	
Location	M3 Jct 4A – Kitsmead
Cross Sectional Position	Central Reservation
Distance from Adjacent Running Lane	1
Construction of Adjacent Verge	Grass
Number of Running Lanes	4
Hard Shoulder Details	No Hard Shoulder – Communications with Area 5 must take place to agree snow clearance priorities and position
Slip Roads Present	None
Large Hatching Areas	None
Resources Required for Echelon Ploughing	Winter Service Vehicles will be used along with Depot and/or National Reserve vehicles based on the circumstances of the situation and other on-going issues on other parts of the network. Vehicles from other depots may be utilised based on severity of other areas.
VMS Available	VMS signs will be used where available to compliment Police / HATO presence if deemed necessary.
Additional Non-Dedicated Vehicles	No non-dedicated vehicles will be used under this operation, other than the resources listed above.
Assistance from External Sources	Echelon Ploughing should be undertaken under the protection of a rolling block. Assistance with this operation will be sought from the relevant RCC or Police.

Solid Vertical Barrier Location Schedule	
Solid Vertical Barrier Reference Number: 7 / Area 3 ASC / Kier Highways	
Location	M3 Jct 5 – Jct 6 M.P 67.7 – 71.3
Cross Sectional Position	Central Reservation
Distance from Adjacent Running Lane	1
Construction of Adjacent Verge	Hard Shoulder
Number of Running Lanes	3
Hard Shoulder Details	Standard Width Hard Shoulder – No note-worthy features
Slip Roads Present	None
Large Hatching Areas	None
Resources Required for Echelon Ploughing	Winter Service Vehicles will be used along with Depot and/or National Reserve vehicles based on the circumstances of the situation and other on-going issues on other parts of the network. Vehicles from other depots may be utilised based on severity of other areas.
VMS Available	VMS signs will be used where available to compliment Police / HATO presence if deemed necessary.
Additional Non-Dedicated Vehicles	No non-dedicated vehicles will be used under this operation, other than the resources listed above.
Assistance from External Sources	Echelon Ploughing should be undertaken under the protection of a rolling block. Assistance with this operation will be sought from the relevant RCC or Police.

Solid Vertical Barrier Location Schedule	
Solid Vertical Barrier Reference Number: 8 / Area 3 ASC / Kier Highways	
Location	M4 Jct 14 – Jct 15 M.P 107.3 – 116.6
Cross Sectional Position	Central Reservation
Distance from Adjacent Running Lane	1
Construction of Adjacent Verge	Hard Shoulder
Number of Running Lanes	3
Hard Shoulder Details	Standard Width Hard Shoulder – No note-worthy features
Slip Roads Present	Membury Services at M.P 110.0 East & West
Large Hatching Areas	None
Resources Required for Echelon Ploughing	Winter Service Vehicles will be used along with Depot and/or National Reserve vehicles based on the circumstances of the situation and other on-going issues on other parts of the network. Vehicles from other depots may be utilised based on severity of other areas.
VMS Available	VMS signs will be used where available to compliment Police / HATO presence if deemed necessary.
Additional Non-Dedicated Vehicles	No non-dedicated vehicles will be used under this operation, other than the resources listed above.
Assistance from External Sources	Echelon Ploughing should be undertaken under the protection of a rolling block. Assistance with this operation will be sought from the relevant RCC or Police.

A.21 SMART MOTORWAY SNOW CLEARANCE PLANS

Box of reference

APPENDIX B – SUPPORTING INFORMATION

B.1 DEFINITIONS AND ABBREVIATIONS

The National Severe Weather Warning System (NSWWS) – Providing warnings, mainly for Category 1 and 2 responders (as defined in the Civil Contingencies Act 2004), of Severe Weather.	
Regional advisory of severe or extreme weather warning (Advisory)	Advisories are issued by 1300hrs daily as routine and indicate confidence of expected Severe Weather (or unusual extreme weather). Early and flash warnings supersede advisories when confidence levels are 60% or greater.
UK Advanced warning of Severe Weather (early warning)	An early warning of Severe Weather will normally be issued up to several days in advance whenever the overall risk of widespread disruption in any UK region is 60% or greater.
Regional Severe Weather warning (flash warning)	Flash warnings of Severe Weather are issued when confidence of an event reaching the Severe Weather criteria is above 80%, and should give a minimum of two hours' notice. Warnings are issued for every affected county or unitary authority.
Flood Forecasting Centre (EA/Met Office) – Alerting emergency responders in England and Wales to the possibility of urban surface water flooding as a result of extreme rainfall.	
Extreme Rainfall Alert (ERA)	Alert issued when there is a 20% or greater probability of exceeding the following extreme rain thresholds: 30mm per hour; 40mm in three hours or; 50mm in six hours.
The Environment Agency Flood Warning System – warnings of river and coastal flooding.	
Flood watch	Flooding of low lying land and roads is expected. Be aware, be prepared, watch out.
Flood warning	Flooding of homes and businesses is expected. Act now!
Severe flood warning	Severe flooding is expected. There is extreme danger to life and property. Act now!
All clear	Flood Watches or Warnings are no longer in force for this area.
Met Office Severe Weather Warnings – Flash warnings for a range of weather conditions which are not unusual. The conditions below, defined by the Met Office, give guidance concerning the weather likely and the criteria for issue of the flash warnings.	
Heavy rain	Expected to persist for at least 2 hours and to give at least 15mm of rain within a 3 hour period or:- More than 25mm per day on already saturated ground.
Fog	Warnings of fog are issued when visibility is expected to fall below 50 metres, at which severe disruption to transport can be expected.
Heavy snow	Snow falling at a rate of 2cm/hour or more expected for at least 2 hours.
Very heavy snow	Heavy snow which accumulates to 15cm or more
Blizzards	Moderate or heavy snow combined with winds of 30mph or more with visibility reduced to 200 metres or less; or drifting snow giving rise to similar conditions.
Severe blizzard	Heavy snow accompanied by winds of 30mph or more, reducing visibility to near zero.
Widespread icy roads, glazed frosts and freezing rain	Icy roads occur when the road surface temperature of wet roads drops below zero and ice is formed. Freezing rain occurs when rain becomes 'super-cooled' and when it hits a cold surface it freezes immediately and forms a layer of clear ice.
Severe gales	Repeated gusts of 70mph or more over inland areas, with a risk to high-sided vehicles being blown over.
Storms	Repeated gusts of 80mph or more over inland areas, which could cause cars to be blown out of their lane on the carriageway, which may cause traffic collisions.

Met Office Heat-Health Watch – this system identifies four levels of response based upon thresholds	
High temperatures, Heat wave	The temperature thresholds vary by region, but an average threshold temperature is 30°C by day and 15°C by night on at least two consecutive days and the intervening night.
Facilities	
Depot	Any depot facility or compound either owned or leased by Highways England, or leased by a Service Provider / DBFO company for the purpose of delivering Severe weather activities, routine maintenance and incident response as part of the contract.

Reserve Winter Service Vehicles	
Reserve Threshold	The Reserve Threshold is the point at which the number of Area Operational Reserve Winter Service Vehicles available to be utilised are reduced to a point which could make it difficult to maintain the optimum level of Winter Service on the Area Network. This threshold level is proposed by the Service Provider for agreement with the Service Manager.
Critical Incident	A Critical Incident is when the reserve winter fleet situation / reserve winter fleet availability reaches a level that seriously impacts upon Highways England and its ability to maintain a safe Area Network during.
Area Operational Reserve	An Area Operational Reserve is all Winter Service Vehicle assigned to a particular Area that may be in rotation and not currently designated a specific precautionary treatment route. It will be required to carry out treatments on the Area Network when a vehicle that has been designated a particular treatment route is unavailable or becomes the Operational Winter Service Vehicle as part of the rotation. These vehicles may be designated to a specific snow clearance route, or vulnerable location to support Operational Winter service Vehicles. The use of an Area Operational Reserve does not require specific approval from Highways England.
National Reserve	A National Reserve is a Winter Service Vehicle that is held in a particular Area, but may be transferred to any part of Highways England's strategic road Network to help manage Severe Weather incidents. The use of National Reserves requires specific approval from Highways England
Extra Effort Vehicles	Additional non- Highways England owned vehicles required to supplement the allocated operational, reserve vehicles and national reserve vehicles that may be required during sustained periods of snowfall or extreme cold
Salt Stock	
Operational Salt Stock	The salt that the Service Provider purchases, manages and uses to provide the lump sum routine Winter Service as defined in the AMOR or within the RWSC / NMM.
Current Maximum Storage Capability (CMSC)	This is the total storage capacity currently available in storage facilities provided by Highways England under the contract.
Operational Salt Stock at Start of Season	The minimum volume of salt required to be in place within the Area concerned by 1st September each year. If this figure exceeds storage capacity as defined by the CMSC, the service provider will be required to provide the additional storage capacity.
Minimum Contractual Salt Stock Level	The minimum operational salt stock level that must be maintained from 1st October each year to 1st April of the following year.
Minimum Capability	The capability level, in days, assuming all salt storage facilities are at the Minimum Contractual Stock Levels
Reporting Threshold	Is the capability level at which point salt supplies will be considered to be approaching critical and will be the threshold for the automatic re-ordering of salt. This definition, which now relates directly to acquiring immediate salt supplies, should be considered in detail by Service Providers to ensure they set an appropriate reporting threshold profile.

Abbreviations			
CCTV	Closed Circuit Television	NVRM	National Vehicle Recovery Manager
CMM	Crisis Management Manual	RCC	Regional Control Centre
DBFO	Design Build Finance & Operate	SP	Service Provider
DfT	Department for Transport	SWIS	Severe Weather Information Service
		TOS	Traffic Officer Service
ESS	Environmental Sensor Station	VMS	Variable Message Sign
NILO	National Incident Liaison Officer	VRN	Vehicle Registration Number
NTOC	National Traffic Operations Centre	WMO	Winter Maintenance Officer

B.2 SEVERE WEATHER PLAN EXERCISES AND BRIEFINGS

Severe Weather such as snow or flooding has the potential to cause significant disruption to the network, affect road users safety and have a detrimental effect in our role in supporting the UK economy. An integral part to Highways England's preparedness is the continuous improvement cycle building on lessons learnt and further enhancing our capability in dealing with these events**.**

Severe Weather Plan Exercises

Service Provider will plan and deliver a Severe Weather Plan exercise. The purpose of the Severe Weather Plan exercise is to test the preparedness of the service provider's severe weather service provision and the relationships between Highways England, its Service Providers and stakeholders, and building on lessons learned from the previous weather events.

