

## **APPENDIX 6 – SUMMARY OF 2023/24 WEATHER CONDITIONS**

### OCTOBER 2023

The month was generally mild with multiple weather fronts passing over the area, bringing persistent rain for long periods. There were also significant intense rain events early in the month. However clear spells developed each week from mid-month onwards, with forecasts indicating marginal sub-zero RSTs, confirmed in observations.

The first week of October was mild with steady levels of rain fall leading up to a 48hr period over the 7th / 8th Oct, where the 24hr rainfall figures were reputed to be the highest on record. Total rainfall figures for the 48hrs period of 150mm -180mm were recorded at A816 Salachary, A886 Leanach and A83 Rest and Be Thankful weather stations. The weather front was slow moving and this caused large accumulations over the 48hrs period. The rainfall affected the whole of the Council area and associated flooding from watercourses caused considerable damage throughout the whole of the road network.

Weather fronts continued to pass over the area in the following weeks, however the intense rainfall and flooding disruption affected areas, generally in North and East of Argyll, whilst it was mainly close to typical rainfall figures in subsequent storm events over the following three weeks to the end of October. Each week saw short periods of clear skies. Where these developed overnight, RSTs dropped close to or below zero for short durations before recovering at sunrise. Generally minimum RSTs remained in double figures through to 14th Oct before the short term weekly clearances gave marginal readings on road sensors, mainly with the coldest temperature just before sunrise. Leanach and Haul Rd recorded Zero to Minus 0.1C on 15th Oct. with Minus 0.1C Accurrach to Minus 0.8C Leanach on 17th , there were further marginal sub-zero dips recorded at Leanach on 23rd and 25th , and again on 31st where a clearance in North Argyll resulted in Minus 1.1C at Accurrach and Minus 0.4 C at Blaran and Dervaig sensors.

### NOVEMBER 2023

A further localised dip in RSTs occurred on 2nd Nov in the run up to official standby commencing on Fri 3rd Nov, with Minus 0.1C Leanach and Minus 0.2C Blaran. The weather pattern continued to be mainly weather fronts bringing mild air and rain, heavy at times , through to 11th November were a brief clear sunny day led to a cold night into Sunday 12th . Rural sites recorded a range of sub-zero RSTs from Minus 0.3 C to Minus 3.5 C on Saturday morning and again Minus 1C to Minus 3.9C on the morning of Remembrance Sunday. Milder conditions returned with rain, heavy at times and foggy conditions as temperatures remained around Plus 5 to 8 Deg C through to 20th Nov. A clearance overnight in the north of the area resulted in RSTs of Minus 0.4C Accurrach , Minus 0.8C Blaran . Minus 1.4C Salachary and Minus 1.6C Leanach. Temperatures again returned to double figure minima at some sites overnight until the first sustained period of cold conditions developed from Friday 24th Nov. Initially only affecting Lomond, with Haul Rd recording Minus 0.4C on the

morning of 24th, a widespread frost developed overnight into Sat 25th, with the exception of island sensors which stayed marginally positive. RSTs ranged from Minus 1.5C Miller Rd Oban to Minus 2.7C East Argyle St Helensburgh for urban sites, with Rural sites dropping to Minus 1.6C Stewarton-Kintyre to Minus 5.1C Blaran-Lorn and Minus 5.8C Leanach-Cowal. A similar range in location and temperatures was recorded on Sunday morning 26th before cloud cover allowed for a partial improvement, with North and East sensors recording sub-zero RSTs on the morning of Mon 27th, Haul Rd Minus 0.4C to Blaran Minus 2.0 C. The wider freeze conditions developed again from Tue 28th, Hoar Frost and ice developed in all areas with RSTs ranging from Minus 0.5C Dunoon and Dervaig through to Minus 3.7C Blaran and Minus 3.9C Salachary. The deepening freeze developed further on Wed 29th with the lowest recorded RSTs Minus 7.4C Leanach and Minus 7.9C at Blaran and Salachary. Shaded areas stayed below freezing all day, with some sensor sites confirming this with a Maximum RST of Minus 2.5C at 13:00hrs on 29th at Leanach, dropping to Minus 7.1C at 01:10hrs 30th before recovering in mixed cloud cover to Minus 3.1C by around 07:00hrs 30th.

