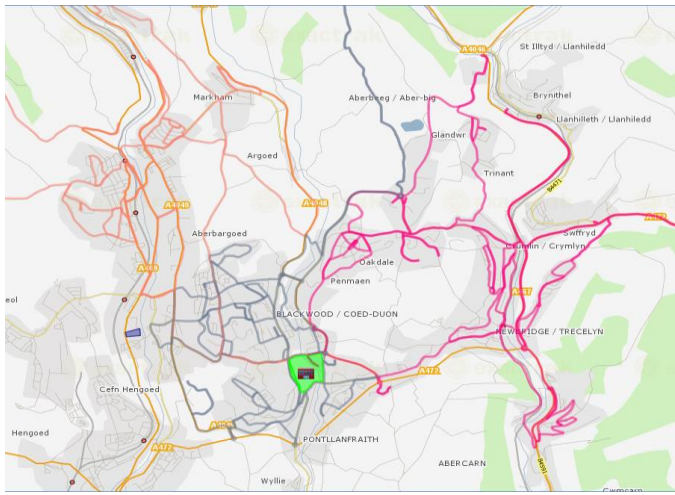




# WINTER SERVICE PLAN 2023-2024.



- SERVICE ORGANISATION.
- PRECAUTIONARY SALTING ROUTES.
- SNOW PLAN.

# CONTENTS

# Page Nos

<b>PREAMBLE.</b>	<b>4</b>
<b>WINTER SERVICE POLICY.</b>	<b>5</b>
<b>1. WINTER SERVICE ROLES AND RESPONSIBILITIES.</b>	<b>6</b>
1.1 Winter Emergency Officer. (WEO)	6
1.2 Highway Services Manager / Designated Representative. (HSM/DR)	8
1.3 Operational Inspection Personnel. (OIP)	8
1.4 Highway Services. (HS)	8
1.5 Service Delivery Specification.	9
1.6 Operational Duty Officer. (ODO)	9
1.7 Sirhowy Enterprise Way. (SEW)	9
1.8 Meteorological Forecaster.	9
1.9 Decision Maker.	9
1.10 Decision Receiver.	9
<b>2. OPERATIONAL PLAN - PRE-SALTING.</b>	<b>10</b>
2.1 During the Normal Working Day.	10
2.2 Outside the Normal Working Day/Bank Holidays/Weekends.	10
2.3 Pre-Salting.	10
2.4 Recommended Practice for Pre-salting.	11
2.5 Strategic Salting Routes A-C.	11
2.6 Emergency Conditions.	11
2.7 Salting of footways.	12
2.8 Salting of footbridges.	12
2.9 Salt bins	12
<b>3. OPERATIONAL PLAN – SNOW CONDITIONS.</b>	<b>13</b>
3.1 White Out – Snow Plan.	13
3.2 Implementation of Snow Plan.	14
3.3 Recommended Practice for Ploughing.	14
3.4 Snow Clearance Additional Priorities.	15
3.5 Action When Thaw Occurs.	15
3.6 ‘Meals on Wheels’ Kitchens.	16
3.7 Snow/Persistent Ice Clearance on Footways.	16
<b>4. WINTER EMERGENCY – FLOODING.</b>	<b>16</b>
<b>5. COMMUNICATION PLAN.</b>	<b>17</b>
5.1 Means of Communication.	17
5.2 Public/Emergency Service/Customer Care/Out of Hours.	17
5.3 Road Condition Information to the Media.	18

<b>6.</b>	<b>WEATHER FORECASTER.</b>	<b>18</b>
6.1	Introduction.	18
6.2	Meteorological Forecaster.	18
6.3	Local Reports.	18
6.4	Road Weather Sensors.	18
6.5	Forecast Details and Format.	18
6.6	Forecast Monitoring and Updates.	19
6.7	Consultation Service.	20
6.8	Snow Warning.	20
<b>7.</b>	<b>SALT STOCKS.</b>	<b>20</b>
<b>8.</b>	<b>RESOURCES.</b>	<b>21</b>
8.1	Details of Fleet.	21
8.2	Location of Winter Service Vehicles/Equipment and Fuel Stocks.	21
8.3	Manning of Plant.	22
8.4	Winter Service Vehicles - Spread Rate Calibration.	22
8.5	Additional Personnel.	22

## **APPENDICES.**

<b>Appendix A</b>	Pre-salting routes 1 – 8.	23
<b>Appendix B</b>	Pre-salting routes (above 300m). Routes 10 and 11.	67
<b>Appendix C</b>	Pre-salting routes (above 200m) Routes 20 – 22.	75
<b>Appendix D</b>	Supplementary routes M1 and M2 for missing sections.	91
<b>Appendix E</b>	Strategic salting routes A – C.	103
<b>Appendix F</b>	Strategic ploughing routes P1 - P8.	109
<b>Appendix G</b>	Footbridge locations.	118
<b>Appendix H</b>	Contact details.	119
<b>Appendix I</b>	Social Service Locations.	122
<b>Appendix J</b>	Major / Minor Shopping Areas.	123
<b>Appendix K</b>	Doctors Surgeries Locations.	124
<b>Appendix L</b>	School Locations.	125
<b>Appendix M</b>	Fire / Ambulance Station Locations.	128
<b>Appendix N</b>	Weather Forecast. (example)	129
<b>Appendix O</b>	Fleet details.	130
<b>Appendix P</b>	Salt Bins – Decision Flow Chart / Assessment Form.	131
<b>Appendix Q</b>	Document Distribution List.	134
<b>Appendix R</b>	Document Amendment Record.	136

**CAERPHILLY COUNTY BOROUGH COUNCIL.**  
**ENGINEERING SERVICES DIVISION - HIGHWAY OPERATIONS GROUP.**  
**WINTER SERVICE PLAN.**

**PREAMBLE.**

This plan forms part of the Caerphilly County Borough Council's (CCBC) suite of Highway Services Management Documents, explaining how the Council delivers its services for its biggest asset, namely its Highway Network. This Plan should be read as a Stand-alone document, but will refer to other documents related to this Service area.

This document explains the County Borough Council's responsibilities, strategy/policy and operational procedures in respect to the management and maintenance of the Caerphilly County Borough highway infrastructure network during the defined winter maintenance period, covering precautionary salting operations, clearance of ice and snow along with response to emergency flooding. Section 41 of The Highways Act 1980 places a duty on Local Authorities "to ensure, so far as is reasonably practicable, that safe passage along a highway is not endangered by snow or ice."

This document is to provide guidance to elected councillors, members of the public and members of staff on operational procedures and contact points during the winter service period.

The policy has taken account the recent review commissioned by Transport Ministers "Winter Resilience Review – An independent review of the Resilience of England's Transport System" which made key recommendations in its report following the 2009/2010 severe winter. There was another severe winter in 2010/2011 and further refinements have been made to improve the way in which the service is able to react to the needs of the public during such events.

**Revised winter service guidance, contained within Appendix H of well-maintained Highways was issued in September 2013. This guidance was considerably more detailed and onerous to implement than the previous update in 2011.**

**Following comments and concerns by many Winter Service providers nationally a review of this document was proposed and, together with other Welsh Authorities, the proposals were not fully adopted, until the completion of the review.**

**This guidance has now been revised as part of the update to the Code of Practice of Well Maintained Highways. Welsh Highway Authorities have engaged in this appraisal and provided feedback to the document through the Welsh County Surveyors Society. The Well-Managed Highway Infrastructure ACoP was issued in October 2016 and this guidance is being considered in collaboration with Welsh counterparts via CSS Wales as part of the Authorities updating of future Winter Maintenance Plans.**

**WINTER SERVICE POLICY.**

The Caerphilly County Borough Council aims to provide a winter service which, as far as possible, facilitates the safe movement of traffic and keeps to a minimum delays and accidents caused by adverse winter weather conditions. In practice this is achieved by taking precautionary measures to pre-salt certain routes, taking account of weather forecast and local observations. The response also aims to, as far as practicable; ensure access to essential Council premises, residential accommodation for older people, education establishments, hospitals, doctor's surgeries, town centres, major bus stations and emergency services.

Priority is primarily given to the 'A' and 'B' roads (the authorities core transportation network so that the continuation of access to goods and services is maintained as best it can in the prevailing circumstances). The primary objective is to achieve the precautionary application of salt to specified elements of the network prior to the predicted time for the onset of sub-zero conditions.

During severe and/or prolonged sub-zero/snowfall conditions causing the risk of formation of ice or significant accumulations of snow throughout the network, consideration is also given to those non principal classified routes and unclassified routes which are deemed to be of significant importance having regard to the number of vehicles carried during the morning/evening peak times on those routes which link a substantial community to a priority route. Actual locations will depend to an extent on particular weather conditions at the time and will be determined based on available information by the Highway Services Manager / Designated Representative / Winter Emergencies Officer. These routes will be considered for treatment where practical, following completion of the priority routes.

There may be times during the winter period where decisions may need to be made to reduce salting of routes to a key strategic network should conditions dictate. Consultation will be undertaken with senior officers should this instance be necessary prior to implementation.

It is recommended that this policy needs to be reviewed alongside the Council's Out of Hours (Duty Officer) Manual. This will ensure that a full understanding of the operational context is understood for emergency situations.

## 1. WINTER SERVICE ROLES AND RESPONSIBILITIES.

There are nine winter emergency roles defined within this section.

- 1.1. Winter Emergency Officer. (WEO)
- 1.2. Highway Services Manager/Designated Representative (HSM/DR)
- 1.3. Operational Inspection Personnel. (OIP)
- 1.4. Highway Services. (HS)
- 1.5. Service Delivery Specification.
- 1.6. Operational Duty Officer. (ODO)
- 1.7. Sirhowy Enterprise Way. (SEW)
- 1.8. Meteorological Forecaster.
- 1.9. Decision Maker.
- 1.10. Decision Receiver.

### 1.1 Winter Emergency Officer. (WEO)

The WEO is the duty officer responsible for monitoring and actioning all requirements in relation to winter maintenance outside normal working hours.

The WEO covers 3 categories of winter emergency operations:-

- Precautionary Salting.
- White Out/Snow Plan.
- Winter Emergency Severe Weather Flooding.

#### **Precautionary Salting - Role and Responsibility.**

1. Weather forecasts received from weather centre to be noted and actioned in consultation with trained staff only.
2. WEO to inform a controlled list of persons/organisation contacts of winter maintenance actions including "no action" via e-mail as appropriate.
  - Operational Duty Officer.
  - CCBC Out of Hours Control Room @ Tir-Y-Berth.
  - Meteo Group.
  - Emergency Services.
  - All neighbouring authorities.
3. Unless forecast is 'green' all vehicles to be placed on standby. WEO to confirm with supervisors that all vehicles are prepared fuelled up and ready. This process will include knowing what front line vehicles are unavailable due to servicing or repairs and arranging necessary cover in any depot with additional replacement vehicles and providing a status report on unavailable vehicles.
4. Where the forecast is unclear and vehicles placed on standby as above the WEO will maintain regular contact with weather centre until a clear action is defined.

5. Where no clear action can be defined from the above or forecast is unclear previous 5 days action and weather to be analysed to determine amount of residual salt on highway (in consultation with HSM/DR). In accordance with the definitive and pessimistic requirement, if in any doubt, action for pre-salting to be called.
6. All actions should be communicated with sufficient warning enabling gritting teams to be informed in a timely manner. (All actions should be recorded by WEO and kept electronically)
7. WEO to determine time for completion of routes and then clearly inform all gritting teams of the time to meet at each depot and the time to commence each route **in order that precautionary salting is completed prior to predicted onset time for sub-zero conditions.**
8. WEO to confirm attendance of all staff at depots prior to salting commencement, enabling any problems to be attended to in a timely manner without affecting salting.
9. During salting WEO to maintain contact with all drivers and report any difficulties or problems with the routes to HSM/DR where necessary.
10. Where vehicle/equipment problems occur WEO to contact winter service fitter to assess repairs and arrange alternate plant to ensure timely completion of salting.
11. Upon completion of salting WEO to confirm completion of all routes and 'sign off' staff as returned safely. Key performance indicator record to be maintained for all routes completed prior to the predicted sub-zero forecast time.
12. Gritting staff to be informed at the time if rest periods\*\* are due, to allow sufficient time for preplanning of work the following day.
13. WEO to assess what impacts rest periods\*\* and plant unavailability will have on following days planned works and update works supervisors as appropriate.
14. No later than 07:30 the next day Supervisors to be notified of anticipated rest periods and vehicle breakdowns to allow efficient redeployment of plant labour and materials, as assessed by WEO.
15. WEO to ensure all records in accordance with current HS quality assurance system requirements are maintained.

*\*\* No strict guidelines are set out regarding rest period entitlement due to the significant amount of variables that could occur. However, duty time will be limited where possible to a maximum of 11 hours in a 24hour period and again where possible a minimum of 9 hours continuous off duty rest will be allocated. WEO to record time of action, amount of advance warning given and duration of action, some of which can be re-organised to mitigate disruption to all services by effectively managing resources, timely notification of actions required and monitoring of labour working and resting periods between shifts. Awareness of new legislation regarding driving hours needs to be taken into account when assessing rest periods.*

## 1.2 Highway Services Manager / Designated Representative.

1. HSM/DR will undertake an annual review and update (as deemed necessary) of the Winter Maintenance Plan prior to the commencement of the winter maintenance period.
2. HSM/DR shall ensure that the definitive GIS stored precautionary salting network and local salt bin locations are maintained.
3. HSM/DR will ensure that a contract is in place with a meteorological contractor to supply a weather forecast or road danger warning each day during the months from October to March inclusive.
4. HSM/DR will generally monitor the actions determined by their designated representative and/or WEO.
5. HSM/DR will ensure that Highways House is available for snow emergencies and that staff can access the facility.
6. HSM/DR shall ensure that all relevant KPI data is completed following the Winter Maintenance period.

### 1.3 Operational Inspection Personnel.

1. When so requested by HSM/DR, Inspectors will patrol the routes specified in order to assist the decision making process.
2. Any adverse conditions are to be reported to the WEO.
3. In the event of a snow emergency, inspection personnel will assist with the effective direction of resources.
4. Inspectors should generally make themselves aware of current winter maintenance actions prior to leaving work each day and ensure that the weekly availability log sheet is up to date.

### 1.4 Highway Services. (HS).

Highway Services, is the winter maintenance service delivery client and contractor and is required to implement all winter service instructions issued by HSM/DR/WEO. It is required to provide labour and plant, which must be available at all times to respond at short notice. The labour force is thoroughly trained and versed in the use of specialist plant and equipment to be used.

### 1.5 Service Delivery Specification.

The service to be provided by the winter maintenance service delivery contractor is comprehensively specified. This document is effectively a contract and includes schedules of all plant and machinery to be used in the provision of the winter maintenance, which HS will be responsible for delivering. This document is reviewed annually prior to the commencement of the winter service period.



## 1.6 Operational Duty Officer. (ODO)

The Engineering Division operates a 24hour emergency response system, which is capable of responding to highway infrastructure related emergencies outside normal office hours. The ODO is the duty officer responsible for actioning all requirements in relation to the Out of Hours emergency service operated by HS and needs to liaise closely with the WEO.

## 1.7 Sirhowy Enterprise Way. (SEW)

The SEW is the responsibility of CCBC, although it is a privately financed project which is operated and maintained by SEW Ltd. Caerphilly CBC as a Local Authority does retain an involvement with the project road as Caerphilly County Borough Council (NCS) has been contracted to undertake a twenty three year Operation and Maintenance Contract, which is due to expire on 20th January 2034.

As the Highway Authority CCBC has a statutory duty, empowered by the Highways Act 1980, and are responsible for operating the highway network.

Part of this contract is to provide a Winter Maintenance Service provision, and it has been incorporated within the existing winter maintenance routes for efficiency.

## 1.8 Meteorological Forecaster.

During the winter months weather forecasts are received daily by e-mail by HSM/DR and the WEO. Outside normal hours the WEO will receive the forecast directly from the forecast contractor. All copies of the forecasts and actions instructed are held electronically by HS.

## 1.9 Decision Maker.

On receipt of the daily forecast, a decision will usually be made for the gritting actions for that day. This decision will be made by the HSM/DR. In some instances it may not be possible to make a decision upon receipt of the daily forecast, and further updates from the meteorological contractor must be sought until action is confirmed or declined.

## 1.10 Decision Receiver.

When the decision has been made regarding pre gritting action, this decision is then relayed to the WEO, The WEO then informs all drivers of the start times of the gritting routes and the spread rates and also records the completion times of the gritting routes.

## **2. OPERATIONAL PLAN – PRE SALTING.**

### 2.1 During the Normal Working Day.

1. HSM/DR will receive weather forecast/road danger warning information daily throughout the designated winter maintenance period October 1<sup>st</sup> to April 30<sup>th</sup> and determine the appropriate action.

2. HSM/DR will convey the instruction to the WEO who will then be responsible for undertaking the detailed duties of the WEO.

## 2.2 Outside the Normal Working Day/Bank Holidays/Weekends.

The WEO will receive forecast information including updates as necessary, determine the appropriate action in consultation with HSM/DR and undertake the detailed roles and responsibilities of the WEO (listed previously).

Similarly, a general priority order has been established for the clearance of ice and snow; which is as follows:

1. Strategic ploughing Routes P1- P8 if implementation required.
2. Major roads. (Described as Priority Routes for Pre-salting)
3. Other routes known as urgent medical and important industrial routes.
4. Other Class II and III roads providing access to villages.
5. Bus routes.
6. Routes to schools, doctor`s surgeries, dialysis patients, meals on wheels and funerals.
7. Other roads to give access into built up areas.
8. Roads serving isolated farms and houses.
9. Other roads.

In the event of a severe snow emergency it will be necessary to augment the winter maintenance fleet by the use of additional plant hired from previously arranged sources and to implement the Snow Plan (Section 3) which utilises labour resources from other directorates to assist in the clearance of snow/ice.

The winter service delivery will be undertaken by a highly experienced combined client/contractors team. The utilisation of experienced local in-house staff has proved extremely beneficial in the past with high levels of local knowledge and experience applied. This well trained in-house service is considered an essential strategic link in maintaining the local highway network in an acceptable operational condition.

## 2.3 Pre-salting.

In accordance with the Winter Maintenance Policy, priority routes will be pre-salted when weather conditions so dictate as instructed by HSM/DR/WEO.

In the interest of efficiency and in order to achieve the desired target time the priority routes have been grouped together to form pre-salting routes of 50-70 Kms, excluding dead mileage.

Standard pre-salting routes have been given an identification number from 1-8. These routes are included in Appendix A.

CCBC has further implemented a change in weather domains of 175m and 275m. Should conditions dictate and the need to salt high routes (over 300m) only, then the routes indicated 10 and 11 in Appendix B will be actioned. Should conditions dictate the need to salt medium/high altitude routes (over 200m) then routes indicated 1 and 2 in Appendix A and routes indicated 20, 21 and 22 in Appendix C will be actioned. In the rare event that the original weather forecast changes so that all grit routes need to be

gritted, grit routes M1 and M2, along with routes 5 and 8 should be utilised to complete the full gritting programme. Routes M1 and M2 are at Appendix D.

#### 2.4 Recommended Practice for Pre-salting.

Precautionary salting takes place when the road surface temperature is expected to fall to 0°C or below unless:-

- i) no moisture is expected on the road surface.
- ii) there is enough residual salt on the road to deal with expected conditions.

Pre-salting should normally be undertaken at 10 gms/sq.m and should be completed prior to the formation of frost. The width of spread should be 2.0m less than the width of the carriageway, the channels then being treated by the action of traffic.

When continuous snow is forecast, spreading rates should be increased to 15-25 gms/sq.m. HSM/DR/WEO will specify within the instruction to the contractor the rate of spread required according to the anticipated severity of the snowfall. The presence of salt will melt the initial fall and provide a wet surface beneath subsequent snow thus easing the work of ploughing.

When persistent ice is expected, spreading rates should be similarly increased to 15-25 gms/sq.m according to severity.

During a period of long cold dry weather salting rates may be reduced to 8 gms/sq.m and an assessment of road condition taken to determine whether daily continuous salting is required.

#### 2.5 Strategic Salting Routes A, B and C.

Strategic routes A, B and C may need to be implemented should salt stocks reduce to a critical level of less than 1000T and the advanced forecast and salt delivery information give cause for concern. Consultation with the Head of Infrastructure and the Councils Chief Executive Officer will be undertaken prior to implementation of this strategic salting regime. These strategic routes are included in Appendix E.

#### 2.6 Emergency Conditions.

HOGM/DR/WEO will be responsible for initiating emergency conditions and the procedures contained in the snow plan (see Section 3). Emergency conditions will generally arise from significant snowfall and/or widespread ice formation. If emergency conditions arise outside of normal working hours the WEO will advise HSM/DR of such action and the service will operate from Highway House. The object of this arrangement is to provide a single co-ordinating centre to assess conditions, determine actions, organise the effective utilisation of resources and provide accurate information. Emergency meetings will be arranged as and when required by the HSM/DR/WEO. All minutes/decisions from these meeting will be documented and stored electronically.

All relevant information regarding the emergency will be monitored, collated and disseminated to the DoC, the HOI and any other relevant parties by HSM.

It is likely that emergency conditions will have wider and more significant impacts on council services and to the community.

Therefore to ensure that there is an integrated emergency management of such incidents and to allow coordination within the Council and with external organisations, the Councils Emergency Planning Team (During Officer Hours) or Environmental Health Duty Officer (Out of Hours) should be notified and regularly updated on ongoing operations. Appropriate contact details can be found in Appendix H.

## 2.7 Salting of footways.

Footways will not be subject to precautionary pre-salting in the same manner as carriageways.

During severe winter conditions such as heavy or prolonged snowfall and/or significant ice formation a pre-defined network of the most heavily used pedestrian routes centered on major shopping zones will be treated in accordance with the snow plan upon instruction of HSM/DR/WEO. The decision will be informed as necessary by local onsite inspections of the network at the instigation of HSM/DR/WEO.

Advice on sensible use of the Highway network during winter conditions is available on the Caerphilly County Borough Council web pages.

Shopping areas and safe routes to schools will be monitored during early morning inspections if deemed necessary.

## 2.8 Pedestrian Footbridges.

There are a number of footbridges within the authority, which provide a primary pedestrian access across major roads to nearby schools.

Where it is anticipated that ice may form on these footbridges HSM/DR/WEO will instruct the appropriate Inspector to attend these footbridges before 07.00hrs on school days. Based on the Inspector's observations, arrangements will be made to hand salt these footbridges before 08.00 if required. Footbridge locations are listed in Appendix F.

## 2.9 Salt Bins.

There are 937 strategically placed salt bins that have been provided on a "self-help" basis. These are filled at the end of the winter period to deter theft vandalism and litter problems through the summer. Bins will be filled periodically during the winter, usually after a spell of severe weather conditions, provided sufficient stocks are available.

The decision for placement of additional salt-bins is determined by the availability of funds, which in these financially challenging times are very limited. Although there is a dedicated budget for salt-bins and their resupply, the current situation means that salt-bin refills and replacements are prioritised over the purchase of bins for new locations.

All requests for additional bins follow a standardised series of stages (which are outlined in the decision flow chart in Appendix P) in conjunction with a scoring exercise (following determining factors outlined in the blank assessment form also in Appendix

P). The final score will position this request in a league table listing all outstanding salt-bin enquires. This will then determine the order in which these requests are addressed, as and when funds become available.

### **3. OPERATIONAL PLAN – SNOW CONDITIONS.**

#### **3.1 White Out - Snow Plan.**

Snow will normally be forecast in advance, allowing the WEO to discuss/plan actions in conjunction with HSM/DR to assess requirements for additional staff for the period. Good communication and teamwork will also allow the same to be organised in emergency situations where no warning is given.

Procedures 1-15 in section 1.1 for precautionary salting operations will apply with the addition of the following:-

16. Additional precautionary salting staff to be organised to 'ride shotgun' with gritter drivers if ploughs are required. They will assist with the fitting of ploughs and accompany the driver on their route. In white out conditions, the use of external resources under CCBC direction will be considered.
17. Other additional labour may be utilised for hand salting or driving backup gritters to respond to emergency calls. This may include staff from other service areas such as Public Services, Building Services and Ground Maintenance.
18. Highway House will be opened up out of hours with the WEO and CCBC Tir-Y-Berth control room (Out of Hours) notified of action.
19. Where prolonged snowfall is predicted WEO will instigate a shift pattern. This shift pattern will be organised for the WEO, labour force and HS Staff, to enable effective gritting for prolonged periods.
20. Regular updates of forecast to be recorded to allow advance planning of resources.
21. WEO to monitor precautionary salting duties to allow effects on programmed work to be minimised by releasing and replacing essential labour to maximise following days productivity without compromising precautionary salting thus, maintaining work commitments and contracts.
22. Labour to be notified of rest periods if due and details/actions passed to HS Team Managers and Supervisors by 07:30 the following day with assessed amendments.
23. Notify the Councils Emergency Planning Team (During Officer Hours) or Environmental Health Duty Officer (Out of Hours) and regularly updated on ongoing operations. Appropriate contact details can be found in Appendix H.

#### **3.2 Implementation of Snow Plan.**

HSM/DR/WEO will be responsible for initiating snow plan actions.

HSM/DR/WEO will implement pre-planned arrangements to increase resources directed at snow/ice clearance. Contact details are included in Appendix H.

### 3.3 Recommended Practice for Ploughing Snow.

In the interests of traffic safety and effective working it is necessary to have a snow ploughing policy, which is readily understood and acted upon by all staff.

Ploughing generally only becomes effective when snowfall exceeds 50 mm in depth. Lighter falls may call for ploughing where light local drifts have occurred. Ploughing may be required to remove snow not dispersed by traffic in cases where there is a reluctance to use the right hand lane of dual carriageways or where traffic is light (at night for instance).

When prolonged falls are forecast it is recommended to plough continuously from the onset of snow to prevent build up and to prevent compaction by traffic. Such ploughing can be combined with simultaneous salting at 15-25 gms/sq.m and over if appropriate, so that a wet base is maintained. However, once snow depths of 12cms have been reached, when tackling snow drifts or where vehicles are operating on gradients it may be desirable to continue ploughing without salting. The weight of a salt load will aid vehicle traction when ploughing. Additional actions would depend upon the depth of the remaining snow.

When repeated ploughing is necessary 24 hour manning may be required. This will be undertaken via a 2 shift system in order to achieve maximum staff deployment.

On dual carriageway sections of the network within the authority the following additional recommendations should be observed:-

- i) The process should be based on CLEARANCE BY LANES with the ultimate object of CLEARING ALL LANES. Dual carriageway lanes are defined by broken white lines and road studs/cats eyes which drivers are accustomed to use as guides. It is therefore bad practice to make ploughing passes which leave traffic guided by irregular windrows of snow which weave from one lane to another or even on and off the hard shoulder. The effects of such ploughing for traffic is dangerous in daylight and even more so at night.
- ii) It is also undesirable to leave only half lanes clear as drivers are tempted to overtake dangerously by squeezing past at speed. Similarly, the ploughed windrows of snow should form a smooth and continuous line without sudden encroachments into the cleared path or overtaking vehicles will be obliged to brake hard or risk hitting the windrows at speed.
- iii) The ultimate aim must always be to clear all lanes as soon as conditions permit, and clearance work should proceed continuously to this end. If clearance work is stopped during a fall, resultant snow build-up may take dis-proportionately longer to clear. Packed snow, glazed by the wind can be particularly difficult to remove.
- iv) If one or more lanes are left uncleared and a thaw sets in, those lanes will go through an uncontrolled transitional stage of semi clearance under the action of

the thaw, which might tempt imprudent drivers to risk overtaking through the restricted gaps already mentioned.

- v) Due to variations in local weather conditions, snow depth, snow wetness and topography, it is difficult to be precise on the order of lane clearance. Local traffic densities and movements, which differ from day to day and even within a day, can affect lane clearance priorities.

### 3.4 Snow Clearance Additional Priorities.

A priority order has been established for the clearance of ice and snow, which is as follows:-

1. Strategic ploughing Routes P1- P8 if implementation required.
2. Major Roads. (Described as priority routes for pre-salting)
3. Other routes known as urgent medical and important industrial routes.
4. Other Class II and III roads providing access to villages.
5. Bus routes.
6. Routes to schools, doctor`s surgeries, dialysis patients, meals on wheels and funerals.
7. Other roads to give access into built up areas.
8. Roads serving isolated farms and houses.
9. Other roads.

Where snowfall is substantial and prolonged it may be necessary to close certain mountain roads and steep hills in the interest of safety. Such closures would be kept to a minimum and alternative routes should be kept clear.

### 3.5 Action when a thaw occurs.

Appropriate warning signs must be ready for placement at locations of known flood risk. Appropriate gullies and water outlets should be opened to permit free flow of water. Carriageways should be inspected for evidence of frost damage and damage by snow clearing plant and remedial action identified.

### 3.6 Meals on Wheels Kitchens.

There is one “meals on wheels” kitchen within the County Borough, which has been incorporated to within the kitchen facilities of Ty Penallta. This kitchen will receive priority in terms of snow clearance to ensure that the provision of hot meals to the elderly is maintained. The kitchen is at the following location:-

Ty Penallta, Tredomen Park, Ystrad Mynach, Hengoed. CF82 7PG.

### 3.7 Snow/Persistent Ice Clearance on Footways.

Salt is not spread on footways on receipt of an adverse weather forecast. However, where snow or persistent ice forms on footways, it shall be cleared having regard for the prevailing conditions, forecast and available resources. The Housing Dept. and the Social Services also have, through their Grounds Maintenance related functions, certain responsibilities for snow clearance beyond the public highway, which include typically, Council Offices and Day Care Centres. Additional resources are directed to this task see Appendix I.

Hand clearance of strategic locations is to be undertaken by additional personnel from Grounds Maintenance and Public Services, under the instruction of HSM/DR. These additional personnel will be accompanied by their own supervisory staff.

A priority order has been established for the clearance of ice and snow from footways which is as follows provided resources allow:-

- i) Town centre footways. (See Appendix J)
- ii) Footways giving access to hospitals, doctors surgeries, schools and homes for the elderly etc. (See Appendices K and L)
- iii) Access to fire and ambulance stations (See Appendix M)
- iv) Footway access for emergencies.
- v) Footways to allow funerals to proceed.

#### **4. WINTER EMERGENCY – FLOODING.**

Should an emergency for flooding occur during the winter period, the following process should be followed:-

- 1 If severe weather dictates that the WEO requires additional resources the WEO will liaise with HSM/DR and arrange that Highway House to be established as a control room if deemed necessary.
- 2 The WEO will liaise with the ODO during periods of severe snow/ice or flooding and combine resources to effectively manage the situation, if appropriate by establishing a control centre at Highways House.
- 3 The WEO will contact winter emergency operatives to meet at the respective depots.
- 4 The WEO in consultation with the ODO will allocate resources to effectively resolve flooding problems.
- 5 The WEO will assess whether other additional resources over and above the winter emergency operatives are required and will endeavour to ensure adequate resources are available to effectively resolve flooding problems.
- 6 The WEO will keep HSM/DR fully informed during such occurrences.
- 7 Notify the Councils Emergency Planning Team (During Officer Hours) or Environmental Health Duty Officer (Out of Hours) and regularly update on ongoing operations. Appropriate contact details can be found in Appendix H.



If the severity of the situation should escalate, consideration of providing updates to the Head of Infrastructure and the Director of Communities should be made.

## **5. COMMUNICATION PLAN.**

### **5.1 Means of Communication.**

Communications will be predominately by telephone, of which, the Highway Operations Group have suitable numbers of mobile telephones. In the event of a snow emergency the service will be directed and managed from Highways House in order to ensure prompt and effective direction of operations. Should events escalate, decisions will be taken by HSM/DR or the WEO to inform and update Head of Infrastructure (HOI) and Chief Executive Officer (CEO) as deemed appropriate.

### **5.2 Public/Emergency Services Information/Customer Care/Out of Hours.**

The public and the emergency services will be informed of the services to be provided prior to commencement of the winter and where necessary during the winter.

With regard to the public, this will be achieved by distributing this document to Community and Town Councils. In addition to local councilors, copies will also be distributed to public libraries and made available on the intranet.

Emergency services will be informed of the County Borough's policy on winter maintenance and how it will be achieved. A copy of this document will be distributed to all the emergency services.

Emergency services and the Meteorological Forecaster will be informed daily, by 16.00 hours of any preplanned action to be undertaken during the night.

This information is also relayed by e-mail to the personnel covering the 'Customer Care' line and the control room at Tir-Y-Berth (Out of Hours) in order that they may advise callers of proposed action and any information in respect to road conditions through the provision of regular and accurate reports.

### **5.3 Road Condition Information to the Media.**

HSM/DR/WEO will provide information to local radio via the CCBC Communications Group in respect to current conditions. The general message will be to discourage all unnecessary car journeys and to advise on which routes are blocked, closed or considered hazardous.

Daily information will be forwarded to the website coordinator to update the webpage on gritting action for that day.

All internal communication will be completed by either telephone or e-mail.

## 6. WEATHER FORECASTER/WEATHER CONDITION REPORTS.

### 6.1 Introduction.

Effective and efficient winter service is only possible with reliable information on road and weather conditions. HS personnel need accurate and detailed information in order to implement the operational requirements of this document. HOG receive weather forecasts and road condition reports from the following sources:-

### 6.2 Meteorological Forecaster.

During the winter months, weather forecasts are received daily by e-mail by HSM/DR/WEO Outside normal hours the WEO will receive the forecast directly from the forecast contractor. All copies of the forecasts and actions instructed are held electronically by HS.

### 6.3 Local Reports.

Local reports of poor road and or weather conditions are received from the Police and the public. During office hours HSM/DR deals with these reports. Outside office hours, the WEO deals with reports from the Police and seeks advice/guidance from HSM/DR if deemed necessary.

### 6.4 Road Weather Sensors.

There are six road weather sensors located at Markham, Ystrad Mynach, Hafodyrynys, Risca, Caerphilly and Rhymney. Data gathered from these sensors will be used by the meteorological forecaster and aid in the forecasting of road conditions and temperatures. These weather sensors will allow operational staff to review real time information on current road condition at these locations at any time.

### 6.5 Forecast Details and Format.

During the winter period a weather forecast, compiled by the meteorological forecaster, is received daily by HS It gives a prediction of minimum road surface temperatures and road conditions including snow and other forms of precipitation. Reference is also made to the time of day or night when such conditions are expected, the altitude, if this is relevant, and confidence limits. An alert state is also given with the forecast to give a first indication of likely conditions. The alert states are described as follows:-

#### **GREEN**

No road within the domain will fall below zero.

This indicates a very high probability of road temperatures remaining well above zero and can be used specifically for use in mild cloudy situations. Road temperatures quoted on the forecast must be definitely expected to remain above +3 °C.

## **YELLOW**

Roads within the domain will fall between +3 °C and +1.6 °C. Although positive temperatures may have been quoted in the forecast text, an update would be beneficial if there is any uncertainty.

## **AMBER**

Roads within the domain will fall between +1.5 °C and +0.6 °C and may fall below zero if the forecast is in error by any degree. Road temperatures are certainly expected to fall to +1.5 degrees.

This indicates there is some doubt in the forecast and although positive temperatures may have been quoted in the forecast text, they will be so close to zero that they will need to be updated before the planned action or gritting runs commence.

Roads could also be forecast to be below zero, but due to prolonged dry spells they will pose limited risk.

## **RED**

Roads in the domain will fall below zero.

This indicates that there is a high probability of roads within the domain falling below zero. A negative road temperature will have been quoted in the domain forecast with amplification within the text to give details of altitudes and times.

A typical weather forecast received from the meteorological contractor is shown in Appendix M.

### 6.6 Forecast Monitoring and Updates.

The forecast is received daily at about 12.00 hours from 1<sup>st</sup> October to 30<sup>th</sup> April. The forecast provider will constantly monitor the weather and issue updates to the forecast when it considers the advice is no longer adequate or accurate. If an **AMBER** alert state is included in the forecast, the forecast will always be updated before any planned action commences.

### 6.7 Consultation Service.

The forecast provider also provides a consultation service from October to April which allows HS to speak directly to the Duty Forecaster in order to obtain “up to the minute” information on weather conditions and trends.

### 6.8 Snow Warnings.

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

These are warnings of fall of snow that are likely to require HS to consider arrangements for snow clearance, gritting or salting. Warnings refer to slight, moderate or heavy falls as follows:

Slight:	Undisturbed accumulations of less than 25mm depth
Moderate:	25 to 100mm
Heavy:	Over 100mm

## 7. SALT STOCKS.

For the forthcoming winter service period, the authority will use “safecoat” coated rock salt. This type of salt adheres itself to the road surface, thus eliminating waste. Safecoat coated rock salt also reduces the amount of corrosion on street furniture, structures and road vehicles, as well as reduced application rates.

Stocks of ground rock salt, stored in barns at Pontlottyn, Bedwas and Penmaen, are replenished during the summer. Salt is stored in barns as rainwater causes loss of salinity and increases its moisture content. Wet salt is difficult to spread and can damage equipment.

During periods of prolonged severe weather conditions salt stocks may need to be replenished. Contracts to supply salt have been awarded to suppliers in Cheshire and Northern Ireland. Supplies can normally be obtained from Cheshire within 48 hours. However, recent events have shown the vulnerability of these supplies nationally.

The availability of rock salt from stock at the start of the winter is as follows:-

<b>Location</b>	<b>Capacity</b>
Bedwas Depot	4,500 tonnes
Penmaen Depot	1,200 tonnes
Pontlottyn Depot	1,200 tonnes
Strategic Salt Stocks (Ebbw Vale)	2,000 tonnes
Grit Bins	300 tonnes
<b>Total</b>	<b>9,200 tonnes</b>

Salt stocks are monitored weekly and minimum stock levels have been set at 50% of the total. Stock levels between this minimum and the start of winter levels will be provided throughout the winter dependant on supplier deliveries. The actual level is to be determined by HSM based on weather conditions, forecast and judgment.

The strategic salt is available from a regional salt barn situated at Waun-Y-Pound Ind Est, Ebbw Vale. This facility is shared between Caerphilly, Blaenau-Gwent, Monmouth, Torfaen, Merthyr and Rhondda Cynon Taff CBC’s and is available for this winter. Caerphilly will have an additional 2000T emergency stockpile stored at this facility.

If a salt shortage should arise, a review in the pre salted routes may be instructed by HSM in consultation with Head of Service and the Councils Chief Executive Officer. In the event that the Strategic pre salted routes are implemented, all other routes will be monitored for formation of ice and the safe passage for public use. Details of these Strategic Routes can be found in Appendix E.

## 8. RESOURCES.

### 8.1 Details of fleet.

HS maintains a fleet of 13 gritters of which 8 are front line winter service vehicles and 5 are reserves. Each vehicle can be fitted with a snowplough.

HS also has the use of 7.5t tipper lorries.

All ploughs are fitted with polypropylene blade attachments to prevent damage to carriageway and road studs.

Shovel loaders are available for loading salt at Pontllytyn, Bedwas and Penmaen salt storage depots.

HS also has available additional plant and can procure sub-contract plant from external sources, which may be used in an emergency.

A list of available gritting equipment is included in Appendix O.

## 8.2 Location of Winter Service Vehicles/Equipment and Fuel Stocks.

Each item of winter service plant is located in accordance with its operational requirement. Accordingly those vehicles allocated for routine pre-salting are located at Bedwas and Penmaen salt storage depots.

Those vehicles held in reserve are usually kept at the Bedwas and Penmaen Depots.

HS is responsible for ensuring all vehicles have adequate supplies of fuel and that it is used in accordance with current regulations.

Should conditions dictate the implementation of the snow plan routes 1 and 2 will revert to operating out of Pontllytyn Depot and additional resources be considered for deployment to Pontllytyn Depot.

## 8.3 Manning of Plant.

HS are responsible for providing all drivers and operators for all winter service plant held by this Authority. They are thoroughly trained and versed in the use of the specialist plant, equipment and their operational requirements.

The labour force is readily available and is of sufficient size to carry out any instruction given in accordance with the general requirements of this document.

Where extreme conditions or prolonged snowfall are expected HS will be instructed to place appropriate personnel on "standby" at the relevant depots. This will facilitate a prompt or continuous response to the wintry weather.

## 8.4 Winter Service Vehicle Spread Rate Calibration.

Prior to the winter service season all spreading vehicles are calibrated to ensure that target spread rates are achieved. HS hold these calibration records.

## 8.5 Additional Personnel.

Additional personnel may be made available from Public Services, Building Services and Grounds Maintenance should conditions necessitate additional resources. These personnel will generally only be available in snow conditions. Actual circumstances are to be decided upon by CEO, Head of Public Services, Head of Building Services, Head of Infrastructure and Highway Services Manager. These additional personnel will primarily be utilised in the clearance of footpaths in accordance with the snow plan priorities. Supervisory staff will also be available to compliment the manual workforce and will work under instruction from highways staff at either Highway House or Bedwas Depot.

## **Appendix A.**

### **Pre-salting Routes 1-8.**

**Precautionary pre-salting route descriptions and plans.**

**Note 1:** The route plans are schematic only and must be read in conjunction with the route descriptions.

**Note 2:** In some instances, gritting may be hampered by slow moving traffic flows, or a RTC. It will be up to the drivers` discretion at these times to divert from the original route to achieve best results for coverage of the routes. Ultimately, all routes should be gritted prior to the onset of frost.

