The Coal Authority

MYNYDD DRUMAU – HYDROGEOLGICAL CONCEPTUALISTION

As related to the Skewen mine water outburst January 2021

November 2021

Disclaimer

This report has been prepared by the Coal Authority.

Any conclusions or recommendations made are those based on information obtained for the report and our current knowledge and practices. Data used within the report, either obtained by the Coal Authority or 3rd Party, has been cited within the report. Limitations of the data are identified within the report. The Coal Authority does not accept liability for the accuracy of 3rd party data. Should new data or information become available these results, conclusions and recommendations may require amending.

This report should only be used in the stated context.

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1.0 Introduction

1.1 Background

In January 2021, a flooding event occurred in the village of Skewen, in the borough of Neath Port Talbot, South Wales. The flooding in the village was a result of an outburst of water from below ground near the junction of Goshen Park and Drummau Road[1]. The resultant feature has been termed the Goshen Park outburst.

The history of coal mining in the area and the proximity of the outburst to recorded mine entries and features, coupled with the nature of the outburst and the discharged water indicated that coal mine workings were likely to be contributory.

The incident occurred the day after a named storm system "Storm Christoph" had brought high rainfall to parts of the UK. During this storm event between 75 and 150 mm of rain fell over a 48 hr period (18-20 January 2021) in areas of South Wales (Met Office, 2021).

Coal mining was undertaken at five recorded collieries in the area to the north of Skewen, beneath the Mynydd Drumau plateau. These collieries were active between 1870 and 1973, working four separate coal seams. Mine drainage from these collieries was in part collected and discharged by the north-south running Drummau Road Drift, also known as the Skewen Level/Drummau Road Drift. The outburst occurred close to the recorded route of this drainage level.

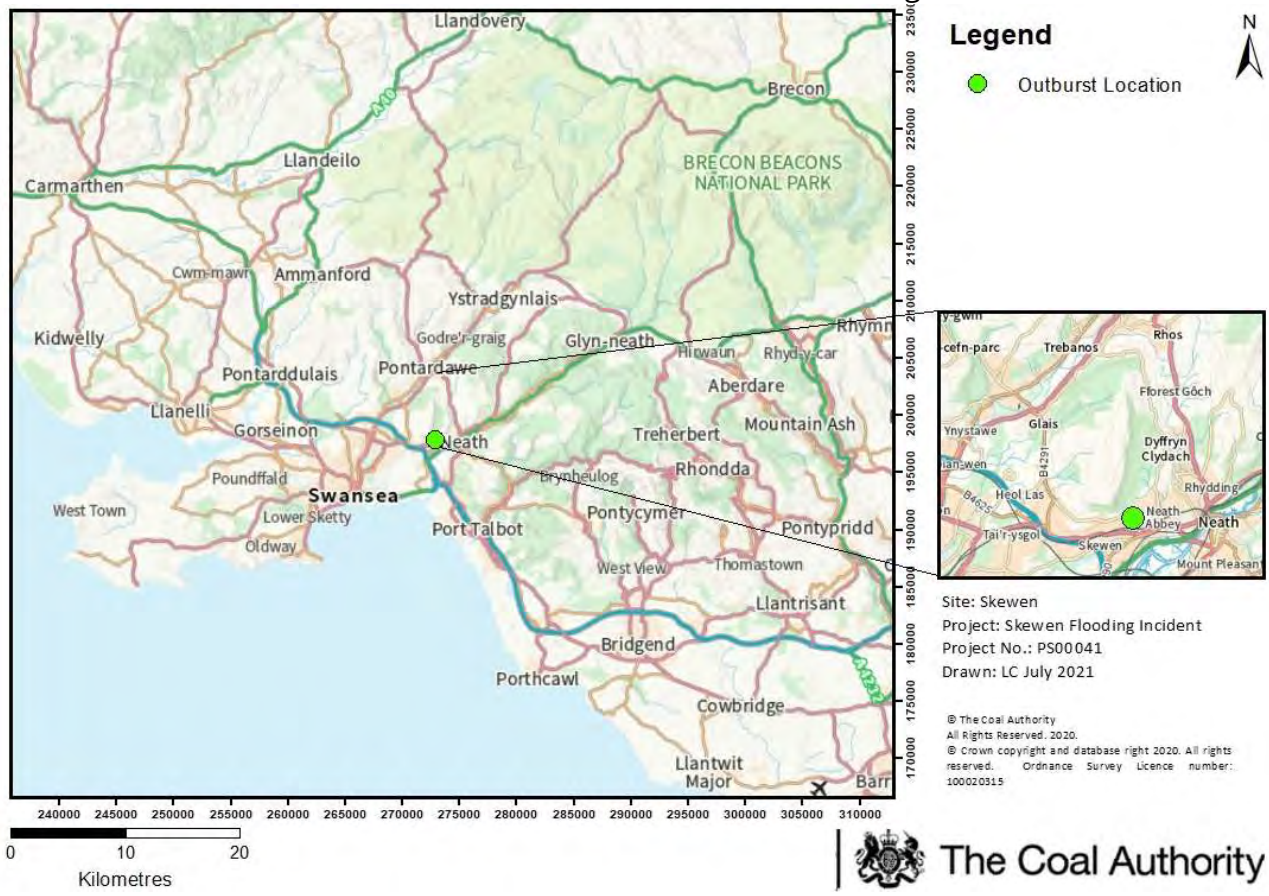

Figure 1: Skewen Location Map

[1] There is some inconsistency with respect to the spellings of the name "Drumau". The usage of the word in the area stems from the local hill "Mynydd Drumau" but the spelling "Drummau" has been used in road and mining feature names.

1.2 Skewen Outburst Event Details

The outburst of water occurred at approximately midday on 21 January 2021 and was initially reported to emergency services. The incident was reported to the Coal Authority Hazard line at 14:33.

Media footage shows an outburst of ochreous water (**Plate 1**) close to the junction of Goshen Park and Drummau Road, which flowed from that point south to Dynevor Road (**Plate 2**). The initial outburst flow occurred at a very high rate, with a turbulent upwelling up to 1 metre above ground level observed during the early stages. The water flowing during the first 10 hours of the event was ochreous (orange and opaque). The flow rate of water discharging reduced with time and water clarity improved, becoming clear at some point overnight (21-22 January 2021).

Plate 1: Early stages of the outburst event Goshen Park - 21 January 2021

Plate 2: Flooding on Dynevor Road - 21 January 2021 - South Wales Police

1.2.1 Flow estimates

The water discharging via the outburst feature at Goshen Park began at a high rate with water flow gradually reducing in the time following the event.

The outburst flow rate in the initial phase was estimated based on third party media posted online at the time of the event. Images and videos were used to establish details of the flow with respect to physical reference points (e.g. kerbs, traffic furniture). Derived approximations for width and depth of flow were then used in conjunction with gradient of slope and literature values for flow path roughness (based on surface material crossed) to calculate a flow using standard hydrological equations (Manning Formula and Colebrook-White). As flow reduced and was contained, visual estimates were used until formal flow measurement of the discharge water was implemented by the Coal Authority, in February 2021.

Three broad phases of flow have been described by witnesses and Coal Authority staff attending site. Estimates of flow rate, the approximate timing and the duration are presented in **Table 1**.

Table 1: Outburst Event Flow Rate Estimates

Phase	Timing	Duration	Estimated Flow Rate
1a	21/01/2021 / 1 hr	1 hr	2.0 - 4.5 m^3/s (approximation based on media)
1b/2	21/01/2021 – 22/01/2021 24 hr	24 hr	200 – 300 L/s (approximation based on media)
3	22/01/2021 – 14/02/2021	ongoing	7 L/s (visual estimates)

As the estimated flow rates (particularly in the early stages of the event) are based on photographic evidence they represent instantaneous “snap shots” of the water flow. It is likely that the discharge followed an almost exponential reduction curve similar to those seen in the recessive limbs of flood hydrographs. The Coal Authority used knowledge of flow recession curves to develop an estimated

flow curve for the first 7 days of the discharge from Goshen Park. This flow estimation together with derived discharged volumes are presented in **Figure 2**.

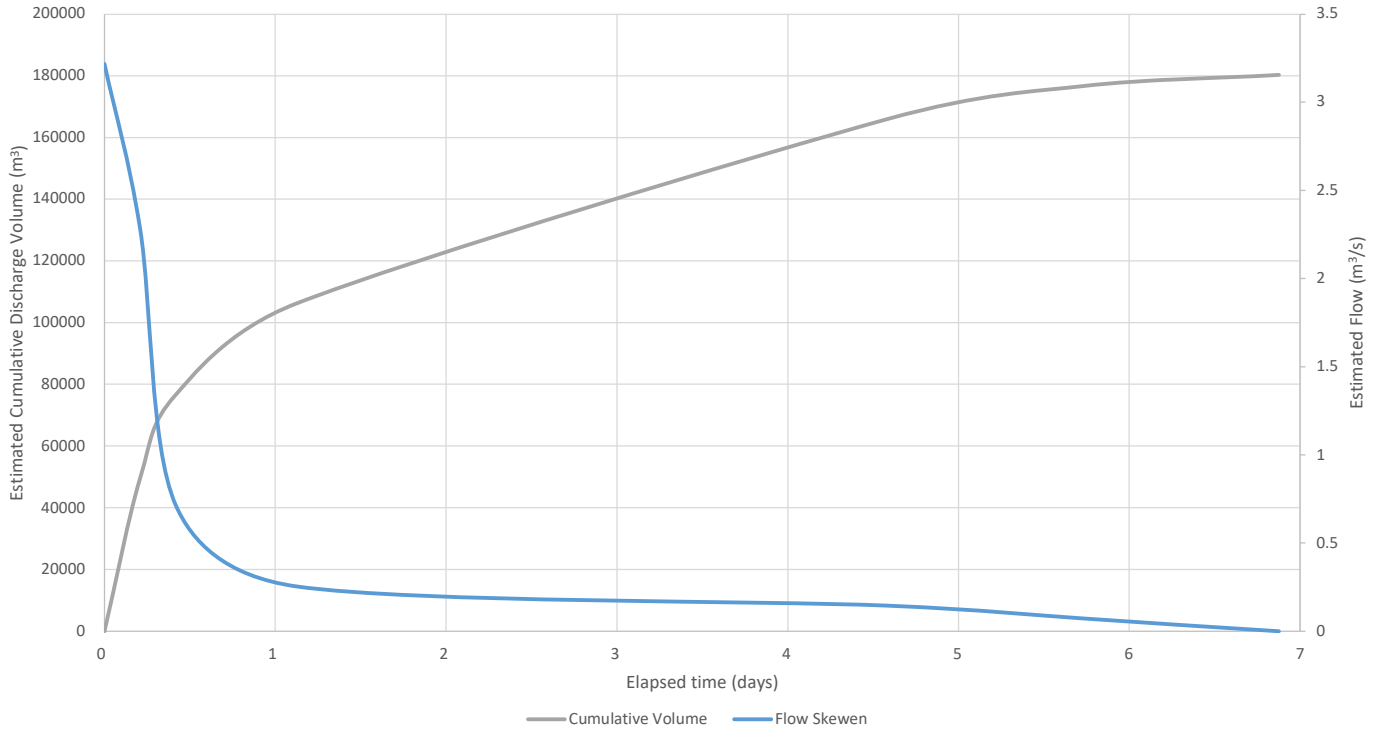

Figure 2: Skewen outburst estimated flows and volumes

These estimations show that it is likely that 100,000 to 200,000 m^3 of water was released during the initial phases of the outburst **Table 2**.

Table 2: Estimated volumes of discharged water

Phase	Period	Estimated volume released (m^3)
1a and 1b - Ochreous	10 hours	77,000
2 and 3 - Clear	7 days	103,000

Note: There is inherent uncertainty associated with these estimates, which had to be made after the event based largely upon photographic evidence and eye witness accounts. It is considered to appropriately reflect the order of magnitude of the water discharged.

1.2.2 Outburst Location

The outburst occurred from a feature close to the junction between Goshen Park and Drummau Road. During the high flows of the early event it was difficult to assess the nature of the outburst pathway. The flow of water had lifted the fabric of the cast concrete driveway servicing a single garage at No. 1 Goshen Park and displaced material including cobbles, gravels and sand of mixed lithology and made ground. Material was deposited in the garden of No. 1 Goshen Park and down Drummau Road. Following the reduction and containment of the water flow it was possible to investigate the area around the discharge feature in order to assess its nature and potential development mechanism.

Two areas of disrupted ground in the area of the junction were identified these were assigned the identifiers Feature 1 and Feature 2. Details of the features are provided below with their locations shown in **Figure 3**.

- **Feature 1** – shallow circular depression in tarmac at road junction (**Plate 3**). Surface tarmac collapsed in days following the outburst revealing a 1-1.5 m deep void. Drilling of this feature to beyond the level of the Skewen Level/Drummau Road Drift identified fill like material to the elevation of the level.
- **Feature 2** – outburst location (**Plate 4**), irregular almost vertical pathway 1 to 2 m wide exhibiting no definitive signs of being "engineered" or supported. The features form has been delineated and found to be approximately 17 m in depth. The output of a downhole Sonar survey is presented in **Figure 5** to aid visualisation.

Initial review of Coal Authority records identified the presence of a recorded mine entry Ref 272197-032 approximately 25 m to the west of Feature 2. This mine entry position was on the boundary between No.45 and No.46 Goshen Park, as shown in **Figure 3**. This recorded mine entry was sourced and referenced from abandonment plan SWR1661 dated 1835. The plan is fairly basic and concentrates primarily on workings to the south of the outburst site and on the eastern side of the Dyffryn Fault. The plan shows the portal of the Skewen Level/Drummau Road Drift as well as an air shaft approximately 280 m (as measured from the plan) to the north. In addition, the plan shows a shaded symbol that may represent earthworks or terracing close to the location of the air shaft. This embankment may represent a historical landform (man-made or natural) that has since been modified resulting in the land profile now seen as well as possibly having disrupted the shallow subsurface.

The source plan (SWR1661) has been re-interrogated and georeferenced using current methods. This process resulted in a revised position approximately 18 m to the north east being proposed. This location lies in the vicinity of the features as presented on **Figure 3**. The revised recorded position of mine entry Ref 272197-032 has been updated in the Coal Authority records.

Subsequent to the incident the Coal Authority have undertaken extensive ground investigation works to assess the area. Detail of the observed ground condition around the outburst location is included in **Figure 4**. The intrusive investigations showed the following in the area close to the outburst location:

- Variable thickness of unconsolidated material generally to approximately 10 mBGL comprising made ground, clays (including boulder clay), sands and gravels;
- Rock-head interpreted as lying between 7 and 14 mBGL;
- Solid geology comprised mudstone and sandstones;
- Disparity between solid geology encountered to the east and the west of feature 2 possibly indicating fault displacement in the area; and
- Void assumed to be mining related and likely the Skewen Level/Drummau Road Drift or offshoots identified in inclined drilling and vertical drilling directly in the base of Feature 2 at approximately 20 mBGL.

Plate 1: Feature 1 after the outburst (2021-01-22 00:51 AM) (Coal Authority)

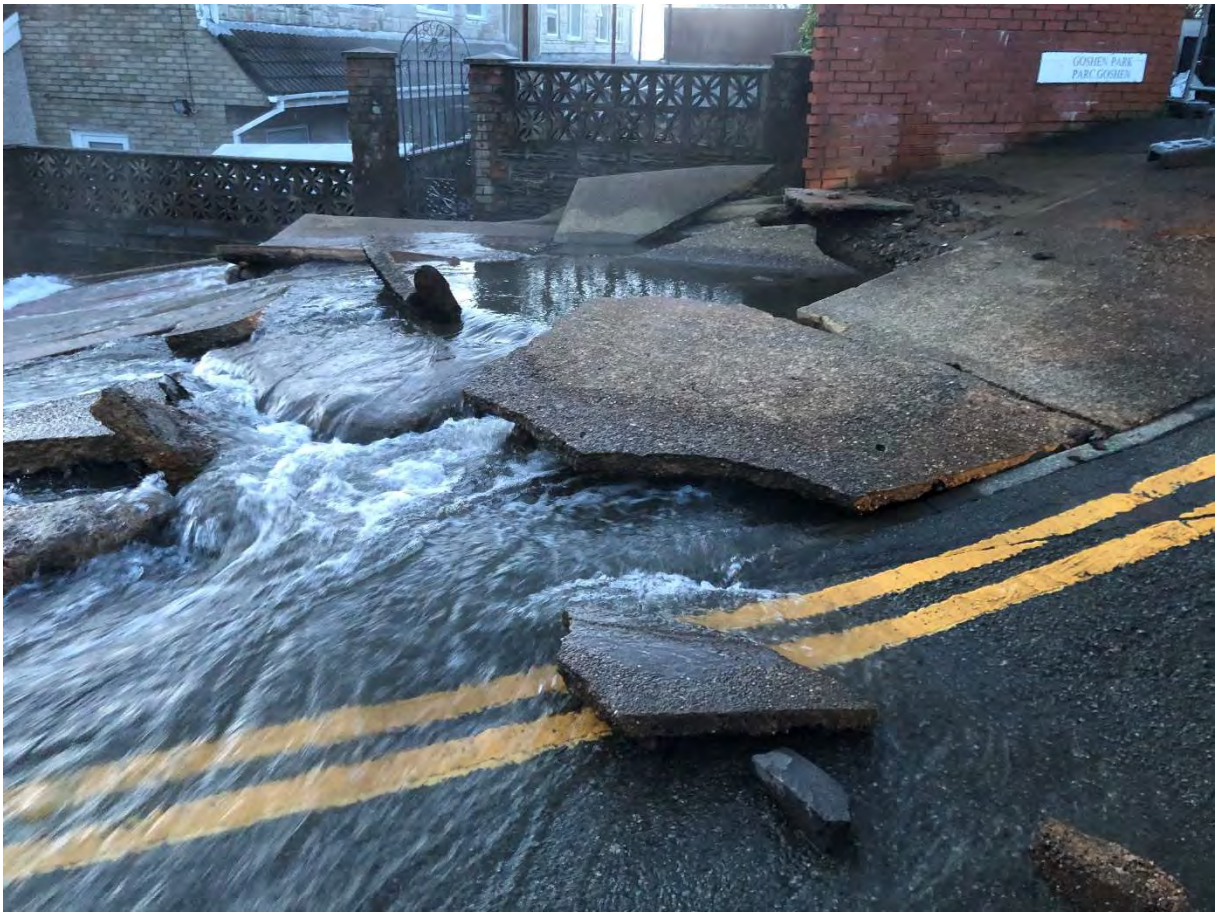

Plate 2: Feature 2 after outburst (2021-01-22 07:57 AM) (Coal Authority)

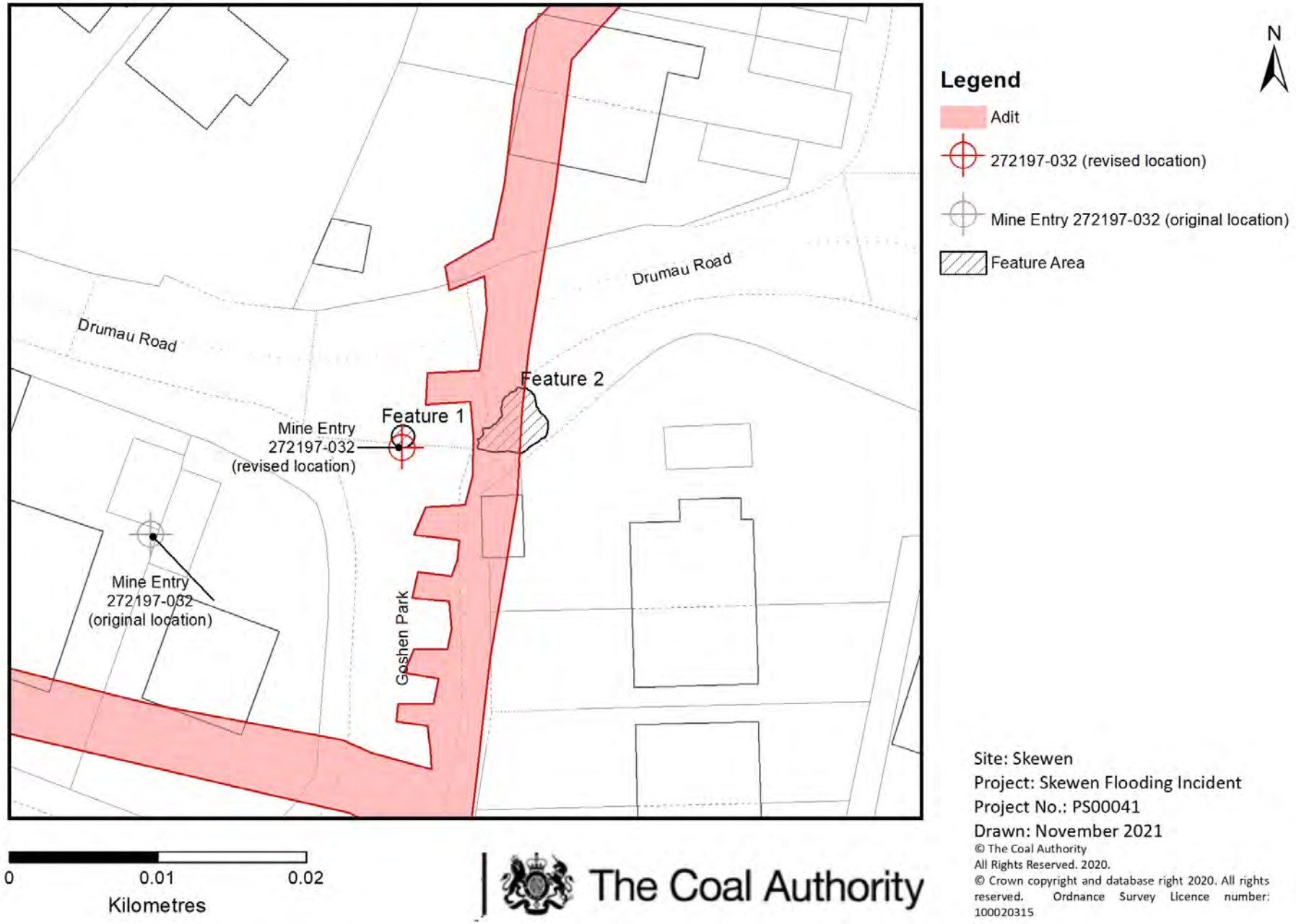

Figure 3: Goshen Park Drumau Road Junction showing selected mine plan information

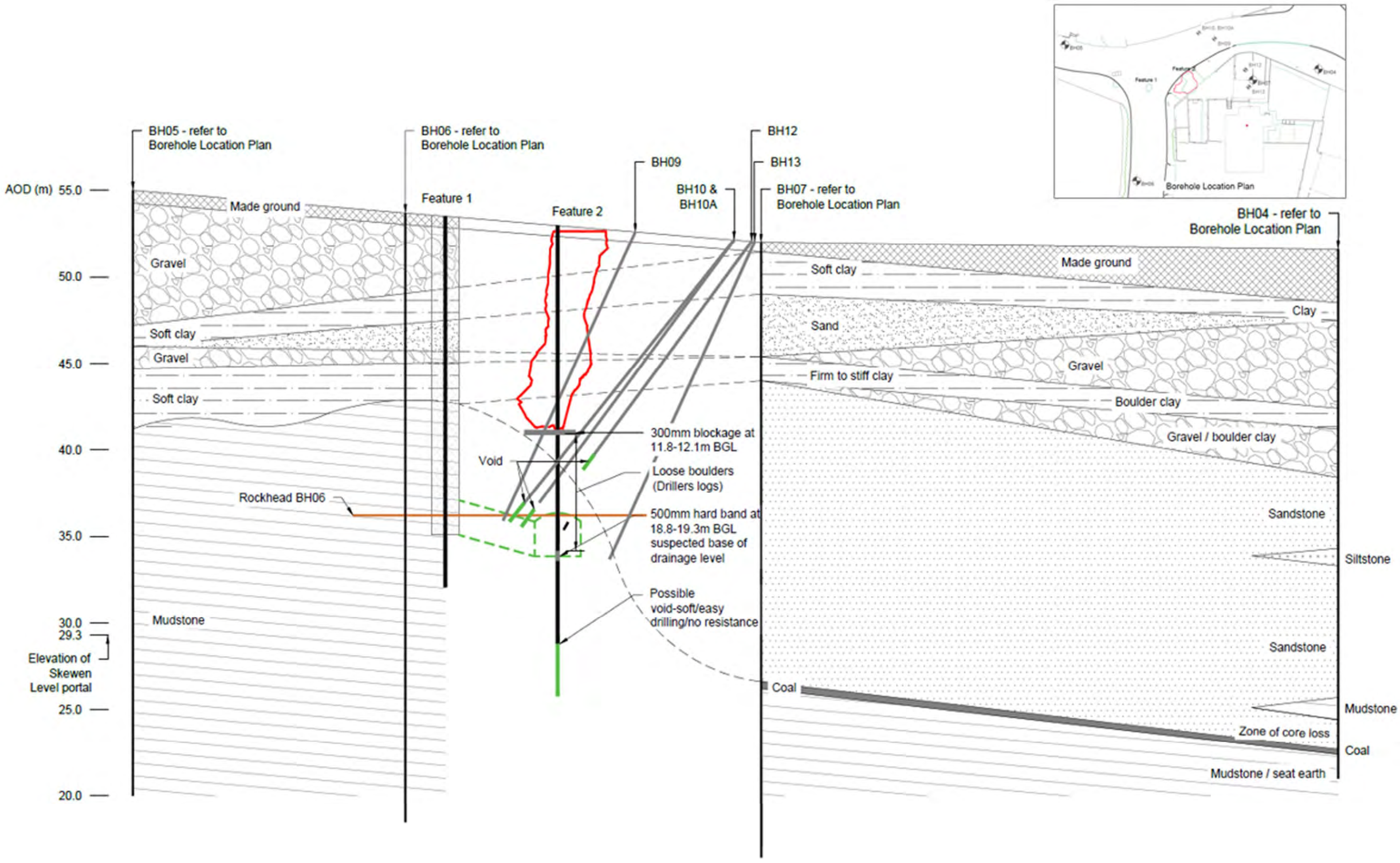

Figure 4: Conceptual Ground Model Following Phase 3 Ground Investigation

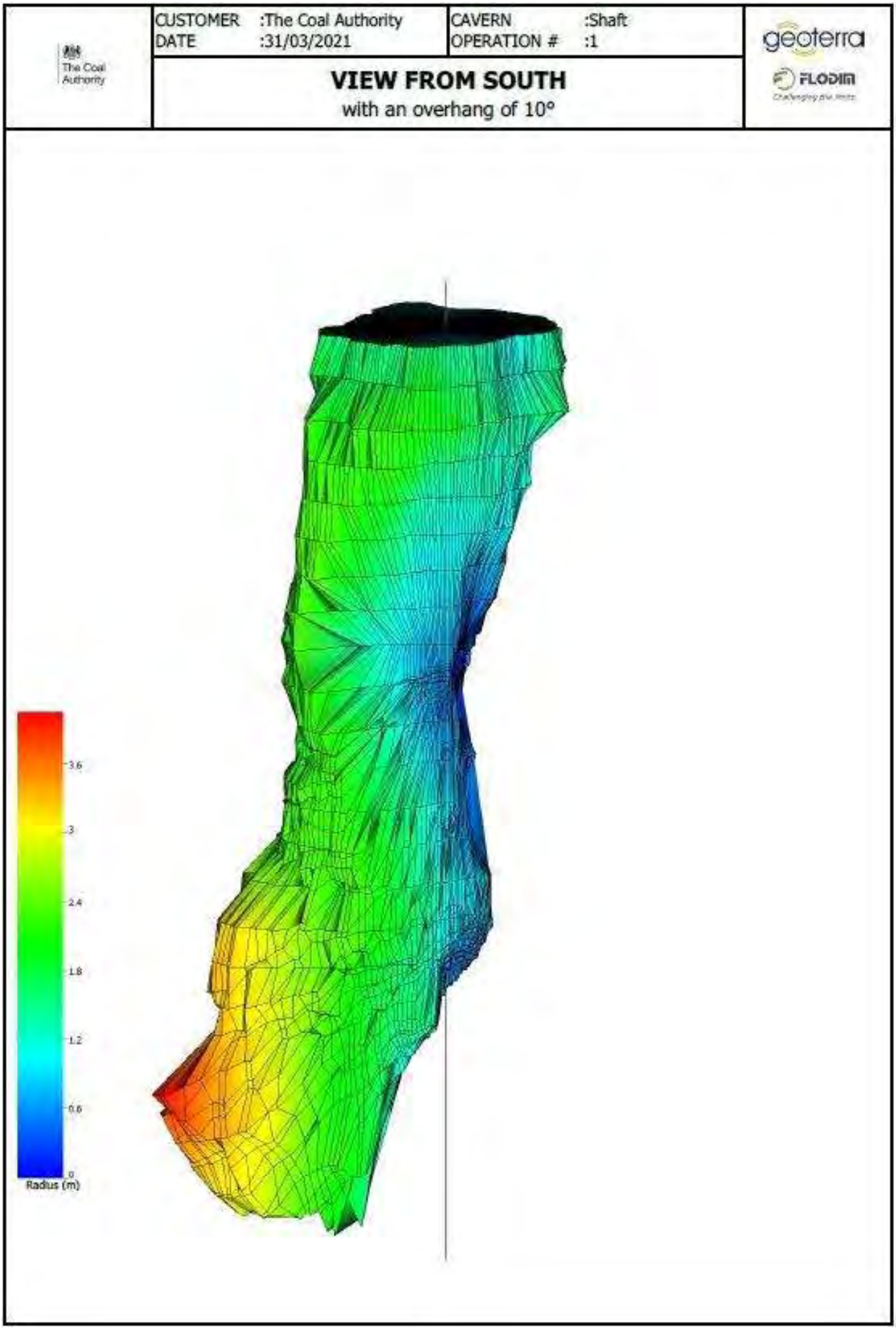

Figure 5: 3D Sonar scan of Goshen Park outburst feature

1.3 Aims of this report

This report aims to bring together and present the findings of information reviewed, and site investigations undertaken by the Coal Authority following the Skewen outburst event.

The report concentrates on aspects relevant to the hydrogeological situation in the Skewen area with particular focus on the occurrence and behaviour of mine water in the area.

The report aims to address the following primary questions:

- What was the source of the outburst water?
- What triggered the release of the water?
- What was the pathway for the released water?

Conceptual models have been developed to communicate the Coal Authority's understanding of the underground system. These conceptualisations describe the linkages, interactions and potential causes of the Skewen outburst event and are presented within this report. Unless otherwise stated the analysis, interpretation and conceptualisations presented within this report are those of the Coal Authority.

In addition to describing and characterising the study area and catchment this review also considers the possibility of future mine water outbursts via the Skewen Level/Drummau Road Drift from coal mine workings beneath Mynydd Drumau and briefly discusses potential management options.

1.4 Information sources

Information reviewed in the preparation of this report includes:

- Coal Authority historical mining records – existing before the outburst event;
- Coal Authority Operational Data (Hazards, incidents and enquiries, mine entry inspections, and environmental monitoring);
- New data and information – collected after the event (chemical analysis, flow measurements, mine entry inspections, walkovers); and
- Third party data and information (Ordnance Survey (OS) (including historical mapping) and British Geological Survey (BGS) Mapping, Natural resources Wales (NRW) rainfall data, anecdotal accounts)

The nature of the information reviewed including key details are summarised in the following subsections. This information will be referred to elsewhere in the report. It is introduced here for clarity.

The assumptions and limitations of both the available information, and the conceptual interpretations that build on it will be stated when discussed within the report.

1.4.1 Coal Authority Abandoned Mines Catalogue (AMC)

The Coal Authority hold a variety of records and data within the abandoned mines catalogue. In particular the library of abandonment plans are of note. The archive was interrogated to establish the availability of relevant records. These were subsequently reviewed with a focus on the following:

- Extent/geometry of workings/extraction;
- Location of mine entries;
- Seam/extraction thickness;
- Seam levels;
- Roadways/drifts/seam connectivity vertically and horizontally;
- Water features noted; and
- Obstructions noted e.g. dams or stoppings.

1.4.2 Coal Authority Hazards and Enquiries

Numerous hazards, incidents and enquiries are reported or made to the Coal Authority's Public Safety and Subsidence Department each year. All of these are recorded within a database and geographical information system. This system was interrogated to identify hazards, incidents or enquires involving or considered relevant to water within the area. No hazards, incidents and enquiries beyond 1 km of the outburst site were considered relevant to the interpretation of the outburst incident. Details of relevant records within the 1 km radius are provided in **Table 3**.

Table 3: Summary of water related hazards, incidents or enquires recorded within 1 km of the outburst site

Reference	Year	Summary
H0665– 10 Drummau Road (admitted)	1996	Whilst investigating an ochreous water discharge the Skewen Level/Drummau Road Drift was exposed by local authority approx. 1.5 m below road surface and reported to Coal Authority as a Hazard. Works to seal the adit and incorporate a drainage system were undertaken by the Coal Authority with drainage to the adjacent water course to the north of the railway embankment. During the works, investigation of the adit found it to be brick lined and in reasonable condition to approximately 50 m inbye from the portal. Some water flow was still seen to emanate from the portal.
H1047 Old Graigola Level, Lonlas Business Park (admitted)	1997	Block work stopping wall into unnamed adit (Adit 271197-036) vandalised. Wall repaired, 100 mm diameter pipe installed to allow ventilation and future monitoring. No reference to mine water in the notes though some water is visible in photographs.
E0538 – No. 15 Highland Close (also referenced as No. 13 Highland Close) (rejected)	1998	A water emission from an old site borehole was reported by the local authority. The borehole was confirmed to have been drilled by developer and it was determined that the water emission was not the responsibility of the Coal Authority. A site inspection was conducted and there is no record of additional information being made available.
H2971 (I-356153) – Bryndewy Level (admitted)	2002	Open adit mouth reported by land owner. Reported as 0.4 m of stone arch visible above level of ochreous stream. Steel grille fixed to adit mouth.
E1437 – 10 Drummau Road (rejected)	2005	This enquiry relates to an ochreous discharge close to an existing historically monitored location (this being the adjacent Skewen Level/Drummau Road Drift portal). It was first thought to be related to this, a site inspection concluded this not to be the case. At the time of inspection flow from the feature was insufficient for a sample to be collected. The owner was asked to contact the Coal Authority when the flow re-appeared so that a sample could be obtained and further investigation could be progressed. No such contact was received within 6 months and the enquiry was closed and the owner has been informed.
E1749 - Ormes Road (rejected)	2007	Subsidence of highway adjacent to residential properties. Rejected as no recorded or probable shallow workings beneath properties (shallowest recorded workings at 220 mBGL).
E2119 – 3 Highland Close (rejected)	2009	Water was issuing from a 150 mm pipe in a chamber at the rear of the property. No known history of flow prior to this for at least 9 years. Ground level at the point of the discharge is between 55 and 60 mAOD.

1.4.3 Coal Authority Historical Mine Water Monitoring

Water monitoring was initiated at the Skewen Level/Drummau Road Drift portal following its exposure in 1996 by Neath Port Talbot Council and subsequent treatment works by the Coal Authority (H0665 - **Table 3**). The monitoring comprised flow assessment (rudimentary measurement and visual estimation) and water quality sampling.

History

On completion of Coal Authority works under H0665 (**Table 3)** two monitoring sub-sites relating to the Skewen Level/Drummau Road Drift portal were established the details of these sites are included in (**Table 4**). This monitoring was implemented to assess the potential requirement for future mine water treatment of the discharged water to mitigate possible environmental impact.

Table 4: Skewen Level/Drummau Road Drift Monitoring features

Site sub-number	Site sub-title	Monitored period	National grid reference	Monitoring frequency	Monitoring Activity
145.10	Drummau Road Drift - Adit Manhole	July 1999 to January 2012	SS 73044 97553	6 monthly	• Mine Gas - (methane, carbon dioxide and oxygen)
145.20	Drummau Road Drift - Discharge	May 1996 to January 2015	SS 73044 97553	6 monthly	• Water Flow rate– visual estimate • Water Quality – Sample collection and laboratory analysis

The sites were removed from the Coal Authority routine monitoring schedule in 2015 as the following criteria were met:

- the discharge was not causing significant pollution, or identified as a candidate for a future treatment scheme by the regulator (NRW), and
- the monitoring data had not shown significant changes in chemistry or flow rates.

A summary of the monitoring findings is included below.

Water Flow rate

During the adit treatment works under H0665 (**Table 3)** a temporary flow measurement structure (thin plate v-notch weir) was installed in the channel discharging water from the works. On completion of the treatment works the weir plate was removed and ongoing monitoring relied on visual estimates of water flow rates.

Water Chemistry

Water samples collected from the discharge were analysed for a standard Coal Authority suite that included key contaminants of concern with respect to mine water in the environment (**Appendix B)**

Mine gas

Basic monitoring of common mine gases (methane, carbon dioxide and oxygen) was carried out throughout the monitored period. No abnormal condition or trends were recorded.

1.4.4 Coal Authority Permits

Since 1994 where third parties intend to investigate and or conduct works likely to interact with or encounter underground coal mining features the Coal Authority issue permits to authorise the activity. No permits issued in the area are considered relevant to the Skewen outburst incident.

1.4.5 Coal Authority Water Features Survey (WFS)

In response to the outburst the Coal Authority conducted a data review to identify water discharges close to or associated with recorded mine entries in the Skewen area. This review was followed by site inspections in February and March 2021 to "ground truth" these features. In addition to visual observation, physico-chemical water parameters were measured to characterise the features and the discharging water.

Field observations from water features survey are included as:

- Skewen Goshen Park Incident: Water Features Survey - **Appendix A**

It is noted that the water features survey did not visit every possible natural spring site, as the main focus was to visit recorded mine entries to identify possible water discharges.

1.4.6 Coal Authority Water Sampling

Further to the historical monitoring undertaken (**Section 1.4.3**), the Coal Authority have collected various water samples for laboratory analysis from the Skewen and wider area following the outburst event. The samples were analysed for standard Coal Authority suites by SOCOTEC a United Kingdom Accreditation Service (UKAS) ISO approved laboratory. Where relevant, sample results were compared with historical water chemistry data.

Results of sampling conducted between 23 January 2021 and 25 October 2021 are reported as:

- Skewen Goshen Park Incident: Water Chemistry - **Appendix B**

1.4.7 Coal Authority Mine Entry Inspections

The Coal Authority conducts a nationwide programme of routine Mine Entry Inspections whereby recorded mine entries are visited in order to assess their condition.

Following the Skewen outburst event Coal Authority mine entry inspectors visited the mapped positions of 260 recorded mine entries in the Mynydd Drumau block over a two week period starting on 24 January 2021. It should be noted that due to the likelihood of unrecorded workings being present in the area there is also the potential that there are unrecorded mine entries.

These mine entry inspections identified 69 features with there being no visible evidence of mine entries at the remaining 191 locations, a summary is provided in **Table 5**.

Table 5: Feature types reported following inspection programme

Visible Feature	Number
No visible evidence	191
Cap	2
Depression	45
Fence	6
Mound	9
Other	5
Wall	2
Total	**260**

The mine entry inspection reports were reviewed to assess whether further action was warranted. A single site was identified as needing some filling to mitigate a 2.7 m deep open shaft. The feature reference 273200-019 (NGR SN 73293 00509) lies approximately 140 m to the east of the recorded location of the Skewen Level. The works are not considered relevant to mine water.

The depressions and mounds reported were all considered to be longstanding features, with no visible signs of recent movement. Some of these features are likely to be the natural shape of the landscape and may not be related to the mine entry in question.

1.4.8 British Geological Survey (BGS) Records

The British Geological Survey hold and produce a broad range of data and reports relating to geology and hydrogeology of the British Isles. The BGS online data portal (British Geological Survey, 2021) has been used to identify and source information to inform this study. Resources of particular relevance include:

- Memoirs of the Geological Survey - The geology of the South Wales Coalfield: being an account of the region comprised in sheet 247 of the map (Strahan, Dixon, Gibson, Jones, & Tiddeman, 1907);
- Geological Survey of England and Wales 1:63,360/1:50,000 geological map series, New Series, Sheet Number 247, Swansea, Bedrock, 1:50,000 (British Geological Survey, 2011);
- The BGS Lexicon of Named Rock Units;
- Hydrogeological mapping 1:625,000;
- Groundwater Vulnerability and Aquifer Designation Mapping: Bedrock and Superficials;
- BGS Records of boreholes, shafts and wells from all forms of drilling and ground investigation work. Includes scans of paper records and digital records – Particularly:
    - Felin Fran No.2 - Ref SN70SW9 – NGR SN 71454 01080 – Depth 367 m – Stratigraphy
    - Darran Spring Neath – Ref SS79NW264 – NGR SN 72400 99000 – Historical inspection of spring.

1.4.9 Ordnance Survey Mapping

Modern and historical Ordnance Survey mapping has been used to interpret the topography of the area and to inform on the areas development over time. Historical Ordnance Survey mapping is also one of the primary sources used by the Coal Authority in developing the recorded mine entries dataset.

1.4.10 Natural Resources Wales Rainfall Data

Rainfall data is collected by Natural Resources Wales (NRW) at the Birchgrove Main Station (Station Number 059R012 NGR SS7096199112) approximately 2.3 km to the north west of the Skewen outburst site. The data has been reviewed and analysed in the preparation of this report. The dataset comprises high frequency (15 minute) rainfall totals for the period January 2014 to October 2021.

1.4.11 Additional Information

Following the outburst incident, the Coal Authority contacted stakeholders considered likely to have had relevant dealings with respect to water and/or ground conditions in the Skewen area. In addition, in one case a member of the public came forward and provided hydrogeological/geotechnical reports directly related to the Skewen Level/Drummau Road Drift. A summary of this information is provided in **Table 6**.

1.4.12 Anecdotal Accounts

Following the incident, various witnesses and interested parties came forward to the Coal Authority to provide accounts and descriptions of events and observations considered relevant to water in the Mynydd Drumau area. Some of the accounts relate to long term observations whilst others relate to the shorter term preceding the outburst event. These accounts are summarised in **Table 7**.

Table 6: Summary of key additional information received by the Coal Authority since the incident

Reference	Year	Summary
Related to – No. 15 Highland Close	2021	Further information related to the borehole subject of E0538 was provided to the Coal Authority on the 30 January 2021 following the outburst event. This information was provided to the Coal Authority in 2021 by the owner of No.15 Highland Close at the time of the original enquiry (1998) and comprised: • Report No. 30344/SR373 – Proposed Bungalow 15 Highlands Close, Skewen, Neath – Mining Desk Study - July 1992 (Applied Geology (South Wales) Limited, 1992) • Letter Ref: AD/ib/30369 15 Highlands Close, Skewen, Neath – Mining Investigation – September 1992 (Applied Gelogy (South Wales) Limited, 1992) • Report No. X20142 Building Plot , Highlands Close, Skewen, Neath – Report on the Sealing of a Ground Investigation Borehole – July 2000 (Thyssen Geotechnical, 2000) Key detail from these reports includes: • The borehole drilled in 1992 encountered broken ground at a depth of 16 m, followed by an open void between 17 and 18.5 mBGL. This void contained water under artesian pressure which rose above existing ground level (57.64 mAOD) by about 1 m after the drilling was stopped (Applied Gelogy (South Wales) Limited, 1992). • It is suggested in the report that an attempt was made to seal the borehole, however groundwater continued to rise from around the borehole casing (Thyssen Geotechnical, 2000) though there is no description of this in the letter related to the drilling of the borehole as might be expected. • Superimposed abandonment plan information shows the Skewen Level/Drummau Road Drift passing beneath the site at an unknown depth (Thyssen Geotechnical, 2000). Note: Coal Authority inspections following the outburst event have confirmed that the borehole has ceased flowing.

Reference	Year	Summary
Dwr Cymru Welsh Water (DCWW)	2021	DCWW were asked if they had any history of repairs, new installations or any changes in the Skewen area that might be considered material to the outburst incident. The various areas of DCWW s business responded as below: **Production** – no infrastructure in the area **Waste Treatment** - no infrastructure in the area **Distribution** • There are no significant reported incidents • A trial hole was excavated on 26 March 2019 albeit outside the area of flooding with related to a zonal study **Waste Networks -** In respect of the data supplied by Waste Networks relating to the time period 2015 – 2020 (and prior to the flooding event) the following was noted: • 33 incidents were reported at Goshen Park The Author has been informed that the main cause for sewerage flooding was that the sewer system is constructed of "Pitch Fibre" material which is typical for the age of houses in the estate. Over time Pitch Fibre deforms, gets squashed and causes a restriction in flow. In parts of the estate the sewer is very shallow at only 0.3m deep.

Table 7: Summary of Anecdotal evidence and accounts relevant to water provided to the Coal Authority post outburst event

Source	Date	Summary
Ormes Road Residents - various observations Emailed	February and March 2021	• Two sink holes appeared at Graham Terrace, and a "50 ft. sink hole" on Ormes Road East in 2020 • Local reports of a mine shaft in Longford area (Darran Colliery) that is discharging ochreous water • Walkers finding more water than normal in same area (Right of Drumau Mountain) • "Sink holes" at Goshen Park discharge location on three occasions in 2011, which were resurfaced by the council • Increased drainage issues around Ormes Road
Residents of "The Highlands" Emailed	29 January 2021	Bryndewi Level discharge observations – relating to mine entry: 273199-002: *"At the base of Drumau Mountain (just up from Swiss Cottage along the main track that starts to ascend the hill), there is an old mine access point, fenced off and with a Coal Authority warning plate, on account of the way that a natural basin outside the entrance fills up with hazardous levels of water and mud. I noticed before the flood that despite the heavy rain the basin was not filled up with water, as if it usually is, and possibly had drained away down the roadway/shaft."*
Resident of No. 3 Highlands Close Verbal account to Coal Authority staff	February 2021	Reported to Coal Authority site staff that prior to the outburst water had been seen seeping from under the tarmac in the road outside No.1 Goshen Park
Resident of Goshen Park Verbal account to Coal Authority staff	January 2021 (post incident)	Reported to Coal Authority site staff having heard a "boom" on 14/01/2021. The origin of this noise is unknown.
Former IMC Employee involved in works to portal 1996	January 2021 (post incident)	An employee of IMC the consultants who managed the works under H0665 for the Coal Authority provided anecdotal information regarding inspection of the adit undertaken at the time of the works in 1996. The account described a blockage in the Skewen Level/Drummau Road Drift approximately 100 m inbye from the portal. There is no record of this in the Coal Authority project files associated with H0665

Source	Date	Summary
Former Mine Surveyor – Darran Colliery Emailed	May 2021	Former Mining Surveyor from the Darran Colliery from 1963 to early 1970s provided the following account by email with respect to water within the Darran Mine: *"I recollect that there were no pumps at the mine and water percolated into old workings in the Tir Edmund seam below. Whilst the Darran Colliery abandonment plan shows 4 areas of old workings in the Tir Edmund seam. I was always made to understand that workings in the Tir Edmund seam were much more extensive."*
Resident of Drummau Road Verbal account to Coal Authority staff	August 2021	Resident of house on Drummau Road with property backing onto the open surface water channel between Jubilee Crescent and Drummau Road. Since the outburst, water flowing from Goshen Park has been directed to an underground culvert that discharges to this channel. The resident described how prior to the outburst the channel was never dry and supported some flow year round albeit reduced in the summer. During the summer of 2021 the channel has been dry during periods when the Goshen Park feature has not been discharging to the channel, including during a Coal Authority site inspections in July and August 2021.

2.0 Site Description

2.1 Catchment/Study area

Following the outburst event an initial review of the local area both using desk based information sources and on the ground observation allowed the Coal Authority to define a specific study area to be further investigated. This area is loosely delineated by:

- the M4 motorway and the A465 to the south;
- the valley of the River Clydach (Neath) to the east;
- the eastern side of the Tawe Valley to the west; and
- the settlements of Alltwen and Rhos to the north.

The investigation area (**Figure 6)** is approximately 12 km^2 and is dominated by the hill Mynydd Drumau. Almost the entire area is underlain by recorded coal mining.

2.2 Topography and Land use

Mynydd Drumau is an upland plateau forming a broad crested north south running ridge, rising to a high point of 272 mAOD. The low points in the area are close to sea level in the flats associated with the Neath and Tawe estuaries.

The slopes of Mynydd Drumau fall gently to the west with shorter steeper slopes to the north, east and south of the plateau. The eastern limit of the plateau is actually defined by areas of scarp with vertical faces of exposed geology.

The majority of the area is rural with agricultural land use comprising improved grazing and upland farming. On the steep eastern and southern slopes of Mynydd Drumau there are areas of ancient woodland and former commercial forestry now managed by the Woodland Trust. There are also smaller areas of ancient woodland on the western slopes of Mynydd Drumau, particularly within minor stream valleys on the lower slopes.

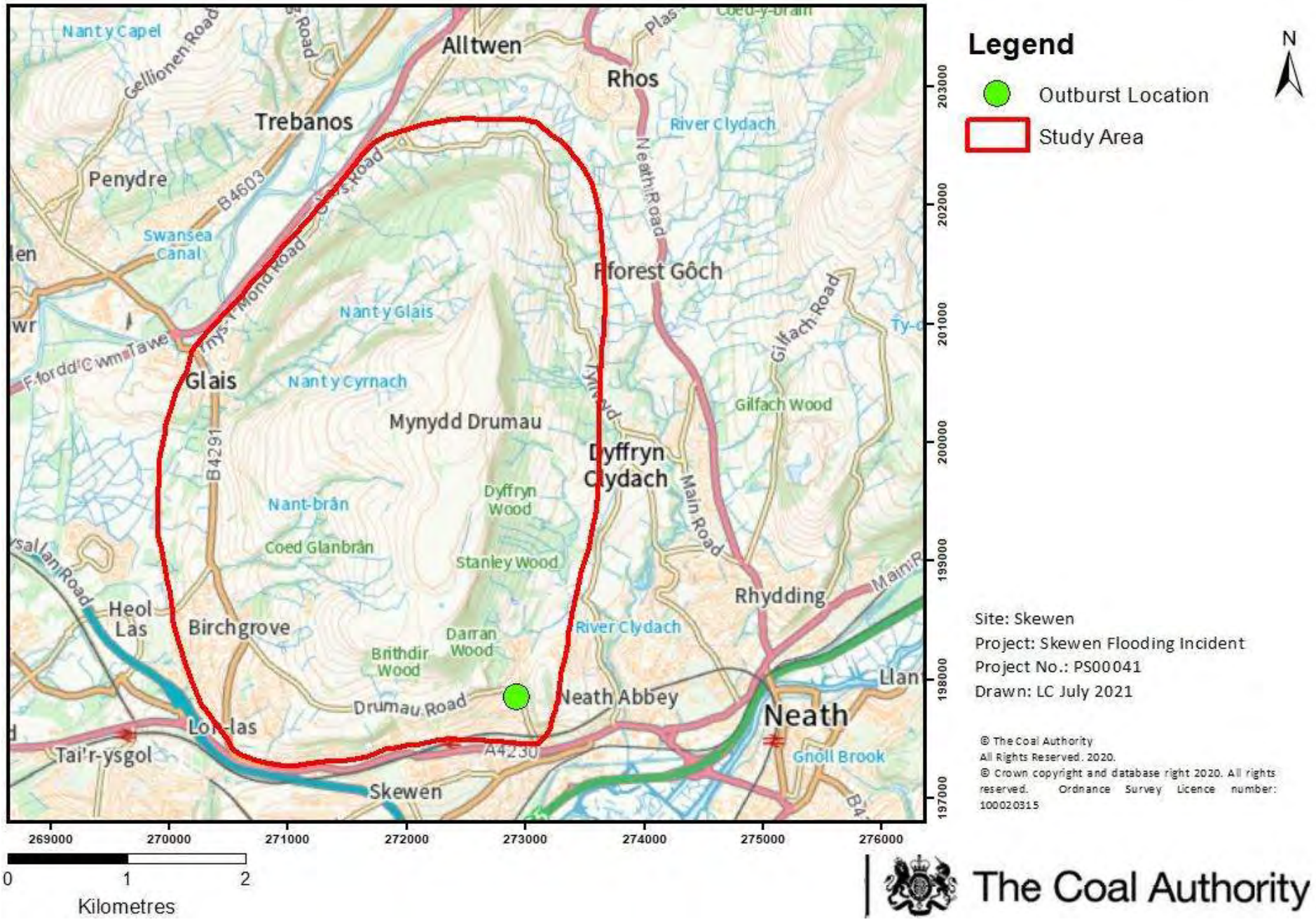

Figure 6: Map of Mynydd Drumau catchment/study area

2.3 Rainfall

The NRW rainfall station Birchgrove Main (Station Number 059R012 NGR SS7096199112) is located within the study area on the western flank of Mynydd Drumau approximately 2.3 km to the north west of the Skewen outburst site. The data set from this location comprises 7 years of 15 min frequency rainfall recorded from January 2014 to present. The average annual rainfall total for this site is 1380 mm.

The rainfall data record spanning the outburst event has been reviewed by the Coal Authority. The high frequency data has been used to calculate the 48 hour rainfall totals to identify periods of sustained high intensity rainfall. This data is presented in **Figure 7** and **Figure 8**. This analysis shows that in the two day period preceding the outburst event (Storm Christoph) a two day rainfall total of 64.2 mm was reported. This is the highest two day rainfall total recorded at the Birchgrove rain gauge to this point in the seven year dataset. It is noted that the average January monthly total rainfall recorded at this station is 151.86 mm and the January average 48 hour rainfall total is 9.9 mm.

This high two day rainfall total shows the likely importance of the rainfall associated with Storm Christoph with respect to the outburst. Further review of the 2021 data (post outburst) shows three 48 hour rainfall totals in excess of the Storm Christoph maximum. The three post incident peak 48 hour rainfalls were recorded on 8 May 2021 (75.6 mm (with 72.8 mm in 24 hours)), 21 October 2021 (74 mm) and 29 October 2021 (71 mm).

The higher two day rainfall totals recorded post incident did not result in an outburst similar to that experienced in January 2021. Flows from the Goshen Park outburst feature gradually increased to peaks of approximately 20 L/s following this comparably high rainfall.

Based on interpretation of the above, it is concluded that whilst the rainfall input to the system, attributable to the higher than usual rainfall during Storm Christoph, this input from this event alone was not sufficient to generate the flow rates or total discharge volumes experienced.