In particular, annual exercising of winter service and other weather scenarios continues to bring benefit to attendees and is a mandatory element of the winter season preparation.

Planning for the exercise must be in consultation with Service Manager, Emergency Planning Managers and the National Winter and Severe Weather Team.

Approach

Each area or region should have a 'planning team'; the team consisting of the following participants:

- Service Provider
- Service Manager (or their representative)
- Regional Emergency Planning Teams (such as EPMs)
- National Severe Weather Specialists (when available)

Pre-event planning meetings must be undertaken to confirm the scope, format and content of the exercise and briefing sessions. This will also define who will help to facilitate multi agency representation, and to ensure that any broader scenarios are developed. One option is to undertake a discussion-based exercise as opposed to more onerous 'table top' or 'live' exercises.

Attendees

Operational staff are key to the exercise therefore staff as appropriate should be invited.

Other stakeholders should also be invited to attend such as, national traffic operations centre (NTOC), national incident liaison officers (NILO), RCC staff, regional communications / media, local highways authorities (LHA), Police, traffic officer service (TOS), and national vehicle recovery service (NVRS) . However consideration must be given that they may also be asked to participate in exercises or briefings conducted by other Areas.

Representatives from the National Winter & Severe Weather Team will support the process and should be invited to attend.

Objectives

Key Objectives for the exercises are listed below. Service Providers will be asked to demonstrate their approach to delivering these objectives through the feedback process.

	Objective	Detail
1	Review resilience of service during a winter weather event lasting longer than 24 hours	Review the capability for delivering winter service operations for a winter (Snow or Ice) event lasting longer than 24 hours, including arrangements for dealing with business continuity issues. Other areas to consider are vehicle fleet, fuel supply, salt supply, driver availability, resourcing issues and staff welfare during extended periods of winter weather. Avoid 'best endeavor' approaches
2	Test the reactive service delivery response.	Consider scenarios regarding late deployment and having to 'catch up' after un-expected snow fall or snow or ice event far in excess of original forecast. Consider potential impact of shift change on service delivery, congestion or incidents and what measures should be implemented. Consider snow ploughing techniques where necessary to recover the network.
3	Test responses to a non-winter severe weather event on critical part of the area network or vulnerable location	Review the effectiveness of plans when dealing with a severe weather event (storm force winds, heavy rain, or flooding)
4	Review the decision making and monitoring process for forecasts with heavy hoar frosts (or with forecasts and conditions typically experienced during a previous winter season)	Review the effectiveness of plans when dealing with: • Heavy hoar frost forecast; • Marginal forecasts following wet and milder periods (with minimal or no residual salt level); & Treatments prior to low traffic volume conditions and locations

Service Providers may look to incorporate aspects of service where they feel new risks may be particularly relevant, such as parts of the network with managed motorway or all lanes running sections or vulnerable locations.

Focus for the event should remain on service delivery aspects and not get too drawn into detailed incident management or Command and Control aspects. However, conversely should not totally exclude any references or links.

Service Provider will plan exercises to test critical and vulnerable points in their winter response, and identified objectives, and strive to identify areas for improvement. Exercises are to be delivered by the end of October.

Timescale

As defined in the section 1.3 the Severe Weather Plan exercises should be delivered by '**no later than end of October'** during each winter period.

Severe Weather Briefings

Service Providers are to hold Severe Weather briefing sessions with representatives from key stakeholders, including Traffic Officer Service, RCC, Local Highway Authorities, Emergency Services and Highways England Regional Press Officers.

The locations for these briefing sessions is flexible but Service Providers should consider including regional control centres RCC's,

The purpose of the briefings is to provide a platform for Service Providers to discuss effective communication and co-ordination with all key stakeholders within the region or area.

Information Service Providers might want to include:

- Detail key changes to the area Severe Weather Plan
- Detail and discuss what arrangements are in place to manage inbound and outbound communications
- Explain Highways England policy and how it is implemented out on the network
- Explain how winter service delivery is conducted
- Describe the operational response to local and critical infrastructure
- Discuss cross boundary arrangements – what are the impacts of a LHA road adjoining the network been closed.
- Explain the 'out of hours' winter service. Explain how services are delivered, what information is useful to Service Providers and when
- A day in the life of a winter decision maker / operative
- Service Providers must reinvigorate the content of sessions to ensure relevance and maximise effectiveness.

Attendance

Stakeholders should be invited to attend such as, national traffic operations centre (NTOC), national incident liaison officers (NILO), RCC staff, regional communications / media, local highways authorities (LHA), Police, traffic officer service (TOS), and national vehicle recovery service (NVRS) . However consideration must be given that they may also be asked to participate in exercises or briefings conducted by other Areas.

Resources

A severe weather briefing powerpoint template is not provided. Service Providers can create their own or use other forms of digital media as appropriate.

Any media must comply with Highways England's visual identity specification.

Feedback and Action Planning from Exercises and Briefings

Capturing information to support the effectiveness of these events is important to the continuous improvement cycle.

Attendance Registers

Service Provider Must submit the list of attendees at the Severe Weather briefings and exercises to the National Winter and Severe Weather Team via email [redacted].

This must be returned by the 12th December. An example of the attendance registers are shown below.

Register of Attendees – Severe Weather Plan Exercises			
Date of Event:			
Location			
Name	Signature	Organisation	Position

Register of Attendees – Severe Weather Briefings			
Date of Briefing:			
Location:			
Briefing Carried Out By:			
Name	Signature	Organisation	Position

Summary Of Actions

Service Provider must capture the outputs and actions from exercises and briefings into action plans / reports and submit to the Service Manager and to the National Winter and Severe Weather Team ([redacted]). This will ensure issues can be considered for inclusion in the National Severe Weather Programme. A sample template for the 'Summary of Actions' is provided below. **These must be returned by the 12th December.**

Summary of Actions					
Ref	Category	Summary of Issue / Finding	Proposed Action required	Owner	Date to Action by

Service providers may capture this information within a Severe Weather Action Plan (SWAP) as an alternative document, and make this available to the National Winter & Severe Weather Team for review.

Exercise and briefings - Attendee feedback

Service Providers and attendees will be asked to complete a short survey. This will be issued separately in an email either as an online survey or MS word or excel document. .

The survey will be available from 1st October until; 7th December 2016. All attendees at exercises and briefings must be encouraged to complete. All email returns will be made to [redacted].

B.3 WEATHER INFORMATION

The Service Provider requires a robust information service to provide it with accurate real-time data on both weather forecasts and actual road conditions. The road weather forecasting service to be procured by the Service Provider is detailed below.

Weather forecasting

For the avoidance of doubt, there will be no bureau, transmission, service or data management fees incurred by organisations sending, receiving or viewing data provided via SWIS.

The name of the Forecast Provider, forecaster, the date and the time of issue must be recorded with all forecasts. All forecasts shall advise validity as a start date/time and end date/time.

Frequency and intensity of forecast information

Field	Frequency	Data Intensity
Morning Summary	06:00 Daily	Single Field
24 Hour Forecast (Text)	Operational Winter Period: 06:00, 12:00 and 18:00 Daily Operational Summer Period: 06:00 Daily	Single Field
24 Hour Forecast (Domains)	Operational Winter Period: 06:00, 12:00 and 18:00 Daily Operational Summer Period: 06:00 Daily	For each domain, daily.
2-10 Day Forecast	12:00 Daily Operational Summer Period: 06:00 Daily	Day 2 to 5 – Area based, daily Day 6 to 10 – Single Field
Site Specific Forecast	Operational Winter Period:12:00 Daily Operational Summer Period: None	For each domain, hourly.

The parameters forecast will vary between the Operational Winter and Summer Periods. The following table details which forecast parameters are to be provided.

Forecast Parameter	Winter	Summer
Minimum road surface temperature	✓	×
Maximum road surface temperature	×	✓
Minimum air temperature	✓	×
Maximum air temperature	×	✓
Dew point / Relative humidity	✓	×
Surface state	✓	×
Wind speed (various)	✓	✓
Wind direction	✓	✓
Accumulations of snow (depth)	✓	×
Visibility	✓	✓
Pollen count	×	✓
UV factor	×	✓
Snow level (ht above sea level)	✓	×
Hazard – Ice	✓	×
Hazard – Heavy Rain	✓	✓
Hazard – Freezing Rain	✓	×
Hazard – High Temperature	×	✓
Hazard – Hoar frost	✓	×
Hazard – Fog	✓	✓
Hazard – Snow	✓	×
Alert Level	✓	×

24 Hour Forecast

The 24 hour forecast consists of two parts; a 24 hour text forecast and a domain forecast in tabular format. During the Operational Winter Period a detailed 24-hour text forecast and a domain forecast should be updated and delivered at 06:00, 12:00 and 18:00.

During the Operational Summer Period a detailed 24-hour text and domain forecast shall be updated and delivered daily at 06:00 covering the 24-hour period from 06:00 to 06:00.

Additional optional elements can be included at the request of Service Providers. These may include:

- Extension of forecast periods from the forecast issue time up to thirty six hours ahead;
- Addition of a 00:00 text forecast;

Text Forecast

The 24 hour text forecast will be valid for the ensuing 24 hour period from the prescribed issue time.

The text of this forecast must include:

- Headline description of the forecast weather conditions
- A general synopsis, with timings, over the following 24 hours, including:
    - Summary of the meteorological synoptic situation with timings of significant meteorological changes during the forecast period with particular reference to hazards such as snow, ice, hail, hoarfrost, freezing rain (including supercooled and rain falling on frozen surfaces), wind, fog, lightning and rain/showers which are expected to affect any of the agreed SWIS forecast domains.
    - Expected road surface conditions indicating whether roads are likely to be dry or wet.
    - Onset, duration and intensity of hazards such as rain, hail, sleet, snow, rain falling on frozen surfaces and freezing rain, including potential accumulations of snow on road surfaces described in centimetres (assuming no treatment has been undertaken).
    - Relative humidity and dew point, including a warning of any predicted combination of low temperature and low humidity conditions (less than 60%).
    - The likelihood and timing of any precipitation or deposition on road surfaces and the likelihood of surface water on the carriageway.
    - If snow is forecast, its timing, amount and type and the direction from which the snow will develop, the likelihood of drifting and the height above which accumulation is likely.
    - Visibility – danger of thick fog (<1000 m visibility) or freezing fog formation, the location and timing.
    - UV factor and pollen count.
- Average wind speed, direction and maximum gust speed at six hour intervals from the time of forecast.
- General confidence level in the forecasts (low, medium or high as per following table)
- General alert level

Level 0 (Green)	There are no expected hazards on the road surface and road surface temperatures are expected to be above +1°C when confidence is high or above +2°C for all other occasions.
Level 1 (Amber)	• Road surface temperatures are expected to be between +1°C and +2°C when the confidence is low. • Road surface temperatures less than or equal to +1°C and greater than or equal to zero. • Road surface temperatures below zero but road surfaces are expected to remain dry.
Level 2 (Red)	Road surface temperatures are expected to be below zero and road surface hazard(s) exist. Road surface hazard include ice, snow, freezing rain and hoar frost.