## Pre-salting Route 1 (Penmaen)

Route 1			Distance
Instruction	GRITTING	ROUTE_CARD	(Kms)
1	N	Leave yard travel to junction B4254.	
2	N	Turn left - Travel B4254	
3	N	Continue - Travel B4254	
4	N	Enter roundabout travelling and take exit 1 on to B4254	
5	N	Turn right - Travel A4049 to junction B4254	
6	N	Continue - Travel A4049	
7	N	At roundabout take exit 3 to PENGAM ROAD	6.22
8	Y	At BEDWELLY ROAD traffic signals, Continue and grit the A4049.	
9	Y	Enter roundabout gritting and take exit 2 to DUFFRYN TERRACE	
10	Y	Turn right - Grit DUFFRYN TERRACE	
11	Y	Continue - Grit DUFFRYN TERRACE to SCHOOL STREET	
12	Y	Continue - Grit SCHOOL STREET to CROSS STREET	
13	Y	Turn left onto A4049	
14	Y	Turn left onto ELLIOTT STREET	
15	Y	At roundabout take exit 2 to ELLIOTT STREET	
16	Y	Continue - Grit ELLIOTT STREET to QUEENS ROAD	
17	Y	Continue - Grit QUEENS ROAD to UPPER ROAD. End of salting	5.73
18	N	Turn right onto A4049	
19	N	Travel WHITE ROSE WAY. Grit.	1.09
20	Y	Turn left onto NEW TREDEGAR BUSINESS PARK	
21	Y	Continue - Grit INDUSTRIAL ESTATE & CAR PARK AREAS. End of salting.	0.53
22	N	U-turn and return back to A4049	
23	N	Turn left on to A4049	
24	N	Continue - Travel A4049, then grit.	1.09
25	Y	At roundabout take exit 1 to A4049	
26	Y	Continue - Grit A4049 to A469	
27	Y	Turn left onto A469	
28	Y	Continue grit A469 to PLEASANT VIEW	
29	Y	Continue grit PLEASANT VIEW to BRITHDIR CEMETARY. End of salting	4.25
30	N	U-turn - Travel BRITHDIR CEMETARY to BRISTOL TERRACE. Grit	1.21
31	Y	Turn right -Grit BRISTOL TERRACE	
32	Y	Continue - Grit BRISTOL TERRACE to NELSON TERRACE	
33	Y	Continue - Grit NELSON TERRACE to TIRPHIL SQUARE. End of salting	1.97
34	N	Turn left - Travel TIRPHIL SQUARE to A469. Grit	0.35
35	Y	Continue - Grit A469 to FARM ROAD	
36	Y	Turn left - Grit FARM ROAD to FOCHRIW ROAD.	
37	Y	Turn right onto HILL ROAD. Grit	
38	Y	Turn right onto BRYNHYFRYD	
39	Y	Turn right onto FOCHRIW ROAD	
40	Y	Continue - FOCHRIW ROAD to PONTLOTTYN ROAD	
41	Y	Continue - Grit PONTLOTTYN ROAD	
42	Y	Continue - Grit PONTLOTTYN ROAD to BROOK ROW	
43	Y	Turn Left - onto MOORES ROW	
44	Y	Continue - Grit MOORES ROW to AELYBRYN STREET	
45	Y	Continue - Grit AELYBRYN STREET	
46	Y	Turn left onto HEOL IAGO	
47	Y	Continue - Grit HEOL IAGO to GLAN-Y-NANT	
48	Y	Continue - Grit GLAN-Y-NANT	
49	Y	Turn right onto HEOL IAGO	
50	Y	Continue - Grit HEOL IAGO to AELYBRYN STREET. End of salting.	7.5



51	N	Turn left onto AELYBRYN STREET	
52	N	Continue - Grit AELYBRYN STRET to MOORES ROW.	
53	N	Turn right onto BROOK ROW	
54	N	Continue - BROOK ROW to PONTLOTTYN ROAD	
55	N	Continue - Travel PONTLOTTYN ROAD. Grit	0.79
56	Y	Turn left - Grit SOUTH TUNNEL ROAD	
57	Y	Continue - Grit SOUTH TUNNEL ROAD to TUNNEL TAVERN.	
58	Y	Turn right onto TRECATTI HILL	
59	Y	Continue - Grit TRECATTI HILL to RHYMNEY COMMON ROAD	
60	Y	Turn left onto RHYMNEY COMMON ROAD	
61	Y	Continue - Grit RHYMNEY COMMON ROAD to ROUNDABOUT	
62	Y	At roundabout take exit 4 to RHYMNEY COMMON ROAD. End of salting	5.42
63	N	Travel RHYMNEY COMMON ROAD to COMMON ROAD. Grit.	1.02
64	Y	Continue - Grit RHYMNEY COMMON ROAD to ROUNDABOUT	
65	Y	Complete a circuit of the roundabout and take exit 3 to RHYMNEY	
66	Y	Complete a circuit of the roundabout and take exit 1 to B4257	
67	Y	Continue - Grit B4257 to MERTHYR ROAD	
68	Y	Continue - Grit MERTHYR ROAD to End of Salting	3.50
69	N	Continue - Travel MERTHYR ROAD	
70	N	Enter roundabout travelling and take exit 4 back to MERTHYR ROAD	
71	N	Continue - Travel MERTHYR ROAD to B4257. Grit	2.82
72	Y	Turn left grit B4257 to UPPER HIGH STREET	
73	Y	Turn right - Grit OAKLAND TERRACE.	
74	Y	Continue - Grit OAKLAND TERRACE to B4257. End of salting.	1.55
75	N	Turn right - Travel B4257 to CARNO STREET. Grit	0.16
76	Y	Turn left - Grit CARNO STREET.	
77	Y	At roundabout take exit 4 onto CARNO STREET	
78	Y	Continue - Grit CARNO STREET to B4257	
79	Y	Turn right - Grit UPPER HIGH STREET	
80	Y	Continue - Grit UPPER HIGH STREET to CHURCH STREET	
81	Y	Continue - Grit CHURCH STREET to HIGH STREET	
82	Y	Continue - Grit HIGH STREET	
83	Y	Turn right onto TRE-YORK STREET	
84	Y	Turn right onto THE TERRACE	
85	Y	Continue - Grit TRE-YORK STREET to B4257	
86	Y	Continue - Grit B4257	
87	Y	Turn right onto CARNO STREET. End of salting	2.87
88	N	Travel CARNO STREET	
89	N	Continue - Travel CARNO STREET to CORONATION CRESCENT. Grit	0.08
90	Y	Turn right - Grit CORONATION CRESCENT	
91	Y	Continue CORONATION CRESCENT to QUEENS CRESCENT	
92	Y	Continue QUEENS CRESCENT to HIGH STREET	
93	Y	Turn right onto HIGH STREET. End of salting	0.61
94	N	Travel HIGH STREET to TRE-YORK STREET. Grit	0.48
95	Y	Continue - Grit HIGH STREET TO HAVARDS ROW	
96	Y	Continue - Grit HAVARDS ROW to BRYN-TEG CRESCENT	
97	Y	Turn left onto HILL STREET	
98	Y	Continue - Grit HILL STREET to MORIAH STREET	
99	Y	Turn right onto MORIAH STREET	
100	Y	Continue - Grit MORIAH STREET	
101	Y	Turn left onto WELLINGTON WAY	
102	Y	Continue - Grit WELLINGTON WAY	
103	Y	Turn left onto ABERTYSSWG ROAD	
104	Y	Continue - Grit ABERTYSSWG ROAD	

105	Y	Turn right on COMPREHENSIVE SCHOOL ACCESS ROAD	
106	Y	U-turn - back to ABERTYSSWG ROAD	
107	Y	Turn right - Grit ABERTYSSWG ROAD	
108	Y	Continue - Grit ABERTYSSWG ROAD to CARN-Y-TYLA TERRACE	
109	Y	Continue - Grit CARN-Y-TYLA TERRACE to WARN'S TERRACE	
110	Y	Continue - Grit WARN'S TERRACE to WALTER STREET	
111	Y	Continue - Grit WALTER STREET to CHARLES STREET	
112	Y	Continue - Grit CHARLES STREET to End of Salting.	3.87
113	N	U-turn - Travel CHARLES STREET to WALTER STREET	
114	N	Continue - Travel WALTER STREET to WARN'S TERRACE	
115	N	Continue - Travel WARN'S TERRACE to CARN-Y-TYLA TERRACE	
116	N	Continue - Travel CARN-Y-TYLA TERRACE to ABERTYSSWG ROAD	
117	N	Continue - Travel ABERTYSSWG ROAD. Grit	2.31
118	Y	Turn left - Grit B4257	
119	Y	Continue - Grit B4257 to MERCHANT STREET	
120	Y	Turn left onto MERCHANT STREET	
121	Y	Continue - Grit MERCHANT STREET to FARM ROAD	
122	Y	Turn right onto FARM ROAD	
123	Y	Turn right onto FARM ROAD	
124	Y	Continue - Grit FARM ROAD to HEOL EVAN WYNNE	
125	Y	Turn right onto HEOL EVAN WYNNE	
126	Y	Continue - Grit HEOL EVAN WYNNE to A469	
127	Y	Turn left onto A469	
128	Y	At roundabout take exit 2 to A469	
129	Y	Continue - grit A469 to HEADS OF VALLEYS ROUNDABOUT	
130	Y	At roundabout take exit 4 back onto A469.End of salting.	4.53
131	N	Travel A469 to CARNO STREET. Grit	1.02
132	Y	At roundabout take exit 3 to INDUSTRIAL ESTATE	
133	Y	Continue - Grit INDUSTRIAL ESTATE to A469. End of salting	1.93
134	N	Turn right - Travel A469	
135	N	Continue - Travel A469 to MERCHANT STREET. Grit	0.93
136	Y	Turn left - Grit WELLINGTON WAY	
137	Y	Continue - WELLINGTON WAY to FORGE CRESCENT	
138	Y	Turn left onto LAWN INDUSTRIAL ESTATE	
139	Y	Continue to End of salting.	1.42
140	N	U-turn - Travel LAWN INDUSTRIAL ESTATE to FORGE CRESCENT.	
141	N	Turn right, then turn left on to HILL STREET.	
142	N	Travel HILL STREET to MORIAH STREET JUNCTION. Grit.	0.6
143	Y	Continue - Grit HILL STREET to TAN-Y-BRYN	
144	Y	Turn right - Grit TAN-Y-BRYN	
145	Y	Continue - Grit TAN-Y-BRYN	
146	Y	Turn right onto GARDEN CITY	
147	Y	Continue - Grit GARDEN CITY to HILL STREET	
148	Y	Turn right onto HILL STREET	
149	Y	Continue - Grit HILL STREET to End of salting.	2.68
150	N	Travel B4256 to A4048	
151	N	Travel A4048 to COUNTY BOUNDARY at HOLLYBUSH. Grit	7.53
152	Y	Continue - Grit A4048	
153	Y	Turn right onto SLIP ROAD. Grit	
154	Y	Turn left - Grit PENYLLAN ROAD	
155	Y	Continue - Grit PENYLLAN ROAD to A4048	4.73
156	N	Turn right onto A4048	
157	N	At roundabout take exit 1 to A4048	
158	N	At roundabout take exit 2 to A4048	

159	N	At roundabout take exit 2 to A4048	
160	N	At roundabout take exit 3 to B4254	
161	N	Turn left onto PENMAEN ROAD INDUSTRIAL ESTATE	
162	N	Turn left onto DEPOT	5.10
		Gritted	53.09
		Free Travel	32.80
		Total	85.89
		Efficiency	61.81%



## Pre-salting Route 2 (Penmaen)

Route 2			Distance
Instruction	GRITTING	ROUTE_CARD	(Kms)
1	N	Leave yard travel to junction B4254.	0.11
2	Y	Grit – Turn left on to B4254. Grit to LIBANUS TRAFFIC SIGNALS. End of salting.	0.32
3	N	Continue - Travel B4254	
4	N	Enter roundabout travelling and take exit 3 to BRYN ROAD	
5	N	Continue - Travel BRYN ROAD.	
6	N	At junction - Continue travel BEDWELLY ROAD	
7	N	Continue - Travel BEDWELLY ROAD to GREENWOOD ROAD. Grit	2.87
8	Y	Continue - Grit HEOL Y CEFN	
9	Y	Continue - Grit HEOL Y CEFN to HEOL Y BEDW-HIRION	
10	Y	Continue - Grit HEOL Y BEDW-HIRION.	
11	Y	Turn left onto BEDWELLY ROAD	
12	Y	Continue - Grit BEDWELLY ROAD	
13	Y	Turn left onto BEDWELLY ROAD	
14	Y	Continue - Grit BEDWELLY ROAD	
15	Y	Turn left onto COMMERCIAL STREET	
16	Y	Continue - Grit COMMERCIAL STREET	
17	Y	Continue - Grit PENGAM ROAD	
18	Y	At roundabout complete a circuit and take exit 1 to PENGAM ROAD	
19	Y	Turn right - Grit HIGH STREET.	
20	Y	Turn right - Grit A469	
21	Y	Continue - Grit A469 to BRITANNIA LINK ROAD ROUNDABOUT	
22	Y	Enter roundabout complete a circuit and take exit 2 to BRITANNIA LINK ROAD	
23	Y	Continue - Grit BRITANNIA LINK ROAD	
24	Y	Enter roundabout and take exit 4 to BRITANNIA LINK ROAD. End of salting	9.11
25	N	Continue - Travel BRITANNIA LINK ROAD. Grit	0.34
26	Y	Enter roundabout gritting and take exit 2 to A469 ANGEL WAY	
27	Y	Enter roundabout complete a circuit and take exit 1 to BARGOED NEWYDD VIADUCT	
28	Y	Continue - Grit BARGOED NEWYDD VIADUCT.	
29	Y	Continue onto GILFACH STREET	
30	Y	Continue onto CARDIFF ROAD	
31	Y	Turn left - onto WOOD STREET	
32	Y	Continue - Grit UPPER WOOD STREET.	
33	Y	Turn left onto PARK CRESCENT	
34	Y	Continue - Grit PARK CRESCENT. End of salting.	1.73
35	N	Turn left onto PARK DRIVE	
36	N	Turn left onto CARDIFF ROAD	
37	N	Continue - Travel CARDIFF ROAD. Grit.	0.49
38	Y	Continue - Grit HANBURY ROAD	
39	Y	Continue onto HIGH STREET	
40	Y	Continue onto UPPER HIGH STREET	
41	Y	At roundabout take exit 2 to ST GWLADYS WAY	
42	Y	At roundabout take exit 1 to STATION ROAD	
43	Y	Continue - Grit STATION ROAD	
44	Y	Turn left onto FACTORY ROAD	
45	Y	Continue - Grit FACTORY ROAD.	
46	Y	Continue - Grit FACTORY ROAD to BRITHDIR CEMETARY. End of salting	2.43
47	N	U-turn - Travel BRITHDIR CEMETARY to FACTORY ROAD. Grit	0.80
48	Y	Turn right - Grit GROESFAEN TERRACE	

49	Y	Continue - Grit GROESFAEN TERRACE	
50	Y	Continue - Grit GROESFAEN TERRACE to NEW ROAD	
51	Y	Continue - Grit NEW ROAD	
52	Y	Turn left onto BAILEY STREET	
53	Y	Continue - Grit BAILEY STREET to GLENVIEW TERRACE	
54	Y	Continue - Grit GLENVIEW TERRACE to BROOKE ROW. End of salting.	7.35
55	N	Continue - Travel BROOKE ROW to PONTLOTTYN ROAD.	
56	N	Turn Left onto SOUTH TUNNEL ROAD.	
57	N	Continue - Travel SOUTH TUNNEL ROAD to TUNNEL TAVERN.	
58	N	Turn Left onto TUNNEL TAVERN. Grit.	2.20
59	Y	Continue - Grit TUNNEL TAVERN to GLENVIEW TERRACE	
60	Y	At crossroads Turn Right onto GELLIGAER MOUNTAIN ROAD	
61	Y	Bear right - Grit MOUNTAIN ROAD.	
62	Y	Turn left - Grit Minor Road to WESTERN DRIVE	
63	Y	Turn right onto WESTERN DRIVE	
64	Y	Continue - Grit WESTERN DRIVE TO HILLSIDE PARK	
65	Y	Turn left onto HILLSIDE PARK	
66	Y	Continue - Grit HILLSIDE PARK	
67	Y	Turn left onto PARK DRIVE	
68	Y	Continue - Grit PARK DRIVE	
69	Y	Turn left onto HEOL FARGOED	
70	Y	Continue - Grit HEOL FARGOED	
71	Y	Turn left onto WESTERN DRIVE	
72	Y	Continue - Grit WESTERN DRIVE to CROSS STREET	
73	Y	Continue - Grit CROSS STREET	
74	Y	Turn left onto PARK PLACE	
75	Y	Turn left on to William Street	
76	Y	Continue - Grit to the end of the street. End of salting	14.70
77	N	U-turn and return to PARK PLACE	0.12
78	Y	Turn left onto PARK PLACE	
79	Y	Continue - Grit PARK PLACE to CARDIFF ROAD	
80	Y	Turn left onto CARDIFF ROAD	
81	Y	Turn left on to PARK DRIVE.	
82	Y	Continue - Grit PARK DRIVE	
83	Y	Turn left onto HEOL PENCARREG	
84	Y	Continue - Grit roundabout	
85	Y	Continue - Grit HEOL PENCARREG to PARK DRIVE	
86	Y	Turn left onto PARK DRIVE	
87	Y	Continue - Grit PARK DRIVE to WESTERN DRIVE	
88	Y	Turn right - Grit WESTERN DRIVE to MOORLAND ROAD	
89	Y	Continue - Grit MOORLAND ROAD to MCDONNELL ROAD	
90	Y	Continue - Grit MCDONNELL ROAD	
91	Y	Turn left on ST GWLADYS AVENUE	
92	Y	Continue - Grit ST GWLADYS AVENUE to HEOLDDU GROVE	
93	Y	Continue - Grit HEOLDDU GROVE. End of salting	3.68
94	N	Turn left - Travel MCDONNELL ROAD to HEOLDDU ROAD. Grit	0.30
95	Y	Continue - Grit HEOLDDU ROAD	
96	Y	Turn left onto CHURCH PLACE	
97	Y	Continue - Grit CHURCH PLACE	
98	Y	Turn right onto BRISTOL TERRACE	
99	Y	At roundabout take exit 1 to ST GWLADYS WAY.	
100	Y	At roundabout take exit 1 to STATION ROAD. End of salting	0.58
101	N	Continue - Travel STATION ROAD to BRIDGE STREET. Grit	0.34
102	Y	Continue - Grit BRIDGE STREET to BEDWELLY ROAD	

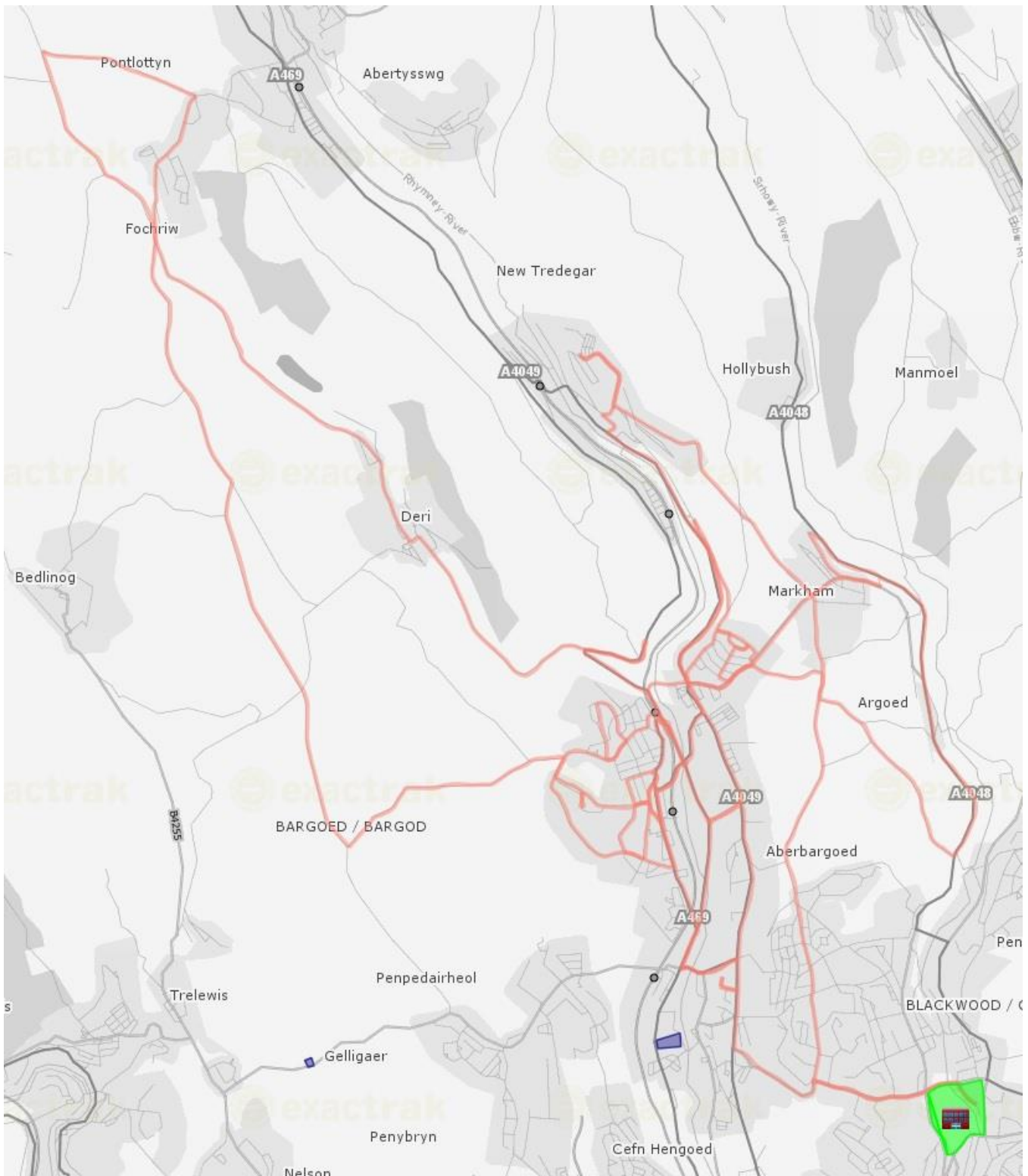


103	Y	Turn second left onto COMMIN ROAD.	
104	Y	Continue – Grit COMMIN ROAD	
105	Y	Turn left on to QUARRY ROAD.	
106	N	Turn left on to UPPER ROAD. End of salting.	2.19
107	N	Turn right on to WHITE ROSE WAY	
108	N	Continue - Travel WHITE ROSE WAY	
109	N	Turn right onto CROSS STREET.	
110	N	Continue - Travel CROSS STREET to SCHOOL STREET	
111	N	Turn right onto BEDWELLY ROAD. Grit	1.71
112	Y	Continue - Grit BEDWELLY ROAD to BEDLWYN ROAD	.
113	Y	Turn left onto BEDLWYN ROAD	
114	Y	Continue - Grit BEDLWYN ROAD to BUS TURNING AREA. End of Salting.	0.99
115	N	U Turn - Travel BEDLWYN ROAD to BEDWELLY ROAD. Grit	0.80
116	Y	Turn Left onto BEDWELLY ROAD	
117	Y	Continue - Grit BEDWELLY ROAD to MARKHAM	
118	Y	At roundabout take exit 2 to HEOL Y BEDW-HIRION	
119	Y	Turn left onto HEOL TYNEWYDD	
120	Y	Continue - Grit HEOL TYNEWYDD	
121	Y	Turn left onto A4048	
122	Y	Continue - Grit A4048 to ABERNANT ROAD.	
123	Y	Turn left onto ABERNANT ROAD	
124	Y	Continue - Grit ABERNANT ROAD to roundabout	
125	Y	Enter roundabout take exit 1 to ABERNANT ROAD	
126	Y	Continue - Grit ABERNANT ROAD to junction A4048 LINK ROAD. End of salting.	10.71
127	N	U-Turn vehicle and return back along ABERNANT ROAD. Grit.	0.40
128	Y	Enter roundabout gritting, and take exit 1 to PANTYCEFN ROAD.	
129	Y	Continue - Grit PANTYCEFN ROAD	
130	Y	At roundabout take exit 2 to B4511 to BEDWELLY ROAD	
131	Y	Continue - Grit BEDWELLY ROAD	
132	Y	Turn right onto SANNAN STREET	
133	Y	Continue - Grit SANNAN STREET	
134	Y	Turn right onto HIGHFIELD CRESCENT	
135	Y	Turn right onto HIGHFIELD CRESCENT	
136	Y	Turn left onto LEWIS STREET	
137	Y	Continue to COMMIN ROAD	
138	Y	U-turn. - Grit LEWIS STREET	
139	Y	Turn right onto HIGHFIELD CRESCENT	
140	Y	Turn right onto LEWIS STREET	
141	Y	Turn left onto PANTYFID ROAD	
142	Y	Turn right onto BEDWELLY ROAD. End of salting.	3.04
143	N	Continue – travel BEDWELLY ROAD to COMMERCIAL STREET, Grit	0.71
144	Y	Turn left on to COMMERCIAL STREET.	
145	Y	Continue - Grit COMMERCIAL STREET	
146	Y	Turn right onto ABERBARGOED LINK ROAD.	
147	Y	Continue - Grit ABERBARGOED LINK ROAD.	
148	Y	Enter roundabout gritting and take exit 3 to ANGEL WAY	
149	Y	Continue - Grit ANGEL WAY	
150	Y	At roundabout complete a circuit and take exit 1 to BUS STATION	
151	Y	At roundabout take exit to PARK & RIDE	
152	Y	At roundabout take exit 1 to A469 ANGEL WAY	
153	Y	At roundabout take exit 3 to BARGOED NEWYDD VIADUCT. End of salting	2.19
154	N	Continue - Travel BARGOED NEWYDD VIADUCT. Grit	0.46
155	Y	Turn left onto GILFACH STREET	





Pre-salting Route 2 (Penmaen)



### Pre-salting Route 3 (Penmaen)

Route 3			Distance
Instruction	GRITTING	ROUTE_CARD	(Kms)
1	N	Leave yard travel to junction B4254.	
2	N	Turn right - Travel B4254	
3	N	At roundabout take exit 1 onto A4048. Grit	1.01
4	Y	Enter roundabout gritting take exit 3 to OAKDALE	
5	Y	Continue - Grit OAKDALE TERRACE	
6	Y	Continue - Grit PENMAEN ROAD	
7	Y	Continue - Grit PENRHIW TERRACE	
8	Y	Continue - Grit SYR DAFYDD AVENUE	
9	Y	Turn right onto MAES Y GARN ROAD	
10	Y	Continue - Grit MAES Y GARN ROAD to LLWYN ON CRESCENT	
11	Y	Continue - Grit LLWYN ON LANE to GROVESIDE ROAD	
12	Y	Turn right onto PENMAEN ROAD	
13	Y	Turn right onto CENTRAL AVENUE	
14	Y	Turn left onto PENRHIW AVENUE	
15	Y	Turn right onto ABERCONWY PLACE	
16	Y	Turn right onto MARKHAM CRESCENT	
17	Y	Turn right onto ABERCONWY PLACE	
18	Y	Turn right onto PENRHIW AVENUE	
19	Y	Turn right onto ABERCONWY PLACE	
20	Y	Turn right onto MARKHAM CRESCENT	
21	Y	Turn left onto PENMAEN AVENUE	
22	Y	Turn left onto SYR DAFYDD AVENUE	
23	Y	Turn left onto BEECH GROVE	
24	Y	Turn left onto ABERCONWY PLACE	
25	Y	Turn right onto MARKHAM CRESCENT	
26	Y	Turn right onto ABERCONWY PLACE	
27	Y	Turn left onto BEECH GROVE	
28	Y	Continue grit BEECH GROVE	
29	Y	Turn left onto MAES Y GARN ROAD	
30	Y	Turn right onto SYR DAFYDD AVENUE	
31	Y	Continue - Grit SYR-DAFYDD AVENUE to BRYN HOWARD TERRACE	
32	Y	Continue - Grit BRYN HOWARD TERRCAE	
33	Y	Turn right - Grit CLOS PENTREGROES. End of salting	7.89
34	N	U-turn - Travel CLOS PENTREGROES. Grit	0.65
35	Y	Turn right - Grit LON MAES YR HAF. End of salting	0.94
36	N	U-turn - Travel LON MAES YR HAF	
37	N	Continue - Travel LON MAES YR HAF	
38	N	Turn right - Travel CLOS PENTRE GROES and then Turn right. Grit	1.01
39	Y	Turn right on to KENDON ROAD	
40	Y	Turn left onto PARKWAY	
41	Y	Continue - Grit PARKWAY.	
42	Y	At roundabout take exit 1 to BRYN BRITHDIR.	
43	Y	Continue - Grit BRYN BRITHDIR.	
44	Y	U-turn and take first left on to OAKDALE COURT	
45	Y	Turn left on to OAKDALE COURT	
46	Y	Continue to end of OAKDALE COURT. End of salting.	1.77
47	N	U-turn and return to PARKWAY ROUNDABOUT.	
48	N	Travel - at roundabout take exit 1 to YARD COAL RISE. Grit	1.52
49	Y	Turn left -Grit WATERLOO	

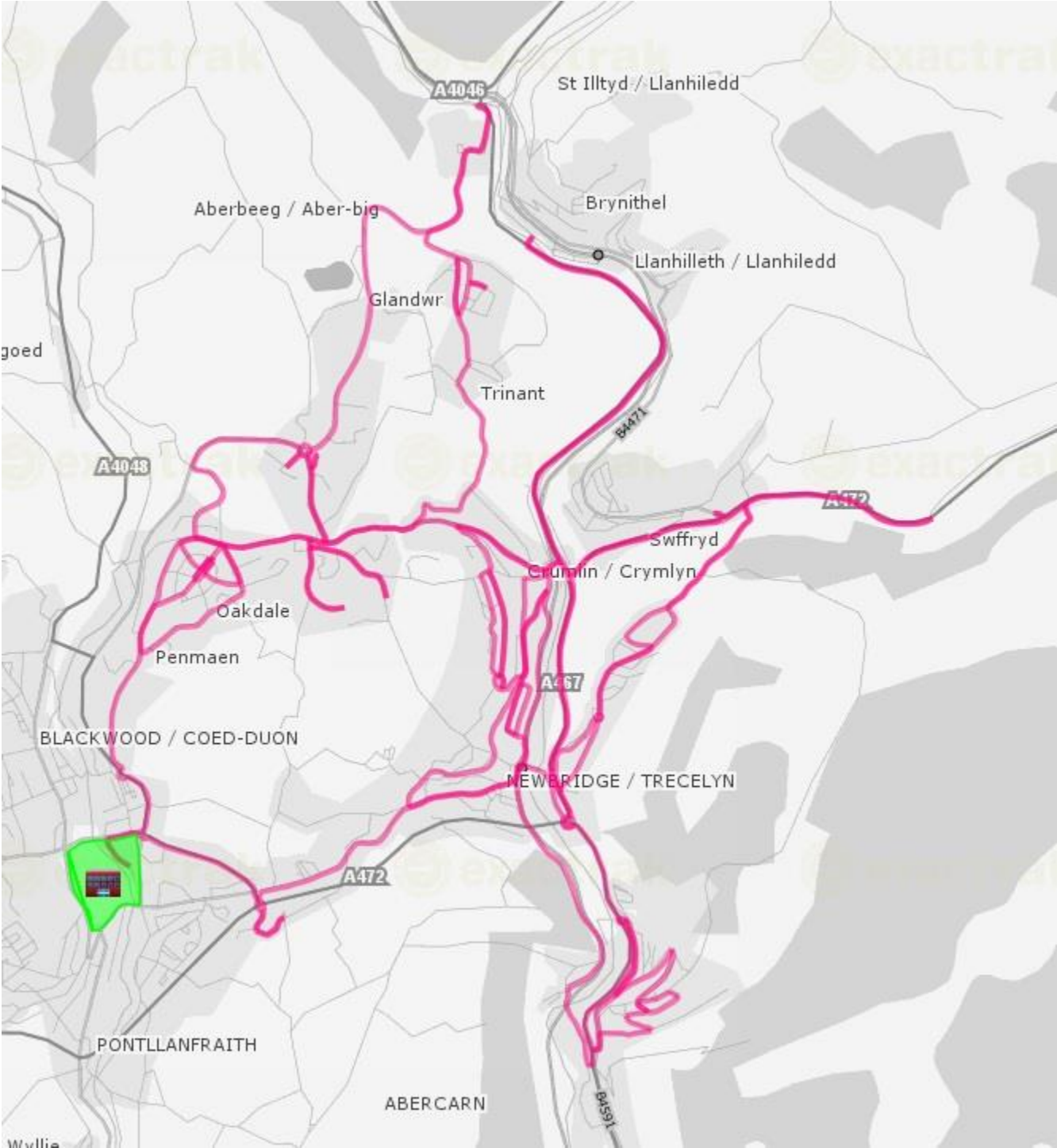
50	Y	Continue - Grit WATERLOO	
51	Y	Turn left onto SYR DAFYDD AVENUE. End of salting	0.76
52	N	Continue - Travel SYR-DAFYDD AVENUE to BRYN HOWARD TERRACE	
53	N	Continue - Travel BRYN HOWARD TERRACE. Grit	0.99
54	Y	Continue - Grit B4251 KENDON ROAD	
55	Y	Turn left - Grit TRINANT ROAD	
56	Y	Continue - Grit TRINANT ROAD	
57	Y	Continue - Grit TRINANT ROAD to PENTWYN ROAD	
58	Y	Continue - Grit PENTWYN ROAD	
59	Y	Continue - Grit PENTWYN ROAD to PENTWYN TERRACE	
60	Y	Turn right onto TRINANT TERRACE	
61	Y	Continue - Grit TRINANT TERRACE	
62	Y	Turn left - Grit CONWAY ROAD	
63	Y	U-turn - Grit CONWAY ROAD to TRINANT TERRACE	
64	Y	Turn left - Grit TRINANT TERRACE TO PENTWYN TERRACE. Complete a circuit of the triangle	
65	Y	Turn right - Grit PENTWYN TERRACE	
66	Y	Continue - Grit PENTWYN TERRACE to CWM NANT GWYNT.	
67	Y	Turn right onto CHRISTCHURCH ROAD	
68	Y	Continue - Grit CHRISTCHURCH ROAD to PANTDDU ROAD	
69	Y	Continue - Grit PANTDDU ROAD. End of salting	6.08
70	N	U-turn - Travel PANTDDU ROAD to PENTRAPEOD ROAD. Grit	1.27
71	Y	Continue - Grit PENTRAPEOD ROAD to PARKWAY	
72	Y	At roundabout take exit 1 on to PARKWAY. End of salting	2.49
73	N	Travel - PARKWAY to KENDON ROAD	
74	N	Turn left - Travel KENDON ROAD	
75	N	Travel KENDON ROAD TO TRINANT ROAD. Grit	1.41
76	Y	Continue - Grit KENDON ROAD to A467	
77	Y	Turn left onto A467	
78	Y	Turn left - Grit A467 to End of Salting	2.25
79	N	Continue - Travel A467 to GLANDWR INDUSTRIAL ESTATE and then Turn right	
80	N	U-turn - Travel A467 to Start of Salting	3.92
81	Y	Continue - Grit A467.	
82	Y	Turn left onto A472 HAFODYRYNYS ROAD	
83	Y	Turn left onto SWFFRYD ROAD	
84	Y	U-turn - Grit to A472	
85	Y	Turn left onto A472 to Boundary. End of salting	3.27
86	N	U turn - Travel A472 to HERBERT TERRACE. Grit	1.67
87	Y	Continue - Grit HERBERT TERRACE to HAFODYRYNYS ROAD	
88	Y	Turn left onto A467	
89	Y	Continue - Grit A467.	
90	Y	Turn left onto CENTRAL AVENUE	
91	Y	Continue - Grit CENTRAL AVENUE	
92	Y	At roundabout complete a circuit and take exit 2 to OLD PANT ROAD	
93	Y	Continue - Grit OLD PANT ROAD	
94	Y	Turn right onto PANT ROAD	
95	Y	Continue - Grit PANT ROAD. End of salting.	5.80
96	N	U turn - Travel PANT ROAD. Grit	1.03
97	Y	Turn right - Grit BOUNDARY ROAD	
98	Y	Continue - Grit BOUNDARY ROAD. End of salting.	0.63
99	N	Turn right - Travel OLD PANT ROAD. Grit	0.80
100	Y	Enter roundabout salting take exit 3 to OLD PANT ROAD	
101	Y	Continue - Grit OLD PANT ROAD	

102	Y	Turn right onto CENTRAL AVENUE	
103	Y	Turn left onto A467	
104	Y	Enter roundabout complete a circuit and take exit 4 back to A467	
105	Y	Continue - Grit A467.	
106	Y	Turn left onto KENDON ROAD	
107	Y	Turn left onto MAIN STREET	
108	Y	U-turn at HILLSIDE. End of salting	3.54
109	N	Travel - MAIN STREET	
110	N	Turn left - Travel KENDON ROAD. Grit	0.82
111	Y	Turn left - Grit RHIW LEVEL ROAD	
112	Y	Continue - Grit RHIW LEVEL ROAD to PARRY TERRACE	
113	Y	Turn left onto TREOWEN ROAD	
114	Y	Continue - Grit TREOWEN ROAD	
115	Y	Turn right onto ELIDYR ROAD	
116	Y	Continue on to FFLORENS ROAD	
117	Y	Turn right - Grit FFLORENS ROAD to ROYAL CRESCENT	
118	Y	Continue - Grit ROYAL CRESCENT to FFLORENS ROAD	
119	Y	Continue - Grit FFLORENS ROAD to PARRY TERRACE	
120	Y	Turn right - Grit PARRY TERRACE. End of salting	2.14
121	N	Turn right - Travel TREOWEN ROAD. Grit	0.79
122	Y	Turn left - Grit THE CIRCLE	
123	Y	Turn right - Grit THE CIRCLE	
124	Y	Bear right - Grit THE CIRCLE and then Turn right. Grit	
125	Y	Turn right on to THE CIRCLE. Grit	
126	Y	Bear left - Grit THE CIRCLE to PARK ROAD	
127	Y	Turn left - Grit PARK ROAD to COMMERCIAL ROAD	
128	Y	Bear left - Grit COMMERCIAL ROAD to HILLSIDE	
129	Y	Turn right - Grit HILLSIDE to MAIN STREET	
130	Y	Turn right - Grit MAIN STREET to MINING SCHOOL HILL	
131	Y	Turn right - Grit MINING SCHOOL HILL to PARK ROAD	
132	Y	Continue - Grit PARK ROAD to NEW BRYNGWYN ROAD	
133	Y	Continue - Grit NEW BRYNGWYN ROAD to BRYNGWYN ROAD	
134	Y	Turn left onto BRYNGWYN ROAD	
135	Y	Continue - Grit BRYNGWYN ROAD to HIGH STREET	
136	Y	Turn left onto HIGH STREET	
137	Y	Turn left onto NORTH ROAD	
138	Y	Turn left onto ASHFIELD ROAD	
139	Y	Continue - Grit ASHFIELD ROAD.	
140	Y	Turn right onto GREENFIELD	
141	Y	Continue - Grit GREENFIELD. End of salting.	6.02
142	N	Turn right onto ASHFIELD	
143	N	Travel ASHFIELD ROAD. To junction of GREENFIELD Grit	0.42
144	Y	Continue - Grit ASHFIELD ROAD. End of salting	0.04
145	N	Turn right - Travel PARK Road to MINING SCHOOL HILL. Grit	0.74
146	Y	Continue - Grit MINING SCHOOL HILL	
147	Y	Turn right - Grit NORTH ROAD	
148	Y	Continue - Grit NORTH ROAD to TRAFFIC SIGNALS	
149	Y	Turn right onto HIGH STREET	
150	Y	Turn left onto CELYNEN ROAD	
151	Y	Continue - Grit CELYNEN ROAD to LLANOVER STREET	
152	Y	Continue - Grit LLANOVER STREET to ISLWYN STREET	
153	Y	Continue - Grit ISLWYN STREET to BRIDGE STREET	
154	Y	Continue - Grit BRIDGE STREET	
155	Y	Turn left onto A467	

