

## **NORTH SOMERSET COUNCIL DECISION**

**DECISION OF:** COUNCILLOR JAMES TONKIN. THE EXECUTIVE MEMBER FOR PLANNING, HIGHWAYS AND TRANSPORT



**WITH ADVICE FROM:** THE DIRECTOR OF PLACE

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**DECISION NO:** 20/21 DE 197

**SUBJECT:** ADVERSE WEATHER POLICY AND PLAN

**KEY DECISION:** NO

**REASON:** While the policy covers more than two wards its impact is not significant as this policy formalises the current practice with no changes to service provision

### **BACKGROUND:**

Following an assessment of various service plans that are used in cases of adverse weather, it was agreed that there would be a benefit in bring these various plans together. This policy/plan has been split to provide Policy and Operational information into one document. It should be stressed that there have not been any changes to service as a result of this piece of work.

The Highways Act requires local authorities to maintain the highway in a safe condition. Case law has clarified that this duty only extends to the fabric of the highway surface but does include keeping the road drainage systems operable to prevent standing water on the highway. There is also a duty to keep the highway free from ice and snow as far as reasonably practicable. This document details NSC's response in times of adverse weather when these situations are more likely to occur.

### **DECISION:**

To agree combining various plans into an overall policy document and signing off the Winter Service Plan for 2020/21.

### **REASONS:**

- To create a single policy for adverse weather response by NSC by combining existing service plans.
- To agree the Winter Service Plan as per the requirements identified in the Code of Practice WMI.

### **OPTIONS CONSIDERED:**

None

### **FINANCIAL IMPLICATIONS:**

This policy and plan achieve service delivery in line with current budgetary provision. It should be noted that the budget is set for weather conditions we would expect in a typical year. Should we experience prolonged periods of heavy rain as in 2012 or snow conditions 2010 & 2018/19 then it is probable that these budgets will become over-spent.

**Costs and Funding**

As per the existing approved revenue budget.

**LEGAL POWERS AND IMPLICATIONS**

Highways Act 1980 section 141 & 141a  
The Flood Management Act 2010

**CLIMATE CHANGE AND ENVIRONMENTAL IMPLICATIONS**

Climate change could place further pressures on this service area with more extreme weather events becoming more common.

**CONSULTATION**

Emergency Management Unit

**RISK MANAGEMENT**

The Adverse weather plan is to assist officers in carrying out their duties. With relevance to the winter service element it is recommended that the authority formally adopt a policy in this regard. Should the need arise whereby the defence of any action undertaken by NSC in pursuing it duties and approved plan is essential to demonstrate our policy and plan have been complied with.

If not approved there will not be a formally agreed plan. This will leave the authority vulnerable should any incidents arise as a result of adverse weather.

**EQUALITY IMPLICATIONS**

Have you undertaken an Equality Impact Assessment? ~~Yes~~ / No  
No changes to existing service provision

**CORPORATE IMPLICATIONS**

None

**APPENDICES**

[Adverse Weather Plan Final.docx](#)

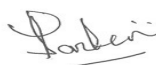
**BACKGROUND PAPERS**

None

**SIGNATORIES:**

**DECISION MAKER(S):**

Signed: .....  
Transport



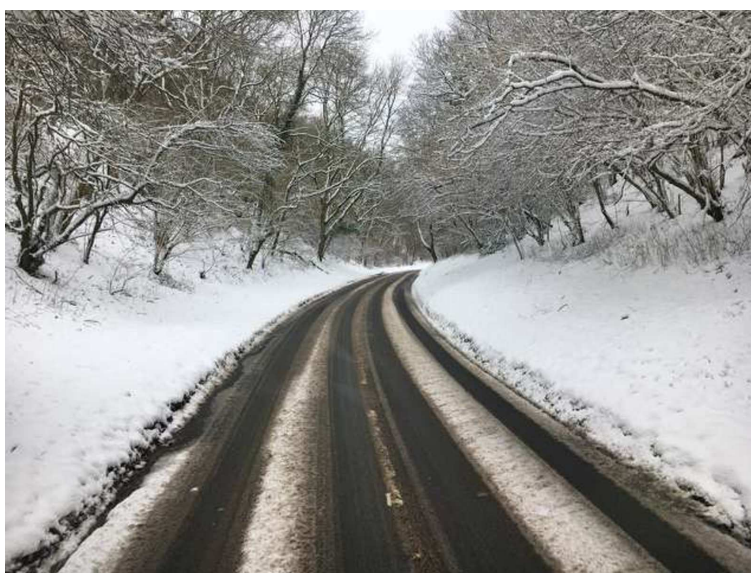
Executive Member for Planning, Highways and

Date: 14 December 2020.....

WITH ADVICE FROM:

Signed: *Lucy Shomali* . Director of Place

Date: 10 December 2020



# **Adverse Weather Plan 2020/2021**

**September 2020**

**Version 1.0**

**AUTHOR: Phil Bush**

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## **1.0 Introduction**

This is the Adverse Weather Plan for North Somerset. It will run from 1<sup>st</sup> October 2020 to 30<sup>th</sup> September 2021. The Plan describes the procedures to be followed by those responsible for providing the service, and operational information in relation to the service.

### **1.1 Head Office**

North Somerset Council  
Place Directorate.  
Weston-super-Mare  
North Somerset  
BS23 1UJ

Telephone: 01934 888 888

Chief Executive Officer:  
Director of Place: Lucy Shomali

Jo Walker

### **1.2 Place Directorate**

North Somerset Council  
Neighbourhood management  
Castlewood  
Tickenham Road  
Clevedon  
BS23 6FW

Telephone: 01934 888 802

Assistant Director Neighbourhood Management:  
Highway Operations and Contracts Manager:  
Highway Operations Manager:

Gemma Dando  
Darren Coffin-Smith  
Phil Bush

North Somerset Council Adverse Weather Plan  
September 2020 version 1.0

Key Regional Contacts

	Contact	Office telephone number	Mobile
Bath & North East Somerset	In hours	01225 394 337	
	Out of Hours	01225 477 477	
Bristol City Council	Emergency Control Room	0117 922 2050	
Somerset CC Sedgemoor Area	Asst. Area Manager – L. Hackling	0845 345 9155	07764 624518
	Asst. Area Manager - L.Gill	0845 345 9155	07764 624526
Skanska North Somerset	Mike Williamson		07768 106768
	Martin Taylor		07714 739891
South West Regional Operations Centre (SWROC)		0117 3165724	
Avon & Somerset Police HQ		01275 818181	
Meteorological offices/weather reports	Metdesk Forecasters	01296 628 373	
Agricultural Contractors (Snow clearance operations)	Jon Sealey		07774 785153
	Nick Bartlett		07720 428581
	Tim Morgan		07973 827334



## **2.0 North Somerset Winter and Emergency Service Policies**

This section lays out North Somerset Council's policies in relation to severe weather and emergency response to non-major highway incidents.

### **2.1 Winter Service**

#### **2.2 Purpose**

- To comply with legal obligations concerning the safety of the travelling public.

Under the Highways Act 1980 (England and Wales):

Section 41 (1A) – “a highway authority is under a duty to ensure, so far as is reasonably practicable, that safe passage along a highway is not endangered by snow or ice.”

Section 150 puts a responsibility on the highway authority to clear snow from the highway, but only if it is causing an obstruction.

A House of Lords ruling concluded that a highway authority had an absolute duty to keep the fabric of the highway in a good state of repair so as to render it safe for ordinary traffic at all seasons of the year, but that did not include a duty to remove the formation or accumulation of ice and snow on the road.

The Traffic Management Act 2004 (England) requires authorities to do all that is reasonably practicable to manage the network effectively to keep traffic moving. In meeting the duty, authorities should establish contingency plans for dealing promptly and effectively with unplanned events, such as unforeseen weather conditions, as far as is reasonably practicable.

Given the scale of financial and other resources involved in delivering the Winter Service it is not reasonable either to:

- provide the service on all parts of the Network.
- Ensure running surfaces are kept free of ice or snow at all times, even on the treated parts of the network

The overall aim of the Winter Service Policy is to maintain (within the resources available) adopted public highways in a condition such that the public can use them in safety with reasonable care. Because of the limited resources and finances available the Council's plans are based on achieving this objective in a manner that reflects the relative importance of the various roads and the prevailing weather conditions. In doing so North Somerset considers that it complies with the requirements of both above acts.

For roads treated as part of the winter gritting routes refer to appendix A

## 2.3 National Standards

National Standards for winter & emergency maintenance are set out in the Winter Service Section of the Code of Practice for Maintenance Management, “Well-managed Highway Infrastructure”, which was published in 2016 by the Road Liaison Group, <https://www.ciht.org.uk/ukrlg-home/code-of-practice/> . The standards adopted for North Somerset are broadly in line with the recommendations in this document, with the following exceptions for emergency.

Activity	National Standard	Local Standard	Reasons
Response Time	1 Hour	1.5 Hours	Rural Nature of North Somerset

## 2.4 Client Responsibilities

The responsibility of the client covers the following areas:

- Policy
- Decision making
- Provision of Forecasts
- Salt procurement
- Management of Salt Stock
- Communications

## 2.5 Contractor Responsibilities

The responsibility of the contractor covers the following areas:

- All works associated with precautionary salting of the highway and the removal of ice and snow from the highway including carriageway and footways.
- Provision of all labour, vehicles, plant, fuel, material storage, facilities and maintenance facilities
- Provision of on call facility
- Record keeping

## 2.6 North Somerset Operation Roles

North Somerset Council has 3 tiers of officers available to respond to adverse weather and any other emergencies impacting on the highway network.

The table below outline the roles of each level.

Role	Duties
Duty Engineer	Responsible for planning precautionary salting and snow clearance in line with policy. Reviews forecast and makes

	decision on action(s) required over the forecast period, co-ordinates activities for snow clearance and network recovery. Manages comms during the forecast period.
Duty Officer	Responsible for dealing with highway emergencies out of hours, completing site visits to assess severity of risk and implements solutions. Supports Duty Engineer in providing situation reports from site.
Operational Officer	Responsible for planning and instructing actions relating to coastal flooding (tide watch), supports Duty Officer in times of adverse weather by backfilling Duty Officer duties in busy periods.

## 2.7 Resilience

The Winter Service period generally covers a 26-week period. It is anticipated that the season starts on the Friday prior to 1<sup>st</sup> November but the period can be brought forward and extended as weather forecasts dictate. The Highway Operations Manager will advise of the start and finish date for winter service.

A reduced length winter resilience network should be agreed to meet the recommendations identified in 'well managed infrastructure'. This is designed to ensure that the higher priority network remains open in the event of national salt shortages. Previous work completed has identified that we only treat the critical routes as general policy and therefore any further reduction are difficult to justify and would not significantly impact on salt usage.

North Somerset considers that it meets the requirement for "Good" The recommended spread rates provided in Appendix H of this document relate to spreaders that provide 'Good' or 'Fair' coverage and 'Medium Traffic' situations. In other situations, and when other relevant factors dictate, these rates should be modified in accordance with the guidance provided by the National Winter Service Roads Group (NWSRG) in the Practical Guide for Winter Service.

Resilience Standard – see appendix G for minimum salt stocks see table

### Minimum Salt Stocks

1 November	=	2298 tonnes*
1 November to 1 March	=	1281 tonnes
30 March to 31 October	=	888 tonnes**

\*Includes approx. 300 tonnes of salt grit mix for grit bins stored outside under sheets

\*\*The closing stock will be closely monitored by the Highway Operations Manager and may be run down depending on weather conditions. Due to North Somerset's geographical position and climate we typically experience a shorter winter than other areas of the country and therefore this monitoring process is a risk-based departure from the guidance contained within the code of practice.