Domain Forecast

The domain forecast will have a variable validity period as follows:

Winter Operational Period

- 0600 domain forecast validity period will be 1200 to 0600
- 1200 domain forecast validity period will be 1200 to 1200
- 1800 domain forecast validity period will be 1800 to 1200

Summer Operational Period

- 0600 domain forecast validity period will be 0600 to 0600

By domain, the following information shall be provided, where appropriate including an indication of confidence level as High, Medium and Low and the period of occurrence (including zero crossing point):

- Minimum and maximum road surface temperature
- Minimum and maximum air temperature
- Accumulation of snowfall on road surfaces and height above sea level
- Occurrence of ice, heavy rain, high wind, freezing rain, high temperatures, hoar frost and fog
- Alert level

Additional optional elements can be included at the request of Service Providers. These may include:

- Urban/rural road surface temperatures
- Bridge deck temperatures

2-10 Day Forecast

A 2-10 day forecast must be obtained with the 24-hour forecast. The first element of this forecast must detail anticipated conditions in 24-hour periods for days 2-5. The 24 hour periods must be 1200 to 1200 during the Winter Operational Period and 0600 to 0600 during the Summer Operational Period. The parameters to be forecast will differ between the Summer and Winter Operational Periods and should comply with the table on page B.2-2. The forecast must include:

- A general synopsis and anticipated trends over the period with particular emphasis on the following hazards: Hoar frost, ice, snow, drifting, freezing rain, rain falling on frozen surfaces, heavy rain, fog and strong wind.
- Daily general alert level
- Maximum and minimum road surface temperatures
- Maximum and minimum air temperature
- Occurrence of snow, ice, heavy rain, high wind, freezing rain, high temperatures, hoar frost and fog
- UV Factor
- Pollen count
- Confidence level in the forecasts (low, medium or high)

A second, text element of this forecast must also include a general synopsis and anticipated trends over the 6-10 day period with particular emphasis on the following hazards: Hoar frost, ice, snow, drifting, freezing rain, rain falling on frozen surfaces, heavy rain, fog and strong wind.

Site Specific Forecasts

Detailed 24-hour site specific forecasts must be delivered between 12:00 and 14:00 for all primary environmental sensor stations. These forecasts apply for the Operational Winter Period and must include on an hourly basis:

- Road surface temperature
- Air temperature
- Dew temperature
- Surface state

Additional optional elements can be included at the request of Service Providers. These include:

- Wind speed
- Rain state
- Cloud state
- Cloud amount
- Textual site specific forecasts

Further Updates of Forecasts

Forecast updates apply to 24-hour forecasts and site specific forecasts. Whenever a change to any forecast occurs the text forecast will also be re-issued with explanatory notes in the headline along with any other associated changes to the forecast.

In the event of the update criteria being met the procedure shall be to notify the client immediately whenever the change will have an impact on proposed salting operations then re-issue the amended forecasts as appropriate. Notice shall be provided by telephone to the client no more than 1 hour following the criteria being met and the updated forecast shall be issued within a further hour. Updates should only be issued between 18:00 and 06:00 or during the overall hazard period; however the following shall apply in all cases:

The forecast provider shall take note of proposed Service Provider actions and in the event of a weather forecast changing or actual weather occurring that could result in a change of action by the Service Provider, the Forecast Provider shall take appropriate action to inform the Service Provider in advance of the changed weather forecast.

The suggested standard update criteria are as follows:

- A change in the forecast or an actual event occurring that could result in a change in the action taken by the client. This includes changes such as:
    - When hazardous conditions are sufficiently more intense or the timing has changed by two or more hours which, in the Forecast Provider's opinion, may impact on salting operations.
    - When road state changes or snow, ice, heavy rain, high wind, freezing rain, high temperatures, hoar frost and fog are present when they have not previously been forecast.
    - A road surface temperature crossing either the 1°C or 0°C threshold two hours earlier than previously forecast or when not previously forecast to do so.

- A significant difference in any precipitation forecast which, in the forecast provider's opinion, may affect the salting times, e.g. showers lasting later into the evening than originally forecast.
- A significant change in any snow forecast, e.g. a change in timing, intensity, accumulations or the level to which it will fall.
- When the actual road surface temperature is between plus 5°C and 2°C or 0°C and minus 5°C, if the forecast and actual road surface temperature deviates by 2°C or more for a sustained period of more than 1 hour.
- When the actual road surface temperature is between plus 2°C and 0°C, if the forecast and actual road surface temperature deviates by 1°C or more at any point.

In addition, exceptions to normal practice are as follows:

- In the event of forecast winter hazard, such as frost, ice or snow, during the Operational Summer Period the 24-hour forecast, domain forecast and site specific forecast will revert to that of the Operational Winter Period

In the event of a primary forecast site failing for a period of over a month, the Forecast Provider shall transfer forecast provision to the secondary environmental sensor stations within the climatic domain.

Morning Summary

A morning summary must be issued between 05:00 and 06:00. The text of this report should include:

- A brief summary of weather experienced over the previous 24 hours
- Notification of any suspected faults in the Highways England Weather Information Service.

Traffic Officer Service Requirements

Some mandatory and optional elements of the service may be required by the TOS in the delivery of their duties. This information will be provided, where available, through SWIS. The Service Provider shall therefore liaise with the TOS to identify any optional requirements they need for the Service Manager to consider.

24 Hour Consultancy Service

The Service Provider shall ensure that the Forecast Provider is available by telephone 24 hours a day, 7 days a week, throughout the year for consultation on the weather conditions and details of forecasts. The Service Provider should ensure that the Forecast Provider provides a response within five minutes of any Service Provider enquiry.

End of Season Analysis

At the end of each Operational Winter Period, the Service Provider must ensure that the Forecast Provider produces an Operational Assessment Report. This report will include details on the accuracy of forecasts based on information contained in SWIS. For each forecast site, this analysis must include:

- A graphical representation of actual versus forecast minimum road surface temperatures
- A graphical representation detailing the frost prediction accuracy by comparing forecast frost against actual frost conditions (i.e. frost/frost, frost/no frost, no frost/frost or no frost/no frost)
- The bias and root mean square error in the forecast of minimum road surface temperature.
- Outline of lessons learned and particular successes from the previous season.

The Service Provider will retain copies of the analysis and make them available to Highways England if required.

Level of Accuracy

The accuracy of weather forecasts is fundamental to their usage in road weather forecasting, especially when applied to the Operational Winter Period. This section defines the measures that should be recorded and target results. The responsibility for ensuring the forecast supplier is meeting accuracy targets is with the Service Provider.

The terms below should be used as defined terms for the purposes of measuring accuracy consistently:

- e = Error between the coldest actual road surface temperature and the associated forecast road surface temperature
- n = Number of nights within the forecast period
- FF = Number of occasions where a frost was forecast and frost occurred (accurate)
- FNF = Number of occasions where a frost was forecast and no frost occurred (potential wastage)
- NFF = Number of occasions where no frost was forecast and frost occurred (potential risk)
- NFNF = Number of occasions where no frost was forecast and no frost occurred (accurate)
- A critical night is a night where the actual road surface temperature in degrees centigrade falls within the range: $-5 \leq T \leq +5$
- A frost on this occasion is deemed to occur when the forecast or actual road surface temperature is at or below 0°C.
- The final forecast is either the 18:00 forecast, or any ad-hoc forecast prior to 00:00.

The accuracy measures shall be:

- Percentage of forecasts not delivered before the target time, including ad-hoc forecasts within prescribed timescale for delivery following identification.
- Number of phone calls not answered by a forecaster within 5 minutes
- Route Mean Square Error
    - The Route Mean Square Error (RMSE) is to be assessed on all nights based on initial forecast and final forecast.
    - The equation for calculating the RMSE is: $\left[\frac{1}{n}\sum_{i=1}^{n} e_i^2\right]$
    - Performance should be as close to 0 as possible, and should generally be less than 2.
- Bias
    - The bias is to be assessed on all nights based on initial forecast and final forecast.
    - The equation for calculating the bias is: $\left[\frac{1}{n}\sum_{i=1}^{n} e_i\right]$

- Performance should be as close to -0.25 as possible, and should generally be in the range +1 to -1.

- Probability of Detection
  - Probability of Detection (PoD) is to be assessed on all nights, and also just critical nights. PoD should be assessed on initial forecast and final forecast.
  - The equation for calculating PoD is: $\left[\frac{FF}{(FF + NFF)}\right]$
  - Performance should be as close to 100% as possible, and should not be less than 87%.

- False Alarm Rate
  - False Alarm Rate (FAR) is to be assessed on all nights, and also just critical nights.
  - The equation for calculating FAR is: $\left[\frac{FNF}{(FF + FNF)}\right]$
  - Performance should be as close to 0% as possible, and should not be more than 30%.
  - FAR should be assessed on initial forecast and final forecast.

- Accuracy
  - Accuracy is to be assessed on all nights, and also just critical nights. Accuracy should be assessed on initial forecast and final forecast.
  - The equation for calculating accuracy is: $\left[\frac{(FF + NFNF)}{(FF + NFNF + FNF + NFF)}\right]$
  - The accuracy of road weather forecasts should be no less than 90%.

Occasions where less than one observation per hour for ten out of twelve hours between 18:00 and 06:00 will not be included in calculations. For periods where a potentially faulty sensor has been identified these may be discounted from the calculations providing a fault report has been raised with the SWIS Provider.

Precipitation Radar, Satellite Images and Forecast Mapping

SWIS will make the following services available to all users. The information has been procured centrally via the Met Office.