156	Y	Turn right onto ABERCARN LINK ROAD	
157	Y	Turn left onto HIGH STREET	
158	Y	Turn right onto GWYDDON ROAD	
159	Y	Turn right - Grit GWYDDON ROAD	
160	Y	Continue - Grit GWYDDON ROAD	
161	Y	Turn left - Grit COED MOELFA ROAD to LLAN-FACH ROAD	
162	Y	Turn right - Grit LLAN-FACH ROAD to BRYN ROAD	
163	Y	Turn left - Grit BRYN ROAD to TWYN ROAD	
164	Y	Turn right - Grit TWYN ROAD to LLAN-FACH ROAD	
165	Y	Turn right - Grit LLAN-FACH ROAD to BRYN ROAD	
166	Y	Turn right on to BRYN ROAD	
167	Y	Continue - Grit BRYN ROAD to PEN-RHIW TERRACE	
168	Y	Continue - Grit PEN-RHIW TERRACE to CEMETARY ROAD	
169	Y	Bear left - Grit CEMETARY ROAD	
170	Y	Turn right onto CHAPEL OF EASE	
171	Y	At roundabout complete a circuit and take exit 4 onto CHAPEL OF EASE	
172	Y	Continue - Grit CHAPEL OF EASE to HIGH STREET. End of salting	8.85
173	N	Travel HIGH STREET	
174	N	Turn right onto ABERCARN LINK ROAD	
175	N	Turn right onto A467.	
176	N	Continue - Travel A467	
177	N	At roundabout take exit 2 to A467	
178	N	Continue - Travel A467. Grit	2.15
179	Y	Enter roundabout gritting take exit 2 to BRIDGE STREET	
180	Y	Turn left - Grit PARK & RIDE	
181	Y	Turn left onto BRIDGE STREET	
182	Y	Bear left onto HIGH STREET. End of salting	0.67
183	N	Continue - Travel HIGH STREET to BRYNGWYN ROAD. Grit	0.98
184	Y	Continue - Grit BRYNGWYN ROAD to NEWBRIDGE ROAD	
185	Y	Continue - Grit NEWBRIDGE ROAD to HIGH STREET	
186	Y	Continue - Grit HIGH STREET to NEWBRIDGE ROAD	
187	Y	At roundabout take exit 1 to A472 LINK ROAD	
188	Y	At roundabout take exit 2 on to Minor Road	
189	Y	Continue - Grit NAILERS ARMS LINK ROAD. End of salting	1.96
190	N	U-turn - Travel NAILERS ARMS LINK ROAD. Grit	0.47
191	Y	Continue - Enter roundabout salting and take exit 2 on to A4048	
192	Y	At roundabout take exit 2 on to A4048	
193	Y	Continue - Grit A4048. End of salting	1.09
194	N	At roundabout take exit 2 onto B4254	
195	N	Turn left into PENMAEN ROAD INDUSTRIAL ESTATE	
196	N	Turn left into DEPOT	0.45
		Gritted	56.19
		Free Travel	22.10
		Total	78.29
		Efficiency	72.00%



Pre-salting Route 3 (Penmaen)



## Pre-salting Route 4 (Penmaen)

Route 4			Distance
Instruction	GRITTING	ROUTE_CARD	(Kms)
1	N	Leave yard travel to junction B4254.	
2	N	Turn right - Travel B4254. Grit	0.38
3	Y	Enter roundabout salting complete a circuit and take exit 1 onto A4048	
4	Y	At roundabout take exit 2 onto A4048	
5	Y	At roundabout complete a circuit and take exit 1 onto A4048	
6	Y	At roundabout take exit 4 onto A4048	
7	Y	Continue - Grit A4048	
8	Y	At roundabout and take exit 1 onto B4251	
9	Y	Continue - Grit B4251	
10	Y	At roundabout complete a circuit and take exit 1 onto LON GELLIDEG	
11	Y	Turn right onto MANMOEL ROAD	
12	Y	Continue - Grit MANMOEL ROAD	
13	Y	Turn left - Grit MANMOEL VILLAGE	
14	Y	Turn right - Grit LLANERCH LANE. End of salting	11.20
15	N	U-turn - Travel to LLANERCH LANE	
16	N	Turn left - Travel MANMOEL VILLAGE	
17	N	Turn right - Travel MANMOEL ROAD	
18	N	Turn left - Travel LON GELLIDEG	
19	N	Enter roundabout travelling and take exit 4 onto B4251	
20	N	Continue - Travel B4251. Grit	7.93
21	Y	Turn right - Grit OAKDALE COMP LANE	
22	Y	Continue - Grit OAKDALE COMP LANE to ROCK FACH LANE	
23	Y	Continue - Grit ROCK FACH LANE	
24	Y	Turn Left onto A4048	
25	Y	At roundabout take exit 3 onto SUNNYBANK ROAD.	
26	Y	Continue - Grit SUNNYBANK ROAD	
27	Y	At roundabout take exit 2 to TWYNYFFALD ROAD	
28	Y	Turn right onto GREENWOOD ROAD	
29	Y	Turn right onto BEDWELLTY ROAD	
30	Y	Turn right onto HEOL PIT Y CEILIOGOD	
31	Y	Turn left onto BEAUMARIS WAY	
32	Y	Continue - Grit BEAUMARIS WAY	
33	Y	Turn right onto GREENWOOD ROAD	
34	Y	Turn left onto BEDWELLTY ROAD	
35	Y	Turn right onto WAUNBORFA ROAD	
36	Y	Turn right onto CEFN FFOREST AVENUE	
37	Y	Turn right onto CENTRAL AVENUE	
38	Y	Complete a loop of the SHOPPING AREA	
39	Y	Turn right onto CENTRAL AVENUE	
40	Y	Turn right onto PENYBRYN AVENUE	
41	Y	Turn right onto CRAIGLAS CRESCENT	
42	Y	Continue - Grit CRAIGLAS CRESCENT	
43	Y	Turn right - Grit DERWENDEG AVENUE	
44	Y	Continue - Grit DERWENDEG AVENUE	
45	Y	Turn right - Grit TYNCOED CRESCENT	
46	Y	Continue - Grit TYNCOED CRESCENT	
47	Y	Turn right - Grit PENYBRYN AVENUE	
48	Y	Turn left - Grit CENTRAL AVENUE	
49	Y	Turn right onto BEDWELLTY ROAD	

50	Y	Continue - Grit BEDWELLY ROAD to BRYN ROAD	
51	Y	Turn right onto PWLLGLAS ROAD	
52	Y	Continue - Grit PWLLGLAS ROAD to FAIRVIEW	
53	Y	Continue - Grit FAIRVIEW	
54	Y	Turn right onto PENGAM ROAD	
55	Y	Turn right onto WAUNBORFA ROAD	
56	Y	Turn right onto CEFN FFOREST AVENUE	
57	Y	Turn left onto FAIRVIEW. End of salting	9.55
58	N	Continue - Travel FAIRVIEW to PWLLGLAS ROAD	
59	N	Turn left onto BRYN ROAD. Grit	0.62
60	Y	Turn right - Grit TWYNYFFALD ROAD	
61	Y	At roundabout take exit 2 to CEFN ROAD	
62	Y	Turn left onto SOUTHVIEW ROAD	
63	Y	Turn right - Grit PENTWYN ROAD	
64	Y	Turn right onto HIGH STREET	
65	Y	Continue - Grit HIGH STREET	
66	Y	Turn right onto LIBANUS ROAD	
67	Y	Turn left onto LIBANUS ROAD	
68	Y	Turn left onto HIGH STREET	
69	Y	At roundabout take exit 1 to GORDON ROAD	
70	Y	Continue - Complete a loop of the BUS STATION.	
71	Y	Turn right onto GORDON ROAD	
72	Y	Continue - Grit GORDON ROAD	
73	Y	Turn right onto ALBANY ROAD	
74	Y	Continue - Grit ALBANY ROAD to ATTLEE ROAD	
75	Y	Turn left onto APOLLO WAY	
76	Y	Turn right onto CHARTIST WAY	
77	Y	At roundabout take exit 3 onto BLOOMFIELD ROAD	
78	Y	Continue - Grit BLOOMFIELD ROAD to SOUTHVIEW ROAD.	
79	Y	Turn left onto LEWIS LEWIS AVENUE	
80	Y	Continue - Grit LEWIS LEWIS AVENUE. End of salting	5.52
81	N	Turn left onto CEFN ROAD	
82	N	Turn right onto BLOOMFIELD ROAD. Grit	0.67
83	Y	Turn left onto ATTLEE ROAD.	
84	Y	Continue - Grit ATTLEE ROAD to APOLLO WAY. End of salting.	0.34
85	N	Travel - Turn right onto APOLLO WAY	
86	N	Travel - Turn right onto CHARTIST WAY	
87	N	Continue - Travel CHARTIST WAY. Grit	0.51
88	Y	Enter roundabout salting and take exit 2 onto TY-ISHA TERRACE	
89	Y	Continue - Grit TY-ISHA TERRACE. End of salting.	0.30
90	N	Turn left onto TWYNYFFALD ROAD	
91	N	Travel - TWYNYFFALD ROAD.	
92	N	Turn left onto BRYN ROAD.	
93	N	Travel BRYN ROAD. Grit.	0.42
94	Y	Turn left onto BLOOMFIELD ROAD.	
95	Y	Continue - Grit BLOOMFIELD ROAD. End of salting.	0.25
96	N	Enter roundabout and take exit 4 back onto BLOOMFIELD ROAD.	
97	N	Travel - BLOOMFIELD ROAD. Grit.	0.25
98	Y	Turn left onto BRYN ROAD	
99	Y	Continue - Grit BRYN ROAD	
100	Y	At roundabout take exit 1 to HIGHFIELDS WAY	
101	Y	Turn left onto COED LIBANUS	
102	Y	Turn left onto CLOS COED BACH	
103	Y	Turn left onto BRYN ROAD	

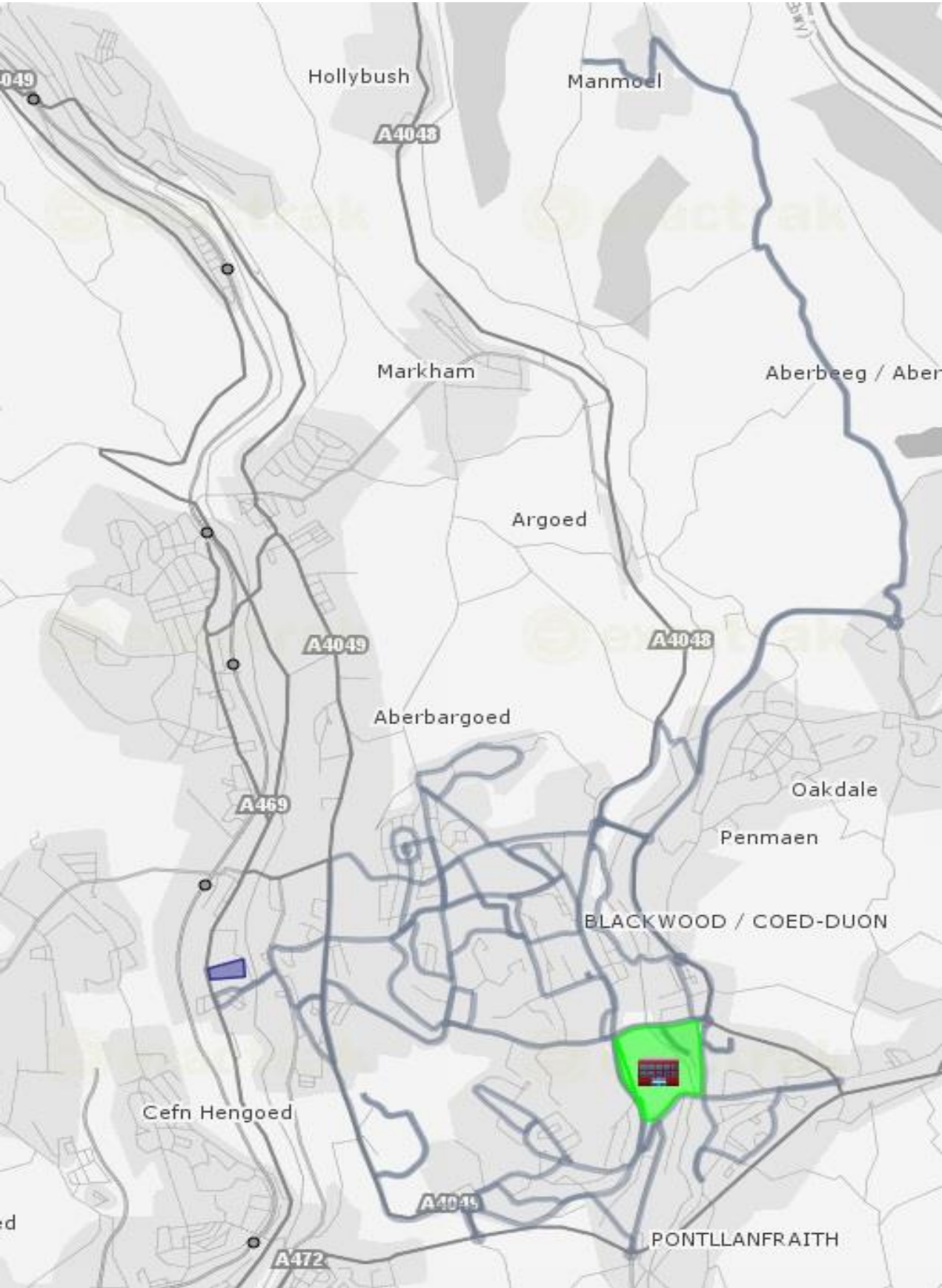


104	Y	At roundabout take exit 3 to HEOL Y DDERWEN	
105	Y	Continue - Grit HEOL Y DDERWEN	
106	Y	Turn right onto FAIRVIEW	
107	Y	Turn right onto ELGAR CLOSE	
108	Y	Continue - Grit ELGAR CLOSE TO GRANGE HILL. End of salting	3.40
109	N	Turn left onto BRYN ROAD	
110	N	Continue - Travel BRYN ROAD. Grit	0.18
111	Y	Turn right - Grit APOLLO WAY	
112	Y	Continue - Grit APOLLO WAY	
113	Y	Turn right onto ATTLEE ROAD	
114	Y	Turn left onto WOODBINE ROAD	
115	Y	Continue - Grit WOODBINE ROAD	
116	Y	Turn left onto HIGH STREET	
117	Y	Continue - Grit HIGH STREET	
118	Y	At roundabout complete a circuit and take exit 1 to HIGH STREET	
119	Y	At roundabout take exit 4 to HIGH STREET	
120	Y	At roundabout take exit 1 to CLIFF ROAD	
121	Y	At roundabout take exit 1 to CLIFF ROAD	
122	Y	At roundabout take exit 1 to HALL STREET	
123	Y	Continue - Grit HALL STREET to BRIDGE STREET	
124	Y	Continue - Grit BRIDGE STREET to PARK TERRACE	
125	Y	Continue - Grit PARK TERRACE	
126	Y	Turn left onto WOODFIELD TERRACE	
127	Y	At roundabout take exit 4 to WOODFIELD TERRACE	
128	Y	Continue - Grit WOODFIELD TERRACE	
129	Y	Turn Left onto B4254	
130	Y	At roundabout take exit 3 to PENMAEN ROAD	
131	Y	Turn left - Grit WOODFIELD SIDE BUSINESS CENTRE	
132	Y	U-turn - Grit WOODFIELD SIDE BUSINESS CENTRE to PENMAEN ROAD	
133	Y	Turn left - Grit B4251 to LLANARTH ROAD	
134	Y	Continue - Grit LLANARTH ROAD to CWMALSIE CRESCENT	
135	Y	Continue - Grit CWMALSIE CRESCENT to MILL ROAD. End of Salting	6.13
136	N	U-turn - Travel CWMALSIE CRESCENT to WOODLAND ROAD. Grit	0.26
137	Y	Turn right - Grit WOODLAND ROAD to UPLAND ROAD	
138	Y	Turn left - Grit UPLAND ROAD	
139	Y	Continue - Grit UPLAND ROAD to MILLBROOK ROAD	
140	Y	Turn right - Grit MILLBROOK ROAD to NEWBRIDGE ROAD	
141	Y	Turn right - Grit NEWBRIDGE ROAD	
142	Y	At roundabout take exit 4 back to NEWBRIDGE ROAD	
143	Y	Continue - Grit NEWBRIDGE ROAD to COMMERCIAL STREET	
144	Y	Continue - Grit COMMERCIAL STREET.	
145	Y	At roundabout take exit 1 to SIR IVORS ROAD	
146	Y	Continue - Grit SIR IVORS ROAD	
147	Y	At roundabout take exit 4 back onto SIR IVORS ROAD.	
148	Y	Turn left - Grit GELLI LANE.	
149	Y	Turn left - Grit BRYN ROAD	
150	Y	Continue - Grit BRYN ROAD	
151	Y	Turn right onto CROWN LANE	
152	Y	Bear right onto BRYN LANE	
153	Y	Continue - Grit BRYN LANE to RUSHMERE ROAD	
154	Y	Continue - Grit RUSHMERE ROAD to THE CIRCLE	
155	Y	At roundabout complete a circuit and take exit 1 on to ST MARY'S ROAD	
156	Y	Continue - Grit ST MARY'S ROAD	
157	Y	Turn left - Grit FLEUR-DE-LYS AVENUE	

158	Y	Bear left - Grit FLEUR-DE-LYS AVENUE to HIGHMEAD	
159	Y	Continue - Grit HIGHMEAD to ST MARY'S ROAD	
160	Y	Turn left - Grit ST MARY'S ROAD to FLEUR-DE-LYS AVENUE	
161	Y	Turn right - Grit FLEUR-DE-LYS AVENUE to THE CIRCLE	
162	Y	At roundabout take exit 3 to MANOR ROAD	
163	Y	Continue - Grit MANOR ROAD	
164	Y	Turn left onto BRYN ROAD	
165	Y	At roundabout take exit 1 to B4251 BLACKWOOD ROAD	
166	Y	Continue - Grit BLACKWOOD ROAD	
167	Y	Enter roundabout gritting and take exit 4 to Blackwood Road. End of salting.	8.88
168	N	Travel BLACKWOOD ROAD	0.33
169	Y	Enter roundabout gritting take exit 1 to COMMERCIAL STREET	
170	Y	At roundabout take exit 3 back to COMMERCIAL STREET	
171	Y	At roundabout take exit 1 to BRYN ROAD	
172	Y	Continue - Grit BRYN ROAD	
173	Y	Turn right onto FOREST HILL	
174	Y	Continue - Grit FOREST HILL. End of salting	1.70
175	N	Turn left - Travel BRYN LANE	
176	N	Bear left - Travel CROWN LANE. Grit	0.29
177	Y	Turn Right - Grit BRYN ROAD	
178	Y	At roundabout complete a circuit and take exit 1 to A472	
179	Y	At roundabout take exit 4 to A472	
180	Y	At roundabout take exit 1 to A4049	
181	Y	Continue - Grit A4049	
182	Y	Turn right onto HAWTIN PARK	
183	Y	Continue - Grit HAWTIN PARK. End of salting	2.71
184	N	U turn - Travel HAWTIN PARK. Grit	1.07
185	Y	Turn right onto A4049	
186	Y	Continue - Grit A4049.	
187	Y	Turn left - Grit ST DAVIDS ROAD. End of salting.	2.15
188	N	Turn left - Travel HIGH STREET. Grit.	0.18
189	Y	Turn right - Grit FORD ROAD	
190	Y	Continue - Grit FORD ROAD to BEATTY STREET	
191	Y	Turn right - Grit HORNER STREET to A469	
192	Y	Turn left onto A469.	
193	Y	Turn left onto BEATTY STREET	
194	Y	Continue - Grit BEATTY STREET to FORD ROAD. End of salting.	1.02
195	N	Turn right - Travel HIGH STRET. Grit	0.29
196	Y	Turn left - Grit PLAS ROAD. End of salting.	0.22
197	N	Turn right - Travel A4049. Grit.	0.47
198	Y	Turn right - Grit GELLIHAF ROAD.	
199	Y	Continue - Grit GELLIHAF ROAD. End of salting.	0.47
200	N	Turn right - Travel PLAS ROAD.	
201	N	Continue - Travel PLAS ROAD	
202	N	Turn left - Travel A4049. Grit	0.31
203	Y	Turn right - Grit B4254	
204	Y	Continue - Grit B4254	
205	Y	At roundabout take exit 3 to HIGHFIELDS WAY	
206	Y	Continue - Grit HIGHFIELDS WAY	
207	Y	Turn right onto BLACKWOOD ROAD	
208	Y	At roundabout take exit 4 to BLACKWOOD ROAD	
209	Y	Turn right onto B4254	
210	Y	Continue - Travel B4254 to PENMAEN ROAD INDUSTRIAL ESTATE	
211	Y	Turn right onto PENMAEN ROAD INDUSTRIAL ESTATE	

212	Y	Turn left into DEPOT	2.56
		Gritted	56.40
		Free Travel	14.16
		Total	70.56
		Efficiency	81.47%

Pre-salting Route 4 (Penmaen)



## Pre-salting Route 5 (Penmaen)

Route 5			Distance
Instruction	GRITTING	ROUTE_CARD	(Kms)
1	N	Leave yard travel to junction B4254.	
2	N	Turn right - Travel B4254	
3	N	At roundabout take exit 2 onto A4048	
4	N	At roundabout take exit 2 onto A4048	
5	N	At roundabout take exit 3 onto A472. Grit	1.56
6	Y	Continue - Grit A472	
7	Y	Enter roundabout salting and take exit 1 onto B4251	
8	Y	Turn right onto HEOLDDU ROAD	
9	Y	Turn left - Grit WYLLIE ROAD to GLANHOWY ROAD	
10	Y	Continue - Grit GLANHOWY ROAD to End of Salting	3.09
11	N	U-turn - Travel GLANHOWY ROAD to WYLLIE ROAD	
12	N	Continue - Travel WYLLIE ROAD to HEOLDDU ROAD	
13	N	Turn right - Travel HEOLDDU ROAD to B4251. Grit	1.28
14	Y	Turn right - Grit B4251	
15	Y	Continue - Grit B4251	
16	Y	Turn right onto HIGH STREET LINK	
17	Y	Continue - Grit HIGH STREET LINK to HIGH STREET	
18	Y	Continue - Grit HIGH STREET LINK to HIGH STREET	
19	Y	Turn right onto B4251	
20	Y	Continue - Grit B4251	
21	Y	Continue - Grit B4251 to MAINDEE ROAD	
22	Y	Turn right onto GREENMEADOW ROAD	
23	Y	Turn left onto HEOL GLAN-YR-AFON	
24	Y	U-turn - Grit HEOL GLAN-YR-AFON	
25	Y	Continue - Grit HEOL GLAN-YR-AFON to HEOL TIR TON.	
26	Y	Continue - Grit HEOL TIR TON.	
27	Y	Turn left onto GREENMEADOW ROAD	
28	Y	Turn right onto B4251	
29	Y	Continue - Grit B4251 to ISLWYN ROAD	
30	Y	At roundabout take exit 4 onto ISLWYN ROAD	
31	Y	Turn right onto GLADSTONE STREET	
32	Y	Continue - Grit GLADSTONE STREET to HIGH STREET	
33	Y	Continue - Grit HIGH STREET to TWYNCARN ROAD	
34	Y	Turn right onto SILVER STREET. End of salting	12.91
35	N	U-turn - Travel SILVER STREET to TWYNCARN ROAD. Grit	0.20
36	Y	Turn right - Grit TWYNCARN ROAD	
37	Y	At roundabout take exit 4 to TWYNCARN ROAD	
38	Y	Turn left onto NEWPORT ROAD	
39	Y	Turn right onto IVOR STREET	
40	Y	Turn left - Grit BERNARD STREET	
41	Y	Continue - Grit NANTCARN ROAD	
42	Y	Turn right - Grit NANTCARN ROAD	
43	Y	Turn left - Grit VISITOR CENTRE ACCESS ROAD. End of Salting	1.81
44	N	U-turn - Travel VISITOR CENTRE ACCESS ROAD to NANTCARN ROAD	
45	N	Turn right - Travel NANTCARN ROAD	
46	N	Turn left - Travel NANTCARN ROAD	
47	N	Continue - Travel BERNARD STREET	
48	N	Turn right - Travel IVOR STREET. Grit	1.12
49	Y	Turn right - Grit B4591 NEWPORT ROAD	

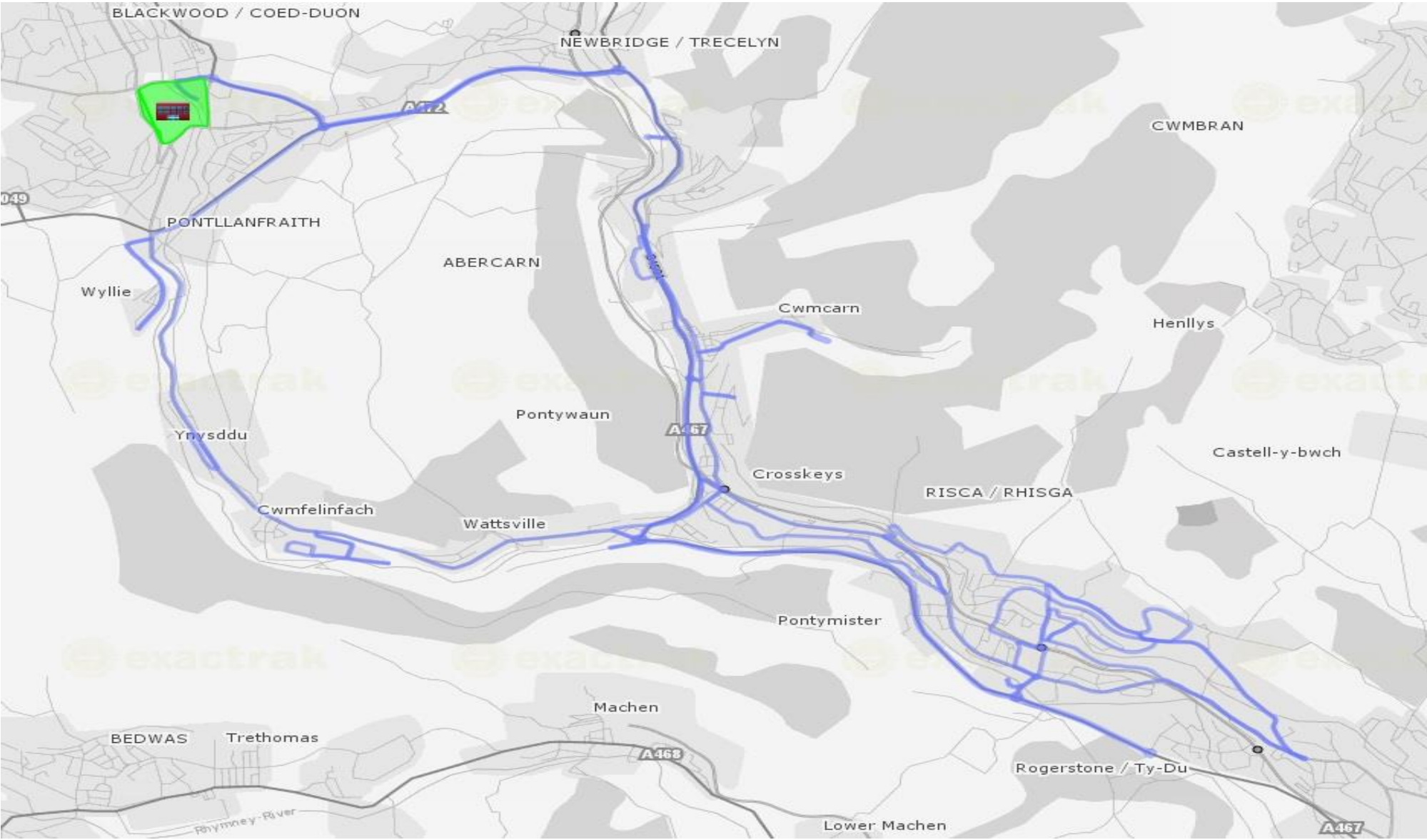
50	Y	Continue - Grit NEWPORT ROAD	
51	Y	Turn left onto ABERCARN LINK ROAD	
52	Y	Turn left onto A467	
53	Y	Continue - Grit A467	
54	Y	At roundabout take exit 2 to A467	
55	Y	At roundabout take exit 1 to A467	
56	Y	At roundabout take exit 2 to A467	
57	Y	At roundabout take exit 3 back on to A467	
58	Y	At roundabout take exit 2 to A467	
59	Y	At roundabout take exit 1 to FULL MOON ACCESS ROAD	
60	Y	Turn right into CIVIC AMENITY SITE	
61	Y	Complete a loop of CIVIC AMENITY SITE	
62	Y	Return back to FULL MOON ACCESS ROAD	
63	Y	Turn left onto FULL MOON ACCESS ROAD	
64	Y	At roundabout take exit 2 to A467	
65	Y	Turn right onto CROSSKEYS ACCESS ROAD	
66	Y	Continue - Grit HIGH STREET	
67	Y	Continue - Grit HIGH STREET to CROMWELL ROAD	
68	Y	Continue - Grit CROMWELL ROAD to ST MARY STREET	
69	Y	Continue - Grit ST MARYS STREET to TREDEGAR STREET	
70	Y	At roundabout take exit 3 to PONTYMISTER LINK ROAD	
71	Y	At roundabout take exit 3 on to TESCO ACCESS ROAD.	
72	Y	Continue - Grit TESCO ACCESS ROAD to PRIVATE ROAD	
73	Y	U-turn - Grit TESCO ACCESS ROAD to roundabout	
74	Y	At roundabout take exit 3 on to PONTYMISTER LINK ROAD	
75	Y	At roundabout take exit 4 onto PONTYMISTER LINK ROAD	
76	Y	AT roundabout take exit 2 to PONTYMISTER LINK ROAD	
77	Y	At roundabout take exit 3 to NEWPORT ROAD	
78	Y	Continue - Grit NEWPORT ROAD to RISCA ROAD	
79	Y	At roundabout take exit 3 to RISCA ROAD	
80	Y	Turn right onto PONTYMASON LANE	
81	Y	Continue - Grit PONTYMASON LANE	
82	Y	At roundabout take exit 1 to ELM DRIVE	
83	Y	Turn right onto HOLLY ROAD	
84	Y	Turn right onto COTSWOLD WAY	
85	Y	Continue - Grit COTSWOLD WAY	
86	Y	At roundabout take exit 2 to ELM DRIVE. End of salting	27.86
87	N	Turn right - Travel HOLLY ROAD	
88	N	Continue - travel HOLLY ROAD. Grit.	1.22
89	Y	Turn left -Grit ROWAN ROAD	
90	Y	Turn right- Grit ELM DRIVE	
91	Y	Turn right- Grit THISTLE WAY	
92	Y	Continue - Grit THISTLE WAY	
93	Y	Continue - Grit LOWER WYNDHAM TERRACE	
94	Y	Continue - Grit MILL STREET	
95	Y	At roundabout take exit 3 to TREDEGAR STREET	
96	Y	Turn right onto MARYLAND ROAD	
97	Y	Turn right - Grit PARK & RIDE	
98	Y	Turn right - Grit MARYLAND ROAD	
99	Y	Continue - Grit MARYLAND ROAD	
100	Y	Turn right onto GELLI AVENUE	
101	Y	Continue - Grit GELLI AVENUE to ELM DRIVE	
102	Y	Continue - Grit ELM DRIVE	
103	Y	Turn right onto MANOR WAY	

104	Y	Continue - Grit MANOR WAY to MANOR ROAD	
105	Y	Turn right onto CHANNEL VIEW	
106	Y	At roundabout take exit 3 to LOWER WYNDHAM TERRACE	
107	Y	Continue - Grit LOWER WYNDHAM TERRACE to THISTLE WAY	
108	Y	Turn right onto ALMOND AVENUE	
109	Y	Turn right onto MAPLE AVENUE. End of salting	5.79
110	N	Turn right - Travel MANOR ROAD. Grit	0.31
111	Y	Turn left - Grit CHANNEL VIEW	
112	Y	Continue - Grit CHANNEL VIEW to HERBERT AVENUE	
113	Y	Continue - Grit HERBERT AVENUE. End of salting	1.10
114	N	Turn left - Travel NEWPORT ROAD	
115	N	Continue - Travel NEWPORT ROAD to RISCA ROAD	
116	N	At roundabout take exit 3 to RISCA ROAD	
117	N	Turn right onto PONTYMASON LANE	
118	N	Continue - Travel PONTYMASON LANE	
119	N	At roundabout take exit 1 to ELM DRIVE. Grit	3.39
120	Y	Turn right -Grit HOLLY ROAD	
121	Y	Continue - Grit HOLLY ROAD to FERNLEA	
122	Y	Continue - Grit FERNLEA	
123	Y	Turn right onto DARRAN ROAD	
124	Y	Continue - Grit DARRAN ROAD. End of salting	2.81
125	N	Turn left - Travel ST MARY STREET. Grit	0.76
126	Y	Turn right - Grit GROVE ROAD	
127	Y	Continue - Grit GROVE ROAD to CRESCENT ROAD	
128	Y	Continue - Grit CRESCENT ROAD to NEW PARK ROAD	
129	Y	Continue - Grit NEW PARK ROAD to WAUNFAWR PARK ROAD	
130	Y	Continue - Grit WAUNFAWR PARK ROAD to COBDEN STREET	
131	Y	Continue - Grit COBDEN STREET	
132	Y	Turn right onto GLADSTONE STREET	
133	Y	Turn left onto CROSSKEYS ACCESS ROAD	
134	Y	Turn right onto A467	
135	Y	At roundabout take exit 2 to A467	
136	Y	Continue - Grit A467 to ABERCARN	
137	Y	Turn left onto BRIDGE STREET	
138	Y	Turn left onto DARREN DRIVE	
139	Y	Continue - Grit DARREN DRIVE to A467	
140	Y	Turn left onto A467	
141	Y	At roundabout take exit 1 to COED CELYNEN DRIVE	
142	Y	At roundabout take exit 3 back on to COED CELYNEN DRIVE	
143	Y	At roundabout take exit 1 to A467	
144	Y	Continue - Grit A467.	
145	Y	Enter roundabout and take exit 1 to A472	
146	Y	Continue - Grit A472	
147	Y	At roundabout take exit 3 back onto A472	
148	Y	Continue - Grit A472. End of salting	14.94
149	N	At roundabout take exit 4 to A472	
150	N	At roundabout take exit 3 to A4048	
151	N	At roundabout take exit 2 to A4048	
152	N	At roundabout take exit 2 to B4254	
153	N	Turn left into PENMAEN INDUSTRIAL ESTATE	
154	N	Turn left into DEPOT	4.17

		Gritted	70.31
		Free Travel	14.01
		Total	84.32
		Efficiency	84.17%



Pre-salting Route 5 (Penmaen)



## Pre-salting Route 6 (Penmaen)

Route 6			Distance
Instruction	GRITTING	ROUTE_CARD	(Kms)
1	N	Leave yard travel to junction B4254.	
2	N	Turn right - Travel B4254	
3	N	At roundabout take exit 3 onto PENMAEN ROAD	
4	N	Turn right - Travel COMMERCIAL STREET	
5	N	At roundabout take exit 1 to SIR IVORS ROAD	
6	N	Continue - Travel SIR IVORS ROAD to NEWPORT ROAD. Grit	2.35
7	Y	Enter roundabout gritting and take exit 3 to A472	
8	Y	At roundabout take exit 2 to A472 to MAESYCWMMER	
9	Y	Continue - Grit A472 MAIN ROAD	
10	Y	Continue - Grit A472 to A469	
11	Y	Turn right onto YSBYTY YSTRAD FAWR	
12	Y	At roundabout complete a circuit and take exit back to A469	
13	Y	Turn right onto A469	
14	Y	At roundabout take exit 4 back onto A469	
15	Y	Bear left - Grit YSBYTY FAWR access road	
16	Y	Enter roundabout salting and return back to A469.	
17	Y	Bear left - Grit A469	
18	Y	Bear right - Grit A469 to A472 MAIN ROAD	
19	Y	Continue - Grit A472	
20	Y	Turn right onto TABOR ROAD	
21	Y	Continue - grit TABOR ROAD to PARK ROAD	
22	Y	Turn right onto SPRINGFIELD	
23	Y	Turn right onto PLEASANT VIEW	
24	Y	Turn right onto PARK ROAD	
25	Y	Turn left onto HILL VIEW	
26	Y	Continue - Grit HILL VIEW to ST DAVIDS ROAD	
27	Y	Turn left onto ERASMUS TERRACE	
28	Y	Continue - Grit ERASMUS TERRACE to JENKIN STREET	
29	Y	Turn right onto TABOR ROAD. End of salting.	9.02
30	N	Travel - TABOR ROAD	
31	N	Turn left onto A472	
32	N	Travel - A742 to A469	
33	N	At roundabout take exit 3 to DUFFRYN INDUSTRIAL ESTATE	
34	N	At roundabout take exit 3 to TWYN ROAD. Grit	2.42
35	Y	Continue - grit TWYN ROAD to TROEDYRHIW. Stop salting.	0.49
36	N	U turn - Travel TWYN ROAD. Grit	0.49
37	Y	Turn left - Grit CAERPHILLY ROAD.	
38	Y	Continue - Grit Caerphilly Road	
39	Y	Turn left - Complete a circuit of TY GRADDDFA	
40	Y	Turn left - Grit CAERPHILLY ROAD	
41	Y	At roundabout complete a circuit and take exit 1 onto A472 to NELSON	
42	Y	At roundabout complete a circuit and take exit 1 onto A472 to NELSON	
43	Y	Continue - Grit A472	
44	Y	At roundabout complete a circuit and take exit 1 onto A472	
45	Y	At roundabout take exit 2 onto A472	
46	Y	At roundabout take exit 4 onto A472	
47	Y	At roundabout take exit 3 onto A472	
48	Y	At roundabout take exit 1 onto CAERPHILLY ROAD	
49	Y	Turn left onto HEOL FAWR	
50	Y	Continue - Grit HEOL FAWR to MOUNTAIN VIEW. End of salting	10.85

51	N	U-turn - Travel MOUNTAIN VIEW to COMMERCIAL STREET. Grit	0.50
52	Y	Turn left - Grit COMMERCIAL STREET	
53	Y	At roundabout complete a circuit and take exit 2 to COMMERCIAL STREET	
54	Y	Turn left onto HIGH STREET	
55	Y	Turn left onto BRYNCELYN.	
56	Y	Turn left onto CAE LLWYNDU	
57	Y	Enter roundabout take exit 5 back onto CAE LLWYNDU. Stop salting	1.43
58	N	Not salting, Travel CAE LLWYNDU.	
59	N	Turn right onto BRYNCELYN.	
60	N	Travel BRYNCELYN. Grit.	0.50
61	Y	Turn left onto HIGH STREET.	
62	Y	Continue - Grit HIGH STRET	
63	Y	Turn left onto LLWYNCELYN TERRACE	
64	Y	Turn left onto A472	
65	Y	At roundabout take exit 2 to DYNEVOR TERRACE	
66	Y	Continue - Grit DYNEVOR TERRACE	
67	Y	Complete a circuit of the BUS STATION on route	
68	Y	At roundabout take exit 1 to COMMERCIAL STREET	
69	Y	Continue - Grit COMMERCIAL STREET to SHINGRIG ROAD	
70	Y	Continue - Grit SHINGRIG ROAD	
71	Y	Turn right onto GELLIGAER ROAD	
72	Y	Continue - Grit GELLIGAER ROAD to CHURCH ROAD	
73	Y	Continue - Grit CHURCH ROAD	
74	Y	Turn right onto ANEURIN BEVAN AVENUE	
75	Y	Turn right onto PENYWRLOD	
76	Y	Continue - Grit PENYWRLOD. End of salting.	6.18
77	N	Turn right - Travel GELLIGAER ROAD to CHURCH ROAD. Grit.	0.39
78	Y	Continue - Grit CHURCH ROAD	
79	Y	Turn right onto PENALLTA ROAD	
80	Y	Continue - Grit PENALLTA ROAD	
81	Y	Turn right onto HEOL CATTWG	
82	Y	Continue - Grit HEOL CATTWG to ANEURIN BEVAN AVENUE	
83	Y	Turn right onto CHURCH ROAD. End of salting.	1.58
84	N	Travel - Turn right onto PENALLTA ROAD	
85	N	Travel to HEOL CATTWG. Grit	0.74
86	Y	Continue - Grit PENALLTA ROAD to PEN-Y-BRYN TERRACE	
87	Y	Turn right onto GELLIARGWELLT ROAD	
88	Y	Turn right onto TROSNANT CRESCENT	
89	Y	Turn right onto PENALLTA ROAD	
90	Y	Continue - Grit PENALLTA ROAD to PEN-Y-BRYN TERRACE	
91	Y	Continue - Grit PEN-Y-BRYN TERRACE	
92	Y	Turn left onto WEST ROAD	
93	Y	Turn right onto EAST ROAD	
94	Y	Turn left onto NORTH ROAD. End of salting	3.04
95	N	U-turn. Travel NORTH ROAD. Grit	0.57
96	Y	Turn left - Grit EAST ROAD	
97	Y	At roundabout take exit 4 back on to EAST ROAD	
98	Y	Turn left onto SOUTH ROAD	
99	Y	Continue - Grit SOUTH ROAD. End of salting.	0.40
100	N	U-turn, travel SOUTH ROAD.	
101	N	Travel - Turn left onto EAST ROAD	
102	N	Travel - Turn left onto WEST ROAD	
103	N	Travel WEST ROAD. Grit.	0.74
104	Y	Turn left - Grit PENALLTA ROAD	