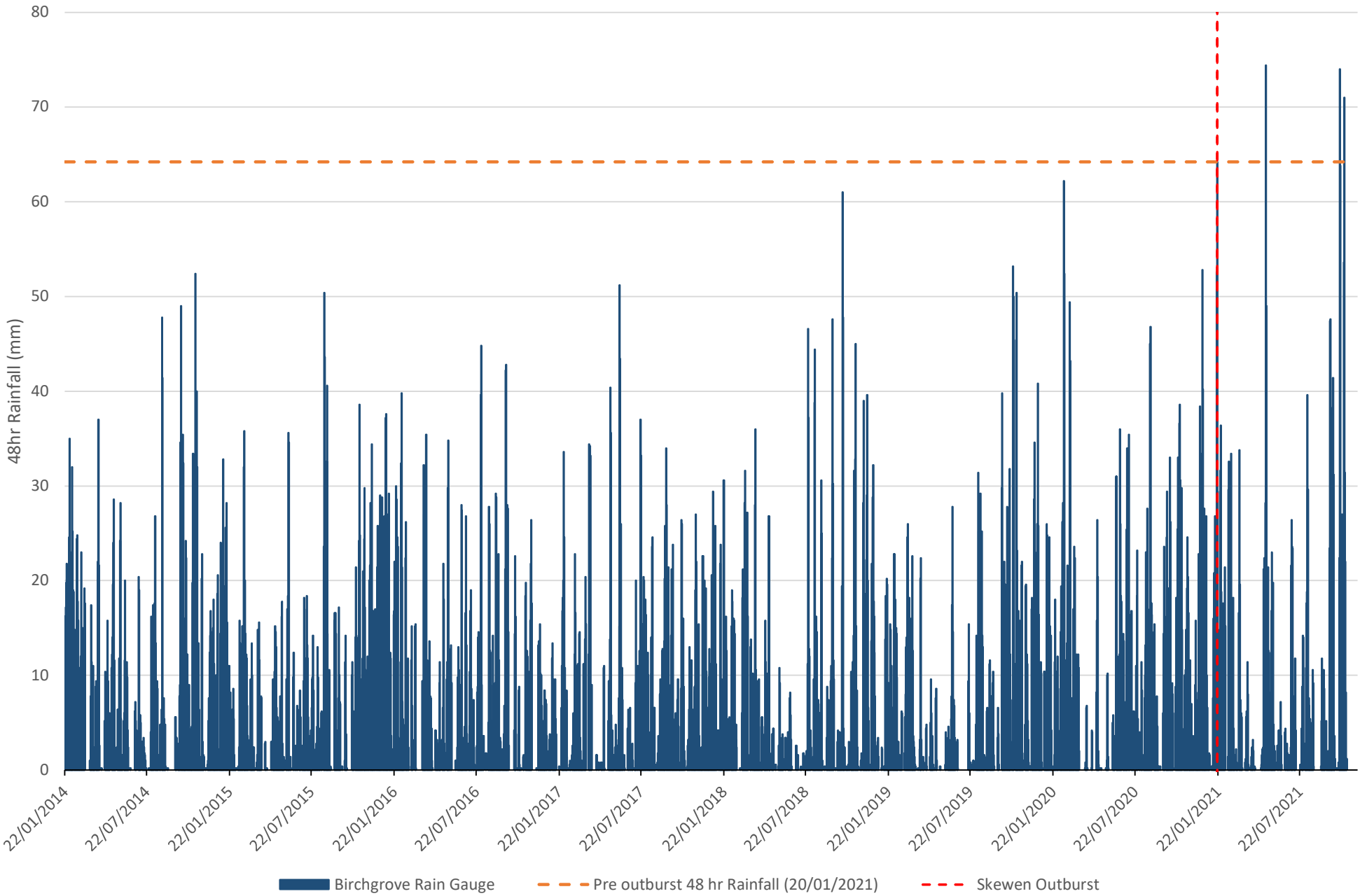

Figure 7: Two day rainfall for Skewen area (Birchgrove Main) 2014 – 2021

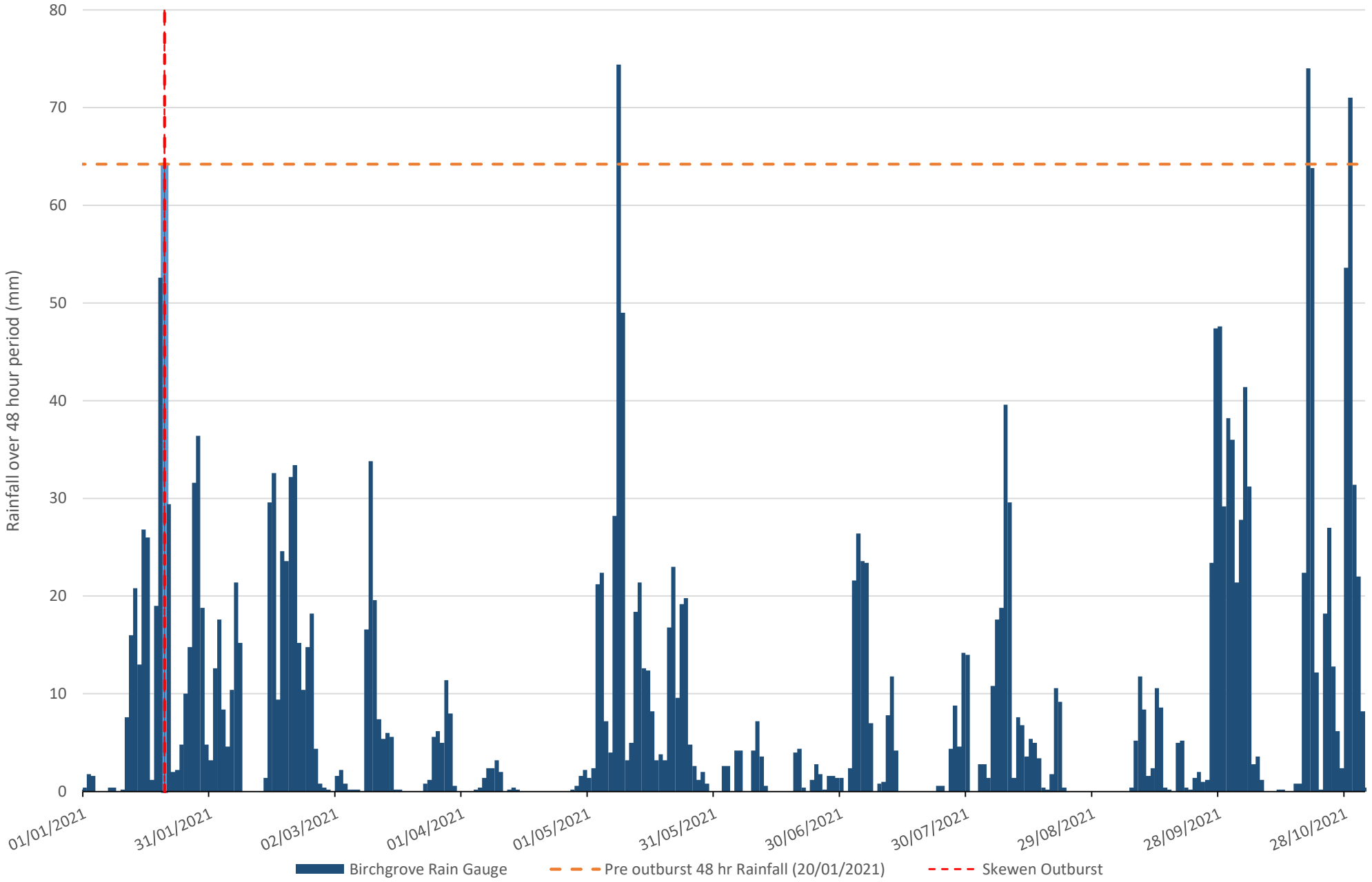

Figure 8: Two day rainfall for Skewen area (Birchgrove Main) 01/01/2021 – 30/10/2021

Further analysis of longer term rainfall data has been undertaken to assess the precedent situation in the Skewen area with respect to average conditions. Comparison of measured monthly rainfall totals with long term monthly rainfall averages and cumulative deviation of monthly rainfall totals from the mean have been used to assess whether the event occurred following what could be considered a period of wetter than usual conditions.

Natural Resources Wales (NRW) provided a comparison of total monthly rainfall with the long term average for each month. This has been reproduced as **Figure 9** for January 2021 and the six months prior, with the data presented in **Table 8**. The data shows that this full period was wetter than average despite a fairly dry late summer in 2020. The four month period preceding the outburst event experienced rainfall 30% higher than average conditions.

Table 8: Month total rainfall versus long term average (Birchgrove rain gauge)

Month	Monthly Rainfall total (mm)	Long Average Monthly Rainfall total (mm)	% of the long term average rainfall
July 2020	129.8	92	141%
August 2020	91.6	122	75%
September 2020	82.8	135	61%
October 2020	231.8	155	150%
November 2020	143.6	160	90%
December 2020	255.4	171	149%
January 2021	206.6	160	129%

Comparison of monthly rainfall totals with the mean rainfall total for each month over the full period of the dataset is presented in **Figure 10**. The red dots represent the deviation of the monthly rainfall total from the mean, where this value is positive the rainfall was higher than average with negative values representing below average rainfall. Of the 93 months in the dataset 42 reported higher than average rainfall and 51 reported lower than average rainfall.

Given the delayed response of underground waters to rainfall inputs, isolated instances and even months of higher rainfall are less significant than sustained periods of higher than average rainfall. Therefore cumulative deviation from mean analysis of the seven year rainfall data set has been undertaken (**Figure 10**). This analysis shows that from January 2014 to October 2015 the general trend was one of dryer than average conditions. This was then followed by a period of wetter than average conditions from October 2015 to September 2016. In the three years from September 2016 to September 2019 the general trend was one of dryer than average conditions (decreasing gradient). From September 2019 the cumulative deviation from mean rainfall has reduced as shown by the rising gradient indicating ongoing wetter than average conditions to present.

Note: the nature of the analysis is such that the cumulative deviation from the mean trends to zero. The gradient of the line is the indicator of whether a period is wetter or dryer than average.

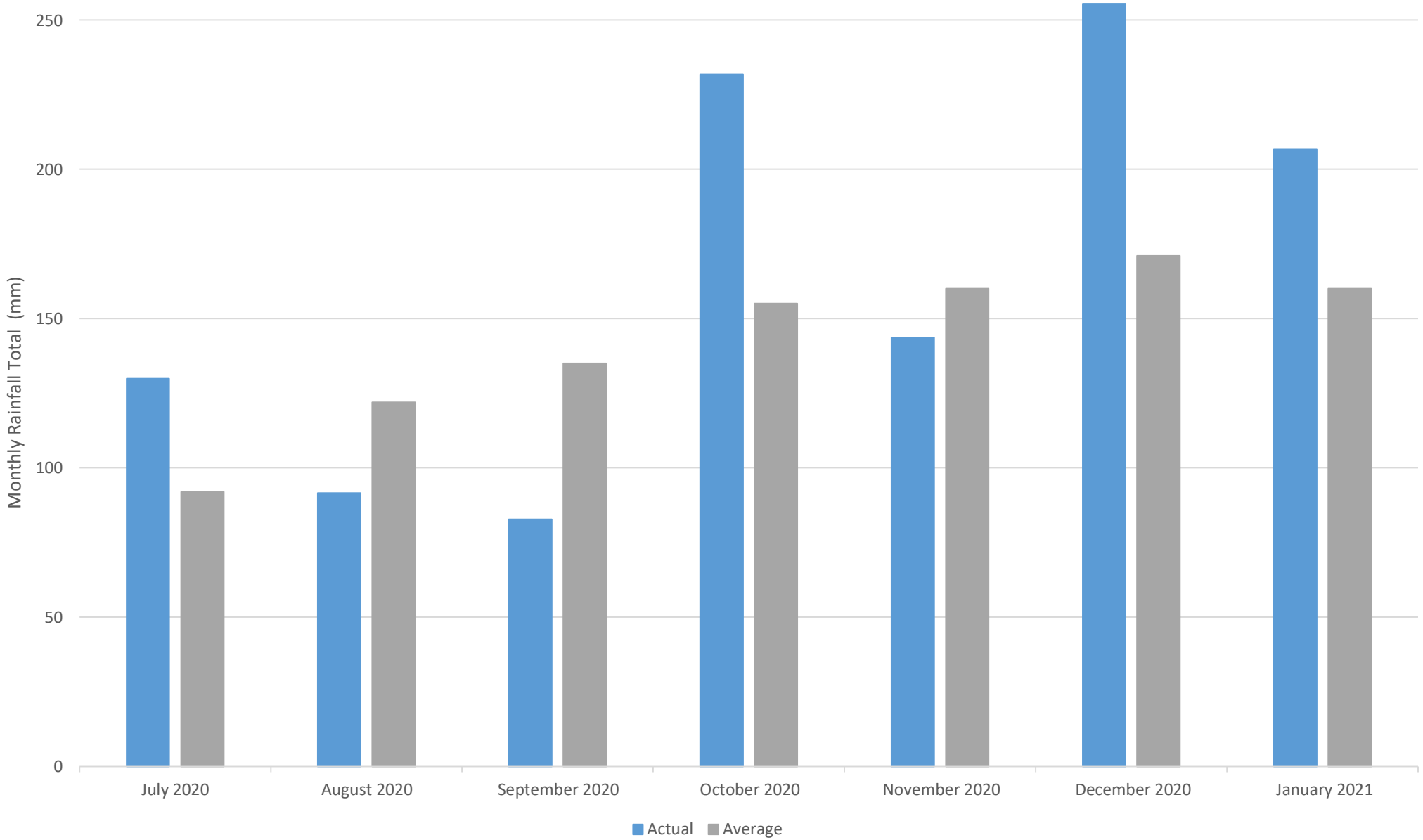

Figure 9: Actual month total versus long term average rainfall (Birchgrove Main)

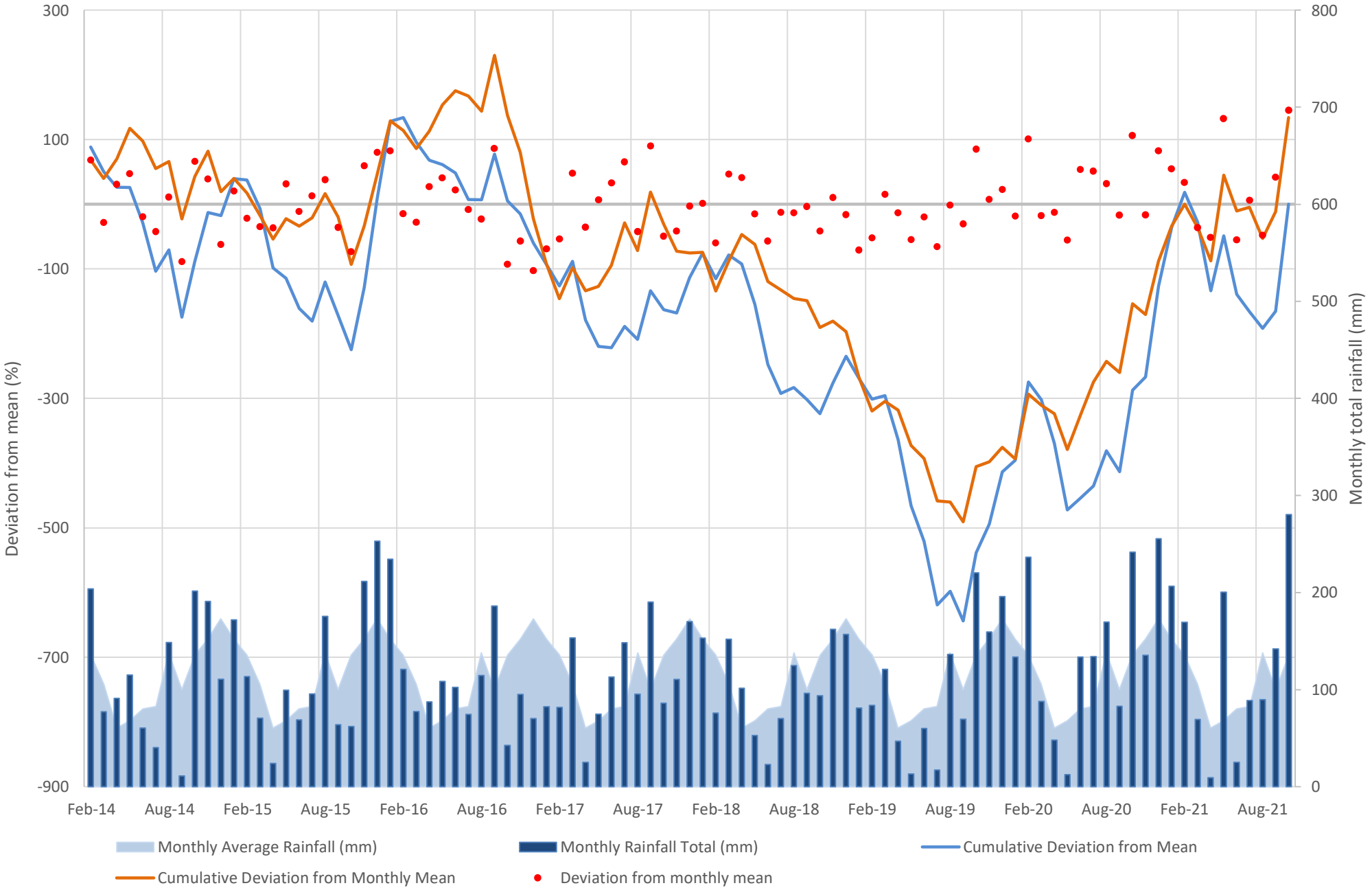

Figure 10: Monthly rainfall total and cumulative deviation from mean (Birchgrove Main)

3.0 Geology

3.1 Overview

The South Wales Coalfield dominates the geology of South Wales. The Upper Carboniferous sediments across the region host the coal seams exploited by the areas extensive coal mining. The thickness of coal measures occurring in the coalfield varies. The lower, older portion of coal bearing strata includes thicker and therefore more economically viable coal seams. The upper part includes fewer and more minor coal seams and has in the past been referred to as the Barren coal measures.

The structure of the South Wales Coalfield can be broadly described as a syncline super imposed with more minor folding. The western area of the coalfield features north south and south-west north-east trending faults.

The Mynydd Drumau area comprises sediments from the Swansea and Hughes Members, subdivisions of the Pennant Sandstone Formation from the Asturian sub stage of the Upper Carboniferous period.

Superficial deposits in the majority of the study area are likely to be minor with limited occurrences of glacial and periglacial deposits and hill peat in the upland areas. BGS mapping shows till (unsorted and stratified glacial drift) to be present across the Clydach valley, including the eastern extents of the study area. There is also a mapped area of till protruding into the study area from the south west corner near Birchgrove.

Recent reclassification of the sedimentary sequence means that terminology used in references (particularly historical abandonment plans) may differ from the current lexicon. As far as possible the current names and classification will be used here.

An excerpt from the BGS geological map covering the study area is presented as **Figure 11**.

3.2 Stratigraphy

The bedrock of the majority of Mynydd Drumau is mapped as sandstone of the Swansea Member. The lithotypes of this member include fine grained grey green sandstones interbedded with thin mudstones, siltstones and mainly thin coals (British Geological Survey, 2021).

Review of the Coal Authority archives identified a coal mine abandonment plan from 1863 which includes a generalised vertical section of the “Neath Abbey Free Coal District” presented as **Figure 12**. This generalised section presents the main coal seams relevant to this study; Greenway, Tir Edmund (Upper and Lower), Graigola and Maesmelyn, and provides their sequence and give an indication of their relative vertical separation. The vertical intervals have been converted to metres, and are considered to be broadly representative of the study area, though there will be some lateral variability.

This stratigraphy also shows large thicknesses of shale to occur toward the top of the sequence with minor shale (2.74 m thick) between the two Tir Edmund seams and sandstone between the Tir Edmund and Graigola seams. Local lithological (rock type) variability in the proportion of sandstone and shales are expected across the study area. The Graigola sandstone unit is relatively persistent, continuing across the majority of the study area.

Cross sections across local coalfields to the south of the study area, show thick, porous sandstone with shale beds between the Greenway Seam and the Graigola Seam. These illustrate some of the regional variability between shales and sandstones.

The British Geological Survey (BGS) memoir for the area (Strahan, Dixon, Gibson, Jones, & Tiddeman, 1907) also describes the Greenway sandstone as a prominent unit above the Greenway seam. The Greenway seam is identified as of very variable thickness and quality, and was therefore subject to very little coal mining at this horizon.

3.3 Structural Geology

The major structures in the study area feature on the BGS mapping as presented in **Figure 11**. In addition **Figure 13** provides an overview, of the structural geology in the area.

The Mynydd Drumau study area is contained as a faulted block by two major bounding faults. These northward trending faults are the Dyffryn Fault on the east, which is downthrown to the east, and Gardeners Fault on the west, which is downthrown to the west.

Some folding of the strata also exists. BGS geological memoir (Strahan, Dixon, Gibson, Jones, & Tiddeman, 1907), and mapping describes this as a broad, shallow syncline (down fold) with a westward plunging fold axis to a low point where it abuts the Gardeners Fault. This structure results in the coal seams being at their lowest elevation close to the centre of the western boundary of the study area. The folding also means that the strata dips gently northward in the south of the area, and conversely dip gently southward in the north of the area.

The section presented as **Figure 13** also illustrates that as the seams approach the Dyffryn Fault, they are folded down to the east. Such “drag-folding” is often associated with large faults like this. As the Skewen Level/Drummau Road Drift runs close to the Dyffryn Fault, it is expected that it lies in this drag-folded zone for most or all of its length. Although this section also shows several coal seams below the Maesmelyn seam, these are below Ordnance Datum (sea level), and thus are too low to be of relevance for this study.

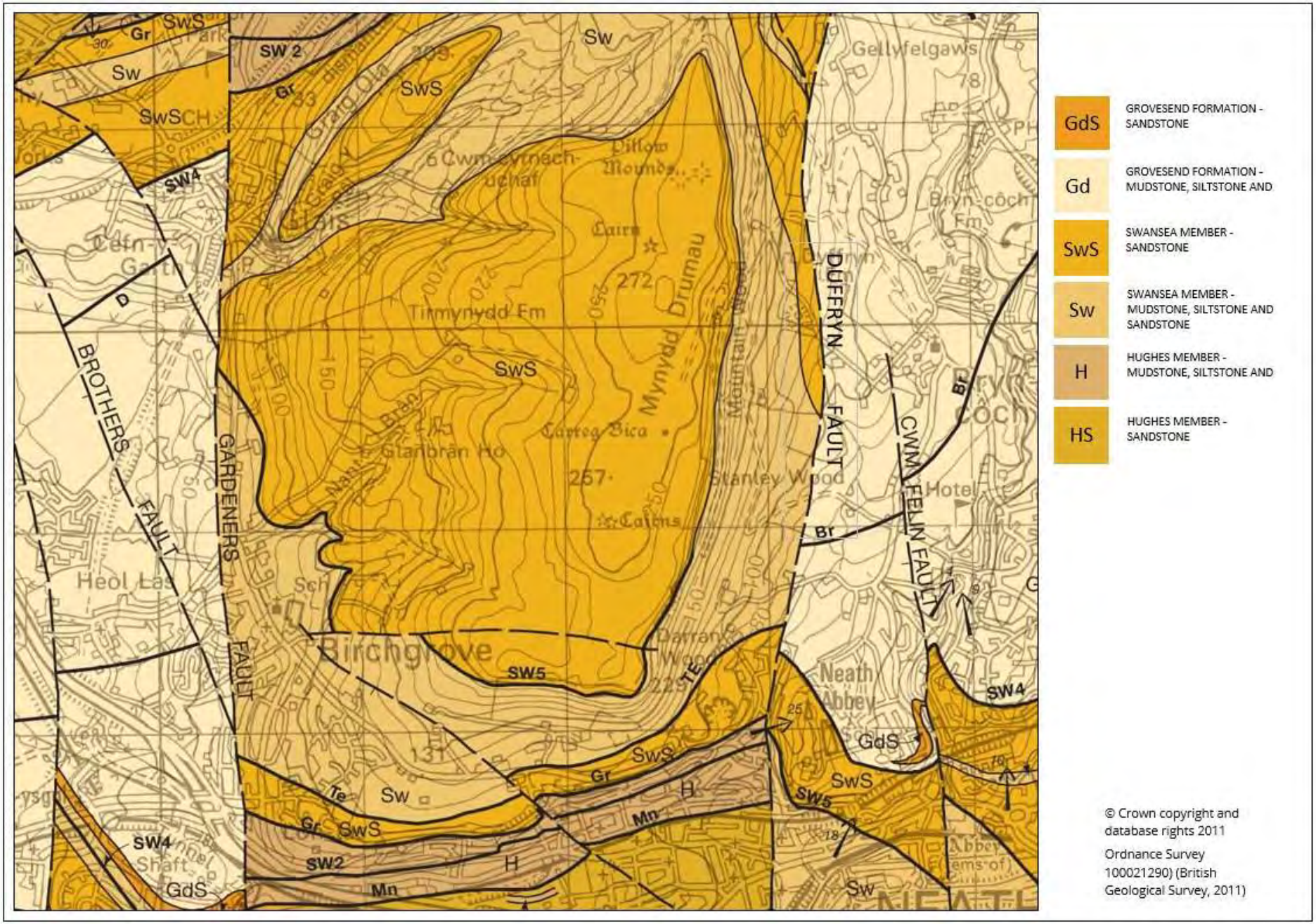

Figure 11: Geological map of Mynydd Drumau study area (© UKRI [2021)

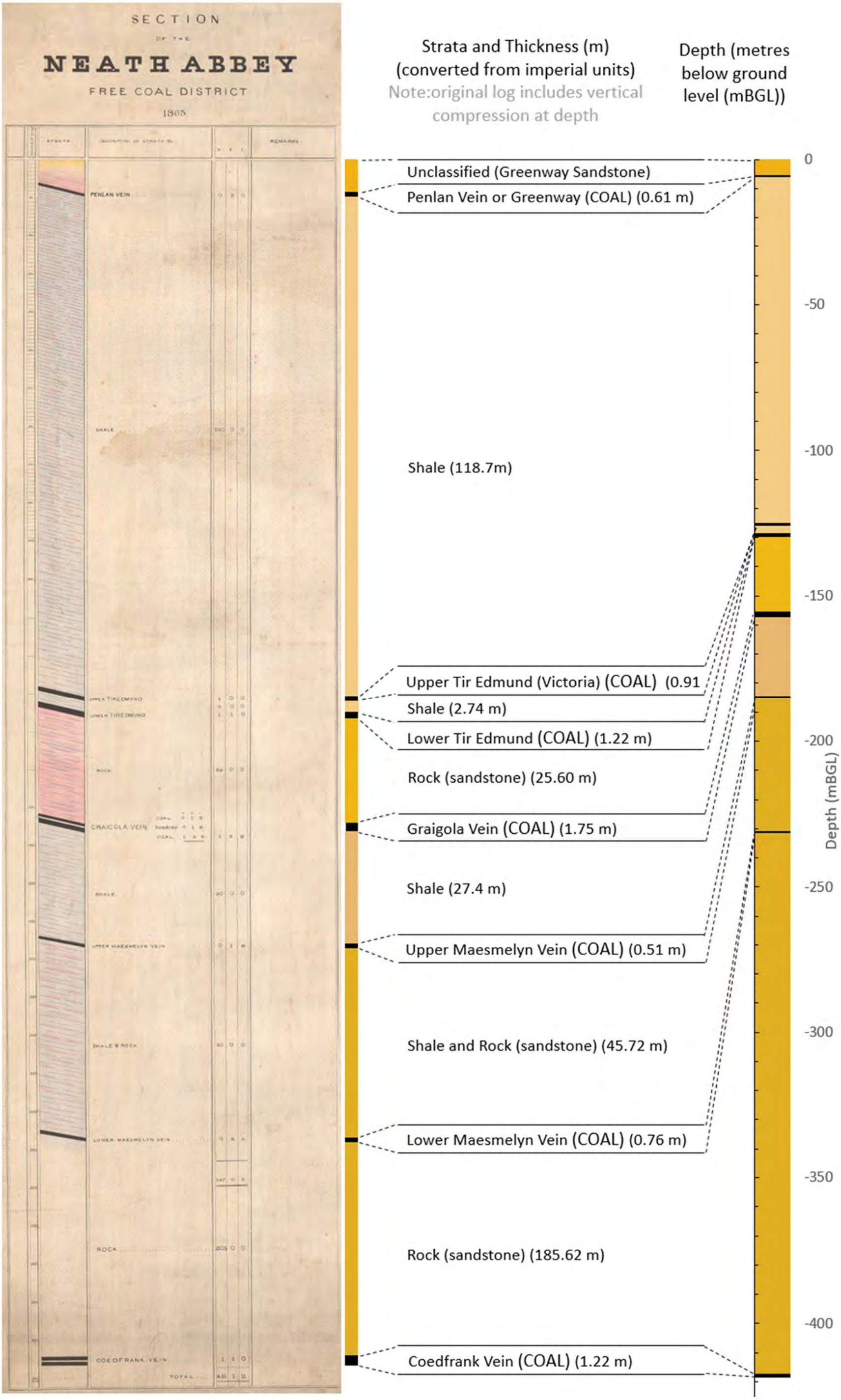

Figure 12: Generalised stratigraphic section vertical section of Neath Abbey Free Coal District geology (from abandonment plan R12041 2 of 2, 1863)

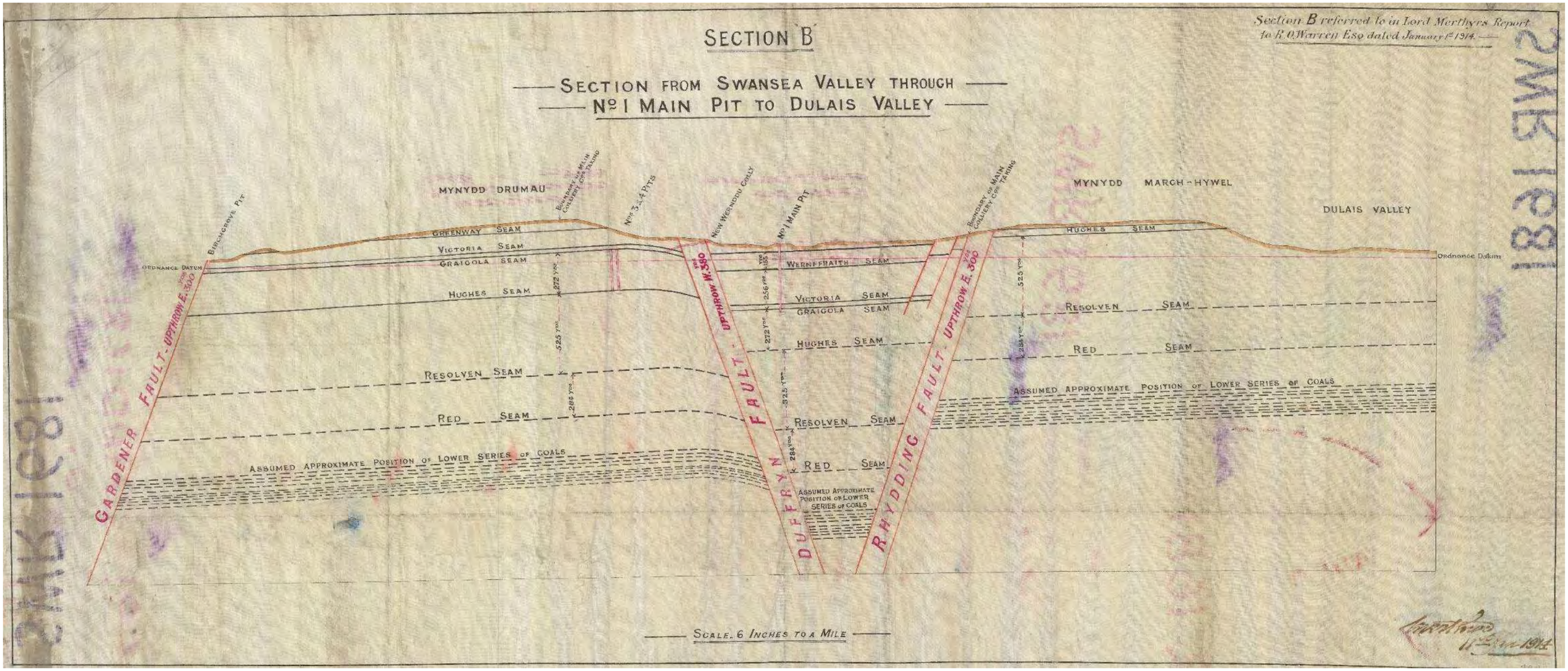

Figure 13: Section from Swansea Valley through No1 Main Pit to Dulais Valley – Note Mynydd Drumau study area is on West side of Duffryn Fault (SWR1681 4 of 5, 1914)

4.0 Mining Activity

4.1 Overview

In common with much of South Wales, as a result of the geology the study area has been subject to a long history of coal mining. The coal beneath Mynydd Drumau is likely to have been mined to some degree for many hundreds of years. The rapid development of the coalfield in the mid to late 19th Century is when the majority of the documented activity in the Mynydd Drumau area started. Underground mining in the study area continued to some degree until 1987. The long history of mining in the area means that it is highly likely that there are areas of unrecorded mine workings, particularly in the upper, shallow seams and close to outcrop. The requirement to prepare and deposit plans of abandoned mines with the Secretary of State plans on abandonment of workings became a statutory requirement in 1872 under the Coal Mines Regulation Act.

4.2 Mining History

A summary of the worked collieries, including periods of working are presented in **Table 9**.

Table 9: Worked collieries summary

Colliery Name	Abandonment Plan Dates	
	Earliest	Latest
Skewen Main	1835	1914
New Wernddu	1870	1927
Brynddewy (Bryn Dewi) /Brithdir	1873	1893
Darran Colliery	1970's (anecdotal) 1984 (Plan)	1987
Parsons	1914	1966

The abandonment plans covering the area span just over a hundred and fifty years and vary in detail and quality. The earliest plan showing the Skewen Level-Drummau Road Drift is SWR1661 from 1835. Over the years of mining it is clear that the methods of extraction changed and evolved. Plans include indication of pillar and stall working as well as total extraction and also indicate areas of "old workings" that are not defined in detail. The pillar and stall method relies on pillars of coal remaining in-situ to support the overlying strata (or roof) and may result in between 30-70% (G.F. Garrard, 1988) of available coal remaining in place. Miners had a good appreciation of the geological condition in the collieries they worked and knew how to maximise extraction whilst minimising potential for collapse during ongoing operations. As seams became exhausted and collieries or areas of collieries neared abandonment the boundaries of acceptable risk were more likely to be pushed and extraction percentages increased.

There has been no surface (opencast) coal mining within the study area. Coal may have been taken incidentally as a result of quarrying sandstone directly overlying the coal, especially the Graigola seam. Some evidence of such activity has been observed during Coal Authority inspections in the area.

4.3 Worked Seams

Of the five coal seams identified as occurring beneath Mynydd Drumau and relevant to this study (**Figure 12**), four have workings recorded on abandonment plans within the Coal Authority archive. With the upper most seam, the Greenway not having recorded workings in the study area.

Calculated areas and volumes of the recorded workings across the Mynydd Drumau mining block are provided in **Table 11**. Due to the limitations of the available information these calculations are based on some fundamental assumptions. The calculations in **Table 11** are based on the assumptions described in **Table 10**

It is likely that there are further areas of workings for which there are no records or where records are incomplete. Estimates of the total extracted void volume for each seam have been included. Further, as the ability for water to drain from an area of workings is subject to geometric controls (water cannot decant via higher points) an estimate of the potential volume that could conceivably drain to the Skewen Level/Drummau Road Drift (potential discharge volume) has also been provided. The recorded mine workings in the Tir Edmund and Graigola seams within the study are presented in **Figure 14** with the volume thought able to drain to the south east via the Skewen Level/Drummau Road Drift presented in **Figure 15**.

Table 10: Working area and void calculation assumptions

Assumption	Justification
The full area of all recorded workings were extracted (i.e. total extraction)	There are areas of recorded total extraction and in areas were partial extraction is recorded it is likely that the extraction rates will have exceeded that stated. In addition, there are likely to be extensive areas of unrecorded workings that provide unknown additional area.
The lowest recorded seam thickness has been used to calculate the extracted void volume	Seam thickness data is limited and may include information from roadways that extended out of seam. The upper range is considered likely to be the extreme with the lower end of the range more representative.
There has been no void loss associated with collapse	There is no available information regarding the state of collapse of the workings beneath Mynydd Drumau, there is no evidence of widespread subsidence at surface as would be expected should collapse have propagated to surface, therefore even where there may have been collapse of the overlying sandstone roof lost mining void would be replaced to some degree by fracturing. In addition, there are likely to be extensive areas of unrecorded workings that provide unknown additional volume.
Workings in the eastern area of Mynydd Drumau with an elevation greater than that of the Goshen Park outburst feature have the ability to drain to that point	The nature of recorded workings is such that connectivity is likely to have been high. During mining operation, efforts would have been made to ensure that as large an area of the workings as possible was as free as possible to drain to the gravity drainage pathways.

Table 11: Worked seams summary

Seam Name	Area of recorded workings (m^2)	Recorded seam thickness (m)	Potential extracted void volume (m^3)	Potential Discharge Volume (m^3)	Minimum working elevation (mAOD)	Maximum working elevation (mAOD)	Comment
Little (Upper) Tir Edmund	523,290	0.96-1.05	502,360	360,100	70	123	Recorded workings only
Tir Edmund	2,685,060	1.2-1.7	3,222,072	564,540	-21	137	Recorded workings only
Graigola	2,541,170	1.5-2.8	3,811,755	666,900	-44	183	Recorded workings only
Westernmoor/ Maesmelyn	7470	0.5-1.0	3,735	N/A	Not investigated	Not investigated	Not extensively worked and below Graigola
Totals	5,756,990	N/A	7,539,922	1,591,540	N/A	N/A	N/A

Notes:

- Area of recorded workings is based on measurement of digitised abandonment plans
- Potential void volume is based on the minimum recorded seam thickness and assumes no loss of void through collapse
- Working elevations are based on the highest and lowest areas of recorded workings
- Potential discharge volume based on the area of workings at an elevation greater than the Skewen Level/Drummau Road Drift
- Approximate vertical interval between seams - Little Tir Edmund is approx. 3 m above Tir Edmund, Tir Edmund is approximately 25-30 m above Graigola.

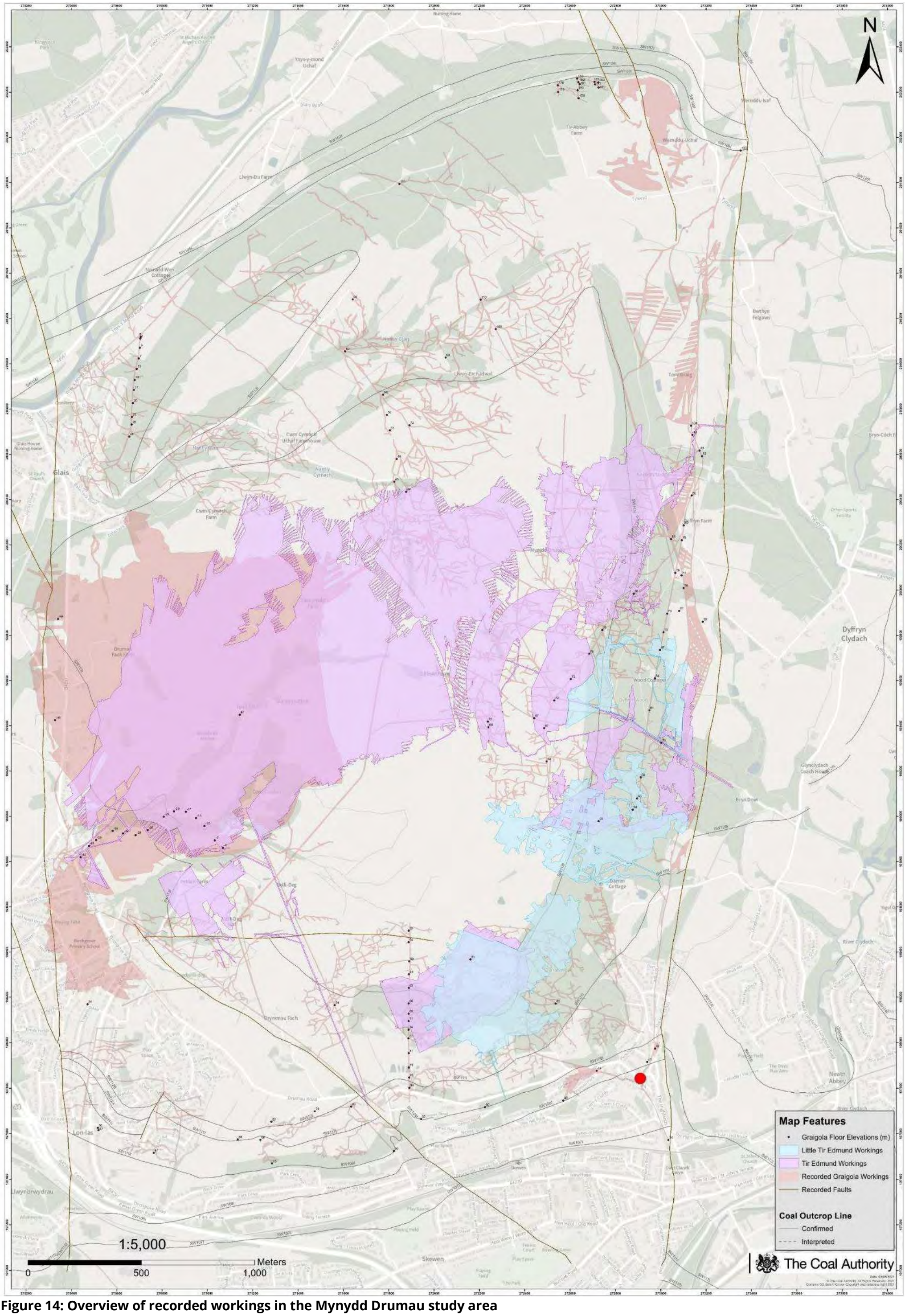

Figure 14: Overview of recorded workings in the Mynydd Drumau study area

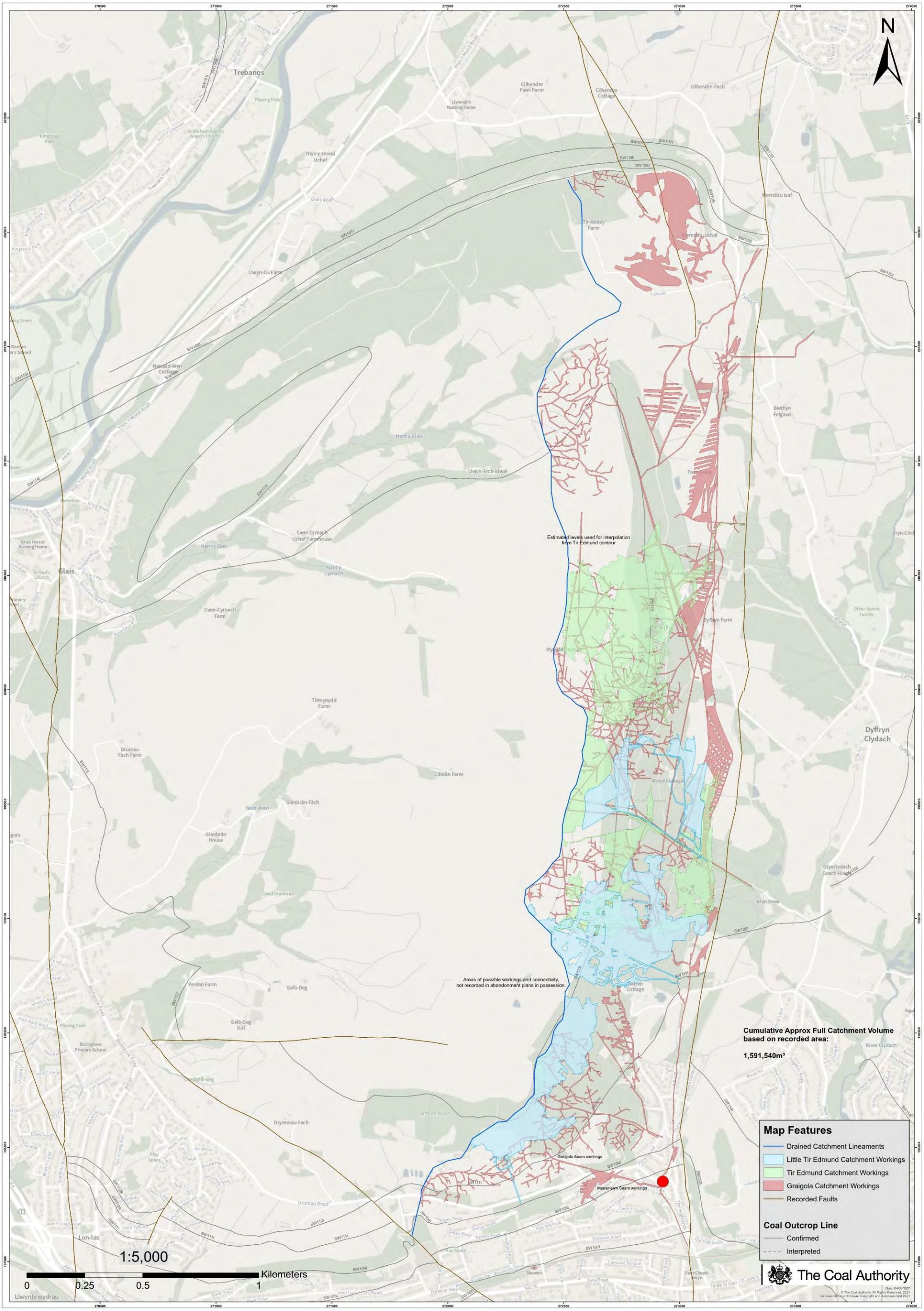

Figure 15: Recorded workings in the Skewen area and estimated catchment volume

4.4 Connectivity

The upper most worked seams, the Little Tir Edmund (upper) and the Tir Edmund (lower) have very little vertical separation in much of their occurrence. The minimum recorded separation is 2.5 m between the seams. The Tir Edmund and Little Tir Edmund are recorded to have been worked separately, on abandonment plan R12041 (2 of 2) where they are documented to be 2.7 m (3 yards) apart. Numerous roadways connect the overlying Little Tir to the Tir Edmund. With this limited separation it is likely that fractures and joints between the two seams allowed the movement of water. Plan SWR3000 from the Darran Colliery area records a breach into the underlying Tir Edmund workings 2.5 m below the overlying Little Tir Edmund working floor. These breaches will cross connect the seams and they are therefore expected to behave like a single unit.

In the majority of the study area the Graigola is separated from the overlying Tir Edmund seams by approximately 20 m of porous sandstones (18.2 m recorded on R12041 2 of 2).

Recorded connections between workings in Graigola and Tir Edmund Seams include the Bryndewy Level where the major Dyffryn/Duffryn Fault down throws the strata (on the west side of the fault) causing in seam workings to naturally decrease in elevation. Large volume catchments of both Little Tir and Tir Edmund are recorded above Graigola and the Skewen Level/Drummau Road Drift in this area. It is very likely given the extent of workings, limited thickness of porous sandstone and minor faulting, that water could drain down through recorded and unrecorded pathways to the Graigola Seam.

The main workings draining to the Skewen Level/Drummau Road Drift are in the Graigola seam. This is also the seam with the longest working history and therefore, there is potential that the abandonment records are incomplete. The available records show an extensive network of conduits (mining connections) from south to north along the Skewen Level/Drummau Road Drift (**Figure 15**) suggesting a high degree of connectivity. The number of recorded connections and nature of the overlying geology (hard sandstones) mean that even if there has been extensive collapse it is likely that hydraulic connectivity with the Skewen Level/Drummau Road Drift has been maintained.

The Graigola seam elevation data has been reviewed and interpreted to assess the likely drainage direction for each area of workings. The results of this analysis have been mapped as presented in **Figure 16** and **Figure 17**. The analysis reveals that the Graigola seam has a saddle-like geometry. From the centre point of the saddle, the seam rises to both the north and south and falls away from the centre point to the east and west. The saddle geometry mirrors the overlying north-south ridge of Mynydd Drumau. This underground ridge is likely to form a groundwater catchment divide between the west and the east of the mining block. The eastern portion draining to the Skewen Level/Drummau Road Drift.

The full mining block area is 12 km^2, the western portion of the block has an area of 9 km^2 whilst approximately 3 km^2 drains toward the Skewen Level/Drummau Road Drift. The interpreted limit of the eastern area draining to the Skewen Level/Drummau Road Drift is included in **Figure 17.** Modelling of the Graigola workings from the abandonment plans shows that the lowest point of the groundwater divide has an elevation of between 60 and 65 mAOD, with the best estimate being 63 mAOD.

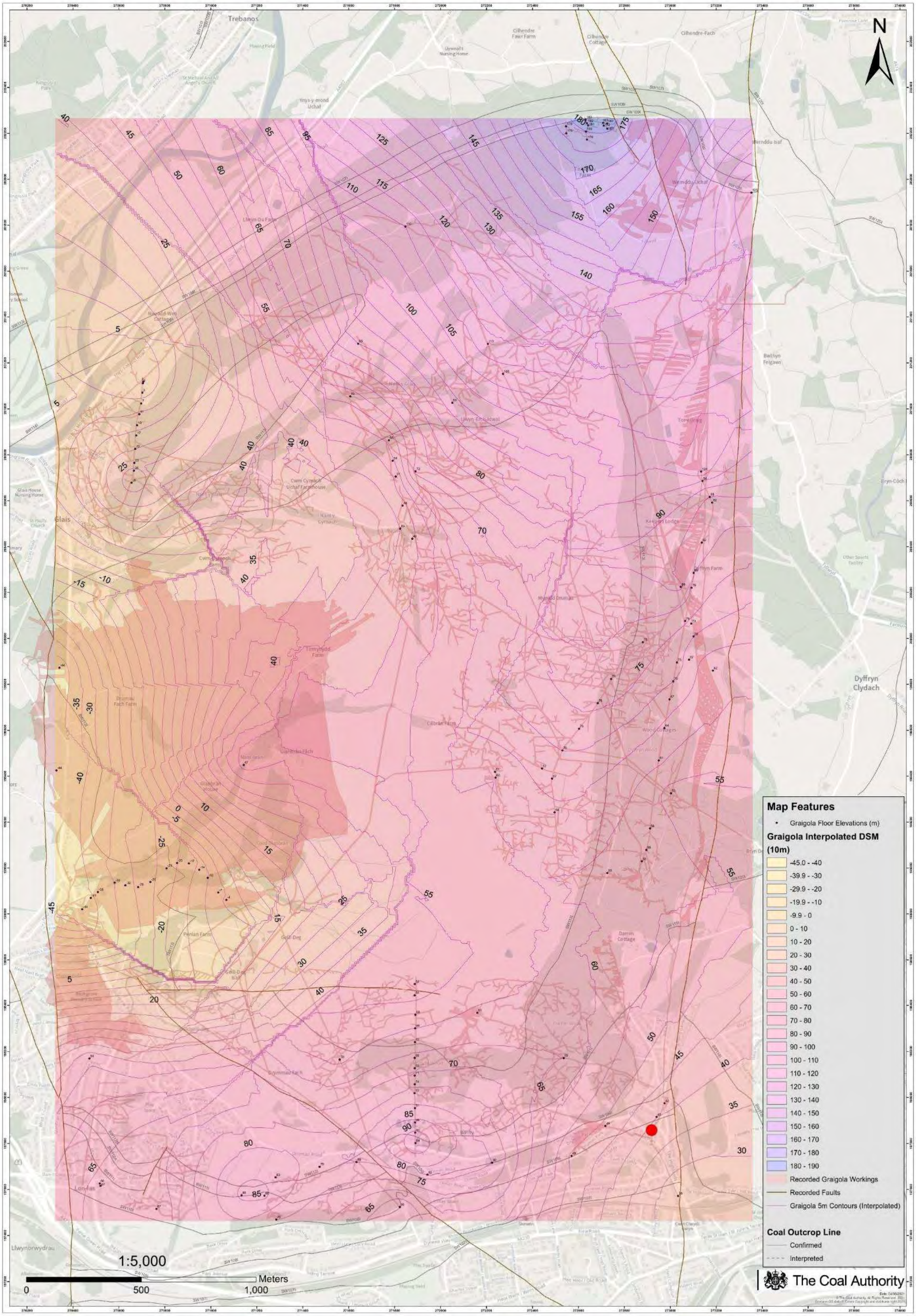

Figure 16: Graigola seam elevations contours in the Mynydd Drumau study area

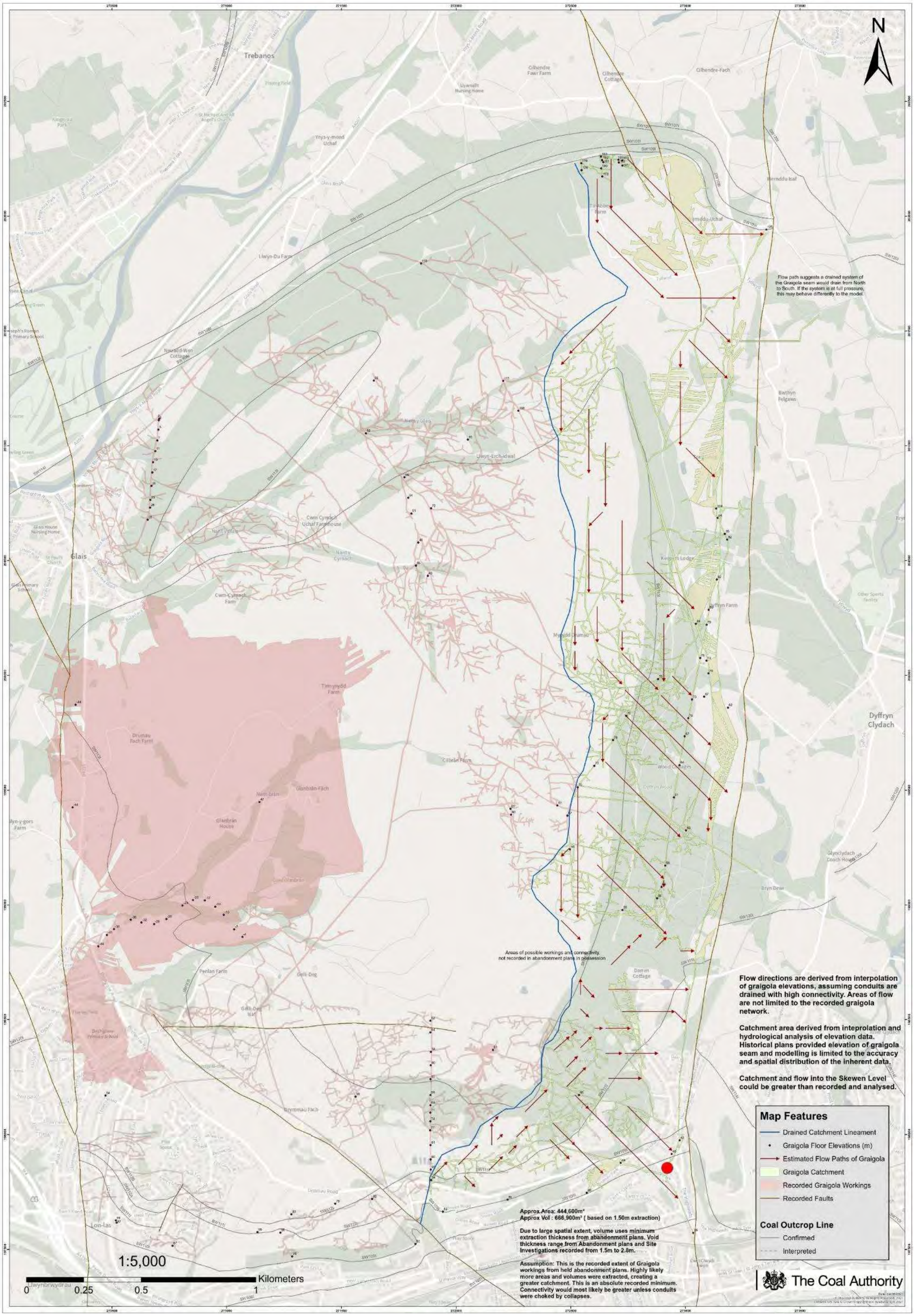

Figure 17: Drainage direction mapping of the Graigola seam

There may be other hydraulic connections between the western and eastern groundwater at lower elevations though they are considered unlikely or of low significance for the following reasons:

- Cross seam mining connections from the Graigola seam to the Maesmelyn seams are unlikely due to the vertical separation and the limited extent of Maesmelyn workings; and
- Mining induced fracturing is likely to be lesser below the Graigola seam as the working of coal below this level is less extensive, natural fractures may be present but may exhibit lower transmissivity.

If cross catchment connections below the elevation of the saddle are present it becomes more difficult to define the catchment areas likely to be draining toward specific discharges, including the Skewen Level/Drummau Road Drift.

4.5 Water Management

The management of water documented during mining operations provides a useful indication of the occurrence of water within the mines. Numerous water “issues” or underground “springs” are recorded on abandonment plans for the Mynydd Drumau block and in the surrounding area where geology is comparable. These features represent “makes” or inflows of water that were considered notable enough to be recorded, as such it is possible that they required specific management or attention during mining operations. In addition to notes on mine abandonment plans, BGS memoirs and other anecdotal evidence describe frequent underground water inflows to workings.

The primary method of water management in the Mynydd Drumau area was gravity drainage whereby the natural form of the geology and surface topography is used to direct water to discharge at surface low points. This method uses no energy in operation but requires that the workings lie above the discharge point and that pathways with appropriate falls can be established and maintained. The Skewen Level/Drummau Road Drift was the most important drainage connector and pathway for the eastern portion of the Mynydd Drumau mining block. The Skewen Level/Drummau Road Drift is referred to on numerous plans referencing it as a drainage level. The earliest plan on which it is included is SWR1661 from 1835.

Where seam geometry or other factors preclude gravity drainage, pumps may be used to raise water to a level from which it can be discharged under gravity. Abandonment plans sometimes include detail of the location of pumps and provide indicative abstracted volumes. Use of pumps to drain water is recorded in the Graigola seam in areas to the west and in the Skewen Level/Drummau Road Drift.

As described in **Table 7**, an ex-surveyor at Darran Colliery recounts the lack of pumps within the colliery and that water percolated from the overlying Tir Edmund workings.

4.6 Quarries

In addition to coal mining the geology of Mynydd Drumau has been exploited by way of sandstone quarrying.

Quarrying may have altered the behaviour of surface water and groundwater local to the activity through removal of vegetation, modification of landform and removal of geology. Potential impacts of quarrying may include:

- Removal of vegetation – reduced interception;
- Removal of topsoil and superficial material – increased infiltration volume and rate;
- Slope reduction – reduced runoff and potential ponding;
- Reduced thickness of overlying geology – reduced recharge migration pathways;
- Direct pathway to workings – quarrying may have induced fracturing, exposed coal or coal workings allowing direct recharge.

Several sandstone quarries are present within the study area. These were identified from Ordnance Survey maps and other sources. During the Coal Authority Water Features Survey (**Appendix A**) a number of quarries were visited. The locations of these quarries are included in **Figure 18** with key observations described below.