- Precipitation Radar
  - Actual (current and historic) radar will be available for the previous 2 hours with images at five minute intervals. Forecast radar images will be available for the coming 6 hours with images at 1 hour intervals. The images will show the intensity of precipitation and provide an indication of whether the precipitation will fall as rain, freezing rain, snow or sleet.

- Satellite Images

- Visible light and infrared images for the entire UK, displayed on a mapping system. The images from the previous 2 hours will be available at fifteen minute intervals.

- Forecast Mapping
    - Synoptic charts / forecast mapping showing pressure (including an indication of weather fronts and areas of low or high pressure), precipitation, wind speed/direction and fog risk. Visibility, wind speed and wind direction forecast maps will be available at 3 hour intervals for the upcoming 36 hours, updated every 6 hours. Surface pressure / weather front forecast maps will be available at 12 hourly intervals for the upcoming 84 hours.

The above descriptions are the minimum information to be provided. The Service Provider will consider the information available via SWIS and if more detailed, or alternative, information is required this should be procured by the Service Provider. Any additional forecast imagery will not be displayed via SWIS therefore arrangements will be required to access it via the forecaster provider's website.

Network Based Forecasting

Network (or route) based forecasting is an emerging technology in highway forecasting. As a tool it provides a facility similar to thermal mapping, however as forecasts are generated at a far greater intensity (typically every 50-100m) the level of detail provided to decision makers is far greater.

Service Providers may procure network based forecasting however all standard forecast requirements must still be met. Not all aspects of network based forecasting can be displayed by SWIS. Where a Service Provider procures a network based forecast service, the domain forecast will be populated with each route as a separate domain. Arrangements should be made to access the remaining network based forecast information via the Forecast Provider's website.

Forecast Providers shall continue to provide weather forecasts for primary environmental sensors sites to enable data accuracy assessments.

Forecast Resilience

To provide resilience in the unlikely event of SWIS being unavailable, the Service Provider will ensure they have arrangements in place to receive forecasts by alternative means. This may be via email, fax or the forecast provider's own website.

B.4 ANTI-ICING/DE-ICING MATERIALS

Whatever anti-icing / de-icing material is selected the Service Provider must ensure Area Operational Winter Service Vehicles (including Reserve Vehicles) are calibrated for the anti-icer / de-icer to be spread, taking into account the moisture content and grading. Checks of both spread rate and profile (skew / distribution) throughout the Operational Winter Period are encouraged to confirm that Winter Service Vehicles are spreading correctly.

Salt

Although pre-wetted salting is Highways England preferred treatment dry salting still provides an effective reactive treatment should ice have formed or snow settled. It is also considered an acceptable treatment where Winter Service Vehicles capable of pre-wetted salting are not available.

Rock salt should be treated with an anti-caking agent before delivery and comply with the current British Standard (BS 3247:2011). 6.3mm down is the preferred gradation for use on the Network for pre-wet or dry treatments. If salt of that grading is not available either 10mm rock salt or 6-8mm marine salt make for effective alternatives, although Service Providers should remain mindful that the latter may contain stones exceeding 10mm that might pose a problem.

Trials have shown that an acceptable distribution can be achieved for both the 10mm salt and the 6-8mm marine salt using the standard settings for 6.3mm rock salt, although calibration for the different gradation is recommended. Standard spread rates may be utilised. Although the Schmidt and Romaquip spreaders have a controller option to spread 6-8mm marine salt this has not been calibrated. Although the marine salt is purer than indigenous rock salt, meaning more sodium chloride (NaCl) is delivered to the road, reductions to spread rate are not considered appropriate.

Salt storage

Salt should be stored in barns or covered in protective sheeting in a manner that avoids the ingress of moisture into the material as far as is practicable. Salt must not be stored within 4.5m of hedges or within the rooting area of trees. The Service Provider must ensure salt stockpiles do not become contaminated with foreign matter likely to cause damage to other road users and / or the Winter Service Vehicles.

The Service Provider will monitor the moisture content and gradation of particles in the stockpile on a regular basis to confirm that the salt remains in an acceptable condition. Details of such monitoring must be recorded. Salt handling during storage must be minimised as it can cause salt loss and particle breakdown.

As salt is removed from stockpiles a safe slope on the material must be maintained to protect operatives from the risk of collapse of the stockpiles. Exposed outdoor stockpiles should be formed into the shape of long rectangles. The NWSRG Practical Guide for Winter Service provides more information, available at http://www.nwsrg.org/publications/guidance.

Careful consideration will be given to drainage to prevent pollution. Guidelines on this are available within the Environment Agency's "Pollution prevention guidelines highway depots: PPG10". The Service Provider must consider using any recycled wash water, salt laden drainage and other salt containing liquids as part of a pre-wet or liquid brine treatment regime.

Salt Stock

Under the AMOR, Minimum Contractual Salt Stock Levels have been calculated for each Area, these are summarised in the following table. If AMOR specification is not in place, either through tender or negotiated route for the area concerned, salt stocks will be proposed by the Service Provider for acceptance by the Service Manager. Regular completion and submission of the Salt Capability Spreadsheet, which calculates Minimum Capability, will facilitate early identification

and appropriate escalation of any difficulties that emerge in individual areas relating to the supply of salt. The Service Provider must set an appropriate Reporting Threshold, which considers all known risk to salt supplies. This level is not prescribed, as it is dependent upon local circumstances.

Area	Current Maximum Storage Capability (t)	Minimum Operational Salt Stock Levels at Start of Season* (t)	Minimum Contractual Salt Stock Level (t)
1	10,670	9,870	3,513
2	22000	20,452	7,281
3	30,000	25,000	7,765
4	21,500	18,500	6,109
6	11,160	11,160	4,900
7	33,900*	32,400*	ALDM
8	15,100	15,100	3,981
9	46,500	35,393	12,250
10	24,430	24,430	7,909
12	25,050	24,370	8,282
13	25,600	15,958	3,878
14	15,300	11,500	4,206
Total	281,210	244,133	70,074

*Includes white salt stored at Shepshed / Felley,

Brine

Recent research identified that pre-wet spreaders are able to spread brine if the spreader is set up to do so, this may require modification of the current software to bypass the solid de-icer distribution on some vehicles. Service Providers should contact the spreader manufacturer for instructions on how to set up pre-wet spreaders to spread brine with solid de-icer in the hopper. The guidance included here is for making use of this additional benefit from those spreaders and is not solely for the benefit of Service Providers with liquid spreaders.

Brine is effective immediately after spreading and unlike solid de-icers can reduce the risk of ice formation without the need for trafficking, though can be more susceptible to wash-off after rain. Therefore, brine may be considered for an additional top-up treatment, to help activate solid de-icers, for areas with little or no traffic such as lightly trafficked slip roads and for lanes that are only trafficked for parts of the day, e.g. LBS1 of Smart Motorways.

In addition, brine may be considered as a top-up treatment option in low temperature low humidity conditions, where solid de-icers, especially dry salt and to a lesser extent pre-wetted salt, may not dissolve and become effective. The use of brine as a top-up treatment will not be subject to the treatment time requirement.

The salt concentration of the brine has a greater influence on the amount of salt on the carriageway when spreading brine compared to pre-wet salt. This is because pre-wet comprises a 70:30 ratio of dry salt: brine therefore; the dry salt component is the major contributor to the salt on the carriageway. For a brine only treatment a brine concentration of 20% means the amount of salt on the carriageway is reduced by 13%, compared to spreading a brine concentration of 23%. It is thus recommended that brine of the 23% optimum concentration is used.

The ability of the pre-wet spreaders to spread brine, without modification to the spinner, is limited by the capacity of their brine pump meaning a maximum spread rate of approximately 40g/m^2 to a single 3.6m wide lane or 20g/m^2 to two lanes of total width 7.2m. Assuming a brine concentration of 23%, this equates to a nominal dry salt spread rate of 9.2g/m^2 and 4.6g/m^2, respectively. Table B.1 illustrates the length of route that can be treated with brine using pre-wet spreaders, assuming a carriageway width of 3.6m.

Table B.1 Approximate length of route that can be treated with brine using pre-wet spreaders

Spreader	Length of treatment (km) assuming 3.6m wide carriageway			
	Nominal spread rate = 20g/m^2		Nominal spread rate = 40g/m^2	
	1 Lane	2 Lanes	1 Lane	2 Lanes
6x4 pre-wet	50	25	25	12.5
4x4 pre-wet	33.3	16.7	16.7	8.3

Brine spreading is likely to be more susceptible to the effects of wind than pre-wetted salting. It is essential that careful consideration be given to the surface condition as the presence of moisture will dilute the brine application or the residual salt present on the surface. After rainfall, untrafficked areas are likely to remain wetter for longer than trafficked areas. Furthermore, many hard shoulders are on the low side of cross falls so large areas of carriageway can drain over them.

Consideration must be given to possible differences in temperature between LBS1 of a Smart Motorway and the running lanes of the carriageway. The temperature in Lane 3 of a three lane motorway can be up to 3°C lower than Lane 1 because of the lighter traffic flows. Without the traffic the temperature difference can be even greater such that an untrafficked hard shoulder can be up to 5°C lower than Lane 1; this is particularly evident on concrete carriageways. Similar temperature differences may be evident on slip roads.

Where accurate information is available on surface temperature and surface conditions appropriate brine spread rates may be determined using Table B.2 below. It shows the minimum road surface temperatures at which freezing will not occur for brine spread rates of 20g/m^2 and 40g/m^2. It should be noted that the accuracy of spread, when using pre-wet spreaders for brine spreading, reduces when treating two lanes and the table accounts for this.

Table B.2 Effectiveness of brine treatments

Water Film Thickness (mm)	Lane(s) Spread and Nominal Brine Spread Rate		
	1 at 40g/m^2	1 at 20g/m^2	2 at 20g/m^2
	Minimum road surface temperature at which freezing will not occur (˚C)		
0.05 (Damp)	-5.9	-3.6	-2.9
0.1 (Wet)	-3.6	-2	-1.7

The water film thicknesses in Table B.2 apply when a road is lightly trafficked. If there is no traffic, the water film thickness may be higher in frost conditions and after rainfall. A doubling of the water film thickness will approximately halve the minimum road surface temperatures shown above. However, if more water is present solid de-icers from previous treatments are more likely

to dissolve to work with the brine to help prevent ice formation. Where accurate information is not available, especially if ice formation is suspected, it is recommended that top-up treatments are made at the maximum spread rate that can be achieved with pre-wet spreaders, namely 40g/m^2 for one-lane spreading and 20g/m^2 for two-lane spreading.