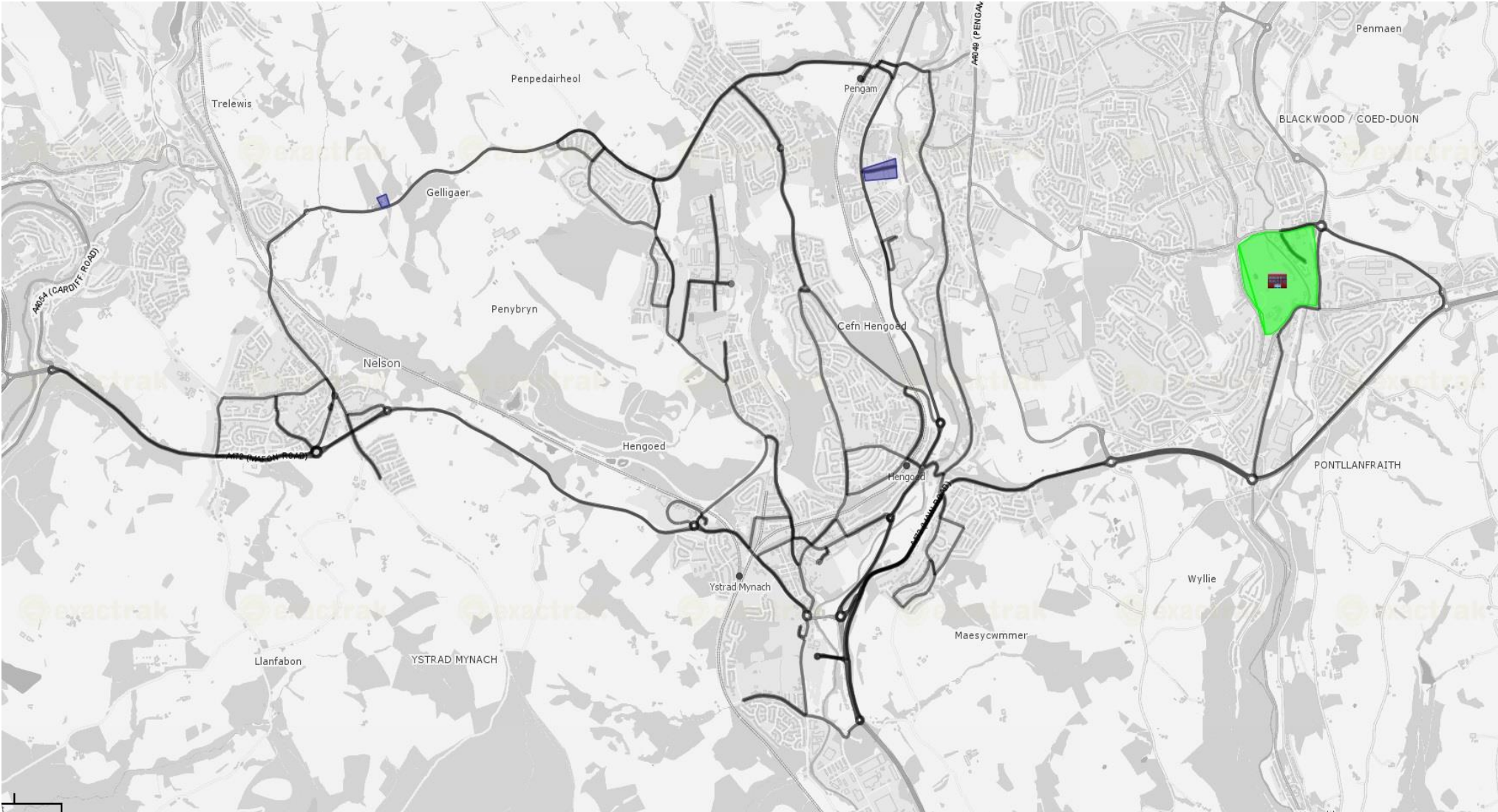
105	Y	Turn left onto CWM CALON ROAD.	
106	Y	Continue - Grit CWM CALON ROAD. End of salting	0.75
107	N	U-turn - Travel CWM CALON ROAD. Grit	0.37
108	Y	Turn left - Grit PENALLTA ROAD	
109	Y	Turn left - Grit PENALLTA ROAD	
110	Y	At roundabout take exit 1 to HIGH STREET	
111	Y	At roundabout take exit 2 to PENGAM ROAD	
112	Y	Turn right onto LEWIS GIRLS SCHOOL ACCESS ROAD	
113	Y	Complete a circuit and return to PENGAM ROAD	
114	Y	Turn right onto PENGAM ROAD	
115	Y	Continue - Grit PENGAM ROAD	
116	Y	At roundabout take exit 2 to A469	
117	Y	At roundabout take exit 4 back to A469	
118	Y	Continue - Grit A469	
119	Y	At roundabout take exit 2 to PENGAM ROAD	
120	Y	Turn right onto DAVIES STREET	
121	Y	Turn left onto BEDWLWYN ROAD	
122	Y	Continue - Grit BEDWLWYN ROAD.	
123	Y	At roundabout take exit 2 to BEDWLWYN ROAD	
124	Y	Turn right onto PENALLTA ROAD. End of salting	5.02
125	N	Travel - At roundabout take exit 2 to PENALLTA ROAD	
126	N	Travel - PENALLTA ROAD. Grit	0.75
127	Y	Turn left - Grit PENALLTA LINK ROAD	
128	Y	At roundabout take exit 1 to A472 CAERPHILLY ROAD	
129	Y	Turn left onto LEWIS STREET.	
130	Y	Continue – Grit LEWIS STREET. End of salting	0.28
131	N	Turn left – travel PENALLTA ROAD. Grit	0.14
132	Y	Turn left on to PANTYCELYN STREET	
133	Y	Turn left on to STATION ROAD.	
134	Y	Continue - Grit STATION ROAD. End of salting	0.45
135	N	Travel - Turn left onto A472 CAERPHILLY ROAD	
136	N	Travel CAERPHILLY ROAD. Grit	0.51
137	Y	Enter roundabout gritting take exit 1 to COMMERCIAL STREET	
138	Y	Continue - Grit COMMERCIAL STREET to PENALLTA ROAD	
139	Y	At roundabout take exit 3 to BEDWLWYN STREET	
140	Y	At roundabout take exit 1 to BEDWLWYN ROAD	
141	Y	Continue - Grit BEDWLWYN ROAD to HENGOED ROAD	
142	Y	Continue - Grit HENGOED ROAD to GELLIGAER ROAD	
143	Y	Turn right onto HENGOED AVENUE	
144	Y	Continue - Grit HENGOED AVENUE	
145	Y	Turn right onto BRYNAVON TERRACE	
146	Y	Turn right onto KINGS HILL. End of salting	4.56
147	N	Turn left - Travel HENGOED ROAD. Grit	0.30
148	Y	Turn left - Grit PARK ROAD. End of salting	0.50
149	N	Travel - PARK ROAD TO BRYNAVON TERRACE	
150	N	Continue - Travel BRYNAVON TERRACE. Grit	0.55
151	Y	Turn right - Grit HENGOED AVENUE	
152	Y	At roundabout complete a circuit and take exit 1 to A469	
153	Y	Continue - Grit A469	
154	Y	Turn right onto TIR-Y-BERTH INDUSTRIAL ESTATE	
155	Y	Continue - Grit ENTERPRISE HOUSE	
156	Y	U-turn - Grit to A469	
157	Y	Turn right onto A469	
158	Y	Continue - Grit A469	

159	Y	Turn right into TIR-Y-BERTH DEPOT	
160	Y	U-turn - Grit to A469	
161	Y	Turn right onto A469	
162	Y	Continue - Grit A469	
163	Y	Turn left onto CARDIFF ROAD	
164	Y	Turn right onto THE SQUARE	
165	Y	Turn right onto A469	
166	Y	Turn right onto CARDIFF ROAD	
167	Y	Turn left onto B4254 PENGAM ROAD	
168	Y	Turn left onto PENGAM PARK & RIDE	
169	Y	Continue - Grit PENGAM PARK & RIDE	
170	Y	U-turn - return to B4254	
171	Y	Turn left onto B4254 PENGAM ROAD	
172	Y	Continue - Grit PENGAM ROAD	
173	Y	Turn left onto HENGOED ROAD	
174	Y	At roundabout complete a circuit and take exit 2 to HENGOED ROAD	
175	Y	Continue - Grit HENGOED ROAD. End of salting	7.60
176	N	U turn - Travel HENGOED ROAD	
177	N	Travel - At roundabout take exit 2 to HENGOED ROAD	
178	N	Travel - HENGOED ROAD. Grit	1.58
179	Y	Turn left - Grit B4254 CHURCH ROAD	
180	Y	Continue - Grit B4254 CHURCH ROAD. End of salting.	0.89
181	N	U-turn - Travel B4254 CHURCH ROAD	
182	N	Continue - Travel CHURCH ROAD to PENGAM ROAD	
183	N	Continue - Travel PENGAM ROAD to THE SQUARE. Grit	2.06
184	Y	Continue - Grit HIGH STREET	
185	Y	Turn right onto COMMERCIAL STREET	
186	Y	Continue - Grit COMMERCIAL STREET	
187	Y	Continue - Grit COMMERCIAL STREET to HIGH STREET	
188	Y	Continue - Grit HIGH STREET to VICTORIA ROAD	
189	Y	Continue - Grit VICTORIA ROAD	
190	Y	Turn right onto VIADUCT LANE	
191	Y	Turn left onto A469.	
192	Y	At roundabout take exit 4 back to A469	
193	Y	Turn left onto KINGS HILL	
194	Y	U-turn - Grit KINGS HILL	
195	Y	Turn left onto A469.	
196	Y	At roundabout take exit 3 back to A469	
197	Y	Turn left onto VIADUCT LANE	
198	Y	Turn right onto THOMAS STREET	
199	Y	Continue - Grit THOMAS STREET. End of salting	5.43
200	N	Turn right onto A472.	
201	N	Travel A472. Grit	0.92
202	Y	Turn right onto DANCE CENTRE ROUNDABOUT SLIP ROAD	
203	Y	At roundabout take exit 4 onto A472 SLIP ROAD	
204	Y	Bear left onto A472. End of salting	0.47
205	N	Travel A472. Grit	2.14
206	Y	Enter roundabout gritting - Take exit 2 to A472	
207	Y	Continue - Grit A472.	
208	Y	At roundabout take exit 2 to A472.	
209	Y	Continue - Grit A472. End of salting	2.82
210	N	At roundabout take exit 1 to A4048	
211	N	At roundabout take exit 2 to A4048	
212	N	At roundabout take exit 2 to B4254	

213	N	Turn left into PENMAEN ROAD INDUSTRIAL ESTATE	
214	N	Turn left into DEPOT	1.49
		Gritted	62.98
		Free Travel	19.51
		Total	82.49
		Efficiency	77.06%



Pre-salting Route 6 (Penmaen)



## Pre-salting Route 7 (Bedwas)

Route 7			Distance
Instruction	GRITTING	ROUTE_CARD	(Kms)
1	N	Leave yard - Travel GREENWAY INDUSTRIAL ESTATE	
2	N	Turn right on to A468	
3	N	At roundabout take exit 3 to CROSSWAYS INDUSTRIAL ESTATE. Grit	1.43
4	Y	Grit PARK PONTYPANDY	
5	Y	At roundabout complete a circuit and take exit 2 to PARC PONTYPANDY	
6	Y	At roundabout complete a circuit and take exit 2 to PARC PONTYPANDY	
7	Y	At roundabout complete a circuit and take exit 2 to A468 link road	
8	Y	At roundabout take exit 3 back to A468 link road	
9	Y	At roundabout take exit 1 to PARC PONTYPANDY	
10	Y	At roundabout take exit 3 to HEOL TY MERCHANT	
11	Y	Continue - Grit HEOL TY MERCHANT	
12	Y	Turn right onto HEOL BRO WEN	
13	Y	Continue - Grit HEOL BRO WEN	
14	Y	Turn right onto HEOL TY MERCHANT	
15	Y	Turn left onto HEOL BRO WEN	
16	Y	AT roundabout complete a circuit and take exit 2 to HEOL BRO WEN	
17	Y	Turn right onto PONTYGWINDY ROAD	
18	Y	Take 2nd left onto PONTYGWINDY INDUSTRIAL ESTATE	
19	Y	Turn left onto PONTYGWINDY INDUSTRIAL ESTATE	
20	Y	Turn left onto PONTYGWINDY ROAD	
21	Y	Continue - Grit PONTYGWINDY ROAD to roundabout. End of salting	4.79
22	N	At roundabout take exit 3 to A469	
23	N	Continue - Travel A469. Grit	0.65
24	Y	Enter roundabout gritting take exit 1 to COED-Y-BRAIN ROAD	
25	Y	Continue - Grit COED-Y-BRAIN ROAD to HIGH STREET	
26	Y	Continue - Grit HIGH STREET to GLENVIEW TERRACE	
27	Y	Continue - Grit GLENVIEW TERRACE	
28	Y	Turn right onto WINGFIELD TERRACE ACCESS ROAD	
29	Y	At roundabout take exit 3 back on to WINGFIELD TERRACE ACCESS ROAD	
30	Y	Turn right onto WINGFIELD TERRACE	
31	Y	Continue - Grit WINGFIELD TERRACE	
32	Y	Continue - Grit WINGFIELD TERRACE to CAERPHILLY ROAD	
33	Y	Continue - Grit CAERPHILLY ROAD	
34	Y	Turn right onto DUFFRYN INDUSTRIAL ESTATE	
35	Y	Turn left onto DUFFRYN INDUSTRIAL ESTATE	
36	Y	Continue on DUFFRYN INDUSTRIAL ESTATE	
37	Y	At roundabout take exit 2 to A469 ACCESS ROAD	
38	Y	At roundabout take exit 4 back to A469 ACCESS ROAD	
39	Y	At roundabout take exit 3 to TWYN ROAD	
40	Y	Turn left onto CAERPHILLY ROAD	
41	Y	At roundabout complete a circuit and take exit 1 to CAERPHILLY ROAD	
42	Y	Continue - Grit CAERPHILLY ROAD. End of salting	6.50
43	N	Turn left - Travel DUFFRYN INDUSTRIAL ESTATE	
44	N	Turn left - Travel DUFFRYN INDUSTRIAL ESTATE	
45	N	At roundabout take exit 2 to A469 ACCESS ROAD	
46	N	At roundabout take exit 3 to A469	
47	N	At roundabout take exit 1 to A469	
48	N	At roundabout take exit 2 to A469. Grit	5.78
49	Y	Enter roundabout gritting take exit 4 to A468	



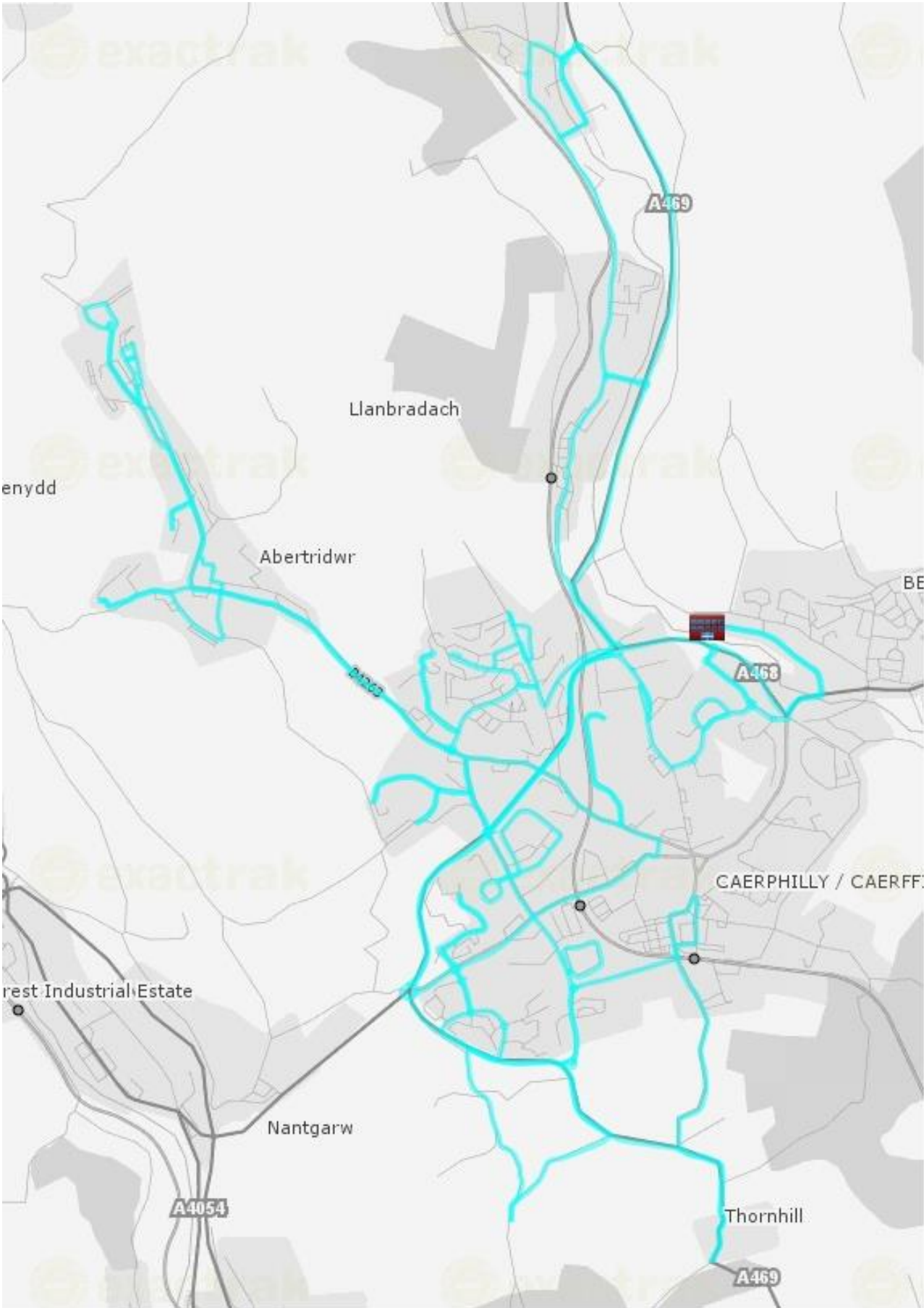
50	Y	At roundabout take exit 2 to A468	
51	Y	At roundabout complete a circuit and take exit 5 to A468	
52	Y	At roundabout take exit 2 to A468	
53	Y	At roundabout take exit 1 to HEOL PWLLYPANT	
54	Y	Continue - Grit HEOL PWLLYPANT	
55	Y	Turn right onto HEOL LAS	
56	Y	Turn left onto Y CILGANT	
57	Y	At mini roundabout take exit 2 onto HEOL ANEURIN	
58	Y	Continue - Grit HEOL ANEURIN to BUS TERMINAL	
59	Y	U-Turn - Grit HEOL ANEURIN	
60	Y	Turn left onto HEOL-Y-GOGLEDD	
61	Y	Bear right - Grit PEN-Y-BRYN	
62	Y	Turn right onto HEOL LAS	
63	Y	Turn left onto HENDRE	
64	Y	Continue - Grit HENDRE	
65	Y	Turn right onto HEOL LAS	
66	Y	Continue - Grit HEOL LAS to HEOL CWARREL CLARK	
67	Y	U-turn - Grit HEOL LAS	
68	Y	Turn right onto Y CILGANT	
69	Y	At mini roundabout take exit 1 to HEOL ANEURIN	
70	Y	Continue - Grit HEOL ANEURIN	
71	Y	Turn right on CALEDFRYN WAY	
72	Y	Continue - Grit CALEDFRYN WAY to HEOL CWM IFOR	
73	Y	At roundabout take exit 4 to HEOL CWM IFOR. End of salting.	12.12
74	N	Travel HEOL CWM IFOR	
75	N	Travel CALEDFRYN WAY. Grit	0.75
76	Y	Turn right - Grit HEOL ANEURIN	
77	Y	Bear left onto HEOL ANEURIN & complete a circuit of TRAFFIC ISLAND	
78	Y	Turn right onto B4263	
79	Y	Continue - Grit B4263 to THOMAS STREET	
80	Y	Continue - Grit THOMAS STREET to HIGH STREET	
81	Y	Continue - Grit HIGH STREET to COMMERCIAL STREET	
82	Y	Continue - Grit COMMERCIAL STREET to BUS TERMINUS.	
83	Y	Continue - Grit BUS TERMINUS to CENYDD TERRACE LINK ROAD	
84	Y	Continue - Grit CENYDD TERRACE LINK ROAD to BUS TERMINUS. End of salting.	5.70
85	N	Travel BUS TERMINUS to COMMERCIAL STREET. Grit	0.60
86	Y	Turn left - Grit HIGH STREET	
87	Y	Continue - Grit HIGH STREET	
88	Y	Turn right onto SCHOOL STREET	
89	Y	Turn left onto UPPER BRYNHYFRYD TERRACE	
90	Y	Turn left onto YSGOL IFOR BACH ACCESS ROAD	
91	Y	Turn left onto HIGH STREET	
92	Y	Turn left onto SCHOOL STREET	
93	Y	Turn right onto LOWER BRYNHYFRYD TERRACE	
94	Y	Bear right onto LOWER BRYNHYFRYD TERRACE	
95	Y	Turn left onto HIGH STREET	
96	Y	Turn left onto B4263	
97	Y	Turn left onto CAERPHILLY ROAD	
98	Y	Continue - Grit CAERPHILLY ROAD. End of salting	1.59
99	N	Turn left onto B4263	
100	N	Travel B4263. Grit	0.44
101	Y	Turn right - Grit WINDSOR COLLIERY ACCESS	
102	Y	Continue - Grit to YSGOL IFOR BACH. End of salting.	0.30

103	N	U-turn - Travel WINDSOR COLLIERY ACCESS	
104	N	Turn right - Travel B4263	
105	N	Continue - Travel B4263 to HIGH STREET. Grit	0.73
106	Y	Turn left - Grit BROOK STREET	
107	Y	Continue - Grit BROOK STREET to BRYNHAFOD ROAD	
108	Y	Continue - Grit BRYNHAFOD ROAD	
109	Y	Turn left onto KING STREET	
110	Y	Turn right onto ACCESS ROAD	
111	Y	Continue - Grit ABERFAWR ROAD	
112	Y	Turn right onto ILAN ROAD	
113	Y	Continue - Grit ILAN ROAD to TRIDWR ROAD	
114	Y	Turn left onto CHURCH ROAD	
115	Y	Continue - Grit CHURCH ROAD to WOODLAND TERRACE	
116	Y	Continue - Grit WOODLAND TERRACE to HENDRE ROAD	
117	Y	Continue - Grit HENDRE ROAD	
118	Y	Turn left - Grit Garth Estate to BUS TURNING AREA. Stop Salting.	1.92
119	N	Turn the vehicle. Proceed back along GARTH ESTATE	
120	N	Turn right - Travel HENDRE ROAD to WOODLAND PLACE	
121	N	Continue - Travel WOODLAND PLACE to CHURCH ROAD. Grit	0.44
122	Y	Continue - Grit CHURCH ROAD. End of salting.	0.31
123	N	Turn right onto B4263	
124	N	Travel - B4263 THOMAS STREET to junction HEOL ANEURIN Grit	2.37
125	Y	Continue - Grit B4263	
126	Y	Enter roundabout gritting take exit 3 to STATION TERRACE	
127	Y	Continue - Grit STATION TERRACE	
128	Y	Turn right onto HENDREDENNY DRIVE	
129	Y	Continue - Grit HENDREDENNY DRIVE. End of salting	1.19
130	N	U-turn Travel HENDREDENNY DRIVE. Grit	0.60
131	Y	Turn right - Grit GROESWEN DRIVE. End of salting	0.32
132	N	U-turn at PEMBROKE COURT	
133	N	Travel GROESWEN DRIVE	
134	N	Turn right - Travel HENDREDENNY DRIVE. Grit	0.56
135	Y	Turn right - Grit ST CENYDD ROAD	
136	Y	At roundabout take exit 4 back to ST CENYDD ROAD. End of salting	0.44
137	N	Travel ST CENYDD ROAD	
138	N	Travel ST CENYDD ROAD to STATION TERRACE	
139	N	Travel STATION TERRACE. Grit	0.54
140	Y	Enter roundabout gritting take exit 3 to MILL ROAD	
141	Y	Continue - Grit MILL ROAD	
142	Y	Turn left onto CAENANT ROAD	
143	Y	Continue - Grit CAENANT ROAD to LEWIS DRIVE	
144	Y	Continue - Grit LEWIS DRIVE. End of salting	2.36
145	N	U-turn - Travel LEWIS DRIVE. Grit	1.03
146	Y	Turn left - Grit MILL ROAD	
147	Y	Keep right onto TAFWYS WALK	
148	Y	Turn right onto NANTGARW ROAD	
149	Y	Continue - Grit NANTGARW ROAD	
150	Y	At roundabout complete a circuit and take exit 3 to HEOL TYWYSOG DU	
151	Y	At roundabout complete a circuit and take exit 3 to HEOL TYWYSOG DU	
152	Y	Continue - Grit HEOL TYWYSOG DU to FFORD PEHRHOS. End of salting	3.39
153	N	U-turn - Travel FFORD PENRHOD	
154	N	Continue - Travel HEOL TYWYSOG DU	
155	N	At roundabout take exit 1 to HEOL TYWYSOG DU. Grit	0.85
156	Y	Enter roundabout salting take exit 2 to FFORD TRAWS CWM	

157	Y	At roundabout complete a circuit and take exit 2 to FFORD TRAWS CWM	
158	Y	At roundabout complete a circuit and take exit 3 to CAE CROES HEOL	
159	Y	Turn left onto A469	
160	Y	Turn left onto FFORD TRAWS CWM	
161	Y	At roundabout complete a circuit and take exit 2 to FFORD TRAWS CWM	
162	Y	At roundabout take exit 3 to FFORD TRAWS CWM	
163	Y	At roundabout take exit 2 to FFORD TRAWS CWM	
164	Y	At roundabout take exit 1 to NANTGARW ROAD	
165	Y	At roundabout take exit 1 to A469	
166	Y	Continue - Grit A469	
167	Y	Turn left onto WATFORD ROAD	
168	Y	Turn right onto TURNING AREA	
169	Y	U-turn in TURNING AREA	
170	Y	Turn right onto WATFORD ROAD	
171	Y	Turn right onto ST MARTINS ROAD. Grit TRAFFIC ISLAND	
172	Y	Continue - Grit ST MARTINS ROAD. End of salting	5.80
173	N	Turn left - Travel CARDIFF ROAD	
174	N	Continue - Travel CARDIFF ROAD to CASTLE STREET	
175	N	Turn right - Travel MARKET STREET	
176	N	Continue - Travel WHITE STREET. Grit	0.94
177	Y	Turn right - Grit BARTLETT STREET	
178	Y	Turn left - Grit MOUNTAIN ROAD	
179	Y	Continue - Grit MOUNTAIN ROAD	
180	Y	Turn left onto A469	
181	Y	Continue - Grit A469	
182	Y	U-turn - Grit A469	
183	Y	Continue - Grit A469	
184	Y	Turn left onto BLACKBROOK ROAD	
185	Y	Turn right onto WAUNWAELOD WAY	
186	Y	Continue - Grit WAUNWAELOD WAY	
187	Y	U-turn - Grit WAUNWAELOD WAY	
188	Y	Continue - Grit WAUNWAELOD WAY. End of salting	8.00
189	N	Turn left - Travel A469	
190	N	Turn right - Travel WATFORD ROAD. Grit	0.65
191	Y	Continue - Grit WATFORD ROAD to LON-Y-LLYN	
192	Y	Turn right onto ST CHRISTOPHERS DRIVE	
193	Y	Turn left onto ST CHRISTOPHERS DRIVE	
194	Y	Continue - Grit ST CHRISTOPHERS DRIVE	
195	Y	Turn left onto ST CHRISTOPHERS DRIVE	
196	Y	Turn right onto LON-Y-LLYN	
197	Y	Continue - Grit LON-Y-LLYN to ST CENYDD ROAD	
198	Y	Continue - Grit ST CENYDD ROAD	
199	Y	Turn left onto CAER FFERM	
200	Y	Continue - Grit CAER FFERM	
201	Y	Turn right onto CAER FFERM	
202	Y	Continue - Grit FIRST AVENUE	
203	Y	Turn left - Grit EAST AVENUE	
204	Y	Continue - Grit EAST AVENUE to THE CRESCENT	
205	Y	At roundabout take exit 1 to THE CRESCENT	
206	Y	Continue - Grit THE CRESCENT to WEST AVENUE	
207	Y	Turn right onto FIRST AVENUE	
208	Y	Turn right onto ST CENYDD ROAD	
209	Y	Continue - Grit ST CENYDD ROAD. End of salting	4.40
210	N	Travel - At roundabout take exit 3 to A468	

211	N	Travel - At roundabout take exit 4 to A468	
212	N	Travel - At roundabout take exit 1 to A468	
213	N	Travel - At roundabout take exit 1 to A468	
214	N	Turn left into GREENWAY INDUSTRIAL ESTATE	
215	N	Continue - Travel GREENWAY INDUSTRIAL ESTATE	
216	N	Turn left into DEPOT	4.73
		Gritted	59.13
		Free Travel	23.09
		Total	82.22
		Efficiency	73.73%

Pre-salting Route 7 (Bedwas)



## Pre-salting Route 8 (Bedwas)

Route 8			Distance
Instruction	GRITTING	ROUTE_CARD	(Kms)
1	Y	Leave yard - Grit GREENWAY INDUSTRIAL ESTATE.	
2	Y	Turn right onto A468	
3	Y	Enter roundabout gritting complete a circuit and take exit 4 to A468	
4	Y	At roundabout take exit 2 to A468.	
5	Y	At Cedar Tree roundabout complete a circuit and take exit 4 to A469	
6	Y	At Tre-Hir roundabout complete a circuit and take exit 2 to A469	
7	Y	At Wingfield roundabout take exit 2 to A469	
8	Y	At Duffryn roundabout take exit 2 to A469	
9	Y	At Dance Centre roundabout take exit 1 to A472.	
10	Y	At Royal Oak roundabout take exit 4 to A472	
11	Y	At Dance Centre roundabout take exit 3 to A469	
12	Y	At Duffryn roundabout take exit 2 to A469	
13	Y	At Wingfield roundabout take exit 1 to A469	
14	Y	At Tre-Hir roundabout take exit 1 to TRE-HIR TIP	
15	Y	Continue - Grit TIP ACCESS ROAD. End of salting	15.63
16	N	U-turn – Travel back to A469 roundabout. Grit	0.78
17	Y	Enter Tre-Hir roundabout salting and take exit 1 to A469	
18	Y	At Cedar Tree roundabout take exit 2 to A468	
19	Y	At Gallagher roundabout take exit 1 to A468	
20	Y	At Bedwas roundabout take exit 1 to A468	
21	Y	Continue - Grit A468	
22	Y	Turn left - Grit CHURCH STREET	
23	Y	Bear right - Grit NEWPORT ROAD	
24	Y	Bear right - Grit LINK ROAD	
25	Y	Turn left - Grit A468	
26	Y	Turn left onto NAVIGATION ROAD	
27	Y	Turn left onto LLANFABON DRIVE	
28	Y	At roundabout take exit 2 to LLANFABON DRIVE	
29	Y	Continue - Grit LLANFABON DRIVE to BRYNFEDW	
30	Y	Continue - Grit BRYNFEDW to HILLSIDE TERRACE	
31	Y	Turn right onto CHURCH STREET	
32	Y	Turn right onto BRYNTIRION	
33	Y	Bear left onto BRYN GOLAU	
34	Y	Turn right onto BRYN GLAS	
35	Y	Turn right onto BRYN TEG	
36	Y	Turn right onto BRYNTIRION	
37	Y	Turn left onto CHURCH STREET	
38	Y	Continue - Grit CHURCH STREET	
39	Y	Turn left onto A468	
40	Y	Turn right into PANT GLAS INDUSTRIAL ESTATE	
41	Y	Continue - Grit PANT GLAS INDUSTRIAL ESTATE. End of salting	8.09
42	N	U-Turn - Travel PANT GLAS INDUSTRIAL ESTATE. Grit	1.27
43	Y	Turn right - Grit A468	
44	Y	Turn left onto NEWPORT ROAD	
45	Y	Turn right onto NEWPORT ROAD	
46	Y	Continue - Grit NEWPORT ROAD to THE BRYN	
47	Y	Continue - Grit THE BRYN. End of salting	0.85
48	N	At roundabout take exit 3 to LLANFABON DRIVE	
49	N	Continue - Travel LLANFABON DRIVE. Grit	0.51

50	Y	Continue - Grit STANDARD STREET	
51	Y	Continue - Grit ADDISON WAY. End of salting	2.70
52	N	Turn right - Travel ADDISON WAY.	
53	N	Continue - Travel STANDARD STREET	
54	N	Turn left onto NAVIGATION STREET. Grit	1.41
55	Y	Turn left - Grit A468	
56	Y	Turn left - Grit RIDGEWAY	
57	Y	Turn right onto ST DAVIDS DRIVE	
58	Y	Turn left onto SUMMERFIELD LANE	
59	Y	Turn left onto RIDGEWAY	
60	Y	Turn left onto A468	
61	Y	Continue - Grit A468	
62	Y	Turn right onto DRAETHEN ROAD	
63	Y	Continue - Grit to MAENLLWYD	
64	Y	Turn left onto RUDRY ROAD	
65	Y	Continue - Grit RUDRY ROAD. End of salting.	11.09
66	N	U-Turn - Travel RUDRY ROAD. Grit	1.64
67	Y	Turn left at MAENLLWYD	
68	Y	Continue - Grit VAN ROAD	
69	Y	At roundabout complete a circuit and take exit 1 to PARK & RIDE	
70	Y	At roundabout complete a circuit and take exit 2 to PARK & RIDE	
71	Y	Continue – Grit PARK and RIDE	
72	Y	U-Turn – Travel PARK & RIDE	
73	Y	At roundabout take exit 1 to VAN ROAD	
74	Y	At roundabout take exit 1 to VAN ROAD.	
75	Y	Turn right on to SOUTHERN STREET,	6.36
76	N	Turn left on to NORTH VIEW TERRACE. End of salting	
77	N	Turn left on to MARKET STREET	
78	N	Travel MARKET STREET. Grit.	0.20
79	Y	Turn right on to THE TWYN.	
80	Y	Continue - Grit THE TWYN	
81	Y	Turn right onto CASTLE STREET	
82	Y	Continue - Grit CASTLE STREET to PICCADILLY	
83	Y	Turn right onto TON-Y-FELIN ROAD	
84	Y	Turn right onto CASTLE STREET LINK ROAD	
85	Y	Turn left - Grit CASTLE STREET	
86	Y	Continue - Grit MARKET STREET	
87	Y	Continue - Grit WHITE STREET	
88	Y	Turn right - Grit BUS STATION	
89	Y	Bear left onto STATION TERRACE	
90	Y	Turn right onto CARDIFF ROAD	
91	Y	Continue - Grit CARDIFF ROAD to CASTLE STREET.	
92	Y	Turn right - Grit MARKET STREET LINK ROAD. End of salting.	2.00
93	N	Turn right - Travel MARKET STREET	
94	N	Continue - Travel WHITE STREET. Grit	0.43
95	Y	Turn right - Grit STATION TERRACE.	
96	Y	Continue - Grit CLIVE STREET	
97	Y	Turn right - Grit LUDLOW STREET	
98	Y	Continue - Grit LUDLOW STREET to CRESCENT ROAD	
99	Y	Turn right onto NANTGARW ROAD	
100	Y	Turn left onto PONTYGWINDY ROAD	
101	Y	Turn left onto MILL ROAD	

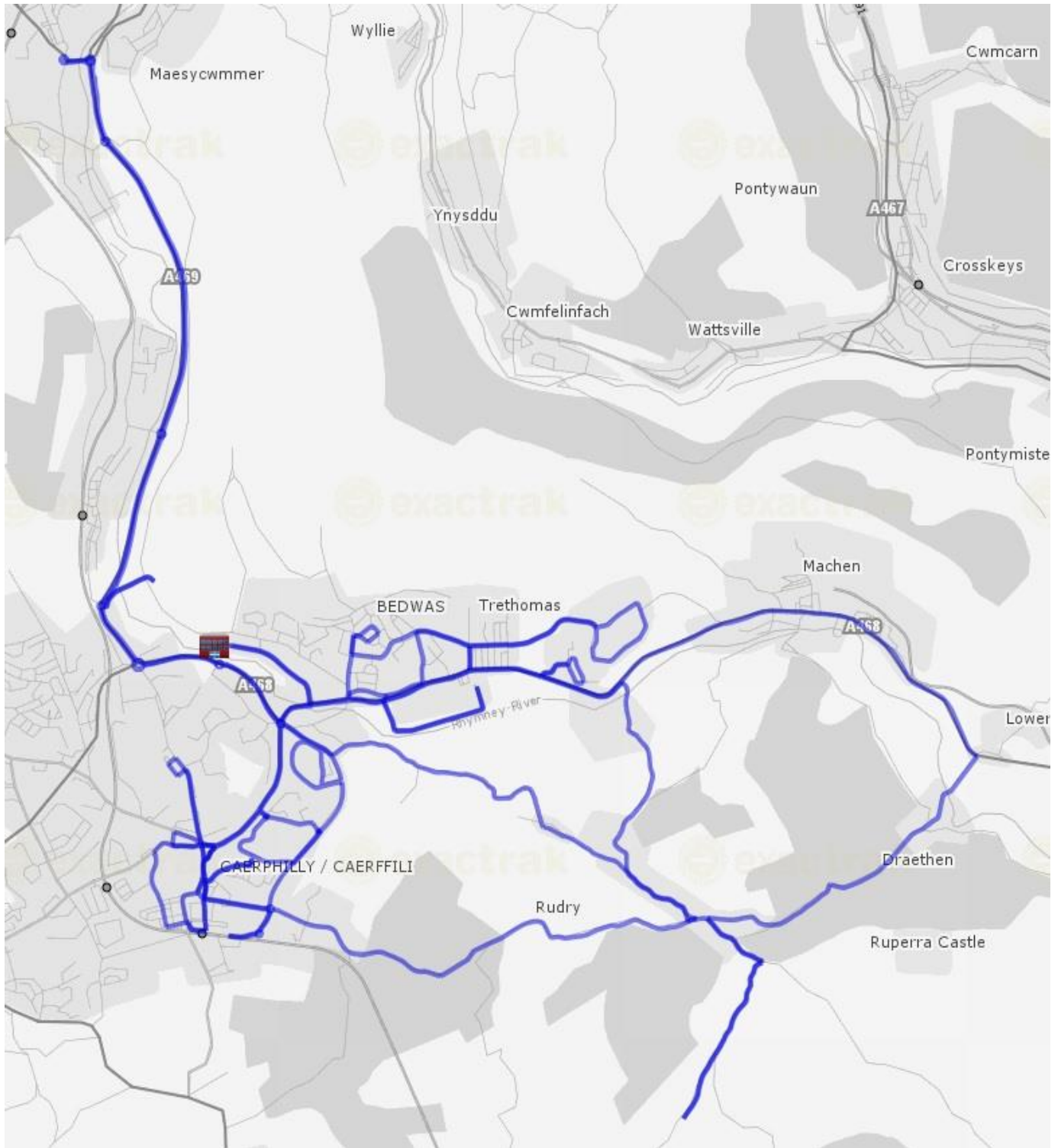


102	Y	Turn left onto TAFWYS WALK	1.74
103	N	Turn left onto NANTGARW ROAD	
104	N	Turn left onto PONTYGWINDY ROAD	0.38
105	Y	Continue - Grit PONTYGWINDY ROAD	
106	Y	Turn left onto RHOS STREET	
107	Y	Turn left onto WAUN FACH STREET	
108	Y	Turn left onto WAUN GANOL STREET	
109	Y	Continue - Grit WAUN GANOL STREET. End of salting	1.10
110	N	Turn right- Travel PONTYGWINDY ROAD. Grit	0.63
111	Y	Turn left - Grit TON-Y-FELIN ROAD	
112	Y	Turn right - Grit CASTLE STREET LINK ROAD	
113	Y	Turn left - Grit CASTLE STREET	
114	Y	Turn left onto NORTH VIEW TERRACE	
115	Y	Continue - Grit BRYNAU ROAD	
116	Y	Turn left onto CASTLE PARK LINK ROAD	
117	Y	At roundabout take exit 3 back to CASTLE PARK. End of salting.	1.05
118	N	Turn right - Travel BRYNAU ROAD	
119	N	Continue - Travel NORTH VIEW TERRACE.	
120	N	Turn left - Travel MARKET STREET	0.67
121	Y	Turn left - onto VAN ROAD and grit to SOUTHERN STREET.	0.20
122	N	Continue – Travel VAN ROAD to roundabout. Grit.	0.34
123	Y	Enter roundabout gritting take exit 1 to LANSBURY PARK DISTRIBUTOR RD.	
124	Y	Continue - Grit LANSBURY PARK DISTRIBUTOR ROAD	
125	Y	Turn left onto PEN-Y-CAE	
126	Y	Continue - Grit PEN-Y-CAE	
127	Y	Turn left - Grit LANSBURY PARK DISTRIBUTOR ROAD	
128	Y	At roundabout take exit 1 to BEDWAS ROAD	
129	Y	Continue - Grit BEDWAS ROAD	
130	Y	Take 2nd left onto LANSBURY PARK	
131	Y	At junction near MAXTON COURT - Grit TRAFFIC ISLAND	
132	Y	Continue - Grit MAXTON COURT to HALDANE COURT	
133	Y	At junction near HALDANE COURT - Grit TRAFFIC ISLAND	
134	Y	Turn right onto LANSBURY PARK DISTRIBUTOR ROAD	
135	Y	Turn right onto LANSBURY PARK	
136	Y	Continue - Grit WEDGEWOOD COURT to MAXTON COURT	
137	Y	Turn left onto BEDWAS ROAD	
138	Y	Bear left onto CASTLE STREET LINK ROAD	
139	Y	Turn right onto MARKET STREET	
140	Y	Turn right onto TON-Y-FELIN ROAD. End of salting	7.11
141	N	Continue - Travel TON-Y-FELIN ROAD	
142	N	Continue - Travel BEDWAS ROAD	
143	N	At roundabout take exit 4 to LANSBURY PARK DISTRIBUTOR ROAD	
144	N	Continue - Travel LANSBURY PARK DISTRIBUTOR ROAD. Grit	1.98
145	Y	Turn left - Grit RUDRY ROAD	
146	Y	Continue - Grit RUDRY ROAD to STARBUCK STREET	
147	Y	Continue - Grit STARBUCK STREET to MAENLLWYD	
148	Y	U-turn around the junction. End of salting.	4.02
149	N	Travel - to RUDRY PRIMARY SCHOOL. Grit	0.66
150	Y	Turn right - Grit WATERLOO ROAD	
151	Y	Continue - Grit WATERLOO ROW. End of salting.	1.89
152	N	Turn left onto A468	
153	N	Continue - travel A468. Grit	2.24
154	Y	Turn right onto GREENWAY INDUSTRIAL ESTATE. End of salting.	0.66
155	N	Continue - Travel GREENWAY INDUSTRIAL ESTATE	



156	N	Turn left into DEPOT	1.04
		Gritted	64.69
		Free Travel	14.22
		Total	78.63
		Efficiency	82.3%

Pre-salting Route 8 (Bedwas)



## Appendix B.

### Pre-salting Routes 10 and 11. (Routes above 300m altitude)

Precautionary pre-salting route descriptions and plans.