## **2.8 Weather Forecasts**

The Council has arranged to receive weather forecasts for the period 1 October to 30 April; this service includes warnings of ice, frost and snowfall conditions. On the basis of these forecasts, warnings and local knowledge the Duty Engineer will initiate the appropriate daily winter service action.

On receipt of the daily forecast the Duty Engineer will decide as to whether and when to carry out precautionary salting. This will be communicated immediately to the Duty Area Officer, Operational Officer and Maintenance Contractor and then to adjacent Authorities via the message board linked to the Forecasters website.

A detailed weather forecasting service is provided by the Weather Forecast Service Provider. The forecast is received daily by computer and comprises:

1. 24 Hour Forecast
2. 2 – 5 Day forecast for planning purposes
3. A weather summary for the previous 24 hours; and
4. 24 hour consultancy service.

Current information from the remote weather stations is available to the Forecast Service Provider (Metdesk) and the North Somerset Council at a protected website.

Good communications are essential to provide an effective winter maintenance service. The receipt and transmission of accurate information regarding road conditions assists the road user and the maintenance authority. All crews involved in winter service activities are issued with mobile telephones to enable central control of the operations and vehicles are tracked by GPS.

## **2.9 Precautionary Salting**

As the Highway Authority, North Somerset Council has a statutory duty to prevent or inhibit ice forming on the highway network as far as reasonably practicable. However, it must be noted that it is not always possible to carry out precautionary salting to all these routes due to driver illness, vehicle breakdowns, or short or no notice of frost/ice conditions. Sustained periods of severe weather also impact on the options available as resources are directed to keep major routes open.

The Council's policy on pre-salting is that the priority for precautionary salting is as follows: -

- I. Principal Roads ('A' Roads) and Major routes connecting centres of population and important commuter routes.
- II. Other important access routes to; emergency services recycling centres and the coroner's office etc. (should snow accumulations be forecast)

- III. Footways are not routinely salted, however assessment has been completed to determine priority high use adopted footways which will be monitored for potential treatment when a forecast predicts prolonged sub-zero temperatures with persistent frost and/or sub-zero surface temperatures which are expected to continue beyond the rush hour period.
- IV. North Somerset has cycleway network of 75 km approx. It is not practical to treat these due to the level of resource required. In most instances there is a suitable alternative route along a carriageway that is treated, and these alternative routes are recommended to be used in times of ice or snow. This message is clearly communicated on the NSC website.

## **2.10 Grit Bins**

There are over 500 grit bins located on the highway network. These are paid for and owned by the Town and Parish Councils. North Somerset Council will endeavour to keep these filled, but this is subject to resources being available. It is considered that the existing number of grit bins meets the required demand. Consequently any requests for additional bins will only be considered if they are supported by strong evidence of need. Grit bin refills can be request via Myaccount on the NSC website. Any refills will be subject to resource being available as refills are generally requested at times of significant or prolonged snowfall.

Volunteer Snow Wardens (see 2.12) are able to check their local community grit bins and report back to NSC on their condition and grit levels periodically, or indeed during periods of snowfall when the grit will have been actively used.

## **2.11 Snow Events**

In heavy snowfall conditions all normal work is stopped, and all available staff will be deployed on winter service activities. Other available resources will be utilised as required.

The Council's policy on snow clearance is that the priority for snow clearance is: -

- I. Principal Roads ('A' Roads);
- II. Major routes connecting centres of population and major commuter routes.
- III. Other important routes access to recycling centres, coroner's office and emergency service establishments
- IV. Busy footways.

No other routes will be cleared outside normal working hours except in emergency circumstances i.e. for Police, Fire or Ambulance vehicles. Roads with steep gradients will be closed until laying snow has cleared.

During normal working hours the following additional situations will be treated if or when the above roads are clear (using normal maintenance gangs not engaged on priority works) as follows: -

- (v) Main estate roads, not covered by priorities above.
- (vi) Footpaths and hills where pedestrians can be at risk when walking on the carriageway.

(vii) Major shopping areas.

Priorities (v) to (vii) may be treated with either sand or grit.

Additionally, in heavy snowfall conditions there will be specific farming priorities related to such problems as milk collection and supplies of animal feed these will be resolved as requested and resources become available.

In heavy snowfall conditions, the highway maintenance contractor's workforce may be augmented by selected agricultural contractors' plant and labour where this can be used to advantage and with adequate supervision. Contact details are given in the table on page 5

Whilst in such conditions every effort will be made to work within the above priorities, inevitably operational requirements and limitations will result in local variations and the co-ordination of efforts is vital. In such circumstances the Duty Engineer will decide priority..

The decision process is further detailed in the 'Treatment Matrices' contained in appendices E and F . These are designed to guide the decision makers; however, there will be times when the decision does not directly follow the matrix. These occurrences will be detailed and recorded on the decision sheet explaining what factors were considered.

## **2.12 Snow Wardens**

The Snow Warden programme – a joint partnership between North Somerset Council and Community Resilience North Somerset – began in 2013 and to date has over 100 trained, equipped and insured volunteers across the district. The Area Officer Manager activates the scheme via email.

Snow Wardens are able to:

- Identify, clear and grit local priority routes
- Monitor local community grit bins for condition and contents and feedback as necessary, to the Area Officer Manager via email on the forms provided.

## **3.0 Coastal Flooding Protection Policy**

### **3.1 Purpose**

With the second highest tidal range in the world, the tide along the North Somerset coast rises quickly and the current can be strong. As a local authority, it is essential that we are prepared for the risk of flooding and associated danger to our coastal towns

### **3.2 Tide watch**

Tide watch - our term to describe the deployment of sea defences - has site specific responses at Weston-super-Mare, Clevedon and Portishead and is dependent on wind speed, wind direction and tide height.

We will rely primarily on Environment Agency warnings when preparing for sea defence deployment but will supplement this with local action determined by our own interpretation of conditions during periods when flooding from the sea is a high risk.

The operational officer is responsible for taking the decision to deploy the sea defences

### **3.3 Action taken during high tide periods**

- The operational officer monitors tide heights, wind speed and wind direction to be prepared for events that might require tide watch.
- The operational officer monitors Environment Agency warnings and makes their own observations to decide to implement tide watch.
- The operational officer will instruct contractors and arrange road closures at Portishead and Clevedon as necessary.
- The operational officer will determine the required level of sea defence at Weston-super-Mare and arrange for them to be deployed as necessary.

### **3.4 Decision making process to deploy the sea defences**

Forecasting complex weather events is a highly skilled task and as such NSC are reliant on outside professional agencies to provide this data. There are three broad time periods leading up to potential sea flooding events which help determine our level of response. The operational officer will consider these factors when making their decision to close the sea defences:

- long term factors
- tide heights (in advance) – [www.n-somerset.gov.uk/tidetimes](http://www.n-somerset.gov.uk/tidetimes)
- medium term factors
- tide heights (real time) – [www.ntsif.org/data/uk-network-real-time](http://www.ntsif.org/data/uk-network-real-time)
- weather forecast – [www.metoffice.gov.uk/publicsector/hazardmanager](http://www.metoffice.gov.uk/publicsector/hazardmanager)
- flood forecast – [www.fcc-environment-agency.metoffice.gov.uk](http://www.fcc-environment-agency.metoffice.gov.uk)
- short term factors
- Plymouth Coastal Observatory wave buoy data – [www.channelcoast.org/data\\_management/real\\_time\\_data/charts](http://www.channelcoast.org/data_management/real_time_data/charts)
- Environment Agency warnings
- Environment Agency duty officer's advice
- gate operating criteria
- personal observation

The critical component to consider when managing coastal flooding is the weather. High tides will not cause flooding unless they are associated with strong, on shore winds or from surges caused by weather systems out at sea.

#### Advanced planning

High spring tides tend to occur between 6-10am and 6-9pm (seven days a week), so it is necessary to forward plan to be able to deploy resource outside offices hours. Tides exceeding 12 metres are considered to present the greatest risk of flooding during the forward planning stage and are considered as the threshold for action in the longer term.

We can be confident of forecasted tide times and heights, but accurate weather forecasting is only possible a few hours in advance – especially for the unpredictable, stormy weather that causes coastal flooding.

Forward planning for deploying sea defences is focussed around three time periods: long term planning; medium term planning; short term reactive deployment (typically outside office hours).

#### **4.0 Lead Local Flood Authority**

As the Lead Local Flood Authority (LLFA) as defined under the Flood and Water Management Act 2010 North Somerset Council has a role in overseeing the management of local flood risk including: surface water runoff, groundwater flooding and ordinary watercourses (any watercourse that is not 'main river') and outside of the Internal Drainage Board (IDB) Area. As the LLFA we will monitor the weather forecasts and tidal information and distribute the reports within the council. Our Emergency Management Unit (EMU) receive fluvial and tidal warnings from the Environment Agency and circulate these to the appropriate teams, this includes the operational warnings for the tidal gates at Weston-super-Mare, which are operated by the sea front team.

##### 4.1 Flood Risk to Property:

This link to the Flooding Factsheet is also available via the North Somerset website. It provides information to home owners on flood warnings and measures to take in case of flooding.

<https://www.n-somerset.gov.uk/sites/default/files/2020-02/flooding%20factsheet.pdf>

Sandbags – North Somerset Council are unable to supply sandbags, however they may be available for purchase at local builders' merchants. The link below provides information on where sandbags can be purchased.

<https://www.n-somerset.gov.uk/sites/default/files/2020-02/summary%20of%20sandbag%20and%20flood%20resilience%20product%20suppliers.pdf>

We ask residents to report a flood as this allows us to monitor incidents and frequency. It is important to note that it is the responsibility of the property owner to protect their own property against flooding be it fluvial, surface water or tidal. However; where the frequency and damage is significant it may be appropriate to add properties to our Property Resilience list. Then based on priority analysis and when funding allows, we can provide flood mitigation measures to individual properties – report a flood form

<https://www.n-somerset.gov.uk/my-services/nuisances-pollution-environmental-issues/flooding-drainage/reporting-flood>

As the LLFA in North Somerset we have a duty under section 19 of the (FWMA 2010) to investigate the flooding appropriately and our policy is to review the severity of the incident, such as the number



of properties affected and the frequency of such an occurrence and publish a report based on these criteria.

- five or more residential properties flooded internally;
- two or more non-residential properties flooded internally;
- one or more critical service (e.g. hospital) flooded, and/or;
- a key transport link is totally impassable for a significant period.

As no flood incident is the same, it is not feasible to cover all possible thresholds; therefore, there may be circumstances where North Somerset Council may choose to carry out an investigation where the above is not met.

## **5.0 Overview of out of hours & emergency cover**

This section provides information on how North Somerset Council responds to emergency situations both during the working day and out of hours.

### **5.1 Role of Area Officer and Operational Officer**

The area officer team has an Area Officer & Operational officer on duty 24hrs a day, 7days a week, 365 days a year including all bank holidays.

The first point of contact for all emergency calls is the CCTV control. All calls from emergency services and members of the public are logged and recorded on Tel: 01934 622669. The details are then passed to the duty area officer on call for any further action. If any incidents need to be escalated, then the duty operational officer is to be contacted to help advise the area officer and support them when needed.

The area officer will then make an initial visit to site and assess what is required and arrange any emergency works with contractors. It may be necessary for the officer to arrange to meet contractors on site depending on the type of incident to reduce response time if the area officer needs a more urgent response.