Brine Storage

Brine may be obtained and delivered pre-mixed from suppliers and stored in an appropriate tank or manufactured on site using a saturator or salt station. The use of a pure white salt (typically greater than 98.5% NaCl, e.g. marine salt) within saturators is recommended. The optimum, and recommended maximum, concentration for sodium chloride brine is 23%. Lower concentrations in excess of 20% are acceptable for pre-wetting treatments. To avoid variations in concentration due to stratification in the storage tanks the solution must be mixed thoroughly. Service Providers are recommended to drain and flush the brine tanks on spreading vehicles to prevent segregation and crystallisation, which may occur if tanks are left full for some time.

It is prudent to make regular checks of brine concentration, for example by checking the density of the solution calculated by simple weighing of a known volume or by using a measurement instrument (salinity refractometer or salt hydrometer) to give a specific gravity, to ensure the concentration is as required. For a concentration of 23% the density at 15°C will be 1176 kg/m^3 (or specific gravity of 1.176). Slight adjustments are required for densities measured at temperatures other than 15°C.

Pre-wetted salt

Pre-wetted salt is accomplished by wetting dry salt (at a ratio of 30% pre-wetting agent to 70% dry salt, by weight) before application to the road surface. The pre-wetting agent is usually a solution of Sodium Chloride although a solution of Calcium Chloride ($CaCl_2$), Magnesium Chloride ($MgCl_2$) or a Sodium Chloride brine with ABP additive) may be alternatives for extreme temperatures (see below).

Alternative Anti-icing/De-icing Materials

Alternative anti-icing/de-icing materials are usually more expensive than salt. It is anticipated that any use of an alternative anti-icing/de-icing material will be restricted to isolated, specific circumstances (e.g. structures susceptible to corrosion) or when salt treatment are not fully effective (e.g. during extreme cold conditions – see Appendix B.6). Alternative anti-icing/de-icing materials that may be considered are summarised in the table below.

Treatment matrices for spreading these materials in conjunction with rock salt have been replicated from the NWSRG Practical Guide for Winter Service for ease of reference (See Section 7).

Material	Cost*	Action/Effectiveness	Environmental Effects	Health & Safety
Calcium Chloride (Solid or Solution)	X20	Effective down to -31°C, but can leave oily residue resulting in slippery surfaces.	Corrosive to steel and aluminium. Damaging to vegetation	Potential irritant to skin eyes and respiratory tract Special storage requirements due its hygroscopic nature
Magnesium Chloride (Solid or Solution)	X20	Effective down to -15°C	Potentially damaging to concrete. Damaging to vegetation.	Potential irritant to skin eyes and respiratory tract
Calcium Magnesium Acetate (Solid)	X50	Effective down to -9°C, but less effective than salt below -5°C and requires a greater application rate.	Effectively non-corrosive compared to salt Relatively environmentally benign	Gloves and eye protection are recommended
Potassium Formate (Solution)	X20	Effective down to -15°C	Moderately corrosive to galvanised steel. Slightly lower Biological Oxygen Demand (BOD) than acetates less harmful to groundwater than salt	Overexposure may cause skin or eye irritation or skin rash
Propylene Glycol (Solution)	X40	Effective down to -15°C May have slight adverse effect on skidding resistance	Moderately corrosive to galvanised steel. High BOD and Chemical Oxygen Demand (COD) can be damaging to water systems	Ensure adequate ventilation; avoid breathing vapour, mist or gas; avoid contact with eyes, skin and clothing; and wash after handling
Potassium Acetate (Solution)	X20	Immediate action Effective for up to 48 hours to - 15°C in suitable weather conditions	Effectively non-corrosive compared to salt Safe to aquatic life Biodegradable	Gloves and eye protection are recommended Solutions are safe to handle
Urea (Solid)	X25	Requires agitation by traffic Effectiveness: 10% solution to -3°C 25% solution to -7°C Little worthwhile effect below -7°C and ineffective below -11.5°C Remains effective for up to 12 hours in fair weather but repeat applications need to be more frequent in rain or strong winds.	Non-aggressive, but may produce ammonia and carbon dioxide. Ammonia is toxic to aquatic life. Ammonia further decomposes to nitrate which, promotes growth of vegetation, and creates an oxygen demand. Urea solutions may be detrimental to steel, plastics and concrete in some circumstances. Vehicles should not be left full of urea for any length of time, and thoroughly washed down after use.	Ventilation, due to ammonia Safe to handle but the pellets break into powder easily which becomes very slippery due to its high hygroscopic nature. Face masks and eye protection are recommended When heated to melting (i.e. fires) urea decomposes to form toxic substances. Only trained fire fighters, properly equipped with breathing apparatus should attempt to deal with fires in urea stores. Local firefighting services should be informed of urea stock sites.

*Approximate cost compared to rock salt

The use of urea on the Network has generally been phased out due to the associated safety and environmental considerations. However, urea dampened sharp sand may be considered for use

in the event of a salt crisis. If sand is used the treated section should be swept and the drainage gullies emptied, as soon as reasonably practicable.

B.5 DEPLOYMENT OF HIGHWAYS ENGLAND RESERVE WINTER SERVICE VEHICLES

1. Service Providers are required to monitor the issue of Area Operational Reserve Winter Service Vehicles within their jurisdiction.

   Service Providers may use 100% of the Area Operational Reserve Winter Service Vehicles allocated to them to cover for breakdowns or extra effort etc without approval from Highways England but must ensure they are notified. They are therefore required to record the issue of each Operational Area Reserve Winter Service Vehicle on SWIS (Near to Real-time – within 30 minutes) and update SWIS when no longer needed.

2. If the Area Reserve Threshold has been reached the Service Provider must consider whether the situation requires National Reserve Winter Service Vehicles to be deployed.

3. The Service Provider must notify the National Winter Co-ordinator by e-mail at [redacted] if the situation is not considered to require the deployment of National Reserve Winter Service Vehicles. The Service Provider and National Winter Co-ordinator should then continue to monitor the situation in-case it escalates to a level that requires the deployment of National Reserve Winter Service Vehicles.

4. The Service Provider must notify the National Winter Co-ordinator by text or phone on 07917559156 if it is felt that the situation requires the immediate deployment of National Reserve Winter Service Vehicles. The National Winter Co-ordinator will be available out of hours, but should not be contacted by phone unless immediate deployment of National Reserve Winter Service Vehicles is required. Should the National Winter Co-ordinator not be available, National Reserve Winter Service Vehicles may be used in an emergency situation, with all details recorded via email to the National Winter Co-ordinator, together with attempted time and method of contact.

5. The National Winter Co-ordinator will make a decision on the logistics for deployment of National Reserve Winter Service Vehicles based on discussions with the Service Provider(s) and Service Manager(s). SWIS must also be updated to record any issues of the national reserve vehicles.

6. If the situation becomes a Critical Incident, the National Winter Co-ordinator will liaise with the appropriate regional/national incident commander to ensure that any emerging incident is governed appropriately.

7. National Reserve Winter Service Vehicles that are no longer needed are returned to their operational centre and the SWIS updated accordingly. National Reserve Winter Service Vehicles are issued for specific tasks and may be withdrawn for re-deployment elsewhere should the need be greater.

8. National Reserve Winter Service Vehicles are also available to DBFO Cos, but must be operated by drivers that have received certified training. If the request requires immediate deployment of National Reserve Winter Service Vehicles, requests should be made to the National Winter Co-ordinator by text or phone on 07917559156. The National Winter Co-ordinator will be available out of hours, but should not be contacted by phone unless immediate deployment of National Reserve Winter Service Vehicles is required. Should the National Winter Co-ordinator not be available, National Reserve Winter Service Vehicles may be used in an emergency situation, with all details recorded via email to the National Winter Co-ordinator, together with attempted time and method of contact. The Service Provider that normally holds the deployed National Reserve Winter Service Vehicles in their Area is responsible for recording the issue on SWIS.

Area	Total Area Operational Winter Service Vehicles (inc Operational Reserve)	No. National Reserve Winter Service Vehicles	Total Winter Service Vehicles	No. Snow Blowers
1	19	1	20	0
2	38	2	40	2
3	41	2	43	1
4	30	2	32	3
6	32	2	34	0
7	45	2	47	2
8	27	2	29	0
9	59	2	61	3
10	43	2	45	4
12	35	2	37	3
13	28	0	28	2
14	19	2	21	3
TOTAL Highways England Owned Vehicles			**437**	**23**

B.6 SPECIAL CONSIDERATIONS

Network Features or surfacing that have a thermal response that is very different to the majority of the road network may require special consideration with regard to Winter Service. In addition, certain weather conditions require special consideration. This annex highlights some Network Features and the effects of various weather conditions on Winter Service treatments which Service Providers must be mindful of.

Network Features

Negatively textured surface courses

Carriageways with negatively textured surface courses require special consideration with regard to residual salt, as much of the salt is retained in the voids 'negative texture'. The brine trapped in the pavement voids is reliant upon the action of tyres over the surface to withdraw it to the road surface which is influenced by traffic levels. On a heavily-trafficked carriageway, a reasonable degree of residual salt will be "plucked" out so as to remain on the surface of the carriageway to combat the formation of ice. On lightly-trafficked carriageways the brine is retained in the voids.

Operational experience has indicated that negatively textured surface courses do not benefit from an increase in dosage above that required for hot rolled asphalt. Negatively textured courses should be treated with caution and residual material should not be relied upon to provide protection.

Porous asphalt

Porous asphalt has different thermal characteristics, meaning it cools more rapidly and warms slower, than dense surfacing. Compared with that of dense road surfaces it will typically fall below freezing point an average of half an hour earlier and rise above freezing point an average of an hour later. In extreme weather conditions (little winds, clear skies) the surface temperature is about 1°C lower than that of comparable dense surfacing.

For heavily trafficked roads the behaviour of porous asphalt surfacing barely differs from that of dense road surfaces. At low traffic intensities the loss of thawing agent into the voids of porous asphalt results in a greater likelihood of freezing of light precipitation (condensation, freezing fog) and greater quantities of treatment material being required to treat heavy precipitation. Target spread rates for porous asphalt are recommended to be plus 25% of the selected treatment.

Care needs to be taken at interfaces between porous asphalt and dense road surfacing because the horizontal transport of the treatment material is limited from the porous asphalt. The initial length of dense surfacing can have a reduced amount of treatment material as a consequence.