- Note 1:** The route plans are schematic only and must be read in conjunction with the route descriptions.
- Note 2:** In some instances, gritting may be hampered by slow moving traffic flows, or a RTC. It will be up to the drivers' discretion at these times to divert from the original route to achieve best results for coverage of the routes. Ultimately, all routes should be gritted prior to the onset of frost.

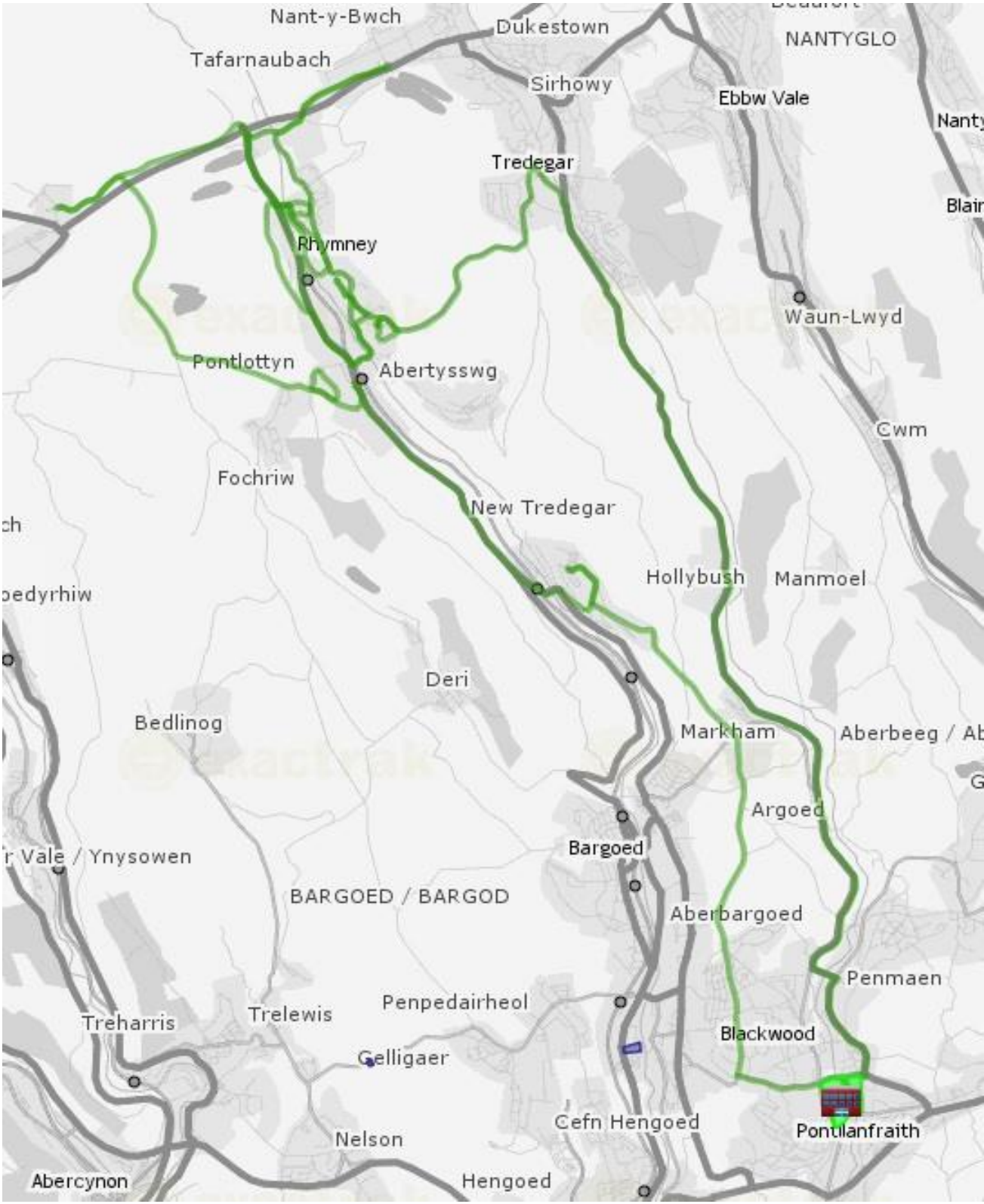
## Pre-salting Route 10 (Penmaen)

Route 10			Distance
Instruction	GRITTING	ROUTE_CARD	(Kms)
1	N	Leave yard travel to junction B4254.	
2	N	Turn left - Travel B4254	
3	N	Continue - Travel B4254	
4	N	Enter roundabout travelling and take exit 3 to BRYN ROAD	
5	N	Continue - Travel BRYN ROAD	
6	N	At crossroads - Continue travel BEDWELLY ROAD	
7	N	Continue - Travel BEDWELLY ROAD to HEOL Y CEFN. Grit	3.42
8	Y	Continue - Grit HEOL Y CEFN	
9	Y	Continue - Grit HEOL Y CEFN to HEOL Y BEDW-HIRION	
10	Y	Continue - Grit HEOL Y BEDW-HIRION to roundabout	
11	Y	At roundabout take exit 2 to MARKHAM COMMON ROAD	
12	Y	Continue - Grit MARKHAM COMMON ROAD to BEDWELLY ROAD	
13	Y	Continue - Grit BEDWELLY ROAD	
14	Y	Turn right onto BEDLWYN ROAD	
15	Y	Continue - Grit BEDLWYN ROAD to BUS TURNING AREA. End of salting.	6.62
16	N	U-turn - Travel BEDLWYN ROAD to BEDWELLY ROAD.	
17	N	Turn right - Travel BEDWELLY ROAD	
18	N	Turn right - Travel SCHOOL STREET	
19	N	Continue - Travel SCHOOL STREET to DUFFRYN TERRACE.	
20	N	Turn left - Travel to roundabout.	
21	N	Enter roundabout travelling and take exit 2 to A4049	
22	N	Continue - Travel A4049 to A469	
23	N	Continue - Travel A469 to FARM ROAD. Grit	5.52
24	Y	Turn left - Grit FARM ROAD to FOCHRIW ROAD.	
25	Y	Turn right onto HILL ROAD. Grit	
26	Y	Turn right onto BRYNHYFRYD	
27	Y	Turn right onto FOCHRIW ROAD	
28	Y	Continue - FOCHRIW ROAD to PONTLOTTYN ROAD. End of salting	2.64
29	N	Turn right - Travel SOUTH TUNNEL ROAD	
30	N	Continue - Travel SOUTH TUNNEL ROAD to TUNNEL TAVERN. Grit	1.55
31	Y	Turn right - Grit TRECATTI HILL	
32	Y	Continue - Grit TRECATTI HILL to RHYMNEY COMMON ROAD	
33	Y	Turn left onto RHYMNEY COMMON ROAD	
34	Y	Continue - Grit RHYMNEY COMMON ROAD to roundabout. End of salting	3.88
35	N	At roundabout take exit 4 to RHYMNEY COMMON ROAD.	
36	N	Travel RHYMNEY COMMON ROAD to COMMON ROAD. Grit.	1.01
37	Y	Continue - Grit RHYMNEY COMMON ROAD to ROUNDABOUT	
38	Y	Complete a circuit of the roundabout and take exit 3 to RHYMNEY	
39	Y	Complete a circuit of the roundabout and take exit 1 to B4257	
40	Y	Continue - Grit B4257 to MERTHYR ROAD	
41	Y	Continue - Grit MERTHYR ROAD to End of Salting	3.50
42	N	Continue - Travel MERTHYR ROAD	
43	N	Enter roundabout travelling and take exit 4 back to MERTHYR ROAD	
44	N	Continue - Travel MERTHYR ROAD to B4257. Grit	2.81
45	Y	Turn left grit B4257 to UPPER HIGH STREET	
46	Y	Turn right - Grit OAKLAND TERRACE.	
47	Y	Continue - Grit OAKLAND TERRACE to B4257. End of salting.	1.54
48	N	Turn right - Travel B4257 to CARNO STREET. Grit	0.16
49	Y	Turn left - Grit CARNO STREET.	
50	Y	At roundabout take exit 4 onto CARNO STREET	

51	Y	Continue - Grit CARNO STREET to B4257	
52	Y	Turn right - Grit UPPER HIGH STREET	
53	Y	Continue - Grit UPPER HIGH STREET to CHURCH STREET	
54	Y	Continue - Grit CHURCH STREET to HIGH STREET	
55	Y	Continue - Grit HIGH STREET	
56	Y	Turn right onto TRE-YORK STREET	
57	Y	Turn right onto THE TERRACE	
58	Y	Continue - Grit TRE-YORK STREET to GLAN-YR-AFON	
59	Y	Continue - Grit GLAN-YR-AFON	
60	Y	Turn right onto CARNO STREET. End of salting	2.84
61	N	Travel CARNO STREET	
62	N	Continue - Travel CARNO STREET to CORONATION CRESCENT. Grit	0.08
63	Y	Turn right - Grit B4257 to CORONATION CRESCENT	
64	Y	Continue CORONATION CRESCENT to QUEENS CRESCENT	
65	Y	Continue QUEENS CRESCENT to HIGH STREET. End of salting	0.61
66	N	Turn right onto HIGH STREET.	
67	N	Travel HIGH STREET to TRE-YORK STREET. Grit	0.48
68	Y	Continue - Grit HIGH STREET TO HAVARDS ROW	
69	Y	Continue - Grit HAVARDS ROW to BRYN-TEG CRESCENT	
70	Y	Turn left onto HILL STREET	
71	Y	Continue - Grit HILL STREET	
72	Y	Turn right - Grit MORIAH STREET	
73	Y	Turn Left - Grit WELLINGTON WAY	
74	Y	Continue - Grit WELLINGTON WAY	
75	Y	Turn right - Grit A469	
76	Y	At roundabout take exit 2 to A469	
77	Y	At roundabout take exit 4 back onto A469. End of salting.	5.60
78	N	Travel A469 to CARNO STREET roundabout. Grit	1.02
79	Y	At roundabout take exit 3 to INDUSTRIAL ESTATE	
80	Y	Continue - Grit INDUSTRIAL ESTATE to A469. End of salting	1.69
81	N	Turn right - Travel A469	
82	N	Continue - Travel A469 to MERCHANT STREET. Grit	0.93
83	Y	Turn left - Grit B4257 to junction with HEOL EVAN WYNNE. End of salting	0.07
84	N	Continue - Travel B4257 to junction with MORIAH STREET. Grit	0.70
85	Y	Continue - Grit WELLINGTON WAY to FORGE CRESCENT	
86	Y	Turn left onto LAWN INDUSTRIAL ESTATE	
87	Y	Continue - Grit LAWN INDUSTRIAL ESTATE. End of salting.	0.66
88	N	U-turn - Travel LAWN INDUSTRIAL ESTATE to FORGE CRESCENT.	
89	N	Turn right - Travel FORGE CRESCENT.	
90	N	Turn left - Travel HILL STREET to junction with MORIAH STREET. Grit	0.61
91	Y	Continue - Grit HILL STREET to TAN-Y-BRYN	
92	Y	Turn right - Grit TAN-Y-BRYN	
93	Y	Continue - Grit TAN-Y-BRYN	
94	Y	Turn right onto GARDEN CITY (Complete a loop of GARDEN CITY)	
95	Y	Continue - Grit GARDEN CITY to HILL STREET	
96	Y	Turn right onto HILL STREET	
97	Y	Continue - Grit HILL STREET to End of salting.	3.00
98	N	Travel B4256 to A4048	
99	N	Travel A4048 to COUNTY BOUNDARY at HOLLYBUSH.	
100	N	Continue - Travel A4048	
101	N	At roundabout take exit 1 to A4048	
102	N	At roundabout take exit 2 to A4048	
103	N	At roundabout take exit 2 to A4048	
104	N	At roundabout take exit 3 to B4254	

105	N	Turn left onto PENMAEN ROAD INDUSTRIAL ESTATE	
106	N	Turn left onto DEPOT	17.30
		Gritted	32.65
		Free Travel	35.59
		Total	68.24
		Efficiency	47.85%

Pre-salting Route 10 (Penmaen)





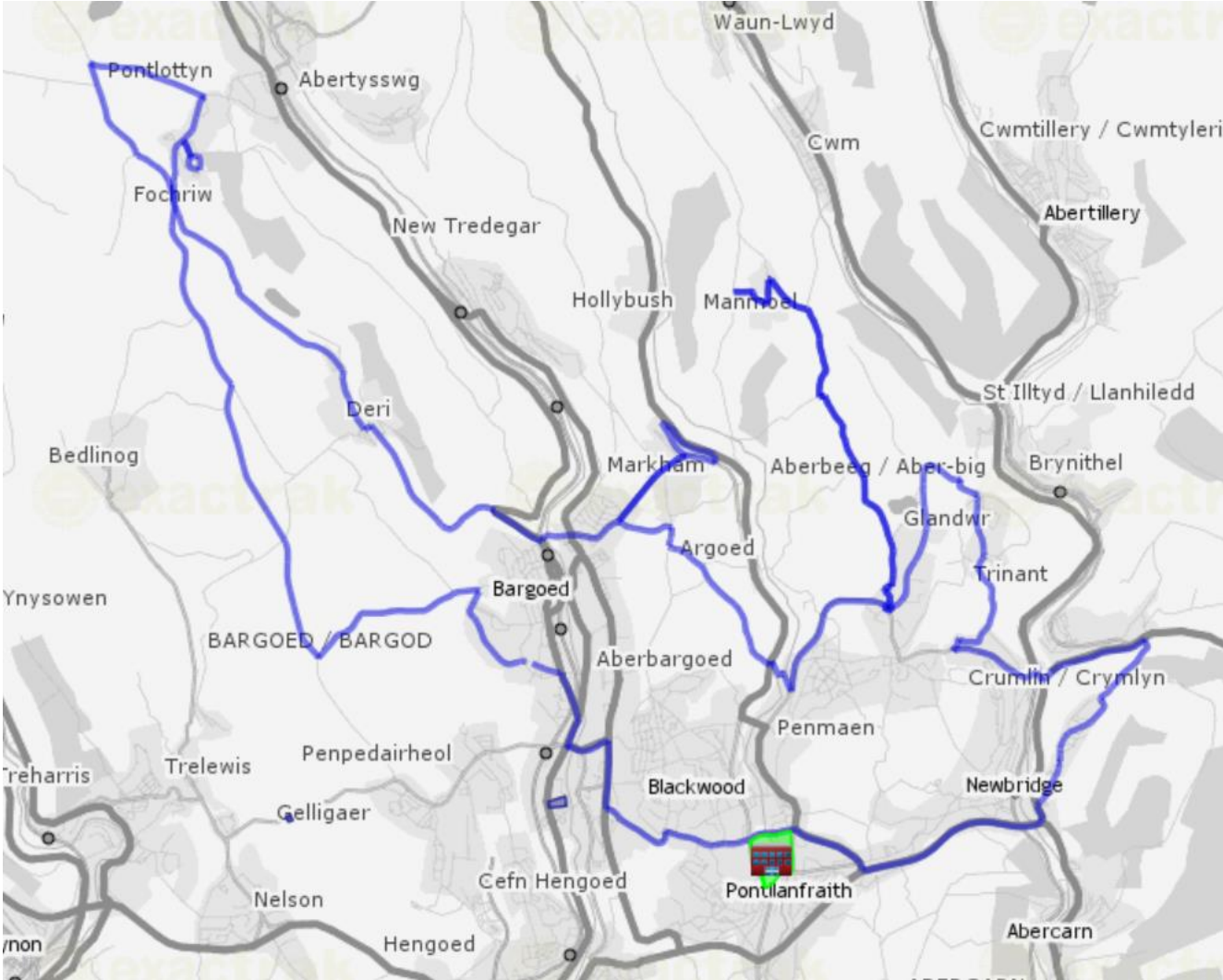
Pre-salting Route 11 (Penmaen).

Route 11			Distance
Instruction	GRITTING	ROUTE_CARD	(Kms)
1	N	Leave yard travel to junction B4254.	
2	N	Turn right - Travel B4254	
3	N	At roundabout take exit 2 onto A4048	
4	N	At roundabout take exit 2 onto A4048	
5	N	At roundabout take exit 1 onto A472	
6	N	Continue - Travel A472	
7	N	At roundabout take exit 2 to A472	
8	N	Travel A472 to CENTRAL AVENUE.	
9	N	Turn right onto CENTRAL AVENUE.	
10	N	Continue - Travel CENTRAL AVENUE	
11	N	At roundabout take exit 2 onto OLD PANT ROAD	
12	N	Continue - Travel OLD PANT ROAD. Grit	5.96
13	Y	Turn right onto PANT ROAD.	
14	Y	Continue - Grit PANT ROAD to A472 HAFODYRYNYS ROAD. End of salting	1.03
15	N	Turn left - Travel A472 HAFODYRYNYS ROAD	
16	N	Continue - Travel A472 HAFODYRYNYS ROAD	
17	N	Turn right onto A467	
18	N	Turn left onto B4251 KENDON ROAD	
19	N	Continue - Travel B4251 KENDON ROAD	
20	N	Turn right onto TRINANT ROAD	
21	N	Continue - Travel TRINANT ROAD	
22	N	Continue - Travel TRINANT ROAD to PENTWYN ROAD	
23	N	Continue - Travel PENTWYN ROAD to PENTWYN TERRACE. Grit	5.65
24	Y	Continue - Grit PENTWYN TERRACE	
25	Y	Continue - Grit PENTWYN TERRACE to CHRISTCHURCH ROAD.	
26	Y	Turn left - Grit CHRISTCHURCH ROAD	
27	Y	Continue - Grit CHRISTCHURCH ROAD to PARKWAY	
28	Y	Continue - Grit PARKWAY	
29	Y	At roundabout complete a circuit and take exit 4 to LON GELLIDEG	
30	Y	Turn right onto MANMOEL ROAD	
31	Y	Continue - Grit MANMOEL ROAD	
32	Y	Turn left - Grit MANMOEL VILLAGE	
33	Y	Turn right - Grit LLANERCH LANE. End of salting	8.42
34	N	U-turn - Travel to LLANERCH LANE	
35	N	Turn left - Travel MANMOEL VILLAGE	
36	N	Turn right - Travel MANMOEL ROAD	
37	N	Turn left - Travel LON GELLIDEG	
38	N	Enter roundabout and take exit 4 onto B4251	
39	N	Continue - Travel B4251	
40	N	Turn right - Travel OAKDALE COMP LANE	
41	N	Continue - Travel OAKDALE COMP LANE to ROCK FACH LANE	
42	N	Continue - Travel ROCK FACH LANE	
43	N	Turn Left onto A4048	
44	N	Turn right onto B4251 HEOL TYNEWYDD to junction MAES MANOR HOTEL.	8.78
45	Y	Continue - Grit HEOL TYNEWYDD to PEN HEOL-SHENKYN. End of salting	1.74
46	N	Turn right - Travel HEOL Y BEDW-HIRION. Grit	0.25
47	Y	Turn left - Grit BEDWELLY ROAD	
48	Y	Turn right - Grit B4511	
49	Y	At roundabout take exit 2 to PANTYCEFN ROAD	
50	Y	At roundabout take exit 2 to ABERNANT ROAD	



51	Y	Turn left onto A4048 SLIP ROAD. End of salting	2.43
52	N	Turn left - Travel A4048	
53	N	Continue - Travel A4048. Grit	0.70
54	Y	Turn left - Grit ABERNANT ROAD	
55	Y	Continue - Grit ABERNANT ROAD. End of salting	0.67
56	N	At roundabout take exit 2 to PANTYCEFN ROAD	
57	N	Continue - Travel PANTYCEFN ROAD	
58	N	At roundabout and take exit 2 to B4511	
59	N	Continue - Travel B4511 to BEDWELLY ROAD	
60	N	Continue - Travel BEDWELLY ROAD.	
61	N	Turn right onto FACTORY ROAD.	
62	N	Continue - Travel FACTORY ROAD	
63	N	Turn left onto GROESFAEN TERRACE	
64	N	Continue - Travel GROESFAEN TERRACE to BAILEY STREET	
65	N	Continue - TRAVEL BAILEY STREET to OGILVY TERRACE Grit.	6.38
66	Y	Continue - Grit BARGOED INN to GLENVIEW TERRACE	
67	Y	Continue - Grit GLENVIEW TERRACE to BROOK ROW	
68	Y	Turn right - onto MOORES ROW	
69	Y	Continue - Grit MOORES ROW to AELYBRYN STREET	
70	Y	Continue - Grit AELYBRYN STREET	
71	Y	Turn left onto HEOL IAGO	
72	Y	Continue - Grit HEOL IAGO to GLAN-Y-NANT	
73	Y	Continue - Grit GLAN-Y-NANT	
74	Y	Turn right onto HEOL IAGO	
75	Y	Continue - Grit HEOL IAGO to AELYBRYN STREET	
76	Y	Turn left onto AELYBRYN STREET	
77	Y	Continue - Grit AELYBRYN STRET to MOORES ROW.	
78	Y	Turn right - Grit PONTLOTTYN ROAD.	
79	Y	Continue - Grit PONTLOTTYN ROAD	
80	Y	Turn left - Grit SOUTH TUNNEL ROAD	
81	Y	Continue - Grit SOUTH TUNNEL ROAD to TUNNEL TAVERN.	
82	Y	Turn left - Grit SOUTH TUNNEL ROAD to GLENVIEW TERRACE	
83	Y	Turn right - Grit GELLIGAER COMMON ROAD.	
84	Y	Turn left - Grit GELLIGAER COMMON ROAD to MOORLAND ROAD	
85	Y	Turn right - Grit WESTERN DRIVE	
86	Y	Continue - Grit WESTER DRIVE to PARK PLACE. End of salting.	20.00
87	N	Turn right - Travel PARK PLACE to GWERTHONOR PLACE	
88	N	Turn right onto A469	
89	N	Continue - Travel A469	
90	N	Turn left onto HIGH STREET	
91	N	Turn right onto A4049	
92	N	Continue travel A4049 to OAK TERRACE	
93	N	Turn left onto B4254	
94	N	At roundabout take exit 3 to B4254	
95	N	Continue - Travel B4254 to PENMAEN ROAD INDUSTRIAL ESTATE	
96	N	Turn right onto PENMAEN ROAD INDUSTRIAL ESTATE	
97	N	Turn left into DEPOT	5.13
		Gritted	34.29
		Free Travel	32.85
		Total	67.14
		Efficiency	51.07%

Pre-salting Route 11 (Penmaen).



## **Appendix C.**

### **Pre-salting Routes 20-22 (Routes above 200m).**

#### **Precautionary pre-salting route descriptions and plans.**

- Note 1:** The route plans are schematic only and must be read in conjunction with the route descriptions.
- Note 2:** In some instances, gritting may be hampered by slow moving traffic flows, or a RTC. It will be up to the drivers' discretion at these times to divert from the original route to achieve best results for coverage of the routes. Ultimately, all routes should be gritted prior to the onset of frost.
- Note 3:** Gritting routes 1 and 2 are to be used in addition to routes 20, 21 and 22.

## Pre-salting Route 20 (Penmaen)

Route 20			Distance
Instruction	GRITTING	ROUTE_CARD	(Kms)
1	N	Leave yard travel to junction B4254.	
2	N	Turn right - Travel B4254	
3	N	At roundabout take exit 1 onto A4048. Grit	1.01
4	Y	Enter roundabout gritting take exit 3 to OAKDALE	
5	Y	Continue - Grit OAKDALE TERRACE	
6	Y	Continue - Grit PENMAEN ROAD	
7	Y	Continue - Grit PENRHIW TERRACE	
8	Y	Continue - Grit SYR DAFYDD AVENUE	
9	Y	Turn right onto MAES Y GARN ROAD	
10	Y	Continue - Grit MAES Y GARN ROAD to LLWYN ON CRESCENT	
11	Y	Continue - Grit LLWYN ON LANE to GROVESIDE ROAD	
12	Y	Turn right onto PENMAEN ROAD	
13	Y	Turn right onto CENTRAL AVENUE	
14	Y	Turn left onto PENRHIW AVENUE	
15	Y	Turn right onto ABERCONWY PLACE	
16	Y	Turn right onto MARKHAM CRESCENT	
17	Y	Turn right onto ABERCONWY PLACE	
18	Y	Turn right onto PENRHIW AVENUE	
19	Y	Turn right onto ABERCONWY PLACE	
20	Y	Turn right onto MARKHAM CRESCENT	
21	Y	Turn left onto PENMAEN AVENUE	
22	Y	Turn left onto SYR DAFYDD AVENUE	
23	Y	Turn left onto BEECH GROVE	
24	Y	Turn left onto ABERCONWY PLACE	
25	Y	Turn right onto MARKHAM CRESCENT	
26	Y	Turn right onto ABERCONWY PLACE	
27	Y	Turn left onto BEECH GROVE	
28	Y	Continue grit BEECH GROVE	
29	Y	Turn left onto MAES Y GARN ROAD	
30	Y	Turn right onto SYR DAFYDD AVENUE	
31	Y	Continue - Grit SYR-DAFYDD AVENUE to BRYN HOWARD TERRACE	
32	Y	Continue - Grit BRYN HOWARD TERRCAE	
33	Y	Turn right - Grit CLOS PENTREGROES. End of salting	7.89
34	N	U-turn - Travel CLOS PENTREGROES. Grit	0.65
35	Y	Turn right - Grit LON MAES YR HAF. End of salting	0.94
36	N	U-turn - Travel LON MAES YR HAF	
37	N	Continue - Travel LON MAES YR HAF	
38	N	Turn right - Travel CLOS PENTRE GROES and then Turn right. Grit	1.01
39	Y	Turn right on to KENDON ROAD	
40	Y	Turn left onto PARKWAY	
41	Y	Continue - Grit PARKWAY.	
42	Y	At roundabout make a complete circuit and take exit 1 to BRYN BRITHDIR.	
43	Y	Continue - Grit BRYN BRITHDIR.	
44	Y	U-turn and take first left on to OAKDALE COURT	
45	Y	Turn left on to OAKDALE COURT	
46	Y	Continue to end of OAKDALE COURT. End of salting.	1.88
47	N	U-turn and return to PARKWAY ROUNDABOUT.	
48	N	U turn - Travel BRYN BRITHDIR	
49	N	Travel - at roundabout take exit 1 to YARD COAL RISE. Grit	1.47
50	Y	Turn left -Grit WATERLOO	

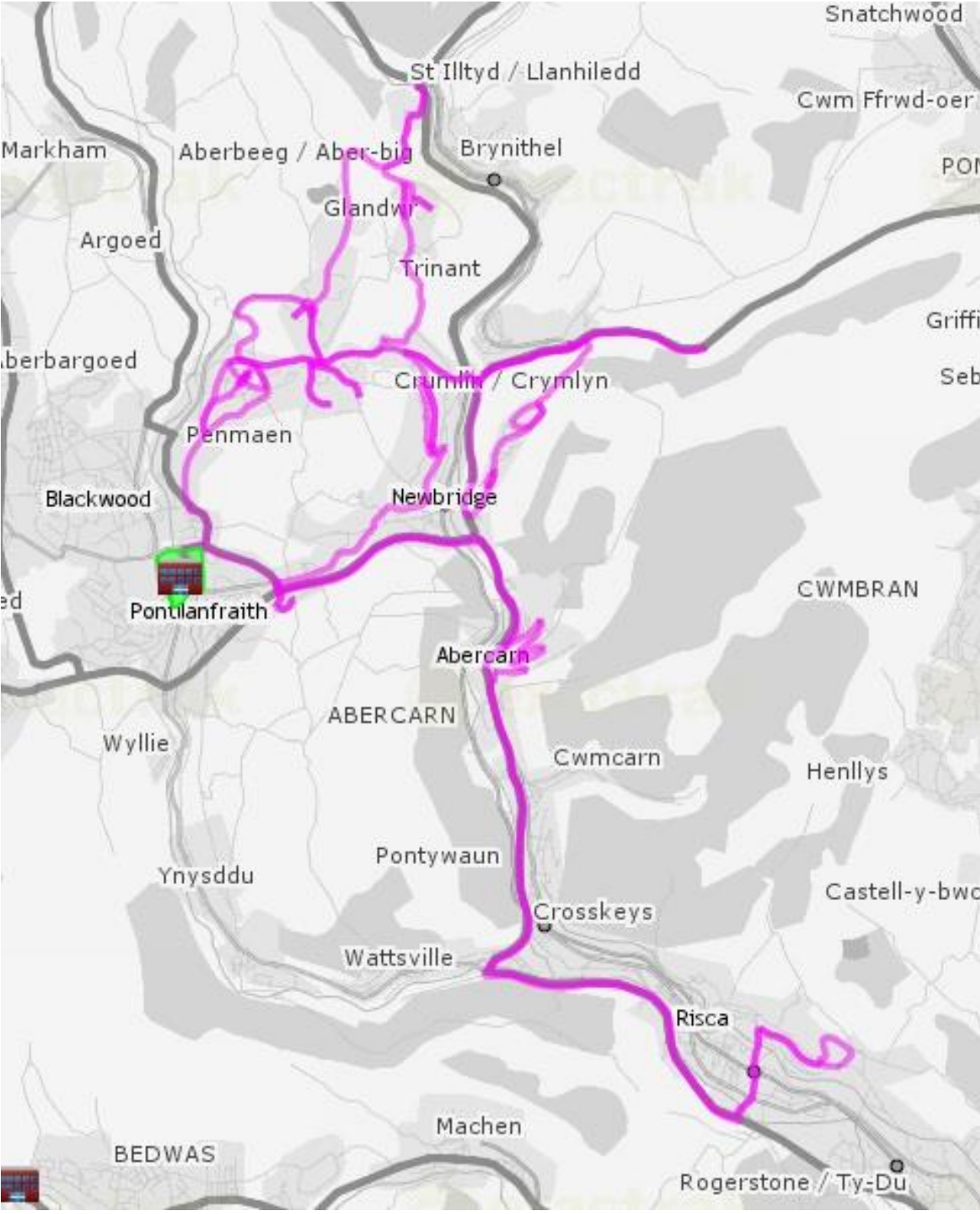
51	Y	Continue - Grit WATERLOO	
52	Y	Turn left onto SYR DAFYDD AVENUE. End of salting	0.76
53	N	Continue - Travel SYR-DAFYDD AVENUE to BRYN HOWARD TERRACE	
54	N	Continue - Travel BRYN HOWARD TERRACE. Grit	0.99
55	Y	Continue - Grit B4251 KENDON ROAD	
56	Y	Turn left - Grit TRINANT ROAD	
57	Y	Continue - Grit TRINANT ROAD	
58	Y	Continue - Grit TRINANT ROAD to PENTWYN ROAD	
59	Y	Continue - Grit PENTWYN ROAD	
60	Y	Continue - Grit PENTWYN ROAD to PENTWYN TERRACE	
61	Y	Turn right onto TRINANT TERRACE	
62	Y	Continue - Grit TRINANT TERRACE	
63	Y	Turn left - Grit CONWAY ROAD	
64	Y	U-turn - Grit CONWAY ROAD to TRINANT TERRACE	
65	Y	Turn left - Grit TRINANT TERRACE TO PENTWYN TERRACE.	
66	Y	Complete a circuit of the roundabout.	
67	Y	Turn right - Grit PENTWYN TERRACE.	
68	Y	Continue - Grit PENTWYN TERRACE to CWM NANT GWYNT.	
69	Y	Turn right onto CHRISTCHURCH ROAD	
70	Y	Continue - Grit CHRISTCHURCH ROAD to PANTDDU ROAD	
71	Y	Continue - Grit PANTDDU ROAD. End of salting	6.08
72	N	U-turn - Travel PANTDDU ROAD to PENTRAPEOD ROAD. Grit	1.27
73	Y	Continue - Grit PENTRAPEOD ROAD to PARKWAY	
74	Y	At roundabout take exit 1 on to PARKWAY. End of salting	2.49
75	N	Travel - PARKWAY to KENDON ROAD	
76	N	Turn left - Travel KENDON ROAD	
77	N	Travel KENDON ROAD TO TRINANT ROAD. Grit	1.41
78	Y	Continue - Grit KENDON ROAD to A467.	
79	Y	Turn right - Grit A467.	
80	Y	Turn left onto A472 HAFODYRYNYS ROAD	
81	Y	Turn left onto SWFFRYD ROAD	
82	Y	U-turn - Grit to A472	
83	Y	Turn left onto A472 to Boundary. End of salting	5.67
84	N	U turn - Travel A472 to HERBERT TERRACE. Grit	1.67
85	Y	Turn left - Grit PANT ROAD to PANTSIDE ESTATE.	
86	Y	Continue on to OLD PANT ROAD.	
87	Y	Turn right on to BOUNDARY ROAD.	
88	Y	Continue on BOUNDARY ROAD to OLD PANT ROAD	
89	Y	Turn right on to OLD PANT ROAD	
90	Y	Continue on OLD PANT ROAD.	
91	Y	At roundabout take exit 3 on to OLD PANT ROAD	
92	Y	Grit to junction with CROSSWAYS. End of salting.	2.61
93	N	Turn left on to CROSSWAYS. Grit	0.07
94	Y	Turn left on to CENTRAL AVENUE	
95	Y	Grit roundabout to exit 2 OLD PANT ROAD. End of salting.	0.23
96	N	Travel OLD PANT ROAD	
97	N	Travel OLD PANT ROAD to the junction with BOUNDARY ROAD. Grit.	0.71
98	Y	Grit - OLD PANT ROAD to junction 50m past GLANSHON COURT. End of salting	0.40
99	N	Travel OLD PANT ROAD and PANT ROAD to HAFODYRYNYS. Grit.	1.03
100	Y	Turn left on to A472 HAFODYRYNYS ROAD.	
101	Y	Continue - Grit HERBERT TERRACE to HAFODYRYNYS ROAD	
102	Y	Continue - Grit HAFODYRYNYS ROAD to CRUMLIN. End of salting.	1.45
103	N	Turn right - on to A467.	

104	N	Turn left - Travel on to KENDON ROAD.	1.05
105	Y	Turn left - Grit RHIW LEVEL ROAD	
106	Y	Continue - Grit RHIW LEVEL ROAD to PARRY TERRACE	
107	Y	Turn left onto TREWEN ROAD	
108	Y	Continue - Grit TREWEN ROAD	
109	Y	Turn right onto ELIDYR ROAD	
110	Y	Continue on to FFLORENS ROAD	
111	Y	Turn right - Grit FFLORENS ROAD to ROYAL CRESCENT	
112	Y	Continue - Grit ROYAL CRESCENT to FFLORENS ROAD	
113	Y	Continue - Grit FFLORENS ROAD to PARRY TERRACE	
114	Y	Turn right - Grit PARRY TERRACE. End of salting	2.14
115	N	Turn right - Travel TREWEN ROAD. Grit	0.79
116	Y	Turn left - Grit THE CIRCLE	
117	Y	Turn right - Grit THE CIRCLE	
118	Y	Bear right - Grit THE CIRCLE and then Turn right. Grit	
119	Y	Turn right on to THE CIRCLE. Grit	
120	Y	Bear left - Grit THE CIRCLE to PARK ROAD. End of salting	0.59
121	N	Turn right - Travel PARK ROAD to NEW BRYNGWYN ROAD	
122	N	Continue - Travel NEW BRYNGWYN ROAD. Grit	1.53
123	Y	Turn right - Grit HIGH STREET	
124	Y	Enter roundabout gritting complete a circuit and take exit 1 to A472 link road.	
125	Y	Enter roundabout gritting complete a circuit and take exit 1 to A472	
126	Y	Continue - Grit A472. End of salting.	4.15
127	N	At roundabout take exit 3 to A467	
128	N	Continue - Travel A467	
129	N	At roundabout take exit 2 to A467	
130	N	Continue - Travel A467.	
131	N	At roundabout take exit 2 to A467	
132	N	At roundabout take exit 1 to A467	
133	N	Continue - travel A467	
134	N	At roundabout take exit 1 to B4591	
135	N	At roundabout take exit 2 to B4591	
136	N	At roundabout take exit 2 to MILL STREET	
137	N	Continue - Travel MILL STREET	
138	N	At roundabout take exit 2 to LOWER WYNDHAM TERRACE	
139	N	Continue - Travel LOWER WYNDHAM TERRACE to THISTLE WAY	
140	N	Turn right - Travel ELM DRIVE. Grit	11.92
141	Y	Enter roundabout gritting and take exit 1 to COTSWOLD WAY	
142	Y	Continue - Grit COTSWOLD WAY. End of salting	0.96
143	N	Turn left - Travel HOLLY ROAD.	
144	N	Turn right - Travel ELM DRIVE	
145	N	Turn left - Travel THISTLE WAY	
146	N	Continue - Travel THISTLE WAY to LOWER WYNDHAM TERRACE	
147	N	At roundabout take exit 2 to MILL STRET	
148	N	At roundabout take exit 2 to B4591	
149	N	At roundabout take exit 2 to B4591	
150	N	At roundabout take exit 3 to A467	
151	N	Continue - Travel A467.	
152	N	At roundabout take exit 3 to A467	
153	N	At roundabout take exit 2 to A467	
154	N	Continue - Travel A467	
155	N	Turn right onto HIGH STREET LINK ROAD	
156	N	Turn left onto HIGH STREET	
157	N	Turn right - Travel GWYDDON ROAD	

158	N	Turn left - Travel COED MOELFA ROAD to LLAN-FACH ROAD. Grit	10.69
159	Y	Turn right - Grit LLAN-FACH ROAD to BRYN ROAD	
160	Y	Turn left - Grit BRYN ROAD to TWYN ROAD	
161	Y	Turn right - Grit TWYN ROAD to LLAN-FACH ROAD	
162	Y	Turn right - Grit LLAN-FACH ROAD to BRYN ROAD	
163	Y	Turn right on to BRYN ROAD	
164	Y	Continue - Grit BRYN ROAD to PEN-RHIW TERRACE	
165	Y	Continue - Grit PEN-RHIW TERRACE to CEMETARY ROAD	
166	Y	Bear left - Grit CEMETARY ROAD. End of salting.	2.04
167	N	Turn right - Travel B4591	
168	N	At roundabout take exit 3 to A467	
169	N	Continue - Travel A467. Grit	1.53
170	Y	Enter roundabout gritting, take exit 1 to A467	
171	Y	Continue - Grit A467	
172	Y	At roundabout take exit 1 on to Minor Road	
173	Y	Continue - Grit NAILERS ARMS LINK ROAD. End of salting	2.98
174	N	U-turn - Travel NAILERS ARMS LINK ROAD. Grit	0.47
175	Y	Continue - Enter roundabout salting and take exit 2 on to A4048	
176	Y	At roundabout take exit 2 on to A4048	
177	Y	Continue - Grit A4048. End of salting	1.09
178	N	At roundabout take exit 2 onto B4254	
179	N	Turn left into PENMAEN ROAD INDUSTRIAL ESTATE	
180	N	Turn left into DEPOT	0.43
		Gritted	44.35
		Free Travel	39.70
		Total	84.05
		Efficiency	55.98%



Pre-salting Route 20 (Penmaen)