The core depth temperatures of the carriageway dropped significantly and unseasonably early, during the month. Core temperatures were generally PLUS 7.0C to 7.2C on 1st Nov but dropped to between Zero and Plus 0.5C by 30th, which means there is little if any core depth temperature assisting in any surface thawing process during daylight hours. Although the temperatures continued to drop sub-zero from late afternoon onwards, there was very little precipitation in the final week of the month, allowing road surfaces to remain dry and run off locations to reduce, as water remained frozen. The outlook for the first week of December remained that of cold and dry conditions with hoar frosts and ice. Forecasts predicted marginal positive RSTs for a very short time after midday, with some inland and northern domains predicted as 24hrs sub-zero.

### DECEMBER 2023

The sustained period of dry, clear conditions with Hoar Frost and Ice, which developed late November, continued into the first week of December. Cloud cover on the morning of 1st Dec, had little effect on overall temperatures but did introduce light showers of sleet to Kintyre and Islay mainly and other areas briefly. Minimum RSTs remained sub-zero all day in the coldest sensor locations and likely in other shaded areas and frost hollows, with minimum temperatures generally around dawn each morning. Lows in the range Minus 5.5C to Minus 7.4C on 1st Dec. and again on 6th Dec, with a degree milder on some days between, at the mainland northern sites of A886 Leanach, A816 Blaran and Salachary and A819 Accurrach, with other sites all recording sub-zero RSTs for a while each night. Throughout the whole of this period since late November, precipitation was mainly Hoar Frost with the occasional sleet shower, but throughout, even the highest peaks in Argyll remained free of snow. Cloud cover developed during Thu 7th Dec with only the colder sites reaching sub-zero RSTs that evening before a general thaw over the whole area into Fri 8th Dec.

Milder conditions with heavy rain in weather fronts passed over the area from 8th December. Conditions returned to wet and mild with minimum overnight temperatures in the range Plus 2 to Plus 5 Deg C . The increase in rainfall resulted in localised flooding and debris wash out on parts of the network. Colder conditions returned again on Mon 11th Dec where clear skies allowed a widespread frost to develop, with minimum RSTs recorded, Minus 4.4C at Leanach and Salachary, Minus 3.9C Blaran and Minus 3.1C Accurrach. Subzero RSTs persisted in to Monday evening but Tuesday 12th was milder Plus 3 to 4 C minimum, before a sharp frost developed again during the early hours of Wed 13th with RSTs in the range Minus 0.5C Haul Rd to Minus 4.3C Salachary. Sub-zero RSTs returned in the north of the area overnight to 15th Dec before milder air moved into the area and a series of weather fronts brought strong winds and persistent rain. Overnight temperatures increased to between Plus 7C and Plus 11C through to 24th December.

There was a very brief dip in RSTs in a partial clearance early on Christmas morning but it was on Boxing Day Dec 26th that RSTs fell more widely, with minimum sub-zero RSTs in the range Minus 3.2 C to Minus 1 C. These RSTs returned again in the evening and lingered into early Dec 27th in the northern mainland domains, where showers were wintry in nature at times. These mixed conditions, with fluctuating temperatures and heavy showers continued through 28th December. A further clearance on 29th December allowed overnight temperatures to fall to Minus 6.1C Salachray, Minus 6.0C Leanach and Minus 5.6 C Blaran with a significant frost at all sensors on the morning of 30th. Although cloud cover allowed temperatures to rise from 03:00hrs, wintry showers developed over the area from mid-morning onwards. These showers persisted for a while giving light accumulations before largely turning to rain by the afternoon, as temperatures improved. All sensors recorded positive RSTs by 18:00hrs with values of between Plus 2.5C and plus 6C by 08:00hrs on 31st. Leanach , Blaran and Accurrach fell sub-zero again in the evening but improved to positive RSTs by mid-night , Hogmanay.