Poorly drained areas with the potential to re-freeze

Particular attention must be paid to lengths of road that are known to be susceptible to 'run-off' water from verges or central reserves and at joints between porous and impermeable surfacing. Efforts should be focussed on addressing the drainage problems, given very significant quantities of salt are required to prevent ponded water from freezing. Although the road itself may be dry, accumulations of snow may melt then run onto the road and re-freeze.

Similarly, care must also be taken when considering stockpiling snow adjacent to solid vertical barriers. There is the risk of melt water running across the carriageway with the possibility of it re-freezing.

Solid Vertical Barriers

The presence of solid vertical barriers (SVBs) can present operational difficulties to snow ploughing which will potentially result in snow being stacked on lanes adjacent to them. The Service Provider must consider whether any lanes may need to be abandoned during heavy

snow whilst keeping the maximum number of lanes available to traffic and maintaining access and egress. Stacked snow must be removed at the earliest opportunity.

Smart Motorway Sections

Smart Motorway sections can present operational difficulties to snow ploughing which will potentially result in snow being stacked on lanes adjacent to SVB in the central reserve or nearside verge. The Service Provider must consider whether any lanes may need to be abandoned during heavy snow whilst keeping the maximum number of lanes available to traffic and maintaining access and egress. Stacked snow must be removed at the earliest opportunity. This information must be included in the specific snow clearance plans (see Appendix A21)

Traffic calming features

Caution must be exercised when planning ploughing operations in the vicinity of traffic calming features. The range of traffic calming measures that may be of concern to ploughing operations include:

- Speed cushions
- Two-way chicanes
- Central refuges
- Traffic islands
- Road narrowing
- Over-run areas
- Rumble strips

Low Temperature / Low Humidity Vulnerable sites

The location of vulnerable sites must be plotted on a map of the Network using data compiled of past incidents where the conditions were considered a contributing factor to the incident and / or other network intelligence (including sites identified as being at risk of problems – see 1.6.4) and the associated location. Information comprising the following elements must be recorded for each site:

- Site location (slip road, main carriageway, sharp bend)
- Accident record (highlighting weather related events)
- Surfacing type and condition
- Climatic, geographical or other features which may affect the temperature relative to the surroundings or the performance of the anti–icing agent (e.g. the site is sheltered, in a hollow, North facing, elevated, shaded by trees, in a cutting, has a high cross fall, low traffic volumes, lanes that are not trafficked for parts of the day)
- Spreading route length affected

Weather Conditions

Cross-winds

Cross-winds can affect the distance over which treatment is spread and to compensate it may be necessary to spread from a lane upwind (if appropriate) from that normally chosen. In exceptionally strong winds, it may be necessary to undertake a second treatment run with the spreader set asymmetrically into the wind.

Effectiveness of Salt after Rain

Spreading salt while the road surface is wet will dilute the brine formed meaning it may not be sufficiently concentrated to prevent ice forming. Table B.1 illustrates this showing how much the freezing point of water can be depressed with an $8g/m^2$ precautionary pre-wetted salt treatment for various water film thicknesses.

Table B.1 Effect of $8g/m^2$ Pre-Wetted Salt Treatment on Freezing Point

WATER FILM THICKNESS (mm) [Surface Condition]	**FREEZING POINT (°C)**
0.03 [Dry / damp – well trafficked]	-4.7
0.05 [Wet – well trafficked]	-2.9
0.1 [Wet – lightly trafficked]	-2.0

Treatments should be delayed as long as practically possible after rainfall to enable trafficking to disperse surface water, which it can quickly do after rainfall ceases especially on well drained surfaces, so spray is minimal. If freezing is forecast after heavy rainfall, where trafficking cannot significantly reduce the water at the road surface successive treatments must be conducted.

The definitions of what constitutes a wet or damp road for Winter Service are:

- a wet road is one where minimal spray is evident and there is no water flowing across the surface
- a damp road is one where water is present that clearly darkens the road surface, but there is no spray or water flowing across the surface

Re-treatments must be considered after rainfall given salt can be washed from the road, reducing any residual salt effect.

Freezing Rain

Freezing rain in this country is a rare, but exceptionally dangerous phenomenon. It occurs when rain falls through a layer of very cold air, where it becomes super cooled (remaining a liquid below the usual freezing temperature). The rain freezes immediately on contact with a surface forming “black ice”. The black ice can build up very quickly completely covering the road surface (since freezing on contact does not allow run-off). Service Providers must ensure their Forecast Provider uses the term “freezing rain” for such super cooled rain, rather than to describe cold rain falling on frozen surfaces – although such cold rain can result in rapid icing (especially when surfaces are extremely cold), pre-treatments provide for a more effective treatment for that condition.

The nature of freezing rain means that ice will form on the carriageway and that preparations for the freezing rain will not prevent incidents occurring. Rain falling on extremely cold surfaces can produce similar effects. It is therefore important to prepare for the onset of the conditions and the likely resulting collisions. Measures for dealing with the conditions fall into three main areas: advance planning, operational arrangements and hazard mitigation.

Advance planning

Risk assessments must be undertaken by Service Providers to ensure the practices expected of operatives and other members of staff on the Network in such conditions are adequately recognised.

Operational arrangements

Specific measures that must be considered by the Service Provider include:

1. A Severe Weather Desk/Silver Command must be established in advance of the anticipated freezing rain or rain falling on extremely cold surfaces. For a particularly widespread or severe forecast it may be necessary to establish a Gold Command Contact with the Police, RCC / Traffic Officer Service, adjoining Service Providers and local authorities and to inform them of proposed action.

2. Prior to the arrival of the rain a pre-treatment is to be made in the same manner as would be made prior to snow falling. Where road surfaces are extremely cold, and salt may not provide for an effective treatment, alternative treatment materials must be considered. See Appendix B.4 and Treatment Matrices Section 7.

3. Constant monitoring of the situation is to be made and an additional treatment is to be carried out immediately the rain commences and continued, subject to the Service Provider's risk assessment confirming that the risk level of staff operating be tolerated, until such time that the rain has ceased or the temperature of the road has risen above freezing.

4. Freezing rain usually occurs along the line of an incoming warm front. If possible, to ensure maximum effectiveness of the salt or alternative treatment material as appropriate, the advance treatment should be made in the same direction and immediately in advance of the weather front. Use should be made of weather radar where available to help determine the time of treatment. Consideration must be given to positioning vehicles on the point of the route where the weather front will first hit in order that timely treatments can be undertaken.

5. Some treatment material will inevitably be lost during and following treatment and therefore careful consideration needs to be given to the requirement for continued successive treatments.

Hazard mitigation

Informing road users of the hazard is paramount and Service Providers must implement proactive measures for example closing the road as the rain arrives and holding the traffic (rather than diverting) until such time as it is deemed safe to proceed. Such considerations will need to be made on a case by case basis taking into account local circumstances.

Where available fixed or mobile Variable Message Signs (VMS) should be used to warn road users of the hazard. The existing established procedures for requesting VMS settings to be made must be followed well in advance. This will include advising the RCC where and when messages are required, what message is to be set and advising when the message may be cleared.

The most appropriate for use in these circumstances, defined in the "Policy and procedures for the use of variable message signs by the Regional Control Centres" are:

Nn J*- J* RISK OF ICE	This message must only be used when an incidence of ice on the carriageway, which presents a significant road safety hazard due to slippery conditions combined with lack of road surface treatment, is confirmed between two junctions upon the named road, e.g. freezing rain.
RISK OF ICE SLOW DOWN	This message must only be used when a section of carriageway(s) is subject to weather conditions that are known to form ice, e.g. a wet surface combined with freezing temperatures, and it has not been possible to re-treat said carriageway (post rain washing original treatment away) in time to prevent ice forming.

It should be noted that the previously recommended 'SKID RISK SLOW DOWN' message is not a weather related message and therefore should not be used to advise of freezing rain or ice.

National Incident Liaison Officer (NILO) and/or Highways England Press Officer must be contacted in order that the local media can be advised as necessary.

Where available use of variable mandatory speed limits must be considered. This will require arrangements and protocols to be established with the appropriate Police Control office or RCC as part of the advance planning procedures.

Consideration should be given to the use of rolling blocks and convoy arrangements to either hold or slow traffic down both just prior and during the event. This will require arrangements and protocols to be established with the appropriate Police authorities or RCC as part of the advance planning procedures.

Low Temperature combined with Low Humidity Conditions

Such conditions may occur at any time during the winter period though are most likely to occur in December and January at about the time of the winter solstice. Although not such a problem for pre-wetted salt treatments spreading dry salt can be of limited effectiveness in preventing the formation of ice when low temperatures and low humidity conditions combine. This is because dry salt requires moisture to 'activate' the dissolution process, and the formation of brine from dry salt takes increasingly longer as temperatures fall below -5°C. The effectiveness of salt decreases as temperatures fall and effective treatments may not be guaranteed with salt towards the lower end of the temperature band. The use of alternative treatment materials must be considered when spreading at (the lower of air or road surface) temperatures below -7ºC or below -5ºC in low humidity conditions (relative humidity <80%). Under low temperature and low humidity conditions it is important to ensure the anti-icing agent is wetted so that it will adhere to the road surface and be able to enter into solution even in the event that moisture is not available from the road surface or the atmosphere.

If low humidity is considered a high risk to brine formulation, Service Providers must consider supplementary measures on previously treated routes to increase the moisture content at the road surface. Such measures may include the:

- Application of additional brine solution (max 23% salt solution) through a dedicated liquid sprayer or a brine-only treatment using a pre-wet vehicle. Arrangements with adjacent areas can be considered for those areas that do not have pre-wet vehicles.
- Provision of an additional preventative treatment earlier in the day than standard treatment times to utilise the generally higher humidity levels, higher temperatures and increased traffic flows. (Note that additional treatments should not replace standard pre-wet / dry salt treatments).
- Use of alternative anti-icing / de-icing materials such as potassium acetate or pre-wet salt with a calcium chloride brine, magnesium chloride brine or sodium chloride brine with ABP additive rather than sodium chloride brine.