## Pre-salting Route 21 (Penmaen)

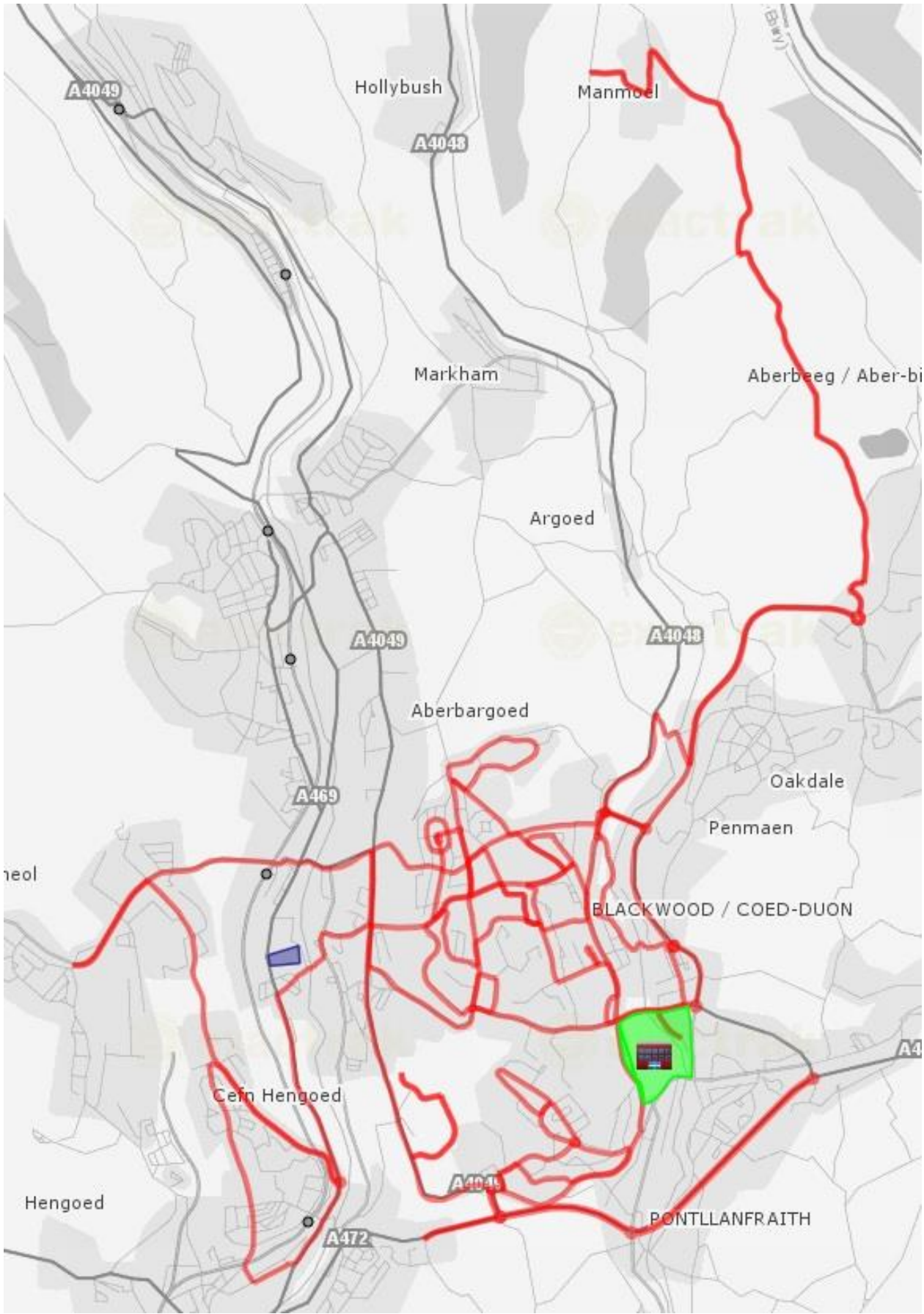
Route 21			Distance
Instruction	GRITTING	ROUTE_CARD	(Kms)
1	N	Leave yard travel to junction B4254.	
2	N	Turn right - Travel B4254. Grit	0.38
3	Y	Enter PENMAEN roundabout salting complete a circuit and take exit 1 onto A4048	
4	Y	At WOODFIELDSDIE roundabout complete a circuit and take exit 2 onto A4048	
5	Y	At CHARTIST BRIDGE roundabout complete a circuit and take exit 1 onto A4048	
6	Y	At SUNNYBANK roundabout take exit 4 back on to A4048	
7	Y	Continue - Grit A4048	
8	Y	At roundabout take exit 1 onto B4251	
9	Y	Continue - Grit B4251	
10	Y	At PARKWAY roundabout take exit 1 onto LON GELLIDEG	
11	Y	Turn right onto MANMOEL ROAD	
12	Y	Continue - Grit MANMOEL ROAD	
13	Y	Turn left - Grit MANMOEL VILLAGE	
14	Y	Turn right - Grit LLANERCH LANE. End of salting	11.10
15	N	U-turn - Travel to LLANERCH LANE	
16	N	Turn left - Travel MANMOEL VILLAGE	
17	N	Turn right - Travel MANMOEL ROAD	
18	N	Turn left - Travel LON GELLIDEG.	
19	N	Enter roundabout travelling and take exit 4 onto B4251	
20	N	Continue - Travel B4251. Grit	7.93
21	Y	Turn right - Grit OAKDALE COMP LANE	
22	Y	Continue - Grit OAKDALE COMP LANE to ROCK FACH LANE	
23	Y	Continue - Grit ROCK FACH LANE	
24	Y	Turn Left onto A4048	
25	Y	At roundabout take exit 3 onto SUNNYBANK ROAD.	
26	Y	Continue - Grit SUNNYBANK ROAD	
27	Y	At roundabout take exit 2 to TWYNYFFALD ROAD	
28	Y	Turn right onto GREENWOOD ROAD	
29	Y	Turn right onto BEDWELLTY ROAD	
30	Y	Turn right onto HEOL PIT Y CEILIOGOD	
31	Y	Turn left onto BEAUMARIS WAY	
32	Y	Continue - Grit BEAUMARIS WAY	
33	Y	Turn right onto GREENWOOD ROAD	
34	Y	Turn left onto BEDWELLTY ROAD	
35	Y	Turn right onto WAUNBORFA ROAD	
36	Y	Turn right onto CEFN FFOREST AVENUE	
37	Y	Turn right onto CENTRAL AVENUE	
38	Y	Complete a loop of the SHOPPING AREA	
39	Y	Turn right onto CENTRAL AVENUE	
40	Y	Turn right onto PENYBRYN AVENUE	
41	Y	Turn right onto CRAIGLAS CRESCENT	
42	Y	Continue - Grit CRAIGLAS CRESCENT	
43	Y	Turn right onto DERWENDEG AVENUE	
44	Y	Continue - Grit DERWENDEG AVENUE	
45	Y	Turn right onto TYNCOED CRESCENT	
46	Y	Continue - Grit TYNCOED CRESCENT	
47	Y	Turn right - Grit PENYBRYN AVENUE	

48	Y	Turn left - Grit CENTRAL AVENUE	
49	Y	Turn right - Grit BEDWELLY ROAD	
50	Y	Continue - Grit BEDWELLY ROAD to BRYN ROAD	
51	Y	Turn right onto PWLLGLAS ROAD	
52	Y	Continue - Grit PWLLGLAS ROAD to FAIRVIEW	
53	Y	Continue - Grit FAIRVIEW	
54	Y	Turn right onto PENGAM ROAD	
55	Y	Turn right onto WAUNBORFA ROAD	
56	Y	Turn right onto CEFN FFOREST AVENUE	
57	Y	Turn left onto FAIRVIEW. End of salting	9.55
58	N	Continue - Travel FAIRVIEW to PWLLGLAS ROAD	
59	N	Turn left onto BRYN ROAD. Grit	0.62
60	Y	Turn right - Grit TWYNYFFALD ROAD	
61	Y	At roundabout take exit 2 to CEFN ROAD	
62	Y	Turn left onto SOUTHVIEW ROAD	
63	Y	Turn right - Grit PENTWYN ROAD	
64	Y	Turn right onto HIGH STREET	
65	Y	Continue - Grit HIGH STREET	
66	Y	Turn right onto LIBANUS ROAD	
67	Y	Turn left onto LIBANUS ROAD	
68	Y	Turn left onto HIGH STREET	
69	Y	At roundabout take exit 1 to GORDON ROAD	
70	Y	Continue - Complete a loop of the BUS STATION.	
71	Y	Turn right onto GORDON ROAD	
72	Y	Continue - Grit GORDON ROAD	
73	Y	Turn right onto ALBANY ROAD	
74	Y	Continue - Grit ALBANY ROAD to ATTLEE ROAD	
75	Y	Turn left onto APOLLO WAY	
76	Y	Turn right onto CHARTIST WAY	
77	Y	At roundabout take exit 3 onto BLOOMFIELD ROAD	
78	Y	Continue - Grit BLOOMFIELD ROAD to SOUTHVIEW ROAD.	
79	Y	Turn left onto LEWIS LEWIS AVENUE	
80	Y	Continue - Grit LEWIS LEWIS AVENUE. End of salting	5.52
81	N	Turn left onto CEFN ROAD	
82	N	Turn right onto BLOOMFIELD ROAD. Grit	0.67
83	Y	Turn left onto ATTLEE ROAD.	
84	Y	Continue - Grit ATTLEE ROAD to APOLLO WAY. End of salting.	0.34
85	N	Travel - Turn right onto APOLLO WAY	
86	N	Travel - Turn right onto CHARTIST WAY	
87	N	Continue - Travel CHARTIST WAY. Grit	0.51
88	Y	Enter roundabout salting and take exit 2 onto TY-ISHA TERRACE	
89	Y	Continue - Grit TY-ISHA TERRACE. End of salting.	0.30
90	N	Turn left onto TWYNYFFALD ROAD	
91	N	Travel - TWYNYFFALD ROAD.	
92	N	Turn left onto BRYN ROAD.	
93	N	Travel BRYN ROAD. Grit.	0.42
94	Y	Turn left onto BLOOMFIELD ROAD.	
95	Y	Continue - Grit BLOOMFIELD ROAD. End of salting.	0.25
96	N	Enter roundabout and take exit 4 back onto BLOOMFIELD ROAD.	
97	N	Travel - BLOOMFIELD ROAD. Grit.	0.25
98	Y	Turn left onto BRYN ROAD	
99	Y	Continue - Grit BRYN ROAD	
100	Y	At roundabout take exit 1 to HIGHFIELDS WAY	
101	Y	Turn left onto COED LIBANUS	

102	Y	Turn left onto CLOS COED BACH	
103	Y	Turn left onto BRYN ROAD	
104	Y	At roundabout take exit 3 to HEOL Y DDERWEN	
105	Y	Continue - Grit HEOL Y DDERWEN	
106	Y	Turn right onto FAIRVIEW	
107	Y	Turn right onto ELGAR CLOSE	
108	Y	Continue - Grit ELGAR CLOSE TO GRANGE HILL. End of salting	3.40
109	N	Turn left onto BRYN ROAD	
110	N	Continue - Travel BRYN ROAD. Grit	0.18
111	Y	Turn right - Grit APOLLO WAY	
112	Y	Continue - Grit APOLLO WAY	
113	Y	Turn right onto ATTLEE ROAD	
114	Y	Turn left onto WOODBINE ROAD	
115	Y	Continue - Grit WOODBINE ROAD	
116	Y	Turn left onto HIGH STREET	
117	Y	Continue - Grit HIGH STREET	
118	Y	At roundabout complete a circuit and take exit 1 to HIGH STREET.	
119	Y	At roundabout take exit 4 back onto HIGH STREET	
120	Y	At roundabout take exit 1 to CLIFF ROAD	
121	Y	At roundabout take exit 1 to CLIFF ROAD	
122	Y	At roundabout take exit 1 to HALL STREET	
123	Y	Continue - Grit HALL STREET to BRIDGE STREET	
124	Y	Continue - Grit BRIDGE STREET to PARK TERRACE	
125	Y	Continue - Grit PARK TERRACE	
126	Y	Turn left onto WOODFIELD TERRACE	
127	Y	At roundabout take exit 4 to WOODFIELD TERRACE	
128	Y	Continue - Grit WOODFIELD TERRACE. End of salting	4.00
129	Y	Turn right - Travel B4254. Grit	0.52
130	Y	Turn left - Grit BLACKWOOD ROAD	
131	Y	At roundabout take exit 2 to BLACKWOOD ROAD	
132	Y	At roundabout take exit 2 to BRYN ROAD	
133	Y	Continue - Grit BRYN ROAD	
134	Y	Turn right - Grit CROWN LANE	
135	Y	Continue - Grit CROWN LANE to BRYN LANE	
136	Y	Continue - Grit BRYN LANE	
137	Y	Turn right - Grit FOREST HILL. End of salting.	2.94
138	N	Turn left - Travel BRYN ROAD. Grit	0.55
139	Y	Turn left - Grit MANOR ROAD.	
140	Y	At roundabout complete a circuit and take exit 2 on to ST MARY'S ROAD	
141	Y	Continue - Grit ST MARY'S ROAD	
142	Y	Turn left - Grit FLEUR-DE-LYS AVENUE	
143	Y	Bear left - Grit FLEUR-DE-LYS AVENUE to HIGHMEAD	
144	Y	Continue - Grit HIGHMEAD to ST MARY'S ROAD	
145	Y	Turn left - Grit ST MARY'S ROAD to FLEUR-DE-LYS AVENUE	
146	Y	Turn right - Grit FLEUR-DE-LYS AVENUE to THE CIRCLE	
147	Y	At roundabout take exit 4 to RUSHMERE ROAD	
148	Y	Continue - Grit RUSHMERE ROAD to BRYN LANE.	
149	Y	Continue - Grit BRYN LANE to CROWN LANE. End of salting	3.14
150	N	Continue - Travel CROWN LANE. Grit	0.13
151	Y	Turn right - Grit BRYN ROAD.	
152	Y	At roundabout complete a circuit and take exit 1 to A4049	
153	Y	At roundabout complete a circuit and take exit 1 to A472	
154	Y	Continue - Grit A472	
155	Y	At roundabout take exit 2 to A472	

156	Y	Continue - Grit A472	
157	Y	At roundabout take exit 4 back to A472	
158	Y	Continue - Grit A472	
159	Y	At roundabout take exit 2 to A472	
160	Y	Continue - Grit A472	
161	Y	At roundabout take exit 2 to A472	
162	Y	Continue - Grit A472 to GELLIDGE HEIGHTS. End of salting	6.89
163	N	U turn - Travel A472. Grit	0.61
164	Y	Enter roundabout gritting and take exit 1 to A4049	
165	Y	Enter roundabout gritting and take exit 1 to A4049	
166	Y	Continue - Grit A4049	
167	Y	Turn right onto HAWTIN PARK	
168	Y	Continue - Grit HAWTIN PARK. End of salting	2.11
169	N	U turn - Travel HAWTIN PARK. Grit	1.07
170	Y	Turn right onto A4049	
171	Y	Continue - Grit A4049 to Junction B4254. End of salting	1.45
172	N	Continue - Travel A4049	
173	N	Turn left - Travel HIGH STREET. Grit	1.46
174	Y	Continue - Grit B4254 PENGAM ROAD	
175	Y	Continue - Grit PENGAM ROAD to CHURCH ROAD (to HARP P.H.)	2.11
176	N	U-turn - Travel B4254 CHURCH ROAD. Grit	0.85
177	Y	Turn right - Grit HENGOED ROAD	
178	Y	At roundabout complete a circuit and take exit 2 to HENGOED ROAD	
179	Y	Continue - Grit HENGOED ROAD to HENGOED AVENUE. End of salting.	2.93
180	N	Enter roundabout travelling and take exit 3 back onto HENGOED AVENUE	
181	N	Continue - Travel HENGOED AVENUE. Grit	1.49
182	Y	Turn left - Grit GELLIGAER ROAD	
183	Y	Continue - Grit GELLIGAER ROAD to HENGOED ROAD	
184	Y	Continue - Grit HENGOED ROAD to BEDWLWYN ROAD. End of salting.	1.47
185	N	Continue - Travel BEDWLWYN ROAD	
186	N	Turn left - Travel DAVIES STREET	
187	N	Turn left - Travel PENGAM ROAD	
188	N	At roundabout take exit 1 to A469 NEW ROAD	
189	N	At roundabout take exit 2 to A469 NEW ROAD	
190	N	Turn right - Travel BEATTY STREET	
191	N	Continue - Travel FORD ROAD	
192	N	Turn left - Travel HIGH STREET. Grit	3.48
193	Y	Turn right - Grit ST DAVIDS ROAD.	
194	Y	Turn right - Grit A4049	
195	Y	Turn left - Grit B4254	
196	Y	Continue - Grit B4254	
197	Y	At roundabout and take exit 3 to HIGHFIELDS WAY	
198	Y	Continue - Grit HIGHFIELDS WAY	
199	Y	Continue - Travel B4254 to PENMAEN ROAD INDUSTRIAL ESTATE	
200	Y	Turn right onto PENMAEN ROAD INDUSTRIAL ESTATE	
201	Y	Turn left into DEPOT	3.25
		Gritted	60.75
		Free Travel	21.12
		Total	81.87
		Efficiency	74.20%

Pre-salting Route 21 (Penmaen)



## Pre-salting Route 22 (Bedwas)

Route 22			Distance
Instruction	GRITTING	ROUTE_CARD	(Kms)
1	N	Leave yard - Travel GREENWAY INDUSTRIAL ESTATE	
2	N	Turn right - Travel A468	
3	N	At roundabout take exit 4 to A468	
4	N	At roundabout take exit 2 to A468	
5	N	At roundabout take exit 4 to A469	
6	N	At roundabout take exit 2 to A469	
7	N	At roundabout take exit 2 to A469	
8	N	At roundabout take exit 2 to A469	
9	N	At roundabout take exit 1 to A472	
10	N	At roundabout take exit 2 to A472	
11	N	Turn right onto LEWIS STREET	
12	N	At roundabout take exit 1 to PENALLTA ROAD. Grit	9.69
13	Y	Continue - Grit PENALLTA ROAD	
14	Y	Turn left - Grit PENALLTA LINK ROAD	
15	Y	At roundabout take exit 2 to A472	
16	Y	Continue - Grit A472	
17	Y	At roundabout - complete a circuit and take exit 1 to A472	
18	Y	At roundabout - complete a circuit and take exit 4 to DYNEVOR TERRACE	
19	Y	Continue - Grit DYNEVOR TERRACE and complete a circuit of the BUS STATION on route	
20	Y	At roundabout take exit 3 to COMMERCIAL STREET	
21	Y	Turn right - Grit HEOL FAWR	
22	Y	Continue - Grit HEOL FAWR to MOUNTAIN VIEW. End of salting	6.10
23	N	U-turn - Travel MOUNTAIN VIEW to COMMERCIAL STREET. Grit	0.50
24	Y	Turn right - Grit COMMERCIAL STREET	
25	Y	At roundabout take exit 3 back onto CAERPHILLY ROAD. End of salting.	0.38
26	N	Continue - Travel CAERPHILLY ROAD	
27	N	Continue - Travel CAERPHILLY ROAD to COMMERCIAL STREET	
28	N	At roundabout take exit 2 to COMMERCIAL STREET. Grit	0.60
29	Y	Turn left - Grit HIGH STREET.	
30	Y	Turn left - Grit LLWYNCELYN TERRACE. End of salting.	1.14
31	N	Turn left - Travel A472	
32	N	Enter roundabout salting and take exit 1 to CAE LLWYNDU. Grit	0.67
33	Y	Continue - Grit CAE LLWYNDU	
34	Y	Turn right - Grit BRYNCELYN. End of salting.	0.52
35	N	Turn right - Travel HIGH STREET	
36	N	Turn left - Travel SHINGRIG ROAD.	
37	N	Turn right onto GELLIGAER ROAD.	
38	N	Continue - Travel GELLIGAER ROAD to county boundary. Grit	1.86
39	Y	Continue - Grit GELLIGAER ROAD to CHURCH ROAD	
40	Y	Continue - Grit CHURCH ROAD	
41	Y	Turn right onto ANEURIN BEVAN AVENUE	
42	Y	Turn right onto PENYWRLD	
43	Y	Continue - Grit PENYWRLD. End of salting.	2.57
44	N	Turn right - Travel GELLIGAER ROAD to CHURCH ROAD. Grit.	0.39
45	Y	Continue - Grit CHURCH ROAD	
46	Y	Turn right onto PENALLTA ROAD	
47	Y	Continue - Grit PENALLTA ROAD	
48	Y	Turn right onto HEOL CATTWG	
49	Y	Continue - Grit HEOL CATTWG to ANEURIN BEVAN AVENUE	



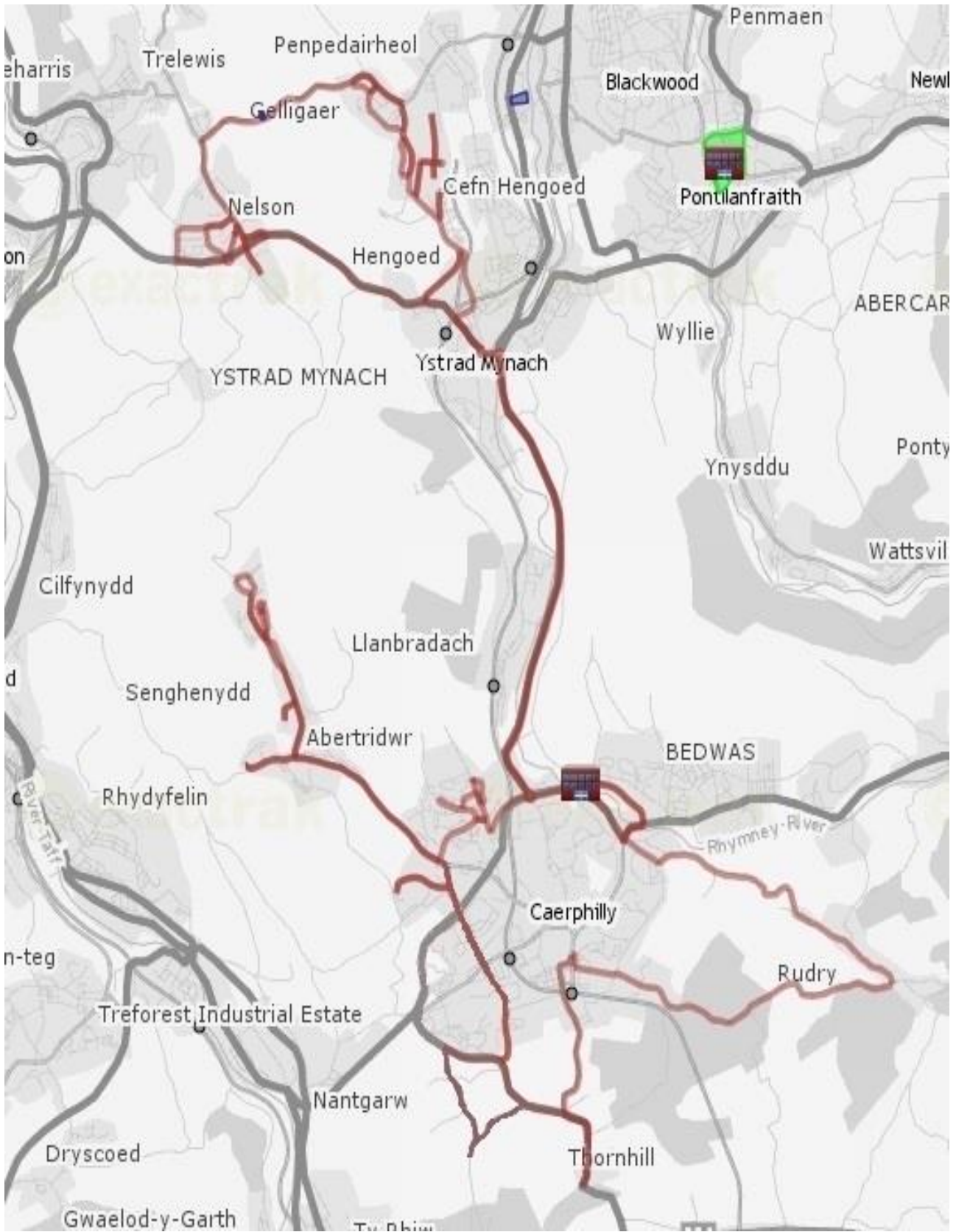
50	Y	Turn right onto CHURCH ROAD. End of salting.	1.97
51	N	Travel - Turn right onto PENALLTA ROAD	
52	N	Travel to HEOL CATTWG. Grit	0.74
53	Y	Continue - Grit PENALLTA ROAD to PEN-Y-BRYN TERRACE	
54	Y	Turn right onto GELLIARGWELLT ROAD	
55	Y	Turn right onto TROSNANT CRESCENT	
56	Y	Turn right onto PENALLTA ROAD	
57	Y	Continue - Grit PENALLTA ROAD to PEN-Y-BRYN TERRACE	
58	Y	Continue - Grit PEN-Y-BRYN TERRACE	
59	Y	Turn left onto WEST ROAD	
60	Y	Turn right onto EAST ROAD	
61	Y	Turn left onto NORTH ROAD. End of salting	3.03
62	N	U-turn. Travel NORTH ROAD. Grit	0.55
63	Y	Turn left - Grit EAST ROAD	
64	Y	At roundabout take exit 4 to EAST ROAD	
65	Y	Turn left onto SOUTH ROAD	
66	Y	Continue - Grit SOUTH ROAD. End of salting.	0.42
67	N	U-turn, travel SOUTH ROAD.	
68	N	Travel - Turn left onto EAST ROAD	
69	N	Travel - Turn left onto WEST ROAD	
70	N	Travel WEST ROAD. Grit.	0.77
71	Y	Turn left - Grit PENALLTA ROAD	
72	Y	Turn left onto CWM CALON ROAD.	
73	Y	Continue - Grit CWM CALON ROAD. End of salting	0.74
74	N	U-turn - Travel CWM CALON ROAD. Grit	0.37
75	Y	Continue - Grit PENALLTA ROAD. End of salting	0.47
76	N	Continue - travel PENALLTA LINK ROAD.	
77	N	At roundabout take exit 1 to A472	
78	N	At roundabout take exit 2 to A472	
79	N	At roundabout take exit 3 to A469	
80	N	At roundabout take exit 2 to A469	
81	N	At roundabout take exit 1 to A469	
82	N	At roundabout take exit 2 to A469	
83	N	At roundabout take exit 5 to HEOL PWLLYPANT	
84	N	Continue - Travel HEOL PWLLYPANT	
85	N	Turn right - Travel HEOL LAS. Grit	8.68
86	Y	Turn left - Grit Y CILGANT	
87	Y	At mini roundabout take exit 2 onto HEOL ANEURIN	
88	Y	Continue - Grit HEOL ANEURIN to BUS TERMINAL	
89	Y	U-Turn - Grit HEOL ANEURIN	
90	Y	Turn left onto HEOL-Y-GOGLEDD	
91	Y	Bear right - Grit PEN-Y-BRYN	
92	Y	Turn right onto HEOL LAS	
93	Y	Turn left onto HENDRE	
94	Y	Continue - Grit HENDRE	
95	Y	Turn right onto HEOL LAS	
96	Y	Continue - Grit HEOL LAS to HEOL CWARREL CLARK	
97	Y	U-turn - Grit HEOL LAS. End of salting	2.71
98	N	Turn right - Travel Y CILGANT	
99	N	At mini roundabout take exit 1 to HEOL ANEURIN	
100	N	Continue - Travel HEOL ANEURIN	
101	N	Bear left onto HEOL ANEURIN.	
102	N	Turn right onto B4263	
103	N	Continue - Travel B4263 to THOMAS STREET	

104	N	Continue - Travel THOMAS STREET to HIGH STREET. Grit	3.28
105	Y	Continue - Grit HIGH STREET to COMMERCIAL STREET	
106	Y	Continue - Grit COMMERCIAL STREET to BUS TERMINUS.	
107	Y	Continue - Grit BUS TERMINUS to CENYDD TERRACE LINK ROAD	
108	Y	Continue - Grit CENYDD TERRACE LINK ROAD to BUS TERMINUS. End of salting.	2.83
109	N	Travel BUS TERMINUS to COMMERCIAL STREET. Grit	0.60
110	Y	Turn left - Grit HIGH STREET	
111	Y	Continue - Grit HIGH STREET	
112	Y	Turn right onto SCHOOL STREET	
113	Y	Turn left onto UPPER BRYNHYFRYD TERRACE	
114	Y	Turn left onto YSGOL IFOR BACH ACCESS ROAD	
115	Y	Turn left onto HIGH STREET	
116	Y	Turn left onto SCHOOL STREET	
117	Y	Turn right onto LOWER BRYNHYFRYD TERRACE	
118	Y	Bear right onto LOWER BRYNHYFRYD TERRACE	
119	Y	Turn left onto HIGH STREET	
120	Y	Turn left onto B4263	
121	Y	Turn left onto CAERPHILLY ROAD	
122	Y	Continue - Grit CAERPHILLY ROAD. End of salting	1.61
123	N	Turn left onto B4263	
124	N	Travel B4263. Grit	0.43
125	Y	Turn right - Grit WINDSOR COLLIERY ACCESS	
126	Y	Continue - Grit to YSGOL IFOR BACH. End of salting.	0.30
127	N	U-turn - Travel WINDSOR COLLIERY ACCESS	
128	N	Turn right - Travel B4263	
129	N	Continue - Travel B4263 to HIGH STREET. Grit	0.96
130	Y	Turn right - Grit CHURCH ROAD	
131	Y	Continue - Grit CHURCH ROAD TO WOODLAND TERRACE	
132	Y	Continue - Grit WOODLAND TERRACE to HENDRE ROAD	
133	Y	Continue - Grit HENDRE ROAD	
134	Y	Turn left - Grit Garth Estate to BUS TURNING AREA. Stop Salting.	0.75
135	N	Turn the vehicle. Proceed back along GARTH ESTATE	
136	N	Turn right - Travel HENDRE ROAD to WOODLAND PLACE	
137	N	Continue - Travel WOODLAND PLACE to CHURCH ROAD	
138	N	Continue - Travel CHURCH ROAD.	
139	N	Turn right onto B4263	
140	N	Travel - B4263.	
141	N	Enter roundabout gritting take exit 3 to STATION TERRACE	
142	N	Continue - Travel STATION TERRACE. Grit	3.48
143	Y	Turn right - Grit HENDREDENNY DRIVE	
144	Y	Continue - Grit HENDREDENNY DRIVE. End of salting	0.84
145	N	U-turn Travel HENDREDENNY DRIVE.	
146	N	Turn right - Travel ST CENYDD ROAD	
147	N	At roundabout take exit 2 to ST CENYDD ROAD	
148	N	Continue on to LON-Y-LLYN. Grit	2.52
149	Y	Continue - Grit WATFORD ROAD	
150	Y	Turn left on to A469 WATFORD ROAD	
151	Y	Turn right on to WAUNWAELOD WAY	
152	Y	Continue on to WAUNWAELOD WAY	
153	Y	U-Turn - Grit WAENWAELOD WAY	
154	Y	Turn left - Grit BLACKBROOK ROAD	
155	Y	Turn right - Grit A469 to TRAVELLERS REST. End of salting	6.75
156	N	U turn - Travel A469. Grit	1.09



157	Y	Turn right - Grit B4263 MOUNTAIN ROAD	
158	Y	Continue - Grit B4263 MOUNTAIN ROAD to ST MARTINS ROAD. End of salting	1.56
159	N	Continue - Travel MOUNTAIN ROAD to CARDIFF ROAD	
160	N	Continue - Travel CARDIFF ROAD to CASTLE STREET	
161	N	Turn right - Travel MARKET STREET	
162	N	Turn left - Travel VAN ROAD.	
163	N	AT roundabout take exit 2 to VAN ROAD	
164	N	Continue - Travel VAN ROAD to "LIME KILNS" Grit.	3.02
165	Y	Continue - Grit VAN ROAD to CWRT GRIFFIN. End of salting	1.66
166	N	Continue - Travel VAN ROAD to MAENLLWYD.	
167	N	Turn left - Travel to STARBUCK STREET.	
168	N	Continue - Travel STARBUCK STREET to PENTWYNGWYN ROAD	
169	N	Continue - Travel PENTWYNGWYN ROAD to LANSBURY PARK DISTRIBUTOR ROAD.	
170	N	Turn right - Travel LANSBURY PARK DISTRIBUTOR ROAD.	
171	N	At roundabout take exit 4 to A468.	
172	N	Continue - Travel A468	
173	N	Turn left - Travel GREENWAY INDUSTRIAL ESTATE	
	N	Turn left into DEPOT	6.63
		Gritted	36.35
		Free Travel	46.83
		Total	83.18
		Efficiency	43.70%

Pre-salting Route 22 (Bedwas)



**Appendix D.**

**Routes M1 and M2.**

**Precautionary pre-salting route descriptions and plans.**

- Note 1:** The route plans are schematic only and must be read in conjunction with the route descriptions.
- Note 2:** In some instances, gritting may be hampered by slow moving traffic flows, or a RTC. It will be up to the drivers' discretion at these times to divert from the original route to achieve best results for coverage of the routes. Ultimately, all routes should be gritted prior to the onset of frost.
- Note 3:** Gritting routes M1 and M2 are to be used in addition to routes 5 and 8.

## Pre-salting route M1 (Penmaen)

Route M1			Distance
Instruction	GRITTING	ROUTE_CARD	(Kms)
1	N	Leave yard travel to junction B4254.	
2	N	Turn right on to B4254.	
3	N	Enter roundabout and take exit 3 on to Penmaen Road.	0.66
4	Y	Turn left on to WOODFIELDSDIE BUSINESS PARK.	
5	Y	Grit to end of road then U-Turn.	0.40
6	N	U-turn on to WOODFIELDSDIE BUSINESS PARK.	0.51
7	Y	Turn left on to PENMAEN ROAD.	
8	Y	Continue on to LLANARTH ROAD.	
9	Y	Continue on to CWMALSIE CRESCENT.	1.11
10	N	U-turn on to CWMALSIE CRESCENT.	0.27
11	Y	Turn right on to WOODLAND ROAD.	
12	Y	Turn left on to UPLAND ROAD.	
13	Y	Turn right on to MILLBROOK ROAD.	
14	Y	Turn right on to NEWBRIDGE ROAD.	1.21
15	N	Enter roundabout and take second exit.	
16	N	Continue on to HIGH STREET.	
17	N	Continue on to NEWBRIDGE ROAD.	1.50
18	Y	Continue on to BRYN-GWYN ROAD.	
19	Y	Continue on to HIGH STREET.	
20	Y	Continue on to HIGH STREET.	
21	Y	Turn right on to NORTH ROAD.	
22	Y	Turn left on to ASHFIELD ROAD.	
23	Y	Continue on ASHFIELD ROAD.	
24	Y	Turn right on to PARK ROAD.	
25	Y	Turn left on to COMMERCIAL ROAD.	
26	Y	Turn right on to HILLSIDE ROAD.	
27	Y	Turn left on to MAIN STREET.	
28	Y	Turn right on to KENDON ROAD.	
29	Y	Turn left on to A467.	
30	Y	Salt to COUNTY BOUNDARY.	4.90
31	N	Turn right on to INDUSTRIALESTATE.	
32	N	U-turn on to SERVICE ROAD.	
33	N	Turn left on to A467	4.31
34	Y	Continue on A467.	
35	Y	Turn left on to CENTRAL AVENUE.	
36	Y	Enter roundabout and take exit 1 on to Old Pant Road.	
37	Y	Continue on to OLD PANT ROAD.	
38	Y	Turn right on to CENTRAL AVENUE.	
39	Y	Turn left on to A467.	
40	Y	Enter roundabout and take exit 4 back on to A467.	
41	Y	Continue north on A467.	
42	Y	Turn left on to KENDON ROAD.	
43	Y	Turn left on to MAIN STREET.	
44	Y	Continue on to NORTH ROAD.	5.15

45	N	Turn right on to ASHFIELD ROAD.	0.43
46	Y	Turn right on to GREENFIELD.	0.03
47	N	Turn right on to ASHFIELD ROAD.	
48	N	Turn right on to PARK ROAD.	0.72
49	Y	Keep right on to MINING SCHOOL HILL.	0.23
50	N	Sharp right on to MAIN STREET.	
51	N	Continue on to NORTH ROAD.	1.24
52	Y	Continue on North ROAD.	
53	Y	Turn left on to BRIDGE STREET.	
54	Y	Turn right and complete a circuit of PARK AND RIDE	
55	Y	Complete a circuit and return to BRIDGE STREET.	
56	Y	Turn right on to BRIDGE STREET.	
57	Y	Enter roundabout and take exit 4 back on to Bridge Street.	
58	Y	Continue on to HIGH STREET.	
59	Y	Turn left on to CELYNEN ROAD.	
60	Y	Continue on to LLANOVER STREET.	
61	Y	Keep left on to ISLWYN STREET.	
62	Y	Continue on to BRIDGE STRET.	
63	Y	Turn left on to A467.	
64	Y	Turn right on to HIGH STREET.	
65	Y	Turn left on to HIGH STREET.	
66	Y	Turn right on to GWYDDON ROAD.	
67	Y	Continue on GWYDDON ROAD.	
68	Y	Turn left on to COED MOELFA ROAD.	5.29
69	N	U-turn on to COED MOELFA ROAD.	
70	N	Turn right on to GWYDDON ROAD.	0.56
71	Y	Turn right on to HIGH STREET.	
72	Y	Continue on HIGH STREET.	
73	Y	At ROUNDABOUT take exit 3 on to A467.	1.77
74	N	Enter roundabout and take exit 1 on to A472.	
75	N	Take exit 1 on to A472.	
76	N	Enter roundabout and take exit 3 on to A4048	
77	N	Enter roundabout and take exit 1 on to Newbridge Road.	4.14
78	Y	Continue on to COMMERCIAL STREET.	
79	Y	Enter roundabout and take exit 2 on to Commercial Street.	
80	Y	Enter roundabout and take exit 3 back on to Commercial Road.	
81	Y	Enter roundabout and take exit 2 on to Sir Ivor Road.	
82	Y	Continue on to SIR IVOR ROAD.	
83	Y	Continue on NEWPORT ROAD.	
84	Y	Enter ROUNDABOUT and take exit 4 back on to NEWPORT ROAD.	
85	Y	Turn left on to GELLI LANE.	2.49
86	N	Turn left on to BRYN ROAD.	
87	N	Enter roundabout and take exit 1 on to A 472.	
88	N	Enter roundabout and take exit 3 to MAESYCWMMER.	2.21
89	Y	Continue on MAIN ROAD.	
90	Y	Continue on MAIN ROAD.	
91	Y	Keep left on to A469.	

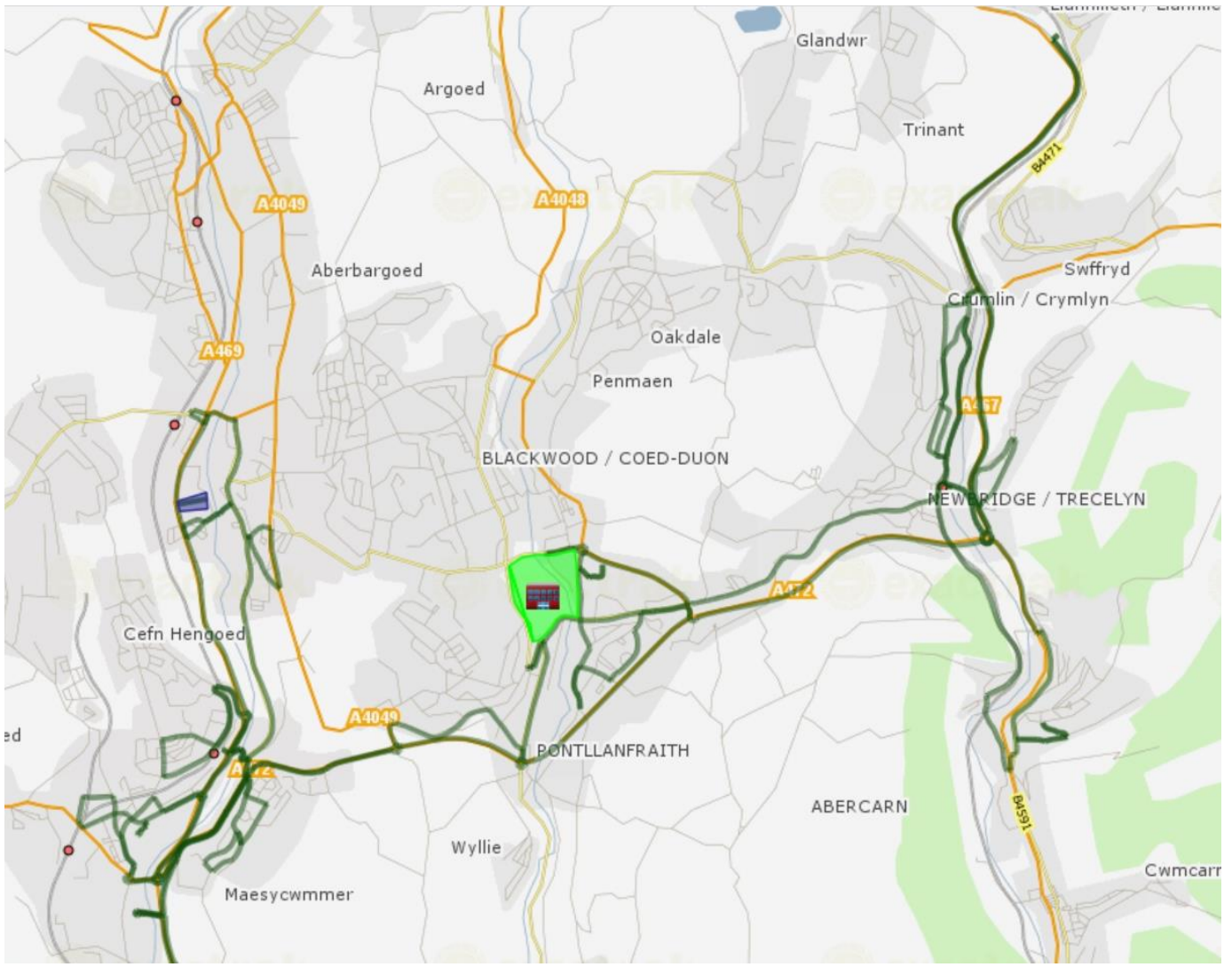
92	Y	Turn right in to YSBYTY YSTRD FAWR.	
93	Y	Turn right on to YSBYTY YSTRAD FAWR.	
94	Y	Continue to roundabout.	
95	Y	Enter ROUNDABOUT and take exit 3 back to A469.	
96	Y	Turn right on to A469 and stay in lane 2	
97	Y	Enter roundabout and take exit 4 back on to A469.	
98	Y	Turn left on to YSBYTY YSTRAD FAWR.	3.06
99	N	Turn left on to FFORDD YSTRAD FAWR.	
100	N	At ROUNDABOUT take exit 3 back to A469.	0.32
101	Y	Turn left on to A469 then keep right on A472.	
102	Y	Keep right on to A472.	
103	Y	Continue on A472.	1.00
104	N	Continue on MAIN ROAD.	0.85
105	Y	Turn right on to TABOR ROAD.	
106	Y	Continue on to PARK ROAD.	
107	Y	Turn right on to SPRINGFIELD.	
108	Y	Turn right on to PLEASANT VIEW.	
109	Y	Turn right on to PARK ROAD.	
110	Y	Turn left on to HILL VIEW.	
111	Y	Continue on to ST DAVID'S ROAD.	
112	Y	Turn left on to ERASMUS TERRACE.	1.72
113	N	Turn right on to TABOR ROAD.	0.02
114	Y	Turn left on to MAIN ROAD.	
115	Y	Turn left on to MAIN ROAD.	
116	Y	Turn right to DANCE CENTRE roundabout.	1.40
117	N	Enter roundabout and take exit 2.	
118	N	Enter roundabout and take exit 3 on to COMMERCIAL STREET.	0.55
119	Y	Keep left on to PENALLTA ROAD.	
120	Y	At mini roundabout take exit 2 to PENALLTA ROAD.	
121	Y	Turn left on to PANTYCELYN STREET.	
122	Y	Turn left on to STATION ROAD.	
123	Y	Turn left on to NELSON ROAD	
124	Y	Turn left on to LEWIS STREET.	
125	Y	At mini roundabout take exit 2 to BEDWLWYN STREET.	
126	Y	At mini roundabout take exit 2 to PENGAM ROAD.	
127	Y	Turn right on to LEWIS GIRLS ACCES ROAD.	
128	Y	Keep right.	1.61
129	N	Return to PENGAM ROAD.	0.55
130	Y	Turn right on to PENGAM ROAD.	
131	Y	Enter roundabout and take exit 2 on to A469.	
132	Y	Enter roundabout and take exit 4 back on to A469.	
133	Y	Enter roundabout and take exit 2 on to Pengam Road.	
134	Y	Turn right on to DAVIES STREET.	
135	Y	Turn left on to BEDWLWYN ROAD.	
136	Y	At mini roundabout take exit 2 to BEDWLWYN ROAD.	2.98
137	N	Keep left on to COMMERCIAL STREET.	
138	N	Enter roundabout and take exit 1on to A472.	