The following are what constitutes an emergency for the area officers out of hours service:

1. Manholes or gratings missing, broken or collapsed
2. Damaged streetlights, traffic signals, illuminated bollards, illuminated signs
3. Debris in the road, including mud, chemical and clinical waste
4. Fallen tree or branch blocking part or all the road or path
5. Extensive flooding resulting in road being impassable or coastal flooding.
6. Large dead animals, for example cattle/deer/horse causing obstruction
7. Overhead cables fallen across the highway
8. Dangerous Potholes, sinkholes
9. Road signs and other street furniture damaged so they are a direct danger or obstruction to the travelling public, for example it's bent into the path of vehicles

10. Structure collapse, for example bridge, culvert, wall, fences, scaffolds, hoarding
11. Traffic signals including wires exposed, physical damage to column or red lamp.
12. Ice on road and extreme weather events.
13. Major incidents called in from the emergency services.

Following any of these incidents the area officer will log all the details into the on-call diary with the ECAS (Emergency Call Admin System) Number supplied by the CCTV control room as soon as is reasonably practical. If contractors are required, the Area Officer will raise a works order as soon as reasonably practical for the works. All works orders must be raised before 10:00am next working day (NWD).

The duty area officer will also inform the relevant area officer or department the NWD following the emergency so it can be followed up by them in normal working hours.

## **5.2 Flood gates.**

The Operational Officer is the decision maker for our coastal town seafront defence and receives regular updates from the Environment agency. Although we will make every attempt to take into consideration access for residents and businesses, the primary aim is to protect property, businesses and protect against risk to life.

5.3 Respond to requests from emergency services, Police, fire, Ambulance & Major incident response.

When Emergency services calls are received by the CCTV control room they will be issued a Police log number or a Fire Log number. This log number will be recorded on the ECAS system and passed to the area officer for their records and logged in the diary. The area officers and operational officers are North Somerset Councils "JESIP" Incident Liaison Officers for the emergency services when a major incident is declared. Following the initial call to the CCTV control room the Incident liaison officer will take command for the incident.

## **6.0 Communications**

Members of the public, public groups, or organisations that can affect or be affected by the policies and actions of North Somerset Council are all stakeholders of the highway network. Effective engagement with stakeholders is a key issue in managing expectations and therefore satisfaction with the highway service.

All strategic messaging will be issued by the Corporate Services Press Office, these messages will provide information as well as instructions for any communities impacted by any severe weather. They will reiterate any key messages provided by the Department for Transport pre-season in the case of winter service and provide advice on how residents and road users should prepare for the winter season.

Social media can be extremely helpful in managing incidents and in recent years have been an essential tool to aid us direct resources to areas impacted by severe weather. Key personnel within the highway operations team are able to access the corporate social media platforms and have been provided with training to inform on its most appropriate use. However, these messages are to provide timely updates on actions planned or completed, such as roads that have been closed or re-opened, rather than strategic messaging.

## **7.0 Operational Information**

### **7.1 Winter Service Roles**

#### Duty Engineer

Daily management of the winter service delivery is the responsibility of the 'On-call' Duty Engineer (hereinafter "Duty Engineer"), who will deal with all winter maintenance matters both during and outside normal office hours. During longer spells of adverse weather additional resource will be allocated to guard against excessive working hours.

During normal working hours the Duty Engineer will decide on the appropriate course of action, and this information will be made available to the Duty Area Officer, Contractor and adjacent Authorities as soon as possible.

The Duty Engineer and Duty Officer will be as detailed in the Duty Rota, Appendix B.

#### Notes

- A. Each duty period listed in Appendix B is from 08:30 hours Friday for one week
- B. A separate detailed sheet of daily changes in duty personnel will be issued as required.
- C. The Duty Engineer standing down is responsible for ensuring all relevant reports and information is passed on to the incoming Engineer prior to the hand over time.

#### Duty Area Officer

The Duty Area Officer shall be the initial contact for all highway emergency and winter maintenance situations out of office hours and shall ensure the Duty Engineer is immediately advised of any changes in weather or incidents that are relevant to winter service. The Duty Engineer is the first point of contact for the forecast provider and will consult with the Duty Area Officer should a revised forecast be issued. The Duty Engineer will issue instructions to the Duty Area Officer who will then arrange for the situation to be dealt with as instructed and ensure the necessary resources are deployed by the Contractor.

The Duty Engineer must be kept informed of all any potentially serious weather related incidents and consulted regarding all weather reports.

### **7.2 Pre-Season Preparations**

The following section details pre-season checks necessary to ensure the service is fully prepared for the start of the season.

### **7.3 Salt**

Replenishment of stocks during the winter can prove difficult and stocks of salt will be replenished prior to the start of the winter season and maintained at a level specified in 1.5

The contract for the supply of salt is with Compass Minerals and is the responsibility North Somerset Council to order. The monitoring and ordering are carried out by the Highway Operations Team.

North Somerset Council uses 6mm dry salt. Other options have been considered but capital outlay for pre-wetted salt will have a very long payback period due to the relatively low quantities of salt typically used in North Somerset.

Salt is stored in a purpose-built barn at Sandford which has a capacity of 2000 tonnes. Salt moisture and grading testing is carried out by the NSC lab and is completed at the commencement of the winter season, and whenever new stock deliveries are received or each month. This salt management allows NSC to achieve optimum salt conditions.

### **7.4 Winter Service Plans**

This plan to deal with snow clearing and gritting/salting of roads is prepared and reviewed annually. This plan shall include items under the following headlines: -

- I. Priority routes for salting, with maps\*
- II. Priority routes for snow clearance, with maps\*
- III. Busy footways.
- IV. Freezing rain prolonged frost risk assessments review period inspections.
- V. \*The above to be in accordance with Council policy as detailed in Section 2 of this document.
- VI. Staff lists showing duty officers involved in pre-salting/snow clearance duties, the duty rota and appropriate telephone numbers. \*\*

\*\* These details are held within Highways and Transport and the CCTV Control Room.

### **7.5 Vehicles and Plant**

The Council's Highways Maintenance contractor will arrange for the inspection and annual overhaul of all vehicles/snow ploughs ready for calibration trials in October.

All vehicles, ploughs, etc shall be returned to the contractors' depot at Hill Road Sandford two weeks before the commencement of the winter period.

All vehicles and associated equipment (GPS for example) shall be subject to an annual test and calibration. Condition and performance are monitored throughout the season with additional tests being arranged if required.

Under the supervision of authority officers the Highway Maintenance Contractor's snow ploughs will be checked for fitting and any deficiencies/defects shall be remedied before the end of October.

All ploughs fitted to the Highways Maintenance Contractor's vehicles shall have their fitting and hydraulics checked. The plough shall then be placed in a convenient position and at the correct height for easy fitting, clearly marked with number of the vehicle to which it is to be fitted.

## 7.6 Public Communications

In winter conditions well-ordered communications are vital if timely and accurate information is to be disseminated to the travelling public.

All communication will be via the Duty Engineer using [SnowCo-OrdinationGroup@n-somerset.gov.uk](mailto:SnowCo-OrdinationGroup@n-somerset.gov.uk) which will ensure the Press Office and Senior Managers are apprised of the condition of the highway network.

Where priority routes (see Appendix A) are blocked or passage is restricted or dangerous or where it is thought that a public warning of conditions on a particular road would be of assistance, the **police force control room (01275 818181) must be informed by the duty engineer.** The police will then request the media to make the necessary announcements having taken all factors into consideration.

**It should be noted that the police must also be informed when a route notified under section 4.3 above has been cleared or rendered safe.** (This will enable the media announcements to be more accurate, of value and respected by the public).

Any request for a press statement for newspapers, radio and television is to be directed to the Corporate Press Office (01934 634996)

## 7.7 Meteorological Forecasts

Three levels of meteorological information are issued: -

- **Daily Weather Forecasts**

These are forecasts for the next 36 hours and are received daily at the Highways and Transport Office, Clevedon (or obtained by the Duty Engineer) at approximately 1300 hours. These forecasts are timed to allow precautionary arrangements to be made with the Maintenance contractor before the end of the working day.

The designated Duty Engineer shall determine the appropriate action based on the forecast, additional information from the weather stations within North Somerset area and local knowledge.

- **Winter Service Warnings** are sent out by the forecast provider at any time during the day or night to warn of potentially hazardous conditions and changes to the issued forecast. Outside office hours road danger warnings will be received by the Duty Engineer and distributed in the sequence shown for the weekend weather forecast.
- **2 – 10 Day Forecasts**
  - a. These will be provided on a daily basis from 1 October to 30 April
  - a. and will give an indication of the general outlook for the period.

## 7.8 Notes on Conditions Leading to Icy Roads

According to the Transport Research Laboratory road icing depends more on the state of the road i.e. the “degree of wetness”, than on actual temperatures. However, the circumstances in which roads become icy may be classified into the following broad categories in order of frequency of occurrence:

-

### A. The Freezing of Wet Road Surfaces

In most cases the road will have become wet because of rain which fell when the air temperature was above freezing point; the road may also become wet by a heavy deposit of dew or from a wet fog, by the melting of hoar frost which may have formed during the previous night, or by the melting of snow. A subsequent fall in temperature of the road surface, usually due to radiation of heat to a clear night sky, causes the water film remaining on the surface to freeze. The difference between the rates of fall of temperature for various road materials due to differences in their thermal properties are small and significant differences in the ice formation on various surfaces arises only in marginal cases, when the screen minimum lies between  $-1^{\circ}$  and  $+1^{\circ}\text{C}$ .

### B. A Heavy Deposit of Hoar Frost

Sometimes this is preceded by a deposit of dew. With little traffic the surface is not very slippery, but heavy traffic, causing the partial melting and packing of the ice crystals eventually produces a treacherous surface if the temperature is near to the freezing point.

### C. The Freezing of Deposited Moisture on a Cold Dry Road Surface

When there is a sudden change in the weather, from a relatively long period with temperature below the freezing point, to one where the temperature is at or a little above the freezing point and the humidity is high, then the water, which condenses on the cold road surface, may freeze. This condition is most severe if the onset of the warmer conditions is accompanied by drizzle. It does not occur frequently, about once every two winters on the average, but it leads to treacherous road conditions because freezing takes place from below and the ice layer will have lubricating film of water on its surface.

### D. Glazed Frost caused by the Freezing of Super-Cooled Droplets on Impact with the Cold Road Surface

This is an infrequent occurrence in the British Isles and is referred to as ‘freezing rain’.

## 7.9 Warning of Snow.

These are warnings of falls of snow that are likely to require recipients to consider whether arrangements should be made for snow clearance, gritting or salting.

For the purpose of this service warning will refer to slight, moderate or heavy falls of snow as appropriate, these terms being defined as: -

Slight: Undisturbed accumulations of snow reaching a depth of less than 25mm.

Moderate: 25 to 100mm.  
Heavy: Over 100mm.

**Note** Experience has shown that even slight accumulations of snow can lead to treacherous icy surfaces under the action of traffic when the temperature of the surface is below the freezing point. Warnings of slight falls will therefore be issued unless it is confidently expected that the temperature will remain above freezing.

## **7.10 Action in Adverse Conditions**

These notes outline the use of rock salt (and grit where appropriate) for winter maintenance in accordance with the Council's policy.

The action of salt is to lower the freezing point of water and prevent or delay the formation of ice, stop snow adhering to the road surface and melt both ice and snow. This melting will take place at temperatures as low as -21°C but below -10°C the quantities of salt required increase to a point that is environmentally and economically undesirable. However, the road surface temperature during periods of ice and snow seldom falls below -3°C so the performance of salt is adequate.