Name	Easting	Northing	Elevation (mAOD)	Visual observations/ description
Skewen Old Graigola Sandstone	272755	198100	75	• quarry floor is approximately 200 m by 150 m • Between 6 and 10 small (<3m across) ponded areas located across the quarry floor • Several holes evident along the foot of the high wall with nearby coal fragments
Drumau Road Quarry	272171	197752	115	• High wall approximately 80 m long • exposes large thickness of sandstone • Dry at time of visit
Coed Derwen Quarry	272532	197922	100	• Minor disused quarry15 m by 20 m • Dry at time of visit • evidence of water flow from the foot of the highwall • cobbles and gravel in area suggest flows have been sufficient to move this material
Lonlas Quarry	271795	197615	110	• Sandstone quarry • No evidence of water at time of visit • Maybe drained by Lonlas - Old Graigola Level discharge
Graigola Quarry	271260	201620	85	• Exposure of jointed Graigola Sandstone • Mine entry at the foot of the high wall with water on floor • mine entry is likely to act as an inflow pathway • Recharge at this location would feed the western sub block

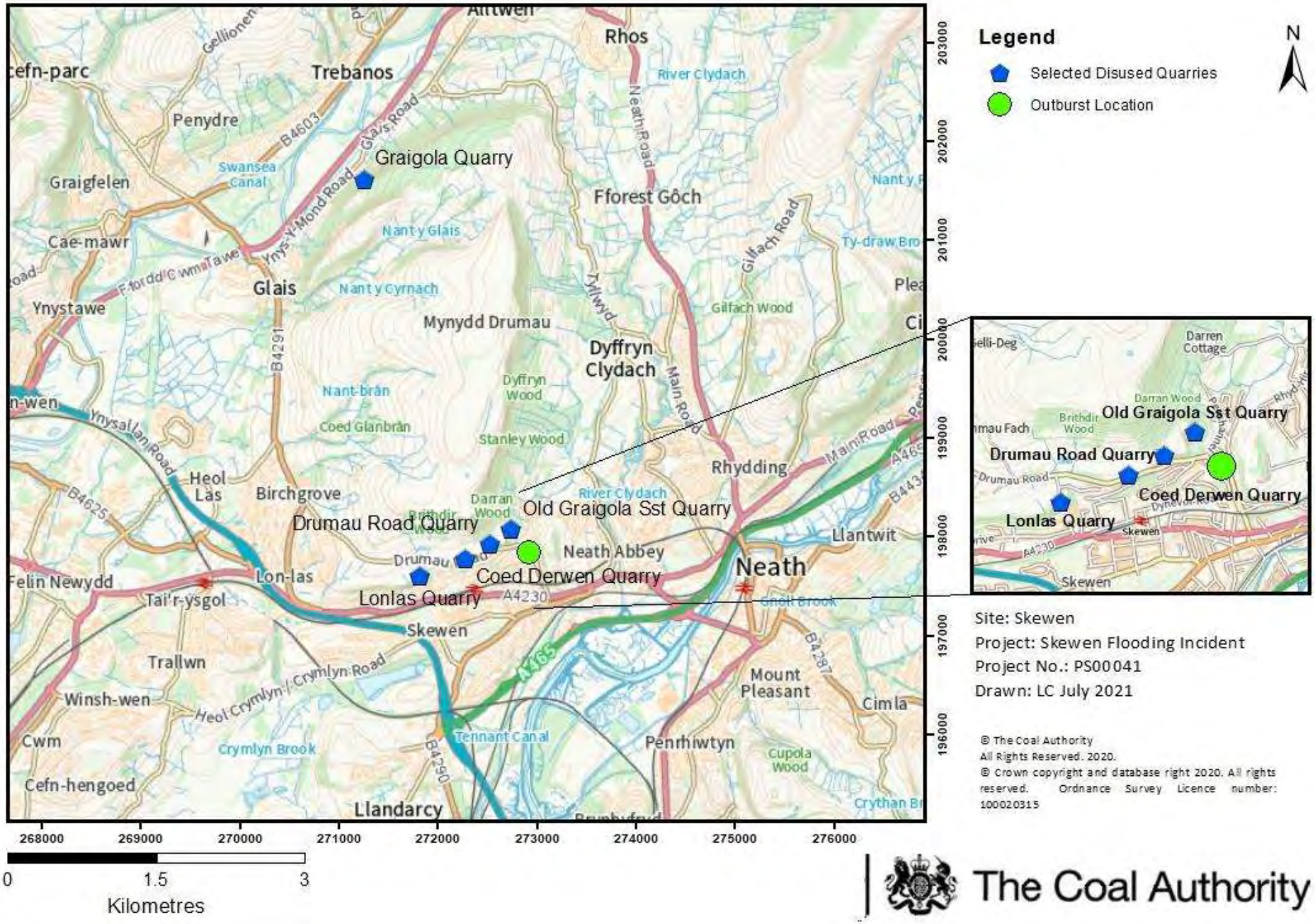

Figure 18: Disused quarries inspected by Coal Authority

5.0 Hydrology and Hydrogeology

The hydrology and hydrogeology of the Mynydd Drumau study area are closely linked and are therefore discussed together here. The most significant water features in the area are the numerous springs and spring-lines discharging from the base of the sandstone units. These groundwater issues are the primary source for many surface water streams and many provide year round flow. The springs are the only visible expression of groundwater in the study area and therefore their location, elevation and characteristics (flow and quality) are a line of evidence regarding the behaviour of water underground.

5.1 Surface Water Features and Drainage

The surface water features in the study area are considered of relevance as they give an indication of the nature of the recharge processes occurring. The type, nature and location of surface water features may also indicate the presence and distribution of groundwater or mine water discharges.

Surface water runoff occurs in all directions around the hill of Mynydd Drumau.

The majority of surface flow is to the west, on the shallower slopes with that aspect of the hill having the largest surface catchment area. Steeper scarp slopes are prevalent around the north, east, and south slopes, much of which are covered in woodland and forestry. These steeper slopes are expected to have differing drainage run-off characteristics from the shallower angled western slopes.

The majority of the surface water features included in Ordnance Survey mapping have springs marked in their headwaters indicating that groundwater discharges are a major contributor to the surface water in the area. The springs, and lines of springs, are commonly associated with the base of the Greenway sandstone. Springs also occur near the base of the Graigola sandstone, although these appear to be less common.

There are no significant lakes or ponds in the area.

In operation the Skewen Level/Drummau Road Drift is believed to have discharged mine water into an un-named surface water feature close to the railway viaduct crossing Drummau Road. Following the portal modification work undertaken by the Coal Authority in 1996 the discharge from the level was via pipe from the concrete stopping to the un-named surface water feature. The drainage was inspected during the scheduled environmental monitoring between 1997 and 2015 as well as by mine entry inspections in 2014, 2017 and 2018.

The surface water feature up stream of the Drummau Road Drift is an open channel to a point approximately 150 m upstream at Dynevor Road. The next 300 m upstream from this point is in a piped culvert before a very brief section of open channel (approximately 10 m) to the east of “The Highlands”. Up stream of here the feature is again in a piped culvert for approximately 270 m before another section of open channel is reached on the boundary between fields and residential properties on the east side of “Highlands Gardens”. This section is marked as “drain” on the Ordnance Survey mapping. The mapping shows this drain to be fed by a number of issues or springs to the east of Darran Wood on the east side of Mynydd Drumau.

5.2 Groundwater Overview

The BGS describes the Upper Coal Measures of South Wales a multi-layer aquifer containing large quantities of groundwater with separate water bodies existing in each sandstone horizon (British Geological Survey, 1986). The BGS also identify that "the extensive disturbance and subsidence caused by coal mining has resulted in hydraulic continuity between sandstones" (British Geological Survey, 1986).

Hydrogeological mapping (British Geological Survey, 2021) identifies the geology beneath Mynydd Drumau as a moderately productive aquifer with moderate yields from sandstones and many springs. The water quality is noted as moderate though mine water discharges are referenced as having poor water quality.

Literature sources report the primary (intergranular) porosity of the Upper Coal Measures sandstones as being around 2% (British Geological Survey, 1986). The bulk of the permeability within the sandstones is as a result of secondary porosity due to natural joints and fissures, as well as fracturing caused or exacerbated by the actions of coal mining (Jones, 2000). In addition to mining induced fracturing, the voids of workings, levels and roadways will also act as both water storage and water movement pathways.

The bedrock geology and superficial deposits in the study area are both classified as secondary aquifers with high or medium vulnerability (British Geological Survey, 2021).

5.2.1 Recharge Processes

The recharge of groundwater and mine water in an area is the process by which rainfall enters the system. The amount and effectiveness of recharge is key in defining the distribution and volume of water present. The mechanisms by which the recharge occurs is likely to influence the behaviour of underground water elsewhere in the system.

The study area lies in a region that is widely regarded as being wet, though the local rain gauge (Birchgrove Main) reports an annual average rainfall (1380 mm/yr) slightly lower than the national annual average (1,392 mm/yr).

The outcrop of Upper Coal Measures in South Wales experiences high effective recharge with rainfall infiltration in the order of 250 mm/year (British Geological Survey, 1986). In the study area, the thinly covered permeable sandstone along with large sections of seam outcrop are likely to enable rainfall to enter the system.

Recharge via infiltration of rainfall means that this water will reach the highest elevation seam at that location first and it is only by vertical drainage to strata below that underlying seams receive water. Where upper portions of the local sedimentary sequence are absent (due to natural or anthropogenic processes), direct recharge to lower parts of the sequence will occur.

Quarrying in the area is a cause of upper sections of the sedimentary sequence to be absent and potentially resulting in more direct recharge to lower sediments and mine workings. Investigation of the Skewen Old Graigola Sandstone Quarry above Skewen identified possible rapid and direct recharge routes from surface to Graigola seam workings understood to be connected nearby into the Skewen Level/Drummau Road Drift.

No direct inflow of surface water to mine workings such as losing streams are known or suspected in the study area.

During Storm Christoph (18-20 January 2021) a two day rainfall of 64.2 mm was recorded at the Birchgrove rain gauge in the study area. This rainfall equates to approximately 770,000 m^3 of water falling onto the 12 km^2 area of Mynydd Drumau during the storm period. As it is thought that only 25% of this area drains to the Skewen Level/Drummau Road Drift the volume of rainfall available to potentially recharge the eastern mine system is likely to have been approximately 200,000m^3. The portion of this rain reaching the underground system is likely to be less than 20% even under the most suitable conditions. In situations where more water is added to an already water rich system the effective recharge is likely to be even lower. Given the rainfall conditions recorded in the previous few months, the system may have been saturated.

5.2.2 Pathways

The pathways followed by water in the sub-surface are important as they are the routes that allow water to travel from recharge inflow points to discharges. Pathways are required to connect water sources (rainfall or recharge) to the discharge locations (ongoing or outburst sites). In addition to providing a link, the nature of pathways will influence the rate and amount of water that can move through the system. Open pathways such as void mine workings may allow rapid and direct movement of water from one point to another, resulting in short, sharp flow peaks at discharge points. More complex connections such as fractured ground or highly collapsed workings may provide a more attenuated pathway that impedes water movement, causing delayed response to rainfall and longer duration but lower peak flows at discharge points.

The movement of water through geological material is highly dependent on porosity, or the materials ability to contain fluid within void space. Though not without exception, the ability of a material to transmit water can be proportional to its porosity. It is common for geological materials to be considered as having dual porosity where fluid holding capacity is created by two mechanisms and these two differing types of porosity behave in slightly different ways. The primary porosity of a rock type can be considered to comprise the void space that exists between the grains or crystal structure in the rock itself. This can be high, such as in clay rich mudstones, or very low in crystalline igneous rocks. Secondary porosity is defined by the void space that has occurred through changes to the rock as a whole; resulting in places where the rock is effectively absent. Secondary porosity may occur as a result processes such as fracturing or dissolution (the dissolving of material). Mining voids may even be considered types of secondary porosity.

In the study area, the most notable natural groundwater flow pathways are likely to be fracturing and jointing in the dominant sandstone units. The geology is reported to have relatively low primary porosity (British Geological Survey, 1986). The mining history of the area has augmented and added these natural pathways. The dominant pathway for groundwater movement through the geology of Mynydd Drumau is likely to be the remnant void space of the workings (collapsed or uncollapsed), and fractures and joints (natural and mining induced) in the sandstone units. Undermining of the sandstone will have led to the opening up of joints, and therefore increased permeability.

The mine workings are thought to be well connected across the study area, with the Graigola seam worked extensively across the whole catchment. The recorded Graigola workings are extensive, it is also likely that there were also extensive areas worked in this seam that were not recorded.

It is likely that the strata between Graigola and Tir Edmund workings has sufficient permeability for the Tir Edmund to be under drained by the Graigola system where overlapping workings occur. On this basis the general situation is likely to be well connected workings with an intervening porous sandstone that act as a single relatively free draining system. No engineered dams or stopping have

been identified on the abandonment plans reviewed. Even in the absence of specific, known low permeability horizons or engineered stoppings (mine water dams) there is the possibility for areas to be less well draining. Factors that may reduce the ability of an area to drain include:

- fewer fractures;
- fewer workings;
- more complete collapse;
- engineered barriers;
- lower permeability geology; and
- accumulation of low permeability material in flow paths

It is possible that large volumes of water could accumulate (either temporarily or more permanently) in areas with poorer drainage.

For the purpose of this report, the mine workings and mining induced fracturing are considered the main pathway for groundwater movement and the natural joints and fracturing to be more minor.

The geometry of the workings (and thereby zones of mining induced fracturing) is largely dictated by the geometry of the strata as described in **Section 3.3**. The saddle structure forms a north-south trending groundwater catchment divide, with its lowest point in the saddle. This divide represents a key control on the overall pathway taken by water in the underground system.

Where water can flow freely down the seam floor away from the divide, the divide will act as a barrier to flows. With the divide splitting the mining block into eastern and western sub-blocks. If the ability of an area of workings to drain is less than the water inflow rate, then impounded water could occur to the point that a free draining pathway is achieved. This could result in water flowing from one side of the block, over the saddle into the workings on either side of the divide. In this situation the saddle feature would no longer represent the groundwater divide, though no water accumulated below the level of the saddle could discharge to the other side of the block via in seam (or seam zone of influence) pathways. The split of flows between eastern and western sub-blocks is further assessed below.

The Graigola seam geometry and information taken from abandonment plans has been used to assess the likely drainage directions of the Graigola workings in the eastern catchment. The output of this is presented as **Figure 17**.

The major faults (Dyffryn Fault, Gardeners Fault) bounding the study area are considered as barriers to groundwater movement as a result of the large vertical displacement and likely presence of low permeability fault gouge. More minor faulting within the Mynydd Drumau area are thought likely to be by-passed by other water pathways were they to act as barriers themselves.

5.2.3 Long Standing Discharges

The discharges in an area are the means by which groundwater and mine water are released from the underground systems. Discharges can only occur when there is a driving head (the water level is higher than the discharge point) and there is a discharge pathway, typically a mine entry or permeable pathways such as fractures. Where mine entries discharge water it maybe that they were intentional water discharge points, such as an adit or they may be a shaft or drift that was dry during mining operation but the recovered mine water (risen following the cessation of pumping) elevation has risen above the level of the mine entry.

Mynydd Drummau Discharges

The Coal Authority water features survey (**Appendix A**) identified 22 discharges around the perimeter of the Mynydd Drumau study area (**Figure 19),** of these 15 were associated with recorded mine entries. These discharges are in addition to the outburst location at Goshen Park.

Five of the discharges inspected are visibly ochreous, these are: Skewen Level/Drummau Road Drift, the outburst location at Goshen Park; Drumma Greenway Level; Neuadd Wen Graigola Level; and Bryndewy Level.

In general the discharges at a higher elevation are more minor, with lower discharge rates and typically lower mineralisation as evidence by measurement of electrical conductivity (EC) **Figure 20.**

Other key observations made during the water features survey with respect discharges were:

- Discharges from the base of the Greenway sandstone and Greenway Seam were common and mainly via natural springs. This is the uppermost strata in most of the study area and therefore receives the majority of the rainfall;
- Discharges from mine entries in the Tir Edmund seams were few (four identified) and had low flow rates (approximately 0.1 L/s). This is likely to be a result of drainage through the underlying open jointed sandstone to the Graigola seam workings;
- A single natural spring was observed from the Graigola seam, and seven discharges from mine entries (in addition to the outburst location at Goshen Park) were inspected. These discharges were all relatively minor flows (four <1 L/s, 3 <5 L/s);
- The Neuadd Wen Graigola Level (estimated flow rate 30 L/s) in the north west of the study area represents the primary discharge from the western catchment of the Graigola workings; and
- The combined discharges from the Skewen Level/Drummau Road Drift in Skewen Village (the Drummau Road Drift and the Skewen outburst location) now constitute the primary discharge from the eastern area of Graigola workings.

The estimates of flow made during the water features survey were a snapshot in time and are useful for comparison with the other discharges observed at the same time. Evidence of flow variation were also seen including sand bags (presumably used to direct flows) close to discharge locations and eroded channels. There is also evidence that springs in the area have ceased to flow. The Darran Spring above Darran Woods is reported to have reduced from 5 L/sec to no flow in 1959 (British Geological Survey, 2021).

Skewen Village Discharges

In addition to the discharges identified in the Mynydd Drumau study area a number of other discharges in Skewen Village (insets **Figure 19** and **Figure 20)** have been inspected by the Coal Authority. The Coal Authority were notified of these discharges following the outburst incident. It is not known how long they have been present or how permanent they are.

These discharges have been assessed in order to characterise them and to establish likely origin.

The consistently high mineralisation (EC and TDS values) of the discharges tested around the village of Skewen suggests that they are from a source similar to the main Graigola discharges (the Goshen Park outburst discharge, Drummau Road Drift, and Neuadd Wen). Some minor differences between the Skewen discharges and the Graigola water may be attributable to local mixing with lower electrical conductivity shallow groundwater.

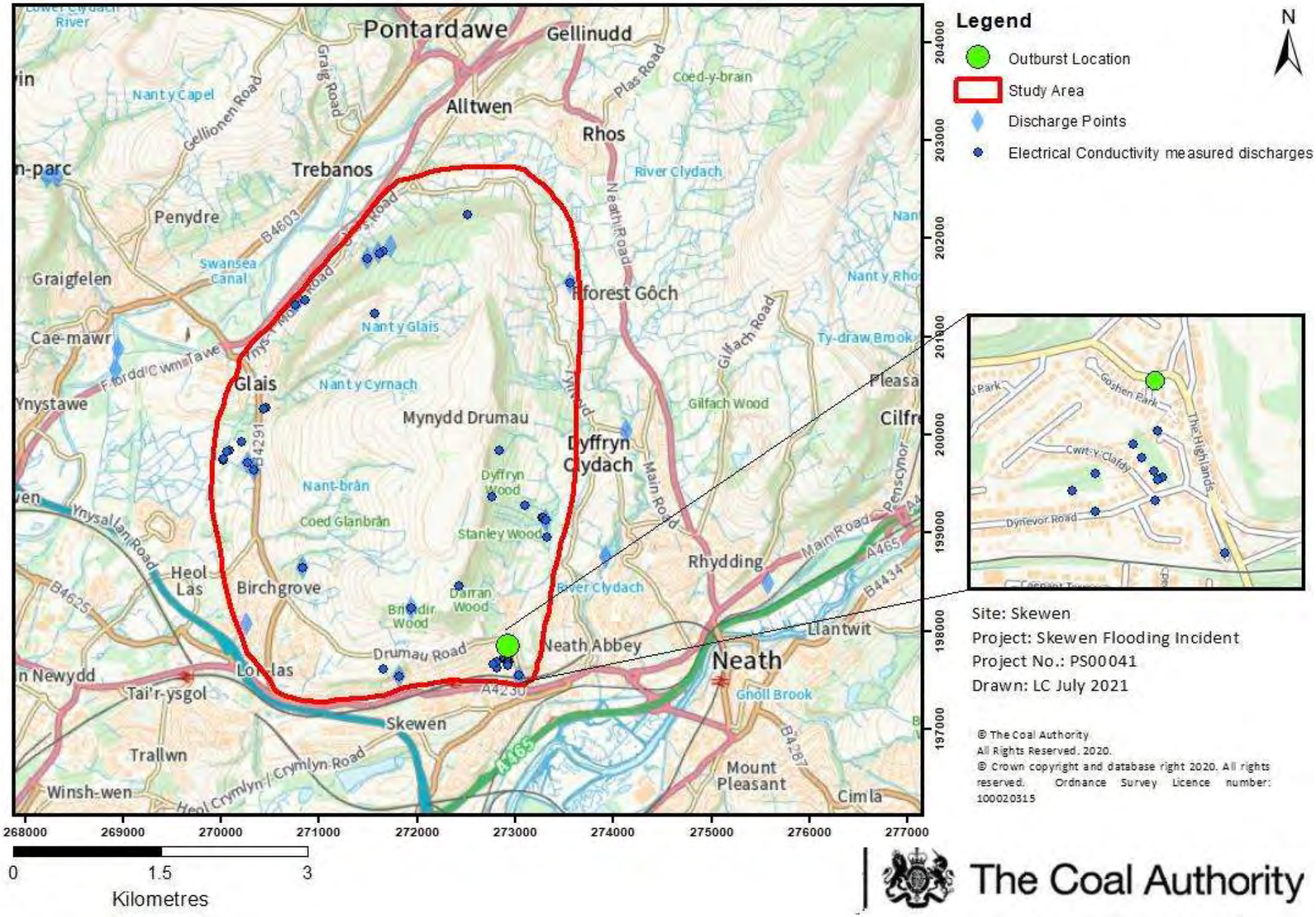

Figure 19: Discharges across catchment identified during Coal Authority walkovers

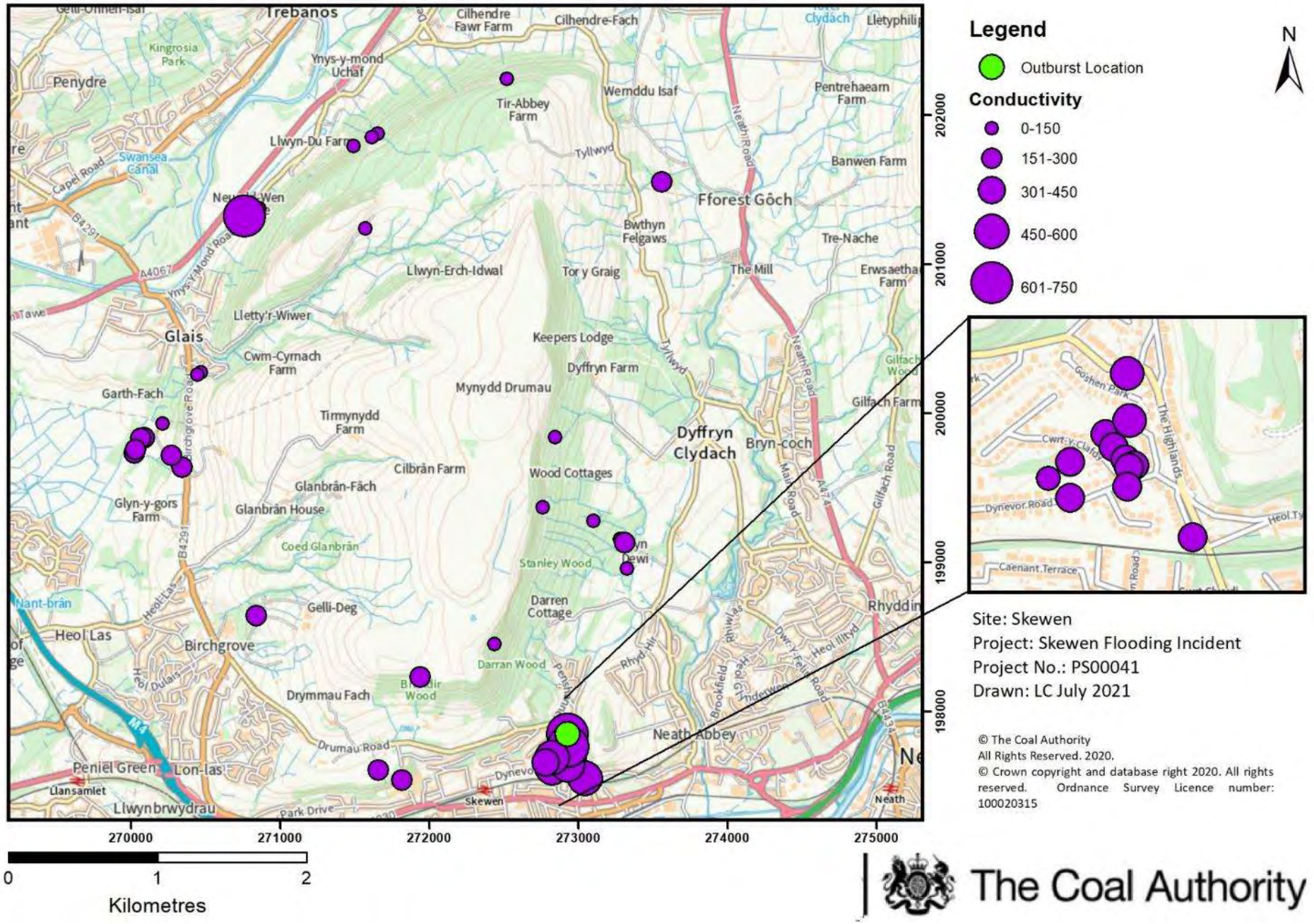

Figure 20: Discharges and measured electrical conductivity (µs/cm) across Mynydd Drumau study area

6.0 Monitoring Data

6.1 Overview

Historical monitoring by the Coal Authority in the area was limited to evaluation of water chemistry and flows for environmental assessment. Further description of the monitoring context is provided in **Section - 1.4.3**. Since the incident, various monitoring has been undertaken to measure water flows and levels and to assess water chemistry.

The historical monitoring data and the recent information are useful to develop the understanding of system behaviour as well as identifying both stable and changing conditions.

6.2 Water Levels

Prior to the outburst event in 2021, there was no formal monitoring of mine water levels in the Mynydd Drumau area by the Coal Authority or other organisations.

Review of Hazards and Enquiries reported to the Coal Authority as well as anecdotal accounts and third party ground investigation reporting has provided some indication of probable mine water levels in the Skewen Level/Drummau Road Drift prior to 2021.

Information received post incident in January 2021 showed that the borehole drilled in 1992 at 13 Highlands Close (E0538 - **Table 3**) encountered "void" interpreted to be the Skewen Level/Drummau Road Drift. The water within this void was under artesian pressure and therefore, there was no accurate measurement of levels. The letter report documenting the drilling stated "that it overflowed with considerable pressure at the surface" (Applied Gelogy (South Wales) Limited, 1992) at surface. A later report regarding the borehole indicated "a spout of water about 1 m high" (Thyssen Geotechnical, 2000). The ground surface at this site is approximately 58 mAOD and therefore the mine water level in 1992 at this point can be taken to have been 59 mAOD. The reports regarding this borehole and anecdotal accounts indicated that water seepage around the capped borehole persisted since its construction until the point of the outburst. This is taken to show that the minimum mine water level in the Skewen Level/Drummau Road Drift at this point was approximately 59 mAOD.

6.3 Flows

6.3.1 Coal Authority Monitoring 1996 – 2015

Prior to the outburst, the only Coal Authority flow measurement undertaken in the study area was of the Skewen Level/Drummau Road Drift (sub-site 145.1) discharge. Between June and December 1996 flows were measured every two weeks using a temporary v-notch thin plate weir in order to manage the ongoing works and aid design. Flows between 1.4 and 10 L/s were reported with an average flow of 4.6 L/s.

On completion of the treatment works the weir plate was removed and ongoing monitoring relied on visual estimates of water flow rates. In the period 1999 to 2015 bi-annual monitoring events reported flow estimates in the range 2 to 15 L/s with an average of 7 L/s. It should be noted that visual flow estimation should not be considered quantitative and is merely an indication of the order of magnitude considered sufficient for the preliminary assessment of environmental impacts. See **Section 1.4.3** for further information on this monitoring.

6.3.2 Coal Authority Monitoring 2021

Following the outburst event in January 2021, the Coal Authority implemented temporary capture and conveyance infrastructure for the water flowing from the Goshen Park discharge feature. Automated flow measurement equipment was installed within this system in mid-February2021. Automated flow measurement equipment was also installed at the outflow from the Drummau Road Drift (sub-site 145.2) in late March 2021. The data from these installations is presented together with local (Birchgrove Main) daily rainfall totals in **Figure 21.**

The monitoring shows flows from the Goshen Park discharge not to be continuous with periods where no flow occurred particularly during April and after mid-June. The maximum daily average flow measured has been 42.05 L/s in late October. The monitoring shows some responsiveness to local rainfall as evidenced by flow peaks in February, May, October and November 2021. The data shows that there is a three to five day delay in the peak flow following rainfall. The data also indicates that more sustained, ongoing rainfall generates a lower broader peak in flow than higher intensity short duration rainfall.

The flow measured at Skewen Level/Drummau Road Drift (sub-site 145.2) is also shown. This discharge has been continuous throughout the monitored period. The flow was stable at approximately 4 L/s until some spikes in flow of up to approximately 8 L/sec were recorded in October and November. These flow increases are likely to be in response to sustained wet weather recorded in the area during these months.

During the monitoring period, the water level in the Goshen Park outburst feature was controlled by the level of the outflow point and only fluctuated slightly, with levels falling during sustained dry weather. This water level therefore meant that the driving head of mine water in the lower system remained relatively constant and therefore, fluctuations in flow seen are not thought likely to be driven by changes in hydraulic head.

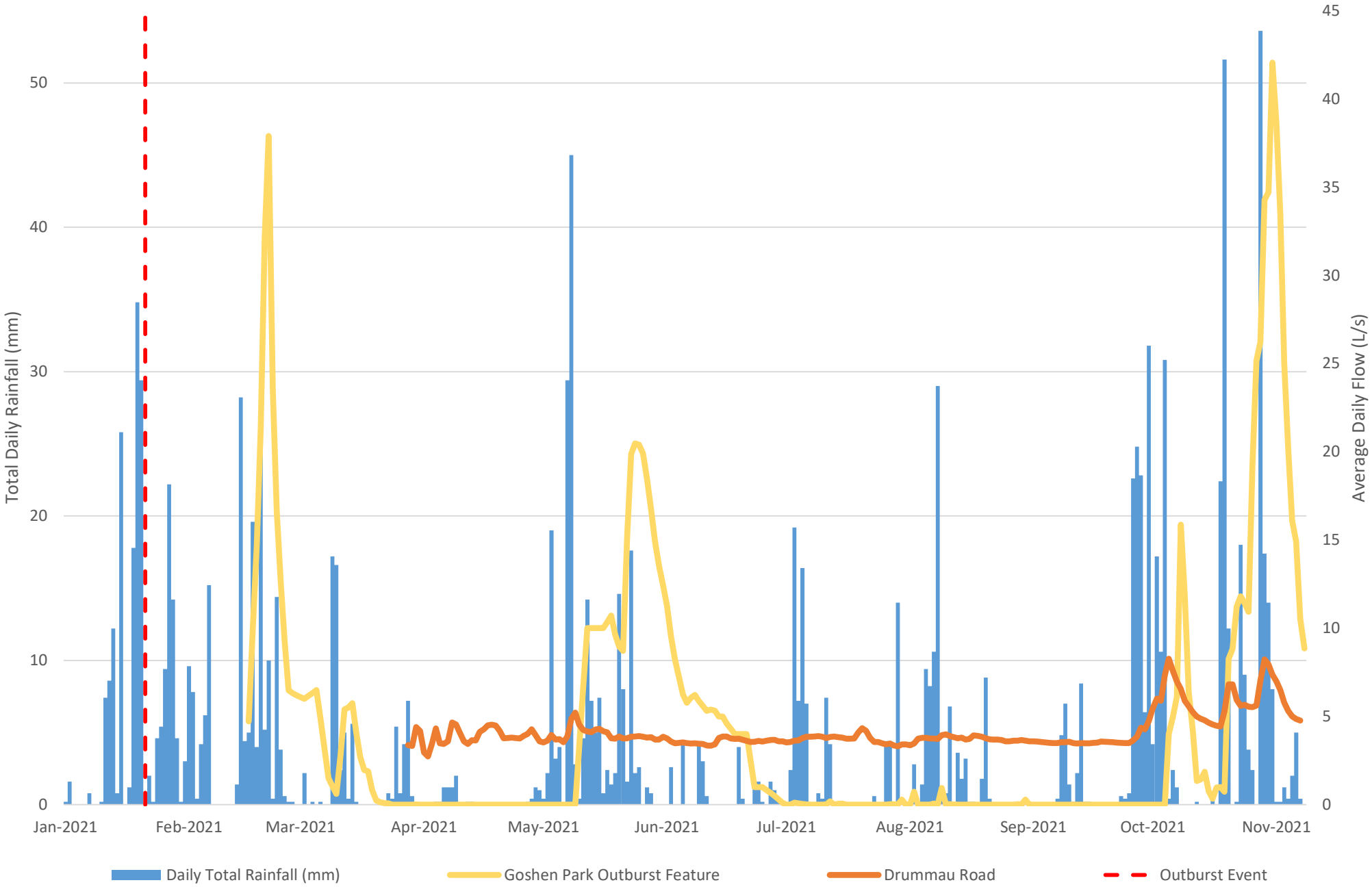

Figure 21: Goshen Park and Skewen Level/Drummau Road Drift Flow and daily rain (Birchgrove Main)

6.4 Water Quality

6.4.1 Coal Authority Sampling 1996 – 2015

A summary of the historical laboratory analysis is provided in **Table 12**. The results are similar to what is expected from a mine water discharge of this nature in the South Wales coalfield.

Table 12: Summary of historical sampling results

Analytes	Maximum Concentration (mg/L)	Minimum Concentration (mg/L)	Average Concentration (mg/L)
Total Iron	4.58	0.5	2.05
Dissolved Iron	1.11	0.15	0.47
Sulphate	373	121	209
Chloride	24	15	19
Manganese	1.9	0.13	0.49

It is noted that there was a step change in iron and manganese concentrations in the historical data in early 2009. This is not definitive but may indicate a change in the underground system feeding water to the discharge. This change in chemistry did not coincide with an obvious change in flow (based on visual estimates).

6.4.2 Coal Authority Sampling 2021

Following the outburst event, samples were collected from various locations in the study area and submitted for laboratory analysis. This sampling is reported in full as Skewen Goshen Park Incident: Water Chemistry - **Appendix B**. Key observations are summarised here.

The geology of an area is key in defining the mineralisation and therefore the chemistry of local water. This is most pronounced where that water has spent a long time or had a long pathway through the subsurface. In areas of coal mining, water that has migrated through workings is likely to contain dissolved concentrations of various minerals, notably iron, manganese and sulphate. The concentrations of these minerals are likely to be highest where the water has travelled through or been stored within workings. As the origin of these minerals is the natural sediments, even where there has been no mining they will be seen in water that comes into contact with the geology, albeit generally at lower concentrations.

Following the outburst event, water discharging via the Goshen Park outburst feature water chemistry has been similar to the mine water sampled at Skewen Level/Drummau Road Drift (sub site 145.2). Slightly higher manganese and sulphate concentrations have been measured though these are not statistically significant. The proportion of dissolved iron compared to the total iron concentration in the water sampled from the Goshen Park discharge indicates poor oxygenation, this suggests a below ground source with little air/water interface. This is typical of mine water and groundwater. The temperature of the Goshen Park discharge water (>10 °C) also indicates that this water has had sufficient residency time below ground not to be effected by seasonal and diurnal temperature variation.

In the early stages of the outburst there were some indications of surface or near surface water contribution to the flow. This was indicated by the concentrations of nitrates measured during the first two days of flow.

Nitrate concentrations in water sampled from Skewen Level/Drummau Road Drift (sub site 145.2) have remained relatively constant throughout the recent sampling suggesting an ongoing contribution of surface or near surface water to this flow.

Water samples have been collected from various minor water discharges within Skewen Village in the area impacted by the outburst water and down slope of the Goshen Park discharge feature. The chemistry of these samples includes concentrations of analytes similar to those measured in the Goshen Park discharge, although some variation is seen. It may be that the immediate ground conditions (fill materials, surface treatment) have an effect on the water chemistry either through the addition of minerals such as calcium (from cement or imported limestone) or the removal of iron or manganese by filtration following oxygenation as a result of near surface flow.

In the wider study area water samples collected from Bryndewy Level, Lonlas Old Graigola and Drumma Greenway levels, show some variation in chemistry of the waters across the area. The water at these locations has lower iron and sulphate concentrations than the Goshen Park discharge. It is likely that the majority of the water discharging at these points has spent little time in mine workings and largely originates from the overlying sand sandstones. Water sampled from Neuadd Wen Graigola Level, which drains the Graigola workings in the western Mynydd Drumau catchment exhibits a chemistry similar to the water from the Goshen Park discharge and the Drummau Road Drift.

7.0 Analysis and Conceptualisation

Following review of the available information the following three conceptual models have been developed to help understand the catchment and mining block as a whole, as well as to present a detailed view of the possible mechanisms of the outburst event.

7.1 Catchment Conceptual model

A cross section from north-west to south-east through Mynydd Drumau is presented as **Figure 22** to illustrate a conceptual understanding of the mining block hydrogeology. This broad system conceptualisation is described below.

The groundwater and mine water beneath Mynydd Drumau can be considered to operate as a linked system. The workings in the Graigola seam, which are connected to the Skewen Level/Drummau Road Drift are the dominant feature controlling mine water movement.

The geological structure of Mynydd Drumau results in there being a below ground catchment divide that splits the sub surface into eastward and westward draining systems. The westward (away from the Skewen Level/Drummau Road Drift) draining system is larger, estimated to drain ~75% of the catchment area. The eastward draining system which feeds the Skewen Level/Drummau Road Drift comprises ~25% of the catchment area.

Recharge of the system is via rainfall over Mynydd Drumau. The majority of the recharge is thought to be intercepted by shallower workings and associated sandstones, predominantly the Greenway Sandstone, before migrating deep enough to be intercepted by the Graigola seam workings.

This intercepted recharge is seen to discharge by a large number of natural springs, and small flows associated with mine features at higher elevations of Mynydd Drumau.

Historical quarrying has created potential inflow or recharge pathways close to Skewen. This pathway is considered a potential cause for the short duration flashy responses to rainfall, observed at the Goshen Park outburst discharge

Not all recharge is intercepted and controlled by the higher elevation discharges, with some percolating through strata to workings in the Graigola seam. These longer (distance and duration) pathways account for the delayed responses between rainfall and peak flows from the Goshen Park discharge.

The western segment of the underground Mynydd Drumau system is thought to drain freely to the North West via the Neuadd Wen Graigola discharge. This free drainage precludes the potential for water in workings in this western sub-block to overtop the lowest point on the groundwater divide at an elevation of approximately 63 mAOD. This is evidenced by the absence of discharges in the western area from the Graigola workings with elevations greater than 63 mAOD and the ongoing flow from the Neuadd Wen Graigola discharge.

Since the outburst event, the eastern area of the study area is free draining via Skewen Level/Drummau Road Drift discharging at the Goshen Park outburst feature and Drummau Road Drift. Prior to the outburst, the discharge rate from the Skewen Level/Drummau Road Drift is now thought to have been insufficient to match recharge reaching the Skewen Level/Drummau Road Drift. It is this imbalance between inflow capacity and outflow capacity that allowed water to accumulate in the system.

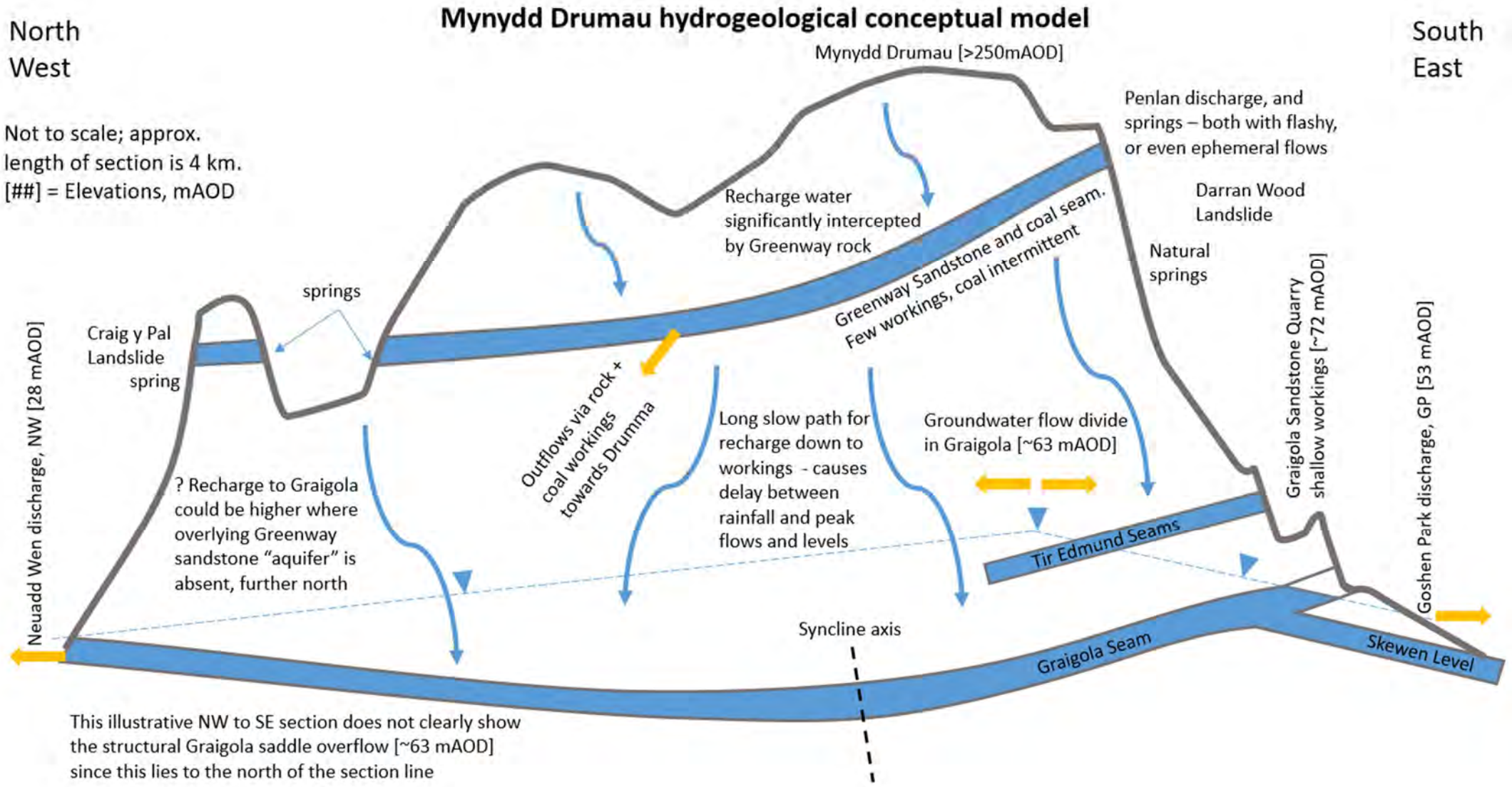

Figure 1: Mynydd Drumau mining block hydrogeological conceptual model

7.2 Blow out Source Assessment

The volume discharged during the outburst event has been estimated as 100,000 to 200,000 m^3, though this range has significant uncertainty given the limitations of its method. The upper end of the volume estimate exceeds that likely to have reached the underground system solely as a result of the rainfall associated with storm Christoph in the days preceding the event. Therefore, assessments of potential sources for the outburst water have been conducted.

7.2.1 Comparison to Recorded Workings

A review of the recorded workings, to establish the likely worked volume has been conducted by the Coal Authority (**Section 4.3**). This review established the likely extent and area of workings with the potential to drain to the Skewen Level/Drummau Road Drift (**Figure 17** and **Table 11**) **Figure 15** presents the remaining workings within the catchment, further limiting the potential source areas.

The review of mine plans has allowed the source of the blowout to be constrained to the eastern sub-block, which has approximately 25% the area of the full block. It is not possible to narrow down the likely source zone further.

The eastern catchment (using Graigola and potential drainage from the Tir Edmund seams, **Figure 15**) has an estimated total void volume of 1,591,540 m^3 **(Table 13)**.

Table 13: Estimated catchment recorded workings volume draining to Skewen Level/Drummau Road Drift

Source Area	Volume of workings (m^3)
1. Graigola	666,900
2. Tir Edmund	564,540
3. Little Tir Edmund	360,100
Total catchment	1,591,540

Given that the maximum estimated volume of the blowout was 200,000 m^3, this volume of water could have been stored, and released suddenly, in any of the three worked seams listed, all of which exceed this estimate.

It should be noted that the estimates of working volumes have significant uncertainty. Given the age and style of mining it is unlikely that all workings were recorded. The Graigola plans in particular focus on presentation of the roadways, and do not explicitly include adjacent workings, although annotations of “old workings” are common. This means that a much greater volume of workings than has been recorded could be present. Conversely, the state of collapse of workings, and their residual void porosity is unknown. The more extensively collapsed they are, the smaller the residual void may be.

The source of the outburst water may have been in any of the three worked seams, or some combination of all three, since there are linkages between them.

7.2.2 Source Water Age

The chemistry of the water discharged during the early stages of the outburst event provides some indication of the waters age. The high electrical conductivity, highly mineralised water released during the first week of outburst is likely to have had a relatively long residence time in contact with source rocks.

Since the outburst, the Skewen Level/Drummau Road Drift discharge via the Goshen Park outburst feature is seen to respond to rainfall in a matter of days. This constitutes rapid travel times, and a short residence in the mine system. The outburst water must have been retained within workings for much longer to have developed the chemistry observed. Water storage for months or years, is likely.

Given that rainfall is the source of all water in the underground system, this data can be used to estimate likely minimum time for the accumulation of the outburst volume. The 48 hr rainfall of Storm Christoph was insufficient to generate the volume of water released during the outburst event. Assessment of the proportion of rainfall that is effective (infiltrates to ground without running off or being lost to evaporation and other processes) is very difficult. Subsequent estimation of how much of that water is likely to reach the mine system without being lost to springs is even more challenging. Simple approximations suggest that accumulation of such a large amount of water would need a minimum of six months, and more probably in excess of a year.

The tendency of water stored in the ground to escape, means that the volume of stored water will likely vary over time. In drier periods, stored water will leak away, whilst in wetter periods there is potential for greater volumes to accumulate. Whenever the inflow rate exceeds the out flow capacity, impounded volumes will increase. It is noted that rainfall analysis showed wetter than average conditions for about 18 months before the outburst.

7.3 Outburst Conceptual Model

The exact mechanism of the outburst event is impossible to determine. Instead the available evidence has been used to develop a conceptual understanding of what is known and what is considered most probable. This section presents (**Figure 23**) and discusses this conceptualisation.

The key to the conceptualisation is that the outburst event occurred via a plane of weakness within the substrata where overburden pressure was less than the confined water pressure within the Skewen Level/Drummau Road Drift system.

The impounded water under pressure was contained in the Skewen Level/Drummau Road Drift itself as well as in the mine workings connected to and feeding that system. It is probable that the system was extensively flooded with an elevated head (artesian in the southern end of the system), immediately prior to the release. It is assumed that the Skewen Level/Drummau Road Drift was flooded for a considerable distance inbye. The baseline water elevation in the Skewen Level/Drummau Road Drift system was likely close to or greater than 59 mAOD on the basis of the apparent artesian condition of the historical borehole at 15 Highlands Close. This water elevation would flood portions of the Graigola seam workings in which the Skewen Level/Drummau Road Drift runs in most of its length. This condition is labelled as “Water Level 1” in **Figure 23**. This condition had arisen as water was unable to discharge freely via the portal due to a blockage(s) present somewhere in the final 300 m of the level, to the south of Goshen Park. The blockage or blockages present in this section of the level may allow a small flow through, but are able to retain water to at least 59 mAOD.

The impounded water level is a product of the system inputs (recharge) exceeding the system outputs (discharges). Due to seasonal rainfall variability, it is likely that the impounded water level will fluctuate, probably being at its highest during winter months and dropping in the summer. This has the potential to create a zone of intermittent flooding where sections of seam are periodically watered and dewatered. Such behaviour generates conditions suitable for accretion of ochre in areas of the workings.

Delayed recharge from the wider catchment, following the Storm Christoph event, drains to the Skewen Level/Drummau Road Drift system, raising the water levels further. Labelled as “Water Level 2” in **Figure 23**.

The material overlying the Skewen Level/Drummau Road Drift at the site of the outburst feature on Goshen Park represents the weak point in the system, as demonstrated by this being the point that failed. It is likely that water had been migrating up a line of weakness at this location for some time, this may be the cause of observations of water problems in the area in the years before the outburst. Low rate water seepage upward from the Skewen Level/Drummau Road Drift has the potential to have developed a pathway that under increased hydrostatic pressure was scoured further. This erosion will have rapidly increased and thereby allowed greater flows in a cyclical feedback loop. Once the flow was great enough, it was able to displace the concrete surface allowing flow to continue without restriction.

After the outburst failure has been triggered, the water level falls, rapidly at first, then slowing. A new steady state condition is reached where the final water level is controlled by the elevation of surface at the Goshen Park outflow feature. Labelled as “Water Level 3” on **Figure 23**. This lower water elevation is such that mine water conditions up gradient of Goshen Park are no longer artesian, including at the Highlands Close borehole.

It is possible, that in addition to the increased impounded head induced by rainfall during Storm Christoph there was some physical change within the mine system around Goshen Park. The storm event then raised the hydrostatic pressure beyond the grounds failure point, triggering the outburst.

This model therefore proposes that a combination of weakening of the ground, followed by storm induced impounded head increase combined resulting in the outburst event.

As there has been no formal mine water level monitoring in the area to date it is not known to what level the impounded water rose prior to the event. The similarity of the flow rate from the Skewen Level/Drummau Road Drift to that measured historically is indicative that the broad conditions in the system have probably been unchanged since the early 1990s when the investigation borehole at 15 Highlands Close was drilled.

This uncertainty regarding the impounded water level prior to the event and the volume of water released, as well as uncertainty regarding the extent, nature and condition of coal mine workings able to discharge via the outburst feature further complicate the interpretation.

It is possible that the water level in the Skewen Level/Drumau Road system was not sufficiently high for the volume of water estimated to have been discharged in the event to be present in available underground storage in the local area. The volume of water released and the immediate pre-event head may have been contributed to by water from a more remote area in the upper mining system.

The complexity of the Mynydd Drumau workings with multiple worked seams, a saddle like seam geology, a long mining history as well as the interconnected natural groundwater system give rise to the potential for there to have been areas of perched or isolated water in the upper system prior to the outburst event.

An impounding feature (a blockage(s) or similar) may have failed at one or more of these perched water bodies as a result of increased rainfall. This would have the effect of suddenly adding an unknown additional water volume and pressure to the lower system and therefore making the failure of weak ground more probable.

Although this combined model scenario seems to provide the best fit with the evidence, there remains high uncertainty with the interpretation.

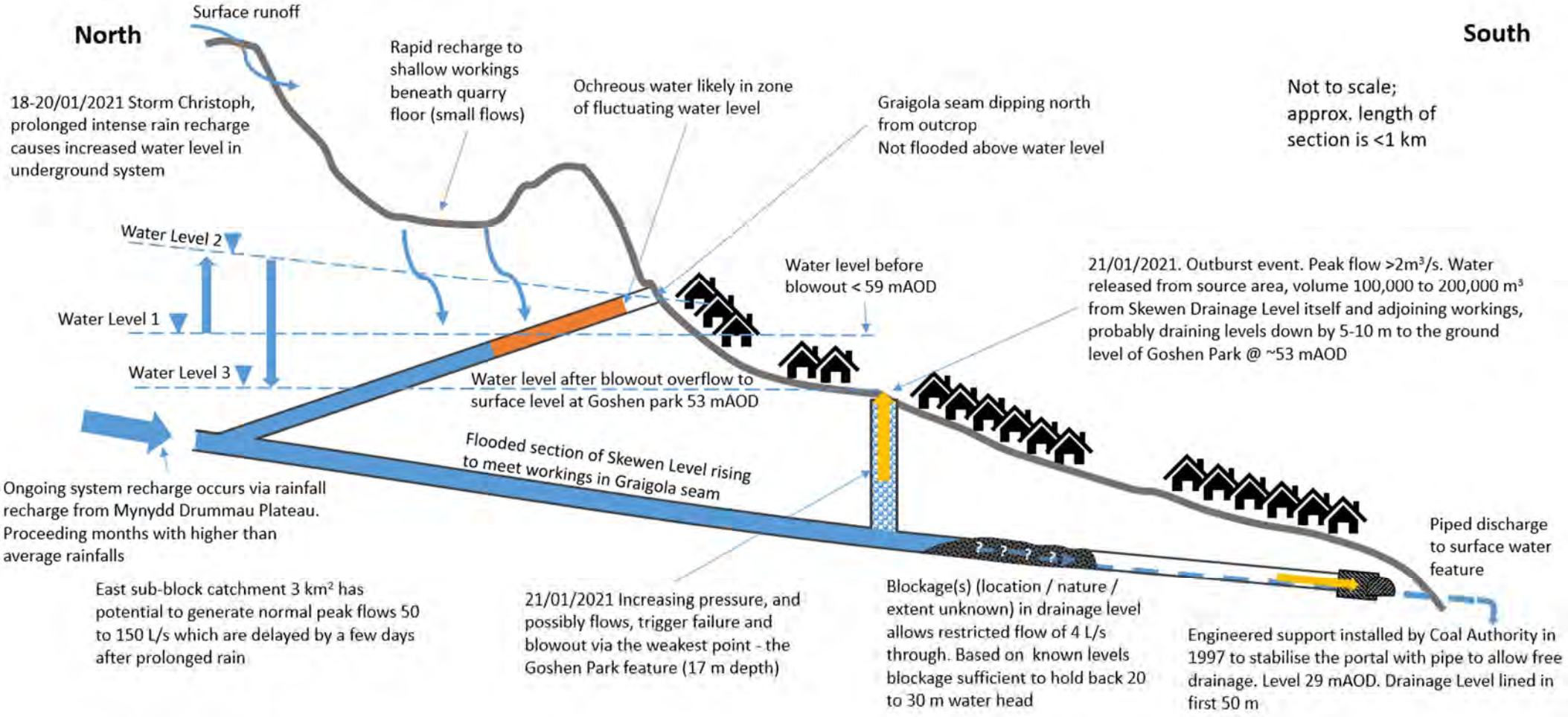

Figure 23: Skewen Level/Drummau Road Drift outburst site conceptualisation B – local release

7.4 Post Incident Conceptual Model

7.4.1 Remaining Blockage in Skewen Level/Drummau Road Drift

As presented in **Figure 24**, a blockage(s) is known to be present in the system between the Goshen Park outburst location and the Drummau Road Drift.

The exact location and extent of the blockage(s) is unknown. There is potential for a single or multiple blockages or restrictions in the drainage level. These may be extensive, affecting many tens of metres of the drainage level. Potential factors that may have led to blockage formation include: the proximity to the Dyffryn Fault zone, Maesmelyn seam, shallow superficial material or other local ground weakness. It is now believed that the blockage(s), has withstood a head of 20 m to 30 m for a considerable period of time under normal weather and water flow conditions.

The blockage may transmit some water from the inbye system, as seen at the portal outflow though this could comprise water make from the level outbye of the blockage. It is also noted that due to the head in the system to the north of the blockage it is possible that water related to the mining system could be encountered in the subsurface around Skewen at points with and elevation below 53 mAOD. The flow monitoring at this location since the outburst is comparable to the historical flow data, indicating little has changed in the system governing this flow since the outburst event.