## JANUARY 2024

New Year's Day, Jan 1st was generally dry and clear, allowing RSTs to dip again at dawn to produce marginal sub-zero RSTs at Leanach, Salachray, Blaran and Accurrach before improving for a while. Dips to marginal sub-zero RSTs returned in the evening and overnight in fluctuating conditions due to variable cloud cover, before milder conditions with heavy and persistent rain took hold from dawn on Tuesday 2nd until Friday 5th.

Clearer colder weather started to develop from Saturday 6th January with all rural sensors registering sub-zero RSTs of between Minus 0.2C Ballygrant and Minus 4.3C Salachray The low temperatures continued to spread in area and duration over the next days , with most inland sensors recording 24hrs sub-zero RSTs. This

culminated on 12th, where the “warmest” RST recorded at Leanach was Minus 3.5Deg C at 13:00hrs. Milder conditions, due to cloud and fog affected western and island domains on the morning of Friday 12th Jan. however the coldest RSTs of the period were recorded around mid-night at Minus 8.1C, before improving to Minus 2.1 C by 08:00hrs in thickening cloud cover.

Temperatures fluctuated over the weekend 13th / 14th as cloud cover varied. On Tuesday 16th a short duration band of Snow passed eastwards over the area, giving light accumulations before turning to rain, clearing to a further freeze overnight. Temperatures continued to drop until overnight 18th into 19th, where the lowest temperature of the winter so far, Minus 11.1Deg C was recorded at Leanach with other sensors at Accurrach , Salachray and Blaran recording Minus 10Deg C or lower. These lowest temperatures preceded a thaw over the next weekend 20<sup>th</sup> /21<sup>st</sup> with high winds and heavy rain resulting in flood incidents and multiple calls regarding trees down, across the network. Conditions remained variable through to 25th – 26th as rain continued until clearances caused a minor dawn dip sub-zero, at northern mainland sensors. The final weekend of the month 27<sup>th</sup> /28<sup>th</sup> high winds exacerbated the high tides associated with the low pressure system, with a seawall breach Southend, clearing on Sunday afternoon, with a late dip Minus 0.5C early Monday morning. Mon 29<sup>th</sup> late evening severe frost lingered until 10:00hrs Tuesday 30<sup>th</sup> Minus 6.2C Leanach - Minus 5.8C ave other mainland northern sensors. The final day of the month was predominantly milder, with only very localised marginal RSTs on higher inland routes, for a short time.

## FEBRUARY 2024

February started with a change to milder conditions, with a marginal morning on 1<sup>st</sup>, localised clearances and icy spots after a night of showers and fluctuating RSTs Zero to Plus 3 Deg C. Rain and mild conditions lasted until Tue 6<sup>th</sup>, when a clearance overnight allowed Negative RSTs and light snow fall on the Wed morning. RSTs down to Minus 4.3C Leanach and Minus 3.4C Blaran, Salachray and Accurrach. Sunny spells and variable cloud led to a hard frost into Thu 8<sup>th</sup> with a widespread freeze, Minus 7C Leanach, other mainland sensors Minus 6.1C to 5.2C. Mull sensors Minus 4.3C, Islay / Kintyre Minus 2.4C to Minus 1.2 C. The cold conditions began to ease with temperatures improving through Thursday night into Friday 9<sup>th</sup>. There followed a period of marginal mild conditions, starting predominantly dry but with increasing periods of heavy rain, in Easterly then Westerly airflows, as weather systems passed over the area through the week. RSTs dipped again, marginal on the late evenings of 10<sup>th</sup> and 11<sup>th</sup> with RSTs to Minus 0.8C Leanach to Minus 0.1C Accurrach in a longer spell overnight 12<sup>th</sup> to 13<sup>th</sup>. There was a lower drop the following night, Minus 2.3C Leanach to Minus 1C Accurrach, with marginal RSTs at the sensors on Islay Minus 0.6C and Bute Minus 0.1C into the morning of 14<sup>th</sup>.