Sustained low temperatures

Salt is generally effective at preventing the formation of ice during sustained low temperatures, provided it has time to form a brine, which is helped where traffic is reasonably heavy. The time taken to form a brine becomes increasingly lengthy as temperatures fall and can be a significant time for extreme cold temperatures. As a result, salt becomes less effective at preventing the formation of ice during extreme cold with there being a point when alternative treatments must be considered and be available for use. There is no definitive temperature at which salt becomes ineffective, as it is dependent upon the dissolution process and therefore local conditions, e.g. time available to form brine, available moisture and traffic levels, though the National Winter

Service Research Group (NWSRG) consider alternative treatment materials may be justified when temperatures fall to minus 7°C or below.

NWSRG have developed guidance for the use of alternative treatments in extreme cold. Pertinent parts of that guide have been included within the Severe Weather Plan for ease of reference including treatment matrices for spreading materials in conjunction with rock salt (see Section 7).

Snow drifts and build-up of snow

Heavy snowfall, drifting and ploughing operations may result in a build-up of snow in the carriageway and hard shoulders. If snow depths reach 120mm or when tackling drifts, or when working on gradients, it may be preferable to plough without spreading, since the weight of the treatment load will aid vehicle traction. Snow blowers are particularly suited to the clearance of blockages and for the removal of accumulations from the hard shoulder and carriageway where snow may be safely directed onto the verge (or possibly a wide central reservation).

Ploughing or snow blowing is not practical in built up areas given the snow is ploughed or thrown to aside respectively. Repeated applications of de-icer can remove heavy accumulations, but this type of treatment is not recommended as it is likely to provide an unacceptable surface for traffic. In such situations, consideration should be given to the use of a snow blower with the snow being directed into an accompanying lorry, followed as soon as possible by salt spreading.

B.7 TREATMENT OPTIONS/TECHNIQUES

This annex provides instructions and guidance on treatment techniques and refers to precautionary treatment, treatment of settled snow/ice and treatment of footways and cycle tracks. To be most effective, precautionary treatments should be applied before ice forms or snow settles on the road.

Techniques for Precautionary Treatments

Dry salt used to prevent ice or frost formation must first form a solution (brine) to become effective, resulting in a time lag following spreading. Therefore, pre-wetted salting is Highways England s preferred precautionary treatment.

A decision to treat will depend upon many factors generally if road surface temperatures are predicted to fall below plus 1°C a precautionary treatment should normally take place unless:

- no moisture is on or is expected to be on the road; or
- there is sufficient residual salt on the road to deal with the expected conditions.

Opportunities to conserve salt may be realised on marginal nights, by considering:

- the introduction of patrols to direct focused treatment or
- delaying the decision to treat until there is greater certainty of need, other potential impacts, e.g. rain, are better known, whilst ensuring sufficient time is allowed to treat prior to ice formats or snow settles.
- 'Standby in depot'.

Selective treatment of parts of a route may be considered provided the Service Provider complies with the Technical Requirements. Identification of problematic areas can be informed by route based forecasting or thermal mapping to ensure these areas are treated appropriately.

For forecasts of significant accumulations of snow it is essential that sufficient treatment is applied before the snow starts to stick to the road as the treatment will melt the initial snowfall and provide a debonding surface beneath subsequent snow making the work of snowploughs much easier.

Due consideration must be given to traffic conditions and the timing of Winter Service operations. Wherever possible without detriment to the effectiveness of treatment, precautionary treatment should be undertaken in off-peak periods when disruption to traffic and to proper distribution of the treatment agents will be minimised. If precautionary treatment in heavy traffic is unavoidable it may be necessary to seek assistance from the Police, Traffic Officer Service and RCC (including motorway matrix signals and variable message signs) or to consider treatment in two runs (to ensure proper distribution of the anti-icing/de-icing agents).

To be effective, anti-icing/de-icing agents should be spread evenly and at rates that suit the prevailing or expected conditions. Care should be taken to ensure spread widths are neither too wide nor too narrow. The treatment should be carried out using automatic machines, the controls of which should be calibrated and clearly marked for distinct rates of spread, up to a maximum of $40g/m^2$. Higher spread rates are unnecessary, wasteful and environmentally harmful and should be avoided.

Care must be taken at road works so that, in addition to areas currently being trafficked, all other areas likely to be opened to traffic are treated. Traffic management equipment, including cones and cylinders, may disrupt distribution of anti-icing/de-icing agents. Contra-flow systems should be treated in both directions.

Top up precautionary treatments

Brine is effective immediately after spreading and unlike solid de-icers can reduce the risk of ice formation without the need for trafficking. Therefore, brine may be considered for an additional top-up treatment, to help activate solid de-icers, for areas with little or no traffic such as lightly trafficked slip roads.

Although pre-wet spreaders are able to spread brine this may require modification of the current software to bypass the solid de-icer distribution on some vehicles. Service Providers should contact the spreader manufacturer for instructions on how to set up pre-wet spreaders to spread brine with solid de-icer in the hopper.

Two lane slip roads may be spread with brine asymmetrically to the right, i.e. driving in Lane 1 and spreading to Lanes 1 and 2. A one lane slip road may be spread with brine by driving in the lane to be treated. In both cases, the standard spinner settings for pre-wetted salting one lane symmetrically or two lanes asymmetrically to the right can be used. Tests have shown that it is not possible to spread brine asymmetrically to the left, i.e. to a hard shoulder from Lane 1, with the standard settings for pre-wetted salting.

If brine treatments replace, rather than supplement, pre-wetted treatments the salt concentration of the brine has a greater influence on the amount of salt on the carriageway. This is because pre-wet comprises a 70:30 ratio of dry salt: brine therefore; the dry salt component is the major contributor to the salt on the carriageway. For a brine only treatment a brine concentration of 20% means the amount of salt on the carriageway is reduced by 13%, compared to spreading a brine concentration of 23%. It is thus recommended that brine of the 23% optimum concentration is used for brine-only treatments.

The ability of the pre-wet spreaders to spread brine, without modification to the spinner, is limited by the capacity of their brine pump meaning a maximum spread rate of approximately 40g/m^2 to a single 3.6m wide lane or 20g/m^2 to two lanes of total width 7.2m. Assuming a brine concentration of 23%, this equates to a nominal dry salt spread rate of 9.2g/m^2 and 4.6g/m^2, respectively.

Treatment of Snow and Ice

The effectiveness of treatments of snow and ice on the paved areas can be significantly affected by the method of application of the treatment. The following advice covers the operational techniques for removing snow and ice from paved areas. The techniques include:

- snow ploughing
- snow blowing

In addition, snow fences can be located to prevent snow drifting on to the carriageway and snow gates utilised to close a road when it is impassable due to snow.

During snow clearance operations, any build-up of snow across rail, bridges, gateways and along fences should be promptly removed and measures taken to avoid further build up. Throughout any operation to remove snow and ice, periodic situation reports should be provided for the Service Manager and road users.

It is important to continually monitor the air temperature during clearing and, as the temperature drops, spread rates should be increased, up to 40g/m^2 if necessary. Although current vehicle mounted infrared thermometers offer reasonably high accuracy levels Road Weather Information Systems or thermometers at suitable open sites in compounds, or similar systems are generally preferred.

The density of fresh untrafficked snow is about one-tenth of that of ice and the action of traffic assists in the process of melting and dispersal. However, even light snowfalls may call for ploughing where local drifting has occurred, or where snow has not been dispersed by traffic. This may occur where the traffic is reluctant to use lanes 2 or 3, or at night when traffic flows are light. During prolonged falls of snow, ploughing should be continuous to prevent build-up.

Particular attention must be paid to lengths of road that are known to be susceptible to 'run-off' water from verges or central reserves. Although the road itself may be dry, accumulations of snow may melt, run onto the road and then re-freeze.

Snow ploughing

The Service Provider should commence snow ploughing operations early enough to ensure snow accumulations do not exceed 10mm in any lane. If road surface temperatures are at or forecast to fall below 1°C the initial pass of the plough should be supplemented by salt spread at up to 20g/m^2 to prevent the compaction of any remaining snow and to aid dispersal by traffic and subsequent ploughing. Otherwise ploughing without continuous salting must be considered and after an area wide treatment drivers may be instructed to salt as and when required (spot salting).

The ploughs provided by Highways England are designed to operate at zero height setting. The Service Provider must ensure plough heights are set in accordance with the manufacturers recommendations. Care must be taken to avoid damage to road surfaces, road studs, roadside furniture and structures. At road works, traffic management equipment must not be disrupted.

If snow depths reach 120mm or when tackling drifts, or when working on gradients, it may be preferable to plough without spreading, since the weight of the treatment load will aid vehicle traction. When conditions permit, spreading must be resumed. Use of a snow blower may also be considered for the removal of deep snow.

Ploughing or snow blowing is not practical in built up areas. Repeated applications of de-icer can remove heavy accumulations, but this type of treatment is not recommended as it is likely to provide an unacceptable surface for traffic. In such situations, consideration must be given to the use of a snow blower with the snow being directed into an accompanying lorry, followed as soon as possible by salt spreading.

The formation of hard packed snow and ice should be a rare occurrence if the performance requirements are achieved. If it does occur, provided it is no more than 20mm thick and the air temperature is above minus 5°C, removal is possible by using successive treatments of salt at rates given in the Treatment Matrix Guide.

NWSRG has developed guidance for the use of alternative treatments in extreme cold, this includes guidance on how these may be used to clear hard packed snow and ice. See NWSRG's Practical Guide for Winter Service Delivery.

Great care must be taken as the use of de-icing agents on snow or ice can produce an uneven and slippery surface. If there is any danger that the surface will become unacceptably slippery as a result of using de-icing agents, then the addition of abrasives must be considered. Application of the initial treatment technique should be resumed as soon as possible since abrasives contribute little to the removal of snow/ice and may block drains and gullies upon thawing. Abrasives should not be used on structures where there is any danger of blockage to drains. If abrasives are used the treated section must be swept and drainage gullies emptied as soon as reasonably practicable.

The technique used for multi-lane carriageways (excluding Smart Motorway section which will have bespoke snow clearance plans) must be 'clearance by lane'.

In prolonged, heavy snowfall the priority will be to maintain lanes open in accordance with the red amber green performance requirements. In the majority of cases this will be the more heavily

trafficked left hand lane (lane 1) and the first operation will be to plough snow from lane 1 to the hard shoulder, with clearance of other lanes continuing as conditions improve.

An alternative technique for a 3 lane carriageway with hard shoulders, particularly suited to echelon ploughing (2 or more vehicles moving in the same direction, one behind the other, in different lanes), is clearance in the following sequence:

- First: plough lane 2 snow to lane 1
- Second: plough lane 1 to hard shoulder
- Third: plough lane 3 snow to central reserve
- Fourth: plough hard shoulder snow to verge.