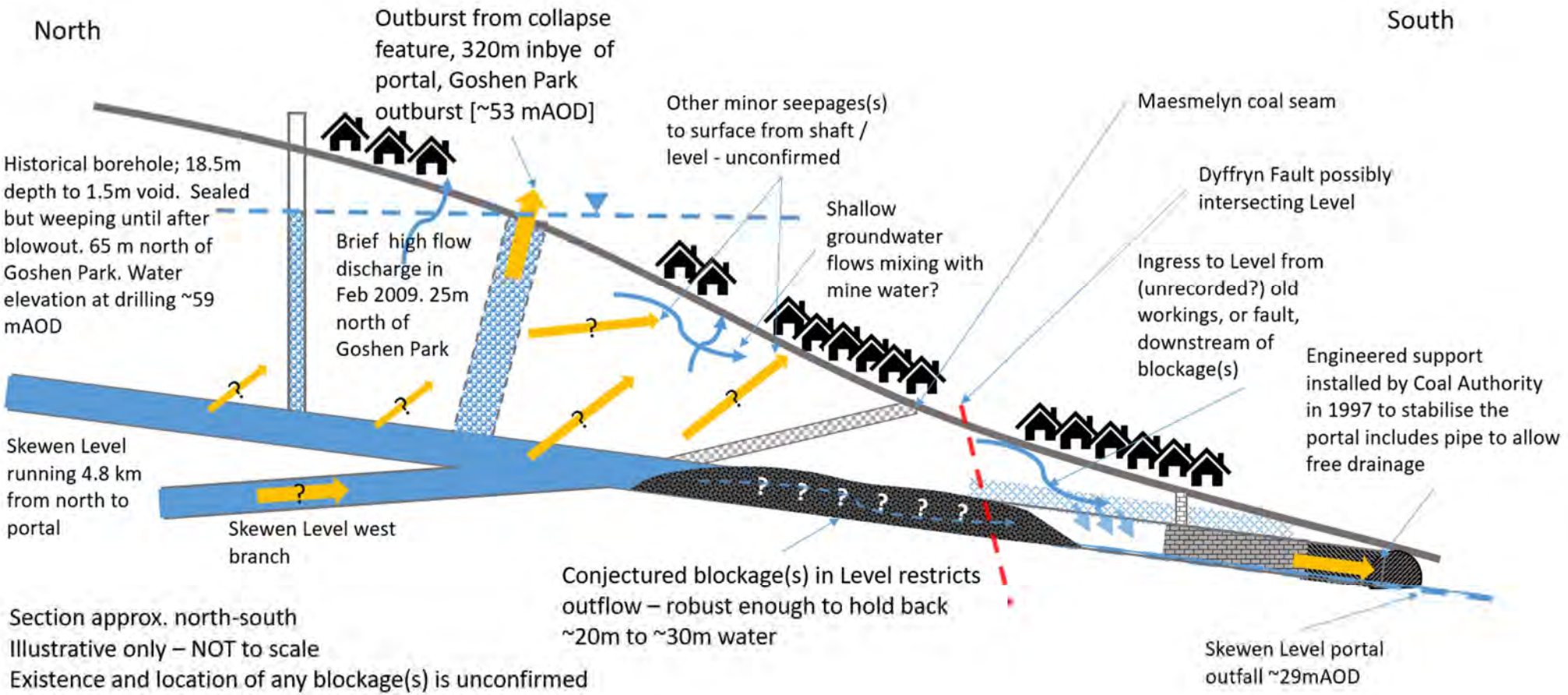

Figure 24: Skewen Level/Drummau Road Drift outburst site conceptualisation for local hydrogeological processes

7.4.2 Other Discharges in Skewen

Following the outburst event at Goshen Park a number of water discharges were reported within Skewen as shown in **Figure 19**.

With respect to these discharges the following should be considered:

- Historical mapping shows numerous natural springs across the area;
- Discharges which were seen to cease flowing relatively quickly are likely due to saturation of the ground following the outburst. This is especially the case where there are relatively thick deposits of made ground, for example deposits of colliery spoil of other fill;
- Sustained discharges may be driven by mine water head, and were likely there for decades due to historical restriction and head build up in the main Skewen Level/Drummau Road Drift. Given this long term driving head, there is potential for a range of different pathways to surface to be in operation, including natural fracture systems, unrecorded Maesmelyn workings or forced up to surface by blockage of the Skewen Level/Drummau Road Drift. This water may then take pathways through made ground, shallow weathered sandstones or even historical drainage systems

7.4.3 Non Mine Water Related Flooding

It is noted that in early August 2021 there was a further flooding incident in Skewen which affected much of the village. This flooding was related to an extremely high intensity summer rainfall event with a rain rate greater than 100 mm/hr and limited capacity of the storm water drainage system. It is noted that during this event no particular response was seen in the mine water flow or level monitoring.

In addition to this notable event effecting the Skewen village in general, some localised flooding has been observed during 2021. Properties on Dynevor Road experienced flooding as a result of surcharging of combined storm water and foul drainage and water inflow from an area of woodland to the north.

8.0 Conclusions

This section summarises the information presented in this report in order to address the three key questions forming the remit of this study as stated in **Section 1.3**.

The report aims to address the following primary questions:

1. What was the source of the outburst water?
2. What was the pathway for the released water?
3. What triggered the release of the water?

It should be noted that whilst this study has aimed to review all available information considered relevant there remains significant uncertainty. The nature and period of mine workings and the absence of monitoring relevant to the considerations of this study should be acknowledged and what is presented in this report is considered the best understanding within the limits of the available information.

8.1 What was the source of the water?

The exact source of water for the outburst remains unknown. The source area has been narrowed down as follows:

- The water was released from the eastern section of the full block of coal mines beneath Mynydd Drumau which has an area of approximately 3 km^2;
- It is likely that only a relatively small area of the workings under this larger area would have been flooded;
- The source could have been from any of the three worked seams in this area (with and elevation greater than 53 mAOD.
- Some of the water will be from local source contained in the Skewen Level/Drummau Road Drift and the adjoining associated mine workings to a level 5-10 m in elevation above Goshen Park. Evidence of flooding to the 5 m level has been identified, retrospectively, to have been present since 1992, and may well have existed earlier.
- It is possible that additional water came from more remote parts of the mine workings within the eastern sub-block, and from higher elevations than the local water source. The location and size of such remote source areas are not known.
- The water released is likely to have been stored in workings over a long period, possibly for decades.

8.2 What was the pathway for the released water?

Since the exact source area remains unknown, the pathway cannot be fully identified. As there is evidence for substantial unrecorded mine workings, it is likely that the path involved both recorded and unrecorded workings.

It is only possible to describe the likely pathway towards the very end of its journey to surface. The water travelled down the Skewen Level/Drummau Road Drift. When it came to Goshen Park, the

final path to surface appears to have been through a combination of collapsed rock-strata, and made ground. The water carved out an almost vertical pathway 1 to 2 m wide to reach surface.

The outburst feature is close to the location of a recorded mine entry, an air shaft targeting the Skewen Level/Drummau Road Drift. The outburst event caused erosion and displacement of material and it is not clear as to whether the outburst feature itself is a mine entry or constructed feature. A second circular feature in the centre of the Goshen Park, Drummau Road junction appears from site investigation to contain fill to the depth of the Skewen Level/Drummau Road Drift indicating that this may be a filled shaft.

The Dyffryn Fault is known to lie close to Skewen and defines the eastern extent of Mynydd Drumau. The abandonment plans in the area include records of various major and associated minor faults. It is possible that faulted ground or local fracturing may have acted as points of weakness exploited by water flows.

8.3 What triggered the release of the water?

The Mynydd Drumau area had experienced wetter than average conditions since 2019 and was likely saturated with an elevated mine water head in the system draining to the Skewen Level/Drummau Road Drift. Storm Christoph was however the primary trigger for the release of water with the additional input it provided further stressing the systems limits. This storm event brought the highest two day rainfall total recorded at the nearby rain gauge on the western slopes of Mynydd Drumau, since data collection began in 2014. As it takes a few days for rainfall to infiltrate through the rock strata that form the hill to reach the workings, water flows and levels only reached the critical trigger level 2.5 days after the storm began.

In addition, storm groundwater flows may have triggered the release of a volume of water from a remote source higher in the mine workings. This water may have flowed rapidly down to the Skewen Level/Drummau Road Drift, suddenly adding a large pressure in the Goshen Park area, resulting in the failure, and outburst.

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10.0 Glossary

Abbreviations

mAOD = elevation in metres above Ordnance Datum

mBOD = elevation in metres below Ordnance Datum

mBGL = depth to something (typically water) in metres below ground level

mBDAT = depth (typically of water) in metres below datum level used for the point

L/s = litres per second. A measure of flow rate

m^3/s = metres cubed (cubic metres) per second. A measure of flow rate

mg/L = milligrams per litre. A measure of concentrations

µg/L = micrograms per litre. A measure of concentrations

µS/cm = micro Siemens per centimetre. A measure of electrical conductivity

Terminology definitions (not described in the body of the report)

Mine water = Refers to water that is within the underground mine workings and / or flows through the underground mine workings. In some instances the mine water could be the same as local groundwater.

Mine water level = Refers to the level of the water or the piezometric head of the water in the mine workings. In some instances the mine water level may be hydraulically connected to strata immediately above and / or below the mine workings.

Mining terminology

Adit = A tunnel driven horizontal or near horizontal from the surface to the mine. Used to access the mine workings, but can also be for drainage of water. Also see Level.

Inbye = in an inward direction; i.e. into the mine from the entrance

Level = A tunnel driven horizontal or near horizontal. Can be: access in to the mine; a tunnel between shafts; a tunnel between mine workings; or for drainage of water.

Outbye = in an outward direction; i.e. heading out of the mine to the surface

Shaft = Vertical of near vertical opening used for the working of the mine (mineral extraction, pumping, ventilation)

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Appendix A – Skewen Goshen Park Incident: Water Features Survey

November 2021

Skewen Goshen Park Incident: Water Feature Survey

Produced by: JC

Approved by: IW

1. Aims

- To identify potential mine water discharges
- To assess water from different elevations, and different coal seams
- To assess mine water in comparison to natural groundwater springs,
- To map locations of discharges, and to use this to help define likely groundwater catchments
- To look for visible evidence of recent changes to flows.

2. Overview

Table 1 presents a summary of the site inspections during which the Water Feature Survey was undertaken.

Table 1: Summary of site inspections

Date of visit	Weather	Coal Authority Staff
18/02/2021	Sunny, warm and dry.	JC
19/02/2021	Wet (yellow rain warning), windy (gale force winds), cold.	JC
03/03/2021	Sunny, dry, cold at first, then warming.	IW
04/03/2021	Sunny, dry, cold at first, then warming.	IW

The site surface walkovers comprised visual inspection of recorded mine entries and pre-identified features of interest taken from OS mapping; e.g. springs, “issues” and ponds, along with information from geological memoirs and historical mapping.

Further features where also identified by residents and Coal Authority staff present in the Skewen area following the flooding.

In addition to visual inspection; field water quality parameters (temperature, specific electrical conductivity, pH, total dissolved solids (TDS), dissolved oxygen (DO) and oxidation/reduction potential (ORP)) were measured and flow estimates made where practical.

3. Results

Table 2 presents the observations from the Water Feature Survey inspections and **Table 3** presents the measured field parameters. The locations are included in the flowing Figures:

- **Figure App A 1: Eastern Sector Water Features**
- **Figure App A 2: Northern Sector Water Features**
- **Figure App A 3: Skewen Village Water Features**
- **Figure App A 4: Southern Sector Water Features**
- **Figure App A 5: Western Sector Water Features**

Table 2: Water Feature Survey – Details and Observations

Feature ID	Name of Feature	Block Sector	Easting	Northing	Elevation (mAOD)	Type	Mine entry reference	Estimated Flow (L/s)	Visual observations/ description
1	Drumau Road, Skewen Level portal chamber	Skewen Village	273044	197552	30	Mine Entry Discharge	273197-040	4	Ochreous water visible in manhole chamber
2	No.1 Goshen Park Discharge	Skewen Village	272923	197851	53	Outburst feature			Flow from a circular water filled feature Clear water but obvious ochre staining
03 & 04	87 Dynevor Road	Skewen Village	272935	197685	40	Unclassified discharge	N/A	N/A	Retaining wall shows square weep hole close to base Flow was No.t present during visit Some diffuse seepage evident in the wall
05, 06 & 07	Cwrt y Clafdy (No.70-75)	Skewen Village	272902	197715	40-50	Unclassified discharge	N/A	N/A	Flows initially reported had dried up Upwelling of water from stone wall at base of tramway embankment at rear of 73 74 showed ponded water in garden
8	77 Dynevor Road	Skewen Village	272820	197624	37	Unclassified discharge	N/A	0.1	Clear, No. odour, possible ochre staining arising from cable TV pavement box cover
9	31 + 32 Jubilee Crescent	Skewen Village	272920	197643	35	Unclassified discharge	N/A	N/A	Outflows seen in front gardens below level of pavement
10	9 Sunnyland Crescent	Skewen Village	212915	197765	50	Unclassified discharge	N/A	N/A	Area reported to have had a post flooding flow of water from retaining wall Dried up
11 & 12	Woodlands Springs	Skewen Village	272800	197675	40-45	Unclassified discharge	N/A		Continuous flow of water from north east corner of plot to south east corner where it enters a 225mm clay pipe inlet Also a slightly ochreous trickle from 100mm plastic pipe in the plot
13	Bryndewy Level	East	273308	199136	70.7	Mine Entry Discharge	273199-002	0	Visible portal Ponded ochreous water, appears stagnant with build-up of leaf matter
14	Drumma Greenway Level	West	270269	199721	45	Mine Entry Discharge	270199-002	15-20	Discharge of ochreous water from bottom right of headwall of a deep cutting Flows reported to become very high following rainfall events
15	Lonlas - Old Graigola Level	South	271813	197540	75	Mine Entry Discharge	271197-036	02-May	Portal not visible (behind metal fence on steep vegetated slope) Flow of clear water observed cascading down the rocky ground into a chamber
16	Neuadd Wen Graigola Level	North	270758	201325	28	Mine Entry Discharge	270201-001, 270201-027, 270201-033, 270201-055	20-30	Ochreous discharge was identified Unclear which mine entry it originates from Discharge flowed from upwelling into unnamed tributary of the Afon Tawe
17	Drummau Road Drift	Skewen Village	273038	197535	30	Mine Entry Discharge	273197-040		Continuation of flow from Skewen Level portal chamber Discharge from outfall pipe into an ochreous stream upstream of railway embankment culvert
18	Drummau Road Quarry	Skewen Village	272171	197752	115	Quarry	N/A	N/A	High wall exposes large thickness of sandstone Dry at time of visit

Feature ID	Name of Feature	Block Sector	Easting	Northing	Elevation (mAOD)	Type	Mine entry reference	Estimated Flow (L/s)	Visual observations/ description
19	Coed Derwen Quarry	Skewen Village	272532	197922	100	Quarry	N/A	N/A	Minor disused quarry Dry at time of visit Floor of quarry shows evidence of water flow from the foot of the highwall Deposition of cobbles and gravel across track suggest flows have been sufficient to move this material
20	Boundary Stream crossing old tramway	North	271652	201877	110	Surface Water - Stream	N/A	2	Stream crossing old tramway
21	Craig Cilhendre Spring	North	272519	202247	185	Spring - Natural	N/A	0	Stagnant, muddy water with rotting odour, rotting leaves
22	Craig y Perchyll Spring	North	271568	201243	173	Spring - Natural	N/A	0.5-1	Spring marked on OS maps Culverted beneath track to emerge on south side Clear water with no odour
23	Llwyndu Graigola No.10 level	North	271212	201592	75	Mine Entry	271201-010	N/A	Dry Open channel along south side of tramway
24	Llwyndu Graigola No.15 level	North	271488	201797	90	Mine Entry Discharge	271201-015	0.2	Flow of clear water
25	Llwyndu Graigola No.19 level	North	271732	201927	110	Mine Entry Discharge	271201-019	<0.1	Flow of clear water, no odour, insufficient flow for testing
26	Llwyndu Graigola No.26 level	North	272172	202159	155	Mine Entry	272202-026	N/A	No. flow or sign of issues mapped on OS
27	Stream across old railway line	North	270855	201375	40	Surface Water - Stream	N/A	0.2	Clear flow of water originating further up the hillside
28	Ynys-y-mond No.3 Level	North	271612	201854	105	Mine Entry Discharge	272202-017	0.5	Flow of clear water
29	Felin Fran No.2 Borehole	North	271454	201080	155	Borehole	N/A	N/A	No. evidence of borehole could be found
30	Graigola Climber's Quarry	North	271260	201620	85	Quarry	N/A	N/A	Exposure of jointed Graigola Sandstone Mine entry at the foot of the high wall with water on floor
31	Bryndewy Level 5m from portal	East	273313	199133	70.7	Mine Entry Discharge	N/A	0.1	Ochreous, almost stagnant water, rotting leaves
32	Pipes 170m south of Bryndewy Level	East	273322	198960	65	Surface Water - Stream	N/A	0.2	Downstream channel from which Bryndewy Level flows Clear, no odour, but with ochre staining in pipes

Feature ID	Name of Feature	Block Sector	Easting	Northing	Elevation (mAOD)	Type	Mine entry reference	Estimated Flow (L/s)	Visual observations/ description
33	Darran Wood Spring	East	272433	198454	191	Spring - Natural	N/A	0.3	Mapped spring Clear upwelling from below sandstone outcrop
34	Darran Wood Landslide	East	272525	198695	220	Natural outcrop	N/A	N/A	Large cliff approx. 30m high and 200m long Tension cracks visible in outcropping sandstones
35	Small circular pond 40m along line of Bryndewy Level	East	273276	199158	78	Surface Water - Pond	N/A	0	Clear standing water, no odour
36	Stanley Wood Spring	East	272760	199370	185	Spring - Natural	N/A	0.3	Unmapped spring upwelling from sandstone outcrop Clear, no odour
37	Stream at footbridge across track from Bryndewy Level	East	273291	199156	76	Surface Water - Stream	N/A	5	Clear, no odour
38	Wernddu Graigola New Level	East	273556	201553	105	Mine Entry Discharge	273201-025 273201-005 273201-013 273201-018	02-May	Upwelling of clear water from below a tree root system Area in general very boggy No. surface signs of other mine entries in area
39	Wernddu GaNo.l	East	273300	201960	120-160	Mine entries and water feature - pond	273201-004 273201-007 273201-003 273201-008 273201-009 273201-002 273201-001 273201-017 273201-011	N/A	Only surface features observed was for 273201-001, apparent as a stone arch (No. flow) Large areas of excavation of sandstone undertaken around adits 008 and 009 Pond was described as for cattle watering and known to dry up in the summer Marked well - buried agricultural water tanks
40	Wood Cottage Spring	East	272840	199841	180	Spring - Natural	N/A	01-Feb	Mapped spring Storage tank visible and spring tracked 10-15 m upslope Clear water
41	273199-001	East	273097	199279	110	Surface Water - Stream	273199-001	01-Feb	Clear, discharge of water several metres North west of recorded adit location Arises in continuation of channel seen at 273199-006
42	273199-006	East	273007	199319	120	Mine entry	273199-006	N/A	Fenced mine entry mounded over with cobbles and boulders No. water discharges in the area Dry channel visible 3 m to the North trending NW-SE
43	Ochre staining by former colliery track	East	273130	198560	65	Surface Water - Stream	N/A	<0.1	Ochre stained ditch alongside colliery track Low flow
44	Skewen Old Graigola Sandstone Quarry	East	272755	198100	75	Quarry	N/A	N/A	6-10 small (<3 m across) ponded areas located across the quarry floor holes observed along the foot of the high wall with nearby coal fragments
45	Lonlas Quarry	South	271795	197615	110	Quarry	N/A	N/A	Sandstone quarry No evidence of water at time of visit

Feature ID	Name of Feature	Block Sector	Easting	Northing	Elevation (mAOD)	Type	Mine entry reference	Estimated Flow (L/s)	Visual observations/ description
46	Penlan Greenway Level	South	271937	198233	213.7	Mine Entry Discharge	271198-005	05-Oct	Located at top of steep slope in recently clear felled forestry Large adit portal with good visibility within Mainly clear water with little sign of ochre accretion Constant dripping from sandstone roof Scoured channel downslope with reported large range in flows from portal
47	West Brithdir Level	South	271640	197621	115	Mine Entry	271197-005	N/A	No sign of mine entry or water
48	Stream 20m SE of West Brithdir Level	South	271655	197608	115	Surface Water - Stream	N/A	0.2	Clear flow of water sourced from uphill above Drummau Road
49	Ormes Road area	South	272088	197690	75-95	Unclassified discharge	N/A	N/A	Small seepage flows onto path below 40 Ormes Road Row of sandbags placed along much of the footpath Monitoring well cover at lower eastern end of footpath near 24 Ormes Road New concrete cloth channel drainage leading towards Woodland Close, all dry.
50	Skewen Main Level No.4 Drift	South	272314	197753	90	Mine Entry	272197-004	N/A	No sign of water, access and visibility limited by dense vegetation
51	Sisters Pit	West	270181	199903	35	Mine Entry	270199-001	N/A	No visual evidence of water
52	Discharge south west of Sisters Pit	West	270084	199838	30	Field Drainage	N/A	0.1	Clear flow located at bottom of a gently sloping field
53	Drumma Greenway stream at old railway	West	270018	199737	30	Surface Water - Stream	N/A	20	Stream comprising combined discharges from two Drummau Greenway Level discharges
54	Drumma Upper Greenway Level	West	270339	199640	60	Mine Entry Discharge	270199-007	02-May	Vegetated area mid-way down hillside Top of stone arch can be seen with a small flow of clear water upwelling Flows reported to become very high during rainfall events
55	Emily Tyr Edmund Level	West	270262	198070	52	Mine Entry Discharge	270198-002	N/A	No obvious evidence of where ochreous mine water has been drained Local drainage appeared to be relatively clear Small ochreous emissions visible at bases of slopes and boggy footpath
56	Gelli Greenway Trial Level	West	270836	198643	107.7	Mine Entry Discharge	270198-006	01-Feb	Two flows identified on steep slope Small clear flow of water emerging from the hillside (No obvious point of discharge) close to recorded position of Gelli Colliery Level A black, organic flow originating from tip/scrap area used by farmer
57	North end of ochreous water west of old rail embankment	West	270060	199833	30	Surface Water - Pond	N/A	0	Ochreous standing water, no odour, below made ground embankment
58	Oakland North Spring	West	270463	200278	64	Spring - Natural	N/A	0.2	Clear, no odour
59	Oakland South Spring	West	270440	200261	63	Spring - Natural	N/A	1	Clear, no odour Emerging from an old pipe as a spout

Feature ID	Name of Feature	Block Sector	Easting	Northing	Elevation (mAOD)	Type	Mine entry reference	Estimated Flow (L/s)	Visual observations/ description
60	South end of ochreous water west of old rail embankment	West	270026	199758	30	Surface Water - Pond	N/A	0	Ochreous standing water, no odour, below made ground embankment
61	Stream North of Sisters Pit	West	270206	199934	35	Surface Water - Stream	N/A	1	Clear, no odour
62	Felin Fran No.1 Borehole	West	270253	199694	63.7	Borehole	N/A	N/A	No. visible evidence of borehole

Table 3: Water Feature Survey – Measured Field Parameters

Feature ID	Name of Feature	Block Sector	Easting	Northing	Elevation (mAOD)	Type	Estimated Flow (L/s)	Temperature (°C)	Specific Conductivity (µs/cm)	pH	TDS	DO (%)	DO (mg/L)	ORP (mV)
1	Drumau Road, Skewen Level portal chamber	Skewen Village	273044	197552	30	Mine Entry Discharge	4	11.7	509	6.24	331	96	10.51	185
2	No.1 Goshen Park Discharge	Skewen Village	272923	197851	53	Outburst feature	See regular monitoring							
03 & 04	87 Dynevor Road	Skewen Village	272935	197685	40	Unclassified discharge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
05, 06 & 07	Cwrt y Clafdy (No.70-75)	Skewen Village	272902	197715	40-50	Unclassified discharge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8	77 Dynevor Road	Skewen Village	272820	197624	37	Unclassified discharge	0.1	9.3	601	7.09	391	105	12.14	222
9	31 + 32 Jubilee Crescent	Skewen Village	272920	197643	35	Unclassified discharge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10	9 Sunnyland Crescent	Skewen Village	212915	197765	50	Unclassified discharge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11 & 12	Woodlands Springs	Skewen Village	272800	197675	40-50	Unclassified discharge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
13	Bryndewy Level	East	273308	199136	70.7	Mine Entry Discharge	0	9.5	211.2	6.91	135	35.6	-	24.4
14	Drumma Greenway Level	West	270269	199721	45	Mine Entry Discharge	15-20	11.4	181.2	7.12	116	125.8	N/A	135.3
15	Lonlas - Old Graigola Level	South	271813	197540	75	Mine Entry Discharge	02-May	11	243.9	7.75	156	232.6	N/A	148.8
16	Neuadd Wen Graigola Level	North	270758	201325	28	Mine Entry Discharge	20-30	11.1	533.2	7.02	341	88.5	-	111.7
17	Drummau Road Drift	Skewen Village	273038	197535	30	Mine Entry Discharge	See regular monitoring							
18	Drummau Road Quarry	Skewen Village	272171	197752	115	Quarry	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19	Coed Derwen Quarry	Skewen Village	272532	197922	100	Quarry	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
20	Boundary Stream crossing old tramway	North	271652	201877	110	Surface Water - Stream	2	6.2	70	6.76	46	97	12.07	**231**
21	Craig Cilhendre Spring	North	272519	202247	185	Spring - Natural	0	6.6	70	5.49	46	15.3	1.88	172
22	Craig y Perchyll Spring	North	271568	201243	173	Spring - Natural	0.5-1	9.7	91.6	7.7	59	99.3	-	167.5
23	Llwyndu Graigola No.10 level	North	271212	201592	75	Mine Entry	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
24	Llwyndu Graigola No.15 level	North	271488	201797	90	Mine Entry Discharge	0.2	9.4	107	7.08	69.6	104	11.85	197
25	Llwyndu Graigola No.19 level	North	271732	201927	110	Mine Entry Discharge	<0.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
26	Llwyndu Graigola No.26 level	North	272172	202159	155	Mine Entry	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
27	Stream across old railway line	North	270855	201375	40	Surface Water - Stream	0.2	7.2	100	7.44	65	135	16.32	160
28	Ynys-y-mond No.3 Level	North	271612	201854	105	Mine Entry Discharge	0.5	9.2	132	7.13	86	110	12.72	214
29	Felin Fran No.2 Borehole	North	271454	201080	155	Borehole	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
30	Graigola Climber's Quarry	North	271260	201620	85	Quarry	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
31	Bryndewy Level 5m from portal	East	273313	199133	70.7	Mine Entry Discharge	0.1	8.8	183	6.4	119	18.5	2.15	85.8

Feature ID	Name of Feature	Block Sector	Easting	Northing	Elevation (mAOD)	Type	Estimated Flow (L/s)	Temperature (°C)	Specific Conductivity (µs/cm)	pH	TDS	DO (%)	DO (mg/L)	ORP (mV)
32	Pipes 170m south of Bryndewy Level	East	273322	198960	65	Surface Water - Stream	0.2	7.1	109	6.27	71	74	8.98	146
33	Darran Wood Spring	East	272433	198454	191	Spring - Natural	0.3	9.6	148	5.82	95	93	10.64	252
34	Darran Wood Landslide	East	272525	198695	220	Natural outcrop	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
35	Small circular pond 40m along line of Bryndewy Level	East	273276	199158	78	Surface Water - Pond	0	5.4	81	5.78	53	68	8.37	230
36	Stanley Wood Spring	East	272760	199370	185	Spring - Natural	0.3	9.9	137	6.24	88	155	17.54	282
37	Stream at footbridge across track from Bryndewy Level	East	273291	199156	76	Surface Water - Stream	5	8.1	121	7.39	79	133	15.79	200
38	Wernddu Graigola New Level	East	273556	201553	105	Mine Entry Discharge	02-May	10.9	184.4	7.16	118	93.1	-	137.1
39	Wernddu GaNo.l	East	273300	201960	120-160	Mine entries and water feature - pond	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
40	Wood Cottage Spring	East	272840	199841	180	Spring - Natural	01-Feb	9.3	122.1	7.54	78	97.4	N/A	152.6
41	273199-001	East	273097	199279	110	Surface Water - Stream	01-Feb	6.9	68.3	7.4	44	97	N/A	144.3
42	273199-006	East	273007	199319	120	Mine entry	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
43	Ochre staining by colliery track	East	273130	198560	65	Surface Water - Stream	<0.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
44	Skewen Old Graigola Sandstone Quarry	East	272755	198100	75	Quarry	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
45	Lonlas Quarry	South	271795	197615	110	Quarry	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
46	Penlan Greenway Level	South	271937	198233	213.7	Mine Entry Discharge	05-Oct	10.6	183.7	5.87	118	70.4	N/A	152.3
47	West Brithdir Level	South	271640	197621	115	Mine Entry	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
48	Stream 20m SE of West Brithdir Level	South	271655	197608	115	Surface Water - Stream	0.2	6.2	183	7.4	119	121	14.99	184
49	Ormes Road area	South	272088	197690	75-95	Unclassified discharge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
50	Skewen Main Level No.4 Drift	South	272314	197753	90	Mine Entry	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
51	Sisters Pit	West	270181	199903	35	Mine Entry	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
52	Discharge south west of Sisters Pit	West	270084	199838	30	Field Drainage	0.1	7.4	201	6.25	131	71	8.55	221
53	Drumma Greenway stream at old railway	West	270018	199737	30	Surface Water - Stream	20	10	189	7.41	123	109	12.32	80
54	Drumma Upper Greenway Level	West	270339	199640	60	Mine Entry Discharge	02-May	11.4	252.3	6.9	161	240.6	N/A	135.4
55	Emily Tyr Edmund Level	West	270262	198070	52	Mine Entry Discharge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
56	Gelli Greenway Trial Level	West	270836	198643	107.7	Mine Entry Discharge	01-Feb	11	152.3	6.44	97	258.1	N/A	150.7
57	North end of ochreous water west of old railway embankment	West	270060	199833	30	Surface Water - Pond	0	6.2	187	5.95	122	31	3.85	81
58	Oakland North Spring	West	270463	200278	64	Spring - Natural	0.2	10.2	144	6.55	94	96	10.75	188
59	Oakland South Spring	West	270440	200261	63	Spring - Natural	1	10.8	142	6.4	92	102	11.31	183

Feature ID	Name of Feature	Block Sector	Easting	Northing	Elevation (mAOD)	Type	Estimated Flow (L/s)	Temperature (°C)	Specific Conductivity (µs/cm)	pH	TDS	DO (%)	DO (mg/L)	ORP (mV)
60	South end of ochreous water west of old rail embankment	West	270026	199758	30	Surface Water - Pond	0	6.2	210	6.1	137	22	2.68	57
61	Stream North of Sisters Pit	West	270206	199934	35	Surface Water - Stream	1	6.5	149	6.56	97	99	12.18	164
62	Felin Fran No.1 Borehole	West	270253	199694	63.7	Borehole	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

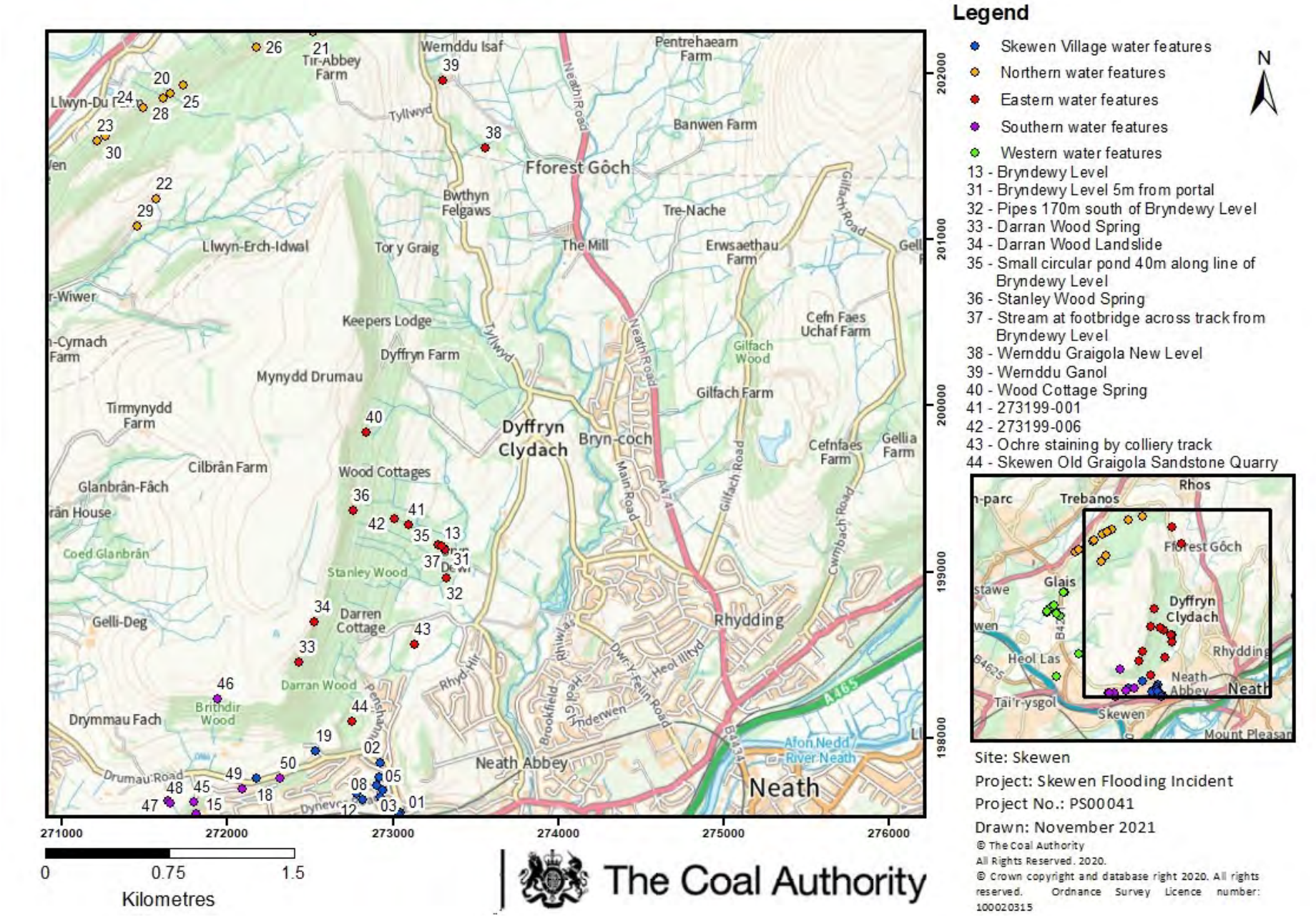


Figure App A 1: Eastern Sector Water Features

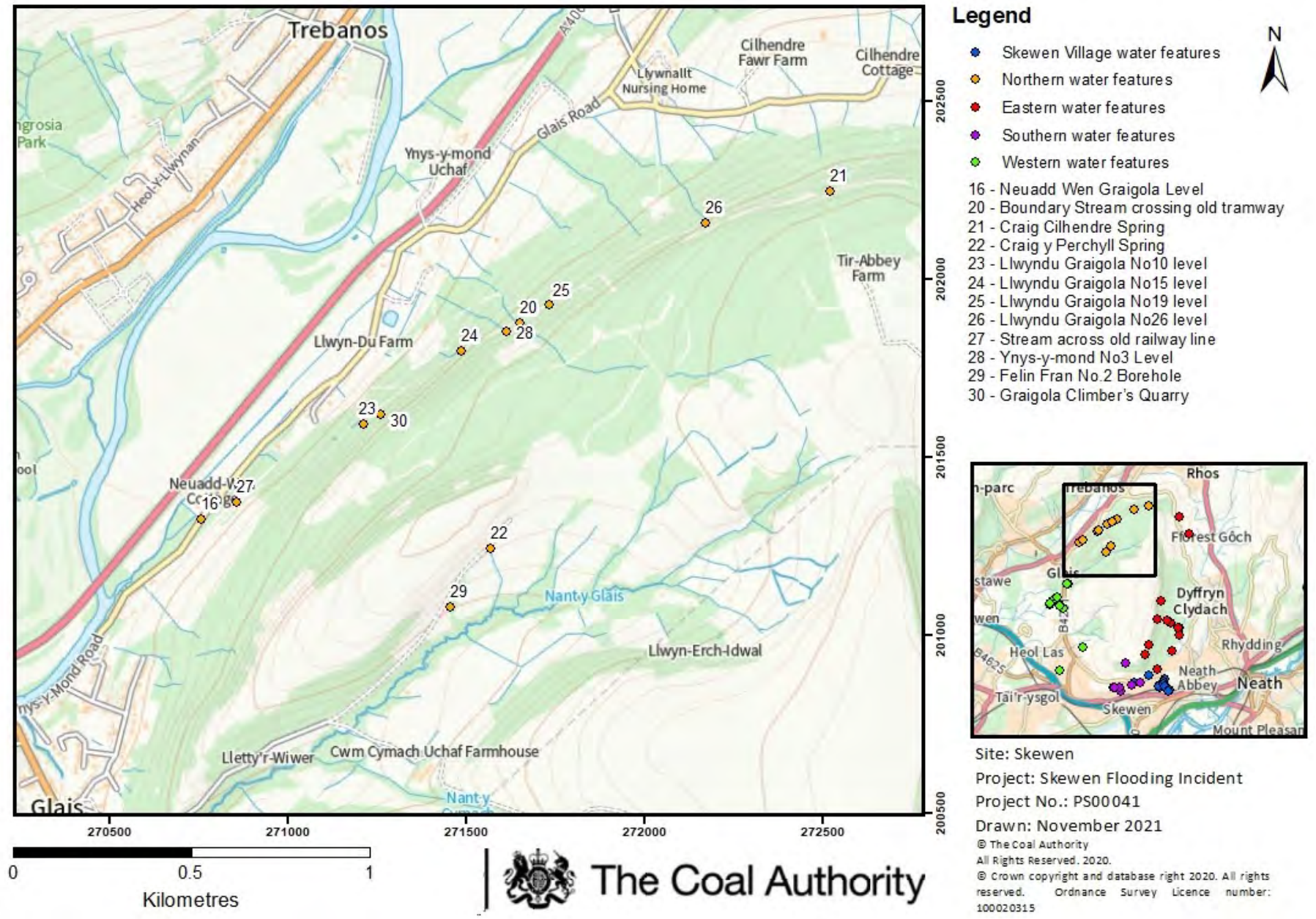


Figure App A 2: Northern Sector Water Features

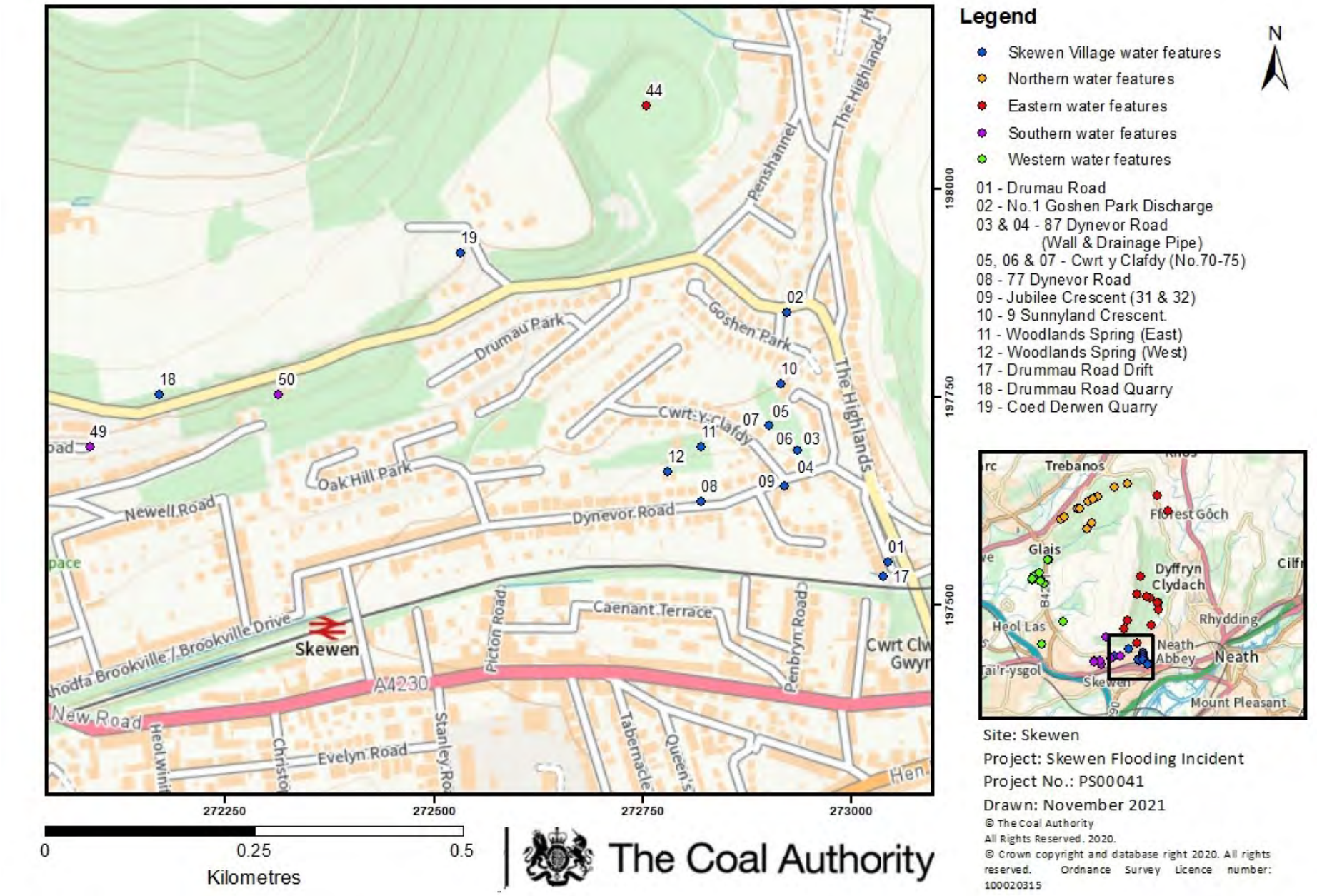


Figure App A 3: Skewen Village Water Features

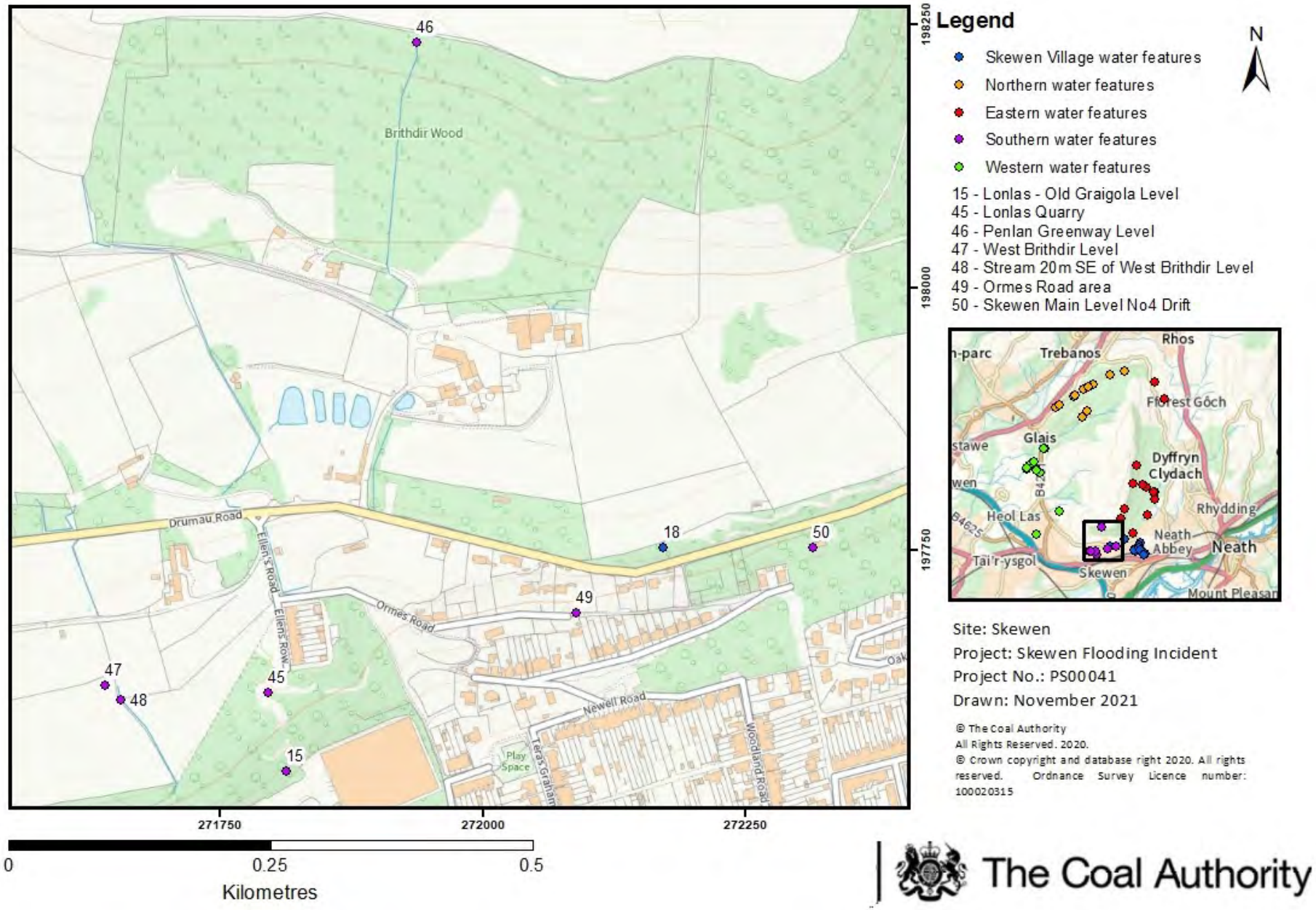


Figure App A 4: Southern Sector Water Features

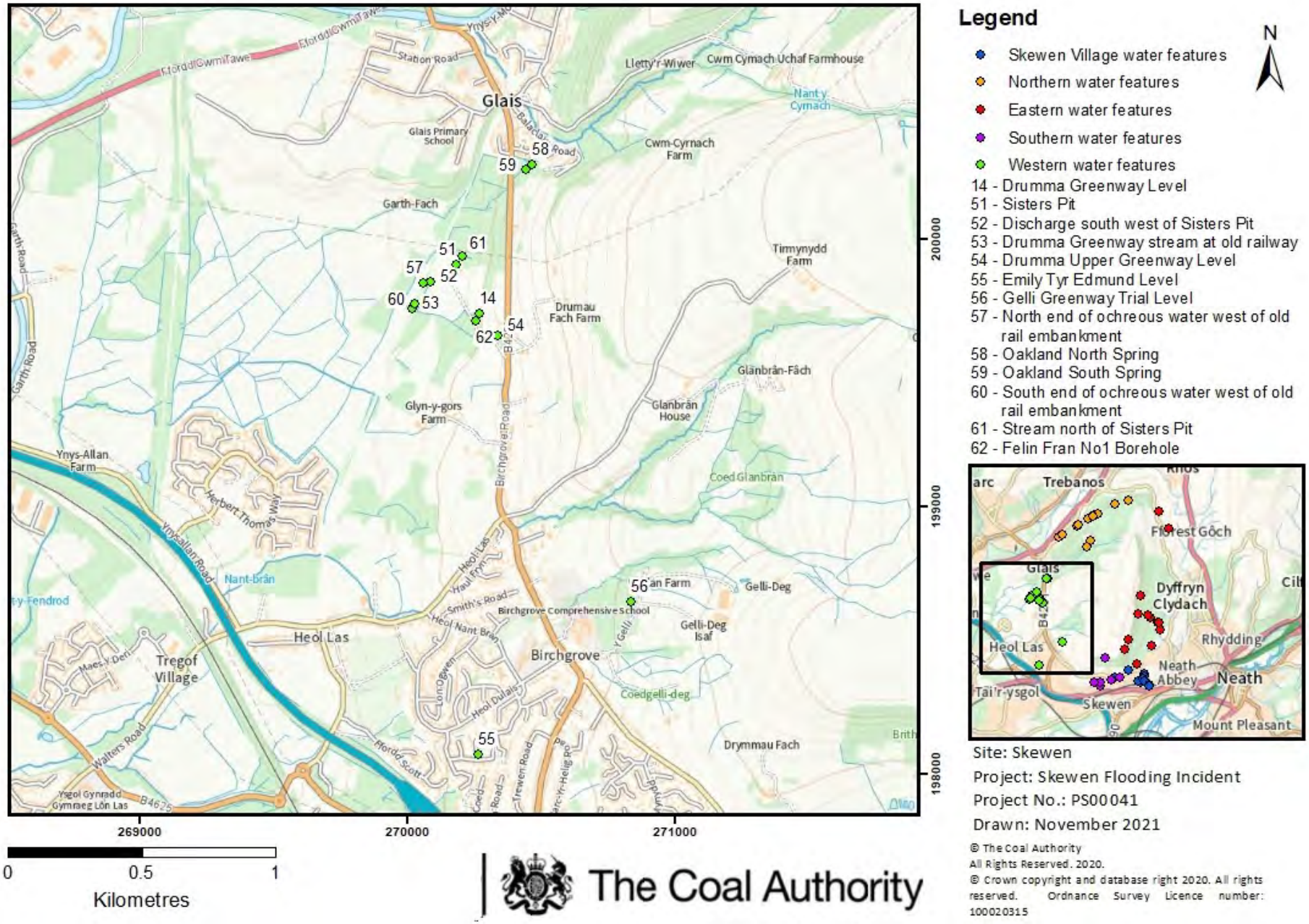


Figure App A 5: Western Sector Water Features

Appendix B – Skewen Goshen Park Incident: Water Chemistry

		Analyte	Conductivity µS/cm @ 25C	pH units w	Suspended Solids	KONEFE Iron as Fe (Total)	Iron as Fe (Dissolved)	Iron as Fe (Total) ICPWATVAR	KONEFE Ferrous Iron as Fe(2+)	Total Alkalinity as CaCO3	Total Acidity as CaCO3	Chloride as Cl	Total Sulphur as SO4 (Dissolved)
		Limit of Reporting	100µS/cm		5mg/l	0.01mg/l	0.01mg/l	0.01mg/l	0.01mg/l	2mg/l	2mg/l	1mg/l	3mg/l
Report		Units	µS/cm	pH units	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
Number	Asset Name	Date/Time											
21011512	Drummau Road	23/01/2021 13:00	775	6.8	9	3.83	0.09	4.56	0.13	63.5	Nil	27	129
21011660	Drummau Road	26/01/2021 08:40	537	6.5	6	1.87	0.13	1.33	0.24	76.7	Nil	24	146
21011873	Drummau Road	27/01/2021 10:00	574	6.6	14	2.17	0.09	2.97	0.11	73.4	Nil	24	154
21011872	Drummau Road	28/01/2021 09:20	552	6.6	<5	0.87	0.16	0.93	0.13	76.7	Nil	26	150
21011872	Drummau Road	28/01/2021 15:20	551	6.6	<5	1.79	0.15	1.70	0.08	75.3	Nil	26	148
21020064	Drummau Road	29/01/2021 08:15	540	6.6	40	3.18	0.02	5.14	0.08	74.3	Nil	26	145
21020064	Drummau Road	29/01/2021 14:00	546	6.5	35	3.23	0.01	4.63	0.08	73.5	Nil	28	146
21020188	Drummau Road	01/02/2021 13:00	573	6.7	<5	2.41	0.09	2.97	0.08	76.8	Nil	24	156
21020309	Drummau Road	02/02/2021 11:10	548	6.7	11	3.24	0.05	4.42	0.23	76.3	Nil	24	155
21020485	Drummau Road	03/02/2021 11:15	555	6.6	<5	0.71	0.11	0.77	0.22	79.5	Nil	25	163
21020551	Drummau Road	04/02/2021 09:00	552	6.6	<5	0.38	0.16	0.43	0.22	77.8	Nil	23	155
21020632	Drummau Road	05/02/2021 11:15	557	6.4	6	0.94	0.16	0.86	0.94	77.7	Nil	22	163
21020706	Drummau Road	08/02/2021 12:15	556	7	<5	1.11	0.15	1.09	1.09	76.6	Nil	21	155
21020862	Drummau Road	09/02/2021 10:15	547	6.9	6	1.04	0.14	1.19	1.06	77.9	Nil	21	159
21020972	Drummau Road	10/02/2021 10:15	551	7.3	<5	0.52	0.15	0.59	0.38	73.8	Nil	21	165
21021005	Drummau Road	11/02/2021 09:20	557	7	<5	0.31	0.16	0.32	0.28	79	Nil	19	166
21021117	Drummau Road	12/02/2021 11:10	557	6.8	<5	0.52	0.15	0.49	0.4	74.7	Nil	19	168
21021229	Drummau Road	15/02/2021 11:15	563	6.8	12	2.08	0.13	2.42	0.83	77.7	Nil	20	171
21021453	Drummau Road	17/02/2021 08:15	556	6.7	8	1.63	0.12	1.85	0.64	77.2	Nil	21	169
21021639	Drummau Road	19/02/2021 08:15	535	6.6	14	1.55	0.09	1.94	0.72	78.4	Nil	22	155
21021750	Drummau Road	22/02/2021 09:15	506	6.6	<5	0.29	0.1	0.32	0.15	71.8	Nil	26	132
21022042	Drummau Road	24/02/2021 10:15	505	6.6	10	2.9	0.01	4.9	0.44	73.3	Nil	24	138
21030109	Drummau Road	26/02/2021 09:15	507	6.8	<5	0.35	0.13	0.32	0.15	75.8	Nil	20	139
21030164	Drummau Road	01/03/2021 11:15	512	7.2	6	0.35	0.14	0.29	0.16	75.8	Nil	19	143
21030407	Drummau Road	03/03/2021 12:30	510	6.9	6	0.35	0.16	0.39	0.19	74.8	Nil	18	148
21030592	Drummau Road	05/03/2021 08:55	510	6.6	9	0.96	0.12	1.08	0.17	75.1	Nil	16	148
21030797	Drummau Road	08/03/2021 09:15	525	6.9	<5	0.61	0.14	0.54	0.61	75.1	Nil	16	158
21031032	Drummau Road	10/03/2021 12:15	532	7.2	<5	1.02	0.14	0.83	0.91	75.5	Nil	18	164
21031111	Drummau Road	12/03/2021 12:15	522	6.9	<5	0.49	0.14	0.51	0.45	75.1	Nil	18	147
21031343	Drummau Road	15/03/2021 12:30	513	6.7	<5	0.58	0.11	0.85	0.53	73	Nil	19	147
21031548	Drummau Road	17/03/2021 11:15	517	6.6	<5	0.97	0.11	0.88	0.62	80.5	Nil	18	150
21031633	Drummau Road	19/03/2021 09:15	514	7.1	<5	0.95	0.12	0.97	0.59	76.1	Nil	15	150
21031863	Drummau Road	22/03/2021 09:30	511	6.9	<5	1.63	0.1	1.68	0.75	92.8	Nil	17	172
21032087	Drummau Road	24/03/2021 08:40	517	7.2	<5	0.57	<0.01	0.88	0.49	81.4	Nil	15	194
21032166	Drummau Road	26/03/2021 10:45	529	6.9	<5	0.67	0.12	1.16	0.6	60	Nil	16	160
21040085	Drummau Road	29/03/2021 10:30	549	6.8	<5	0.44	0.15	0.4	0.29	79.8	Nil	16	164
21040092	Drammau Road	31/03/2021 08:00	549	6.9	<5	0.29	0.17	0.39	0.26	83.4	Nil	16	165
21040578	Drummau Road	06/04/2021 12:00	531	7	8	1.04	0.14	1.44	0.35	63.6	Nil	15	168
21040659	Drummau Road	08/04/2021 13:00	525	6.9	<5	0.33	0.17	0.37	0.22	76.1	Nil	14	168
21040996	Drummau Road	12/04/2021 10:00	526	6.8	<5	0.38	0.15	0.43	0.19	82.4	Nil	14	170
21041203	Drummau Road	16/04/2021 09:00	550	6.9	<5	1.22	0.15	1.34	0.24	58	Nil	15	182
21041594	Drummau Road	19/04/2021 12:00	553	6.7	<5	1.47	0.19	1.19	0.31	93.1	Nil	14	176
21041776	Drummau Road	21/04/2021 10:00	559	6.7	<5	1.59	0.14	1.66	1.4	82.5	Nil	13	190