## **7.11 Precautionary Salting**

Precautionary salting is designed to prevent the formation of ice and to prevent snow adhering to the road surface, thereby easing ploughing. Precautionary measures also includes the placement of ice warning signs and salt sacks at areas where seepage and or run off is known to occur

The need for precautionary salting should be based on the assessment of the "daily weather forecast" any "road danger warnings" issued and local knowledge and information. Due allowance should be made for any salt known to be left on the road network from previous salting operations.

The amount of water present on the road surface at the time of treatment and expected afterwards will have a significant effect on appropriate precautionary salt spread rates as, along with the action of traffic, surface water reduces brine concentration and increases 'wash-off' after spreading.

Effective highway drainage is important and, if a road surface is well drained and has been trafficked for several hours after rainfall, relatively little water should be present on the road surface.

Normal dispersion rates of salt following spreading are accounted for in the recommended spread rates. However, it is important that the timing of precautionary salting operations is carefully considered so that, when practicable, spreading takes place when there is the minimum amount of water on the network, as this will maximise the effectiveness of the treatment.

The amount of salt required to prevent ice from forming on road surfaces exhibiting a water film thickness of greater than 0.1mm is very high. The recommended spread rates provided in this section reflect the practicalities of delivering an effective winter service and are only intended for use on dry, damp or wet roads, where the water film thickness is up to a maximum of 0.1mm.

Precipitation after a treatment takes place will increase the rate of salt dispersal and reduce the brine concentration. Depending upon the amount of precipitation and its timing, higher treatment rates or additional treatments may therefore be required.

## **7.12 Reactive Treatment of Ice Already Formed**

Where ice has already formed it is essential to carry out salting to ensure a rapid melting of ice and remove the hazard as soon as practicable. To carry out this rapid melting of ice, rates of salt spread of up to 40 gms/sq.m. should be used depending on the thickness of ice expected/known to exist and how far the temperature has fallen below zero. The response time for this is 1.5 hours

## **7.13 Treatment of Snow**

Before snow starts to fall salt should be spread at a rate of between 20 & 40 gms/sq.m to prevent the snow compacting onto the road surface (see treatment matrix D). Ploughing is most effective when started as soon as possible for the conditions and where required and is continuous or sufficient to prevent build-up of snow. Ploughing should be as near as possible to the road surface to remove as much slush, snow and compacted snow as possible. The rate of spread of 20 gms/sq.m. associated with ploughing is generally sufficient to stop the snow compacting onto the road surface and equally important it extends the operational time of vehicle ploughs thereby reducing snow build-up when vehicles are returning to depot for re-loading.

Ploughing may not be possible on central urban traffic routes if snowfall occurs during week-day or Saturday office/shopping hours and in these circumstances, snowfall of circa 40 mm it is normally possible to melt the fresh snow by the application of up to 40 gms/sq.m. of salt on routes .

Salt should not be used without abrasives to anything other than a thin film of ice or compacted snow (matrix treatment table E refers). Applying salt alone to compacted snow can produce more dangerously slippery conditions if a weak brine film is formed on top of the ice/snow layer.

## **8.0 Sea Defence Deployment (Tide Watch)**

### **8.1 Roles and responsibilities**

Operational officer

This additional role is performed by the Duty operational officer, who is on call for 24 hours over a seven day period, and includes the responsibility to deploy the sea defences.

The operational officer is responsible for:

- monitoring tide heights, wind speed and wind direction to be prepared for events that might require tide watch
- monitoring Environment Agency warnings and liaising with the Environment Agency duty officer to ensure up-to-date information is available to inform decisions
- making their own observations about sea and weather conditions to complement Environment Agency advice
- instructing contractors and arranging road closures at Portishead and Clevedon as necessary
- determining the level of sea defence deployment necessary at Weston-super-Mare and organising contractors to deliver the desired outcome



## Area officers

Day-to-day responses to emergencies are covered by the area officer team who follow the same rota as the operational officer. There is always one area officer on call and one operational officer:

- Area Officer
  - first responder and responsible for handling all out of hours enquiries and emergencies
  - point of contact with CCTV and responsible for passing urgent warnings from the Environment Agency duty officer to the operational officer during 'out of hours'
- Operational Officer
  - provides cover for Area Officer A when rest is required
  - provides back-up to Area Officer A during significant incidents
  - carries out tide watch if area officer is called to another incident

Area Officer Manager is responsible for:

- instructing contractors to attend site to carry out sea defence deployment during working hours
- ensuring contractors are fully trained to deploy the defences
- ensuring the contractors have completed their risk assessments for deploying the sea defences
- ensuring the out of hours rota is current
- communicating with residents and business on the seaward side of the sea defences to ensure all parties are aware of each other's responsibilities and planned actions
- ensuring the Weston super Mare sea defence gates are adequately maintained

## Environment Agency

The Environment Agency operates the flood warning system for England and Wales and play a critical role in the deployment of our sea defences.

Flood forecasting reports are emailed directly to all operational officers, the emergency management unit and CCTV and provide general information which helps inform our response to weather and tidal conditions at that time.

The Environment Agency also sends operational warnings that are targeted to our section of the coast which contain the most up-to-date information.

The operational officer is in direct contact with the Environment Agency duty officer who can provide detailed information about the situation in real time. Although the flood warnings are helpful, it is the immediate, local contact with the duty officer that is the most critical and informative aspect of the Environment Agency warnings.

*Environment Agency duty officer telephone number: 08000 281 652.*

## Contractors

The Beach Rangers and the Area Officers have the technical ability to close the flood gates including the gates opposite Knightstone slipway.

The operational officer will instruct the beach rangers on which gates should be closed and when. The operational officer should check tide heights & times and contact the seafront manager to confirm which rangers are on duty in preparation for any gate closures.

North Somerset Council's term maintenance contractor has traditionally been used to deploy all the sea defences because they have the most staff available for out of hours call outs.

## 8.2 Key contacts

### During office hours

If an incident or warning needs to be provided during working hours, officers should be contacted in the order identified in the table to support the operational officer in decision making.

Officer		Contact
1	area manager (Adam Wood)	07919 546447
2	Highway operations manager (Phil Bush)	07776 170230
3	Duty Operational officers, please see rota for duty officer Adam Wood, Tom Hartfield George Daly, Phil Hucker.	07919 546447 07824 085774 07770 641447 07557 849869
4	seafront and events manager Demi Rigney	07769 163950

### Outside working hours

When an incident occurs, or a warning needs to be provided outside working hours, the CCTV control room should be contacted 01275 884 700. The operator will forward all necessary information to the Area Officer, who will in turn share the information with the operational officer.

### **8.3 Communication with business and residents**

Contact must be made with business and residents affected by sea defence deployment as soon as the decision to close the gates on Knightstone slipway/Island has been made.

Knightstone Island contacts

- Knightstone Island Chairman: [knightstoneislandltd@gmail.com](mailto:knightstoneislandltd@gmail.com)
- Knightstone Island Caretaker: [caretakerknighstoneisland@gmail.com](mailto:caretakerknighstoneisland@gmail.com)
- OM Property Management: [mark.lancaster@ompropertymanagement.co.uk](mailto:mark.lancaster@ompropertymanagement.co.uk)

## 8.4 Response times

This table identifies the process required to enable the sea defences to be deployed in time.

Time period	Data source	Action	Responsible officer
Long term preceding calendar month	<ul style="list-style-type: none"> <li>North Somerset Council tide chart</li> </ul>	<ul style="list-style-type: none"> <li>identify periods of forthcoming tides &gt;12 metres in the next calendar month</li> <li>plan deployment of Gates</li> <li>forewarn contractors of dates when deployment may be necessary</li> <li>Operational officer &amp; Area officer to be kept informed.</li> </ul>	<ul style="list-style-type: none"> <li>Area manager</li> <li>Area Officer supervisor</li> <li>Operational Duty Officer</li> </ul>
Medium term five days in advance	<ul style="list-style-type: none"> <li>Environment Agency flood forecasting</li> <li>Met Office</li> <li>Environment Agency duty officer</li> </ul>	<ul style="list-style-type: none"> <li>monitor weather forecasts and weather warnings</li> <li>evaluate weather conditions to ascertain risk of coastal flooding</li> <li>organise contractors</li> <li>initiate communications plan if risk of flooding is considered high enough</li> </ul>	<ul style="list-style-type: none"> <li>Operational officer</li> <li>Area manager</li> <li>Senior area officer</li> </ul>
Short term	<ul style="list-style-type: none"> <li>Flood Forecast Centre</li> <li>Plymouth Coastal Observatory wave buoy data</li> </ul>	<ul style="list-style-type: none"> <li>monitor data sources and respond promptly to Environment Agency duty officer reports</li> <li>attend seafront in person and consider flood risk chart</li> </ul>	<ul style="list-style-type: none"> <li>Operational officer</li> <li>Area officer</li> </ul>

	<ul style="list-style-type: none"><li>• Environment Agency warnings</li><li>• Environment Agency duty officer's advice</li><li>• gate operating criteria</li><li>• personal observation</li></ul>	<ul style="list-style-type: none"><li>• deploy flood defences</li><li>• initiate communications plan</li><li>• utilise gate operating criteria to assist in deciding which gates to close</li></ul>	
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The operational officer is responsible for medium and short term decision making, with area officer management responsible for longer term planning.

## 8.5 Gate operating criteria

Computer modelling has been used to help determine the likelihood of overtopping along the whole of Weston-super-Mare promenade. This data should be used in conjunction with other data sources to determine which flood gates should be closed. The Knightstone gates will be closed based on this criterion when a flood alert, flood warning or severe flood warning is received.

See Appendix J – gate opening criteria; and Appendix K – map of flood gate locations.

## 8.6 Sea defence deployment

Analysis of the available data will frequently initiate the deployment of the sea defences before any flooding situation becomes critical, however the Environment Agency will provide flood warning advice at short notice.

During office hours, all operational officers will receive an email and the officer on call will respond. Out of hours, the CCTV control room will receive the information and pass it immediately to the area officer, who will inform the operational officer so they can start the process of deploying the defences.

It is important to note that once the decision to close the gates has been made it will remain necessary to keep a watching brief. On a number of tides we have seen that localised weather conditions for a short period of time can have a significant impact on the sea conditions and potential for overtopping of the defences. The focus must be on managing the emerging situation rather than just making a decision and then leaving.

### Portishead site specific operations

The main area of concern in Portishead is along Esplanade Road, Lake Grounds. There are no sea defences at this location and all local properties are situated on the surrounding hill meaning there is a low likelihood of property flooding.

Esplanade Road can easily be flooded by the sea and recent measures have restricted vehicular access. As such it is unnecessary to close the road to reduce the risk of harm to vehicles. Esplanade Road is unadopted highway so no additional procedures need to be considered.

Due to the size and layout of the Lake Grounds it is not possible to restrict pedestrian access to Esplanade Road.

Location	Action	How	Future
Esplanade Road	None, just monitor for flood extents	Operational Officer to visit when forecast determines significant risk of flood,.	None, while vehicular restrictions are in place

### Clevedon site specific operations

The main area of concern in Clevedon is the road called The Beach near to the pier. There are sea defences at this location but storms cause waves to crash onto the road and affect properties along it.

The Environment Agency warns the affected residents about potential flooding events, and residents and businesses are familiar with this and deal with the matter themselves. However, The Beach can easily be flooded by the sea so it is necessary to close the road to reduce the risk of harm to vehicles and pedestrians. The Beach is adopted highway but can be closed for emergency purposes without notice.