139	N	Enter roundabout and take exit 2 on to A472.	0.69
140	Y	Turn left on to A472.	0.35
141	N	Continue on MAIN ROAD.	0.53
142	Y	Turn left on to THOMAS STREET.	
143	Y	Turn left on to VIADUCT LANE.	
144	Y	Turn left on to A469.	
145	Y	Enter roundabout and take exit 4 back on to A469.	
146	Y	Continue on to NEW ROAD.	
147	Y	Turn left on to KING'S HILL.	1.30
148	N	U-turn on to KING'S HILL.	0.31
149	Y	Turn left on to NEW ROAD.	
150	Y	Enter roundabout and take exit 1 on to Hengoed Avenue.	0.48
151	N	Turn left on to HENGOED AVENUE.	
152	N	Continue on to BRYNAVON TERRACE.	0.92
153	Y	Turn right on to KING'S HILL.	
154	Y	Continue on to MOUNT PLEASANT.	0.37
155	N	Turn left on to HENGOED ROAD.	0.50
156	Y	Turn left on to PARK ROAD.	
157	Y	Continue on to BRYNAVON TERRACE.	
158	Y	Continue on to HENGOED AVENUE.	0.92
159	N	Turn right on to HENGOED AVENUE.	0.37
160	Y	Enter roundabout and take exit 2 on to New Road.	
161	Y	Turn left on to VIADUCT LANE.	
162	Y	Turn left on to VICTORIA ROAD.	
163	Y	Turn right on to PLAS ROAD.	
164	Y	Keep left on to PLAS ROAD.	3.07
165	N	Turn right on to NEW ROAD.	0.63
166	Y	Turn right on to GELLIHAF ROAD.	
167	Y	Turn left on to PLAS ROAD.	
168	Y	Turn right on to HIGH STREET.	
169	Y	Turn left on to FORD ROAD.	
170	Y	Turn right on to HORNER STREET.	
171	Y	Turn left on to NEW ROAD.	
172	Y	Turn left on to BEATTY STREET.	
173	Y	Turn left on to HIGH STREET.	
174	Y	Continue on to COMMERCIAL STREET.	2.32
175	N	Turn left on to HIGH STREET.	
176	N	Turn left on to CARDIFF ROAD.	0.24
177	Y	Turn right on to CARDIFF ROAD.	
178	Y	Turn right on to THE SQUARE.	
179	Y	Turn right on to CARDIFF ROAD.	
180	Y	Continue on CARDIFF ROAD.	
181	Y	Continue on to NEW ROAD.	
182	Y	Turn left in to TIR-Y-BERTH DEPOT	
183	Y	Complete a circuit of FUEL PUMPS and BOTTOM CAR PARK	1.40
184	N	U-turn and return to NEW ROAD.	0.12
185	Y	Turn left on to NEW ROAD.	1.74

186	N	At roundabout take exit 1 to A469.	
187	N	Turn left on to VIADUCT LANE.	
188	N	Turn right on to THOMAS STREET.	
189	N	Turn left on to MAIN ROAD.	
190	N	Route complete. Return to depot.	
191	N	Continue to BRYN MEADOWS ROUNDABOUT.	
192	N	Enter roundabout and take exit 2 on to A 472.	
193	N	Enter roundabout and take exit 2 on to A 472	
194	N	Enter roundabout and take exit 1 on to A4048.	
195	N	Enter roundabout and take exit 2 on to A4048.	
196	N	Enter roundabout and take exit 2.	
197	N	Turn left on to PENMAEN INDUSTRIAL ESTATE.	6.46
		Gritted	45.70
		Free Travel	29.61
		Total	75.31
		Efficiency	60.7%



Pre-salting Route M1 (Penmaen)



## Pre-salting route M2 (Bedwas)

Route M2			Distance
Instruction	GRITTING	ROUTE_CARD	(Kms)
1	N	Start route	
2	N	Turn right on to BEDWAS ROAD.	
3	N	Enter roundabout and take exit 3 on to Parc Pontypanyd.	1.77
4	Y	Complete a circuit of the roundabout and then take exit 2.	
5	Y	Complete a circuit of the roundabout then take exit 2.	
6	Y	Enter roundabout complete a circuit then take exit 2 to A468.	
7	Y	on to ROUNDABOUT.	
8	Y	Enter roundabout and take exit 1 on to Parc Pontypanyd.	2.06
9	N	Enter roundabout and take exit 3 on to Heol Ty Merchant.	0.48
10	Y	Turn right on to HEOL BRO WEN.	0.24
11	N	Turn right on to HEOL TY MERCHANT.	0.24
12	Y	Turn left on to HEOL BRO WEN.	
13	Y	on to HEOL BRO WEN ROUNDABOUT.	
14	Y	Turn right on to PONTYGWINDY ROAD.	
15	Y	Keep right on PONTYGWINDY ROAD.	
16	Y	Turn left on to SIR ALFRED OWEN WAY.	
17	Y	Turn left on to SIR ALFRED OWEN WAY.	
18	Y	Turn left on to SIR ALFRED OWEN WAY.	1.80
19	N	Turn left on to PONTYGWINDY ROAD.	
20	N	Enter roundabout and take exit 3 on to A469.	1.27
21	Y	Enter roundabout and take exit 1 on to Coed-Y-Brain Road.	
22	Y	Continue on to DE WINTON TERRACE.	
23	Y	Continue on to OAK TERRACE.	
24	Y	Continue on to HIGH STREET.	
25	Y	Continue on to FFRWD TERRACE.	
26	Y	Continue on to GLENVIEW TERRACE.	
27	Y	Turn right at the traffic lights towards the A469.	
28	Y	Enter roundabout and take exit 3 back to DE WINTON TERRACE.	
29	Y	Turn right on to WINGFIELD CRESCENT.	
30	Y	Continue on to CAERPHILLY ROAD.	
31	Y	Turn right on to DUFFRYN INDUSTRIAL ESTATE.	
32	Y	Turn left on to ALDER AVENUE.	
33	Y	Enter roundabout and take exit 2 on to A469.	
34	Y	Enter roundabout and take exit 4 back on to ACCESS ROAD.	
35	Y	Enter roundabout and take exit 3 on to TWYN ROAD.	
36	Y	Turn left on to CAERPHILLY ROAD.	
37	Y	At roundabout complete a circuit and take exit 1 to CAERPHILLY ROAD.	6.24
38	N	Turn left on to DUFFRYN INDUSTRIAL ESTATE.	
39	N	Turn left on to ALDER AVENUE.	
40	N	Enter roundabout and take exit 1 on to TWYN ROAD.	0.84
41	Y	Continue straight on to TWYN ROAD.	1.00
42	N	U-turn on TWYN ROAD	0.31
43	Y	Turn left on to CAERPHILLY ROAD.	
44	Y	Turn left on to TY GRADDFA.	0.43
45	N	Grit TY GRADDFA car park and return to CAERPHILLY ROAD.	0.13
46	Y	Turn left on to CAERPHILLY ROAD.	
47	Y	Enter roundabout and take exit 1 on to NELSON ROAD.	

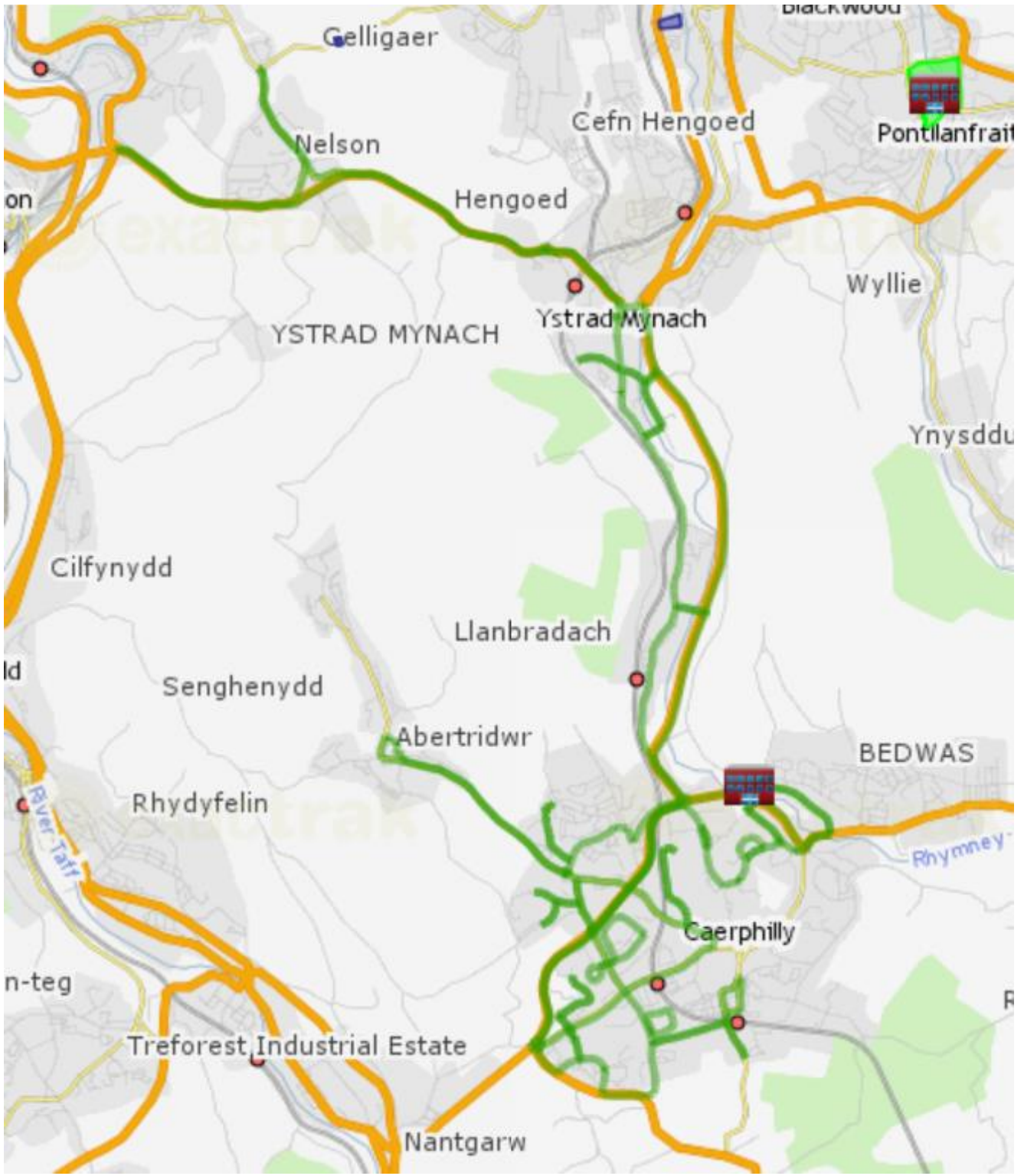
48	Y	Enter roundabout complete a circuit and take exit 1 to NELSON.	4.17
49	N	Enter roundabout and take exit 1 to A472.	
50	N	Enter roundabout and take exit 2 on to A472.	2.11
51	Y	Continue on A472.	
52	Y	Enter roundabout and take exit 4 back on to A472.	2.51
53	N	Enter roundabout and take exit 2 to DYNEVOR TERRACE.	
54	N	Enter roundabout and take exit 1 on to Commercial Street.	0.95
55	Y	Continue on to SHINGRIG ROAD.	
56	Y	Keep left at the traffic island then turn right.	0.29
57	N	Turn right then turn right.	
58	N	Turn sharp right.	
59	N	Turn right on to HEOL GELLIGAER.	
60	N	Keep left on to SHINGRIG ROAD.	
61	N	Continue on to SHINGRIG ROAD.	
62	N	Enter roundabout and take exit 2 on to Commercial Street.	
63	N	Enter roundabout and take exit 1 on to A472.	
64	N	Enter roundabout and take exit 3 on to A472.	
65	N	Continue on A472.	
66	N	Enter roundabout and take exit 2 on to A472.	
67	N	Enter roundabout and take exit 3 on to A469 south.	
68	N	Continue on A469 south.	
69	N	Enter roundabout and take exit 2 on to A469.	
70	N	Enter roundabout and take exit 1 on to A469.	
71	N	Enter roundabout and take exit 2 on to A469	
72	N	Enter roundabout and take exit 4 on to A468.	14.34
73	Y	Enter roundabout and take exit 2 on to A468.	
74	Y	Enter roundabout complete a circuit and take exit 5 back on to A468.	
75	Y	Keep left on to A468	
76	Y	Enter roundabout and take exit 2 on to A468.	
77	Y	Enter roundabout and take exit 1 on to HEOL PWLLYPANT.	
78	Y	Turn right on to HEOL LAS.	
79	Y	Turn left on to Y CILGANT.	
80	Y	At mini roundabout take exit 1 on to HEOL ANEURIN.	
81	Y	Turn right on to CALEDFRYN WAY.	
82	Y	Turn left on to FFORDD EYNON EVANS.	
83	Y	Continue on to HEOL CWM IFOR.	
84	Y	At roundabout take exit 4 back to CALEDFRYN WAY.	7.00
85	N	Turn right on to CALEDFRYN WAY.	0.13
86	Y	Turn right on to HEOL ANEURIN.	
87	Y	Turn left on to HEOL ANEURIN and complete a circuit of the BUS TERMINAL.	
88	Y	Turn right on to B4263.	
89	Y	Turn right on to HEOL ANEURIN.	
90	Y	Turn right on to B4263.	
91	Y	Continue on to GRAIG-Y-FEDW.	
92	Y	Continue on to THOMAS STREET.	
93	Y	Keep right on to HIGH STREET.	
94	Y	Continue on to HIGH STREET.	
95	Y	Turn right on to BROOK STREET.	
96	Y	Turn right on to BROOK STREET.	
97	Y	Turn left on to KING STREET.	
98	Y	Turn right towards B4263.	3.69

99	N	Turn left on to THOMAS STREET.	
100	N	Continue on to GRAIG-Y-FEDW.	
101	N	Continue on to ABERTRIDWR ROAD.	1.85
102	Y	Continue to roundabout.	
103	Y	At mini roundabout take exit 3 to SAINT CENYDD ROAD.	
104	Y	Turn right on to HENDREDENNY DRIVE.	1.05
105	N	U-turn at the junction of CAERNARVON COURT	0.32
106	Y	Turn right on to GROESWEN DRIVE.	0.32
107	N	U-turn on to GROESWEN DRIVE.	
108	N	Turn right on to HENDREDENNY DRIVE.	0.55
109	Y	Turn right on to SAINT CENYDD ROAD.	
110	Y	At roundabout take exit 4 back on to SAINT CENYDD ROAD.	0.91
111	N	At mini roundabout take exit 3 to MILL ROAD.	0.87
112	Y	Continue on MILL ROAD.	
113	Y	Turn left on to CAENANT ROAD.	
114	Y	Continue on to LEWIS DRIVE.	2.30
115	N	U-turn and return back to MILL ROAD.	0.43
116	Y	Turn left on to MILL ROAD.	
117	Y	Keep right on to TAFWYS WALK.	
118	Y	Turn right on to NANTGARW ROAD.	
119	Y	Continue on to NANTGARW ROAD.	
120	Y	Enter roundabout and take exit 3 to HEOL TYWYSOG DU.	
121	Y	At roundabout complete a circuit and take exit 3 to BLACK PRINCE ROAD.	
122	Y	Continue on to FFORDD PENRHOS.	3.76
123	N	U-turn on to FFORDD PENRHOS.	
124	N	Keep left on to HEOL Y TYWYSOG DU.	
125	N	Continue on to HEOL Y TYWYSOG DU.	0.80
126	Y	Enter roundabout and take exit 1.	
127	Y	Enter roundabout and take exit 3 on to NANTGARW ROAD.	
128	Y	Enter roundabout and take exit 1 on to HEOL CAU BARRAU.	
129	Y	Turn left on to HEOL CAE BARRAU.	
130	Y	At roundabout complete a circuit and take exit 1 on to FFORDD TRAWS CWM	
131	Y	At roundabout complete a circuit and take exit 2 on to FFORDD TRAWS CWM.	
132	Y	At roundabout take exit 4 back on to FFORDD TRAWS CWM.	2.22
133	N	At roundabout take exit 2 on to FFORDD TRAWS CWM.	0.31
134	Y	At roundabout take exit 1 on to FFORDD TRAWS CWM.	
135	Y	At roundabout complete a circuit and take exit 2 on to FFORDD TRAWS CWM.	0.85
136	N	Turn left on to HEOL CAE BARRAU.	
137	N	Turn left on to WATFORD ROAD.	0.71
138	Y	Take second right on to SAINT MARTIN'S ROAD.	
139	Y	Turn left on to ST MARTIN'S ROAD.	
140	Y	Turn right on to MOUNTAIN ROAD.	1.63
141	N	U-turn at Warren Drive back on to MOUNTAIN ROAD.	
142	N	Continue on to CARDIFF ROAD.	
143	N	Turn right on to CASTLE STREET.	
144	N	Turn right on to MARKET STREET.	
145	N	Continue on to WHITE STREET.	1.11
146	Y	Turn right on to BARTLETT STREET.	
147	Y	Turn left on to MOUNTAIN ROAD	0.93
148	N	Turn right on to SAINT MARTIN'S ROAD.	0.05
149	Y	Keep left then turn right on to LON-Y-LLYN.	

150	Y	Continue on to LON-Y-LLYN.	
151	Y	Turn right on to SAINT CHRISTOPHER'S DRIVE.	
152	Y	Turn left on to SAINT CHRISTOPHER'S DRIVE.	
153	Y	Turn left on to SAINT CHRISTOPHER'S DRIVE.	
154	Y	Turn right on to LON-Y-LLYN.	
155	Y	Continue on to SAINT CENYDD ROAD.	
156	Y	Turn left on to CAE'R FFERM.	
157	Y	Turn right on to CAE'R FFERM.	
158	Y	Cross the main road on to FIRST AVENUE.	
159	Y	Turn left on to EAST AVENUE.	
160	Y	Continue on to THE CRESCENT.	
161	Y	Enter roundabout and take exit 1 on to The Crescent.	
162	Y	Continue on to WEST AVENUE.	
163	Y	Turn right on to FIRST AVENUE.	
164	Y	Turn right on to SAINT CENYDD ROAD.	6.23
165	N	At roundabout take exit 3 on to A468.	
166	N	Enter roundabout and take exit 4 on to A 468.	
167	N	Enter roundabout and take exit 1 on to A 468.	
168	N	Enter roundabout and take exit 1 on to Bedwas Road.	
169	N	Turn left on to GREENWAY.	2.98
		Gritted	49.63
		Free Travel	32.55
		Total	82.18
		Efficiency	60.4%



Pre-salting Route M2 (Bedwas)



## Appendix E.

### Strategic Salting Routes A - C.

#### Route A. (Penmaen)

Route A			
Instruction	GRITTING	ROUTE_CARD	
1	Y	Leave yard salt to junction B4254.	
2	Y	Turn right - Salt B4254	
3	Y	At roundabout complete a loop and then take exit 2 onto A4048	
4	Y	At roundabout complete a loop and then take exit 2 onto A4048	
5	Y	At roundabout take exit 4 onto A4048	
6	Y	At roundabout take exit 2 onto A4048	
7	Y	At roundabout take exit 3 onto A4048	
8	Y	At roundabout complete a loop and then take exit 2 onto A4048	
9	Y	At roundabout complete a loop and then take exit 1 onto A4048	
10	Y	At roundabout complete a loop and then take exit 3 onto A4048	
11	Y	Continue - Grit A4048 to COUNTY BOUNDARY. Stop Salting.	12.87
12	N	U Turn the vehicle and travel A4048 to SUNNYBANK ROAD roundabout.	7.47
13	Y	At roundabout take exit 1 onto A4048. Grit	
14	Y	At roundabout take exit 1 onto B4251. Grit	
15	Y	Continue - Grit B4251 SEW.	
16	Y	At roundabout complete a loop and take exit 3 to B4251 PARKWAY.	
17	Y	Continue - Grit B4251 PARKWAY.	
18	Y	Turn right - Salt SYR DAFYDD AVENUE	
19	Y	Continue - Grit OAKDALE TERRACE to roundabout. End of salting.	6.91
20	N	Not salting, enter roundabout and take exit 4 on to OAKDALE	
21	N	Continue - Travel OAKDALE TERRACE	
22	N	Continue - Travel PENMAEN ROAD	
23	N	Continue - Travel PENRHIW TERRACE	
24	N	Continue - Travel SYR DAFYDD AVENUE. Grit	3.12
25	Y	Continue - Grit TY BRACHTY TERRACE.	
26	Y	Continue - Grit KENDON ROAD.	
27	Y	Turn right onto A467, salt to TRECelyn roundabout. End of salting.	3.9
28	N	At roundabout take exit 4 back onto A467 (North).	
29	N	At a point approx 100m prior to AXIOM. Grit.	1.1
30	Y	Grit short section of Dual carriageway. End of salting	0.16
31	N	Continue - travel A467.	
32	N	At a point approximately 50m prior to HAFODYRYNYS turning. Grit.	0.79
33	Y	Continue - Grit A467 to County Boundary. End of salting.	1.5
34	N	Travel to Llanhilleth Industrial Estate. Turn the vehicle.	
35	N	Return (South) back along the A467 to Crumlin. Grit.	3.64
36	Y	Continue - Grit A467.	
37	Y	Turn left onto A472 HAFODYRYNYS ROAD	
38	Y	Continue - Grit A472 to COUNTY BOUNDARY. End of salting.	3.10
39	N	U turn - Travel A472 to HERBERT TERRACE. Grit	1.66
40	Y	Continue - Grit HERBERT TERRACE to HAFODYRYNYS ROAD	
41	Y	Turn left onto A467	
42	Y	Continue - Grit A467.	
43	Y	At roundabout complete a loop and then take exit 1 onto A467	
44	Y	At roundabout complete a loop and then take exit 2 onto A467	
45	Y	At roundabout complete a loop and then take exit 2 onto A467	
46	Y	At roundabout complete a loop and then take exit 1 onto A467	



47	Y	At roundabout complete a loop and then take exit 2 onto A467	
48	Y	At roundabout take exit 3 onto A467	
49	Y	At roundabout take exit 2 onto A467	
50	Y	At roundabout take exit 2 onto B4251 WATTSVILLE	
51	Y	Continue - Grit B4251 to YNYSDDU.	
52	Y	At roundabout complete a loop and take exit 3 to A472	
53	Y	At roundabout take exit 2 to A472	
54	Y	At roundabout take exit 4 to A472	
55	Y	At roundabout take exit 2 to A472	
56	Y	At roundabout take exit 2 to A472	
57	Y	At roundabout take exit 3 to A4049	
58	Y	At roundabout take exit 3 to A4049	
59	Y	At roundabout take exit 1 to A472	
60	Y	Enter roundabout gritting and take exit 2 onto A472 to SWITCHGEAR roundabout	
61	Y	At roundabout take exit 1 to B4251 SIR IVORS ROAD	
62	Y	At roundabout take exit 1 to PLAZA ROUNDABOUT	
63	Y	At roundabout take exit 2 to BLACKWOOD ROAD	
64	Y	At roundabout take exit 2 to BLACKWOOD ROAD	
65	Y	Grit to LIBANUS traffic signals. End of salting	40.5
66	N	Return to DEPOT.	0.45
		Gritted	68.94
		Free Travel	18.23
		Total	87.17
		Efficiency	79.09%

## Route B. (Penmaen)

Route B			
Instruction	GRITTING	ROUTE_CARD	
1	Y	Leave yard Travel to junction B4254. Grit	
2	Y	Turn left - Grit B4254	
3	Y	Turn left - Grit B4251	
4	Y	At roundabout take exit 2 to B4251 BLACKWOOD ROAD	
5	Y	At roundabout take exit 2 to BRYN ROAD	
6	Y	At roundabout take exit 1 to A4049	
7	Y	At roundabout take exit 3 to A472 to MAESYCWMMER.	
8	Y	Continue on A472 through MAESYCWMMER.	
9	Y	Continue, join A469.	
10	Y	Turn right into YYF	
11	Y	Continue to roundabout and return back to A469.	
12	Y	Turn right onto A469.	
13	Y	At roundabout take exit 4 back along A469.	
14	Y	Turn left, salt slip roads to YYF. End of salting.	36.1
15	N	Continue to roundabout and return back to A469. Grit	0.4
16	Y	Turn left, grit slip road to A469.	
17	Y	Bear right onto A472 to MAESYCWMMER to end of salting.	0.5
18	N	Turn the vehicle.	
19	N	Return back along the A472. Grit	
20	Y	Turn right onto A472 Slip road.	
21	Y	At roundabout take exit 3 on to A469	
22	Y	At roundabout complete a loop and take exit 3 to A469 NEW ROAD	
23	Y	At roundabout complete a loop and take exit 2 to NEW ROAD	
24	Y	Turn right into TIR-Y-BERTH DEPOT.	
25	Y	Return back to A469	
26	Y	Turn right on to A469	
27	Y	Continue on A469	
28	Y	At roundabout take exit 3 back on to A469. End of Salting.	6.05
29	N	Travel A469. Grit	1.03
30	Y	Turn right on to GWERTHONOR PLACE	
31	Y	Continue on to PARK PLACE	
32	Y	Turn left on to WILLIAM STREET.	
33	Y	Complete a loop of SOCIAL SERVICES.	
34	Y	Return back to PARK PLACE.	
35	Y	Turn left on to PARK PLACE	
36	Y	Continue on GILFACH STREET	
37	Y	Turn right on to BARGOED NEWYDD VIADUCT	
38	Y	At roundabout complete a loop and take exit 3 to BARGOED NEWYDD VIADUCT. End of salting.	2.15
39	N	Travel BARGOED NEWYDD VIADUCT. Grit.	0.38
40	Y	Continue - Grit CARDIFF ROAD.	
41	Y	Continue through BARGOED TOWN.	
42	Y	At mini roundabout take exit 2 to ST GWLADYS WAY	
43	Y	At roundabout complete a circuit and take exit 3 to A469	
44	Y	At roundabout take exit 2 to A469	
45	Y	At roundabout take exit 1 to BRITANNIA LINK ROAD.	
46	Y	Continue - Grit BRITANNIA LINK ROAD. End of salting	2.34
47	N	At roundabout take exit 1 to PENGAM ROAD	
48	N	Continue - Travel PENGAM ROAD. Grit	0.93

49	Y	Turn left on to ANGEL WAY.	
50	Y	Continue - Grit ANGEL WAY. End of salting.	0.54
51	N	At roundabout take exit 3 to A469.	
52	N	Travel A469. Grit	0.5
53	Y	At roundabout take exit 3 to STATION ROAD.	
54	Y	Turn left on to FACTORY ROAD.	
55	Y	Turn left on to GROESFAEN TERRACE	
56	Y	Continue through DERI	
57	Y	Continue through FOCHRIW	
58	Y	Continue to PONTLOTTYN.	
59	Y	Turn right on to A469	10.49
60	Y	Grit to A469.	
61	Y	Turn left on to A469.	
62	Y	Continue to TIRPHIL	
63	Y	Turn right on to A469 to FACTORY ROAD	
64	N	Turn left on to BEDWELLY ROAD	
65	Y	Turn left on to A4049 CWMSYFIOG ROAD	
66	Y	Continue on A4049 to junction of A469. Stop salting.	12.99
67	N	Travel - TIRPHIL to PONTLOTTYN. Grit	3.35
68	Y	Grit - A469 PONTLOTTYN to BUTETOWN roundabouts. Complete a loop of all roundabouts on route.	
69	Y	Continue - Grit BUTETOWN through RHYMNEY.	
70	Y	Turn left in to ABERTYSSWG.	
71	Y	Grit to THE GREEN, ABERTYSSWG. End of salting.	9.71
72	N	Return to WELLINGTON WAY. Grit.	1.85
73	Y	Turn left on to WELLINGTON WAY.	
74	Y	Grit to A469. End of salting.	0.41
75	N	Turn left on to A469. Travel to traffic signals at BEDWELLY ROAD, ABERBARGOED. Grit	7.88
76	Y	Continue - Grit COMMERCIAL STREET to OAK TERRACE traffic signals.	
77	Y	Turn left onto OAK TERRACE by pass.	
78	Y	Continue - Grit to Libanus traffic signals via HIGHFIELDS WAY.	
79	Y	Turn left onto BLACKWOOD ROAD	
80	Y	Turn left onto Gordon Road	
81	Y	Bear right into BLACKWOOD BUS STATION. End of salting.	6.5
82	N	Return to DEPOT.	1
		Gritted	51.18
		Free Travel	16.92
		Total	68.10
		Efficiency	75.15%

## Route C. (Bedwas)

Route C			
Instruction	GRITTING	ROUTE_CARD	
1	Y	Leave BEDWAS depot and Grit to A468.	
2	Y	Turn left on to A468.	
3	Y	Continue - grit through TRETTHOMAS and MACHEN to County Boundary. End of salting.	7.25
4	N	Return back along A468 to BEDWAS. Grit.	5.74
5	Y	Continue - grit splitter lanes to Crossways roundabout.	
6	Y	At roundabout complete a loop and take exit 2 on to BEDWAS ROAD.	
7	Y	Complete a loop of B4600 Ton-Y-Felin one way system.	
8	Y	Complete a loop of CAERPHILLY TOWN CENTRE.	
9	Y	Continue - Grit MOUNTAIN ROAD to SNACK BAR.	
10	Y	Turn left - Grit to TRAVELLERS REST. End of salting.	7.15
11	N	Return to MOUNTAIN ROAD JUNCTION. Grit.	1.10
12	Y	Continue - Grit MOUNTAIN ROAD to PENRHOS roundabout.	
13	Y	At roundabout take exit 4 to B4600 NANTGARW ROAD.	
14	Y	Continue - Grit NANTGARW ROAD to PICADILLY traffic signals. Stop salting.	5.16
15	N	Turn left onto PONTYGWINDY ROAD and then left again onto MILL ROAD.	
16	N	Turn left onto TAFFWYS WALK.	
17	N	Turn right onto NANTGARW ROAD	
18	N	Travel NANTGARW ROAD to PENRHOS roundabout. Grit.	2.48
19	Y	Enter roundabout gritting and take exit 4 to A468 to TRECENYDD roundabout.	
20	Y	At roundabout complete a loop and take exit 3 to A468 to TRECENYDD roundabout.	
21	Y	At roundabout complete a loop and take exit 1 to ABERTRIDWR.	
22	Y	Continue - Grit ABERTRIDWR to BUS TERMINAL at SENGHENYDD. End of Salting.	6.80
23	N	Not salting - return back to TRECENYDD roundabout. Grit	5.21
24	Y	At roundabout complete a loop and take exit 1 to A468 to CEDAR TREE roundabout.	
25	Y	At roundabout complete a loop and take exit 2 to A469 to TREHIR roundabout	
26	Y	At roundabout complete a loop and take exit 2 to A469 to WINGFIELD roundabout.	
27	Y	At roundabout complete a loop and take exit 2 to DYFFRYN roundabout.	
28	Y	At roundabout take exit 2 to DANCE CENTRE roundabout	
29	Y	At roundabout complete a loop and take exit 1 to A472	
30	Y	At roundabout complete a loop and take exit 2 to A472	
31	Y	Continue - Grit A472.	
32	Y	At roundabout complete a loop and proceed to TY PENALLTA & TY TREDOMEN OFFICES.	
33	Y	Return back to A472 roundabout.	
34	Y	At roundabout take exit 2 to A472	
35	Y	Continue - Grit A472	
36	Y	At roundabout complete a loop and take exit 1 to A472	
37	Y	At roundabout complete a loop and take exit 2 to A472	
38	Y	Continue - Grit A472 to COUNTY BOUNDARY. End of salting.	15.60
39	N	Continue - Travel A472 to Roundabout.	
40	N	At roundabout take exit 4 back to NELSON on A472	
41	N	Travel A472. Grit	2.62
42	Y	Enter roundabout gritting - take exit 2 to DYNEVOR TERRACE	
43	Y	At roundabout take exit 1 to SHINGRIG ROAD.	
44	Y	Continue - Grit B4255 SHINGRIG ROAD	

45	Y	Turn right on to B4254 GELLIGAER ROAD	
46	Y	Continue on B4254 to PENGAM TRAFFIC SIGNALS	
47	Y	Continue on HIGH STREET. End of salting.	7.30
48	N	Turn right on to A4049	
49	N	Travel A4049 to Oak Terrace traffic signals. Grit	0.90
50	Y	Continue - Grit A4049 to CROWN ROUNDABOUT. End of salting	2.30
51	N	At roundabout take exit 2 to A472, BRYN MEADOWS roundabout	
52	N	At roundabout take exit 3 to A472 to MAESYCWMMER	
53	N	Continue - travel through MAESYCWMMER. Grit.	2.50
54	Y	Turn left on to SLIP ROAD to DANCE CENTRE ROUNDABOUT.	
55	Y	At roundabout take exit 1 on to A469	
56	Y	At roundabout complete a loop and take exit 4 back on to A469 to DYFFRYN roundabout.	
57	Y	At roundabout take exit 2 to A469 to Wingfield roundabout.	
58	Y	At roundabout take exit 1 to A469 to TREHIR roundabout.	
59	Y	At roundabout take exit 2 to A469 to CEDAR TREE roundabout.	
60	Y	At roundabout take 2 to A468 to GALLAGHER roundabout.	
61	Y	At roundabout take 1 to A468 to CROSSWAYS roundabout.	
62	Y	At roundabout complete a loop and take exit 1 to A468 to BEDWAS.	
63	Y	Turn left on to GREENWAY INDUSTRIAL ESTATE. End of salting	7.60
64	N	Return to Depot	1.04
		Gritted	59.16
		Free Travel	21.59
		Total	80.75
		Efficiency	73.26%

## Appendix F.

### Strategic Ploughing Routes P1 – P8.

#### Plough Route P1 (Penmaen)

Route P1	2021	
Instruction	ROUTE_CARD	
1	Leave depot, plough to Pengam traffic signals via Highfields Way and High Street Pengam	4.03
2	Turn right and plough A469, (North)	0.40
3	At traffic signals turn left, plough through Gilfach and Bargoed town to Puzzle House	3.30
4	Turn left, plough through Deri and Fochriw to Pontlottyn	9.50
5	Turn left onto A469 plough to Butetown roundabouts.	4.10
6	Plough B4257 through Upper High Street, to Carno Street.	1.50
7	Turn right onto Carno Street and complete the loop to Skinners roundabout and return back to Upper High Street.	0.97
8	Turn right onto B4257 Upper High Street and continue through High Street to Abertysswg Junction	2.25
9	Turn left, plough to The Green, Abertysswg, and return back to Wellington Way.	3.38
10	Turn left and plough to Pontlottyn Viaduct	0.48
11	U-Turn, plough Pontlottyn Viaduct to Blaenau-Gwent County Boundary at Hill Street via Moriah Street.	2.90
12	U-Turn, plough through Hill Street & High Street, Rhymney etc to Butetown roundabouts.	5.31
13	Plough A469, (South) to Farm Road, Pontlottyn	3.70
14	Turn right, plough through Fochriw and Deri to Puzzle House.	9.50
15	return to depot via Pengam traffic signals, High Street and Highfields Way	7.70
	Total	59.02

Plough Route P2 (Penmaen)

Route P2	2021	
Instruction	ROUTE_CARD	
1	Leave depot, plough to Crown roundabout via Libanus traffic signals and Bryn Road	2.74
2	Plough A4049 (North) through Britannia, Aberbargoed, (including the cross valley links) and New Tredegar to Tirphil	12.08
3	Continue on A469 to Pontlottyn Viaduct	3.60
4	U-turn, plough back along A469 to Tirphil.	3.60
5	Turn right onto A469, plough through to Pengam Traffic signals.	7.80
6	Turn the vehicle around Cardiff Road.	0.20
7	Return north back along A469 to Tirphil.	7.80
8	Turn right onto A4049. Plough to Aberbargoed traffic signals	4.30
9	Turn left onto B4511 and plough through to mini roundabout at Pantycefn Road, Markham	1.60
10	U-Turn, plough back along B4511 to Aberbargoed traffic signals.	1.60
11	Turn left onto A4049 and plough through to Oak Terrace traffic signals.	3.70
12	Continue on A4049 and plough to Crown roundabout.	2.30
13	Return to depot via Bryn Road and Libanus traffic signals.	2.58
	Total	53.90



### Plough Route P3 (Penmaen)

Route P3	2021	
Instruction	ROUTE_CARD	
1	Leave depot and plough to A4048 SEW. (Penmaen roundabout)	
2	At roundabout take exit 1 and plough along A4048 SEW to Chartist Bridge.	
3	Continue to plough A4048 (north) through Argoed and Hollybush to the county boundary.	9.82
4	U-turn and plough back along A4048 to B4511 junction at Penylan Road	4.83
5	Turn right onto B4511 Penylan Road	
6	Plough B4511 to mini roundabout at Pantycefn Road.	1.77
7	U-turn, plough back along B4511 to A4048.	1.77
8	Turn right onto A4048	
9	Plough A4048 (south) then over Chartist Badge.	
10	At roundabout take exit 1 onto B4251 SEW	
11	Plough B4521 SEW to Crumlin traffic signals via Parkway and Kendon Road	8.37
12	U-Turn and return back along B4521 via Kendon Road, Parkway and SEW to Pentwynmawr roundabout. (A472)	7.89
13	Take exit 4 back onto A4048	
14	Plough to Libanus traffic signals via A4048 and B4254	1.80
15	At traffic signals turn right onto B4251 through Blackwood Town via the bus station to Chartist Bridge	
16	Take exit 4 back through Blackwood Town and return back to depot	4.30
	Total	40.55

## Plough Route P4 (Penmaen)

Route P4	2021	
Instruction	ROUTE_CARD	Kms
1	Leave the depot and plough via Libanus traffic signals, Plaza R/A's and Newport Road to Switchgear roundabout.	2.42
2	At roundabout take exit 1 onto the A472.	
3	Plough A472, through to Crumlin Traffic signals.	
4	Turn right onto A472, Hafodyrynys Rd.	
5	Plough through to the county boundary.	9.18
6	Turn the vehicle	
7	Plough A472 (west) back through Hafodyrynys to Crumlin traffic signals.	2.90
8	Turn right onto A467, plough north to county boundary with Blaenau Gwent.	2.60
9	Turn the vehicle	
10	Plough (south) back along A467 to Newbridge roundabout.	4.50
11	At Newbridge roundabout take exit 2 to A472	
12	Plough A472 to Switchgear roundabout.	4.30
13	At roundabout take exit 1 onto B4251 through Ynysddu and Cwmfelinfach to Full Moon roundabout	
14	At Full Moon roundabout take exit 4 onto B4251	
15	Plough B4251 through Cwmfelinfach and Ynysddu to Switchgear roundabout.	13.40
16	At roundabout take exit 2 to B4251 Newport Road.	
17	Plough to Libanus traffic signals via Plaza roundabouts	2.20
18	Return to depot.	0.20
	Total	41.70