		Analyte	Conductivity µS/cm @ 25C	pH units w	Suspended Solids	KONEFE Iron as Fe (Total)	Iron as Fe (Dissolved)	Iron as Fe (Total) ICPWATVAR	KONEFE Ferrous Iron as Fe(2+)	Total Alkalinity as CaCO3	Total Acidity as CaCO3	Chloride as Cl	Total Sulphur as SO4 (Dissolved)
		Limit of Reporting	100µS/cm		5mg/l	0.01mg/l	0.01mg/l	0.01mg/l	0.01mg/l	2mg/l	2mg/l	1mg/l	3mg/l
Report		Units	µS/cm	pH units	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
Number	Asset Name	Date/Time											
21041780	Drummau Road	23/04/2021 10:00	562	6.8	8	3.09	0.15	2.88	2.88	85.2	Nil	13	181
21042094	Drummau Road	26/04/2021 12:00	574	6.8	<5	0.96	0.19	0.98	0.84	82.1	Nil	13	182
21042099	Drummau Road	28/04/2021 08:00	579	6.7	22	2.29	0.18	2.18	1.43	84	Nil	12	186
21050197	Drummau Road	01/05/2021 08:00	599	6.7	<5	0.69	0.2	0.75	0.68	80	Nil	15	206
21050580	Drummau Road	05/05/2021 08:00	608	6.8	15	3.74	0.05	5.79	0.56	84.8	Nil	15	212
21050579	Drummau Road	07/05/2021 09:00	608	6.8	46	0.86	0.19	0.89	0.31	87.3	Nil	15	214
21050825	Drummau Road	08/05/2021 10:00	591	6.9	7	2.15	0.16	2.4	0.51	76.6	Nil	18	188
21050944	Drummau Road	10/05/2021 13:00	529	6.7	7	3.2	0.06	3.21	0.63	79.3	Nil	23	150
21051097	Drummau Road	12/05/2021 09:15	549	6.8	<5	0.34	0.12	0.32	0.15	84.5	Nil	20	172
21051201	Drummau Road	14/05/2021 09:30	548	7.2	<5	0.4	0.14	0.6	0.19	85.5	Nil	18	171
21051464	Drummau Road	17/05/2021 12:15	536	6.9	6	0.36	0.13	0.45	0.17	79.5	Nil	17	165
21051748	Drummau Road	19/05/2021 12:20	530	6.8	<5	0.33	0.02	0.31	0.08	72.9	Nil	17	140
21051838	Drummau Road	21/05/2021 12:15	522	6.8	7	0.99	0.1	1.5	0.24	72.1	Nil	18	146
21051950	Drummau Road	24/05/2021 12:15	515	6.8	<5	0.57	0.13	1.03	0.15	71.5	Nil	20	133
21060090	Drummau Road	26/05/2021 12:15	492	6.5	<5	0.31	0.13	0.3	0.17	69	Nil	20	133
21060087	Drummau Road	28/05/2021 08:15	490	6.6	<5	0.76	0.13	0.74	0.26	68.1	Nil	19	131
21060189	Drummau Road	01/06/2021 12:15	496	6.6	<5	0.48	0.13	0.5	0.25	84	Nil	18	138
21060566	Drummau Road	03/06/2021 10:15	496	6.9	<5	0.47	0.15	0.53	0.28	80.8	Nil	16	143
21060767	Drummau Road	07/06/2021 09:15	503	6.6	<5	1.15	0.08	0.94	0.42	85.9	Nil	16	154
21060982	Drummau Road	09/06/2021 08:10	512	6.8	<5	1.1	0.09	1.26	0.4	84.6	Nil	16	154
21061109	Drummau Road	11/06/2021 12:15	510	6.5	<5	0.38	0.16	0.37	0.22	70.2	Nil	15	156
21061306	Drummau Road	14/06/2021 08:30	517	6.6	<5	0.69	0.17	0.82	0.31	82.9	Nil	15	166
21061633	Drummau Road Chamber	16/06/2021 08:30	520	6.6	<5	0.77	0.15	0.75	0.34	86.4	Nil	14	151
21061627	Drummau Road Chamber	18/06/2021 09:15	525	6.6	<5	0.95	0.11	1.15	0.32	84.3	Nil	14	155
21061766	Drummau Road Chamber	21/06/2021 10:15	524	6.6	8	2.81	0.09	3.07	0.72	85.8	Nil	15	163
21062018	Drummau Road Chamber	23/06/2021 08:10	534	6.7	<5	0.72	0.13	0.86	0.31	85.3	Nil	14	163
21062101	Drummau Road Chamber	25/06/2021 09:15	534	6.6	<5	0.79	<0.01	0.94	0.34	82.9	Nil	13	192
21070002	Drummau Road Chamber	28/06/2021 08:30	533	6.5	<5	0.89	0.15	0.8	0.25	86.1	Nil	14	165
21070186	Drummau Road Chamber	30/06/2021 10:15	554	6.8	13	1.63	0.15	1.9	0.61	83.5	Nil	15	164
21070303	Drummau Road Chamber	02/07/2021 09:15	556	6.8	16	1.53	0.16	1.61	1.02	85.6	Nil	14	180
21070502	Drummau Road Chamber	05/07/2021 12:00	565	6.8	<5	0.22	0.14	0.26	0.18	87.4	Nil	15	182
21071070	Drummau Road Chamber	12/07/2021 12:00	564	6.6	<5	0.29	0.14	0.3	0.22	107	Nil	13	171
21071745	Drummau Road Chamber	19/07/2021 10:00	573	6.8	<5	0.19	0.13	0.22	0.09	84.7	Nil	15	187
21072096	Drummau Road Chamber	26/07/2021 10:00	593	6.7	<5	0.28	0.13	0.22	0.04	87.1	Nil	15	187
21080281	Drummau Road Chamber	02/08/2021 12:20	601	7.1	<5	0.21	0.16	0.24	0.14	87	Nil	16	203
21080794	Drummau Road Chamber	09/08/2021 10:45	577	7.3	<5	0.32	0.14	0.32	0.15	98.7	Nil	18	166
21081278	Drummau Road Chamber	16/08/2021 10:30	582	6.7	7	0.27	0.14	0.35	0.14	85	Nil	17	180
21081714	Drummau Road Chamber	23/08/2021 12:20	581	7.4	6	0.25	0.15	0.26	0.14	82	Nil	23	187
21090078	Drummau Road Chamber	31/08/2021 12:00	602	7.1	<5	0.24	0.13	0.29	0.13	94.1	Nil	15	197
21090562	Drummau Road Chamber	06/09/2021 11:15	619	7.3	<5	0.39	0.14	0.26	0.16	94.2	Nil	15	214
21090986	Drummau Road Chamber	13/09/2021 10:00	628	7	<5	0.21	0.16	0.22	0.16	90.9	Nil	14	225
21091109	Drummau Road Chamber	14/09/2021 07:30	626	7.2	<5	0.17	0.13	0.23	0.14	92.8	Nil	15	212
21091334	Drummau Road Chamber	15/09/2021 10:00	627	7.1	7		0.19	0.23	0.14	90.9	Nil		

		Analyte	Conductivity µS/cm @ 25C	pH units w	Suspended Solids	KONEFE Iron as Fe (Total)	Iron as Fe (Dissolved)	Iron as Fe (Total) ICPWATVAR	KONEFE Ferrous Iron as Fe(2+)	Total Alkalinity as CaCO3	Total Acidity as CaCO3	Chloride as Cl	Total Sulphur as SO4 (Dissolved)
		Limit of Reporting	100µS/cm		5mg/l	0.01mg/l	0.01mg/l	0.01mg/l	0.01mg/l	2mg/l	2mg/l	1mg/l	3mg/l
Report		Units	µS/cm	pH units	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
Number	Asset Name	Date/Time											
21091407	Drummau Road Chamber	17/09/2021 11:30	641	7	<5		0.15	0.21	0.1	90.1	Nil		
21091406	Drummau Road Chamber	18/09/2021 11:00	645	7.1	<5		0.16	0.24	0.14	94.7	Nil		
21091412	Drummau Road Chamber	19/09/2021 12:00	641	7.1	7		0.15	0.23	0.14	97.5	Nil		
21091829	Drummau Road Chamber	22/09/2021 07:30	650	7.2	<5		0.13	0.23	0.25	93.5	Nil		
21091832	Drummau Road Chamber	23/09/2021 12:00	648	6.8	11		0.15	0.23	0.14	91.5	Nil		
21091831	Drummau Road Chamber	24/09/2021 07:30	652	6.7	13		0.13	0.23	0.27	92.9	Nil		
21091972	Drummau Road Chamber	25/09/2021 07:30	662	7.1	<5		<0.01	0.12	<0.01	92.8	Nil		
21091973	Drummau Road Chamber	26/09/2021 07:30	665	7.2	9		0.05	0.17	0.06	92.2	Nil		
21091947	Drummau Road Chamber	27/09/2021 07:30	655	7.2	27	0.25	0.13	0.32	0.13	91.6	Nil	15	232
21092084	Drummau Road Chamber	28/09/2021 07:30	656	7.1	<5		0.14	0.23	0.63	92.8	Nil		
21092085	Drummau Road Chamber	29/09/2021 07:30	667	7.1	<5		0.13	0.5	0.12	90.2	Nil		
21100099	Drummau Road Chamber	01/10/2021 09:30	685	7.1	<5		0.14	0.23	0.15	90.6	Nil		
21100259	Drummau Road Chamber	02/10/2021 12:00	671	7	<5		0.11	0.35	0.36	88.2	Nil		
21100263	Drummau Road Chamber	03/10/2021 11:30	545	6.9	<5		0.1	0.41	0.39	86.4	Nil		
21100414	Drummau Road Chamber	04/10/2021 09:30	545	7.1	<5	0.22	0.1	0.19	0.18	89.5	Nil	23	162
21100415	Drummau Road Chamber	05/10/2021 07:00	513	7	<5		0.07	0.64	0.33	87.6	Nil		
21100651	Drummau Road Chamber	06/10/2021 08:00	508	7.1	<5		0.08	0.3	0.24	80.4	Nil		
21100660	Drummau Road Chamber	07/10/2021 07:10	524	7.2	<5		0.08	0.31	0.26	84	Nil		
21100786	Drummau Road Chamber	08/10/2021 07:00	541	7.3	9		0.08	0.73	0.13	86.7	Nil		
21100782	Drummau Road Chamber	09/10/2021 13:00	563	7.3	<5		0.1	0.26	0.12	88	Nil		
21100788	Drummau Road Chamber	10/10/2021 13:00	573	7.2	9		0.09	0.25	0.13	89	Nil		
21100951	Drummau Road Chamber	11/10/2021 07:00	550	7	<5	0.19	0.07	0.22	0.16	88	Nil	19	152
21100948	Drummau Road Chamber	12/10/2021 11:00	536	6.8	<5		0.1	0.2	0.13	87.1	Nil		
21100956	Drummau Road Chamber	13/10/2021 08:45	568	6.7	<5		0.11	0.21	0.13	91.8	Nil		
21101116	Drummau Road Chamber	14/10/2021 12:15	521	7	<5		0.11	0.19	0.15	87.2	Nil		
21101117	Drummau Road Chamber	15/10/2021 09:15	520	7	<5		0.11	0.19	0.14	85.8	Nil		
21101308	Drummau Road Chamber	16/10/2021 09:15	541	7.2	<5		0.11	0.18	0.17	87.4	Nil		
21101294	Drummau Road Chamber	17/10/2021 09:15	546	7.1	<5		0.13	0.19	0.18	87.7	Nil		
21101303	Drummau Road Chamber	18/10/2021 08:40	555	7.1	<5	0.16	0.12	0.17	0.15	85.8	Nil	17	166
21101457	Drummau Road Chamber	19/10/2021 12:00	501	7	<5		0.1	0.18	0.17	100	Nil		
21101459	Drummau Road Chamber	20/10/2021 08:30	492	7	<5		0.08	0.35	0.2	86	Nil		
21101672	Drummau Road Chamber	21/10/2021 08:00	500	6.8	<5		0.08	0.26	0.13	83	Nil		
21101673	Drummau Road Chamber	22/10/2021 07:30	456	6.8	<5		0.08	0.24	0.12	83.6	Nil		
21101794	Drummau Road Chamber	23/10/2021 13:00	464	7	<5		0.1	0.19	0.13	97.5	Nil		
21101795	Drummau Road Chamber	24/10/2021 11:00	501	6.7	<5		0.11	0.18	0.12	84.1	Nil		
21101807	Drummau Road Chamber	25/10/2021 08:00	470	6.8	<5	0.18	0.09	0.24	0.12	88.6	Nil	19	120
21050825	Drummau Road Pipe	08/05/2021 10:15	582	6.9	<5	1.16	0.16	1.22	0.39	112	Nil	18	186
21051097	Drummau Road Pipe	12/05/2021 09:40	549	6.8	6	0.24	0.13	0.27	0.14	81	Nil	19	171
21051838	Drummau Road Pipe	21/05/2021 12:30	520	6.9	<5	0.23	0.12	0.28	0.13	72.2	Nil	18	145
21060090	Drummau Road Pipe	26/05/2021 12:30	492	6.6	<5	0.26	0.13	0.27	0.15	68.4	Nil	20	132
21060189	Drummau Road Pipe	01/06/2021 12:30	494	6.6	<5	0.25	0.14	0.3	0.18	83.2	Nil	18	141
21060566	Drummau Road Pipe	03/06/2021 10:30	495	7	<5	0.51	0.14	0.56	0.37	84.2	Nil	16	142
21060982	Drummau Road Pipe	09/06/2021 08:20	509	6.9	<5	0.26	0.13	0.12	0.16	84.2	Nil	16	154

		Analyte	Conductivity µS/cm @ 25C	pH units w	Suspended Solids	KONEFE Iron as Fe (Total)	Iron as Fe (Dissolved)	Iron as Fe (Total) ICPWATVAR	KONEFE Ferrous Iron as Fe(2+)	Total Alkalinity as CaCO3	Total Acidity as CaCO3	Chloride as Cl	Total Sulphur as SO4 (Dissolved)
		Limit of Reporting	100µS/cm		5mg/l	0.01mg/l	0.01mg/l	0.01mg/l	0.01mg/l	2mg/l	2mg/l	1mg/l	3mg/l
Report		Units	µS/cm	pH units	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
Number	Asset Name	Date/Time											
21061633	Drummau Road Pipe	16/06/2021 08:45	520	6.6	<5	0.28	0.15	0.31	0.2	82.9	Nil	14	154
21062018	Drummau Road Pipe	23/06/2021 08:10	533	6.7	<5	0.32	0.14	0.36	0.19	87	Nil	15	165
21070186	Drummau Road Pipe	30/06/2021 10:30	554	6.9	<5	0.24	0.15	0.28	0.17	83.8	Nil	15	170
21011511	Goshen Park Discharge	22/01/2021 12:00	888	7	11	3.1	2.98	3.33	2.8	85.7	Nil	38.0	239
21011511	Goshen Park Discharge	22/01/2021 15:00	691	6.8	8	3.12	3.04	3.33	2.78	84.3	Nil	10.0	246
21011511	Goshen Park Discharge	22/01/2021 18:00	837	6.8	7	3.05	3	3.3	2.78	84.2	Nil	10.0	251
21011512	Goshen Park Discharge	23/01/2021 08:30	759	6.9	<5	3.06	3.01	3.28	2.77	84.4	Nil	10.0	265
21011512	Goshen Park Discharge	23/01/2021 12:30	926	6.9	<5	3.06	3.04	3.32	2.81	82.7	Nil	11.0	266
21011660	Goshen Park Discharge	26/01/2021 08:30	787	6.3	<5	3.59	3.38	3.66	3.49	77.4	Nil	10.0	325
21011660	Goshen Park Discharge	26/01/2021 14:00	779	6.3	<5	3.66	3.39	3.73	3.45	75.9	Nil	10.0	320
21011873	Goshen Park Discharge	27/01/2021 09:45	784	6.4	<5	3.7	3.28	3.67	2.95	76.6	Nil	9.0	328
21011873	Goshen Park Discharge	27/01/2021 14:15	785	6.4	<5	3.5	3.18	3.53	2.88	72.6	Nil	10.0	321
21011872	Goshen Park Discharge	28/01/2021 09:00	787	6.6	<5	3.11	2.85	3.28	2.62	74.2	Nil	10.0	325
21011872	Goshen Park Discharge	28/01/2021 13:00	787	6.4	5	3.17	2.84	3.24	2.61	73	Nil	11.0	324
21020064	Goshen Park Discharge	29/01/2021 08:00	777	6.4	<5	3.36	2.3	3.65	2.14	71.9	Nil	10.0	322
21020064	Goshen Park Discharge	29/01/2021 13:45	777	6.4	<5	2.73	2.32	2.75	2.1	71.8	Nil	28.0	322
21020188	Goshen Park Discharge	01/02/2021 13:15	626	6.5	<5	2.85	2.26	3.02	2.08	73.9	Nil	10.0	232
21020309	Goshen Park Discharge	02/02/2021 11:00	648	6.5	<5	2.58	2.09	2.55	1.94	77.9	Nil	10.0	245
21020485	Goshen Park Discharge	03/02/2021 11:00	665	6.4	<5	2.37	2.03	2.44	1.84	73.5	Nil	10.0	262
21020551	Goshen Park Discharge	04/02/2021 09:20	643	6.5	<5	2.57	1.76	2.48	1.95	72.6	Nil	11.0	238
21020632	Goshen Park Discharge	05/02/2021 11:00	619	6.3	<5	2.62	1.8	2.43	2.42	72.9	Nil	9.0	229
21020706	Goshen Park Discharge	08/02/2021 12:00	602	7	<5	2.2	1.61	2.3	2.19	74.2	Nil	11.0	206
21020862	Goshen Park Discharge	09/02/2021 10:00	570	6.8	5	2.27	1.65	2.31	2.24	73.4	Nil	16.0	196
21020972	Goshen Park Discharge	10/02/2021 10:00	584	7	<5	2.29	1.84	2.43	2.13	69.9	Nil	10.0	201
21021005	Goshen Park Discharge	11/02/2021 09:00	586	7	<5	2.58	1.97	2.66	2.58	69	Nil	10.0	209
21021117	Goshen Park Discharge	12/02/2021 11:00	608	6.7	<5	2.73	2.13	2.85	2.44	67.7	Nil	10.0	224
21021229	Goshen Park Discharge	15/02/2021 11:00	629	7	9	3.6	2.48	3.9	2.8	68.9	Nil	10.0	235
21021453	Goshen Park Discharge	17/02/2021 08:00	585	6.6	<5	2.25	1.9	2.41	2.04	75.8	Nil	12.0	211
21021639	Goshen Park Discharge	19/02/2021 08:00	516	6.6	9	1.85	1.44	1.92	1.62	83.5	Nil	11.0	168
21021750	Goshen Park Discharge	22/02/2021 09:00	457	6.6	<5	1.32	1.03	1.45	1.05	71.9	Nil	12.0	135
21022042	Goshen Park Discharge	24/02/2021 10:30	463	6.6	<5	1.17	0.74	1.15	0.8	74.5	Nil	12.0	145
21030109	Goshen Park Discharge	26/02/2021 09:00	493	6.3	6	1.08	0.7	1.17	0.7	72.2	Nil	11.0	144
21030164	Goshen Park Discharge	01/03/2021 11:00	489	7.3	<5	1.3	0.89	1.36	0.88	70	Nil	10.0	154
21030407	Goshen Park Discharge	03/03/2021 12:00	523	6.9	6	1.55	1.22	1.64	1.17	68.7	Nil	10.0	178
21030592	Goshen Park Discharge	05/03/2021 08:45	544	6.5	9	2.98	1.3	2.8	1.41	68.5	Nil	9.0	184
21030797	Goshen Park Discharge	08/03/2021 09:00	575	7	<5	2.36	1.42	2.23	2.34	70.5	Nil	10.0	204
21031032	Goshen Park Discharge	10/03/2021 12:00	587	7	<5	2	1.65	2.04	1.87	72.6	Nil	9.0	219
21031111	Goshen Park Discharge	12/03/2021 12:00	580	6.8	<5	1.65	1.23	1.74	1.59	70.3	Nil	10.0	198
21031343	Goshen Park Discharge	15/03/2021 12:00	492	6.7	<5	1.23	0.79	1.14	1.2	77.9	Nil	11.0	150
21031548	Goshen Park Discharge	17/03/2021 11:00	501	6.7	<5	1.19	0.85	1.23	1.08	83.8	Nil	11.0	152
21031633	Goshen Park Discharge	19/03/2021 09:00	525	6.7	<5	1.59	1.05	1.66	1.36	76.3	Nil	8.0	162
21031863	Goshen Park Discharge	22/03/2021 09:00	531	6.8	<5	1.83	1.26	1.79	1.57	89.9	Nil	11.0	177
21032087	Goshen Park Discharge	24/03/2021 08:00	555	7.4	<5	1.56	0.02	1.67	1.41	84.6	Nil	9.0	190

		Analyte	Conductivity µS/cm @ 25C	pH units w	Suspended Solids	KONEFE Iron as Fe (Total)	Iron as Fe (Dissolved)	Iron as Fe (Total) ICPWATVAR	KONEFE Ferrous Iron as Fe(2+)	Total Alkalinity as CaCO3	Total Acidity as CaCO3	Chloride as Cl	Total Sulphur as SO4 (Dissolved)
		Limit of Reporting	100µS/cm		5mg/l	0.01mg/l	0.01mg/l	0.01mg/l	0.01mg/l	2mg/l	2mg/l	1mg/l	3mg/l
Report		Units	µS/cm	pH units	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
Number	Asset Name	Date/Time											
21032166	Goshen Park Discharge	26/03/2021 10:30	599	7	<5	7.43	1.38	6.47	4.38	83.4	Nil	11	198
21050944	Goshen Park Discharge	10/05/2021 12:50	609	6.8	12	2.75	0.2	1.84	0.82	84.5	Nil	11	218
21051097	Goshen Park Discharge	12/05/2021 09:00	605	6.8	6	0.78	0.43	0.79	0.41	105	Nil	11	207
21051201	Goshen Park Discharge	14/05/2021 09:00	571	7	<5	0.36	0.2	0.43	0.22	99.4	Nil	10	188
21051464	Goshen Park Discharge	17/05/2021 12:00	522	7	6	0.36	0.11	0.4	0.16	77.9	Nil	10	166
21051748	Goshen Park Discharge	19/05/2021 12:00	494	6.8	<5	0.38	0.09	0.35	0.15	92.2	Nil	10	130
21051838	Goshen Park Discharge	21/05/2021 12:00	485	6.9	<5	0.39	0.13	0.27	0.14	72.3	Nil	11	137
21051950	Goshen Park Discharge	24/05/2021 12:00	466	7	<5	0.47	0.19	0.59	0.21	95.5	Nil	12	118
21060090	Goshen Park Discharge	26/05/2021 12:00	431	6.7	<5	0.47	0.22	0.5	0.42	71.1	Nil	11	113
21060087	Goshen Park Discharge	28/05/2021 08:00	434	6.7	<5	0.44	0.22	0.46	0.24	83.2	Nil	12	118
21060189	Goshen Park Discharge	01/06/2021 12:00	496	6.7	<5	0.66	0.49	0.76	0.49	95.1	Nil	11	153
21060566	Goshen Park Discharge	03/06/2021 10:00	501	7	<5	0.67	0.48	0.73	0.54	83.8	Nil	10	158
21060767	Goshen Park Discharge	07/06/2021 09:00	547	6.6	<5	0.81	0.57	0.87	0.61	90.5	Nil	11	192
21060982	Goshen Park Discharge	09/06/2021 08:00	574	6.9	10	0.78	0.61	0.7	0.67	86.9	Nil	11	200
21061109	Goshen Park Discharge	11/06/2021 12:30	577	6.5	<5	1.1	0.79	0.97	0.83	79.1	Nil	10	204
21061306	Goshen Park Discharge	14/06/2021 08:00	587	6.6	<5	1.08	0.95	1.28	0.89	86.8	Nil	10	216
21061633	Goshen Park Discharge	16/06/2021 08:00	588	6.6	<5	1.1	0.93	1.16	0.95	85.8	Nil	9	197
21061627	Goshen Park Discharge	18/06/2021 09:00	591	6.6	<5	1.13	0.91	1.19	0.91	91.4	Nil	10	196
21061766	Goshen Park Discharge	21/06/2021 10:00	586	6.7	9	1.84	0.91	1.77	1.36	90.6	Nil	11	207
21062018	Goshen Park Discharge	23/06/2021 08:00	614	6.9	8	1.53	1.02	1.78	1.13	89.5	Nil	10	214
21062101	Goshen Park Discharge	25/06/2021 09:00	620	6.7	<5	1.38	1.05	1.56	1.12	89.8	Nil	11	229
21070002	Goshen Park Discharge	28/06/2021 08:00	646	6.8	<5	1	0.81	1.07	0.79	89.2	Nil	11	230
21070186	Goshen Park Discharge	30/06/2021 10:00	675	7	<5	1.39	0.87	1.72	1.09	88.5	Nil	11	239
21070303	Goshen Park Discharge	02/07/2021 09:00	683	7.1	28	1.86	0.97	1.96	1.49	94.4	Nil	10	255
21071745	Goshen Park Discharge	19/07/2021 10:30	697	7	11	2.15	0.72	2.64	1.09	108	Nil	10	267
21081278	Goshen Park Discharge	16/08/2021 11:00	755	6.7	8	1.34	1.16	1.45	1.09	92	Nil	11	270
21081714	Goshen Park Discharge	23/08/2021 12:40	703	7.2	6	1.27	0.98	1.33	0.98	79.6	Nil	12	260
21100415	Goshen Park Discharge	05/10/2021 07:10	618	7.1	7		0.11	0.54	0.23	111	Nil		
21100651	Goshen Park Discharge	06/10/2021 08:10	528	7.4	14		0.02	0.69	0.25	102	Nil		
21100660	Goshen Park Discharge	07/10/2021 07:00	502	7.3	12		0.05	0.66	0.27	100	Nil		
21100786	Goshen Park Discharge	08/10/2021 07:10	506	7.3	8		0.11	0.41	0.16	97.4	Nil		
21100782	Goshen Park Discharge	09/10/2021 13:10	510	7.3	<5		0.07	0.33	0.18	91.9	Nil		
21100788	Goshen Park Discharge	10/10/2021 13:10	500	7.3	7		0.07	0.62	0.13	89	Nil		
21100951	Goshen Park Discharge	11/10/2021 07:20	512	7	<5	0.43	0.04	0.35	0.16	89.9	Nil	10	151
21100948	Goshen Park Discharge	12/10/2021 11:15	513	6.9	13		0.09	0.88	0.19	90.6	Nil		
21101116	Goshen Park Discharge	14/10/2021 12:00	513	7.1	10		0.16	0.53	0.26	88.6	Nil		
21101117	Goshen Park Discharge	15/10/2021 09:00	521	7.2	<5		0.13	0.19	0.04	90.6	Nil		
21101294	Goshen Park Discharge	17/10/2021 09:00	560	7.3	11		0.12	0.92	0.34	87.4	Nil		
21101303	Goshen Park Discharge	18/10/2021 07:30	578	7	7	0.76	0.34	0.63	0.4	85.6	Nil	11	193
21101459	Goshen Park Discharge	20/10/2021 08:45	513	6.9	9		0.4	0.81	0.53	87.8	Nil		
21101672	Goshen Park Discharge	21/10/2021 08:15	510	6.8	<5		0.36	0.77	0.4	88.9	Nil		
21101673	Goshen Park Discharge	22/10/2021 07:40	477	6.9	<5		0.21	0.6	0.27	95.2	Nil		
21101794	Goshen Park Discharge	23/10/2021 13:10	452	7	<5		0.23	0.51	0.28	97.5	Nil		

		Analyte	Conductivity µS/cm @ 25C	pH units w	Suspended Solids	KONEFE Iron as Fe (Total)	Iron as Fe (Dissolved)	Iron as Fe (Total) ICPWATVAR	KONEFE Ferrous Iron as Fe(2+)	Total Alkalinity as CaCO3	Total Acidity as CaCO3	Chloride as Cl	Total Sulphur as SO4 (Dissolved)
		Limit of Reporting	100µS/cm		5mg/l	0.01mg/l	0.01mg/l	0.01mg/l	0.01mg/l	2mg/l	2mg/l	1mg/l	3mg/l
Report		Units	µS/cm	pH units	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
Number	Asset Name	Date/Time											
21101795	Goshen Park Discharge	24/10/2021 11:10	449	6.9	<5		0.59	0.46	0.22	91.6	Nil		
21101807	Goshen Park Discharge	25/10/2021 08:20	441	6.9	<5	0.35	0.11	0.42	0.17	95.2	Nil	10	127
21011660	70 Cwrt Y Clafdy	26/01/2021 13:45	515	6.4	10	0.31	0.01	0.35	0.04	48.2	Nil	17	181
21011873	70 Cwrt y Clafdy	27/01/2021 10:15	524	6.5	<5	0.09	0.01	0.09	0.02	45.5	Nil	14	185
21011873	70 Cwrt y Clafdy	27/01/2021 14:30	529	6.5	<5	0.19	0.05	0.07	0.1	47	Nil	15	178
21011872	70 Cwrt Y Clafdy	28/01/2021 09:40	572	6.4	<5	0.23	<0.01	0.05	<0.01	49.5	Nil	15	211
21030164	73 Cwrt y Clafdy	01/03/2021 11:45	507	7.3	19	0.32	0.01	0.41	0.07	75.5	Nil	12	159
21030164	75 Cwrt y Clafdy	01/03/2021 12:00	611	7.7	11	0.14	0.02	0.19	0.12	133	Nil	12	165
21031032	77 Dynevor Road	10/03/2021 12:45	477	7.7	13	0.32	0.02	0.65	0.3	112	Nil	14	110
21031343	77 Dynevor Road	15/03/2021 12:45	602	7.3	6	0.41	0.02	0.29	0.39	116	Nil	13	167
21031548	77 Dynevor Road	17/03/2021 11:45	623	7.3	<5	0.06	<0.01	0.04	0.06	128	Nil	12	183
21031633	77 Dynevor Road	19/03/2021 09:45	613	7.3	25	0.32	<0.01	0.31	0.3	122	Nil	10	184
21020064	87 Dynevor Road	29/01/2021 08:30	699	6.5	<5	0.06	0.01	0.05	<0.01	73.2	Nil	12	275
21020064	87 Dynevor Road	29/01/2021 14:15	704	6.5	<5	0.03	0.05	0.03	<0.01	70.2	Nil	12	275
21020188	87 Dynevor Road	01/02/2021 13:30	690	6.6	<5	0.03	<0.01	0.06	<0.01	83.6	Nil	11	266
21020309	87 Dynevor Road	02/02/2021 11:20	672	6.6	<5	0.15	<0.01	0.11	0.01	74.8	Nil	12	252
21020485	87 Dynevor Road	03/02/2021 11:30	650	6.5	<5	0.08	<0.01	0.01	0.02	76.8	Nil	12	250
21020551	87 Dynevor Road	04/02/2021 09:40	650	6.4	<5	0.02	0.01	0.04	0.02	74.4	Nil	10	237
21020632	87 Dynevor Road	05/02/2021 11:30	650	6.4	<5	0.15	0.01	0.07	0.08	75.4	Nil	11	245
21020706	87 Dynevor Road	08/02/2021 12:30	634	6.9	<5	0.08	<0.01	<0.01	0.12	73.4	Nil	11	226
21020862	87 Dynevor Road	09/02/2021 10:30	623	6.8	<5	0.04	0.01	0.01	0.03	72.7	Nil	11	225
21020972	87 Dynevor Road	10/02/2021 10:30	605	7.4	<5	0.01	<0.01	<0.01	0.02	72.2	Nil	11	224
21021005	87 Dynevor Road	11/02/2021 09:40	605	7	<5	0.03	0.01	0.01	0.03	70.1	Nil	11	220
21021117	87 Dynevor Road	12/02/2021 11:20	604	6.8	<5	0.05	<0.01	0.05	0.04	70.4	Nil	11	218
21021229	87 Dynevor Road	15/02/2021 11:30	599	6.6	<5	0.06	0.01	0.02	0.05	70.3	Nil	11	218
21021453	87 Dynevor Road	17/02/2021 08:30	608	6.7	<5	0.03	<0.01	0.01	0.02	73.2	Nil	11	223
21021639	87 Dynevor Road	19/02/2021 08:30	596	6.6	6	0.02	<0.01	0.01	0.02	75.2	Nil	11	219
21021750	87 Dynevor Road	22/02/2021 09:30	539	6.5	<5	0.01	0.04	0.01	0.01	68.4	Nil	12	180
21022042	87 Dynevor Road	24/02/2021 10:00	502	6.7	<5	0.08	<0.01	0.02	0.04	73.6	Nil	12	166
21030109	87 Dynevor Road	26/02/2021 09:30	515	7.1	6	0.12	<0.01	0.06	0.02	82.7	Nil	12	159
21030164	87 Dynevor Road	01/03/2021 11:30	550	7.5	24	0.58	<0.01	0.65	0.27	106	Nil	11	153
21030407	87 Dynevor Road	03/03/2021 12:15	517	7.1	14	0.2	<0.01	0.24	0.07	89.1	Nil	10	156
21030592	87 Dynevor Road	05/03/2021 09:10	540	6.8	33	0.41	<0.01	0.32	0.18	88.5	Nil	9	163
21030797	87 Dynevor Road (Chamber 1)	08/03/2021 09:30	586	7.2	12	0.46	0.02	0.34	0.44	103	Nil	10	187
21031032	87 Dynevor Road (Chamber 1)	10/03/2021 12:30	533	7.2	<5	0.02	<0.01	0.01	0.02	64.8	Nil	11	187
21031111	87 Dynevor Road (Chamber 1)	12/03/2021 12:30	548	6.9	<5	0.02	<0.01	0.02	0.05	63.3	Nil	11	187
21031343	87 Dynevor Road (Chamber 1)	15/03/2021 12:15	585	7	9	0.2	<0.01	0.28	0.18	91	Nil	11	193
21031548	87 Dynevor Road (Chamber 1)	17/03/2021 11:30	576	6.9	<5	0.05	<0.01	0.04	0.06	102	Nil	11	179
21031633	87 Dynevor Road (Chamber 1)	19/03/2021 09:30	527	6.6	<5	0.06	<0.01	0.01	0.03	66.7	Nil	9	181
21031863	87 Dynevor Road (Chamber 1)	22/03/2021 10:00	512	6.7	<5	0.17	<0.01	0.16	0.12	96.5	Nil	11	167
21032087	87 Dynevor Road (Chamber 1)	24/03/2021 08:20	514	7.1	<5	0.02	0.16	0.61	0.04	79.8	Nil	10	162
21032166	87 Dynevor Road (Chamber 1)	26/03/2021 11:00	525	6.8	<5	0.03	0.01	0.01	0.04	64.9	Nil	11	197
21040085	87 Dynevor Road (Chamber 1)	29/03/2021 10:45	597	6.8	<5	0.07	<0.01	0.04	0.05	83.8	Nil	11	188

		Analyte	Conductivity µS/cm @ 25C	pH units w	Suspended Solids	KONEFE Iron as Fe (Total)	Iron as Fe (Dissolved)	Iron as Fe (Total) ICPWATVAR	KONEFE Ferrous Iron as Fe(2+)	Total Alkalinity as CaCO3	Total Acidity as CaCO3	Chloride as Cl	Total Sulphur as SO4 (Dissolved)
		Limit of Reporting	100µS/cm		5mg/l	0.01mg/l	0.01mg/l	0.01mg/l	0.01mg/l	2mg/l	2mg/l	1mg/l	3mg/l
Report		Units	µS/cm	pH units	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
Number	Asset Name	Date/Time											
21040092	87 Dynevor Road (Chamber 1)	31/03/2021 08:20	550	6.7	<5	0.04	0.01	0.01	0.03	74.9	Nil	11	191
21040578	87 Dynevor Road (Chamber 1)	06/04/2021 12:20	566	6.9	<5	0.05	0.01	0.05	0.05	66.1	Nil	11	202
21040659	87 Dynevor Road (Chamber 1)	08/04/2021 13:15	557	6.9	<5	0.04	<0.01	0.04	0.04	65.9	Nil	11	203
21040996	87 Dynevor Road (Chamber 1)	12/04/2021 10:15	558	6.6	<5	0.05	<0.01	0.07	0.02	77.5	Nil	11	201
21041203	87 Dynevor Road (Chamber 1)	16/04/2021 09:10	562	6.8	<5	0.03	0.01	0.03	0.01	51.7	Nil	12	199
21041594	87 Dynevor Road (Chamber 1)	19/04/2021 12:20	586	6.6	<5	<0.01	<0.01	0.01	0.02	83.6	Nil	11	207
21041776	87 Dynevor Road (Chamber 1)	21/04/2021 10:15	587	6.8	<5	0.47	<0.01	0.37	0.46	78	Nil	9	204
21041780	87 Dynevor Road (Chamber 1)	23/04/2021 10:30	591	6.8	<5	0.19	<0.01	0.14	0.17	82.2	Nil	10	211
21042094	87 Dynevor Road (Chamber 1)	26/04/2021 12:00	607	6.7	<5	0.11	0.01	0.02	0.07	88.8	Nil	10	207
21042099	87 Dynevor Road (Chamber 1)	28/04/2021 08:20	616	6.7	<5	0.04	0.02	0.01	0.06	82.9	Nil	10	219
21050197	87 Dynevor Road (Chamber 1)	01/05/2021 08:20	640	6.7	<5	0.08	<0.01	<0.01	0.04	77.6	Nil	12	238
21050580	87 Dynevor Road (Chamber 1)	05/05/2021 08:20	643	6.9	<5	0.05	<0.01	0.01	0.03	82.6	Nil	11	258
21050579	87 Dynevor Road (Chamber 1)	07/05/2021 09:15	661	6.8	<5	0.04	<0.01	<0.01	0.01	80.8	Nil	12	249
21050944	87 Dynevor Road (Chamber 1)	10/05/2021 13:15	660	6.9	<5	0.26	<0.01	0.3	0.1	81.4	Nil	12	249
21051097	87 Dynevor Road (Chamber 1)	12/05/2021 09:45	648	6.9	<5	0.07	<0.01	0.03	0.02	89.8	Nil	12	246
21051201	87 Dynevor Road (Chamber 1)	14/05/2021 09:15	632	6.9	<5	0.02	<0.01	<0.01	0.01	85.6	Nil	12	246
21051464	87 Dynevor Road (Chamber 1)	17/05/2021 12:30	609	6.7	5	0.59	<0.01	0.02	0.19	70.9	Nil	11	219
21051748	87 Dynevor Road (Chamber 1)	19/05/2021 12:40	585	6.7	<5	0.08	<0.01	0.08	0.02	78.6	Nil	12	181
21051838	87 Dynevor Road (Chamber 1)	21/05/2021 12:45	562	7	<5	0.03	<0.01	0.01	0.01	66	Nil	13	179
21051950	87 Dynevor Road (Chamber 1)	24/05/2021 12:30	542	6.8	<5	0.14	0.01	0.15	0.05	74.7	Nil	12	168
21060090	87 Dynevor Road (Chamber 1)	26/05/2021 12:45	521	6.6	<5	<0.01	<0.01	<0.01	0.02	77.2	Nil	12	156
21060087	87 Dynevor Road (Chamber 1)	28/05/2021 08:30	506	6.6	<5	0.01	0.02	0.01	0.03	73.4	Nil	13	163
21060189	87 Dynevor Road (Chamber 1)	01/06/2021 12:45	490	6.6	<5	0.04	<0.01	0.02	0.03	81.2	Nil	13	149
21060566	87 Dynevor Road (Chamber 1)	03/06/2021 10:45	484	7	<5	<0.01	<0.01	0.02	0.02	83.8	Nil	12	147
21060767	87 Dynevor Road (Chamber 1)	07/06/2021 09:30	493	6.7	<5	0.07	<0.01	0.05	0.04	78.5	Nil	11	161
21060982	87 Dynevor Road (Chamber 1)	09/06/2021 08:30	503	6.9	<5	0.06	<0.01	<0.01	0.02	84.6	Nil	12	159
21061109	87 Dynevor Road (Chamber 1)	11/06/2021 12:00	509	6.7	<5	0.03	<0.01	<0.01	<0.01	70.5	Nil	11	167
21061306	87 Dynevor Road (Chamber 1)	14/06/2021 08:15	524	6.6	<5	<0.01	<0.01	0.02	0.02	80.9	Nil	11	179
21061633	87 Dynevor Road (Chamber 1)	16/06/2021 08:15	532	6.6	<5	0.13	0.01	0.05	0.04	83.2	Nil	10	165
21061627	87 Dynevor Road (Chamber 1)	18/06/2021 09:30	542	6.7	<5	0.05	<0.01	0.03	0.03	88.3	Nil	9	173
21061766	87 Dynevor Road (Chamber 1)	21/06/2021 10:30	542	6.6	<5	0.02	<0.01	0.04	0.03	84.7	Nil	11	183
21062018	87 Dynevor Road (Chamber 1)	23/06/2021 08:05	554	6.7	<5	0.02	<0.01	0.01	0.02	90.8	Nil	11	185
21062101	87 Dynevor Road (Chamber 1)	25/06/2021 09:30	556	6.7	<5	<0.01	0.14	0.01	0.02	85.8	Nil	10	170
21070002	87 Dynevor Road (Chamber 1)	28/06/2021 08:15	553	6.5	<5	0.03	<0.01	0.03	0.03	84.9	Nil	11	186
21070186	87 Dynevor Road (Chamber 1)	30/06/2021 10:45	574	6.9	<5	0.05	<0.01	0.02	0.04	84.4	Nil	12	188
21070303	87 Dynevor Road (Chamber 1)	02/07/2021 09:30	574	6.9	<5	0.11	0.01	0.07	0.05	77.5	Nil	11	199
21070502	87 Dynevor Road (Chamber 1)	05/07/2021 11:30	624	6.8	<5	0.11	<0.01	0.01	0.05	86.5	Nil	11	210
21071070	87 Dynevor Road (Chamber 1)	12/07/2021 12:20	617	6.6	<5	0.06	<0.01	0.03	0.05	86.1	Nil	10	212
21071745	87 Dynevor Road (Chamber 1)	19/07/2021 10:15	658	6.8	<5	<0.01	0.01	0.03	<0.01	86.7	Nil	11	230
21072096	87 Dynevor Road (Chamber 1)	26/07/2021 10:15	636	6.8	<5	0.03	0.01	<0.01	0.02	88	Nil	12	224
21080281	87 Dynevor Road (Chamber 1)	02/08/2021 12:40	649	7	<5	0.03	0.01	0.06	0.02	89.1	Nil	14	238
21080794	87 Dynevor Road (Chamber 1)	09/08/2021 10:30	661	7.4	<5	0.04	<0.01	0.04	0.02	79.9	Nil	12	237
21081278	87 Dynevor Road (Chamber 1)	16/08/2021 10:45	660	6.9	<5	0.01	<0.01	0.02	0.01	81.4	Nil	14	234

		Analyte	Conductivity µS/cm @ 25C	pH units w	Suspended Solids	KONEFE Iron as Fe (Total)	Iron as Fe (Dissolved)	Iron as Fe (Total) ICPWATVAR	KONEFE Ferrous Iron as Fe(2+)	Total Alkalinity as CaCO3	Total Acidity as CaCO3	Chloride as Cl	Total Sulphur as SO4 (Dissolved)
		Limit of Reporting	100µS/cm		5mg/l	0.01mg/l	0.01mg/l	0.01mg/l	0.01mg/l	2mg/l	2mg/l	1mg/l	3mg/l
Report		Units	µS/cm	pH units	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
Number	Asset Name	Date/Time											
21081714	87 Dynevor Road (Chamber 1)	23/08/2021 12:00	655	7.4	<5	0.04	<0.01	0.01	0.02	97.1	Nil	14	236
21090078	87 Dynevor Road (Chamber 1)	31/08/2021 12:20	675	7	<5	<0.01	<0.01	0.02	0.02	102	Nil	12	249
21090562	87 Dynevor Road (Chamber 1)	06/09/2021 11:00	692	7.4	<5	0.07	<0.01	0.03	0.03	94.6	Nil	12	269
21090986	87 Dynevor Road (Chamber 1)	13/09/2021 10:15	703	7	<5	0.02	<0.01	0.03	0.02	90.6	Nil	12	277
21091947	87 Dynevor Road (Chamber 1)	27/09/2021 09:00	742	7.1	<5	<0.01	<0.01	Data in query	<0.01	92.8	Nil	12	322
21100414	87 Dynevor Road (Chamber 1)	04/10/2021 09:50	695	7	<5	<0.01	0.01	0.01	0.03	91.6	Nil	13	269
21100951	87 Dynevor Road (Chamber 1)	11/10/2021 07:10	596	6.9	<5	0.01	<0.01	0.01	0.04	90.5	Nil	13	196
21101303	87 Dynevor Road (Chamber 1)	18/10/2021 07:45	573	7.1	<5	0.03	0.01	0.01	0.05	84	Nil	12	190
21101807	87 Dynevor Road (Chamber 1)	25/10/2021 08:10	504	6.8	<5	0.02	<0.01	0.01	<0.01	87.2	Nil	12	166
21100780	Borehole 10	08/10/2021 07:20	484	7.5	<5	0.45	0.22	0.55	0.27	96.8	Nil	12	152
21100778	Borehole 10	09/10/2021 13:20	507	7.4	<5	0.44	0.18	0.53	0.26	92.2	Nil	11	142
21100779	Borehole 10	10/10/2021 13:20	485	7.3	<5	0.46	0.18	0.54	0.21	93.1	Nil	12	141
21100956	Borehole 10	13/10/2021 08:30	530	6.3	<5		0.2	0.69	0.25	91.7	Nil		
21030164	32 Jubilee Crescent	01/03/2021 12:15	633	8	24	0.64	<0.01	0.47	0.15	158	Nil	13	154
21020064	9 Sunnyland Crescent	29/01/2021 14:30	816	7.0	<5	0.02	<0.01	0.03	<0.01	132	Nil	12	292
21020862	Bryndewy Level	09/02/2021 14:00	157	6.7	56	18.7	2.03	24.8	13.7	36.5	Nil	14	15
21021005	Bryndewy Level	11/02/2021 10:00	158	6.9	<5	1.41	1.31	1.46	1.45	35.8	Nil	13	16
21021359	Bryndewy Level	16/02/2021 12:00	155	6.8	<5	0.97	0.92	1.05	0.86	37.4	Nil	13	15
21021511	Bryndewy Level	18/02/2021 12:30	156	6.7	6	1.35	0.77	1.5	1	39.1	Nil	14	16
21021359	Lonlas Old Graigoia Level	16/02/2021 17:30	253	6.9	<5	0.04	<0.01	0.06	0.04	33.9	Nil	13	55
21021511	Lonlas Old Graigoia Level	18/02/2021 12:00	243	7.3	6	0.02	0.01	0.02	<0.01	41.9	Nil	12	55
21021750	Lonlas Old Graigoia Level	22/02/2021 09:45	221	7.1	<5	0.09	0.02	0.11	0.04	30.1	Nil	11	53
21022042	Lonlas Old Graigola Level	24/02/2021 10:45	221	7.1	6	0.05	0.01	0.11	0.04	35.1	Nil	11	54
21022042	Drumma Greenway Level	24/02/2021 11:20	185	6.7	<5	0.13	0.07	0.13	0.09	46.1	Nil	14	14
21030109	Drumma Greenway Level	26/02/2021 08:15	189	7	10	0.25	0.02	0.31	0.07	45.8	Nil	13	14
21030288	Drumma Greenway Level	02/03/2021 08:20	197	7.3	7	0.31	0.02	0.11	0.08	44.2	Nil	14	14
21030592	Drumma Greenway Level	05/03/2021 08:15	193	6.7	5	0.07	0.05	0.11	0.06	42.8	Nil	12	16
21022042	Neuadd Wen Graigola Level	24/02/2021 11:00	601	6.8	<5	0.47	0.27	0.47	0.32	122	Nil	14	165
21030109	Neuadd Wen Graigola Level	26/02/2021 08:00	561	7.3	<5	0.38	0.03	0.41	0.07	112	Nil	13	150
21030288	Neuadd Wen Graigola Level	02/03/2021 08:00	694	7.4	<5	0.39	0.01	0.37	0.08	136	Nil	14	191
21030592	Neuadd Wen Graigola Level	05/03/2021 08:00	716	6.8	6	0.4	0.02	0.45	0.14	147	Nil	13	195
21031863	Woodlands Spring East	22/03/2021 10:30	474	6.8	<5	0.12	0.06	0.1	0.12	84.4	Nil	19	141
21032087	Woodlands Spring East	24/03/2021 09:00	470	7.2	6	0.37	<0.01	0.16	0.35	68.6	Nil	17	178
21032166	Woodlands Spring East	26/03/2021 11:15	474	7	<5	0.06	0.01	0.08	0.09	52.4	Nil	16	140
21040085	Woodlands Spring East	29/03/2021 11:00	467	6.9	5	0.1	0.03	0.19	0.09	74.8	Nil	17	141
21031863	Woodlands Spring West	22/03/2021 11:00	342	6.3	<5	0.14	0.01	0.1	0.1	39	Nil	20	97
21032087	Woodland Spring West	24/03/2021 09:20	343	6.8	<5	<0.01	0.03	0.01	0.04	31	Nil	19	144
21032166	Woodlands Spring West	26/03/2021 11:30	345	6.4	<5	0.02	<0.01	0.02	0.04	27.9	Nil	18	97
21040085	Woodlands Spring West	29/03/2021 11:15	342	6.3	<5	<0.01	0.01	0.04	0.04	29.2	Nil	21	97

		Analyte	Calcium as Ca (Dissolved)	Magnesium as Mg (Dissolved)	Barium as Ba (Dissolved)	Strontium as Sr (Dissolved)	Sodium as Na (Dissolved)	Potassium as K (Dissolved)	Nickel as Ni (Dissolved)	Manganese as Mn (Total)	Manganese as Mn (Dissolved)	Boron as B (Dissolved)
		Limit of Reporting	1mg/l	1mg/l	0.01mg/l	0.01mg/l	1mg/l	1mg/l	0.01mg/l	0.01mg/l	0.01mg/l	0.01mg/l
Report		Units	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
Number	Asset Name	Date/Time										
21011512	Drummau Road	23/01/2021 13:00	44	18	0.03	0.2	22	6	<0.01	0.25	0.04	0.03
21011660	Drummau Road	26/01/2021 08:40	45	25	0.03	0.22	20	7	0.01	0.14	0.1	0.02
21011873	Drummau Road	27/01/2021 10:00	47	26	0.03	0.23	21	8	<0.01	0.38	0.11	0.02
21011872	Drummau Road	28/01/2021 09:20	47	25	0.03	0.23	21	8	<0.01	0.11	0.09	0.02
21011872	Drummau Road	28/01/2021 15:20	47	25	0.03	0.24	21	8	<0.01	0.27	0.09	0.02
21020064	Drummau Road	29/01/2021 08:15	47	24	0.03	0.22	22	7	<0.01	0.26	0.08	0.03
21020064	Drummau Road	29/01/2021 14:00	47	24	0.03	0.22	22	8	<0.01	0.33	0.09	0.03
21020188	Drummau Road	01/02/2021 13:00	48	25	0.03	0.23	21	8	<0.01	0.34	0.08	0.03
21020309	Drummau Road	02/02/2021 11:10	47	26	0.03	0.23	21	8	<0.01	0.62	0.09	0.03
21020485	Drummau Road	03/02/2021 11:15	49	27	0.03	0.24	21	8	<0.01	0.16	0.09	0.02
21020551	Drummau Road	04/02/2021 09:00	48	26	0.03	0.24	20	8	<0.01	0.08	0.08	0.03
21020632	Drummau Road	05/02/2021 11:15	48	27	0.03	0.24	21	8	<0.01	0.16	0.08	0.03
21020706	Drummau Road	08/02/2021 12:15	45	25	0.03	0.23	20	8	<0.01	0.15	0.07	0.03
21020862	Drummau Road	09/02/2021 10:15	46	26	0.03	0.23	19	8	<0.01	0.17	0.08	0.02
21020972	Drummau Road	10/02/2021 10:15	47	27	0.03	0.24	21	8	<0.01	0.13	0.07	0.03
21021005	Drummau Road	11/02/2021 09:20	47	27	0.03	0.23	20	8	<0.01	0.07	0.08	0.02
21021117	Drummau Road	12/02/2021 11:10	47	28	0.03	0.24	20	8	<0.01	0.11	0.09	0.02
21021229	Drummau Road	15/02/2021 11:15	49	28	0.03	0.24	21	9	<0.01	0.41	0.09	0.02
21021453	Drummau Road	17/02/2021 08:15	48	28	0.03	0.24	20	8	<0.01	0.33	0.09	0.02
21021639	Drummau Road	19/02/2021 08:15	47	26	0.03	0.23	20	8	<0.01	0.26	0.07	0.02
21021750	Drummau Road	22/02/2021 09:15	43	22	0.03	0.21	21	7	<0.01	0.06	0.04	0.03
21022042	Drummau Road	24/02/2021 10:15	45	23	0.03	0.22	20	7	<0.01	0.55	0.06	0.03
21030109	Drummau Road	26/02/2021 09:15	43	23	0.03	0.22	20	7	<0.01	0.06	0.06	0.02
21030164	Drummau Road	01/03/2021 11:15	43	24	0.03	0.21	19	8	<0.01	0.07	0.06	0.02
21030407	Drummau Road	03/03/2021 12:30	43	25	0.03	0.22	19	8	<0.01	0.1	0.07	0.01
21030592	Drummau Road	05/03/2021 08:55	44	25	0.03	0.22	18	8	<0.01	0.22	0.08	0.02
21030797	Drummau Road	08/03/2021 09:15	45	26	0.03	0.23	19	8	<0.01	0.1	0.08	0.02
21031032	Drummau Road	10/03/2021 12:15	44	26	0.03	0.23	20	8	<0.01	0.14	0.08	0.02
21031111	Drummau Road	12/03/2021 12:15	42	24	0.03	0.22	19	7	<0.01	0.06	0.06	0.02
21031343	Drummau Road	15/03/2021 12:30	43	25	0.03	0.22	19	8	<0.01	0.13	0.07	0.02
21031548	Drummau Road	17/03/2021 11:15	43	25	0.03	0.22	19	8	<0.01	0.14	0.06	0.02
21031633	Drummau Road	19/03/2021 09:15	43	25	0.03	0.22	18	8	<0.01	0.15	0.07	0.02
21031863	Drummau Road	22/03/2021 09:30	46	27	0.03	0.24	19	8	<0.01	0.16	0.08	0.02
21032087	Drummau Road	24/03/2021 08:40	41	34	0.03	0.25	19	10	0.02	0.07	0.07	<0.01
21032166	Drummau Road	26/03/2021 10:45	44	27	0.03	0.23	19	8	<0.01	0.13	0.08	0.02
21040085	Drummau Road	29/03/2021 10:30	46	27	0.03	0.23	19	9	<0.01	0.09	0.08	0.02
21040092	Drammau Road	31/03/2021 08:00	45	28	0.03	0.25	27	9	<0.01	0.09	0.08	0.03
21040578	Drummau Road	06/04/2021 12:00	45	28	0.03	0.23	19	8	<0.01	0.11	0.07	0.02
21040659	Drummau Road	08/04/2021 13:00	45	28	0.03	0.23	19	9	<0.01	0.08	0.07	0.02
21040996	Drummau Road	12/04/2021 10:00	44	27	0.03	0.23	18	8	<0.01	0.08	0.06	0.02
21041203	Drummau Road	16/04/2021 09:00	48	29	0.03	0.25	20	9	<0.01	0.08	0.09	0.03
21041594	Drummau Road	19/04/2021 12:00	45	28	0.03	0.24	18	9	<0.01	0.09	0.08	0.02
21041776	Drummau Road	21/04/2021 10:00	47	29	0.03	0.25	19	9	<0.01	0.07	0.08	0.02