Due to the type of temporary barriers available and limited staffing it is not possible to effectively restrict pedestrian access along The Beach.

Location	Action	How	Future
The Beach	Erect temporary road closed signs at both entrances to The Beach.	Skanska crew is deployed to carry this task out, staying on site until the incident is over.	Install permanent barriers at both ends so that the road can be closed by the area officer.
Marine Lake	When exceptionally high tides are predicted (>13m) install temporary barriers at southern end of promenade by Marine Lake.	Natural Environment team appoint contractor to install dumpy bags of sand.  Work in partnership with Environment Agency.	Upgrade sea wall and include demountable barriers where necessary.

### Staff attendance at Clevedon and Portishead

Area Officer A will cover both Clevedon and Portishead and is able to leave site to deal with other emergencies if necessary leaving the contractor to maintain the road closed barriers.

The operational officer may also make the decision to attend Clevedon and Portishead if necessary although their focus will also be Weston-super-Mare because this is the higher risk area.

### Weston-super-Mare site specific operations

The sea defences at Weston-super-Mare are only complete once the sea defence gates are closed. These tasks are carried out when the operational officer has made the decision to deploy the defences:

1. area officer team mobilised
2. communication with

- Grand Pier
- Knightstone Island residents
- other seafront businesses
- senior Managers in Development and Environment
- Environment Agency
- emergency management unit

3. contractor organised

4. partners engaged

- Business Improvement District team
- police
- coastguard

5. preliminary stand down date determined

- Knightstone slipway gates

These Gates will be closed automatically when the tide meets the 12m threshold from September–March. From April–August, the operational officer will make the decision based on the known facts at the time to ensure minimal disruption during the busy summer period.

- Closing the gates

The flood sheet will determine which gates must be closed. The operational officer will decide if the flood sheet has adequately forecast flood risk in order to determine whether other gates need closing as high tide approaches. Gates will be closed from south to north to assist with moving people off the promenade. All gates must be fully closed and all locking mechanisms engaged.

- clearing the promenade

This is essential to ensure individuals are not trapped on the promenade in potentially dangerous conditions.

The flood chart will determine which gates must be closed and this will enable staff to ensure that the correct promenade barrier gate is deployed preventing the public from accessing the promenade behind the contractor closing the gates.

The Area Officer must move ahead of the sea defence gate being closed by the contractor to inform people that they must leave the promenade by talking to the public and/or by using a loud hailer.



The promenade barrier gates will be deployed to prevent pedestrian access to the promenade where the sea defence gates have been closed. Once the incident is over the gates can be opened in any order that is convenient.

- Closing roads: The roads along the sea front are potentially dangerous when waves overtop the sea wall so it can be necessary to close adjoining roads to prevent harm to drivers and their passengers. The decision to close these barriers will be made by the area officer or operational officer at the time dependent on local conditions and the road will remain closed for the least time possible to minimise disruption. These permanent barriers are sited at the locations identified on Appendix 2.

#### Other sea defences in North Somerset

The sea defences protecting other areas of the district are the responsibility of the Environment Agency, which will implement its own tide watch procedures. Flooding in these areas is less predictable and potentially more severe. Our response in relation to these areas will be more reactive – liaison with the emergency manager will almost certainly be necessary and our emergency procedures may need to be initiated. Areas include:

- Uphill
- Kewstoke and Sand Bay
- parts of Wick St. Lawrence and Kingston Seymour parishes
- Southern Way/Salthouse Fields/Old Church Road area, Clevedon
- Portbury Wharf/Portishead Dock area
- parts of Portbury and Easton-in-Gordano parishes
- Marine Parade/Underbanks/Watchhouse Road area, Pill
- Knightstone Island, Weston-super-Mare

## **Appendices**

### **Appendix A Priority Salting Routes**

During heavy snowfall conditions the priority routes for snow ploughing will be: -

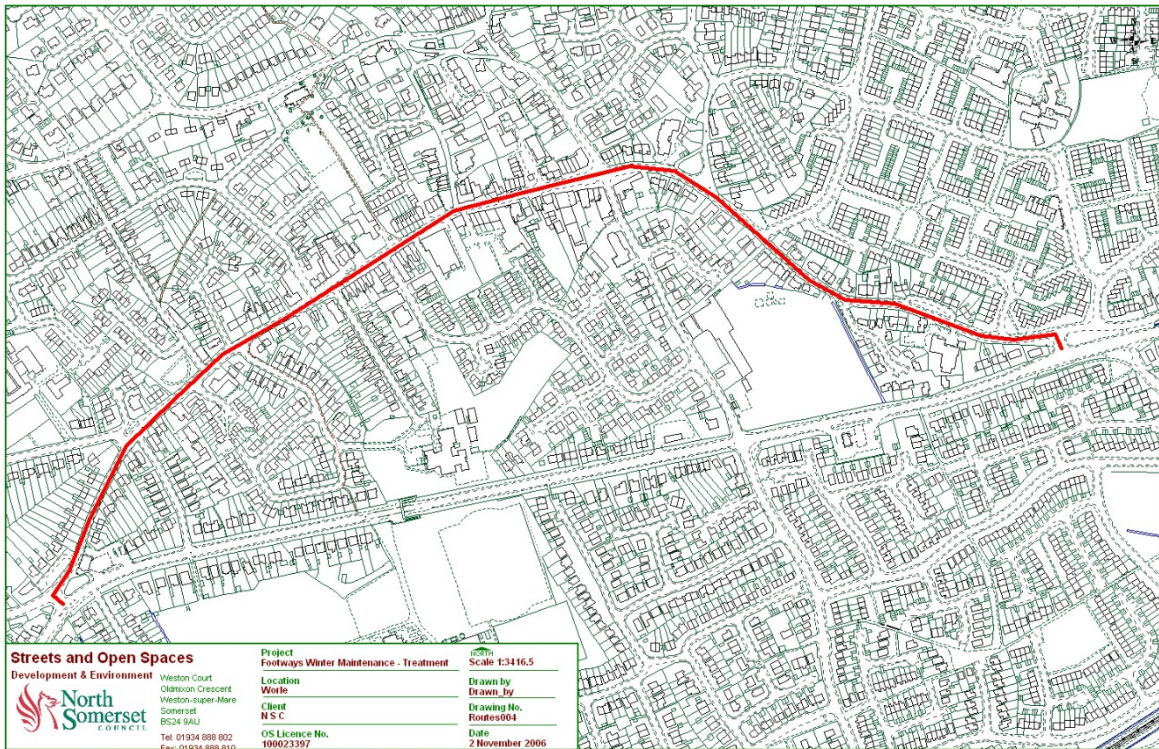
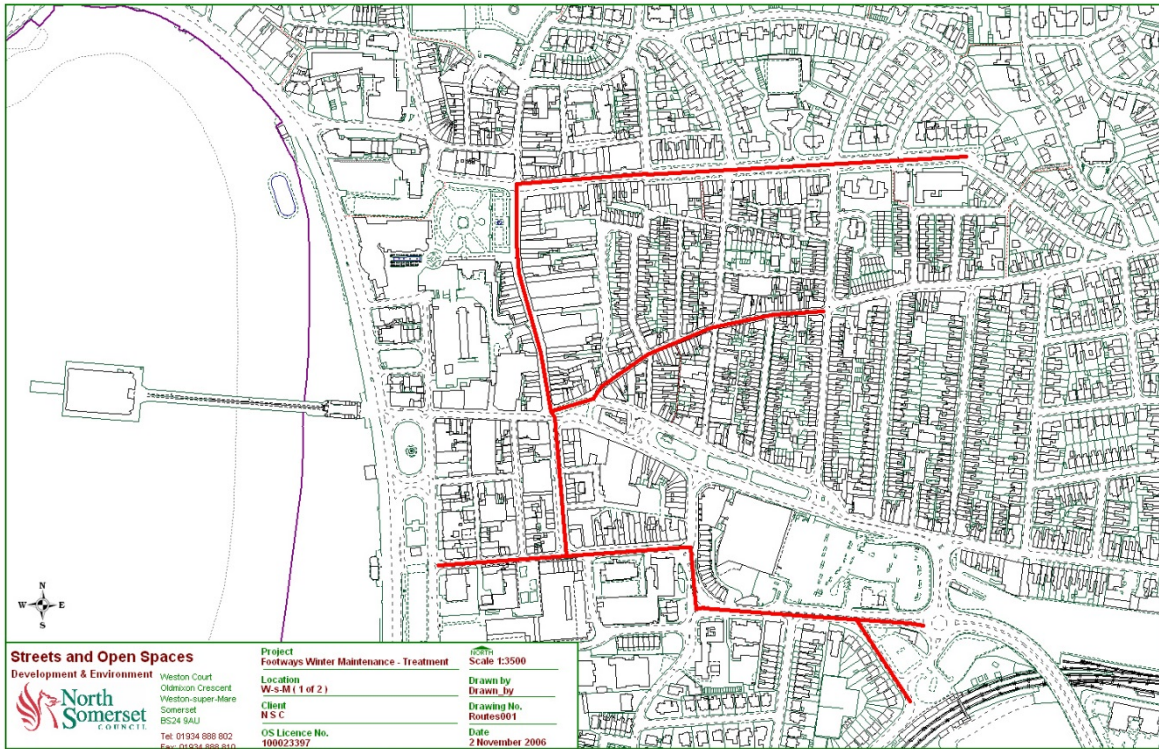
A38	Bristol to County boundary (the section Lulsgate to Lower Langford may not be possible in severe snow conditions – alternative route via A370 and Stock Lane).
A370	Bristol to M5 junction 21.
B3133	Brinsea Road/Stock Lane
A370	M5 junction 21 to Weston-super-Mare town centre via Primary Distributor Route (P.D.R.)
Clevedon	Motorway access to Clevedon, Moor Lane, Kenn Road (Moor Lane to Triangle), Chapel Hill and Hill Road
A369 and Portishead	Motorway access to Portishead, Wyndham Way, High Street and Avon Way