## Plough Route P5 (Penmaen)

Route P5	2021	
Instruction	ROUTE_CARD	Kms
1	Leave the depot and plough to A472, Newbridge roundabout.	3.86
2	Take exit 3 onto A467 (south)	
3	Plough A467 through to Foxgloves roundabout (boundary with Newport CC)	10.79
4	At roundabout take exit 3 and return (north) ploughing along the A467 to Trecelyn roundabout.	10.79
5	At roundabout take exit 4 onto A467	
6	Plough to Quarry roundabout Abercarn	0.81
7	At roundabout take exit 1 onto B4591 through Abercarn and Cwmcarn to the junction with Twyncarn Rd.	2.90
8	Turn right and complete the short loop to the roundabout and back.	
9	Continue (south) along the B4591 through Pontywaun to Crosskeys traffic signals	1.45
10	Turn right and complete the short loop to the A467 and return back to the traffic signals.	0.48
11	Continue straight ahead at the traffic signals	
12	Continue through Risca & Pontymister to Mill Street roundabout.	3.38
13	At roundabout take exit 3 and complete the loop out to the A467.	
14	Return back to Mill Street roundabout	0.81
15	At roundabout take exit 3 and continue (south) along B4591 to county boundary on Risca Road.	1.45
16	U-Turn.	
17	Return back (north) along B4591 to Quarry roundabout at Abercarn.	9.02
18	Return to depot	4.83
	Total	50.57

Plough Route P6 (Penmaen)

Route P6	2021	
Instruction	ROUTE_CARD	Kms
1	Leave the depot and plough to Dance Centre roundabout, via Switchgear roundabout.	5.70
2	Take exit 3 onto A469 (north) and plough to Hengoed roundabout.	
3	Take exit 3 onto A469 (south) and plough to Dance Centre roundabout	3.10
4	Take exit 1 onto A472 to Maesycwmmmer traffic signals	1.10
5	At traffic signals turn left onto B4252 Victoria road to Fleur-De-Lys	
6	Continue through Fleur-de-Lys	
7	At junction turn left onto High Street	
8	Continue on B4254 through Shingrig Road, to Dynevor Terrace roundabout	9.50
9	At the roundabout take exit 2 to Commercial Street	6.50
10	At roundabout take exit 3 back onto Commercial Street	
11	At roundabout take exit 1 to Dynevor Terrace	
12	At roundabout take exit 5 back onto Dynevor Terrace.	
13	At roundabout take exit 1 to Shingrig Road	
14	Continue on B4254 through Gelligaer to Pengam traffic signals.	1.90
15	Turn right onto A469	6.20
16	Plough through to Hengoed roundabout	
17	Take exit 3 and return north back along the A469 to Pengam traffic signals.	
18	Turn right onto High Street	
19	Turn right onto Commercial Street.	5.35
20	Continue through Fleur-De-Lys and Victoria Road to Maesycwmmmer.	3.00
21	At traffic signals, turn left onto A472 and return to depot via Switchgear roundabout	4.60
	Total	46.95

Plough Route P7 (Bedwas)

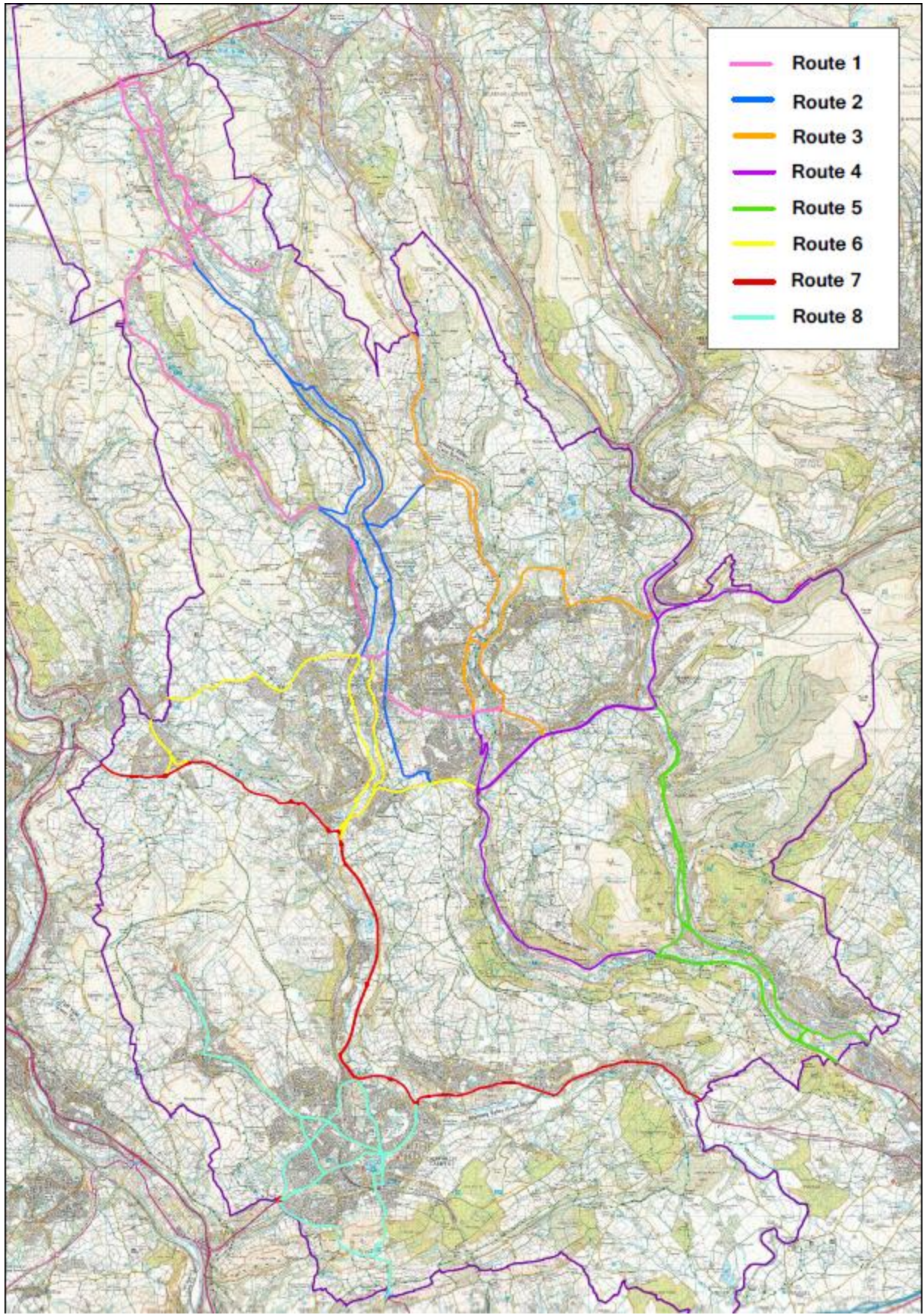
Route P7	2021	
Instruction	ROUTE_CARD	Kms
1	Leave depot and plough to the A468	1.13
2	Turn left and plough the A468, through Trethomas and Machen to the county boundary with Newport	6.28
3	Turn the vehicle	
4	Plough A468, back through Machen & Trethomas to Cedar Tree roundabout	8.05
5	At roundabout take exit 4 to A469	
6	Plough A469 to Dance Centre roundabout	5.70
7	At roundabout take exit 1 onto A472	
8	Plough A472 to county boundary at Fiddlers Elbow, Nelson.	5.70
9	Turn at the next roundabout and return back to Cedar Tree roundabout via A472 and A469	12.50
10	Plough from Cedar Tree roundabout to Crossways roundabout	4.83
11	Return to depot	1.29
	Total	45.48

## Plough Route P8 (Bedwas)

Route P8	2021	
Instruction	ROUTE_CARD	Kms
1	Leave depot and plough to Crossways roundabout	1.29
2	At roundabout take exit 2 to B4600 Bedwas Road	1.61
3	Complete a loop of Ton-Y-Felin 1 way system	
4	Continue on B4600 Nantgarw Road to Penrhos roundabout	
5	Return back along B4600 Nantgarw Road to St Cenydd traffic signals	4.03
6	Turn left onto St Cenydd Road	
7	At roundabout take exit 4 back onto St Cenydd Road	
8	At traffic signals, turn left onto B4600 Nantgarw Road.	1.45
9	At Piccadilly traffic signals turn left, then left again onto B4263 Mill Road	1.29
10	Continue on Mill Road to Bowls roundabout	1.93
11	At roundabout take exit 1 onto St Cenydd Road	
12	At St Cenydd roundabout, take exit 4 back onto St Cenydd Road	
13	At Bowls roundabout, take exit 1 to B4263 to Senghenydd.	1.29
14	Continue on B4263 through Abertridwr to the bus terminal at Senghenydd.	4.67
15	Return back along B4623 through Senghenydd and Abertridwr to Bowls roundabout.	4.67
16	At roundabout take exit 2 to B4623 Mill Road.	
17	Continue on B4263 Mill Road	
18	Continue onto Tafwys Walk	
19	Turn left onto B4600 Nantgarw Road	1.70
20	Turn left onto B4623 Pontygwindy Road	
21	Continue on Pontygwindy Road to Cedar Tree roundabout	1.90
22	At roundabout take exit 1 and continue on A468 to Penrhos roundabout	3.30
23	Continue, plough A468 (Mountain Road) to the county boundary With Cardiff CC at Travellers Rest	3.54
24	Turn the vehicle.	
25	Return ploughing back along the A468 to Cedar Tree roundabout via Penrhos roundabout	3.54
26	At Cedar Tree roundabout take exit 5 to Pontygwindy Road	
27	Continue on Pontygwindy Road to Piccadilly traffic signals	1.90
28	At traffic signals, complete a loop of Ton Y Felin and take B4623 to Mountain Road	
29	Continue on the B4623 Mountain Road to its junction with the A469	2.58
30	U-Turn	
31	Take B4623 Mountain road back to Caerphilly town centre.	
32	Continue through Cardiff road to Piccadilly traffic signals.	2.42
33	Turn right onto B4600 Bedwas Road.	
34	Continue on B4600 Bedwas road to Crossways roundabout.	1.45
35	Return to depot	1.29
	Total	45.85



**Strategic Ploughing Routes P1 – P8.**





## **Appendix G.**

### **Footbridge Locations.**

#### Area 1

- A4049, Tirphil Square.
- A4049, White Rose Primary School, New Tredegar.
- Over railway, Brithdir to White Rose Primary School, New Tredegar.
- Over river, Pontlloftyn to Rhydney Comprehensive School.

#### Area 4

- A467, Old Swan Inn, Abercarn.
- A467, High Meadow, Abercarn. (2 number)
- Calzaghe Footbridge, Newbridge.

#### Area 5

- A468, Treceenydd, Caerphilly.

#### Area 7

- A468, Court Road, Energlyn.
- Groeswen Road, Hendredenny.

**Appendix H.**

**Contact Details.**

This Appendix is intentionally blank.

## Appendix I.

### Social Service Locations.

<b>SOCIAL SERVICES</b>	
<b>OFFICES</b>	
Bargoed	Ty Gilfach
Blackwood	Woodfieldside
Caerphilly, Mill Road Office	Mill Road
Caerphilly SS Facilities	Ty Pontygwindy
Oakdale	Foxes Lane
<b>RESIDENTIAL ACCOMMODATION</b>	
Beatrice Webb HFE, Blackwood	Bloomfield Road, Blackwood, NP12 1QB
Brodawel HFE, Caerphilly	Court Road, Energlyn, Caerphilly, CF83 2QW
Castle View HFE, Caerphilly	Claude Road, Caerphilly, CF83 1UZ
Hengoed Group Home	14 Graig Road, Hengoed, CF82 7SJ
Ty Ni	Caledfryn Way, Penyrheol, Caerphilly.
Min-y-Mynydd HFE, Rhymney	Eglwys Fan, Hill Street, Rhymney, NP22 5JJ
Montclair Avenue Residential Home	65, Montclair Avenue, Blackwood, NP2 1EF
Ty Clyd HFE, Bargoed	Heol Fargoed, Bargoed, CF81 8PP
Ty Clyd bungalow - CHAD	Heol Fargoed, Bargoed, CF81 8PP
Ty Iscoed HFE,	Woodland Drive, Newbridge, NP1 5FQ
Ty Gwilym Residential Home, Caerphilly	Court Road, Energlyn, Caerphilly, CF83 2LU
<b>DAY/FAMILY CENTRES</b>	
Brondeg Day Centre, Blackwood	Bloomfield Road, Blackwood, NP12 1QB
Brooklands Risca Adult Day Centre, Risca	Brooklands Road, Risca, NP1 6BU
Brooklands Risca Family Centre	Brooklands Road, Risca, NP1 6BU
Energlyn Day Centre	Court Road, Energlyn, Caerphilly, CF83 2QW
Markham Resource Unit	Pantycfefn Road, Markham, NP2 0RX
Springfield Adult Day Centre,	Glanynant, Pengam, NP12 3XG
Ystrad Mynach Day Care Centre	Caerphilly Road, Ystrad Mynach, CF82 7EP

## Appendix J.

### Major / Minor Shopping Areas.

<u>Major Shopping Centres</u>	<u>No. of Staff Req</u>	<u>Minor Shopping Centres</u>	<u>No. of Staff Req</u>
Bargoed	8	Aberbargoed	2
Bedwas	8	Abercarn	2
Blackwood	8	Abertridwr	2
Caerphilly	8	Cefn Fforest	2
Nelson	4	Cross Keys	2
Newbridge	8	Crumlin	2
Rhymney	4	Cwmfelinfach	2
Risca	8	Deri	2
Ystrad Mynach	8	Fleur-De-Lys	2
	<b><u>64</u></b>	Fochriw	2
		Gelligaer	2
		Glan-Y-Nant	2
		Graig-Y-Rhacca	2
		Lansbury Park	2
		Llanbradach	2
		Maesycwmmmer	2
		Markham	2
		New Tredegar	2
		Oakdale	2
		Pantside	2
		Penllwyn	2
		Penpedairheol	2
		Pentwynmawr	2
		Pontlottyn	2
		Senghenydd	2
		Trethomas	2
		Trinant	2
		Ty-Sign	2
			<b><u>56</u></b>

## Appendix K.

### Doctors Surgeries.

Area	Name	Address	Town.
1	Lawn Medical Practice	Lawn Industrial Est.	Rhymney
1	Meddygfa Cwm Rhymni Practice (Victoria Surgery)	Lawn Industrial Est.	Rhymney
1	Pontlottyn Surgery	Stuart Street	Pontlottyn
1	Meddygfa Cwm Rhymni Practice (New Tredegar Surgery)	White Rose Way	New Tredegar
2	Avicenna Medical Centre	Blackwood Road	Pontllanfraith
2	Pontllanfraith Health Centre	Blackwood Road	Pontllanfraith
2	Sunnybank Health Centre	Bryn Road	Cefn Fforest
2	Markham Medical Centre	James Street	Markham
3	Bargoed Hall Family Health Centre	Cardiff Road	Bargoed
3	Gilfach Surgery	Cardiff Road	Bargoed
3	Oldway House Health Centre	Gilfach Street	Bargoed
3	Meddygfa Gelligaer Surgery	Heol Hen Ysgol	Gelligaer
3	Meddygfa Cwm Rhymni Practice (Deri Surgery)	Riverside Walk	Deri
3	South Street Surgery	South Street	Bargoed
3	Bryntirion Surgery	West Street	Bargoed
4	North Celyn Practice (Newbridge)	Ashfield Road	Newbridge
4	North Celyn Practice (Crumlin)	Crown Street	Crumlin
4	Oakdale Medical Centre	The Square	Oakdale
5	Troedybryn Surgery	16, Shopping Parade	Caerphilly
5	Nantgarw Road Medical Centre	4, Beddau Way	Caerphilly
5	Castle View Surgery	6, Cae Meillion	Caerphilly
5	Ton-Y-Felin Medical Centre	Bedwas Road	Caerphilly
5	Court House Medical Practice	Heol Bro Wen	Caerphilly
5	Lansbury Surgery	Wedgewood Court	Caerphilly
6	St Lukes Surgery	Gwyddon Road	Abercarn
6	Wellspring Medical Centre	Park Road	Risca
6	Risca Surgery	St Mary's Street	Risca
7	Aber Medical Practice	30, Thomas Street	Abertridwr
7	Clinic Premises	Bryncelyn	Nelson
7	Senghenyd Health Centre	Parc Place	Senghenydd
8	Pengam Health Centre	Glan Yr Afon Lane	Fleur-De-Lys
8	Castell Clinic	Stanley Street	Cwmfelinfach
9	Ystrad Mynach Health and Education Centre	16, Bedwlwyn Road	Ystrad Mynach
9	The Village Surgery	2-3 Lewis Terrace	Llanbradach
9	Graig-Y-Rhacca Surgery	59-71 Greys Gardens	Machen
9	Bedwas Surgery	East Avenue	Bedwas
9	Oakfield Surgery	Oakfield Street	Ystrad Mynach
9	Llan Aber Practice	Rear of Church Street	Llanbradach
9	Ty Bryn Surgery	The Bryn	Trethomas
9	Machen Surgery	The Crescent	Machen

## Appendix L.

### School Locations.

<b>Area</b>	<b>SCHOOLS</b>
1	Bryn Awel Primary - Eglwys Fan, Rhymney, NP22 5JJ
1	Fochriw Primary - Pontlottyn Road, Fochriw, CF81 9LL
1	Phillipstown Primary - Cefn Rhychdir Road, Phillipstown, NP24 6XE
1	Idris Davies 3-18 - Mill Field, Abertysswg, NP22 5XF
1	Upper Rhymney Primary - Oakland Terrace, Rhymney, NP22 5EP
1	White Rose Primary - School Street, Elliotstown, NP24 6DW
1	Ysgol y Lawnt - Surgery Hill, Station Road, Rhymney, NP22 5LS
2	Blackwood Comprehensive - Ty Isha Terrace, Blackwood. NP12 1ER
2	Blackwood Primary - Apollo Way, Blackwood. NP12 1WA
2	Bryn Primary - Forest Hill, The Bryn, Pontllanfraith, NP12 2PL
2	Cefn Fforest Primary - Cefn Fforest Avenue, Cefn Fforest, NP12 3JX
2	Libanus Primary - Libanus Road, Blackwood, NP12 1EH
2	Markham Primary - Pantycefn Road, Markham, NP12 0QD
2	Pontllanfraith Primary - Penmaen Road, Pontllanfraith, NP12 2DN
2	Penllwyn Primary - Fleur De Lys Avenue, Pontllanfraith, NP12 2NT
3	Aberbargoed Primary School. - Heol Ysgol Newydd, Aberbargoed. CF81 9DD
3	Deri Primary - Glynmarch Street, Deri, CF81 9HZ
3	Gilfach Fargoed Primary - Vere Street, Gilfach, Bargoed, CF81 8LB
3	Glyngaer Primary - Oxford Street, Glyngaer, Gelligaer, CF82 8FF
3	Greenhill Primary - Penywrlod, Gelligaer, CF82 8EU
3	Heolddu Comprehensive - Mountain Road, Bargoed, CF81 8XL
3	Lewis School Pengam - Gilfach, Bargoed, CF81 8LJ
3	Park Primary - Park Crecent, Bargoed, CF81 8PN
3	St Gwladys Bargoed School - Church Place, Bargoed, CF81 8RN
3	Ysgol Bro Sannan - Ty Fry Road, Aberbargoed, CF81 9FN
3	Ysgol Gymraeg Gilfach Fargoed - Commercial Street, Gilfach, Bargoed, CF81 8JG
4	Crumlin High Level Primary - Commercial Road, Crumlin, NP11 4PX
4	Newbridge Comprehensive - Bridge Street, Newbridge, NP11 5FE
4	Oakdale Comprehensive - Penmaen Road, Blackwood, NP12 0DT
4	Pantside Primary - Old Pant Road, Newbridge, NP11 5DE
4	Pentwynmawr Primary - Tonypistill Road, Newbridge, NP11 4HJ
4	Tynewydd Primary - Greenfields, Newbridge, NP11 4QZ
4	Trinant Primary - Conway Road, Pentwyn, Crumlin, NP1 4JN

4	Ysgol Gymraeg Cwm Derwen - Beech Grove, Oakdale, NP12 0JL
4	Ysgol Gymraeg Trelyn - Commercial Street, Pengam, NP12 3ST
4	Rhiw-Syr-Dafydd Primary - Maes y Garn Road, Oakdale, NP12 0NA
5	Cwrt Rawlin Primary - Cae Meillion, Caerphilly, CF83 1SN
5	Plasyfelin Primary - Lewis Drive, Churchill Park, Caerphilly, CF83 3FT
5	Rhydri Primary - Rudry, Caerphilly, CF83 3DF
5	St Cenydd Comprehensive - St Cenydd Road, Trecenydd, Caerphilly, CF83 2RP
5	St Helens Catholic Primary - Lansbury Park, Caerphilly, CF83 1QH
5	St James' Primary School - Lansbury Park, Caerphilly, CF83 1QH
5	St Martins Comprehensive - Hillside, Caerphilly, CF83 1UW
5	The Twyn School - East View, Caerphilly, CF83 1UT
5	Ysgol Gynradd Gymraeg Y Castell - Crescent Road, Caerphilly, CF83 1WH
5	Ysgol Gynradd Gymraeg Caerffili - Parcfelin Street, Caerphilly, CF83 3AH
6	Abercarn Primary - Chapel of Ease, Abercarn. NP11 5LH
6	Cwmcarn Primary - Newport Road, Cwmcarn, NP11 7LZ
6	Risca Comprehensive - Pontymason Lane, Rogerstone, NP11 6YY
6	Risca Primary - Danygraig Road, Risca, NP11 6DB
6	Ty Isaf Infants - Mill Street, Risca, NP11 6EF
6	Ty Sign Primary - Elm Drive, Risca, NP11 6HJ
6	Ysgol Gymraeg Cwm Gwyddon - Gwyddon Road, Abercarn, NP11 6GX
6	Waunfawr Primary - Waunfawr Road, Cross Keys, NP11 7PG
7	Cwm lfor Primary - Heol Aneurin, Penyrheol, Caerphilly, CF83 2PG
7	Cwmaber Infants - Bryngelli Terrace, Abertirdwr, CF83 4FF
7	Cwmaber Junior - Brynhafod Road, Abertridwr, CF83 4BH
7	Hendre Infants - St Cenydd Road, Trecenydd, Caerphilly, CF83 2RP
7	Hendre Junior - St Cenydd Road, Trecenydd, Caerphilly, CF83 2RP
7	Hendredenny Park Primary, White Cross Lane, Hendredenny, Caerphilly, CF83 2RL
7	Llancaeath Junior - Commercial Street, Nelson, CF46 6NF
7	Llanfabon Infants - Bryncelyn Avenue, Nelson, CF46 6HL
7	Nant y Parc Primary - Universal Site, Senghenydd, CF83 4GL
7	Ysgol lfor Bach - Upper Brynhyfryd Terrace, Senghenydd, CF83 4GL
8	Cwmfelinfach Primary - King Street, Cwmfelinfach, NP11 7HL
8	Derwendeg Primary - Hengoed Road, Cefn Hengoed, CF82 7HP
8	Fleur-de-Lys Primary - School Street, Fleur-de-Lys, NP12 3UX
8	Hengoed Primary - Chapel Terrace, Hengoed, CF82 7JU
8	Maesycwmmmer Primary - Tabor Road, Maesycwmmmer, CF82 7PU
8	Pengam Primary - Commercial Street, Pengam, NP12 3ST
8	Tir-Y-Berth Primary - New Road, Tir-Y-Berth, Hengoed, CF82 8AU
8	Ynysddu Primary - High Street, Ynysddu, NP11 7HL



8	Ysgol Gyfun Cwm Rhymni - Fleur De Lys, Blackwood, NP12 3JQ
8	Ysgol Gymraeg Bro Allta - Central Street, Ystrad Mynach, CF82 7XQ
8	Ysgol Penalltau – Cwm Calon Road, Hengoed, CF82 7QX
8	The Learning Centre – Hanbury Street, Glan y Nant, NP12 3XP
9	Bedwas High School - Newport Road, Bedwas. CF83 8BJ
9	Bedwas Infants - St Mary's Street, Bedwas. CF83 8EE
9	Bedwas Junior - Church Street, Bedwas. CF83 8EB
9	Coed Y Brain Primary - School Street, Llanbradach, CF83 3LD
9	Cwm Glas Infants - Pant Glas, Llanbradach, CF83 3PD
9	Graig y Rhacca Primary and Nursery Community School - Machen, CF83 8WW
9	Lewis Girls Comprehensive - Oakfield Street, Ystrad Mynach, CF82 7WW
9	Machen Primary - Commercial Road, Machen, CF83 8NA
9	Trinity Fields Special School - Caerphilly Road, Ystrad Mynach, CF82 7DT
9	Tyn-Y-Wern Primary - Heol yr Ysgol, Trethomas, CF83 3BR
9	Ystrad Mynach Primary - Lewis Street, Ystrad Mynach, CF82 7AQ

## **Appendix M.**

### **Fire / Ambulance Station Locations.**

#### **Fire Stations.**

<b>Area</b>	<b>Name</b>	<b>Address</b>	<b>Post Code</b>
1	Rhymney	Havards Row.	NP22 5PA
3	Aberbargoed	Angel Way	CF81 9FX
4	Abercarn	Darran Drive	NP11 5AR
5	Caerphilly	Waunfach Street.	CF83 3HL
6	Risca	New Park Road	NP11 7AE

#### **Ambulance Stations.**

<b>Area</b>	<b>Name</b>	<b>Address</b>	<b>Post Code</b>
2	Blackwood	Lon Pennant	NP12 1YR
3	Bargoed	Bedwellty Road	CF81 9AW
5	Caerphilly	Waunfach Street	CF83 3HL

## Appendix N.

### Weather Forecast. (example)



Forecast for Over 275m Domain

March 4, 2018

Caerphilly

Forecaster: Paul Knightley

Further spells of sunshine this afternoon along with a scattering of showers. These could be heavy with the odd rumble of thunder. Feeling milder.

Tonight will see clear intervals and variable cloud amounts with the continued chance of a few showers, although perhaps generally dry for a time around the middle of the night.

Any early brightness will fade tomorrow with isolated showers giving way to longer spells of rain. The rain could turn heavy in places.

RSTs dropping away tonight under any clear spells - see tables for details. Confidence is low on cloud amounts and this will affect RSTs.

Tuesday, Wednesday and Thursday will see the mild days continue but it will be chilly at night. Tuesday will have sunny spells and just a few showers but more persistent rain may move through for a time overnight. Wednesday will have sunshine and showers, some of which could be heavy. Wednesday night, Thursday and Thursday night will see the showery conditions continue.

The latter part of the coming week and the early part of the following week are likely to be unsettled at times. Bands of rain will spread from the south-west at times, occasionally heavy, albeit with some drier and brighter periods too. It is likely to be noticeably milder than recently although one or two night frosts can still be expected.

36 hours

	Sun, 4		Mon, 5																Tue, 6																					
	22	23	00	01	02	03	04	05	06	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				
Over 275m Domain																																								
Road surface temp (°C)	0.3	0.7	0.8	0.7	0.3	0.3	0.6	0.4	0.0	0.7	2.1	3.4	4.2	4.8	5.3	5.6	5.4	5.0	4.4	3.5	2.8	2.1	1.6	1.3	1.0	0.6	0.7	1.2	1.4	1.5	1.6	2.0	2.6	3.4						
Snowfall (cm)	0.0																																							
Snowfall sum (cm)	0.0																																							
Freezing rain (mm)	0.2	0.0	0.2	0.2	0.1	0.0																																		
Air temperature (°C)	2.5	2.4	2.2	1.9	1.7	1.4	1.3	1.4	1.7	2.4	2.7	3.3	3.9	4.4	4.7	4.5	4.2	4.0	3.4	2.6	2.3	2.0	1.8	1.6	1.5	1.6	1.7	1.8	1.7	1.8	2.0	2.5	3.1							
Relative humidity (%)	100	99	99	99	100	100	98	97	96	94	92	90	92	96	98	99	99	98	99	100	99	97	94	90	90	99	98	99	100	99	97	94	90							
Precipitation (mm)	0.2	0.4	0.3	0.2	0.2	0.1	0.2	<0.1	0.2	0.4	0.3	0.8	1.0	0.9	1.4	0.9	0.1	<0.1	0.0																					
Precipitation max (mm)	0.3	0.5	0.2	0.3	0.2	0.3	0.1	0.2	0.5	0.6	0.5	0.4	1.1	1.5	1.3	1.4	2.1	1.4	0.1	0.0																				
Precipitation probability (%)	100	85	80	25	20	30	35	40	45	50	45	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50						
Precipitation sum (mm)	0.2	0.5	0.6	0.8	0.9	1.0	1.2	1.3	1.5	1.6	1.7	1.9	2.2	2.6	2.9	3.2	3.4	4.2	5.2	6.0	6.9	8.3	9.3	9.4	0.0															
Wind speed (mph)	4.6	6.9	7.5	8.1	8.6	8.1	8.6	9.8	9.2	8.6	8.1	6.9	6.3	5.2	4.6	4.0	4.6	5.2	5.8	0.0																				
Rhymney																																								
Markham																																								

Legend: Freezing Rain Snow Black Ice Hoar Frost Ice Pellets Condensation Wet Sleet Hail Rain Drizzle Fog  
 Road surface condition: Safe Wet Caution Close to hazard Hazard Major hazard

## Appendix O.

### Fleet Details.

#### Front Line vehicles.

<b>ROUTE</b>	<b>VEHICLE</b>	<b>REG. NO.</b>	<b>FLEET NO.</b>	<b>DEPOT</b>	<b>CAPACITY</b>
1	DAF	CE19 GHN	9235	PENMAEN	6 m <sup>3</sup>
2	DAF	CE19 GHK	9236	PENMAEN	6 m <sup>3</sup>
3	DAF	CA19 LZV	9237	PENMAEN	6 m <sup>3</sup>
4	DAF	CA19 LZX	9238	PENMAEN	6 m <sup>3</sup>
5	DAF	CA19 LZW	9239	PENMAEN	6 m <sup>3</sup>
6	DAF	CE69 CCK	9240	PENMAEN	6 m <sup>3</sup>
7	DAF	CE69 CCN	9241	BEDWAS	6 m <sup>3</sup>
8	DAF	CE69 CCO	9242	BEDWAS	6 m <sup>3</sup>

#### Reserve / Backup Vehicles.

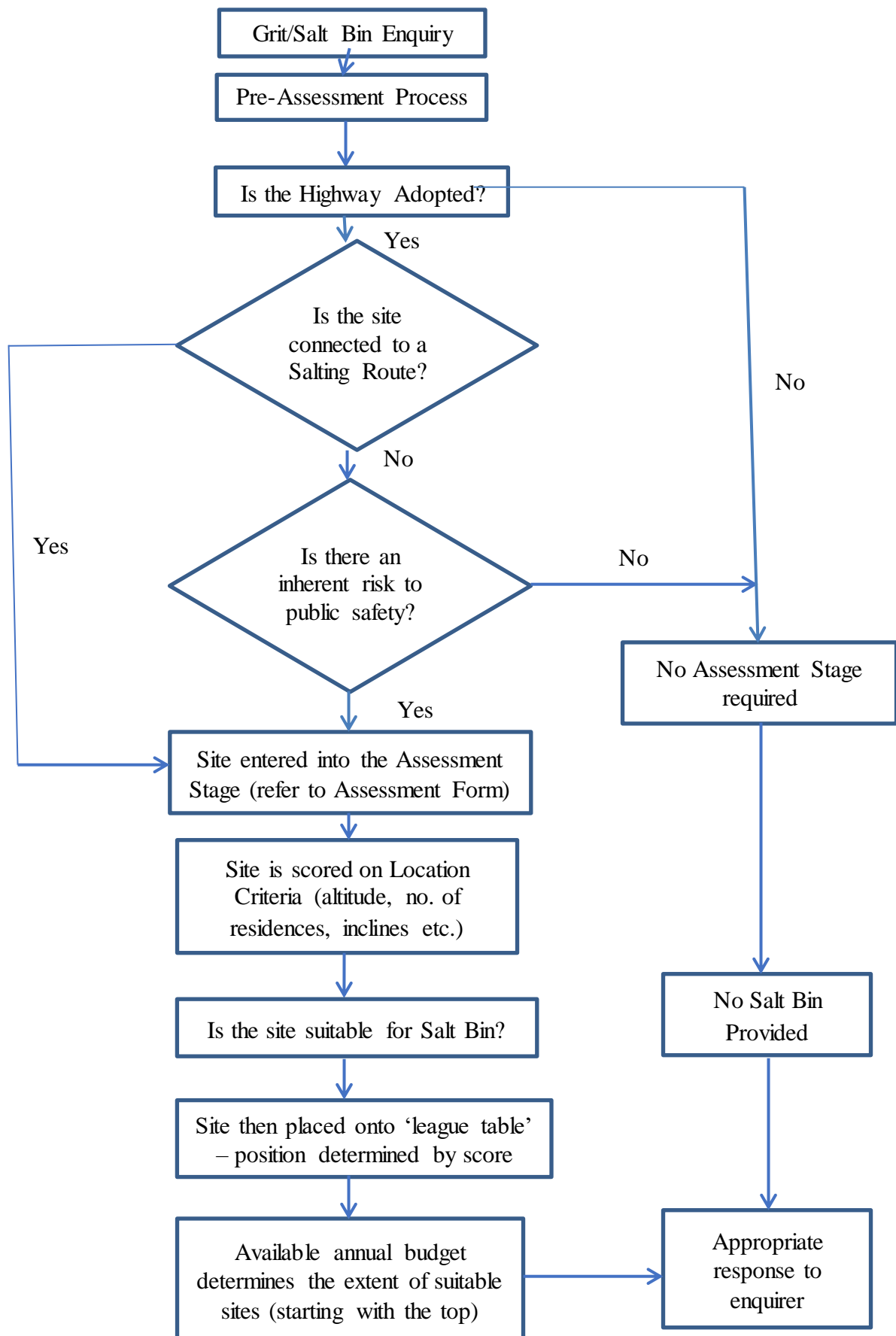
<b>ROUTE</b>	<b>VEHICLE</b>	<b>REG. NO.</b>	<b>FLEET NO.</b>	<b>DEPOT</b>	<b>CAPACITY</b>
N/A	DAF	CE72 FMM		PENMAEN	6 m <sup>3</sup>
N/A	DAF	CE72 FMO		PENMAEN	6 m <sup>3</sup>
N/A	DAF	CE72 FMP		PENMAEN	6 m <sup>3</sup>
N/A	Mercedes	CE63 KZY	9233	BEDWAS	6 m <sup>3</sup>
N/A	Mercedes	CN63 BYG	9234	PENMAEN	6 m <sup>3</sup>

#### Additional Vehicles.

<b>ROUTE</b>	<b>VEHICLE</b>	<b>REG. NO.</b>	<b>FLEET NO.</b>	<b>DEPOT</b>	<b>CAPACITY</b>
N/A	IVECO	T.B.C.	N/A	BEDWAS	1.5 m <sup>3</sup>
N/A	IVECO	T.B.C.	N/A	BEDWAS	1.5 m <sup>3</sup>
N/A	IVECO	T.B.C.	N/A	PENMAEN	1.5 m <sup>3</sup>
N/A	IVECO	T.B.C.	N/A	PENMAEN	1.5 m <sup>3</sup>
N/A	IVECO	T.B.C.	N/A	PENMAEN	1.5 m <sup>3</sup>
N/A	IVECO	T.B.C.	N/A	PENMAEN	1.5 m <sup>3</sup>
N/A	TOYOTA	CP68 BTX	N/A	PENMAEN	N/A
N/A	TOYOTA	CP68 BKE	N/A	PENMAEN	N/A
N/A	TOYOTA	CP68 BNB	N/A	BEDWAS	N/A

**Appendix P.**

**Salt Bins - Decision Flow Chart.**



## Grit/Salt Bin Assessment Form.

<b>Location Details</b>			
<b>Proposed Placement Details</b>			
Is location connecting directly onto an existing salt route?	Yes	No	Details
Is there a risk to public safety?	Yes	No	Details
<b>Assessment Criteria</b> (use this if Yes to connecting onto a Salting Route or Risk to Public safety)			
<b>Criteria</b>	<b>Score / Points</b>		<b>Details</b>
Altitude			
Number of residences affected			
Highway Gradient (1 point per degree of gradient)			
Specific circumstances for this location. (nearby school / doctor`s surgery, residential care home Dialysis patients etc.)			
Total			

Assessment Officer .....

Date .....

## **Form Explanations.**

Risk to Public Safety – inherent risks at this location such as high trafficked roads/ footpaths, presence of vulnerable adults / children, exposed to the elements, predominantly in the shade (especially in the mornings) etc.

The scoring is as follows for each criteria:

### **Altitude.**

**For every 10m altitude, 1 point.**

*e.g.*

**151m = 15 points**

**249m = 24 points**

**310m = 31 points**

### **Number of properties affected.**

- 5 points if serving a single property,
- 10 points if serving a street
- 15 points if serving a whole estate.

### **Gradient of slope.**

**1% incline = 1 point.**

### **Specific Circumstances.**

0 – 10 - These are judged on a case by case basis, e.g. locations in shade, junctions, school crossings; as well as the siting of schools, hospitals, residential homes etc.

### **Weighting.**

Each score is taken as set out, any weighting has already been considered in the existing figure range.



## **Appendix Q.**

Document Distribution List.

The Winter Service Plan will only be distributed via email to the following recipients:-

Director of Communities – Mark S Williams.  
Head of Infrastructure – Marcus Lloyd.  
Engineering Group Manager – Chris Adams.  
Highway Services Manager – Gareth Richards.  
Network Contracting Manager – Joe Williams.  
Drainage and SAB Manager – Mark Goodger  
Highway Operations Manager – Gavin Barry.  
Senior Engineer – Tom Llewelyn.  
Senior Engineer – Vicky Conlon.  
Senior Assistant Engineer – Dean Clarke.  
Senior Assistant Engineer – David Haines  
Senior Assistant Engineer – Max Nebe.  
Senior Assistant Engineer – Ian Shephard.  
Assistant Engineer – Lloyd Jones.  
Assistant Engineer – Julie Gambold  
Assistant Engineer – Gwyn Voyle.  
Senior Supervisor – Andrew Gould.  
Supervisor – Paul Roberts.  
Supervisor – Darren Jones.  
Assistant Supervisor – Carl Hall  
Emergency Planning Officer – Ian John Martin.  
Environmental Services – C/O Hayley Jones.  
Customer Care Unit – C/O Dale Hammond.  
Insurance and Risk/St. Pauls Insurers C/O Rachana Bennett @ Ystrad Fawr.  
Out of Hours Control Room at Tir-Y-Berth – C/O Carl Nesling.  
All elected members.

Further to the above, the following recipients are advised that the Winter Service Plan is available to view online on the Caerphilly County Borough Council web pages at the following location.

[Link to Winter service plan](#)

Chief Engineer, Rhondda, Cynon, Taff, County Borough Council.  
Director of Engineering, Blaenau Gwent, County Borough Council.  
Head of Environmental Services, Torfaen County Borough Council.  
Chief Engineer, Newport City Council.  
Engineering Manager, Merthyr Tydfil County Borough Council.  
Chief Engineer, City of Cardiff Council.  
Chief Constable, Gwent Police.  
Chief Fire Officer.  
Chief Ambulance Officer.  
Meteorological Contractor.  
National Farmers Union.  
Farmers Union of Wales.

Aber Valley Community Council.  
Argoed Community Council.  
Bargoed Community Council.  
Bedwas, Trethomas and Machen Community Council.  
Blackwood Community Council.  
Caerphilly Community Council.  
Darran Valley Community Council.  
Gelligaer Community Council.  
Llanbradach Community Council.  
Maesycwmmmer Community Council.  
New Tredegar Community Council.  
Nelson Community Council.  
Penyrheol, Trecenydd and Energlyn Community Council.  
Rhymney Community Council.  
Rudry Community Council .  
Van Community Council.  
Sirhowy Enterprise Way Limited.  
Sirhowy Enterprise Way CCBC Nominee.

**Appendix R.**

**Document Amendment Record.**

- Amendment Record.

AMENDMENT		DISCARD		INSERT	
NO.	DATE	PAGE(S)	ISSUE NO.	PAGE(S)	ISSUE NO.
Version 1	1/10/ 2010	ALL		ALL	
Version 2	1/10/ 2011	ALL		ALL	
Version 3	1/10/ 2012	ALL		ALL	
Version 4	1/10/ 2013	ALL		ALL	
Version 5	1/10/ 2014	ALL		ALL	
Version 6	1/10/ 2015	Removal of 9 salting routes (Appx A)		Retracing of 8 salting routes (Appx A)	
Version 7	1/10/ 2016	All		Additional matrix and flow chart – salt bin assessment (Appx M)	
Version 8	1/10/2017	All		Efficiency upgrades to gritting routes	
Version 9	1/10/2018	All		Information updates.	
Version 10	1/11/2018	All		Route and information updates.	
Version 11	1/11/2019	All		Information updates.	
Version 12	1/10/2019	All		Information updates.	
Version 13	1/10/2020	All		Information updates.	
Version 14	1/10/2021	All		Information updates Additional routes M1 and M2.	
Version 15	1/10/2022	All		Information updates.	
Version 16	1/10/2023	All		Information updates.	