		Analyte	Calcium as Ca (Dissolved)	Magnesium as Mg (Dissolved)	Barium as Ba (Dissolved)	Strontium as Sr (Dissolved)	Sodium as Na (Dissolved)	Potassium as K (Dissolved)	Nickel as Ni (Dissolved)	Manganese as Mn (Total)	Manganese as Mn (Dissolved)	Boron as B (Dissolved)
		Limit of Reporting	1mg/l	1mg/l	0.01mg/l	0.01mg/l	1mg/l	1mg/l	0.01mg/l	0.01mg/l	0.01mg/l	0.01mg/l
Report		Units	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
Number	Asset Name	Date/Time										
21041780	Drummau Road	23/04/2021 10:00	46	29	0.03	0.24	18	9	<0.01	0.09	0.09	0.02
21042094	Drummau Road	26/04/2021 12:00	49	30	0.03	0.26	20	9	<0.01	0.12	0.07	0.02
21042099	Drummau Road	28/04/2021 08:00	49	30	0.03	0.26	20	9	<0.01	0.1	0.07	0.02
21050197	Drummau Road	01/05/2021 08:00	51	33	0.03	0.27	20	10	<0.01	0.11	0.09	0.02
21050580	Drummau Road	05/05/2021 08:00	53	33	0.03	0.28	20	10	<0.01	0.52	0.13	0.02
21050579	Drummau Road	07/05/2021 09:00	52	33	0.03	0.28	21	10	<0.01	0.12	0.1	0.02
21050825	Drummau Road	08/05/2021 10:00	49	29	0.03	0.26	21	8	<0.01	0.2	0.07	0.02
21050944	Drummau Road	10/05/2021 13:00	46	24	0.03	0.22	22	7	<0.01	0.23	0.06	0.03
21051097	Drummau Road	12/05/2021 09:15	49	28	0.03	0.25	20	8	<0.01	0.05	0.07	0.03
21051201	Drummau Road	14/05/2021 09:30	49	28	0.03	0.24	20	8	<0.01	0.05	0.06	0.02
21051464	Drummau Road	17/05/2021 12:15	44	27	0.03	0.22	19	8	<0.01	0.06	0.05	0.02
21051748	Drummau Road	19/05/2021 12:20	41	24	0.03	0.22	17	7	<0.01	0.07	0.05	0.02
21051838	Drummau Road	21/05/2021 12:15	40	25	0.03	0.21	19	8	<0.01	0.23	0.06	0.02
21051950	Drummau Road	24/05/2021 12:15	39	23	0.03	0.2	19	8	<0.01	0.16	0.05	0.02
21060090	Drummau Road	26/05/2021 12:15	43	23	0.03	0.22	18	8	<0.01	0.04	0.04	0.02
21060087	Drummau Road	28/05/2021 08:15	43	23	0.03	0.22	17	8	<0.01	0.05	0.04	0.02
21060189	Drummau Road	01/06/2021 12:15	41	23	0.03	0.21	17	7	<0.01	0.06	0.05	0.02
21060566	Drummau Road	03/06/2021 10:15	41	24	0.03	0.21	18	7	<0.01	0.07	0.05	0.02
21060767	Drummau Road	07/06/2021 09:15	44	26	0.03	0.22	17	8	<0.01	0.08	0.06	0.02
21060982	Drummau Road	09/06/2021 08:10	42	26	0.03	0.22	18	8	<0.01	0.17	0.07	0.02
21061109	Drummau Road	11/06/2021 12:15	45	26	0.03	0.24	17	8	<0.01	0.03	0.06	0.02
21061306	Drummau Road	14/06/2021 08:30	46	28	0.03	0.24	18	9	<0.01	0.07	0.07	0.02
21061633	Drummau Road Chamber	16/06/2021 08:30	43	26	0.03	0.22	17	8	<0.01	0.09	0.06	0.02
21061627	Drummau Road Chamber	18/06/2021 09:15	44	27	0.03	0.23	18	9	<0.01	0.21	0.07	0.02
21061766	Drummau Road Chamber	21/06/2021 10:15	43	28	0.03	0.23	18	9	<0.01	0.27	0.07	0.02
21062018	Drummau Road Chamber	23/06/2021 08:10	43	28	0.03	0.23	18	8	<0.01	0.09	0.06	0.02
21062101	Drummau Road Chamber	25/06/2021 09:15	48	31	0.03	0.26	19	9	<0.01	0.08	<0.01	0.02
21070002	Drummau Road Chamber	28/06/2021 08:30	46	28	0.03	0.24	18	9	<0.01	0.07	0.07	0.02
21070186	Drummau Road Chamber	30/06/2021 10:15	43	28	0.03	0.23	18	9	<0.01	0.16	0.08	0.02
21070303	Drummau Road Chamber	02/07/2021 09:15	46	30	0.03	0.25	19	9	<0.01	0.1	0.07	0.02
21070502	Drummau Road Chamber	05/07/2021 12:00	46	30	0.03	0.24	19	9	<0.01	0.08	0.08	0.02
21071070	Drummau Road Chamber	12/07/2021 12:00	43	28	0.03	0.22	19	8	<0.01	0.08	0.07	0.02
21071745	Drummau Road Chamber	19/07/2021 10:00	47	30	0.03	0.26	20	9	<0.01	0.08	0.08	0.03
21072096	Drummau Road Chamber	26/07/2021 10:00	48	31	0.03	0.26	19	9	<0.01	0.08	0.07	0.02
21080281	Drummau Road Chamber	02/08/2021 12:20	52	33	0.03	0.27	22	10	<0.01	0.04	0.06	0.02
21080794	Drummau Road Chamber	09/08/2021 10:45	47	29	0.03	0.25	21	10	<0.01	0.05	0.05	0.02
21081278	Drummau Road Chamber	16/08/2021 10:30	47	28	0.03	0.24	21	9	<0.01	0.06	0.06	0.03
21081714	Drummau Road Chamber	23/08/2021 12:20	50	30	0.03	0.25	21	9	<0.01	0.07	0.07	0.02
21090078	Drummau Road Chamber	31/08/2021 12:00	50	32	0.03	0.27	21	9	<0.01	0.07	0.07	0.02
21090562	Drummau Road Chamber	06/09/2021 11:15	53	34	0.03	0.28	22	10	<0.01	0.08	0.08	0.02
21090986	Drummau Road Chamber	13/09/2021 10:00	53	35	0.03	0.29	23	11	<0.01	0.05	0.08	0.02
21091109	Drummau Road Chamber	14/09/2021 07:30	52	33	0.03	0.28	22	10	<0.01	0.06	0.05	0.02
21091334	Drummau Road Chamber	15/09/2021 10:00								0.07	0.07	

		Analyte	Calcium as Ca (Dissolved)	Magnesium as Mg (Dissolved)	Barium as Ba (Dissolved)	Strontium as Sr (Dissolved)	Sodium as Na (Dissolved)	Potassium as K (Dissolved)	Nickel as Ni (Dissolved)	Manganese as Mn (Total)	Manganese as Mn (Dissolved)	Boron as B (Dissolved)
		Limit of Reporting	1mg/l	1mg/l	0.01mg/l	0.01mg/l	1mg/l	1mg/l	0.01mg/l	0.01mg/l	0.01mg/l	0.01mg/l
Report		Units	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
Number	Asset Name	Date/Time										
21091407	Drummau Road Chamber	17/09/2021 11:30								0.08	0.07	
21091406	Drummau Road Chamber	18/09/2021 11:00								0.07	0.07	
21091412	Drummau Road Chamber	19/09/2021 12:00								0.07	0.07	
21091829	Drummau Road Chamber	22/09/2021 07:30								0.07	0.07	
21091832	Drummau Road Chamber	23/09/2021 12:00								0.08	0.07	
21091831	Drummau Road Chamber	24/09/2021 07:30								0.07	0.08	
21091972	Drummau Road Chamber	25/09/2021 07:30								0.05	0.05	
21091973	Drummau Road Chamber	26/09/2021 07:30								0.07	0.08	
21091947	Drummau Road Chamber	27/09/2021 07:30	53	35	0.03	0.28	23	10	<0.01	0.06	0.07	0.02
21092084	Drummau Road Chamber	28/09/2021 07:30								0.08	0.07	
21092085	Drummau Road Chamber	29/09/2021 07:30								0.07	0.06	
21100099	Drummau Road Chamber	01/10/2021 09:30								0.06	0.06	
21100259	Drummau Road Chamber	02/10/2021 12:00								0.06	0.05	
21100263	Drummau Road Chamber	03/10/2021 11:30								0.05	0.04	
21100414	Drummau Road Chamber	04/10/2021 09:30	48	26	0.03	0.25	23	8	<0.01	0.04	0.04	0.03
21100415	Drummau Road Chamber	05/10/2021 07:00								0.04	0.03	
21100651	Drummau Road Chamber	06/10/2021 08:00								0.04	0.03	
21100660	Drummau Road Chamber	07/10/2021 07:10								0.04	0.04	
21100786	Drummau Road Chamber	08/10/2021 07:00								0.04	0.04	
21100782	Drummau Road Chamber	09/10/2021 13:00								0.04	0.03	
21100788	Drummau Road Chamber	10/10/2021 13:00								0.04	0.04	
21100951	Drummau Road Chamber	11/10/2021 07:00	45	25	0.03	0.23	20	8	<0.01	0.04	0.03	0.03
21100948	Drummau Road Chamber	12/10/2021 11:00								0.04	0.04	
21100956	Drummau Road Chamber	13/10/2021 08:45								0.05	0.04	
21101116	Drummau Road Chamber	14/10/2021 12:15								0.04	0.05	
21101117	Drummau Road Chamber	15/10/2021 09:15								0.04	0.04	
21101308	Drummau Road Chamber	16/10/2021 09:15								0.05	0.05	
21101294	Drummau Road Chamber	17/10/2021 09:15								0.05	0.04	
21101303	Drummau Road Chamber	18/10/2021 08:40	45	27	0.03	0.25	20	8	<0.01	0.05	0.05	0.02
21101457	Drummau Road Chamber	19/10/2021 12:00								0.04	0.04	
21101459	Drummau Road Chamber	20/10/2021 08:30								0.04	0.03	
21101672	Drummau Road Chamber	21/10/2021 08:00								0.03	0.03	
21101673	Drummau Road Chamber	22/10/2021 07:30								0.03	0.03	
21101794	Drummau Road Chamber	23/10/2021 13:00								0.04	0.04	
21101795	Drummau Road Chamber	24/10/2021 11:00								0.04	0.03	
21101807	Drummau Road Chamber	25/10/2021 08:00	42	22	0.03	0.21	18	7	<0.01	0.04	0.04	0.03
21050825	Drummau Road Pipe	08/05/2021 10:15	48	29	0.03	0.26	21	8	<0.01	0.09	0.06	0.02
21051097	Drummau Road Pipe	12/05/2021 09:40	49	28	0.03	0.25	20	8	<0.01	0.04	0.06	0.03
21051838	Drummau Road Pipe	21/05/2021 12:30	40	25	0.03	0.21	19	8	<0.01	0.06	0.05	0.02
21060090	Drummau Road Pipe	26/05/2021 12:30	44	23	0.03	0.22	18	7	<0.01	0.05	0.04	0.02
21060189	Drummau Road Pipe	01/06/2021 12:30	42	24	0.03	0.21	17	7	<0.01	0.06	0.05	0.02
21060566	Drummau Road Pipe	03/06/2021 10:30	41	24	0.03	0.21	18	7	<0.01	0.1	0.05	0.02
21060982	Drummau Road Pipe	09/06/2021 08:20	42	26	0.03	0.22	18	8	<0.01	0.02	0.06	0.02

		Analyte	Calcium as Ca (Dissolved)	Magnesium as Mg (Dissolved)	Barium as Ba (Dissolved)	Strontium as Sr (Dissolved)	Sodium as Na (Dissolved)	Potassium as K (Dissolved)	Nickel as Ni (Dissolved)	Manganese as Mn (Total)	Manganese as Mn (Dissolved)	Boron as B (Dissolved)
		Limit of Reporting	1mg/l	1mg/l	0.01mg/l	0.01mg/l	1mg/l	1mg/l	0.01mg/l	0.01mg/l	0.01mg/l	0.01mg/l
Report		Units	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
Number	Asset Name	Date/Time										
21061633	Drummau Road Pipe	16/06/2021 08:45	43	26	0.03	0.22	17	8	<0.01	0.06	0.06	0.02
21062018	Drummau Road Pipe	23/06/2021 08:10	44	28	0.03	0.23	18	8	<0.01	0.07	0.06	0.02
21070186	Drummau Road Pipe	30/06/2021 10:30	45	29	0.03	0.24	18	9	<0.01	0.07	0.07	0.02
21011511	Goshen Park Discharge	22/01/2021 12:00	45	39	0.03	0.29	21	10	0.03	1.01	1	0.02
21011511	Goshen Park Discharge	22/01/2021 15:00	46	40	0.03	0.29	22	11	0.03	1.05	1.06	0.02
21011511	Goshen Park Discharge	22/01/2021 18:00	46	41	0.03	0.3	22	11	0.03	1.1	1.1	0.02
21011512	Goshen Park Discharge	23/01/2021 08:30	48	42	0.03	0.31	23	11	0.04	1.23	1.23	0.02
21011512	Goshen Park Discharge	23/01/2021 12:30	48	43	0.03	0.31	24	11	0.04	1.24	1.23	0.02
21011660	Goshen Park Discharge	26/01/2021 08:30	55	49	0.03	0.35	28	14	0.05	1.42	1.43	0.02
21011660	Goshen Park Discharge	26/01/2021 14:00	54	49	0.03	0.35	27	14	0.05	1.43	1.43	0.01
21011873	Goshen Park Discharge	27/01/2021 09:45	55	50	0.03	0.36	27	14	0.04	1.45	1.46	0.02
21011873	Goshen Park Discharge	27/01/2021 14:15	55	50	0.03	0.35	27	14	0.04	1.44	1.45	0.02
21011872	Goshen Park Discharge	28/01/2021 09:00	55	50	0.03	0.35	27	14	0.04	1.46	1.47	0.02
21011872	Goshen Park Discharge	28/01/2021 13:00	55	50	0.03	0.35	27	14	0.04	1.43	1.46	0.02
21020064	Goshen Park Discharge	29/01/2021 08:00	55	49	0.03	0.35	27	14	0.04	1.43	1.43	0.02
21020064	Goshen Park Discharge	29/01/2021 13:45	55	49	0.03	0.35	27	14	0.04	1.41	1.42	0.02
21020188	Goshen Park Discharge	01/02/2021 13:15	43	38	0.03	0.27	21	11	0.03	0.83	0.83	0.02
21020309	Goshen Park Discharge	02/02/2021 11:00	45	40	0.03	0.29	22	11	0.03	0.9	0.87	0.02
21020485	Goshen Park Discharge	03/02/2021 11:00	48	41	0.03	0.29	23	12	0.03	0.94	0.95	0.02
21020551	Goshen Park Discharge	04/02/2021 09:20	45	39	0.03	0.28	21	11	0.03	0.88	0.87	0.02
21020632	Goshen Park Discharge	05/02/2021 11:00	43	37	0.03	0.27	21	11	0.03	0.8	0.81	0.02
21020706	Goshen Park Discharge	08/02/2021 12:00	40	34	0.03	0.25	19	10	0.03	0.72	0.7	0.02
21020862	Goshen Park Discharge	09/02/2021 10:00	40	34	0.03	0.25	19	10	0.02	0.67	0.66	0.02
21020972	Goshen Park Discharge	10/02/2021 10:00	39	34	0.03	0.24	19	10	0.02	0.68	0.68	0.02
21021005	Goshen Park Discharge	11/02/2021 09:00	41	35	0.03	0.25	19	11	0.02	0.72	0.72	0.02
21021117	Goshen Park Discharge	12/02/2021 11:00	43	37	0.03	0.26	20	11	0.03	0.77	0.78	0.02
21021229	Goshen Park Discharge	15/02/2021 11:00	45	38	0.03	0.27	21	11	0.03	0.88	0.88	0.02
21021453	Goshen Park Discharge	17/02/2021 08:00	42	35	0.03	0.26	19	11	0.02	0.74	0.73	0.02
21021639	Goshen Park Discharge	19/02/2021 08:00	37	30	0.02	0.22	17	9	0.02	0.48	0.49	0.02
21021750	Goshen Park Discharge	22/02/2021 09:00	31	26	0.03	0.19	16	8	0.01	0.32	0.31	0.02
21022042	Goshen Park Discharge	24/02/2021 10:30	33	27	0.03	0.2	15	8	0.02	0.38	0.39	0.02
21030109	Goshen Park Discharge	26/02/2021 09:00	32	27	0.03	0.2	15	8	0.02	0.37	0.37	0.02
21030164	Goshen Park Discharge	01/03/2021 11:00	34	28	0.03	0.21	16	8	0.01	0.43	0.44	0.02
21030407	Goshen Park Discharge	03/03/2021 12:00	37	31	0.03	0.23	17	9	0.02	0.56	0.57	<0.01
21030592	Goshen Park Discharge	05/03/2021 08:45	39	32	0.03	0.23	17	9	0.02	0.64	0.63	0.02
21030797	Goshen Park Discharge	08/03/2021 09:00	42	34	0.03	0.25	19	10	0.02	0.71	0.69	0.02
21031032	Goshen Park Discharge	10/03/2021 12:00	42	34	0.03	0.25	19	10	0.03	0.75	0.75	0.02
21031111	Goshen Park Discharge	12/03/2021 12:00	40	32	0.03	0.25	18	9	0.02	0.7	0.67	0.02
21031343	Goshen Park Discharge	15/03/2021 12:00	35	29	0.03	0.21	16	9	0.02	0.34	0.36	0.02
21031548	Goshen Park Discharge	17/03/2021 11:00	35	29	0.03	0.22	18	9	0.01	0.35	0.35	0.02
21031633	Goshen Park Discharge	19/03/2021 09:00	37	30	0.03	0.23	16	9	0.01	0.44	0.44	0.02
21031863	Goshen Park Discharge	22/03/2021 09:00	38	31	0.03	0.23	17	9	0.02	0.52	0.52	0.02
21032087	Goshen Park Discharge	24/03/2021 08:00	40	44	0.02	0.56	19	10	<0.01	0.58	0.35	0.02

		Analyte	Calcium as Ca (Dissolved)	Magnesium as Mg (Dissolved)	Barium as Ba (Dissolved)	Strontium as Sr (Dissolved)	Sodium as Na (Dissolved)	Potassium as K (Dissolved)	Nickel as Ni (Dissolved)	Manganese as Mn (Total)	Manganese as Mn (Dissolved)	Boron as B (Dissolved)
		Limit of Reporting	1mg/l	1mg/l	0.01mg/l	0.01mg/l	1mg/l	1mg/l	0.01mg/l	0.01mg/l	0.01mg/l	0.01mg/l
Report		Units	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
Number	Asset Name	Date/Time										
21032166	Goshen Park Discharge	26/03/2021 10:30	41	34	0.03	0.25	19	10	0.02	0.64	0.62	0.02
21050944	Goshen Park Discharge	10/05/2021 12:50	45	36	0.03	0.28	20	10	0.02	0.54	0.53	0.02
21051097	Goshen Park Discharge	12/05/2021 09:00	46	39	0.03	0.29	20	12	0.01	0.32	0.35	0.02
21051201	Goshen Park Discharge	14/05/2021 09:00	43	36	0.03	0.27	18	11	0.01	0.26	0.27	0.02
21051464	Goshen Park Discharge	17/05/2021 12:00	37	32	0.03	0.22	16	9	0.01	0.26	0.26	0.02
21051748	Goshen Park Discharge	19/05/2021 12:00	33	27	0.03	0.2	14	8	0.01	0.21	0.2	0.01
21051838	Goshen Park Discharge	21/05/2021 12:00	33	28	0.03	0.2	15	8	0.01	0.23	0.22	0.02
21051950	Goshen Park Discharge	24/05/2021 12:00	30	26	0.03	0.18	14	8	0.01	0.16	0.15	0.02
21060090	Goshen Park Discharge	26/05/2021 12:00	33	25	0.03	0.19	13	8	<0.01	0.13	0.13	0.02
21060087	Goshen Park Discharge	28/05/2021 08:00	34	25	0.03	0.2	13	8	0.01	0.13	0.13	0.02
21060189	Goshen Park Discharge	01/06/2021 12:00	36	28	0.03	0.21	15	8	0.01	0.25	0.25	0.02
21060566	Goshen Park Discharge	03/06/2021 10:00	37	29	0.03	0.21	16	8	0.01	0.25	0.26	0.02
21060767	Goshen Park Discharge	07/06/2021 09:00	42	33	0.03	0.25	18	10	0.02	0.28	0.31	0.02
21060982	Goshen Park Discharge	09/06/2021 08:00	42	34	0.03	0.25	19	10	0.02	0.28	0.33	0.02
21061109	Goshen Park Discharge	11/06/2021 12:30	45	35	0.03	0.27	18	10	0.01	0.3	0.35	0.02
21061306	Goshen Park Discharge	14/06/2021 08:00	46	36	0.03	0.28	19	11	0.02	0.39	0.39	0.02
21061633	Goshen Park Discharge	16/06/2021 08:00	43	35	0.03	0.26	19	11	0.02	0.39	0.38	0.02
21061627	Goshen Park Discharge	18/06/2021 09:00	44	35	0.03	0.27	19	11	0.02	0.4	0.4	0.02
21061766	Goshen Park Discharge	21/06/2021 10:00	43	36	0.03	0.26	19	11	0.02	0.44	0.44	0.02
21062018	Goshen Park Discharge	23/06/2021 08:00	45	36	0.03	0.28	19	11	0.02	0.46	0.45	0.02
21062101	Goshen Park Discharge	25/06/2021 09:00	48	39	0.03	0.3	21	12	0.02	0.48	0.48	0.02
21070002	Goshen Park Discharge	28/06/2021 08:00	48	39	0.03	0.29	20	12	0.02	0.51	0.53	0.02
21070186	Goshen Park Discharge	30/06/2021 10:00	48	40	0.03	0.3	21	12	0.02	0.53	0.52	0.02
21070303	Goshen Park Discharge	02/07/2021 09:00	50	41	0.03	0.31	22	12	0.02	0.54	0.54	0.02
21071745	Goshen Park Discharge	19/07/2021 10:30	52	43	0.03	0.33	23	13	0.02	0.67	0.62	0.02
21081278	Goshen Park Discharge	16/08/2021 11:00	52	43	0.03	0.33	25	14	0.02	0.56	0.55	0.03
21081714	Goshen Park Discharge	23/08/2021 12:40	53	43	0.03	0.33	24	13	0.02	0.5	0.51	0.02
21100415	Goshen Park Discharge	05/10/2021 07:10								0.29	0.28	
21100651	Goshen Park Discharge	06/10/2021 08:10								0.23	0.2	
21100660	Goshen Park Discharge	07/10/2021 07:00								0.2	0.17	
21100786	Goshen Park Discharge	08/10/2021 07:10								0.19	0.18	
21100782	Goshen Park Discharge	09/10/2021 13:10								0.17	0.16	
21100788	Goshen Park Discharge	10/10/2021 13:10								0.19	0.16	
21100951	Goshen Park Discharge	11/10/2021 07:20	36	29	0.03	0.22	15	8	<0.01	0.18	0.16	0.02
21100948	Goshen Park Discharge	12/10/2021 11:15								0.19	0.17	
21101116	Goshen Park Discharge	14/10/2021 12:00								0.22	0.22	
21101117	Goshen Park Discharge	15/10/2021 09:00								0.22	0.23	
21101294	Goshen Park Discharge	17/10/2021 09:00								0.33	0.31	
21101303	Goshen Park Discharge	18/10/2021 07:30	42	34	0.03	0.27	18	9	0.01	0.27	0.27	0.02
21101459	Goshen Park Discharge	20/10/2021 08:45								0.27	0.26	
21101672	Goshen Park Discharge	21/10/2021 08:15								0.23	0.22	
21101673	Goshen Park Discharge	22/10/2021 07:40								0.19	0.18	
21101794	Goshen Park Discharge	23/10/2021 13:10								0.15	0.14	

		Analyte	Calcium as Ca (Dissolved)	Magnesium as Mg (Dissolved)	Barium as Ba (Dissolved)	Strontium as Sr (Dissolved)	Sodium as Na (Dissolved)	Potassium as K (Dissolved)	Nickel as Ni (Dissolved)	Manganese as Mn (Total)	Manganese as Mn (Dissolved)	Boron as B (Dissolved)
		Limit of Reporting	1mg/l	1mg/l	0.01mg/l	0.01mg/l	1mg/l	1mg/l	0.01mg/l	0.01mg/l	0.01mg/l	0.01mg/l
Report		Units	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
Number	Asset Name	Date/Time										
21101795	Goshen Park Discharge	24/10/2021 11:10								0.14	0.15	
21101807	Goshen Park Discharge	25/10/2021 08:20	35	27	0.03	0.21	14	8	<0.01	0.14	0.13	0.02
21011660	70 Cwrt Y Clafdy	26/01/2021 13:45	64	12	0.02	0.32	22	4	<0.01	0.04	0.01	0.03
21011873	70 Cwrt y Clafdy	27/01/2021 10:15	67	12	0.02	0.32	20	4	<0.01	0.02	0.01	0.02
21011873	70 Cwrt y Clafdy	27/01/2021 14:30	65	12	0.02	0.31	20	4	<0.01	0.02	0.01	0.02
21011872	70 Cwrt Y Clafdy	28/01/2021 09:40	69	15	0.02	0.34	22	4	<0.01	<0.01	<0.01	0.02
21030164	73 Cwrt y Clafdy	01/03/2021 11:45	42	25	0.04	0.22	17	8	<0.01	0.02	<0.01	0.02
21030164	75 Cwrt y Clafdy	01/03/2021 12:00	74	24	0.06	0.27	19	8	0.01	0.02	0.01	0.02
21031032	77 Dynevor Road	10/03/2021 12:45	63	13	0.06	0.23	17	5	<0.01	0.04	<0.01	0.02
21031343	77 Dynevor Road	15/03/2021 12:45	80	20	0.07	0.3	18	7	<0.01	0.03	<0.01	0.02
21031548	77 Dynevor Road	17/03/2021 11:45	83	21	0.07	0.32	18	7	<0.01	<0.01	<0.01	0.03
21031633	77 Dynevor Road	19/03/2021 09:45	83	21	0.07	0.33	18	8	<0.01	0.03	<0.01	0.02
21020064	87 Dynevor Road	29/01/2021 08:30	69	33	0.05	0.37	24	10	0.01	0.02	0.02	0.03
21020064	87 Dynevor Road	29/01/2021 14:15	70	33	0.05	0.37	24	10	<0.01	0.01	<0.01	0.03
21020188	87 Dynevor Road	01/02/2021 13:30	68	32	0.05	0.36	23	9	<0.01	0.01	<0.01	0.02
21020309	87 Dynevor Road	02/02/2021 11:20	65	32	0.04	0.35	23	9	<0.01	0.02	0.02	0.02
21020485	87 Dynevor Road	03/02/2021 11:30	65	31	0.04	0.34	23	9	<0.01	<0.01	0.01	0.02
21020551	87 Dynevor Road	04/02/2021 09:40	63	30	0.04	0.33	22	9	<0.01	<0.01	<0.01	0.02
21020632	87 Dynevor Road	05/02/2021 11:30	63	31	0.04	0.33	23	9	<0.01	<0.01	<0.01	0.02
21020706	87 Dynevor Road	08/02/2021 12:30	58	28	0.04	0.3	22	8	<0.01	<0.01	<0.01	0.02
21020862	87 Dynevor Road	09/02/2021 10:30	59	29	0.04	0.31	22	9	<0.01	<0.01	<0.01	0.02
21020972	87 Dynevor Road	10/02/2021 10:30	58	29	0.04	0.3	21	9	<0.01	<0.01	<0.01	0.02
21021005	87 Dynevor Road	11/02/2021 09:40	57	29	0.04	0.3	21	9	<0.01	<0.01	<0.01	0.02
21021117	87 Dynevor Road	12/02/2021 11:20	57	28	0.04	0.3	21	9	<0.01	<0.01	<0.01	0.02
21021229	87 Dynevor Road	15/02/2021 11:30	58	29	0.04	0.3	21	9	<0.01	<0.01	<0.01	0.02
21021453	87 Dynevor Road	17/02/2021 08:30	59	29	0.04	0.3	20	9	<0.01	0.01	<0.01	0.02
21021639	87 Dynevor Road	19/02/2021 08:30	58	29	0.03	0.3	20	9	<0.01	<0.01	<0.01	0.02
21021750	87 Dynevor Road	22/02/2021 09:30	50	24	0.03	0.25	19	7	<0.01	<0.01	<0.01	0.02
21022042	87 Dynevor Road	24/02/2021 10:00	46	23	0.03	0.24	18	7	<0.01	<0.01	<0.01	0.02
21030109	87 Dynevor Road	26/02/2021 09:30	51	22	0.03	0.24	18	7	<0.01	<0.01	<0.01	0.02
21030164	87 Dynevor Road	01/03/2021 11:30	62	22	0.03	0.24	17	7	<0.01	0.04	<0.01	0.02
21030407	87 Dynevor Road	03/03/2021 12:15	54	22	0.03	0.24	17	7	<0.01	0.01	<0.01	<0.01
21030592	87 Dynevor Road	05/03/2021 09:10	57	23	0.03	0.25	17	8	<0.01	0.02	<0.01	0.02
21030797	87 Dynevor Road (Chamber 1)	08/03/2021 09:30	67	25	0.04	0.27	18	8	<0.01	0.02	<0.01	0.02
21031032	87 Dynevor Road (Chamber 1)	10/03/2021 12:30	48	26	0.03	0.25	18	8	<0.01	<0.01	<0.01	0.02
21031111	87 Dynevor Road (Chamber 1)	12/03/2021 12:30	47	25	0.03	0.26	18	7	<0.01	<0.01	<0.01	0.02
21031343	87 Dynevor Road (Chamber 1)	15/03/2021 12:15	61	27	0.03	0.27	19	9	<0.01	0.02	<0.01	0.02
21031548	87 Dynevor Road (Chamber 1)	17/03/2021 11:30	61	25	0.03	0.26	18	8	<0.01	<0.01	<0.01	0.02
21031633	87 Dynevor Road (Chamber 1)	19/03/2021 09:30	46	26	0.03	0.25	18	8	<0.01	<0.01	<0.01	0.02
21031863	87 Dynevor Road (Chamber 1)	22/03/2021 10:00	47	25	0.03	0.23	17	8	<0.01	<0.01	<0.01	0.02
21032087	87 Dynevor Road (Chamber 1)	24/03/2021 08:20	44	27	0.03	0.23	20	9	<0.01	0.07	0.08	0.01
21032166	87 Dynevor Road (Chamber 1)	26/03/2021 11:00	49	28	0.03	0.26	19	8	<0.01	<0.01	<0.01	0.02
21040085	87 Dynevor Road (Chamber 1)	29/03/2021 10:45	49	28	0.03	0.26	18	8	<0.01	<0.01	<0.01	0.02

		Analyte	Calcium as Ca (Dissolved)	Magnesium as Mg (Dissolved)	Barium as Ba (Dissolved)	Strontium as Sr (Dissolved)	Sodium as Na (Dissolved)	Potassium as K (Dissolved)	Nickel as Ni (Dissolved)	Manganese as Mn (Total)	Manganese as Mn (Dissolved)	Boron as B (Dissolved)
		Limit of Reporting	1mg/l	1mg/l	0.01mg/l	0.01mg/l	1mg/l	1mg/l	0.01mg/l	0.01mg/l	0.01mg/l	0.01mg/l
Report		Units	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
Number	Asset Name	Date/Time										
21040092	87 Dynevor Road (Chamber 1)	31/03/2021 08:20	49	28	0.03	0.26	21	9	<0.01	<0.01	<0.01	0.02
21040578	87 Dynevor Road (Chamber 1)	06/04/2021 12:20	51	30	0.03	0.27	19	9	<0.01	<0.01	<0.01	0.01
21040659	87 Dynevor Road (Chamber 1)	08/04/2021 13:15	50	30	0.03	0.27	19	9	<0.01	<0.01	<0.01	0.02
21040996	87 Dynevor Road (Chamber 1)	12/04/2021 10:15	49	29	0.03	0.27	19	8	<0.01	0.01	<0.01	0.02
21041203	87 Dynevor Road (Chamber 1)	16/04/2021 09:10	52	30	0.03	0.26	20	9	<0.01	<0.01	<0.01	0.02
21041594	87 Dynevor Road (Chamber 1)	19/04/2021 12:20	50	31	0.03	0.27	18	9	<0.01	<0.01	<0.01	0.02
21041776	87 Dynevor Road (Chamber 1)	21/04/2021 10:15	50	30	0.03	0.27	18	9	<0.01	<0.01	<0.01	0.02
21041780	87 Dynevor Road (Chamber 1)	23/04/2021 10:30	51	31	0.03	0.27	19	9	<0.01	<0.01	<0.01	0.02
21042094	87 Dynevor Road (Chamber 1)	26/04/2021 12:00	53	32	0.03	0.28	20	9	<0.01	<0.01	<0.01	0.02
21042099	87 Dynevor Road (Chamber 1)	28/04/2021 08:20	54	33	0.03	0.29	20	9	<0.01	<0.01	<0.01	0.02
21050197	87 Dynevor Road (Chamber 1)	01/05/2021 08:20	56	35	0.04	0.3	20	10	<0.01	<0.01	<0.01	0.02
21050580	87 Dynevor Road (Chamber 1)	05/05/2021 08:20	59	37	0.04	0.32	22	11	<0.01	<0.01	<0.01	0.02
21050579	87 Dynevor Road (Chamber 1)	07/05/2021 09:15	58	36	0.04	0.31	20	10	<0.01	<0.01	<0.01	0.02
21050944	87 Dynevor Road (Chamber 1)	10/05/2021 13:15	57	36	0.04	0.31	22	9	<0.01	0.06	<0.01	0.02
21051097	87 Dynevor Road (Chamber 1)	12/05/2021 09:45	58	37	0.04	0.31	21	10	<0.01	<0.01	<0.01	0.02
21051201	87 Dynevor Road (Chamber 1)	14/05/2021 09:15	59	37	0.04	0.31	21	10	<0.01	<0.01	<0.01	0.02
21051464	87 Dynevor Road (Chamber 1)	17/05/2021 12:30	49	33	0.03	0.27	20	9	<0.01	<0.01	<0.01	0.02
21051748	87 Dynevor Road (Chamber 1)	19/05/2021 12:40	45	29	0.03	0.25	18	8	<0.01	0.02	<0.01	0.02
21051838	87 Dynevor Road (Chamber 1)	21/05/2021 12:45	42	29	0.03	0.23	19	9	<0.01	<0.01	<0.01	0.02
21051950	87 Dynevor Road (Chamber 1)	24/05/2021 12:30	41	28	0.03	0.22	19	9	<0.01	<0.01	<0.01	0.02
21060090	87 Dynevor Road (Chamber 1)	26/05/2021 12:45	44	27	0.03	0.23	17	8	<0.01	<0.01	<0.01	0.02
21060087	87 Dynevor Road (Chamber 1)	28/05/2021 08:30	45	27	0.03	0.24	17	9	<0.01	<0.01	<0.01	0.02
21060189	87 Dynevor Road (Chamber 1)	01/06/2021 12:45	40	25	0.03	0.22	16	8	<0.01	<0.01	<0.01	0.02
21060566	87 Dynevor Road (Chamber 1)	03/06/2021 10:45	39	25	0.03	0.21	17	8	<0.01	<0.01	<0.01	0.02
21060767	87 Dynevor Road (Chamber 1)	07/06/2021 09:30	43	26	0.03	0.23	16	8	<0.01	<0.01	<0.01	0.02
21060982	87 Dynevor Road (Chamber 1)	09/06/2021 08:30	41	27	0.03	0.22	17	8	<0.01	<0.01	<0.01	0.02
21061109	87 Dynevor Road (Chamber 1)	11/06/2021 12:00	44	27	0.03	0.24	17	8	<0.01	<0.01	0.01	0.02
21061306	87 Dynevor Road (Chamber 1)	14/06/2021 08:15	47	29	0.03	0.25	17	9	<0.01	<0.01	<0.01	0.02
21061633	87 Dynevor Road (Chamber 1)	16/06/2021 08:15	44	28	0.03	0.24	17	9	<0.01	<0.01	<0.01	0.02
21061627	87 Dynevor Road (Chamber 1)	18/06/2021 09:30	46	29	0.03	0.25	18	9	<0.01	0.01	<0.01	0.02
21061766	87 Dynevor Road (Chamber 1)	21/06/2021 10:30	45	30	0.03	0.25	18	9	<0.01	<0.01	0.01	0.02
21062018	87 Dynevor Road (Chamber 1)	23/06/2021 08:05	45	30	0.03	0.25	18	9	<0.01	<0.01	<0.01	0.02
21062101	87 Dynevor Road (Chamber 1)	25/06/2021 09:30	46	28	0.03	0.24	19	9	<0.01	<0.01	0.07	0.02
21070002	87 Dynevor Road (Chamber 1)	28/06/2021 08:15	48	30	0.03	0.25	18	9	<0.01	<0.01	<0.01	0.02
21070186	87 Dynevor Road (Chamber 1)	30/06/2021 10:45	46	31	0.03	0.25	18	9	<0.01	<0.01	<0.01	0.02
21070303	87 Dynevor Road (Chamber 1)	02/07/2021 09:30	47	32	0.03	0.26	19	9	<0.01	<0.01	<0.01	0.02
21070502	87 Dynevor Road (Chamber 1)	05/07/2021 11:30	49	33	0.03	0.27	19	9	<0.01	<0.01	<0.01	0.02
21071070	87 Dynevor Road (Chamber 1)	12/07/2021 12:20	47	33	0.04	0.26	20	9	<0.01	0.02	<0.01	0.02
21071745	87 Dynevor Road (Chamber 1)	19/07/2021 10:15	53	35	0.04	0.29	20	10	<0.01	0.02	<0.01	0.02
21072096	87 Dynevor Road (Chamber 1)	26/07/2021 10:15	53	35	0.04	0.29	20	9	<0.01	<0.01	<0.01	0.02
21080281	87 Dynevor Road (Chamber 1)	02/08/2021 12:40	57	37	0.04	0.3	22	11	<0.01	<0.01	<0.01	0.02
21080794	87 Dynevor Road (Chamber 1)	09/08/2021 10:30	54	37	0.04	0.31	22	10	<0.01	<0.01	<0.01	0.02
21081278	87 Dynevor Road (Chamber 1)	16/08/2021 10:45	54	35	0.04	0.29	23	10	<0.01	<0.01	<0.01	0.02

		Analyte	Calcium as Ca (Dissolved)	Magnesium as Mg (Dissolved)	Barium as Ba (Dissolved)	Strontium as Sr (Dissolved)	Sodium as Na (Dissolved)	Potassium as K (Dissolved)	Nickel as Ni (Dissolved)	Manganese as Mn (Total)	Manganese as Mn (Dissolved)	Boron as B (Dissolved)
		Limit of Reporting	1mg/l	1mg/l	0.01mg/l	0.01mg/l	1mg/l	1mg/l	0.01mg/l	0.01mg/l	0.01mg/l	0.01mg/l
Report		Units	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
Number	Asset Name	Date/Time										
21081714	87 Dynevor Road (Chamber 1)	23/08/2021 12:00	57	36	0.04	0.3	22	10	<0.01	<0.01	<0.01	0.02
21090078	87 Dynevor Road (Chamber 1)	31/08/2021 12:20	56	38	0.04	0.31	23	10	<0.01	<0.01	<0.01	0.02
21090562	87 Dynevor Road (Chamber 1)	06/09/2021 11:00	59	41	0.04	0.33	24	11	<0.01	<0.01	0.01	0.02
21090986	87 Dynevor Road (Chamber 1)	13/09/2021 10:15	60	41	0.04	0.34	25	11	<0.01	<0.01	<0.01	0.02
21091947	87 Dynevor Road (Chamber 1)	27/09/2021 09:00	64	44	0.04	0.35	27	12	<0.01	Data in query	<0.01	0.02
21100414	87 Dynevor Road (Chamber 1)	04/10/2021 09:50	59	39	0.04	0.33	25	11	<0.01	<0.01	<0.01	0.02
21100951	87 Dynevor Road (Chamber 1)	11/10/2021 07:10	47	30	0.03	0.26	20	9	<0.01	<0.01	<0.01	0.02
21101303	87 Dynevor Road (Chamber 1)	18/10/2021 07:45	46	29	0.03	0.26	20	9	<0.01	<0.01	<0.01	0.02
21101807	87 Dynevor Road (Chamber 1)	25/10/2021 08:10	44	28	0.03	0.24	18	8	<0.01	<0.01	<0.01	0.02
21100780	Borehole 10	08/10/2021 07:20	37	29	0.03	0.22	16	8	0.01	0.18	0.18	0.02
21100778	Borehole 10	09/10/2021 13:20	34	27	0.03	0.21	15	8	0.01	0.17	0.17	0.02
21100779	Borehole 10	10/10/2021 13:20	34	26	0.03	0.21	15	8	0.01	0.17	0.17	0.02
21100956	Borehole 10	13/10/2021 08:30								0.21	0.21	
21030164	32 Jubilee Crescent	01/03/2021 12:15	89	20	0.08	0.3	19	7	<0.01	0.04	0.01	0.02
21020064	9 Sunnyland Crescent	29/01/2021 14:30	122	21	0.02	0.49	27	8	<0.01	<0.01	<0.01	0.03
21020862	Bryndewy Level	09/02/2021 14:00	13	5	0.06	0.05	7	1	<0.01	0.92	0.34	0.01
21021005	Bryndewy Level	11/02/2021 10:00	14	5	0.05	0.05	7	1	<0.01	0.21	0.2	0.01
21021359	Bryndewy Level	16/02/2021 12:00	13	5	0.05	0.05	8	2	<0.01	0.16	0.18	0.01
21021511	Bryndewy Level	18/02/2021 12:30	13	5	0.05	0.05	8	1	<0.01	0.2	0.17	0.01
21021359	Lonlas Old Graigoia Level	16/02/2021 17:30	22	11	0.02	0.07	8	3	<0.01	<0.01	<0.01	0.02
21021511	Lonlas Old Graigoia Level	18/02/2021 12:00	22	10	0.02	0.07	8	2	<0.01	<0.01	<0.01	0.02
21021750	Lonlas Old Graigoia Level	22/02/2021 09:45	20	9	0.02	0.06	8	2	<0.01	0.01	<0.01	0.03
21022042	Lonlas Old Graigola Level	24/02/2021 10:45	20	9	0.02	0.06	7	2	<0.01	0.02	<0.01	0.02
21022042	Drumma Greenway Level	24/02/2021 11:20	17	7	0.04	0.04	7	2	<0.01	0.03	0.02	0.01
21030109	Drumma Greenway Level	26/02/2021 08:15	18	7	0.04	0.04	7	2	<0.01	0.05	0.03	0.01
21030288	Drumma Greenway Level	02/03/2021 08:20	17	7	0.04	0.04	7	2	<0.01	0.04	0.04	0.01
21030592	Drumma Greenway Level	05/03/2021 08:15	17	7	0.04	0.04	7	2	<0.01	0.05	0.05	0.01
21022042	Neuadd Wen Graigola Level	24/02/2021 11:00	42	29	0.02	0.3	35	12	<0.01	0.21	0.21	0.02
21030109	Neuadd Wen Graigola Level	26/02/2021 08:00	38	26	0.02	0.27	32	12	0.01	0.21	0.19	0.02
21030288	Neuadd Wen Graigola Level	02/03/2021 08:00	47	32	0.02	0.35	39	15	<0.01	0.25	0.24	0.03
21030592	Neuadd Wen Graigola Level	05/03/2021 08:00	50	34	0.02	0.37	42	17	<0.01	0.27	0.26	0.03
21031863	Woodlands Spring East	22/03/2021 10:30	47	19	0.05	0.2	18	5	<0.01	0.01	0.02	0.03
21032087	Woodlands Spring East	24/03/2021 09:00	46	27	0.03	0.25	19	8	<0.01	0.03	<0.01	<0.01
21032166	Woodlands Spring East	26/03/2021 11:15	47	19	0.05	0.2	18	5	<0.01	0.02	0.02	0.02
21040085	Woodlands Spring East	29/03/2021 11:00	49	19	0.05	0.21	19	6	<0.01	0.03	0.03	0.03
21031863	Woodlands Spring West	22/03/2021 11:00	33	10	0.05	0.11	16	2	<0.01	<0.01	<0.01	0.03
21032087	Woodland Spring West	24/03/2021 09:20	48	20	0.06	0.21	20	5	<0.01	<0.01	0.02	0.01
21032166	Woodlands Spring West	26/03/2021 11:30	32	10	0.04	0.11	16	2	<0.01	<0.01	<0.01	0.03
21040085	Woodlands Spring West	29/03/2021 11:15	33	11	0.04	0.11	16	2	<0.01	<0.01	<0.01	0.03

		Analyte	Ammoniacal Nitrogen as N	Aluminium as Al (Total)	Silicon as Si (Dissolved)	Dissolved Organic Carbon	Nitrate as N	Phosphate as P	Total Organic Carbon	ICP-OES Cadmium as Cd (Dissolved)	ICP-OES Copper as Cu (Dissolved)	ICP-OES Lead as Pb (Dissolved)
		Limit of Reporting	0.01mg/l	0.01mg/l	0.1mg/l	0.2mg/l	0.2mg/l	0.01mg/l	0.2mg/l	0.01mg/l	0.01mg/l	0.01mg/l
Report		Units	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
Number	Asset Name	Date/Time										
21011512	Drummau Road	23/01/2021 13:00	<0.01	0.05	2.8	0.42	2.8	<0.01	0.4	<0.01	<0.01	<0.01
21011660	Drummau Road	26/01/2021 08:40	0.01	0.02	2.8	0.42	2.8	<0.01	0.37	<0.01	0.02	<0.01
21011873	Drummau Road	27/01/2021 10:00	0.06	0.05	2.9	0.43	2.6	<0.01	0.33	<0.01	<0.01	<0.01
21011872	Drummau Road	28/01/2021 09:20	0.03	0.04	3	0.49	2.6	<0.01	0.46	<0.01	<0.01	<0.01
21011872	Drummau Road	28/01/2021 15:20	0.06	0.04	2.9	0.41	2.5	<0.01	0.32	<0.01	<0.01	<0.01
21020064	Drummau Road	29/01/2021 08:15	<0.01	0.03	2.9	0.4	2.6	<0.01	0.37	<0.01	<0.01	<0.01
21020064	Drummau Road	29/01/2021 14:00	<0.01	0.07	3	0.36	2.7	<0.01	0.35	<0.01	<0.01	<0.01
21020188	Drummau Road	01/02/2021 13:00	0.01	0.02	2.9	0.49	2.1	<0.01	0.45	<0.01	<0.01	<0.01
21020309	Drummau Road	02/02/2021 11:10	<0.01	0.04	2.9	0.42	3.7	<0.01	0.41	<0.01	<0.01	<0.01
21020485	Drummau Road	03/02/2021 11:15	0.02	0.01	2.9	0.41	1.9	<0.01	0.36	<0.01	<0.01	<0.01
21020551	Drummau Road	04/02/2021 09:00	0.02	<0.01	2.8	0.56	3	<0.01	0.45	<0.01	<0.01	<0.01
21020632	Drummau Road	05/02/2021 11:15	0.02	0.02	2.9	0.38	1.9	<0.01	0.39	<0.01	<0.01	<0.01
21020706	Drummau Road	08/02/2021 12:15	<0.01	0.02	2.8	0.36	1.8	<0.01	0.31	<0.01	<0.01	<0.01
21020862	Drummau Road	09/02/2021 10:15	0.02	0.02	2.9	0.34	1.5	<0.01	0.24	<0.01	<0.01	<0.01
21020972	Drummau Road	10/02/2021 10:15	0.06	0.01	2.9	0.37	1.9	<0.01	0.35	<0.01	<0.01	<0.01
21021005	Drummau Road	11/02/2021 09:20	0.07	0.01	2.9	0.38	1.7	<0.01	0.36	<0.01	<0.01	<0.01
21021117	Drummau Road	12/02/2021 11:10	0.13	0.01	2.9	0.26	1.5	<0.03	0.27	<0.01	<0.01	<0.01
21021229	Drummau Road	15/02/2021 11:15	0.01	0.05	2.9	0.31	1.4	<0.01	0.27	<0.01	<0.01	<0.01
21021453	Drummau Road	17/02/2021 08:15	0.04	0.02	2.9	0.26	1.5	<0.01	0.29	<0.01	<0.01	<0.01
21021639	Drummau Road	19/02/2021 08:15	<0.01	0.03	2.8	0.28	1.8	<0.01	0.3	<0.01	<0.01	<0.01
21021750	Drummau Road	22/02/2021 09:15	<0.01	<0.01	2.8	0.35	1.8	0.02	0.2	<0.01	<0.01	<0.01
21022042	Drummau Road	24/02/2021 10:15	<0.01	0.08	2.9	0.26	2.1	<0.01	<0.20	<0.01	<0.01	<0.01
21030109	Drummau Road	26/02/2021 09:15	<0.01	<0.01	2.8	0.26	1.6	<0.01	<0.20	<0.01	<0.01	<0.01
21030164	Drummau Road	01/03/2021 11:15	<0.01	<0.01	2.8	0.3	2.4	<0.01	0.25	<0.01	<0.01	<0.01
21030407	Drummau Road	03/03/2021 12:30	0.02	0.01	2.8	0.3	1.3	<0.01	<0.20	<0.01	<0.01	<0.01
21030592	Drummau Road	05/03/2021 08:55	0.03	0.02	2.8	0.21	1.1	<0.01	<0.20	<0.01	<0.01	<0.01
21030797	Drummau Road	08/03/2021 09:15	<0.01	<0.01	3	0.36	1.2	<0.01	0.32	<0.01	<0.01	<0.01
21031032	Drummau Road	10/03/2021 12:15	0.04	0.02	2.9	0.53	0.9	<0.01	0.44	<0.01	<0.01	<0.01
21031111	Drummau Road	12/03/2021 12:15	0.03	0.02	2.8	0.4	1.2	<0.01	0.38	<0.01	<0.01	<0.01
21031343	Drummau Road	15/03/2021 12:30	<0.01	0.01	2.8	0.42	1	<0.01	0.37	<0.01	<0.01	<0.01
21031548	Drummau Road	17/03/2021 11:15	0.02	0.01	2.9	0.38	1.1	<0.01	0.39	<0.01	<0.01	<0.01
21031633	Drummau Road	19/03/2021 09:15	<0.01	0.02	2.9	0.34	1	<0.01	0.29	<0.01	<0.01	<0.01
21031863	Drummau Road	22/03/2021 09:30	<0.01	0.05	3	0.38	1	<0.01	0.35	<0.01	<0.01	<0.01
21032087	Drummau Road	24/03/2021 08:40	<0.01	<0.01	2.7	0.48	1	<0.01	0.38	<0.01	<0.01	<0.01
21032166	Drummau Road	26/03/2021 10:45	<0.01	0.02	2.8	0.48	0.8	<0.01	0.44	<0.01	<0.01	<0.01
21040085	Drummau Road	29/03/2021 10:30	<0.01	<0.01	2.8	0.37	1	<0.01	0.25	<0.01	<0.01	<0.01
21040092	Drammau Road	31/03/2021 08:00	0.01	<0.01	2.9	0.36	1.1	<0.01	0.29	<0.01	<0.01	<0.01
21040578	Drummau Road	06/04/2021 12:00	<0.01	0.02	2.9	0.38	0.9	<0.01	0.27	<0.01	0.03	<0.01
21040659	Drummau Road	08/04/2021 13:00	<0.01	0.01	2.9	0.38	0.9	<0.01	0.28	<0.01	<0.01	<0.01
21040996	Drummau Road	12/04/2021 10:00	0.02	<0.01	2.9	0.3	0.8	<0.01	0.28	<0.01	0.02	<0.01
21041203	Drummau Road	16/04/2021 09:00	0.03	0.02	3	0.31	2.3	<0.01	0.23	<0.01	<0.01	<0.01
21041594	Drummau Road	19/04/2021 12:00	<0.01	0.41	2.9	0.23	0.4	<0.01	<0.20	<0.01	<0.01	<0.01
21041776	Drummau Road	21/04/2021 10:00	<0.01	0.01	3	0.29	0.9	<0.01	<0.20	<0.01	<0.01	<0.01

		Analyte	Ammoniacal Nitrogen as N	Aluminium as Al (Total)	Silicon as Si (Dissolved)	Dissolved Organic Carbon	Nitrate as N	Phosphate as P	Total Organic Carbon	ICP-OES Cadmium as Cd (Dissolved)	ICP-OES Copper as Cu (Dissolved)	ICP-OES Lead as Pb (Dissolved)
		Limit of Reporting	0.01mg/l	0.01mg/l	0.1mg/l	0.2mg/l	0.2mg/l	0.01mg/l	0.2mg/l	0.01mg/l	0.01mg/l	0.01mg/l
Report		Units	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
Number	Asset Name	Date/Time										
21041780	Drummau Road	23/04/2021 10:00	<0.01	0.02	2.9	0.31	0.8	<0.01	0.2	<0.01	<0.01	<0.01
21042094	Drummau Road	26/04/2021 12:00	<0.01	0.01	2.8	0.33	0.6	<0.01	0.31	<0.01	<0.01	<0.01
21042099	Drummau Road	28/04/2021 08:00	0.01	0.02	2.8	0.33	0.6	<0.01	<0.20	<0.01	<0.01	<0.01
21050197	Drummau Road	01/05/2021 08:00	0.03	0.01	3	0.59	0.5	<0.01	0.22	<0.01	<0.01	<0.01
21050580	Drummau Road	05/05/2021 08:00	<0.01	0.07	3.1	0.52	0.6	<0.01	0.42	<0.01	<0.01	<0.01
21050579	Drummau Road	07/05/2021 09:00	<0.01	0.01	3.2	0.45	0.6	<0.01	0.37	<0.01	<0.01	<0.01
21050825	Drummau Road	08/05/2021 10:00	<0.01	0.04	3.1	0.39	0.8	<0.01	0.33	<0.01	<0.01	<0.01
21050944	Drummau Road	10/05/2021 13:00	0.02	0.02	2.8	0.37	1.6	<0.01	0.25	<0.01	<0.01	<0.01
21051097	Drummau Road	12/05/2021 09:15	<0.01	<0.01	3	0.39	1.4	<0.01	0.29	<0.01	<0.01	<0.01
21051201	Drummau Road	14/05/2021 09:30	<0.01	<0.01	3	0.24	1.3	<0.01	<0.20	<0.01	<0.01	<0.01
21051464	Drummau Road	17/05/2021 12:15	<0.01	<0.01	2.9	0.35	1.1	<0.01	0.25	<0.01	<0.01	<0.01
21051748	Drummau Road	19/05/2021 12:20	<0.01	<0.01	2.7	0.36	1.3	<0.01	0.32	<0.01	<0.01	<0.01
21051838	Drummau Road	21/05/2021 12:15	<0.01	0.01	2.8	0.33	1.1	<0.01	0.24	<0.01	<0.01	<0.01
21051950	Drummau Road	24/05/2021 12:15	<0.01	0.02	2.8	<0.20	1.3	<0.01	<0.20	<0.01	<0.01	<0.01
21060090	Drummau Road	26/05/2021 12:15	<0.01	<0.01	2.8	<0.20	3.9	<0.01	<0.20	<0.01	<0.01	<0.01
21060087	Drummau Road	28/05/2021 08:15	<0.01	0.01	2.8	0.4	1.1	<0.01	0.33	<0.01	<0.01	<0.01
21060189	Drummau Road	01/06/2021 12:15	0.01	0.01	2.8	0.3	1.1	<0.01	<0.20	<0.01	<0.01	<0.01
21060566	Drummau Road	03/06/2021 10:15	0.04	0.01	2.8	0.46	<0.2	<0.01	0.3	<0.01	<0.01	<0.01
21060767	Drummau Road	07/06/2021 09:15	<0.01	0.01	3	0.51	0.9	<0.01	0.32	<0.01	<0.01	<0.01
21060982	Drummau Road	09/06/2021 08:10	<0.01	<0.01	2.8	0.49	0.8	<0.01	0.29	<0.01	<0.01	<0.01
21061109	Drummau Road	11/06/2021 12:15	<0.01	<0.01	2.9	0.4	0.9	<0.01	0.28	<0.01	<0.01	<0.01
21061306	Drummau Road	14/06/2021 08:30	<0.01	0.01	2.9	0.41	0.8	<0.01	0.29	<0.01	<0.01	<0.01
21061633	Drummau Road Chamber	16/06/2021 08:30	<0.01	0.13	2.8	0.3	0.7	<0.01	0.44	<0.01	<0.01	<0.01
21061627	Drummau Road Chamber	18/06/2021 09:15	<0.01	0.12	2.8	0.45	0.7	<0.01	0.31	<0.01	<0.01	<0.01
21061766	Drummau Road Chamber	21/06/2021 10:15	<0.01	0.06	2.9	0.42	0.8	<0.01	0.35	<0.01	<0.01	<0.01
21062018	Drummau Road Chamber	23/06/2021 08:10	0.01	0.02	2.8	0.45	0.8	<0.01	0.32	<0.01	<0.01	<0.01
21062101	Drummau Road Chamber	25/06/2021 09:15	<0.01	0.02	2.7	0.26	1	<0.01	<0.20	<0.01	<0.01	<0.01
21070002	Drummau Road Chamber	28/06/2021 08:30	<0.01	0.01	2.8	0.34	0.6	<0.01	0.2	<0.01	<0.01	<0.01
21070186	Drummau Road Chamber	30/06/2021 10:15	<0.01	0.09	2.8	0.37	0.6	0.01	0.26	<0.01	<0.01	<0.01
21070303	Drummau Road Chamber	02/07/2021 09:15	0.01	0.04	2.9	0.43	0.8	<0.01	0.34	<0.01	<0.01	<0.01
21070502	Drummau Road Chamber	05/07/2021 12:00	<0.01	<0.01	3	0.46	0.8	<0.01	0.34	<0.01	<0.01	<0.01
21071070	Drummau Road Chamber	12/07/2021 12:00	<0.01	<0.01	2.9	0.43	0.8	<0.01	0.25	<0.01	<0.01	<0.01
21071745	Drummau Road Chamber	19/07/2021 10:00	<0.01	<0.01	3	0.31	0.9	<0.01	0.26	<0.01	<0.01	<0.01
21072096	Drummau Road Chamber	26/07/2021 10:00	<0.01	0.01	2.9	0.38	0.7	<0.01	<0.20	<0.01	<0.01	<0.01
21080281	Drummau Road Chamber	02/08/2021 12:20	<0.01	<0.01	2.9	0.25	0.8	<0.01	<0.20	<0.01	<0.01	<0.01
21080794	Drummau Road Chamber	09/08/2021 10:45	<0.01	<0.01	2.9	0.58	0.9	<0.01	0.43	<0.01	<0.01	<0.01
21081278	Drummau Road Chamber	16/08/2021 10:30	<0.01	<0.01	2.9	0.36	1.3	<0.01	0.23	<0.01	<0.01	<0.01
21081714	Drummau Road Chamber	23/08/2021 12:20	0.01	0.01	2.9	0.35	1.4	<0.01	0.23	<0.01	<0.01	<0.01
21090078	Drummau Road Chamber	31/08/2021 12:00	0.01	0.01	2.9	0.49	1.1	<0.01	0.3	<0.01	<0.01	<0.01
21090562	Drummau Road Chamber	06/09/2021 11:15	<0.01	0.01	3	0.21	1.2	<0.01	<0.20	<0.01	<0.01	<0.01
21090986	Drummau Road Chamber	13/09/2021 10:00	<0.01	<0.01	3	0.27	0.6	<0.01	<0.20	<0.01	<0.01	<0.01
21091109	Drummau Road Chamber	14/09/2021 07:30	<0.01	<0.01	3	0.42	0.9	<0.01	0.34	<0.01	<0.01	<0.01
21091334	Drummau Road Chamber	15/09/2021 10:00				0.24			<0.20			