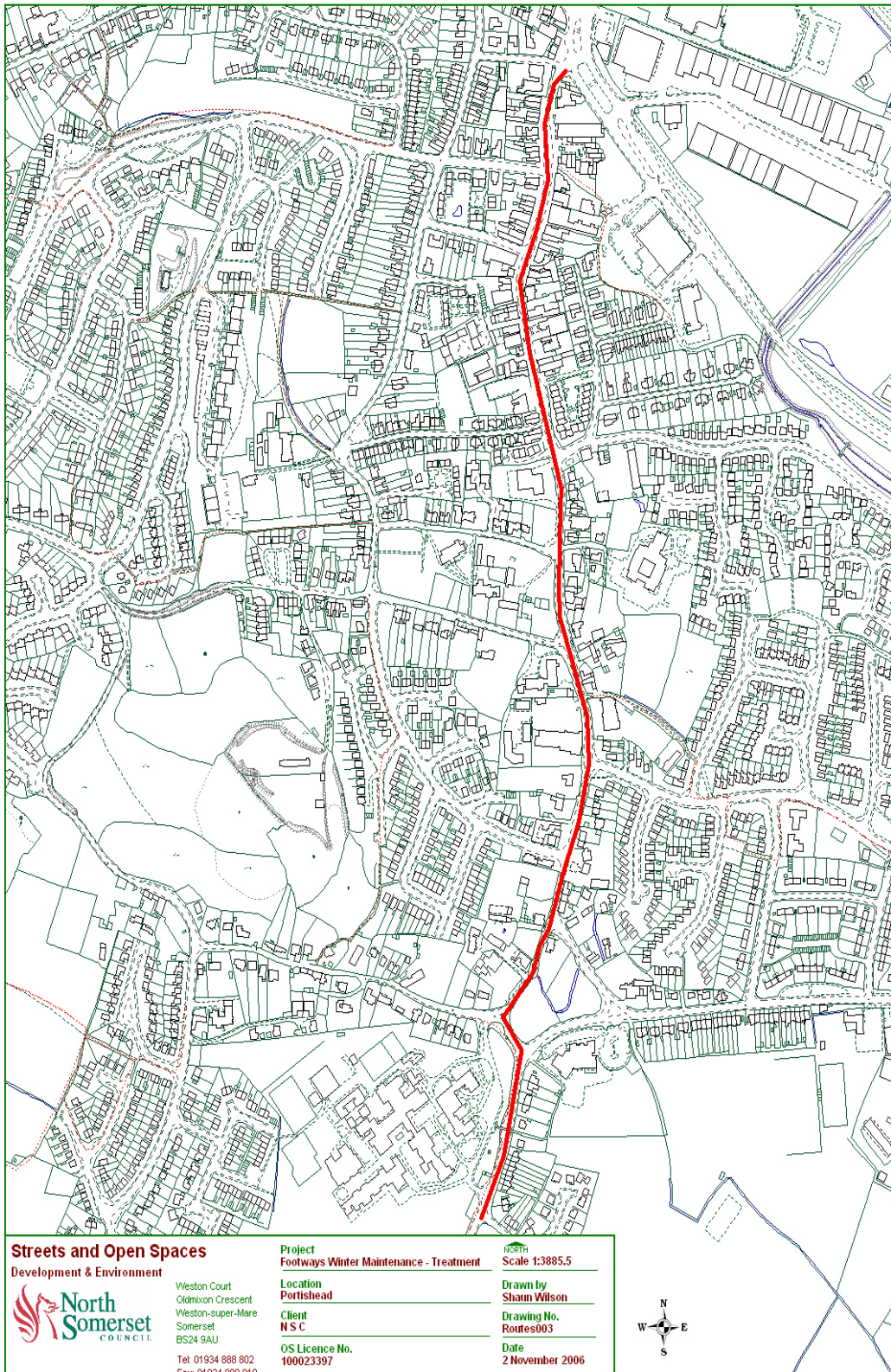
#### Footway Routes

Station Road	W-s-M	275m south side only
Oxford Street	W-s-M	535m
Meadow Street	W-s-M	565m
High Street	W-s-M	550m
Bridgwater Road	W-s-M	1130m
Boulevard	W-s-M	715m
Waterloo Street	W-s-M	285m
High Street	Worle	2330m
High Street	Portishead	2085m

# North Somerset Council Adverse Weather Plan

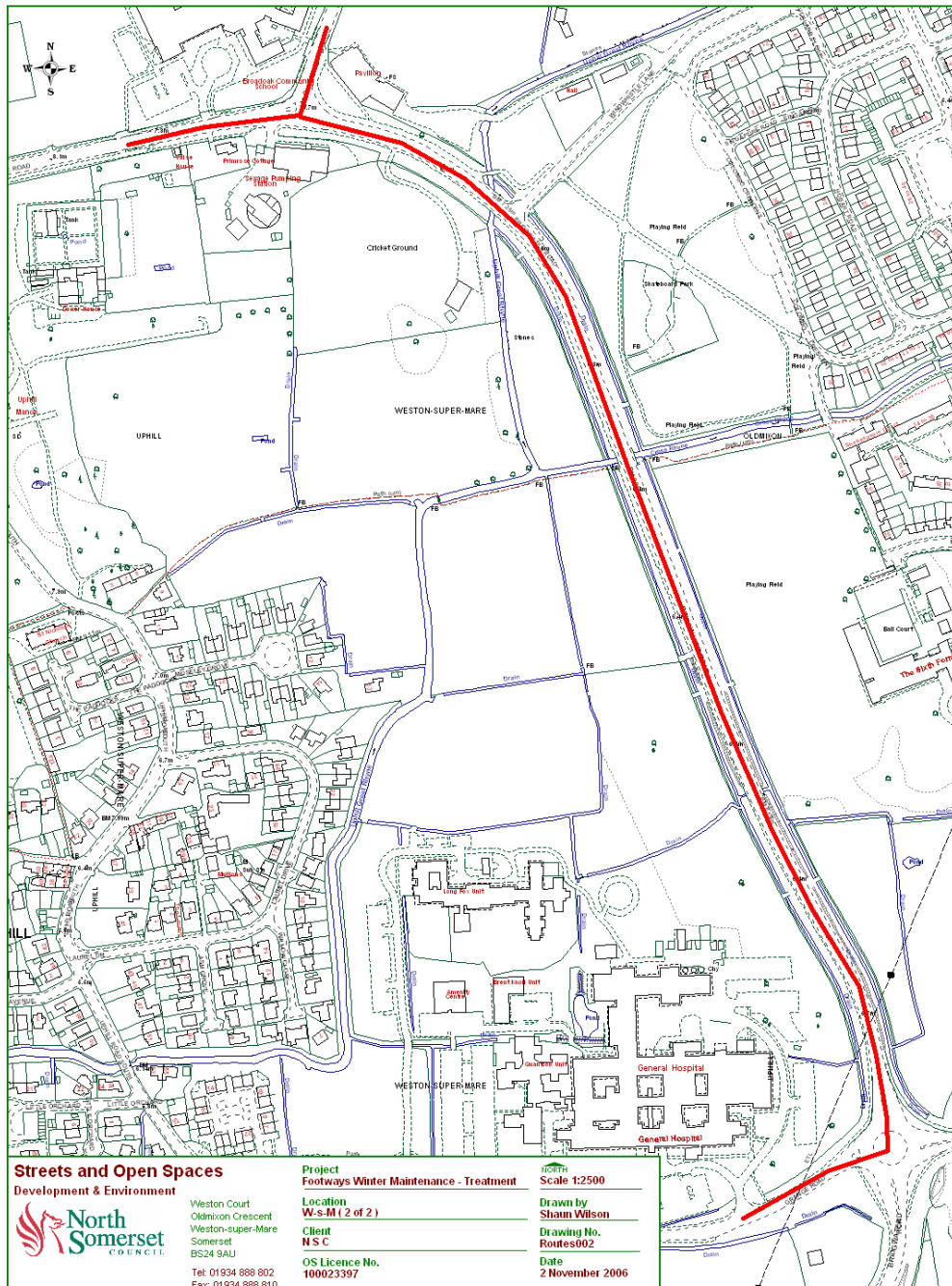
## September 2020 version 1.0





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**Streets and Open Spaces**

Development & Environment



Weston Court  
 Okmixon Crescent  
 Weston-super-Mare  
 Somerset  
 BS24 9AU

Tel: 01934 888 802  
 Fax: 01934 888 810

**Project**

Footways Winter Maintenance - Treatment

Location

W-s-M ( 2 of 2 )

Client

N S C

OS Licence No.

100023397

**Scale**

1:2500

Drawn by

Shaun Wilson

Drawing No.

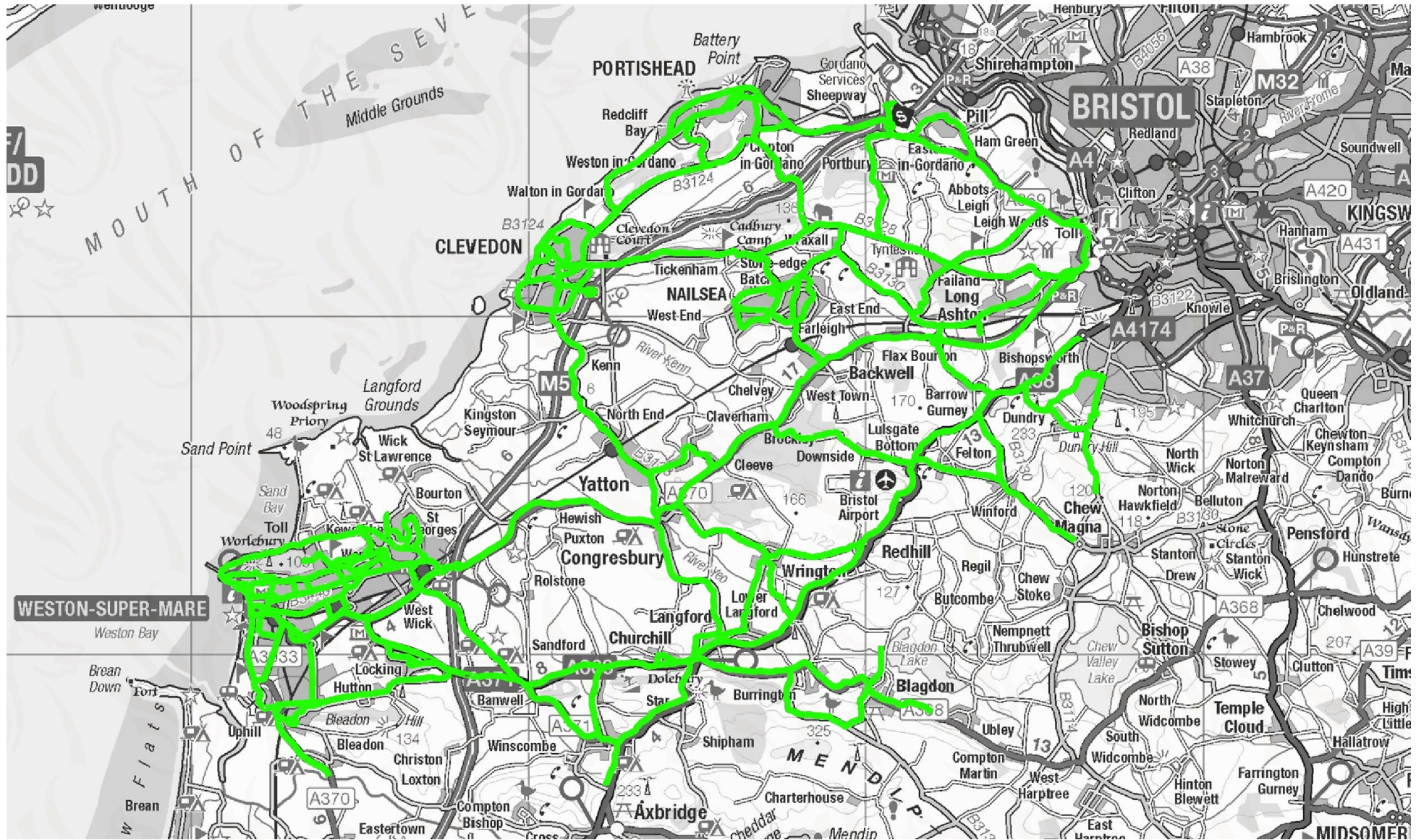
Routes002

Date

2 November 2006

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## Appendix B Rota

### Highways Operations

#### EMERGENCY STANDBY 2020/21

<b>Friday</b>	<b>W/C</b>	<b>Duty Officer</b>	<b>Duty Engineer</b>	<b>Operational Officer</b>
Oct	2	J.Sanjurjo		Adam Wood
	9	G.Brake		Phil Hucker
	16	Rich.B		Tom Hartfield
	23	N.Raymond	P.King	George Daley
	30	J.Sanjurjo	M.O'Sullivan	Adam Wood
Nov	6	M.Eyre	J.Burnell	Phil Hucker
	13	G.Brake	P.Bush	Tom Hartfield
	20	Rich.B	R.Thompson	George Daley
	27	N.Raymond	P.King	Adam Wood
Dec	4	M.Eyre	M.O'Sullivan	Phil Hucker
	11	J.Sanjurjo	J.Burnell	Tom Hartfield
	18	G.Brake	P.Bush	Phil Hucker
	25	N.Raymond	M.O'Sullivan	George Daley
Jan	1	M.Eyre	P.King	Adam Wood
	8	Rich.B	R.Thompson	Tom Hartfield
	15	J.Sanjurjo	J.Burnell	George Daley
	22	G.Brake	P.Bush	Adam Wood
	29	Rich.B	R.Thompson	Phil Hucker
Feb	5	N.Raymond	P.King	Tom Hartfield
	12	M.Eyre	M.O'Sullivan	George Daley
	19	J.Sanjurjo	J.Burnell	Adam Wood
	26	G.Brake	P.Bush R.Thompson	Phil Hucker
March	5	Rich.B	R.Thompson	Tom Hartfield
	12	N.Raymond	P.King	George Daley
	19	M.Eyre	M.O'Sullivan	Adam Wood
	26	J.Sanjurjo	J.Burnell	Phil Hucker