Milder conditions returned from 15<sup>th</sup> in frequent weather fronts and spells of heavy rain, with minimum overnight RSTs Plus 3C to Plus 6C generally, through to Monday

20<sup>th</sup>, where forecasts introduced the risk of marginal sub-zero conditions. These, mainly on higher ground overnight, which developed into longer spells of sub-zero forecasts but remaining uncertain in frequent changes from cloud to clear conditions and return to cloud, in a very fluid set of weather patterns as the week progressed. Minimum RSTs on 20<sup>th</sup> Plus 5.7C to plus 8.9C, steadily dropping through the week, with marginal sub-zero RSTs Minus 0.2 C to Minus 0.8C through to 24<sup>th</sup>, where clear sunny skies during the day, led to a sharp drop in temperatures in generally clear conditions in a northerly air flow overnight with minimum RSTs Minus 4.2C Leanach, Minus 3.9C Accurrach ranging to Minus 1.3C Lochdonhead-Mull by 07:00hrs on Sunday 25<sup>th</sup>. The clear conditions remained, allowing RSTs to drop again, with a sharp frost Monday morning 26<sup>th</sup>, with all sensors recording sub-zero RSTs from Minus 5.6C Leanach, Minus 4.6C Accurrach and Salachray through to Minus 0.9C Lochgilphead and Lochdonhead and Minus 0.8C Dunoon with air frosts at the north mainland sensors of Minus 2.8C to Minus 2.4C, with Millar Rd-Oban recording Minus 3.7C in the air at 07:00hrs Monday morning.

Clear conditions persisted into Monday evening with the risk of localised sub-zero RSTs, with only Leanach at Minus 0.4C around 23:00hrs before the next set of weather fronts arrived from the West before dawn on Tue 27<sup>th</sup> with a band of heavy rain, clearing to showers through the day. Wed 28<sup>th</sup> and Thu 29<sup>th</sup> Feb were marginal nights for forecasting, due to cloud cover uncertainty and wintry showers in northerly airflows. Minimum RSTs stayed generally positive through to the end of the month in the range Plus 1C to Plus 3C but with localised lower drops in shaded areas, where the sun was not able to generate heat for any significant time, during the day.

## MARCH 2024

The colder conditions at the end of February continued into 1<sup>st</sup> March in generally northerly airflows, with a heavy frost, mainly in northern domains, with cloud cover holding temperatures up in southern districts. Lowest RSTs were recorded around 07:00hrs with Accurrach Minus 3.9C , Dervaig-Mull Minus 3.4C and Leanach Minus 3C, only the urban sensors (apart from Oban) stayed marginally positive, however Stewarton –Kintyre recorded Minus 0.5C at 02:00hrs but had improved to Plus 2.5C by 08:00hrs as cloud cover increased from the South. The clear spells overnight and sunny periods during the day continued into Sat 2<sup>nd</sup> March with a similar range in minimum temperatures and localised improvements in variable cloud cover early morning, pre-dawn.

The marginal temperatures lingered through Sun 3<sup>rd</sup> to Thu 7<sup>th</sup> March with marginal conditions in early morning clearances resulting in minor sub-zero RSTs at some sensors. Minus 0.3C Leanach to Minus 1.1C Salachray – 3<sup>rd</sup> , Minus 1.1C Accurrach and 0.6C Leanach around sunrise – 4<sup>th</sup> , Milder under cloud on 5<sup>th</sup> Positive 1.5C minimum but a return to clear spells 5<sup>th</sup> Minus 0.9C Salachray and Minus 0.2C Blaran after midnight into 6<sup>th</sup> before RSTs recovered to Plus 3.5C or above by 08:00hrs. Southerly airflows and Air Temperatures of Plus 5C, kept the RSTs above



zero, even in morning clearances on 7<sup>th</sup> / 8<sup>th</sup>, however on Sat 9<sup>th</sup>, RSTs Minus 1.4C Dervaig, Mull and Minus 1.0C Blaran were recorded around 08:00hrs as skies cleared in the North of the area although conditions were dry through the weekend, with further marginal positive RSTs north mainland on Mon 11<sup>th</sup>. More weather fronts passed over the area from the West and milder southerly airflows with periods of rain developed over the following week.