		Analyte	Ammoniacal Nitrogen as N	Aluminium as Al (Total)	Silicon as Si (Dissolved)	Dissolved Organic Carbon	Nitrate as N	Phosphate as P	Total Organic Carbon	ICP-OES Cadmium as Cd (Dissolved)	ICP-OES Copper as Cu (Dissolved)	ICP-OES Lead as Pb (Dissolved)
		Limit of Reporting	0.01mg/l	0.01mg/l	0.1mg/l	0.2mg/l	0.2mg/l	0.01mg/l	0.2mg/l	0.01mg/l	0.01mg/l	0.01mg/l
Report		Units	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
Number	Asset Name	Date/Time										
21091407	Drummau Road Chamber	17/09/2021 11:30				0.22			<0.20			
21091406	Drummau Road Chamber	18/09/2021 11:00				0.22			<0.20			
21091412	Drummau Road Chamber	19/09/2021 12:00				<0.20			<0.20			
21091829	Drummau Road Chamber	22/09/2021 07:30				0.38			0.24			
21091832	Drummau Road Chamber	23/09/2021 12:00				0.38			0.22			
21091831	Drummau Road Chamber	24/09/2021 07:30				0.39			0.24			
21091972	Drummau Road Chamber	25/09/2021 07:30				0.46			0.3			
21091973	Drummau Road Chamber	26/09/2021 07:30				0.42			0.27			
21091947	Drummau Road Chamber	27/09/2021 07:30	0.02	0.01	2.9	0.46	2.6	<0.01	0.41	<0.01	<0.01	<0.01
21092084	Drummau Road Chamber	28/09/2021 07:30				0.35			0.2			
21092085	Drummau Road Chamber	29/09/2021 07:30				0.36			0.24			
21100099	Drummau Road Chamber	01/10/2021 09:30				0.34			0.44			
21100259	Drummau Road Chamber	02/10/2021 12:00				0.51			0.34			
21100263	Drummau Road Chamber	03/10/2021 11:30				0.48			0.33			
21100414	Drummau Road Chamber	04/10/2021 09:30	<0.01	0.01	2.9	0.47	2.4	<0.01	0.39	<0.01	<0.01	<0.01
21100415	Drummau Road Chamber	05/10/2021 07:00				0.57			0.43			
21100651	Drummau Road Chamber	06/10/2021 08:00				0.43			0.27			
21100660	Drummau Road Chamber	07/10/2021 07:10				0.64			0.4			
21100786	Drummau Road Chamber	08/10/2021 07:00				0.48			0.35			
21100782	Drummau Road Chamber	09/10/2021 13:00				0.68			0.33			
21100788	Drummau Road Chamber	10/10/2021 13:00				0.5			0.36			
21100951	Drummau Road Chamber	11/10/2021 07:00	<0.01	<0.01	2.8	0.36	2.2	<0.01	0.35	<0.01	<0.01	<0.01
21100948	Drummau Road Chamber	12/10/2021 11:00				0.57			0.37			
21100956	Drummau Road Chamber	13/10/2021 08:45				0.5			0.36			
21101116	Drummau Road Chamber	14/10/2021 12:15				0.4			0.64			
21101117	Drummau Road Chamber	15/10/2021 09:15				0.39			0.29			
21101308	Drummau Road Chamber	16/10/2021 09:15				0.46			0.37			
21101294	Drummau Road Chamber	17/10/2021 09:15				0.38			0.33			
21101303	Drummau Road Chamber	18/10/2021 08:40	<0.01	<0.01	2.9	0.5	1.6	<0.01	0.32	<0.01	<0.01	<0.01
21101457	Drummau Road Chamber	19/10/2021 12:00				0.43			0.36			
21101459	Drummau Road Chamber	20/10/2021 08:30				0.53			0.45			
21101672	Drummau Road Chamber	21/10/2021 08:00				0.44			0.35			
21101673	Drummau Road Chamber	22/10/2021 07:30				0.43			0.35			
21101794	Drummau Road Chamber	23/10/2021 13:00				0.54			0.45			
21101795	Drummau Road Chamber	24/10/2021 11:00				0.52			0.39			
21101807	Drummau Road Chamber	25/10/2021 08:00	<0.01	0.02	2.8	0.49	2.5	0.02	0.4	<0.01	<0.01	<0.01
21050825	Drummau Road Pipe	08/05/2021 10:15	<0.01	0.03	3.1	0.38	0.7	<0.01	0.27	<0.01	<0.01	<0.01
21051097	Drummau Road Pipe	12/05/2021 09:40	<0.01	<0.01	2.9	0.33	1.4	<0.01	0.26	<0.01	<0.01	<0.01
21051838	Drummau Road Pipe	21/05/2021 12:30	<0.01	<0.01	2.8	0.31	1.1	<0.01	0.22	<0.01	<0.01	<0.01
21060090	Drummau Road Pipe	26/05/2021 12:30	<0.01	<0.01	2.8	<0.20	1.2	<0.01	<0.20	<0.01	<0.01	<0.01
21060189	Drummau Road Pipe	01/06/2021 12:30	<0.01	<0.01	2.8	0.2	1.2	<0.01	<0.20	<0.01	<0.01	<0.01
21060566	Drummau Road Pipe	03/06/2021 10:30	0.02	<0.01	2.8	0.47	<0.2	<0.01	0.29	<0.01	<0.01	<0.01
21060982	Drummau Road Pipe	09/06/2021 08:20	<0.01	<0.01	2.8	0.42	0.8	<0.01	0.26	<0.01	<0.01	<0.01

		Analyte	Ammoniacal Nitrogen as N	Aluminium as Al (Total)	Silicon as Si (Dissolved)	Dissolved Organic Carbon	Nitrate as N	Phosphate as P	Total Organic Carbon	ICP-OES Cadmium as Cd (Dissolved)	ICP-OES Copper as Cu (Dissolved)	ICP-OES Lead as Pb (Dissolved)
		Limit of Reporting	0.01mg/l	0.01mg/l	0.1mg/l	0.2mg/l	0.2mg/l	0.01mg/l	0.2mg/l	0.01mg/l	0.01mg/l	0.01mg/l
Report		Units	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
Number	Asset Name	Date/Time										
21061633	Drummau Road Pipe	16/06/2021 08:45	<0.01	0.63	2.8	0.43	0.7	<0.01	0.3	<0.01	<0.01	<0.01
21062018	Drummau Road Pipe	23/06/2021 08:10	<0.01	0.01	2.9	0.42	0.8	<0.01	0.29	<0.01	<0.01	<0.01
21070186	Drummau Road Pipe	30/06/2021 10:30	0.01	<0.01	2.9	0.28	1.7	0.01	<0.20	<0.01	<0.01	<0.01
21011511	Goshen Park Discharge	22/01/2021 12:00	<0.01	0.09	2.6	0.26	0.3	<0.01	0.23	<0.01	<0.01	<0.01
21011511	Goshen Park Discharge	22/01/2021 15:00	<0.01	0.08	2.7	0.23	0.3	<0.01	0.23	<0.01	<0.01	<0.01
21011511	Goshen Park Discharge	22/01/2021 18:00	<0.01	0.07	2.6	0.24	0.4	<0.01	0.23	<0.01	<0.01	<0.01
21011512	Goshen Park Discharge	23/01/2021 08:30	<0.01	0.05	2.7	0.26	0.4	<0.01	0.27	<0.01	<0.01	<0.01
21011512	Goshen Park Discharge	23/01/2021 12:30	<0.01	0.05	2.6	0.26	0.3	<0.01	0.22	<0.01	<0.01	<0.01
21011660	Goshen Park Discharge	26/01/2021 08:30	0.06	0.01	2.6	0.34	<0.2	<0.01	0.3	<0.01	<0.01	<0.01
21011660	Goshen Park Discharge	26/01/2021 14:00	0.07	0.01	2.6	0.31	<0.2	<0.01	0.24	<0.01	<0.01	<0.01
21011873	Goshen Park Discharge	27/01/2021 09:45	0.12	0.01	2.6	0.31	<0.2	<0.01	0.21	<0.01	<0.01	<0.01
21011873	Goshen Park Discharge	27/01/2021 14:15	0.22	0.01	2.6	0.71	<0.2	<0.01	0.6	<0.01	<0.01	<0.01
21011872	Goshen Park Discharge	28/01/2021 09:00	0.09	0.02	2.7	0.4	<0.2	<0.01	0.39	<0.01	<0.01	<0.01
21011872	Goshen Park Discharge	28/01/2021 13:00	0.12	0.03	2.7	0.45	<0.2	<0.01	0.4	<0.01	<0.01	<0.01
21020064	Goshen Park Discharge	29/01/2021 08:00	0.07	0.04	2.8	0.38	<0.2	<0.01	0.4	<0.01	<0.01	<0.01
21020064	Goshen Park Discharge	29/01/2021 13:45	0.1	0.01	2.7	0.26	0.2	<0.01	0.22	<0.01	<0.01	<0.01
21020188	Goshen Park Discharge	01/02/2021 13:15	0.06	0.02	2.6	0.4	<0.2	<0.01	0.37	<0.01	<0.01	<0.01
21020309	Goshen Park Discharge	02/02/2021 11:00	0.06	<0.01	2.6	0.32	0.3	<0.01	0.31	<0.01	<0.01	<0.01
21020485	Goshen Park Discharge	03/02/2021 11:00	0.06	0.01	2.7	0.32	0.3	<0.01	0.31	<0.01	<0.01	<0.01
21020551	Goshen Park Discharge	04/02/2021 09:20	0.07	0.02	2.6	0.38	0.3	<0.01	0.33	<0.01	<0.01	<0.01
21020632	Goshen Park Discharge	05/02/2021 11:00	0.07	<0.01	2.6	0.35	0.3	<0.01	0.31	<0.01	<0.01	<0.01
21020706	Goshen Park Discharge	08/02/2021 12:00	0.05	0.01	2.6	0.24	0.2	<0.01	0.21	<0.01	<0.01	<0.01
21020862	Goshen Park Discharge	09/02/2021 10:00	0.05	<0.01	2.6	0.22	<0.2	<0.01	<0.20	<0.01	<0.01	<0.01
21020972	Goshen Park Discharge	10/02/2021 10:00	0.1	0.01	2.6	0.29	0.3	<0.01	0.22	<0.01	<0.01	<0.01
21021005	Goshen Park Discharge	11/02/2021 09:00	0.08	0.01	2.6	0.22	1.3	<0.01	0.21	<0.01	<0.01	<0.01
21021117	Goshen Park Discharge	12/02/2021 11:00	0.11	<0.01	2.7	<0.20	0.2	<0.03	0.21	<0.01	<0.01	<0.01
21021229	Goshen Park Discharge	15/02/2021 11:00	0.06	<0.01	2.7	0.22	0.3	<0.01	<0.20	<0.01	<0.01	<0.01
21021453	Goshen Park Discharge	17/02/2021 08:00	0.11	0.01	2.7	0.23	0.2	<0.01	0.25	<0.01	<0.01	<0.01
21021639	Goshen Park Discharge	19/02/2021 08:00	0.04	<0.01	2.5	0.25	0.4	<0.01	0.29	<0.01	<0.01	<0.01
21021750	Goshen Park Discharge	22/02/2021 09:00	0.02	0.01	2.5	0.32	0.3	0.01	0.26	<0.01	<0.01	<0.01
21022042	Goshen Park Discharge	24/02/2021 10:30	<0.01	<0.01	2.6	0.26	0.5	<0.01	0.22	<0.01	<0.01	<0.01
21030109	Goshen Park Discharge	26/02/2021 09:00	0.03	<0.01	2.5	0.3	0.3	<0.01	0.23	<0.01	<0.01	<0.01
21030164	Goshen Park Discharge	01/03/2021 11:00	0.03	<0.01	2.5	0.29	<0.2	<0.01	0.22	<0.01	<0.01	<0.01
21030407	Goshen Park Discharge	03/03/2021 12:00	<0.01	0.01	2.5	0.28	0.6	<0.01	<0.20	<0.01	<0.01	<0.01
21030592	Goshen Park Discharge	05/03/2021 08:45	0.06	0.01	2.5	0.24	<0.2	<0.01	<0.20	<0.01	<0.01	<0.01
21030797	Goshen Park Discharge	08/03/2021 09:00	0.03	<0.01	2.8	0.37	0.3	<0.01	0.33	<0.01	<0.01	<0.01
21031032	Goshen Park Discharge	10/03/2021 12:00	0.04	0.01	2.6	0.47	<0.2	<0.01	0.51	<0.01	<0.01	<0.01
21031111	Goshen Park Discharge	12/03/2021 12:00	0.08	0.02	2.6	0.36	0.2	<0.01	0.36	<0.01	<0.01	<0.01
21031343	Goshen Park Discharge	15/03/2021 12:00	0.03	0.01	2.5	0.4	<0.2	<0.01	0.33	<0.01	<0.01	<0.01
21031548	Goshen Park Discharge	17/03/2021 11:00	0.03	<0.01	2.6	0.32	0.2	<0.01	0.34	<0.01	<0.01	<0.01
21031633	Goshen Park Discharge	19/03/2021 09:00	0.03	0.01	2.6	0.32	0.2	<0.01	0.26	<0.01	<0.01	<0.01
21031863	Goshen Park Discharge	22/03/2021 09:00	0.03	0.01	2.6	0.32	<0.2	<0.01	0.32	<0.01	<0.01	<0.01
21032087	Goshen Park Discharge	24/03/2021 08:00	0.05	<0.01	3.5	0.53	0.3	<0.01	0.41	<0.01	<0.01	<0.01

		Analyte	Ammoniacal Nitrogen as N	Aluminium as Al (Total)	Silicon as Si (Dissolved)	Dissolved Organic Carbon	Nitrate as N	Phosphate as P	Total Organic Carbon	ICP-OES Cadmium as Cd (Dissolved)	ICP-OES Copper as Cu (Dissolved)	ICP-OES Lead as Pb (Dissolved)
		Limit of Reporting	0.01mg/l	0.01mg/l	0.1mg/l	0.2mg/l	0.2mg/l	0.01mg/l	0.2mg/l	0.01mg/l	0.01mg/l	0.01mg/l
Report		Units	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
Number	Asset Name	Date/Time										
21032166	Goshen Park Discharge	26/03/2021 10:30	0.03	0.04	2.6	0.62	<0.2	<0.01	0.39	<0.01	<0.01	<0.01
21050944	Goshen Park Discharge	10/05/2021 12:50	0.02	0.17	2.7	0.27	<0.2	<0.01	<0.20	<0.01	<0.01	<0.01
21051097	Goshen Park Discharge	12/05/2021 09:00	0.01	0.04	2.7	0.36	<0.2	<0.01	0.28	<0.01	<0.01	<0.01
21051201	Goshen Park Discharge	14/05/2021 09:00	<0.01	0.01	2.6	0.22	0.3	<0.01	<0.20	<0.01	<0.01	<0.01
21051464	Goshen Park Discharge	17/05/2021 12:00	<0.01	0.02	2.6	0.43	0.2	<0.01	0.29	<0.01	<0.01	<0.01
21051748	Goshen Park Discharge	19/05/2021 12:00	0.02	0.01	2.3	0.36	0.4	<0.01	0.35	<0.01	<0.01	<0.01
21051838	Goshen Park Discharge	21/05/2021 12:00	<0.01	<0.01	2.4	0.39	0.2	<0.01	0.22	<0.01	<0.01	<0.01
21051950	Goshen Park Discharge	24/05/2021 12:00	<0.01	0.02	2.5	0.35	0.3	<0.01	0.26	<0.01	<0.01	<0.01
21060090	Goshen Park Discharge	26/05/2021 12:00	<0.01	0.02	2.4	<0.20	<0.2	<0.01	<0.20	<0.01	<0.01	<0.01
21060087	Goshen Park Discharge	28/05/2021 08:00	<0.01	0.01	2.5	0.45	<0.2	<0.01	0.43	<0.01	<0.01	<0.01
21060189	Goshen Park Discharge	01/06/2021 12:00	0.04	0.01	2.6	0.32	0.3	<0.01	<0.20	<0.01	<0.01	<0.01
21060566	Goshen Park Discharge	03/06/2021 10:00	0.03	<0.01	2.6	0.49	<0.2	<0.01	0.34	<0.01	<0.01	<0.01
21060767	Goshen Park Discharge	07/06/2021 09:00	0.03	0.01	2.7	0.97	0.2	<0.01	0.88	<0.01	<0.01	<0.01
21060982	Goshen Park Discharge	09/06/2021 08:00	0.02	<0.01	2.6	0.44	<0.2	<0.01	0.28	<0.01	<0.01	<0.01
21061109	Goshen Park Discharge	11/06/2021 12:30	0.03	<0.01	2.7	0.48	0.3	<0.01	0.3	<0.01	<0.01	<0.01
21061306	Goshen Park Discharge	14/06/2021 08:00	0.02	0.01	2.7	0.45	0.2	<0.01	0.32	<0.01	<0.01	<0.01
21061633	Goshen Park Discharge	16/06/2021 08:00	0.03	0.01	2.6	0.43	0.2	<0.01	0.32	<0.01	<0.01	<0.01
21061627	Goshen Park Discharge	18/06/2021 09:00	0.03	0.11	2.7	0.49	1	<0.01	0.33	<0.01	<0.01	<0.01
21061766	Goshen Park Discharge	21/06/2021 10:00	0.02	0.05	2.8	0.37	0.3	<0.01	0.3	<0.01	<0.01	<0.01
21062018	Goshen Park Discharge	23/06/2021 08:00	0.02	0.09	2.7	0.42	0.2	<0.01	0.31	<0.01	<0.01	<0.01
21062101	Goshen Park Discharge	25/06/2021 09:00	0.02	0.08	2.9	0.25	<0.2	<0.01	<0.20	<0.01	<0.01	<0.01
21070002	Goshen Park Discharge	28/06/2021 08:00	0.02	0.01	2.7	0.35	<0.2	<0.01	0.21	<0.01	<0.01	<0.01
21070186	Goshen Park Discharge	30/06/2021 10:00	0.03	0.01	2.8	0.25	0.2	<0.01	<0.20	<0.01	<0.01	<0.01
21070303	Goshen Park Discharge	02/07/2021 09:00	0.03	0.07	2.8	0.36	0.4	<0.01	0.35	<0.01	<0.01	<0.01
21071745	Goshen Park Discharge	19/07/2021 10:30	<0.01	0.29	2.9	0.33	<0.2	<0.01	0.26	<0.01	<0.01	<0.01
21081278	Goshen Park Discharge	16/08/2021 11:00	0.03	<0.01	2.7	<0.20	<0.2	<0.01	<0.20	<0.01	<0.01	<0.01
21081714	Goshen Park Discharge	23/08/2021 12:40	0.04	0.02	2.7	0.32	1.4	<0.01	0.2	<0.01	<0.01	<0.01
21100415	Goshen Park Discharge	05/10/2021 07:10				0.42			0.26			
21100651	Goshen Park Discharge	06/10/2021 08:10				0.36			<0.20			
21100660	Goshen Park Discharge	07/10/2021 07:00				0.51			0.4			
21100786	Goshen Park Discharge	08/10/2021 07:10				0.63			0.51			
21100782	Goshen Park Discharge	09/10/2021 13:10				0.6			0.46			
21100788	Goshen Park Discharge	10/10/2021 13:10				0.54			0.41			
21100951	Goshen Park Discharge	11/10/2021 07:20	0.01	0.03	2.3	0.42	0.5	<0.01	0.4	<0.01	<0.01	<0.01
21100948	Goshen Park Discharge	12/10/2021 11:15				0.5			0.38			
21101116	Goshen Park Discharge	14/10/2021 12:00				0.51			0.49			
21101117	Goshen Park Discharge	15/10/2021 09:00				0.55			0.56			
21101294	Goshen Park Discharge	17/10/2021 09:00				0.78			0.54			
21101303	Goshen Park Discharge	18/10/2021 07:30	0.01	0.02	2.5	0.49	0.3	<0.01	0.41	<0.01	<0.01	<0.01
21101459	Goshen Park Discharge	20/10/2021 08:45				0.52			0.5			
21101672	Goshen Park Discharge	21/10/2021 08:15				0.37			0.34			
21101673	Goshen Park Discharge	22/10/2021 07:40				0.4			0.3			
21101794	Goshen Park Discharge	23/10/2021 13:10				0.54			0.44			

		Analyte	Ammoniacal Nitrogen as N	Aluminium as Al (Total)	Silicon as Si (Dissolved)	Dissolved Organic Carbon	Nitrate as N	Phosphate as P	Total Organic Carbon	ICP-OES Cadmium as Cd (Dissolved)	ICP-OES Copper as Cu (Dissolved)	ICP-OES Lead as Pb (Dissolved)
		Limit of Reporting	0.01mg/l	0.01mg/l	0.1mg/l	0.2mg/l	0.2mg/l	0.01mg/l	0.2mg/l	0.01mg/l	0.01mg/l	0.01mg/l
Report		Units	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
Number	Asset Name	Date/Time										
21101795	Goshen Park Discharge	24/10/2021 11:10				0.58			1.2			
21101807	Goshen Park Discharge	25/10/2021 08:20	0.01	0.01	2.4	0.5	0.6	0.02	0.43	<0.01	<0.01	<0.01
21011660	70 Cwrt Y Clafdy	26/01/2021 13:45	<0.01	0.06	2.5	0.81	0.6	<0.01	0.75	<0.01	<0.01	<0.01
21011873	70 Cwrt y Clafdy	27/01/2021 10:15	0.07	0.08	2.5	0.91	0.8	<0.01	0.81	<0.01	<0.01	<0.01
21011873	70 Cwrt y Clafdy	27/01/2021 14:30	0.24	0.06	2.4	0.97	0.8	0.02	0.88	<0.01	<0.01	<0.01
21011872	70 Cwrt Y Clafdy	28/01/2021 09:40	0.07	0.05	2.5	0.75	0.6	0.01	0.75	<0.01	<0.01	<0.01
21030164	73 Cwrt y Clafdy	01/03/2021 11:45	<0.01	0.25	2.7	0.23	0.5	<0.01	0.3	<0.01	<0.01	<0.01
21030164	75 Cwrt y Clafdy	01/03/2021 12:00	<0.01	0.18	3.9	0.49	0.5	<0.01	0.42	<0.01	<0.01	<0.01
21031032	77 Dynevor Road	10/03/2021 12:45	<0.01	0.24	4.6	1.1	0.7	0.04	1	<0.01	<0.01	<0.01
21031343	77 Dynevor Road	15/03/2021 12:45	<0.01	0.15	4.3	0.7	0.4	0.01	0.66	<0.01	<0.01	<0.01
21031548	77 Dynevor Road	17/03/2021 11:45	<0.01	0.01	4.4	0.64	0.6	0.03	0.62	<0.01	<0.01	<0.01
21031633	77 Dynevor Road	19/03/2021 09:45	<0.01	0.07	4.4	0.64	0.5	0.01	0.64	<0.01	<0.01	<0.01
21020064	87 Dynevor Road	29/01/2021 08:30	0.01	0.01	3.3	0.43	0.6	<0.01	0.4	<0.01	<0.01	<0.01
21020064	87 Dynevor Road	29/01/2021 14:15	<0.01	0.01	3.3	0.45	0.6	<0.01	0.39	<0.01	<0.01	<0.01
21020188	87 Dynevor Road	01/02/2021 13:30	<0.01	0.01	3.1	0.48	0.4	<0.01	0.55	<0.01	<0.01	<0.01
21020309	87 Dynevor Road	02/02/2021 11:20	<0.01	0.01	3.1	0.42	0.6	<0.01	0.42	<0.01	<0.01	<0.01
21020485	87 Dynevor Road	03/02/2021 11:30	0.01	<0.01	3.1	0.41	0.4	<0.01	0.38	<0.01	<0.01	<0.01
21020551	87 Dynevor Road	04/02/2021 09:40	0.02	<0.01	3	0.44	1.3	<0.01	0.4	<0.01	<0.01	<0.01
21020632	87 Dynevor Road	05/02/2021 11:30	<0.01	0.01	3	0.47	0.6	<0.01	0.44	<0.01	<0.01	<0.01
21020706	87 Dynevor Road	08/02/2021 12:30	<0.01	0.01	2.9	0.37	0.4	<0.01	0.28	<0.01	<0.01	<0.01
21020862	87 Dynevor Road	09/02/2021 10:30	<0.01	<0.01	3	0.31	<0.2	<0.01	0.26	<0.01	<0.01	<0.01
21020972	87 Dynevor Road	10/02/2021 10:30	0.04	0.01	3	0.29	0.4	<0.01	0.3	<0.01	<0.01	<0.01
21021005	87 Dynevor Road	11/02/2021 09:40	0.05	0.01	3	0.27	0.5	<0.01	0.3	<0.01	<0.01	<0.01
21021117	87 Dynevor Road	12/02/2021 11:20	0.2	0.03	3	0.28	0.4	<0.03	0.29	<0.01	<0.01	<0.01
21021229	87 Dynevor Road	15/02/2021 11:30	<0.01	0.01	2.9	0.31	0.4	<0.01	0.26	<0.01	<0.01	<0.01
21021453	87 Dynevor Road	17/02/2021 08:30	0.04	0.01	3	0.27	0.4	<0.01	0.3	<0.01	<0.01	<0.01
21021639	87 Dynevor Road	19/02/2021 08:30	<0.01	<0.01	2.8	0.28	0.6	<0.01	0.29	<0.01	<0.01	<0.01
21021750	87 Dynevor Road	22/02/2021 09:30	<0.01	<0.01	2.9	0.29	0.6	0.02	<0.20	<0.01	<0.01	<0.01
21022042	87 Dynevor Road	24/02/2021 10:00	<0.01	<0.01	2.9	0.27	0.9	<0.01	0.21	<0.01	<0.01	<0.01
21030109	87 Dynevor Road	26/02/2021 09:30	<0.01	0.02	2.9	0.34	0.5	<0.01	0.21	<0.01	<0.01	<0.01
21030164	87 Dynevor Road	01/03/2021 11:30	0.02	0.35	3.1	0.25	0.5	<0.01	0.22	<0.01	<0.01	<0.01
21030407	87 Dynevor Road	03/03/2021 12:15	<0.01	0.13	2.9	0.32	0.4	<0.01	<0.20	<0.01	<0.01	<0.01
21030592	87 Dynevor Road	05/03/2021 09:10	0.02	0.19	2.9	0.22	0.6	<0.01	0.31	<0.01	<0.01	<0.01
21030797	87 Dynevor Road (Chamber 1)	08/03/2021 09:30	<0.01	0.19	3.2	0.38	0.4	<0.01	0.34	<0.01	<0.01	<0.01
21031032	87 Dynevor Road (Chamber 1)	10/03/2021 12:30	<0.01	0.01	3.9	0.53	0.2	<0.01	0.43	<0.01	<0.01	<0.01
21031111	87 Dynevor Road (Chamber 1)	12/03/2021 12:30	0.02	0.01	2.7	0.41	0.4	<0.01	0.38	<0.01	<0.01	<0.01
21031343	87 Dynevor Road (Chamber 1)	15/03/2021 12:15	<0.01	0.13	3	0.4	<0.2	<0.01	0.35	<0.01	<0.01	<0.01
21031548	87 Dynevor Road (Chamber 1)	17/03/2021 11:30	<0.01	0.01	3	0.37	0.4	<0.01	0.36	<0.01	<0.01	<0.01
21031633	87 Dynevor Road (Chamber 1)	19/03/2021 09:30	<0.01	<0.01	2.7	0.31	0.3	<0.01	0.29	<0.01	<0.01	<0.01
21031863	87 Dynevor Road (Chamber 1)	22/03/2021 10:00	<0.01	0.12	2.7	0.38	0.4	<0.01	0.38	<0.01	<0.01	<0.01
21032087	87 Dynevor Road (Chamber 1)	24/03/2021 08:20	<0.01	<0.01	2.9	0.51	0.4	<0.01	0.38	<0.01	<0.01	<0.01
21032166	87 Dynevor Road (Chamber 1)	26/03/2021 11:00	<0.01	0.01	2.8	0.44	0.4	<0.01	0.39	<0.01	<0.01	<0.01
21040085	87 Dynevor Road (Chamber 1)	29/03/2021 10:45	<0.01	<0.01	2.7	0.37	0.5	<0.01	0.26	<0.01	<0.01	<0.01

		Analyte	Ammoniacal Nitrogen as N	Aluminium as Al (Total)	Silicon as Si (Dissolved)	Dissolved Organic Carbon	Nitrate as N	Phosphate as P	Total Organic Carbon	ICP-OES Cadmium as Cd (Dissolved)	ICP-OES Copper as Cu (Dissolved)	ICP-OES Lead as Pb (Dissolved)
		Limit of Reporting	0.01mg/l	0.01mg/l	0.1mg/l	0.2mg/l	0.2mg/l	0.01mg/l	0.2mg/l	0.01mg/l	0.01mg/l	0.01mg/l
Report Number	Asset Name	Units	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
		Date/Time										
21040092	87 Dynevor Road (Chamber 1)	31/03/2021 08:20	<0.01	<0.01	2.7	0.35	0.4	<0.01	0.29	<0.01	<0.01	<0.01
21040578	87 Dynevor Road (Chamber 1)	06/04/2021 12:20	0.4	0.01	2.8	0.7	0.4	0.04	0.54	<0.01	<0.01	<0.01
21040659	87 Dynevor Road (Chamber 1)	08/04/2021 13:15	0.02	0.01	2.7	0.36	0.4	<0.01	0.26	<0.01	<0.01	<0.01
21040996	87 Dynevor Road (Chamber 1)	12/04/2021 10:15	<0.01	<0.01	2.7	0.3	0.4	<0.01	0.29	<0.01	<0.01	<0.01
21041203	87 Dynevor Road (Chamber 1)	16/04/2021 09:10	0.02	0.01	2.7	0.28	0.6	<0.01	0.21	<0.01	<0.01	<0.01
21041594	87 Dynevor Road (Chamber 1)	19/04/2021 12:20	<0.01	<0.01	2.7	0.25	<0.2	<0.01	<0.20	<0.01	<0.01	<0.01
21041776	87 Dynevor Road (Chamber 1)	21/04/2021 10:15	<0.01	0.01	2.7	0.27	0.5	<0.01	<0.20	<0.01	<0.01	<0.01
21041780	87 Dynevor Road (Chamber 1)	23/04/2021 10:30	<0.01	<0.01	2.7	0.27	0.5	<0.01	<0.20	<0.01	<0.01	<0.01
21042094	87 Dynevor Road (Chamber 1)	26/04/2021 12:00	<0.01	<0.01	2.7	0.36	0.3	<0.01	0.22	<0.01	<0.01	<0.01
21042099	87 Dynevor Road (Chamber 1)	28/04/2021 08:20	<0.01	<0.01	2.7	0.32	0.2	<0.01	<0.20	<0.01	<0.01	<0.01
21050197	87 Dynevor Road (Chamber 1)	01/05/2021 08:20	<0.01	<0.01	2.8	0.43	<0.2	<0.01	0.21	<0.01	<0.01	<0.01
21050580	87 Dynevor Road (Chamber 1)	05/05/2021 08:20	<0.01	0.01	3	0.47	0.3	<0.01	0.37	<0.01	<0.01	<0.01
21050579	87 Dynevor Road (Chamber 1)	07/05/2021 09:15	<0.01	0.01	3	0.43	0.2	<0.01	0.34	<0.01	<0.01	<0.01
21050944	87 Dynevor Road (Chamber 1)	10/05/2021 13:15	0.07	0.01	2.8	0.4	0.3	<0.01	0.2	<0.01	<0.01	<0.01
21051097	87 Dynevor Road (Chamber 1)	12/05/2021 09:45	<0.01	0.01	2.9	0.35	0.4	<0.01	0.28	<0.01	<0.01	<0.01
21051201	87 Dynevor Road (Chamber 1)	14/05/2021 09:15	<0.01	<0.01	3	0.22	0.4	<0.01	<0.20	<0.01	<0.01	<0.01
21051464	87 Dynevor Road (Chamber 1)	17/05/2021 12:30	<0.01	<0.01	2.8	0.35	0.3	<0.01	0.23	<0.01	<0.01	<0.01
21051748	87 Dynevor Road (Chamber 1)	19/05/2021 12:40	<0.01	<0.01	2.6	0.26	0.5	<0.01	0.29	<0.01	<0.01	<0.01
21051838	87 Dynevor Road (Chamber 1)	21/05/2021 12:45	<0.01	<0.01	2.6	0.32	0.4	<0.01	0.22	<0.01	<0.01	<0.01
21051950	87 Dynevor Road (Chamber 1)	24/05/2021 12:30	<0.01	0.01	2.7	<0.20	0.5	0.07	<0.20	<0.01	<0.01	<0.01
21060090	87 Dynevor Road (Chamber 1)	26/05/2021 12:45	<0.01	<0.01	2.6	<0.20	0.3	<0.01	<0.20	<0.01	<0.01	<0.01
21060087	87 Dynevor Road (Chamber 1)	28/05/2021 08:30	<0.01	<0.01	2.7	0.36	0.3	<0.01	0.3	<0.01	<0.01	<0.01
21060189	87 Dynevor Road (Chamber 1)	01/06/2021 12:45	0.01	0.01	2.6	<0.20	0.5	<0.01	<0.20	<0.01	<0.01	<0.01
21060566	87 Dynevor Road (Chamber 1)	03/06/2021 10:45	0.01	0.01	2.6	0.51	<0.2	<0.01	0.31	<0.01	<0.01	<0.01
21060767	87 Dynevor Road (Chamber 1)	07/06/2021 09:30	0.01	0.02	2.8	0.46	0.3	<0.01	0.32	<0.01	<0.01	<0.01
21060982	87 Dynevor Road (Chamber 1)	09/06/2021 08:30	<0.01	<0.01	2.6	0.46	0.2	<0.01	0.3	<0.01	<0.01	<0.01
21061109	87 Dynevor Road (Chamber 1)	11/06/2021 12:00	<0.01	<0.01	2.6	0.38	0.4	<0.01	0.37	<0.01	<0.01	<0.01
21061306	87 Dynevor Road (Chamber 1)	14/06/2021 08:15	<0.01	<0.01	2.7	0.42	0.3	<0.01	0.3	<0.01	<0.01	<0.01
21061633	87 Dynevor Road (Chamber 1)	16/06/2021 08:15	<0.01	0.01	2.6	0.43	0.3	<0.01	0.35	<0.01	<0.01	<0.01
21061627	87 Dynevor Road (Chamber 1)	18/06/2021 09:30	<0.01	0.07	2.6	0.45	0.3	<0.01	0.32	<0.01	<0.01	<0.01
21061766	87 Dynevor Road (Chamber 1)	21/06/2021 10:30	<0.01	<0.01	2.7	0.38	0.4	<0.01	0.33	<0.01	<0.01	<0.01
21062018	87 Dynevor Road (Chamber 1)	23/06/2021 08:05	<0.01	0.01	2.6	0.44	0.3	<0.01	0.3	<0.01	<0.01	<0.01
21062101	87 Dynevor Road (Chamber 1)	25/06/2021 09:30	<0.01	0.01	2.9	0.23	<0.2	<0.01	<0.20	<0.01	<0.01	<0.01
21070002	87 Dynevor Road (Chamber 1)	28/06/2021 08:15	<0.01	<0.01	2.6	0.36	<0.2	<0.01	<0.20	<0.01	<0.01	<0.01
21070186	87 Dynevor Road (Chamber 1)	30/06/2021 10:45	<0.01	<0.01	2.6	0.29	0.2	0.02	<0.20	<0.01	<0.01	<0.01
21070303	87 Dynevor Road (Chamber 1)	02/07/2021 09:30	<0.01	<0.01	2.7	0.33	0.3	<0.01	0.25	<0.01	<0.01	<0.01
21070502	87 Dynevor Road (Chamber 1)	05/07/2021 11:30	<0.01	0.01	2.7	0.36	0.5	<0.01	0.28	<0.01	<0.01	<0.01
21071070	87 Dynevor Road (Chamber 1)	12/07/2021 12:20	<0.01	<0.01	2.8	0.42	0.2	<0.01	0.23	<0.01	<0.01	<0.01
21071745	87 Dynevor Road (Chamber 1)	19/07/2021 10:15	<0.01	<0.01	2.8	0.31	0.2	<0.01	0.27	<0.01	<0.01	<0.01
21072096	87 Dynevor Road (Chamber 1)	26/07/2021 10:15	<0.01	0.01	2.7	<0.20	<0.2	<0.01	<0.20	<0.01	<0.01	<0.01
21080281	87 Dynevor Road (Chamber 1)	02/08/2021 12:40	<0.01	0.01	2.7	0.22	<0.2	<0.01	<0.20	<0.01	<0.01	<0.01
21080794	87 Dynevor Road (Chamber 1)	09/08/2021 10:30	<0.01	<0.01	2.7	0.44	<0.2	<0.01	0.34	<0.01	<0.01	<0.01
21081278	87 Dynevor Road (Chamber 1)	16/08/2021 10:45	<0.01	0.01	2.7	0.23	0.4	<0.01	<0.20	<0.01	<0.01	<0.01

		Analyte	Ammoniacal Nitrogen as N	Aluminium as Al (Total)	Silicon as Si (Dissolved)	Dissolved Organic Carbon	Nitrate as N	Phosphate as P	Total Organic Carbon	ICP-OES Cadmium as Cd (Dissolved)	ICP-OES Copper as Cu (Dissolved)	ICP-OES Lead as Pb (Dissolved)
		Limit of Reporting	0.01mg/l	0.01mg/l	0.1mg/l	0.2mg/l	0.2mg/l	0.01mg/l	0.2mg/l	0.01mg/l	0.01mg/l	0.01mg/l
Report		Units	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
Number	Asset Name	Date/Time										
21081714	87 Dynevor Road (Chamber 1)	23/08/2021 12:00	0.02	<0.01	2.7	0.28	0.4	<0.01	<0.20	<0.01	<0.01	<0.01
21090078	87 Dynevor Road (Chamber 1)	31/08/2021 12:20	0.01	0.02	2.7	0.39	0.5	<0.01	0.22	<0.01	<0.01	<0.01
21090562	87 Dynevor Road (Chamber 1)	06/09/2021 11:00	<0.01	0.01	2.8	<0.20	0.5	<0.01	<0.20	<0.01	0.03	<0.01
21090986	87 Dynevor Road (Chamber 1)	13/09/2021 10:15	<0.01	<0.01	2.8	0.42	<0.2	<0.01	<0.20	<0.01	<0.01	<0.01
21091947	87 Dynevor Road (Chamber 1)	27/09/2021 09:00	<0.01	Data in query	2.8	0.4	0.4	<0.01	0.4	<0.01	<0.01	<0.01
21100414	87 Dynevor Road (Chamber 1)	04/10/2021 09:50	0.01	0.01	2.8	0.5	1	<0.01	0.43	<0.01	<0.01	<0.01
21100951	87 Dynevor Road (Chamber 1)	11/10/2021 07:10	0.01	<0.01	2.6	0.43	0.8	<0.01	0.4	<0.01	<0.01	<0.01
21101303	87 Dynevor Road (Chamber 1)	18/10/2021 07:45	<0.01	<0.01	2.6	0.44	0.5	<0.01	0.39	<0.01	<0.01	<0.01
21101807	87 Dynevor Road (Chamber 1)	25/10/2021 08:10	<0.01	<0.01	2.5	0.46	0.8	0.02	0.38	<0.01	<0.01	<0.01
21100780	Borehole 10	08/10/2021 07:20	0.08	0.03	2.5	0.57	0.5	<0.01	0.54	<0.01	<0.01	<0.01
21100778	Borehole 10	09/10/2021 13:20	0.1	0.02	2.4	0.62	0.4	<0.01	0.6	<0.01	<0.01	<0.01
21100779	Borehole 10	10/10/2021 13:20	0.06	0.01	2.3	0.49	0.5	<0.01	0.81	<0.01	<0.01	<0.01
21100956	Borehole 10	13/10/2021 08:30				0.58			0.48			
21030164	32 Jubilee Crescent	01/03/2021 12:15	<0.01	0.23	3.7	0.59	0.5	<0.01	0.54	<0.01	<0.01	<0.01
21020064	9 Sunnyland Crescent	29/01/2021 14:30	<0.01	0.03	3.2	0.63	0.7	<0.01	0.55	<0.01	<0.01	<0.01
21020862	Bryndewy Level	09/02/2021 14:00	0.03	0.56	4.5	0.36	<0.2	<0.01	0.32	<0.01	<0.01	<0.01
21021005	Bryndewy Level	11/02/2021 10:00	0.03	0.01	4.5	0.35	0.2	<0.01	0.37	<0.01	<0.01	<0.01
21021359	Bryndewy Level	16/02/2021 12:00	<0.01	0.01	4.5	0.33	3	<0.01	0.27	<0.01	<0.01	<0.01
21021511	Bryndewy Level	18/02/2021 12:30	0.02	0.03	4.4	0.73	<0.2	0.01	0.44	<0.01	<0.01	<0.01
21021359	Lonlas Old Graigoia Level	16/02/2021 17:30	<0.01	0.02	4	0.42	2.9	<0.01	0.36	<0.01	<0.01	<0.01
21021511	Lonlas Old Graigoia Level	18/02/2021 12:00	0.02	0.02	3.8	0.79	0.3	<0.01	0.62	<0.01	<0.01	<0.01
21021750	Lonlas Old Graigoia Level	22/02/2021 09:45	<0.01	0.03	4	0.53	0.3	0.02	0.44	<0.01	<0.01	<0.01
21022042	Lonlas Old Graigola Level	24/02/2021 10:45	<0.01	0.04	4	0.47	0.5	0.07	0.47	<0.01	<0.01	<0.01
21022042	Drumma Greenway Level	24/02/2021 11:20	<0.01	0.01	3.1	0.31	3.4	<0.01	0.26	<0.01	<0.01	<0.01
21030109	Drumma Greenway Level	26/02/2021 08:15	<0.01	0.13	3	0.38	3	<0.01	0.26	<0.01	<0.01	<0.01
21030288	Drumma Greenway Level	02/03/2021 08:20	<0.01	<0.01	3.1	0.3	2.9	<0.01	0.24	<0.01	<0.01	<0.01
21030592	Drumma Greenway Level	05/03/2021 08:15	0.02	<0.01	3.1	0.23	2.6	<0.01	0.2	<0.01	<0.01	<0.01
21022042	Neuadd Wen Graigola Level	24/02/2021 11:00	0.04	0.01	2.8	<0.20	0.5	<0.01	<0.20	<0.01	<0.01	<0.01
21030109	Neuadd Wen Graigola Level	26/02/2021 08:00	0.04	0.01	2.8	0.39	1.4	<0.01	<0.20	<0.01	<0.01	<0.01
21030288	Neuadd Wen Graigola Level	02/03/2021 08:00	0.06	<0.01	2.8	0.24	0.3	<0.01	<0.20	<0.01	<0.01	<0.01
21030592	Neuadd Wen Graigola Level	05/03/2021 08:00	0.06	<0.01	2.7	<0.20	<0.2	<0.01	0.28	<0.01	<0.01	<0.01
21031863	Woodlands Spring East	22/03/2021 10:30	0.02	0.02	2.4	0.59	0.9	<0.01	0.57	<0.01	<0.01	<0.01
21032087	Woodlands Spring East	24/03/2021 09:00	<0.01	0.04	2.7	0.72	1.5	<0.01	0.62	<0.01	<0.01	<0.01
21032166	Woodlands Spring East	26/03/2021 11:15	<0.01	0.03	2.5	0.7	0.7	<0.01	0.65	<0.01	<0.01	<0.01
21040085	Woodlands Spring East	29/03/2021 11:00	0.02	0.1	2.5	0.69	0.9	<0.01	0.58	<0.01	<0.01	<0.01
21031863	Woodlands Spring West	22/03/2021 11:00	0.02	0.04	2.4	0.42	2.6	<0.01	0.4	<0.01	<0.01	<0.01
21032087	Woodland Spring West	24/03/2021 09:20	<0.01	0.01	2.5	0.57	2.7	<0.01	0.45	<0.01	<0.01	<0.01
21032166	Woodlands Spring West	26/03/2021 11:30	<0.01	0.06	2.3	0.47	2.5	<0.01	0.44	<0.01	<0.01	<0.01
21040085	Woodlands Spring West	29/03/2021 11:15	<0.01	0.04	2.3	0.5	2.4	<0.01	0.42	<0.01	<0.01	<0.01

		Analyte	ICP-OES Zinc as Zn (Dissolved)	Ionic Balance	Total Anions	Total Cations	Cold Acidity as CaCO3	Nitrite as N	Ammoniacal Nitrogen as NH4	Orthophosphate as PO4
		Limit of Reporting	0.01mg/l				2mg/l	0.01 mg/l	0.02mg/l	0.03mg/l
Report		Units	mg/l	%	meq	meq	mg/l	mg/l	mg/l	mg/l
Number	Asset Name	Date/Time								
21011512	Drummau Road	23/01/2021 13:00	<0.01	-1.24	<4.92	<4.80	14	<0.01	<0.02	<0.03
21011660	Drummau Road	26/01/2021 08:40	0.01	-0.78	<5.45	5.37	10	<0.01	<0.02	<0.03
21011873	Drummau Road	27/01/2021 10:00	0.01	0.75	<5.54	5.62	8	<0.01	0.08	<0.03
21011872	Drummau Road	28/01/2021 09:20	0.01	-0.34	<5.58	5.54	12	<0.01	0.04	<0.03
21011872	Drummau Road	28/01/2021 15:20	<0.01	0.37	<5.50	5.54	10	<0.01	0.08	<0.03
21020064	Drummau Road	29/01/2021 08:15	<0.01	0.39	<5.42	<5.47	6	<0.01	<0.02	<0.03
21020064	Drummau Road	29/01/2021 14:00	0.01	-0.01	<5.49	<5.49	8	<0.01	<0.02	<0.03
21020188	Drummau Road	01/02/2021 13:00	<0.01	-0.24	<5.61	5.58	7	<0.01	<0.02	<0.03
21020309	Drummau Road	02/02/2021 11:10	<0.01	-0.71	<12.7	<5.61	12	<0.01	<0.02	<0.03
21020485	Drummau Road	03/02/2021 11:15	0.01	-0.21	<5.82	5.8	20	<0.01	0.03	<0.03
21020551	Drummau Road	04/02/2021 09:00	<0.01	-0.18	<5.65	5.63	8	<0.01	0.03	<0.03
21020632	Drummau Road	05/02/2021 11:15	<0.01	0.42	<5.70	5.75	32	<0.01	0.03	<0.03
21020706	Drummau Road	08/02/2021 12:15	<0.01	-0.81	<5.48	<5.39	20	<0.01	<0.02	<0.03
21020862	Drummau Road	09/02/2021 10:15	0.01	-0.78	<5.57	5.48	2	<0.01	0.03	<0.03
21020972	Drummau Road	10/02/2021 10:15	<0.01	0.57	<5.64	5.7	12	<0.01	0.08	<0.03
21021005	Drummau Road	11/02/2021 09:20	<0.01	-0.28	<5.69	5.66	4	<0.01	0.09	<0.03
21021117	Drummau Road	12/02/2021 11:10	<0.01	1	<5.63	5.75	2	<0.01	0.17	<0.01
21021229	Drummau Road	15/02/2021 11:15	<0.01	1.11	<5.78	5.91	4	<0.01	<0.02	<0.03
21021453	Drummau Road	17/02/2021 08:15	<0.01	0.25	<5.76	5.79	2	<0.01	0.05	<0.03
21021639	Drummau Road	19/02/2021 08:15	<0.01	0.25	<5.54	<5.57	8	<0.01	<0.02	<0.03
21021750	Drummau Road	22/02/2021 09:15	<0.01	0.13	<5.05	<5.06	5	<0.01	<0.02	0.05
21022042	Drummau Road	24/02/2021 10:15	0.02	0.29	<5.17	<5.20	6	<0.01	<0.02	<0.03
21030109	Drummau Road	26/02/2021 09:15	<0.01	0.12	<5.09	<5.10	6	<0.01	<0.02	<0.03
21030164	Drummau Road	01/03/2021 11:15	<0.01	-0.35	<5.20	<5.16	6	<0.01	<0.02	<0.03
21030407	Drummau Road	03/03/2021 12:30	<0.01	0.69	<5.18	5.25	6	<0.01	0.03	<0.03
21030592	Drummau Road	05/03/2021 08:55	<0.01	1.37	<5.11	5.26	2	<0.01	0.04	<0.03
21030797	Drummau Road	08/03/2021 09:15	0.01			<5.43	10	<0.01	<0.02	<0.03
21031032	Drummau Road	10/03/2021 12:15	<0.01	-0.64	<5.50	5.43	6	<0.01	0.05	<0.03
21031111	Drummau Road	12/03/2021 12:15	<0.01	-0.63	<5.16	5.09	4	<0.01	0.04	<0.03
21031343	Drummau Road	15/03/2021 12:30	<0.01	1.14	<5.13	<5.25	2	<0.01	<0.02	<0.03
21031548	Drummau Road	17/03/2021 11:15	<0.01	-0.68	<5.32	5.25	5	<0.01	0.03	<0.03
21031633	Drummau Road	19/03/2021 09:15	<0.01	0.62	<5.14	<5.20	6	<0.01	<0.02	<0.03
21031863	Drummau Road	22/03/2021 09:30	<0.01	-3.69	<12.7	<5.56	10	<0.01	<0.02	<0.03
21032087	Drummau Road	24/03/2021 08:40	<0.01	-1.33	<12.7	<6.00	5	<0.01	<0.02	<0.03
21032166	Drummau Road	26/03/2021 10:45	<0.01	4.02	<12.7	<5.46	4	<0.01	<0.02	<0.03
21040085	Drummau Road	29/03/2021 10:30	<0.01	0.5	<12.7	<5.59	4	<0.01	<0.02	<0.03
21040092	Drammau Road	31/03/2021 08:00	<0.01	2.91	<12.7	5.97	8	<0.01	<0.02	<0.03
21040578	Drummau Road	06/04/2021 12:00	<0.01	3.11	<12.7	<5.59	10	<0.01	<0.02	<0.03
21040659	Drummau Road	08/04/2021 13:00	<0.01	1.28	<12.7	<5.62	4	<0.01	<0.02	<0.03
21040996	Drummau Road	12/04/2021 10:00	0.01	-1.98	<12.7	5.42	8	<0.01	0.03	<0.03
21041203	Drummau Road	16/04/2021 09:00	<0.01	3.17	<12.7	5.9	8	<0.01	0.04	<0.03
21041594	Drummau Road	19/04/2021 12:00	<0.01	-3.21	<12.7	<5.58	12	<0.01	<0.02	<0.03
21041776	Drummau Road	21/04/2021 10:00	<0.01	-1.97	<12.7	<5.80	12	<0.01	<0.02	<0.03

		Analyte	ICP-OES Zinc as Zn (Dissolved)	Ionic Balance	Total Anions	Total Cations	Cold Acidity as CaCO3	Nitrite as N	Ammoniacal Nitrogen as NH4	Orthophosphate as PO4
		Limit of Reporting	0.01mg/l				2mg/l	0.01 mg/l	0.02mg/l	0.03mg/l
Report		Units	mg/l	%	meq	meq	mg/l	mg/l	mg/l	mg/l
Number	Asset Name	Date/Time								
21041780	Drummau Road	23/04/2021 10:00	<0.01	-1.6	<12.7	<5.71	2	<0.01	<0.02	<0.03
21042094	Drummau Road	26/04/2021 12:00	<0.01	1.6	<12.7	<6.03	10	<0.01	<0.02	<0.03
21042099	Drummau Road	28/04/2021 08:00	<0.01	0.81	<12.7	6.03	12	<0.01	<0.02	<0.03
21050197	Drummau Road	01/05/2021 08:00	<0.01	0.46	<12.7	6.41	10	<0.01	0.04	<0.03
21050580	Drummau Road	05/05/2021 08:00	<0.01	-0.58	<12.7	<6.50	6	<0.01	<0.02	<0.03
21050579	Drummau Road	07/05/2021 09:00	<0.01	-1.29	<12.7	<6.50	4	<0.01	<0.02	<0.03
21050825	Drummau Road	08/05/2021 10:00	<0.01	-0.39	<12.7	<5.96	4	<0.01	<0.02	<0.03
21050944	Drummau Road	10/05/2021 13:00	<0.01	-0.5	<12.7	5.42	4	<0.01	0.03	<0.03
21051097	Drummau Road	12/05/2021 09:15	0.01	-0.83	<12.7	<5.84	8	<0.01	<0.02	<0.03
21051201	Drummau Road	14/05/2021 09:30	<0.01	-0.28	<12.7	<5.84	22	<0.01	<0.02	<0.03
21051464	Drummau Road	17/05/2021 12:15	<0.01	-1.11	<12.7	<5.46	4	<0.01	<0.02	<0.03
21051748	Drummau Road	19/05/2021 12:20	<0.01	0.03	<12.7	<4.95	6	<0.01	<0.02	<0.03
21051838	Drummau Road	21/05/2021 12:15	<0.01	0.27	<12.7	<5.10	4	<0.01	<0.02	<0.03
21051950	Drummau Road	24/05/2021 12:15	<0.01	0.26	<12.7	<4.88	14	<0.01	<0.02	<0.03
21060090	Drummau Road	26/05/2021 12:15	<0.01	0.86	4.99	5.08	4	<0.01	<0.02	<0.03
21060087	Drummau Road	28/05/2021 08:15	<0.01	3.39	4.7	5.03	2	<0.01	<0.02	<0.03
21060189	Drummau Road	01/06/2021 12:15	<0.01	-2.28	5.14	4.91	4	<0.01	<0.02	<0.03
21060566	Drummau Road	03/06/2021 10:15	<0.01	-0.2	5.06	5.04	8	<0.01	0.05	<0.03
21060767	Drummau Road	07/06/2021 09:15	<0.01	-1.02	5.44	5.33	6	<0.01	<0.02	<0.03
21060982	Drummau Road	09/06/2021 08:10	<0.01	-1.24	5.41	5.27	2	<0.01	<0.02	<0.03
21061109	Drummau Road	11/06/2021 12:15	<0.01	2.32	5.14	5.38	12	<0.01	<0.02	<0.03
21061306	Drummau Road	14/06/2021 08:30	<0.01	0.65	5.59	5.67	10	<0.01	<0.02	<0.03
21061633	Drummau Road Chamber	16/06/2021 08:30	0.03	-0.32	5.32	5.28	14	<0.01	<0.02	<0.03
21061627	Drummau Road Chamber	18/06/2021 09:15	0.02	1.16	5.36	5.48	10	<0.01	<0.02	<0.03
21061766	Drummau Road Chamber	21/06/2021 10:15	<0.01	-0.67	5.59	5.51	12	<0.01	<0.02	<0.03
21062018	Drummau Road Chamber	23/06/2021 08:10	<0.01	-0.55	5.55	5.49	6	<0.01	<0.02	<0.03
21062101	Drummau Road Chamber	25/06/2021 09:15	0.02	-0.36	6.09	6.05	6	0.02	<0.02	<0.03
21070002	Drummau Road Chamber	28/06/2021 08:30	0.02	0.64	5.59	5.67	16	<0.01	<0.02	<0.03
21070186	Drummau Road Chamber	30/06/2021 10:15	<0.01	-0.3	5.55	5.52	8	<0.01	<0.02	0.04
21070303	Drummau Road Chamber	02/07/2021 09:15	0.01	-0.3	5.91	5.88	8	<0.01	<0.02	<0.03
21070502	Drummau Road Chamber	05/07/2021 12:00	<0.01	-1.2	6.02	5.87	14	<0.01	<0.02	<0.03
21071070	Drummau Road Chamber	12/07/2021 12:00	0.02	-5.05	6.12	5.53	14	<0.01	<0.02	<0.03
21071745	Drummau Road Chamber	19/07/2021 10:00	0.03	-0.88	6.07	5.97	4	<0.01	<0.02	<0.03
21072096	Drummau Road Chamber	26/07/2021 10:00	0.02	-0.42	6.11	6.06	2	<0.01	<0.02	<0.03
21080281	Drummau Road Chamber	02/08/2021 12:20	0.02	0.79	6.47	6.58	4	<0.01	<0.02	<0.03
21080794	Drummau Road Chamber	09/08/2021 10:45	0.02	-0.4	6	5.95	6	<0.01	<0.02	<0.03
21081278	Drummau Road Chamber	16/08/2021 10:30	0.03	-1.46	6.02	5.85	10	<0.01	<0.02	<0.03
21081714	Drummau Road Chamber	23/08/2021 12:20	0.02	-0.96	6.28	6.16	8	<0.01	<0.02	<0.03
21090078	Drummau Road Chamber	31/08/2021 12:00	0.03	-1.23	6.48	6.33	2	<0.01	<0.02	<0.03
21090562	Drummau Road Chamber	06/09/2021 11:15	0.02	-1.01	6.85	6.71	8	<0.01	<0.02	<0.03
21090986	Drummau Road Chamber	13/09/2021 10:00	0.02	-0.56	6.94	6.86	8	<0.01	<0.02	<0.03
21091109	Drummau Road Chamber	14/09/2021 07:30	<0.01	-1.35	6.76	6.58	4	<0.01	<0.02	<0.03
21091334	Drummau Road Chamber	15/09/2021 10:00								