**Note: Standby duty is from 16:30 hours on Friday until 08:45 hours the following Friday.**

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Telephone Numbers for NSC

Mobile

George Daly	Operational Officer	07770 641447
Tom Hartfield	Operational Officer	07824 085774
Adam Wood	Operational Officer	07919 546447
Phil Hucker	Operational Officer	07557 849869
Joe Burnell	Duty Engineer	07766 366099
Phil Bush	Duty Engineer	07776 170230
Peter King	Duty Engineer	07990 805325
Mike O'Sullivan	Duty Engineer	07824 085748
Rob Thomson	Duty Engineer	07824 085747
Gregg Brake	Area Officer	07776 170284
Martin Eyre	Area Officer	07795 812239
Shelley Lee	Area Officer	07917 228254
Nick Raymond	Area Officer	07919 546446
Pepe Sanjurjo	Area Officer	07799 075784

**CCTV CONTROL ROOM; 01934 622669, (Day-time) 01934 634700**

**Back up call out if officer is uncontactable is Adam Wood 07919 546447**

Skanska Supervisor Contact Details

Martin Taylor	Supervisor	07714 739891
Mike Williamson	Senior Supervisor	07714 739895
Alex Waites	Supervisor	07831 509656



**Appendix C Weather Forecast Proforma**

Contact a Forecaster: 01296 628 373

highways@metdesk.com

**36 Hour Summary for North Somerset Council**

Forecast issued:	16th November 2018 06:46:09 GMT	Forecaster:	Rich Johnson
Forecast Period:	Friday 16/11/18 07:00 to Saturday 17/11/18 19:00	Forecaster DDT:	01296 628373

<b>Headline</b>	MORNING FORECAST: RSTS COMFORTABLY ABOVE ZERO.
<b>Confidence</b>	HIGH

**General Synopsis**

Mild and cloudy today but remaining mostly dry apart from the odd spot of drizzle. The cloud will persist through the evening and overnight, with RSTs remaining comfortably above zero. Cloud clearing through the morning.

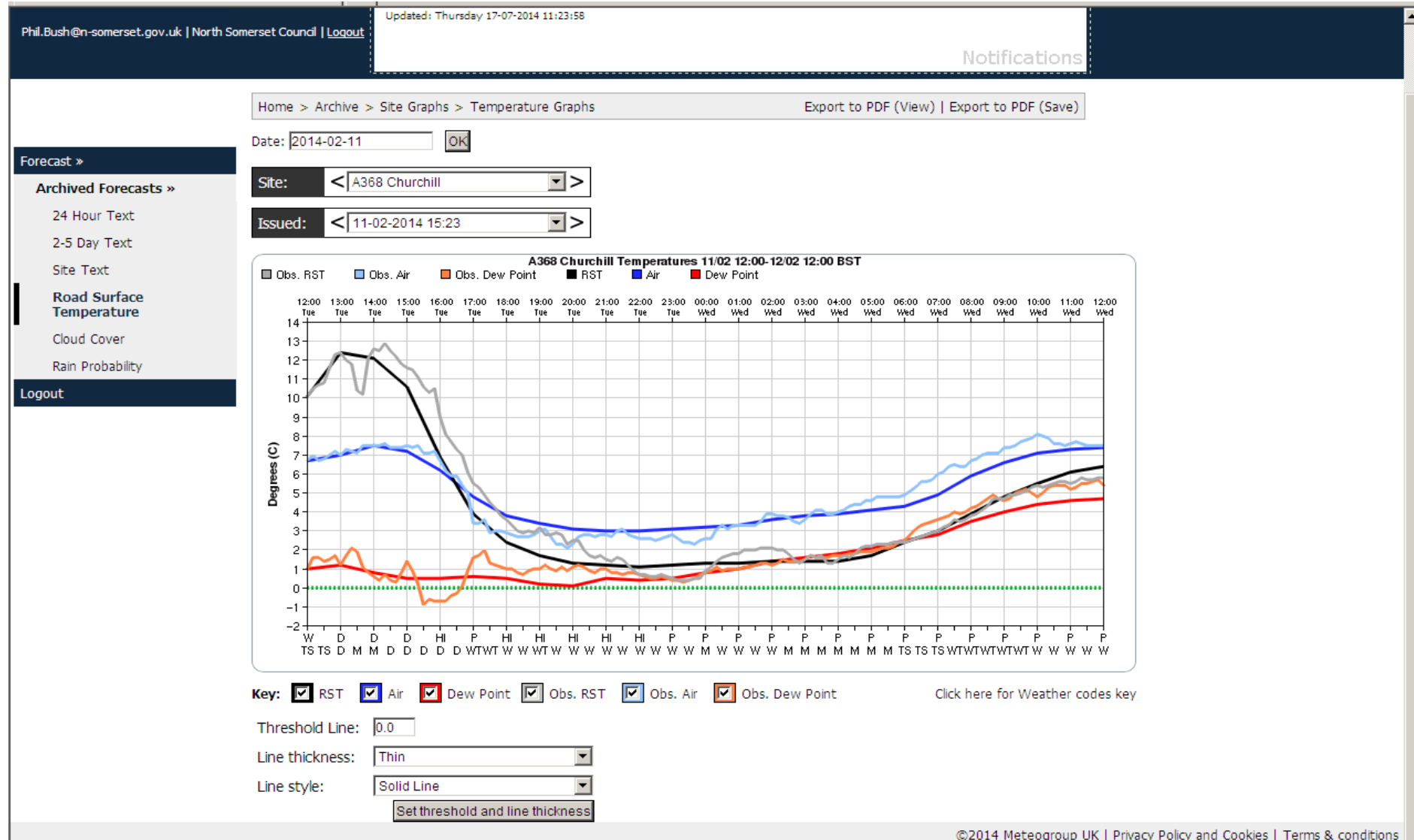
**Snow Summary**

None.

Weather Type Key	D	Dry	W	Wet	P	Rain	DW	Dew	HF	Hoar Frost	I	Ice	S	Snow	SI	Sleet	Hc	Hail	Fy	Frz Rain
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North Somerset Council	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	
RST (c)	10.3	10.5	11.2	12.4	13.9	14.4	14.7	14.3	13.4	12.2	11.5	11.2	11.0	10.7	10.5	10.3	10.2	10.1	10.0	9.9	9.7	9.5	9.3	9.1	8.5	7.6	8.1	10.6	13.6	14.8	14.8	14.0	12.2	9.6	7.9	6.6	5.8	
Air Temp (c)	11.2	11.7	12.3	12.9	13.2	13.4	13.4	13.3	12.9	12.4	12.0	11.5	11.1	10.8	10.4	10.2	10.0	9.8	9.6	9.4	9.2	8.9	8.7	8.4	8.1	7.4	7.9	8.6	9.2	9.7	9.8	9.8	9.7	8.7	7.7	6.6	6.1	
Weather Type	W	W	W	W	W	W	W	P	W	W	W	W	W	W	W	W	W	D	P	P	P	W	W	W	W	W	W	W	D	D	D	D	D	D	D	D	D	
Hoar Frost	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Ice	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Snow Accum. (cm)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Wind Speed (mph)	7	8	9	10	11	12	11	11	10	10	11	11	11	11	11	11	10	10	10	11	11	11	12	12	11	11	11	11	11	12	12	12	12	12	12	13	13	
Visibility (km)	18	15	11	13	14	16	17	17	18	19	19	19	18	17	17	14	11	8	8	9	9	10	12	13	16	20	23	31	38	45	47	48	49	48	46	45	44	
Precipitation (mm)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

### Appendix D Sample Temperature Graph for weather station at A38



Appendix E Treatment Matrix Carriageway

		Predicted Road Conditions		
Forecast RST	Precipitation etc.	Wet	Drying	Dry
May to fall below 0°C	No Rain No Hoar Frost No Fog	monitor conditions	Salt wet spots before frost	no action likely, monitor conditions
Predicted to fall below 0°C	No Rain No Hoar Frost No Fog	Salt before frost		
	Forecast hoar frost forecast fog	Salt before frost		
	Forecast rain before freeze	Salt after rain stops		
	Forecast rain during freezing	Salt before frost and after rain stops		
	Possible rain Possible hoar frost possible fog	Salt before frost and monitor conditions		Monitor conditions
Forecast snow (see note below *)		Salt before snow fall		
Freezing rain	Before rain	Salt before rainfall (40g/m <sup>2</sup> )		
	During rain	Salt during rainfall (40g/m <sup>2</sup> )		
	After rain	Salt after rainfall (40g/m <sup>2</sup> ) Until RST >+1°C		

\* During snow conditions all resources will be directed to winter service operations and activities will be prioritised.

**Appendix E Treatment Matrix Footway**

Decision Matrix for Footway Treatment

	Forecast Conditions			
Footway Category	Overnight Frost Conditions for three or more consecutive days (wet overnight road surface temperature below zero but not extending beyond 07:30am)	Extended frost conditions (wet overnight road surface temperature below zero and extending beyond 07:30am)	Daytime frost Conditions (forecast road surface temperatures remaining below zero throughout daylight hours)	Snow Conditions
1 and 2	Instruct inspection Treat if frost conditions are forecast to continue	Pre-treatment. Commence as soon as practical	Monitor and further treatment as required	Snow removal will commence when resources become available from other priorities
3 and 4	No Treatment	No Treatment	No Treatment	Snow removal will commence when resources become available from other priorities

**Appendix F Minimum Salt Stocks**

<b>Table H1 – Minimum Salt Stocks</b>					
<b>Routes</b>	<b>Normal Salting Network</b>  <b>(tonnes/run)</b>	<b>Minimum Winter Network</b>  <b>(tonnes/run)</b>	<b>Minimum Stock</b>		
			<b>Full Pre-season stock</b>  <b>(12 days/48 runs)</b>	<b>Core Winter Period</b>  <b>Minimum Network</b>  <b>(6 days/36 runs)</b>	<b>Overall Winter Period</b>  <b>Minimum Network</b>  <b>(3 days/ 18 runs)</b>
Carriageways	40	30 (25% reduction)	1920	1080	540
Footways	1	1	48	36	18
Salt bins (2 fills per year)	330	330	330	165	330
<b>Total</b>			<b>2298</b>	<b>1281</b>	<b>888</b>

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**Appendix G Treatment Matrix A**

Dry Salting (De-icer spread rates in g/m sq)

North Somerset considers that our spreader capability is good, however this is monitored throughout the season and the Highway Operations Manager will advise if this changes.