There was a brief 24hr spell of clear skies and northerly winds Fri 15<sup>th</sup> into Sat 16<sup>th</sup> which allowed a frost to develop, with sub-zero RSTs developing after midnight through to sunrise. Minimum RSTs from Minus 2.3C Leanach and Minus 2.1C Blaran, through to Minus 0.6C Dervaig and Minus 0.3C Lochdonhead, with only the four urban sites remaining marginal but positive RSTs Plus 0.5C to Plus 1.0C. The return to southerly airflows brought rain by late Saturday afternoon and this pattern continued throughout the following week. A bright clear sunny day on Wed 20<sup>th</sup>, generally the mildest day of the year so far nationally, allowed RSTs to reach maximums of Plus 24.3C at Salachray and Plus 23.0C Stewarton but it was on the islands that the highest RSTs were recorded Plus 26.9C Ballygrant and Plus 28.1 C Dervaig around 14:00hrs. Temperatures dropped steadily after sunset, however halted around Plus 5C as cloud and rain returned early on Thursday morning. Weather fronts continued to pass over the area during the following week, with heavy rain at times but hail sleet and snow showers were confined to higher ground, with no treatable hazards forming on road surfaces. Overnight minimum RSTs were generally in the region Plus 1.0C to 3.0C but with morning dips in clearances around sunrise, Zero C at Leanach on 23<sup>rd</sup>, Haul Rd on 24<sup>th</sup>, with a more significant dip on Tue 26<sup>th</sup> with Minus 1.2C Leanach, Minus 1.1C Dervaig-Mull, Minus 0.3C Salachray through to overnight Thus 28<sup>th</sup> March into 29<sup>th</sup> Good Friday where clear skies allowed RSTs to drop marginally sub-zero to Minus 0.6 Blaran and Minus 0.3C Salachray. RSTs remained marginal on 29<sup>th</sup> into 30<sup>th</sup> but improved through the Easter Holiday weekend to Plus 2C by Monday morning 1<sup>st</sup> April.

## APRIL 2024

Intermittent rain with clear spells, heralded the start of British Summer Time with RSTs marginal but positive, improving from Plus2C on the morning of Monday April 1st to Plus 4C on April 2nd and 3rd. Temperatures fluctuated in wintry showers Thu 4th into Fri 5th . Sleet showers with deposits at Leanach and Haul Rd around dawn but with showers moving NE out of Argyll, localised flooding in Lomond overnight. Short duration dips in RSTs on Fri 5<sup>th</sup>, Minus 1.3C Haul Rd, Minus 1.1C Leanach with other sensors marginal but staying positive RST before recovering during the day. Rain was the main feature of the last full week of standby but the predicted high winds were not as severe as forecast. Max wind Gusts 50 mph at Ballygrant 07:40 on Saturday 6th , with 63.5 mph Dervaig 10:40hrs and again 62 mph 08:20hrs on Sunday 7th . Showers with spells of persistent rain continued through to Friday 12th April, end of winter standby, with minimum overnight RSTs generally Plus 3 to 4 Deg C or above. Temperatures continued to fluctuate through the following week, with

RSTs at Leanach Plus 0.2C and Blaran Plus 0.3C on Monday morning 15th, before recovering again to Plus 1 to 2 DegC initially then generally Plus 5 Deg C or above by the end of the week. This marginal pattern with temperature drops and rain showers persisted through to the end of April, with Minimum RSTs down to Plus 1C on several mornings for brief periods, before recovering during the day. No further pre-treatable road surface hazards were recorded after Monday 15th April.

End of 2023-24 Weather Summary.