More than 2 lanes ploughed onto the central reserve could be hazardous to traffic by inviting drifting and melt water problems later. When clearing 4 or more lane carriageways consideration should be given to abandoning the outermost lane(s) rather than creating problems of excess snow on the central reserve.

Irregular windrows caused by ploughing passes, especially those that weave from one lane to another, are dangerous, as they may tempt drivers to overtake by squeezing into the partly cleared lane. Lanes must be completely cleared, and the windrows of snow remaining must form a smooth and continuous line without sudden encroachments into the cleared path. On motorways, windrows can be left on hard shoulders, but there should be intermittent clearings to provide refuge for broken down or abandoned vehicles, and these should be cleared as soon as lanes 1, 2, and 3 are cleared and should not be left indefinitely.

Under no circumstances will windrows be created across off and on slip roads where they diverge/converge with the main carriageway.

Speeds of ploughing vehicles must be regulated, particularly at features such as underbridges, where snow could be thrown over the bridge parapet, and adjacent to the central reserve, where snow could be pushed into the opposing carriageway.

The objective is to clear all lanes and hard shoulders as soon as conditions permit. Clearance work should therefore proceed continuously, since a pause during a snowfall could lead to a build-up, which would take a disproportionately long time to clear. Packed snow, glazed by the wind, can be particularly difficult to remove.

Where clearing single carriageway roads, particularly those which have more than two lanes, snow clearing operations will be carried out so as to avoid any build-up of snow in the centre of the road.

Following normal snow clearing efforts carried out during snow fall, echelon ploughing to the left whilst spreading salt is an option to clear snow from those lanes sacrificed at cessation of snowfall providing sufficient resources can be made available. This will provide, when combined with a rolling road block, a relatively rapid method of removing the stored snow. Service Providers must consider the training of operatives in echelon ploughing.

A phased approach may be required for 4 or more lane carriageways. Resources may need to be diverted from other areas of the Network where clearance work is complete or considered a lower priority in order to undertake such echelon ploughing.

Assistance must be sought from Traffic Officers or the Police to provide a rolling block when clearing snow from lanes which have been abandoned during heavy snow fall.

When ploughing, motorway warning signals can be displayed, so liaison with the RCC is essential. It is not always possible to keep these signals free of snow, but every effort must be made to advise motorists of the snowploughing vehicles ahead. Suitable advance warnings must

be posted to inform motorists if lanes are not available for use. Variable Message Signs or Portable Variable Message Signs should be utilised.

Special consideration needs to be given to ploughing in areas of contra-flow or other temporary traffic management where normal techniques and equipment may not be suitable.

Snow Blowing

Heavy snowfall, drifting and ploughing operations may result in a build-up of snow in the carriageway and hard shoulders. Snow blowers are particularly suited to the clearance of blockages and to the removal of accumulations from the hard shoulder and carriageway where snow may be safely directed onto the verge (or possibly a wide central reservation).

B.8 REPEAT TREATMENTS GUIDE

Condition	Key information	Predicted conditions	Treatment guidance
A. Rain after treatment but before freezing	The current spread rates assume that little water is likely to be present on road surfaces in winter conditions, and this is normally the case (See Note 1) Water on the surface will reduce the effectiveness of salt by: • Dilution of any brine solution formed • Causing salt wash off As a guide, greater than 2mm will result in salt wash off and require retreatment. Use rainfall radar to determine and treat only effected areas where possible	More than 1mm of rain based on weather station data or radar or forecast	Make repeat treatment after rain stops, allowing as much delay as practicable for water to be dispersed by drainage and traffic before freezing.
		Less than 1mm of rain based on weather station data or radar or forecast	Monitor and carry out repeat treatment after rain stops if required and allowing for water to disperse when practicable. Road sensors can be used after rainfall to determine whether the freezing point of water on the road surface is low enough for the forecast minimum road surface temperatures. Make repeat treatment as soon as practicable where roads are wetter than allowed for in current spread rates (see Note 1)
B. Rain just before freezing	See Appendix B5 of the Severe Weather Plan template for information on effectiveness of salt after rain Traffic aids the dispersal of water. If a road surface is well drained and has been trafficked for an hour or so after rainfall, relatively little water will be present at the road surface There is a lower rate of loss when salt is in solution than in solid form. Salt will enter solution rapidly when road surfaces are wet	Freezing just after rain (<1 hour)	Make repeat treatment if freezing is forecast just after rainfall and roads are wetter than allowed for in current spread rates (See Note 1)
		Freezing delay after rain (>1 hour but < 3 hours)	Delay initial treatment as long as practically possible after rainfall to enable trafficking to disperse surface water so spray is minimal. Repeat treatment should be considered in poorly drained areas, where there is run-off and where (and when) there is little trafficking (e.g. lightly trafficked areas of slip roads, lightly trafficked roads on Sunday mornings) (See Note 1)
C. Change in forecast to more severe weather	A repeat treatment will be required when there is a decrease in the forecast road surface temperature and/or the forecast road surface state is wetter than was assumed for the initial treatment	Change in forecast to colder road surface temperatures or wetter road surfaces	Make a top-up treatment if the spread rate for the changed forecast conditions is higher than the spread rate for the initial treatment

Condition	Key information	Predicted conditions	Treatment guidance
D. Road wetter than allowed for in current spread rates, hoar frost, freezing fog (See Note 1)	Higher spread rates or repeat treatments are required when more water (and/or less residual salt) is likely to be present than allowed for in the current rates. This includes moisture from high humidity (dew) / hoar frost conditions.	Heavy rainfall before treatment Inadequate drainage or run-off Hoar frost Freezing fog Lightly trafficked roads	Increase initial spread rate (e.g. to the rate for the next temperature band) or consider making initial treatment at the specified rate and repeat treatment(s) at the same rate. Conditions that are most likely to require repeat treatment(s) include: • Poorly drained surfacing or open textured surfacing after heavy rainfall • Lightly trafficked surfaces (e.g. lightly trafficked areas of slip roads, lightly trafficked roads, or lightly trafficked lanes, on Saturday or Sunday mornings, bank holidays etc.) • Dew point above the road surface temperature: (i) by several degrees (ii) for a long period e.g. over long winter nights from late November to mid-January (iii) when there is a light breeze that maintains moist air at the road surface
E. Temperatures below freezing spanning at most one peak period	The current spread rates assume a certain percentage loss of salt from road surfaces after spreading. The rates do not allow for loss over long periods. There is a particular risk if long freeze periods are coincident with any other conditions described in A-D above.	Freezing occurring after one peak period and for duration less than 12 hours with no precipitation	Monitor conditions and treat again before next peak traffic period if necessary. Delay initial treatment as long as possible to reduce salt loss before freezing but without compromising dissolution of salt by trafficking etc. Conditions that are most likely to require repeat treatment include when: • Road surface is wet • RST below -5ºC • Hoar frost forecast • When forecast has changed following initial treatment • Reports of ice on roads or hard shoulders (from patrols/Police/TOS) • Lightly trafficked surfaces (e.g. lightly trafficked areas of slip roads, lightly trafficked roads, or lightly trafficked lanes, on Saturday or Sunday mornings, bank holidays etc.)

Condition	Key information	Predicted conditions	Treatment guidance
F. Temperatures below freezing over up to 2 peak periods	The current spread rates assume a certain percentage loss of salt from road surfaces after spreading. The rates do not allow for loss over long periods. In general it should be assumed that a repeat treatment is required if an initial treatment is made just before (or during) one peak traffic period and temperatures will still be below freezing from just before to after the next peak period. There is a particular risk if long freeze periods are coincident with any other conditions described in A-D above.	Freezing from one peak period to just before or after another peak period, with no precipitation in the intervening period	Make repeat treatment before second peak traffic period, and no more than 12 hours after the initial treatment. Repeat treatment may be required much earlier if any of the conditions described in A-D above are present. Consider using a spread rate for the initial treatment for the road conditions forecast up to the time the repeat treatment has been completed. Where possible, time repeat treatments to avoid spreading when the road surface temperature is less than -5˚C It may be possible to either carry out the repeat treatment at reduced rate, or omit the repeat treatment when • A number of treatments have been made over two or more days in dry weather and measured residual salt levels are high. • The humidity is such that the road surface is drying, e.g. changing from wet to damp or dry (but see below) and no increase in humidity or precipitation is forecast for the period of the treatments effectiveness • The minimum road surface temperature in the morning is at least one temperature band less than temperature band for the treatment made in the evening.
G. Sustained freezing (i.e. temperatures below freezing spanning at least 3 peak periods	Repeat treatments may be required when below freezing conditions are sustained over long periods. Road surfaces can be essentially dry in periods of sustained freezing because of a lack of precipitation and low humidity conditions. In such conditions, repeat treatments may not be required when residual salt levels have built up and/or the road is dry such that the risk of ice formation endangering road users is low. Treatments should be delayed if the salt that is spread will not enter solution. Accumulations of undissolved salt in sustained freezing can significantly increase chloride levels in water courses when they are dissolved during subsequent rainfall.	Freezing spanning at least 3 peak periods, with no precipitation in the intervening period.	Normally make treatments between each peak period so that the time between treatments is no more than 12 hours. Repeat treatment may be required much earlier if any of the conditions described in A-D above are present. Where possible, time repeat treatments to avoid spreading when the road surface temperature is less than -5˚C Monitor the dryness/wetness of the road surface and consider reduced rate treatments or treatments more than every 12 hours when residual salt levels are high and/or the road surface is essentially dry.

Note 1. To calculate spread rates, it was assumed a wet road is one where minimal spray is evident and there is no water flowing across the surface. The maximum water film thickness for a well-trafficked road is 0.05mm and for a lightly trafficked road 0.1mm. Where road sensors

indicate a wet road this indicates that more water is present than the maximum water film thickness allowed for in current spread rates and the treatment effectiveness will be less than stated in the treatment matrix guide.

B.9 END OF SEASON REPORTING – OPERATIONAL ASSESSMENT REPORT

In order to reduce document file size, the Operational Assessment report template has been removed from the Severe Weather Plan and held in the box of reference.

This document is also available on our website at **www.highways.gov.uk**

If you have any enquiries about this publication email **info@highwaysengland.co.uk** or call **0300 123 5000*.** Please quote the Highways England publications code **PR*****

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