Recommended Spread Rates – Dry Salting (g/m <sup>2</sup> ) Treatment Matrix 8.6.7				
Road Surface Temperature (RST) when frost/ice is predicted	Spreader Capability			
	Fair		Good	
	Dry/Damp Road	Wet Road	Dry/Damp Road	Wet Road
At or above -1.0°C	8	8	8	8
-1.1°C to -2.0°C	8	11	8	8
-2.1°C to -3.0°C	9	17	8	13
-3.1°C to -4.0°C	12	23	9	17
-4.1°C to -5.0°C	14	28	11	21
-5.1°C to -7.0°C	20	39	15	30
-7.1°C to -10.0°C	27	54	20	40
-10.1°C to -15.0°C	38	75	28	56

If traffic levels fall to light i.e after 2130 hrs the above figures should be increased by 25%

If traffic levels are determined to be heavy i.e. during rush hour, then the above figures should be increased by 20 %

Due to the capacity of the gritters and the length of the routes, it is not considered practical to specify rates of spread over 20gms/ sq. metre. The practice in North Somerset will be to specify 20 gms and then review if a secondary run is necessary to provide adequate salt for de-icing purposes.

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Appendix I Precautionary Treatments Before and During Snow or Freezing Rain

TREATMENT MATRIX 9.8.5 TREATMENTS BEFORE SNOWFALL AND FREEZING RAIN	
Weather conditions	
<b>Light to Moderate/Heavy snow forecast</b>	Spread: <ul style="list-style-type: none"> <li>● 20-40g/m<sup>2</sup> of dry salt, or</li> <li>● 20-40g/m<sup>2</sup> of pre-wetted salt, or</li> <li>● 15-30g/m<sup>2</sup> of treated salt</li> </ul>
<b>Freezing rain forecast</b>	<ul style="list-style-type: none"> <li>● 40 or 2x20g/m<sup>2</sup> of dry salt, or</li> <li>● 40 or 2x20g/m<sup>2</sup> of pre-wetted salt, or</li> <li>● 30 or 2x15g/m<sup>2</sup> of treated salt</li> </ul>
Note 1: In situations where time constraints dictate, a treatment of 20g/m <sup>2</sup> across the whole of the scheduled network before the commencement of snowfall or freezing rain will typically prove more advantageous than a treatment of 40g/m <sup>2</sup> on only part of the network.	

TREATMENT MATRIX 9.9.1 TREATMENTS DURING SNOW AND FREEZING RAIN		
Plough to remove as much material as possible e.g. slush, snow, compacted snow Ploughing should be down to the level of the road surface Ploughing should start and, where necessary, be continuous to prevent a build-up of snow As snow melts under the action of salt, keep ploughing to remove slush		
No ice or compacted snow on surface	Ice or compacted snow on surface	
To provide a debonding layer, spread: <ul style="list-style-type: none"> <li>● 20-40g/m<sup>2</sup> of dry salt, or</li> <li>● 15-30g/m<sup>2</sup> of treated salt or</li> <li>● 20-40g/m<sup>2</sup> of pre-wetted salt</li> </ul>	Is traffic likely to compact subsequent snowfall before further ploughing is possible?	
	YES	NO
	To provide a debonding layer, spread: <ul style="list-style-type: none"> <li>● 20-40g/m<sup>2</sup> of dry salt, or</li> <li>● 15-30g/m<sup>2</sup> of treated salt or</li> <li>● 20-40g/m<sup>2</sup> of pre-wetted salt</li> </ul>	No de-icer should be spread

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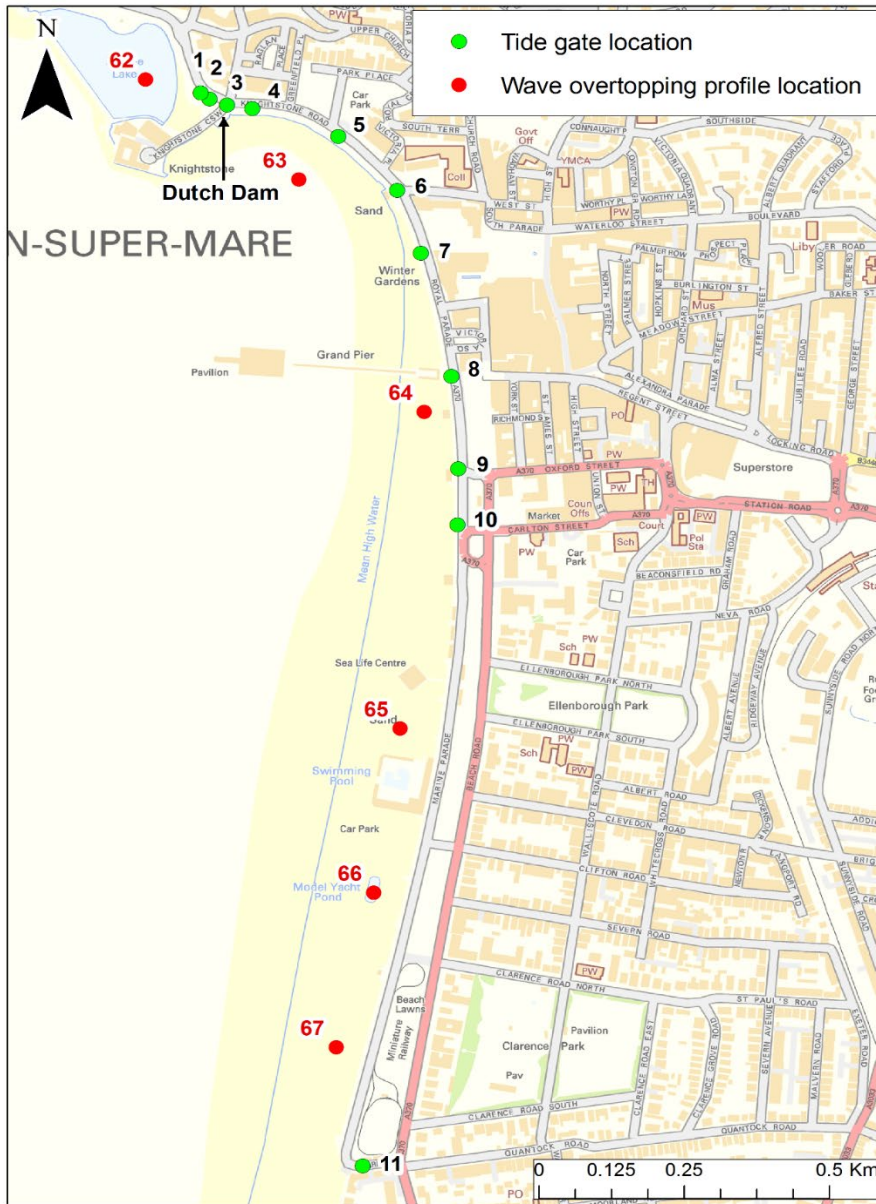
**Appendix H Flood Gate Decision Matrix**

<b>Appendix 1: gate opening criteria</b>																									
Wind Direction and Force																									
Water Level (Astro + surge)	WSM local water level (+6.5m)	16-90 NNE-E				91-180 E-S				181-224 S-SW				225-285 SW-WNW				286-330 WNW-NNW				331-15 NNW-NNE			
		<4	4-6	7-8	>=9	<4	4-6	7-8	>=9	<4	4-6	7-8	>=9	<4	4-6	7-8	>=9	<4	4-6	7-8	>=9	<4	4-6	7-8	>=9
		5.90-6.09	12.40-12.59							Gates 4 to 7				Gates 4 to 7				Gates 4 to 7							
6.10-6.29	12.60-12.79							Gates 4 to 7				Gates 4 to 7	Gates 4 to 7			Gates 4 to 7	Gates 4 to 7			Gates 4 to 7	Gates 4 to 7				
6.30-49	12.80-12.99							Gates 4 to 7	Gates 4 to 7			Gates 4 to 7	Gates 1 to 7			Gates 4 to 7	Gates 1 to 7			Gates 1 to 7	Gates 1 to 7				
6.50-6.69	13.00-13.19							Gates 4 to 7	Gates 1 to 7			Gates 4 to 7	Gates 1 to 7	Gates 1 to 7			Gates 1 to 7	Gates 1 to 7			Gates 4 to 7	Gates 1 to 7	Gates 1 to 7		
6.70-6.89	13.20-13.39							Gates 1 to 7	Gates 1 to 7			Gates 1 to 7	Gates 1 to 7	Gates 1 to 7			Gates 1 to 7	Gates 1 to 7			Gates 1 to 7	Gates 1 to 7	Gates 1 to 7	Gates 1 to 3	
6.90-7.09	13.40-13.59	Gate 11	Gate 11	Gate 11	Gate 11	Gate 11	Gate 11	Gates 1 to 7	All gates	Gate 11	All gates	All gates	All gates	Gate 11	All gates	All gates	All gates	Gate 11	All gates	All gates	All gates	Gate 11	Gate 11	Gate 11	Gates 1 to 3 and Gate 11
7.10-7.29	13.60-13.79	Gates 8 to 11	Gates 8 to 11	Gates 8 to 11	Gates 8 to 11	Gates 8 to 11	Gates 4 to 11	All gates	All gates	Gates 8 to 11	All gates	All gates	All gates	Gates 8 to 11	All gates	All gates	All gates	Gates 8 to 11	All gates	All gates	All gates	Gates 8 to 11	Gates 8 to 11	Gates 8 to 11	All gates
7.30-7.49	13.80-13.99	Gates 8 to 11	Gates 8 to 11	Gates 8 to 11	Gates 8 to 11	Gates 8 to 11	All gates	All gates	All gates	Gates 8 to 11	All gates	All gates	All gates	Gates 8 to 11	All gates	All gates	All gates	Gates 8 to 11	All gates	All gates	All gates	Gates 8 to 11	Gates 8 to 11	Gate 8 to 11	All gates
7.50-7.69	14.00-14.19	Gates 4 to 11	Gates 4 to 11	Gates 4 to 11	All gates	Gates 4 to 11	All gates	All gates	All gates	Gates 2 to 11	All gates	All gates	All gates	Gates 4 to 11	All gates	All gates	All gates	Gates 4 to 11	All gates	All gates	All gates	Gates 4 to 11	Gates 4 to 11	All gates	All gates
7.70-7.89	14.20-14.39	Gates 4 to 11	Gates 4 to 11	Gates 4 to 11	All gates	Gates 4 to 11	All gates	All gates	All gates	Gates 2 to 11	All gates	All gates	All gates	Gates 4 to 11	All gates	All gates	All gates	Gates 4 to 11	All gates	All gates	All gates	Gates 4 to 11	Gates 4 to 11	All gates	All gates
7.90-8.09	14.40-14.59	All gates	All gates	All gates	All gates	All gates	All gates	All gates	All gates	All gates	All gates	All gates	All gates	All gates	All gates	All gates	All gates	All gates	All gates	All gates	All gates	All gates	All gates	All gates	All gates
8.10+	14.60+	All gates	All gates	All gates	All gates	All gates	All gates	All gates	All gates	All gates	All gates	All gates	All gates	All gates	All gates	All gates	All gates	All gates	All gates	All gates	All gates	All gates	All gates	All gates	All gates



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## Appendix I Flood Gate Location Plan



Gate number 3 = Knightstone slipway gates