		Analyte	ICP-OES Zinc as Zn (Dissolved)	Ionic Balance	Total Anions	Total Cations	Cold Acidity as CaCO3	Nitrite as N	Ammoniacal Nitrogen as NH4	Orthophosphate as PO4
		Limit of Reporting	0.01mg/l				2mg/l	0.01 mg/l	0.02mg/l	0.03mg/l
Report		Units	mg/l	%	meq	meq	mg/l	mg/l	mg/l	mg/l
Number	Asset Name	Date/Time								
21091407	Drummau Road Chamber	17/09/2021 11:30								
21091406	Drummau Road Chamber	18/09/2021 11:00								
21091412	Drummau Road Chamber	19/09/2021 12:00								
21091829	Drummau Road Chamber	22/09/2021 07:30								
21091832	Drummau Road Chamber	23/09/2021 12:00								
21091831	Drummau Road Chamber	24/09/2021 07:30								
21091972	Drummau Road Chamber	25/09/2021 07:30								
21091973	Drummau Road Chamber	26/09/2021 07:30								
21091947	Drummau Road Chamber	27/09/2021 07:30	<0.01	-3.07	7.27	6.84	2	<0.01	0.03	<0.03
21092084	Drummau Road Chamber	28/09/2021 07:30								
21092085	Drummau Road Chamber	29/09/2021 07:30								
21100099	Drummau Road Chamber	01/10/2021 09:30								
21100259	Drummau Road Chamber	02/10/2021 12:00								
21100263	Drummau Road Chamber	03/10/2021 11:30								
21100414	Drummau Road Chamber	04/10/2021 09:30	<0.01	-1.62	5.98	5.79	0	<0.01	<0.02	<0.03
21100415	Drummau Road Chamber	05/10/2021 07:00								
21100651	Drummau Road Chamber	06/10/2021 08:00								
21100660	Drummau Road Chamber	07/10/2021 07:10								
21100786	Drummau Road Chamber	08/10/2021 07:00								
21100782	Drummau Road Chamber	09/10/2021 13:00								
21100788	Drummau Road Chamber	10/10/2021 13:00								
21100951	Drummau Road Chamber	11/10/2021 07:00	<0.01	-1.72	5.62	5.43	6	<0.01	<0.02	<0.03
21100948	Drummau Road Chamber	12/10/2021 11:00								
21100956	Drummau Road Chamber	13/10/2021 08:45								
21101116	Drummau Road Chamber	14/10/2021 12:15								
21101117	Drummau Road Chamber	15/10/2021 09:15								
21101308	Drummau Road Chamber	16/10/2021 09:15								
21101294	Drummau Road Chamber	17/10/2021 09:15								
21101303	Drummau Road Chamber	18/10/2021 08:40	<0.01	-1.51	5.77	5.59	4	<0.01	<0.02	<0.03
21101457	Drummau Road Chamber	19/10/2021 12:00								
21101459	Drummau Road Chamber	20/10/2021 08:30								
21101672	Drummau Road Chamber	21/10/2021 08:00								
21101673	Drummau Road Chamber	22/10/2021 07:30								
21101794	Drummau Road Chamber	23/10/2021 13:00								
21101795	Drummau Road Chamber	24/10/2021 11:00								
21101807	Drummau Road Chamber	25/10/2021 08:00	0.01	-0.67	4.98	4.92	2	<0.01	<0.02	0.05
21050825	Drummau Road Pipe	08/05/2021 10:15	<0.01	-6	<12.7	<5.91	2	<0.01	<0.02	<0.03
21051097	Drummau Road Pipe	12/05/2021 09:40	<0.01	0.18	<12.7	<5.84	6	<0.01	<0.02	<0.03
21051838	Drummau Road Pipe	21/05/2021 12:30	<0.01	0.46	<12.7	<5.10	4	<0.01	<0.02	<0.03
21060090	Drummau Road Pipe	26/05/2021 12:30	0.01	3.41	4.77	5.1	4	<0.01	<0.02	<0.03
21060189	Drummau Road Pipe	01/06/2021 12:30	0.01	-1.48	5.19	5.04	4	<0.01	<0.02	<0.03
21060566	Drummau Road Pipe	03/06/2021 10:30	<0.01	-0.68	5.11	5.04	12	<0.01	0.03	<0.03
21060982	Drummau Road Pipe	09/06/2021 08:20	<0.01	-1.15	5.4	5.28	4	<0.01	<0.02	<0.03

		Analyte	ICP-OES Zinc as Zn (Dissolved)	Ionic Balance	Total Anions	Total Cations	Cold Acidity as CaCO3	Nitrite as N	Ammoniacal Nitrogen as NH4	Orthophosphate as PO4
		Limit of Reporting	0.01mg/l				2mg/l	0.01 mg/l	0.02mg/l	0.03mg/l
Report		Units	mg/l	%	meq	meq	mg/l	mg/l	mg/l	mg/l
Number	Asset Name	Date/Time								
21061633	Drummau Road Pipe	16/06/2021 08:45	0.04	-0.25	5.31	5.28	14	<0.01	<0.02	<0.03
21062018	Drummau Road Pipe	23/06/2021 08:10	<0.01	-1.02	5.66	5.54	4	<0.01	<0.02	<0.03
21070186	Drummau Road Pipe	30/06/2021 10:30	<0.01	-0.52	5.76	5.7	4	<0.01	<0.02	0.04
21011511	Goshen Park Discharge	22/01/2021 12:00	0.01	-6.93	<7.78	<6.77	12	<0.01	<0.02	<0.03
21011511	Goshen Park Discharge	22/01/2021 15:00	0.02	-0.93	<7.11	<6.98	4	<0.01	<0.02	<0.03
21011511	Goshen Park Discharge	22/01/2021 18:00	0.01	-1.1	<7.22	<7.06	16	<0.01	<0.02	<0.03
21011512	Goshen Park Discharge	23/01/2021 08:30	0.01	-1.5	<7.52	<7.29	12	<0.01	<0.02	<0.03
21011512	Goshen Park Discharge	23/01/2021 12:30	0.01	-0.69	<7.52	<7.42	24	<0.01	<0.02	<0.03
21011660	Goshen Park Discharge	26/01/2021 08:30	0.01	-0.42	<8.61	8.54	16	<0.01	0.08	<0.03
21011660	Goshen Park Discharge	26/01/2021 14:00	0.01	-0.18	<8.48	8.45	NIL	<0.01	0.09	<0.03
21011873	Goshen Park Discharge	27/01/2021 09:45	0.01	-0.29	<8.63	8.58	12	<0.01	0.15	<0.03
21011873	Goshen Park Discharge	27/01/2021 14:15	0.02	0.89	<8.43	8.58	12	<0.01	0.28	<0.03
21011872	Goshen Park Discharge	28/01/2021 09:00	0.1	0.09	<8.55	8.56	10	<0.01	0.12	<0.03
21011872	Goshen Park Discharge	28/01/2021 13:00	0.02	0.2	<8.53	8.56	10	<0.01	0.15	<0.03
21020064	Goshen Park Discharge	29/01/2021 08:00	0.01	0.12	<8.44	8.46	22	<0.01	0.09	<0.03
21020064	Goshen Park Discharge	29/01/2021 13:45	0.01	-2.78	<8.94	8.46	12	<0.01	0.13	<0.03
21020188	Goshen Park Discharge	01/02/2021 13:15	<0.01	-0.11	<6.60	6.59	4	<0.01	0.08	<0.03
21020309	Goshen Park Discharge	02/02/2021 11:00	<0.01	-0.49	<12.7	6.89	16	<0.01	0.08	<0.03
21020485	Goshen Park Discharge	03/02/2021 11:00	0.01	-0.23	<7.23	7.2	32	<0.01	0.08	<0.03
21020551	Goshen Park Discharge	04/02/2021 09:20	0.02	0.13	<6.74	6.76	26	<0.01	0.09	<0.03
21020632	Goshen Park Discharge	05/02/2021 11:00	0.01	-0.07	<6.50	6.49	20	<0.01	0.09	<0.03
21020706	Goshen Park Discharge	08/02/2021 12:00	<0.01	-1.06	<6.10	5.97	28	<0.01	0.06	<0.03
21020862	Goshen Park Discharge	09/02/2021 10:00	<0.01	-0.37	<6.01	5.97	2	<0.01	0.06	<0.03
21020972	Goshen Park Discharge	10/02/2021 10:00	<0.01	0.37	<5.89	5.93	10	<0.01	0.13	<0.03
21021005	Goshen Park Discharge	11/02/2021 09:00	<0.01	0.3	<6.11	6.14	6	<0.01	0.1	<0.03
21021117	Goshen Park Discharge	12/02/2021 11:00	<0.01	1.15	<6.31	6.46	5	<0.01	0.14	<0.01
21021229	Goshen Park Discharge	15/02/2021 11:00	0.01	0.95	<6.57	6.7	4	<0.01	0.08	<0.03
21021453	Goshen Park Discharge	17/02/2021 08:00	<0.01	-0.55	<6.26	6.19	5	<0.01	0.14	<0.03
21021639	Goshen Park Discharge	19/02/2021 08:00	<0.01	-1.32	<5.51	5.36	12	<0.01	0.05	<0.03
21021750	Goshen Park Discharge	22/02/2021 09:00	<0.01	0.36	<4.61	4.64	4	<0.01	0.03	0.04
21022042	Goshen Park Discharge	24/02/2021 10:30	<0.01	-1.15	<4.88	<4.77	6	<0.01	<0.02	<0.03
21030109	Goshen Park Discharge	26/02/2021 09:00	<0.01	-0.55	<4.77	4.72	5	<0.01	0.04	<0.03
21030164	Goshen Park Discharge	01/03/2021 11:00	0.02	0.55	<4.90	4.96	4	<0.01	0.04	<0.03
21030407	Goshen Park Discharge	03/03/2021 12:00	<0.01	0.3	<5.40	<5.44	5	<0.01	<0.02	<0.03
21030592	Goshen Park Discharge	05/03/2021 08:45	<0.01	1.44	<5.47	5.63	4	<0.01	0.08	<0.03
21030797	Goshen Park Discharge	08/03/2021 09:00	0.01	0.83	<5.96	6.06	11	<0.01	0.04	<0.03
21031032	Goshen Park Discharge	10/03/2021 12:00	0.01	-1.68	<6.28	6.07	11	<0.01	0.05	<0.03
21031111	Goshen Park Discharge	12/03/2021 12:00	0.01	-0.88	<5.82	5.72	5	<0.01	0.1	<0.03
21031343	Goshen Park Discharge	15/03/2021 12:00	<0.01	1.02	<5.01	5.11	4	<0.01	0.04	<0.03
21031548	Goshen Park Discharge	17/03/2021 11:00	<0.01	0.31	<5.16	5.2	8	<0.01	0.04	<0.03
21031633	Goshen Park Discharge	19/03/2021 09:00	<0.01	1.57	<5.14	5.3	6	<0.01	0.04	<0.03
21031863	Goshen Park Discharge	22/03/2021 09:00	<0.01	-2.82	<12.7	5.49	8	<0.01	0.04	<0.03
21032087	Goshen Park Discharge	24/03/2021 08:00	<0.01		<12.7	11.8	5	<0.01	0.06	<0.03

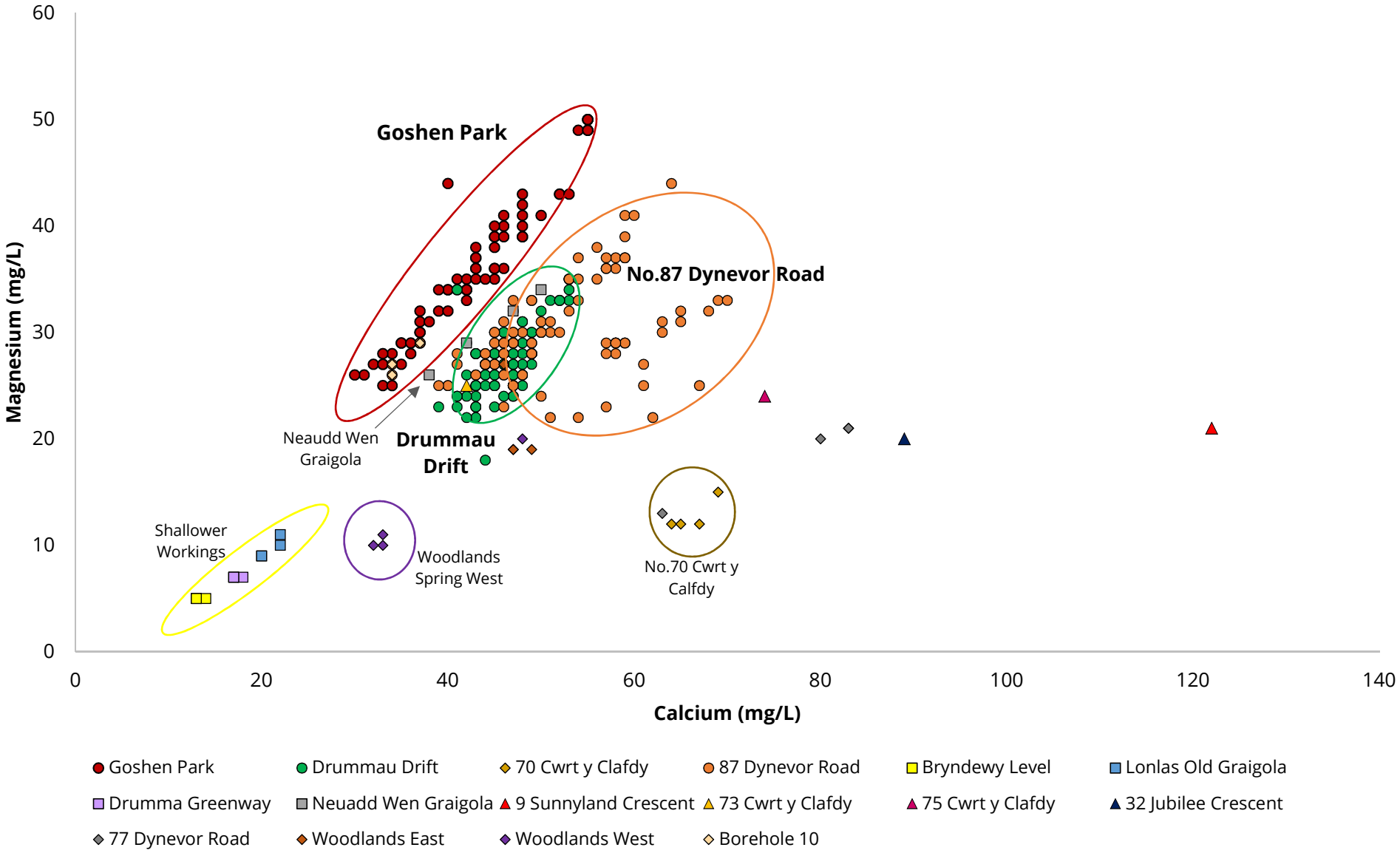
		Analyte	ICP-OES Zinc as Zn (Dissolved)	Ionic Balance	Total Anions	Total Cations	Cold Acidity as CaCO3	Nitrite as N	Ammoniacal Nitrogen as NH4	Orthophosphate as PO4
		Limit of Reporting	0.01mg/l				2mg/l	0.01 mg/l	0.02mg/l	0.03mg/l
Report		Units	mg/l	%	meq	meq	mg/l	mg/l	mg/l	mg/l
Number	Asset Name	Date/Time								
21032166	Goshen Park Discharge	26/03/2021 10:30	<0.01	-0.89	<12.7	6.01	4	<0.01	0.04	<0.03
21050944	Goshen Park Discharge	10/05/2021 12:50	0.02	-1.43	<12.7	6.37	14	<0.01	0.03	<0.03
21051097	Goshen Park Discharge	12/05/2021 09:00	0.01	-0.12	<12.7	6.72	6	<0.01	<0.02	<0.03
21051201	Goshen Park Discharge	14/05/2021 09:00	0.01	-0.07	<12.7	<6.20	10	<0.01	<0.02	<0.03
21051464	Goshen Park Discharge	17/05/2021 12:00	0.01	1.07	<12.7	<5.43	6	<0.01	<0.02	<0.03
21051748	Goshen Park Discharge	19/05/2021 12:00	<0.01	-1.69	<12.7	4.7	8	<0.01	0.03	<0.03
21051838	Goshen Park Discharge	21/05/2021 12:00	<0.01	2.15	<12.7	<4.83	2	<0.01	<0.02	<0.03
21051950	Goshen Park Discharge	24/05/2021 12:00	0.02	-2.82	<12.7	<4.47	10	<0.01	<0.02	<0.03
21060090	Goshen Park Discharge	26/05/2021 12:00	<0.01	5.01	4.1	4.53	6	<0.01	<0.02	<0.03
21060087	Goshen Park Discharge	28/05/2021 08:00	<0.01	1.2	4.47	4.58	4	<0.01	<0.02	<0.03
21060189	Goshen Park Discharge	01/06/2021 12:00	0.02	-3.69	5.42	5.03	4	<0.01	0.05	<0.03
21060566	Goshen Park Discharge	03/06/2021 10:00	0.01	-0.52	5.26	5.21	12	<0.01	0.04	<0.03
21060767	Goshen Park Discharge	07/06/2021 09:00	0.01	-1.67	6.13	5.93	6	<0.01	0.04	<0.03
21060982	Goshen Park Discharge	09/06/2021 08:00	0.01	-1.37	6.23	6.06	10	<0.01	0.03	<0.03
21061109	Goshen Park Discharge	11/06/2021 12:30	0.02	0.99	6.13	6.25	12	<0.01	0.04	<0.03
21061306	Goshen Park Discharge	14/06/2021 08:00	0.02	-0.51	6.53	6.46	12	<0.01	0.03	<0.03
21061633	Goshen Park Discharge	16/06/2021 08:00	0.05	1.17	6.09	6.23	14	<0.01	0.04	<0.03
21061627	Goshen Park Discharge	18/06/2021 09:00	0.04	0.14	6.26	6.28	10	<0.01	0.04	<0.03
21061766	Goshen Park Discharge	21/06/2021 10:00	0.02	-1.1	6.45	6.31	18	<0.01	0.03	<0.03
21062018	Goshen Park Discharge	23/06/2021 08:00	0.02	-0.96	6.54	6.42	8	<0.01	0.03	<0.03
21062101	Goshen Park Discharge	25/06/2021 09:00	0.03	0.3	6.89	6.93	4	<0.01	0.03	<0.03
21070002	Goshen Park Discharge	28/06/2021 08:00	0.04	-0.13	6.9	6.88	6	<0.01	0.03	<0.03
21070186	Goshen Park Discharge	30/06/2021 10:00	0.02	-0.45	7.07	7.01	6	<0.01	0.04	<0.03
21070303	Goshen Park Discharge	02/07/2021 09:00	0.02	-1.83	7.51	7.24	4	<0.01	0.04	<0.03
21071745	Goshen Park Discharge	19/07/2021 10:30	0.04	-2.9	8.01	7.56	4	<0.01	<0.02	<0.03
21081278	Goshen Park Discharge	16/08/2021 11:00	0.03	-0.61	7.79	7.69	6	<0.01	0.04	<0.03
21081714	Goshen Park Discharge	23/08/2021 12:40	0.02	1.46	7.44	7.66	4	<0.01	0.05	<0.03
21100415	Goshen Park Discharge	05/10/2021 07:10								
21100651	Goshen Park Discharge	06/10/2021 08:10								
21100660	Goshen Park Discharge	07/10/2021 07:00								
21100786	Goshen Park Discharge	08/10/2021 07:10								
21100782	Goshen Park Discharge	09/10/2021 13:10								
21100788	Goshen Park Discharge	10/10/2021 13:10								
21100951	Goshen Park Discharge	11/10/2021 07:20	<0.01	-1.6	5.26	5.09	2	<0.01	<0.02	<0.03
21100948	Goshen Park Discharge	12/10/2021 11:15								
21101116	Goshen Park Discharge	14/10/2021 12:00								
21101117	Goshen Park Discharge	15/10/2021 09:00								
21101294	Goshen Park Discharge	17/10/2021 09:00								
21101303	Goshen Park Discharge	18/10/2021 07:30	0.01	-0.71	6.06	5.98	4	<0.01	<0.02	<0.03
21101459	Goshen Park Discharge	20/10/2021 08:45								
21101672	Goshen Park Discharge	21/10/2021 08:15								
21101673	Goshen Park Discharge	22/10/2021 07:40								
21101794	Goshen Park Discharge	23/10/2021 13:10								

		Analyte	ICP-OES Zinc as Zn (Dissolved)	Ionic Balance	Total Anions	Total Cations	Cold Acidity as CaCO3	Nitrite as N	Ammoniacal Nitrogen as NH4	Orthophosphate as PO4
		Limit of Reporting	0.01mg/l				2mg/l	0.01 mg/l	0.02mg/l	0.03mg/l
Report		Units	mg/l	%	meq	meq	mg/l	mg/l	mg/l	mg/l
Number	Asset Name	Date/Time								
21101795	Goshen Park Discharge	24/10/2021 11:10								
21101807	Goshen Park Discharge	25/10/2021 08:20	<0.01	-0.37	4.87	4.84	2	<0.01	<0.02	0.05
21011660	70 Cwrt Y Clafdy	26/01/2021 13:45	<0.01	-0.06	<5.26	<5.25	6	<0.01	<0.02	<0.03
21011873	70 Cwrt y Clafdy	27/01/2021 10:15	0.02	0.97	<5.21	5.32	9	<0.01	0.09	<0.03
21011873	70 Cwrt y Clafdy	27/01/2021 14:30	0.02	1	<5.13	5.23	8	<0.01	0.31	0.07
21011872	70 Cwrt Y Clafdy	28/01/2021 09:40	<0.01	-0.85	<5.85	<5.75	12	<0.01	0.09	0.03
21030164	73 Cwrt y Clafdy	01/03/2021 11:45	0.02	-0.88	<5.19	<5.10	4	<0.01	<0.02	<0.03
21030164	75 Cwrt y Clafdy	01/03/2021 12:00	0.11	1.81	<6.47	<6.71	4	<0.01	<0.02	<0.03
21031032	77 Dynevor Road	10/03/2021 12:45	0.03	1.12	<4.98	<5.09	3	<0.01	<0.02	0.12
21031343	77 Dynevor Road	15/03/2021 12:45	0.04	3.26	<6.19	<6.61	2	<0.01	<0.02	0.03
21031548	77 Dynevor Road	17/03/2021 11:45	0.04	0.66	<6.75	<6.84	2	<0.01	<0.02	0.09
21031633	77 Dynevor Road	19/03/2021 09:45	0.04	2.07	<6.59	<6.87	2	<0.01	<0.02	0.03
21020064	87 Dynevor Road	29/01/2021 08:30	0.05	-0.67	<7.57	7.47	9	<0.01	<0.02	<0.03
21020064	87 Dynevor Road	29/01/2021 14:15	0.04	0.06	<7.51	<7.52	7	<0.01	<0.02	<0.03
21020188	87 Dynevor Road	01/02/2021 13:30	0.04	-1.9	<7.55	<7.27	6	<0.01	<0.02	<0.03
21020309	87 Dynevor Road	02/02/2021 11:20	0.04	-0.04	<12.7	<7.12	12	<0.01	<0.02	<0.03
21020485	87 Dynevor Road	03/02/2021 11:30	0.04	-0.51	<7.11	<7.04	28	<0.01	<0.02	<0.03
21020551	87 Dynevor Road	04/02/2021 09:40	0.03	0.1	<6.80	<6.81	4	<0.01	0.03	<0.03
21020632	87 Dynevor Road	05/02/2021 11:30	0.04	-0.2	<6.96	<6.93	20	<0.01	<0.02	<0.03
21020706	87 Dynevor Road	08/02/2021 12:30	0.03	-1.12	<6.51	<6.37	40	<0.01	<0.02	<0.03
21020862	87 Dynevor Road	09/02/2021 10:30	0.03	0.49	<6.46	<6.53	8	<0.01	<0.02	<0.03
21020972	87 Dynevor Road	10/02/2021 10:30	0.03	-0.08	<6.45	<6.44	10	<0.01	0.05	<0.03
21021005	87 Dynevor Road	11/02/2021 09:40	0.03	0.46	<6.33	<6.39	5	<0.01	0.06	<0.03
21021117	87 Dynevor Road	12/02/2021 11:20	0.03	0.23	<6.29	<6.31	2	<0.01	0.26	<0.01
21021229	87 Dynevor Road	15/02/2021 11:30	0.03	1.17	<6.28	<6.43	8	<0.01	<0.02	<0.03
21021453	87 Dynevor Road	17/02/2021 08:30	0.02	-0.03	<6.45	<6.44	2	<0.01	0.05	<0.03
21021639	87 Dynevor Road	19/02/2021 08:30	0.03	-0.21	<6.42	<6.39	10	<0.01	<0.02	<0.03
21021750	87 Dynevor Road	22/02/2021 09:30	0.02	-0.12	<5.50	<5.48	2	<0.01	<0.02	0.05
21022042	87 Dynevor Road	24/02/2021 10:00	0.02	-1.66	<5.33	<5.16	3	<0.01	<0.02	<0.03
21030109	87 Dynevor Road	26/02/2021 09:30	0.03	-0.13	<5.34	<5.32	4	<0.01	<0.02	<0.03
21030164	87 Dynevor Road	01/03/2021 11:30	0.02	1.57	<5.65	<5.83	2	<0.01	0.03	<0.03
21030407	87 Dynevor Road	03/03/2021 12:15	0.02	0.84	<5.34	<5.43	4	<0.01	<0.02	<0.03
21030592	87 Dynevor Road	05/03/2021 09:10	0.02	2.06	<5.46	<5.69	4	<0.01	0.03	<0.03
21030797	87 Dynevor Road (Chamber 1)	08/03/2021 09:30	0.03	1.05	<6.26	<6.40	7	<0.01	<0.02	<0.03
21031032	87 Dynevor Road (Chamber 1)	10/03/2021 12:30	0.02	0.14	<5.51	<5.53	4	<0.01	<0.02	<0.03
21031111	87 Dynevor Road (Chamber 1)	12/03/2021 12:30	0.03	-1.15	<5.50	<5.37	3	<0.01	0.03	<0.03
21031343	87 Dynevor Road (Chamber 1)	15/03/2021 12:15	0.02	1.34	<6.16	<6.33	2	<0.01	<0.02	<0.03
21031548	87 Dynevor Road (Chamber 1)	17/03/2021 11:30	0.02	-0.07	<6.11	<6.10	5	<0.01	<0.02	<0.03
21031633	87 Dynevor Road (Chamber 1)	19/03/2021 09:30	0.02	0.48	<5.38	<5.43	10	<0.01	<0.02	<0.03
21031863	87 Dynevor Road (Chamber 1)	22/03/2021 10:00	0.02	-3.53	<12.7	<5.35	8	<0.01	<0.02	<0.03
21032087	87 Dynevor Road (Chamber 1)	24/03/2021 08:20	<0.01	2.34	<12.7	<5.53	10	<0.01	<0.02	<0.03
21032166	87 Dynevor Road (Chamber 1)	26/03/2021 11:00	0.03	0.43	<12.7	<5.79	2	<0.01	<0.02	<0.03
21040085	87 Dynevor Road (Chamber 1)	29/03/2021 10:45	0.03	-1.64	<12.7	<5.74	8	<0.01	<0.02	<0.03

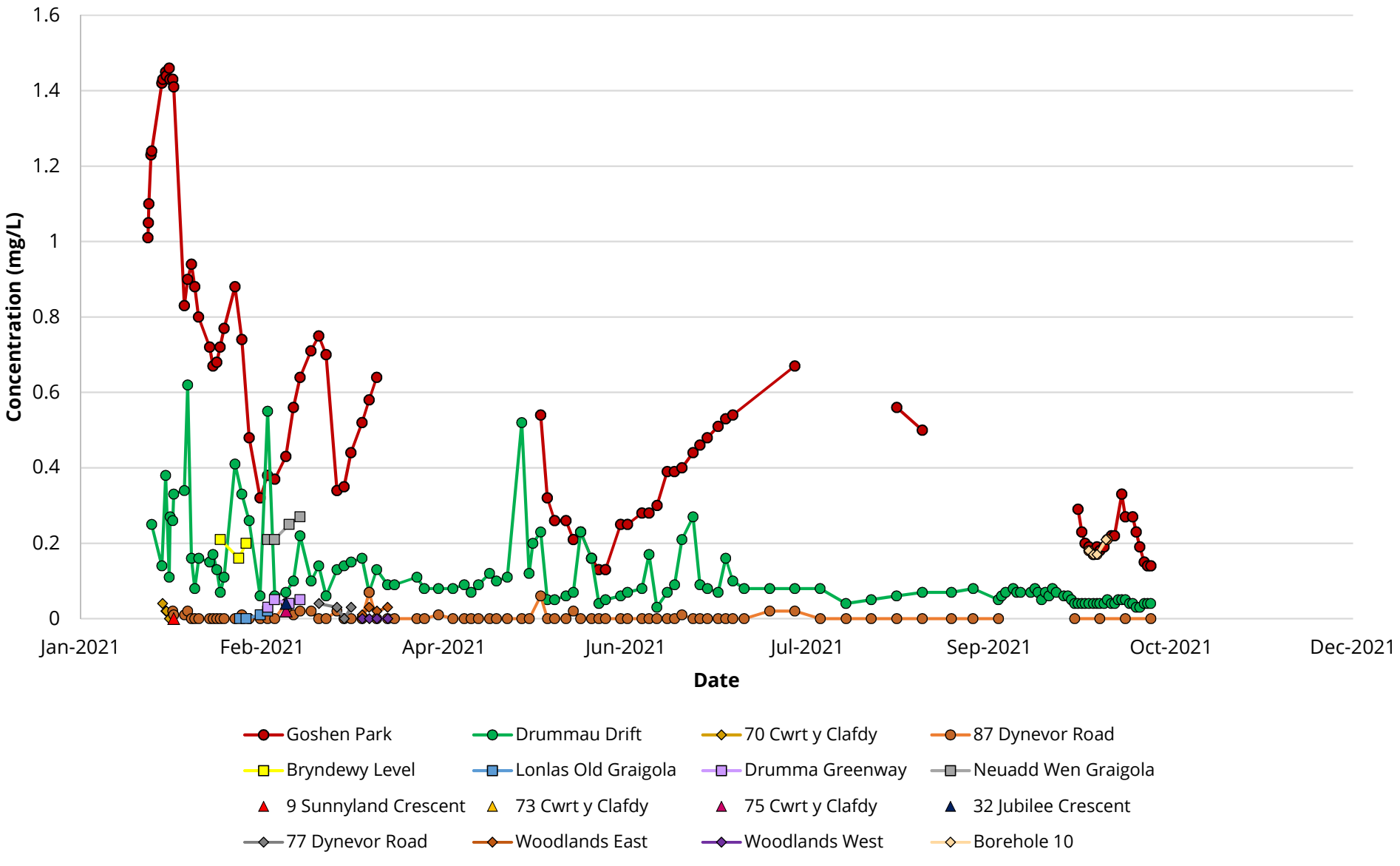
		Analyte	ICP-OES Zinc as Zn (Dissolved)	Ionic Balance	Total Anions	Total Cations	Cold Acidity as CaCO3	Nitrite as N	Ammoniacal Nitrogen as NH4	Orthophosphate as PO4
		Limit of Reporting	0.01mg/l				2mg/l	0.01 mg/l	0.02mg/l	0.03mg/l
Report		Units	mg/l	%	meq	meq	mg/l	mg/l	mg/l	mg/l
Number	Asset Name	Date/Time								
21040092	87 Dynevor Road (Chamber 1)	31/03/2021 08:20	0.02	0.74	<12.7	<5.90	11	<0.01	<0.02	<0.03
21040578	87 Dynevor Road (Chamber 1)	06/04/2021 12:20	0.02	2	<12.7	<6.11	10	<0.01	0.51	0.12
21040659	87 Dynevor Road (Chamber 1)	08/04/2021 13:15	0.02	1.23	<12.7	<6.03	4	<0.01	0.03	<0.03
21040996	87 Dynevor Road (Chamber 1)	12/04/2021 10:15	0.02	-1.7	<12.7	<5.87	6	<0.01	<0.02	<0.03
21041203	87 Dynevor Road (Chamber 1)	16/04/2021 09:10	0.02	5.23	<12.7	<6.17	6	<0.01	0.03	<0.03
21041594	87 Dynevor Road (Chamber 1)	19/04/2021 12:20	0.02	-1.93	<12.7	<6.07	8	<0.01	<0.02	<0.03
21041776	87 Dynevor Road (Chamber 1)	21/04/2021 10:15	0.02	-0.93	<12.7	<5.98	4	<0.01	<0.02	<0.03
21041780	87 Dynevor Road (Chamber 1)	23/04/2021 10:30	0.02	-1.55	<12.7	<6.16	4	<0.01	<0.02	<0.03
21042094	87 Dynevor Road (Chamber 1)	26/04/2021 12:00	0.02	-0.02	<12.7	<6.39	4	<0.01	<0.02	<0.03
21042099	87 Dynevor Road (Chamber 1)	28/04/2021 08:20	0.02	0.04	<12.7	<6.52	6	<0.01	<0.02	<0.03
21050197	87 Dynevor Road (Chamber 1)	01/05/2021 08:20	0.02	-0.37	<12.7	<6.81	12	<0.01	<0.02	<0.03
21050580	87 Dynevor Road (Chamber 1)	05/05/2021 08:20	0.03	-0.81	<12.7	<7.24	2.9	<0.01	<0.02	<0.03
21050579	87 Dynevor Road (Chamber 1)	07/05/2021 09:15	0.02	-1.14	<12.7	<6.99	4	<0.01	<0.02	<0.03
21050944	87 Dynevor Road (Chamber 1)	10/05/2021 13:15	0.02	-1.16	<12.7	<7.01	2	<0.01	0.09	<0.03
21051097	87 Dynevor Road (Chamber 1)	12/05/2021 09:45	0.02	-1.16	<12.7	<7.12	10	<0.01	<0.02	<0.03
21051201	87 Dynevor Road (Chamber 1)	14/05/2021 09:15	0.03	-0.23	<12.7	<7.17	18	<0.01	<0.02	<0.03
21051464	87 Dynevor Road (Chamber 1)	17/05/2021 12:30	0.02	-0.32	<12.7	<6.27	2	<0.01	<0.02	<0.03
21051748	87 Dynevor Road (Chamber 1)	19/05/2021 12:40	0.02	-0.77	<12.7	<5.63	6	<0.01	<0.02	<0.03
21051838	87 Dynevor Road (Chamber 1)	21/05/2021 12:45	0.02	0.94	<12.7	<5.55	4	<0.01	<0.02	<0.03
21051950	87 Dynevor Road (Chamber 1)	24/05/2021 12:30	0.04	0.42	<12.7	<5.41	10	<0.01	<0.02	0.21
21060090	87 Dynevor Road (Chamber 1)	26/05/2021 12:45	0.02	2.43	5.15	5.41	6	<0.01	<0.02	<0.03
21060087	87 Dynevor Road (Chamber 1)	28/05/2021 08:30	0.02	2.19	5.25	5.48	2	<0.01	<0.02	<0.03
21060189	87 Dynevor Road (Chamber 1)	01/06/2021 12:45	0.02	-1.26	5.13	5	2	<0.01	<0.02	<0.03
21060566	87 Dynevor Road (Chamber 1)	03/06/2021 10:45	0.02	-0.94	5.09	4.99	8	<0.01	<0.02	<0.03
21060767	87 Dynevor Road (Chamber 1)	07/06/2021 09:30	0.02	-0.19	5.25	5.23	4	<0.01	<0.02	<0.03
21060982	87 Dynevor Road (Chamber 1)	09/06/2021 08:30	0.02	-0.91	5.35	5.26	4	<0.01	<0.02	<0.03
21061109	87 Dynevor Road (Chamber 1)	11/06/2021 12:00	0.02	1.72	5.23	5.41	2	<0.01	<0.02	<0.03
21061306	87 Dynevor Road (Chamber 1)	14/06/2021 08:15	0.02	0.63	5.68	5.75	10	<0.01	<0.02	<0.03
21061633	87 Dynevor Road (Chamber 1)	16/06/2021 08:15	0.04	1.04	5.4	5.52	6	<0.01	<0.02	<0.03
21061627	87 Dynevor Road (Chamber 1)	18/06/2021 09:30	0.04	0.87	5.64	5.74	8	<0.01	<0.02	<0.03
21061766	87 Dynevor Road (Chamber 1)	21/06/2021 10:30	0.02	-0.59	5.84	5.77	12	<0.01	<0.02	<0.03
21062018	87 Dynevor Road (Chamber 1)	23/06/2021 08:05	0.02	-1.91	6	5.77	6	<0.01	<0.02	<0.03
21062101	87 Dynevor Road (Chamber 1)	25/06/2021 09:30	<0.01	1.41	5.55	5.71	4	<0.01	<0.02	<0.03
21070002	87 Dynevor Road (Chamber 1)	28/06/2021 08:15	0.03	0.25	5.89	5.92	10	<0.01	<0.02	<0.03
21070186	87 Dynevor Road (Chamber 1)	30/06/2021 10:45	0.02	-0.41	5.95	5.91	10	<0.01	<0.02	0.05
21070303	87 Dynevor Road (Chamber 1)	02/07/2021 09:30	0.02	0.48	6.02	6.08	6	<0.01	<0.02	<0.03
21070502	87 Dynevor Road (Chamber 1)	05/07/2021 11:30	0.02	-1.44	6.45	6.27	8	<0.01	<0.02	<0.03
21071070	87 Dynevor Road (Chamber 1)	12/07/2021 12:20	0.04	-1.77	6.43	6.21	12	<0.01	<0.02	<0.03
21071745	87 Dynevor Road (Chamber 1)	19/07/2021 10:15	0.04	-1.09	6.85	6.7	2	<0.01	<0.02	<0.03
21072096	87 Dynevor Road (Chamber 1)	26/07/2021 10:15	0.04	-0.76	6.78	6.67	2	<0.01	<0.02	<0.03
21080281	87 Dynevor Road (Chamber 1)	02/08/2021 12:40	0.05	0.21	7.15	7.18	2	<0.01	<0.02	<0.03
21080794	87 Dynevor Road (Chamber 1)	09/08/2021 10:30	0.04	0.84	6.88	7	4	<0.01	<0.02	<0.03
21081278	87 Dynevor Road (Chamber 1)	16/08/2021 10:45	0.05	-0.32	6.92	6.88	10	<0.01	<0.02	<0.03

		Analyte	ICP-OES Zinc as Zn (Dissolved)	Ionic Balance	Total Anions	Total Cations	Cold Acidity as CaCO3	Nitrite as N	Ammoniacal Nitrogen as NH4	Orthophosphate as PO4
		Limit of Reporting	0.01mg/l				2mg/l	0.01 mg/l	0.02mg/l	0.03mg/l
Report		Units	mg/l	%	meq	meq	mg/l	mg/l	mg/l	mg/l
Number	Asset Name	Date/Time								
21081714	87 Dynevor Road (Chamber 1)	23/08/2021 12:00	0.04	-1.46	7.28	7.07	6	<0.01	0.03	<0.03
21090078	87 Dynevor Road (Chamber 1)	31/08/2021 12:20	0.04	-2.5	7.6	7.23	18	<0.01	<0.02	<0.03
21090562	87 Dynevor Road (Chamber 1)	06/09/2021 11:00	0.04	-1.12	7.87	7.69	6	<0.01	<0.02	<0.03
21090986	87 Dynevor Road (Chamber 1)	13/09/2021 10:15	0.05	-0.92	7.93	7.79	6	<0.01	<0.02	<0.03
21091947	87 Dynevor Road (Chamber 1)	27/09/2021 09:00	0.02	-3.36	8.93	8.35	2	<0.01	<0.02	<0.03
21100414	87 Dynevor Road (Chamber 1)	04/10/2021 09:50	0.03	-1.93	7.87	7.57	0	<0.01	<0.02	<0.03
21100951	87 Dynevor Road (Chamber 1)	11/10/2021 07:10	0.02	-2.87	6.31	5.96	4	<0.01	<0.02	<0.03
21101303	87 Dynevor Road (Chamber 1)	18/10/2021 07:45	0.02	-1.52	6.01	5.83	4	<0.01	<0.02	<0.03
21101807	87 Dynevor Road (Chamber 1)	25/10/2021 08:10	0.04	-0.55	5.6	5.53	4	<0.01	<0.02	0.05
21100780	Borehole 10	08/10/2021 07:20	0.03	-2.58	5.47	5.2	10	<0.01	0.1	<0.03
21100778	Borehole 10	09/10/2021 13:20	<0.01	-2.99	5.14	4.84	2	<0.01	0.13	<0.03
21100779	Borehole 10	10/10/2021 13:20	<0.01	-4.19	5.17	4.76	4	<0.01	0.08	<0.03
21100956	Borehole 10	13/10/2021 08:30								
21030164	32 Jubilee Crescent	01/03/2021 12:15	0.02	2.41	<6.77	<7.10	4	<0.01	<0.02	<0.03
21020064	9 Sunnyland Crescent	29/01/2021 14:30	<0.01	0.55	<9.11	<9.21	7	<0.01	<0.02	<0.03
21020862	Bryndewy Level	09/02/2021 14:00	0.02	0.94	<4.22	<4.14	5	<0.01	0.04	<0.03
21021005	Bryndewy Level	11/02/2021 10:00	0.02	2.32	<4.22	<4.14	2	<0.01	0.04	<0.03
21021359	Bryndewy Level	16/02/2021 12:00	0.02	-4.48	<4.22	<4.14	4	<0.01	<0.02	<0.03
21021511	Bryndewy Level	18/02/2021 12:30	0.02	-1.8	<4.22	<4.14	4	<0.01	0.03	0.03
21021359	Lonlas Old Graigoia Level	16/02/2021 17:30	<0.01	0.69	<4.22	<4.14	4	<0.01	<0.02	<0.03
21021511	Lonlas Old Graigoia Level	18/02/2021 12:00	<0.01	-0.42	<4.22	<4.14	2	<0.01	0.03	<0.03
21021750	Lonlas Old Graigoia Level	22/02/2021 09:45	0.01	2.46	<4.22	<4.14	2	<0.01	<0.02	0.05
21022042	Lonlas Old Graigola Level	24/02/2021 10:45	0.01	-1.83	<4.22	<4.14	4	<0.01	<0.02	0.23
21022042	Drumma Greenway Level	24/02/2021 11:20	0.01	-1.83	<4.22	<4.14	2	<0.01	<0.02	<0.03
21030109	Drumma Greenway Level	26/02/2021 08:15	0.01	1.23	<4.22	<4.14	2	<0.01	<0.02	<0.03
21030288	Drumma Greenway Level	02/03/2021 08:20	<0.01	0.17	<4.22	<4.14	3	<0.01	<0.02	<0.03
21030592	Drumma Greenway Level	05/03/2021 08:15	<0.01	2.09	<4.22	<4.14	2	<0.01	0.03	<0.03
21022042	Neuadd Wen Graigola Level	24/02/2021 11:00	<0.01	0.27	<6.31	6.34	4	<0.01	0.05	<0.03
21030109	Neuadd Wen Graigola Level	26/02/2021 08:00	<0.01	-0.66	<5.83	5.75	4	<0.01	0.05	<0.03
21030288	Neuadd Wen Graigola Level	02/03/2021 08:00	<0.01	-0.22	<7.11	7.08	4	<0.01	0.08	<0.03
21030592	Neuadd Wen Graigola Level	05/03/2021 08:00	<0.01	1.33	<7.38	7.58	6	<0.01	0.08	<0.03
21031863	Woodlands Spring East	22/03/2021 10:30	0.01	-3.92	<12.7	4.83	5	<0.01	0.03	<0.03
21032087	Woodlands Spring East	24/03/2021 09:00	0.02	-0.97	<12.7	<5.56	6	<0.01	<0.02	<0.03
21032166	Woodlands Spring East	26/03/2021 11:15	<0.01	3.9	<12.7	<4.83	6	<0.01	<0.02	<0.03
21040085	Woodlands Spring East	29/03/2021 11:00	0.01	0.23	<12.7	5	4	<0.01	0.03	<0.03
21031863	Woodlands Spring West	22/03/2021 11:00	<0.01	-4.84	<12.7	<4.14	6	<0.01	0.03	<0.03
21032087	Woodland Spring West	24/03/2021 09:20	<0.01	7.44	<12.7	<5.05	10	<0.01	<0.02	<0.03
21032166	Woodlands Spring West	26/03/2021 11:30	<0.01	-1.45	<12.7	<4.14	2	<0.01	<0.02	<0.03
21040085	Woodlands Spring West	29/03/2021 11:15	<0.01	-0.97	<12.7	<4.14	2	<0.01	<0.02	<0.03

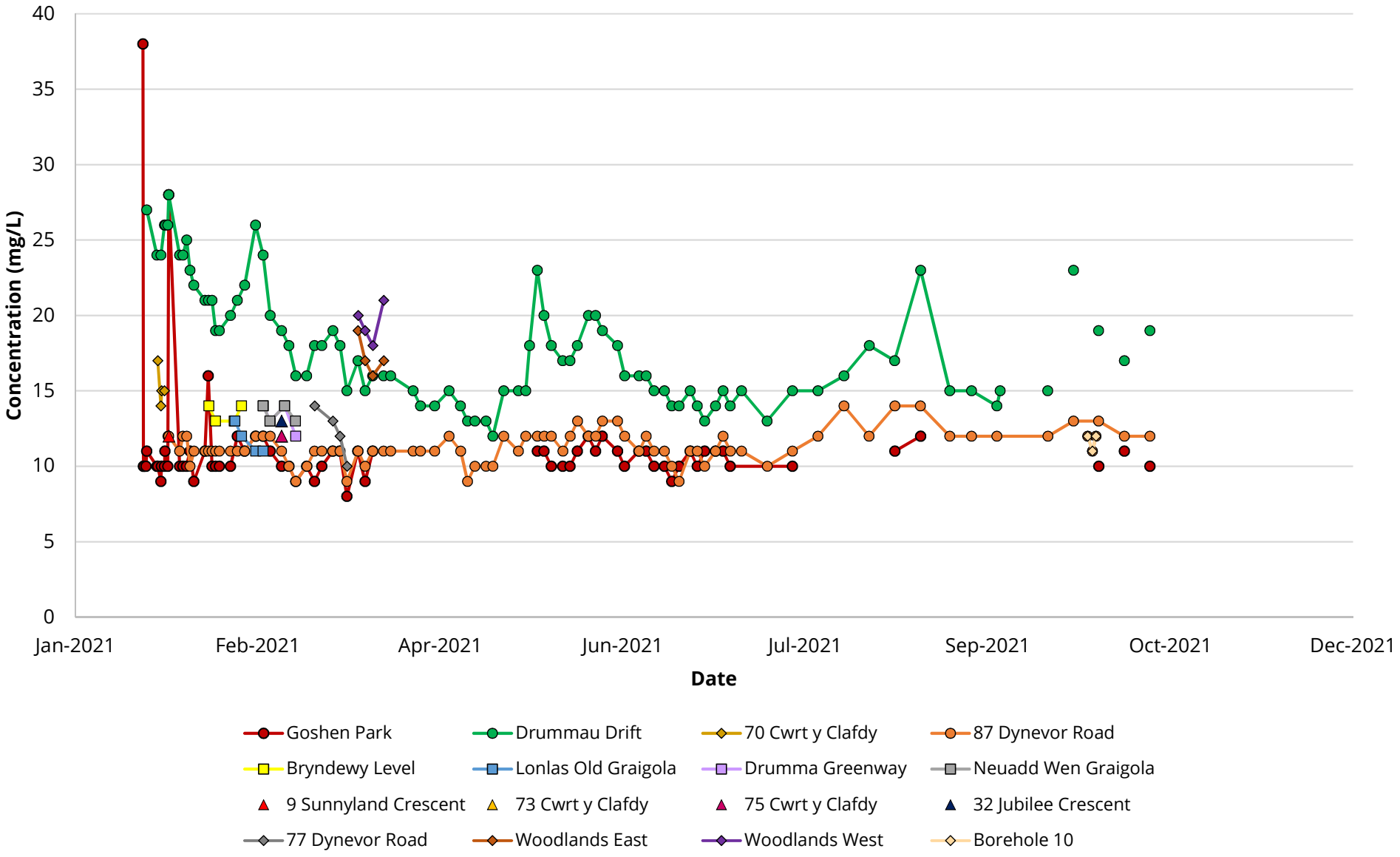
Mynydd Drumau : Calcium vs Magnesium



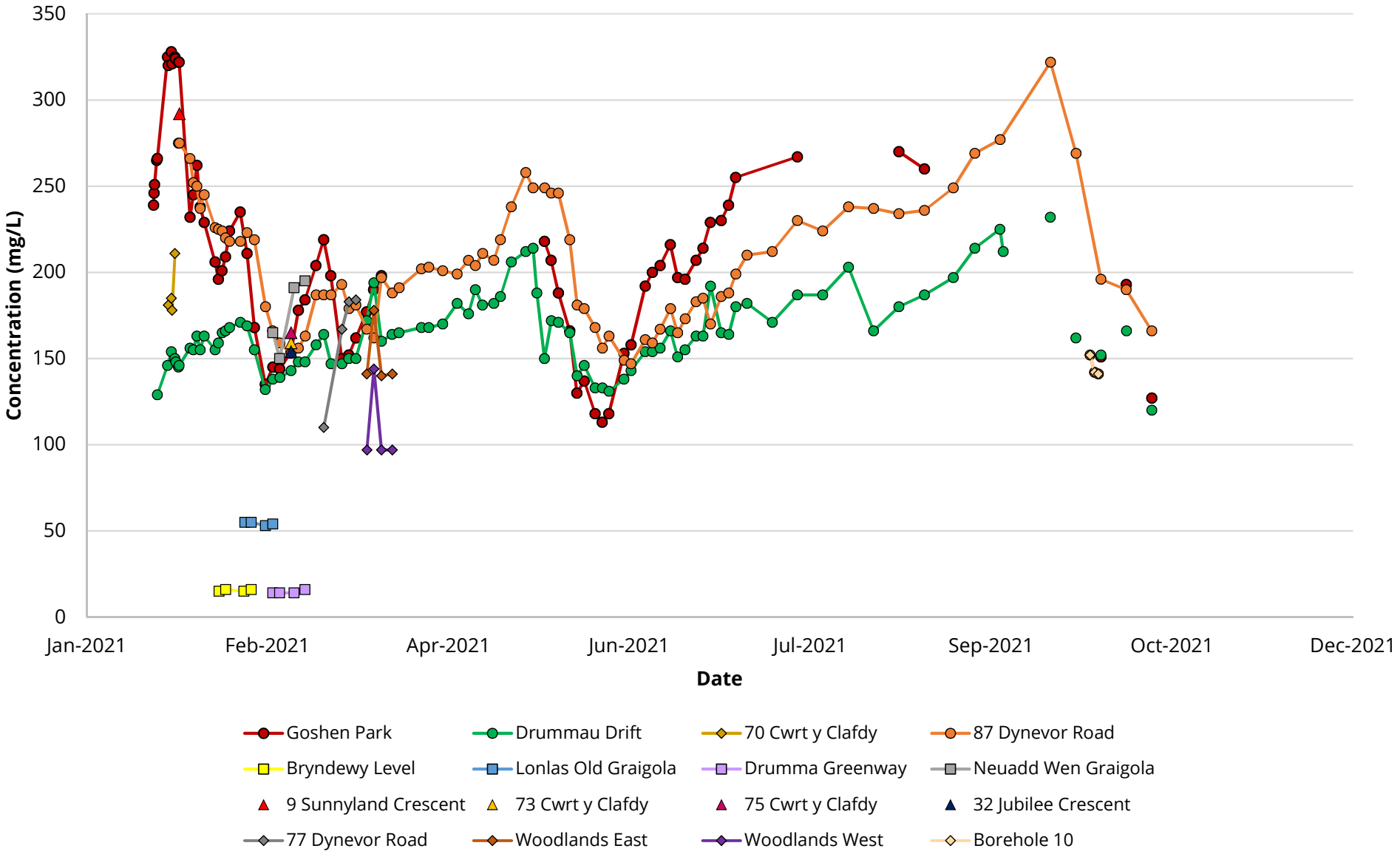
Mynydd Drumau : Manganese



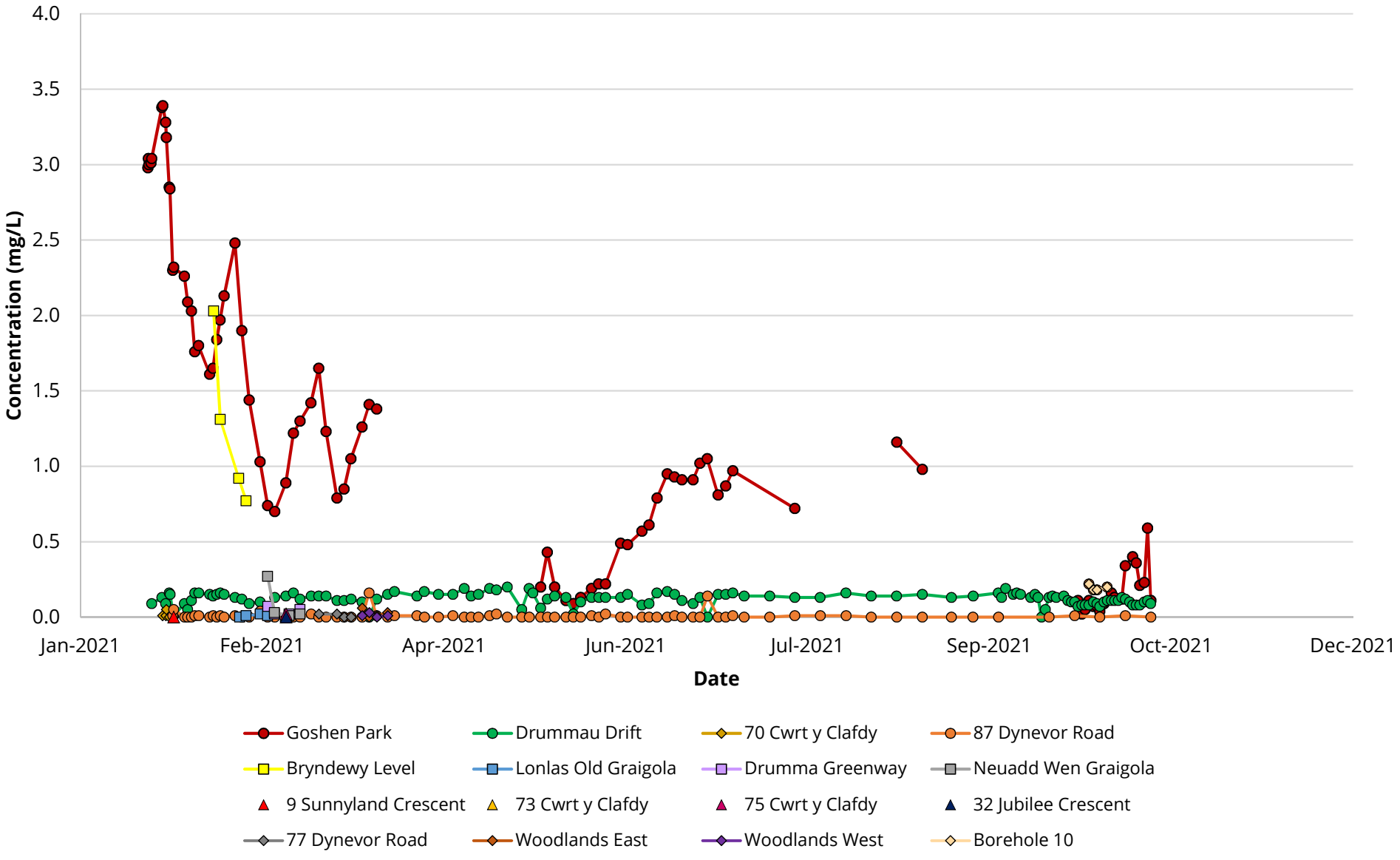
Mynydd Drumau : Chloride



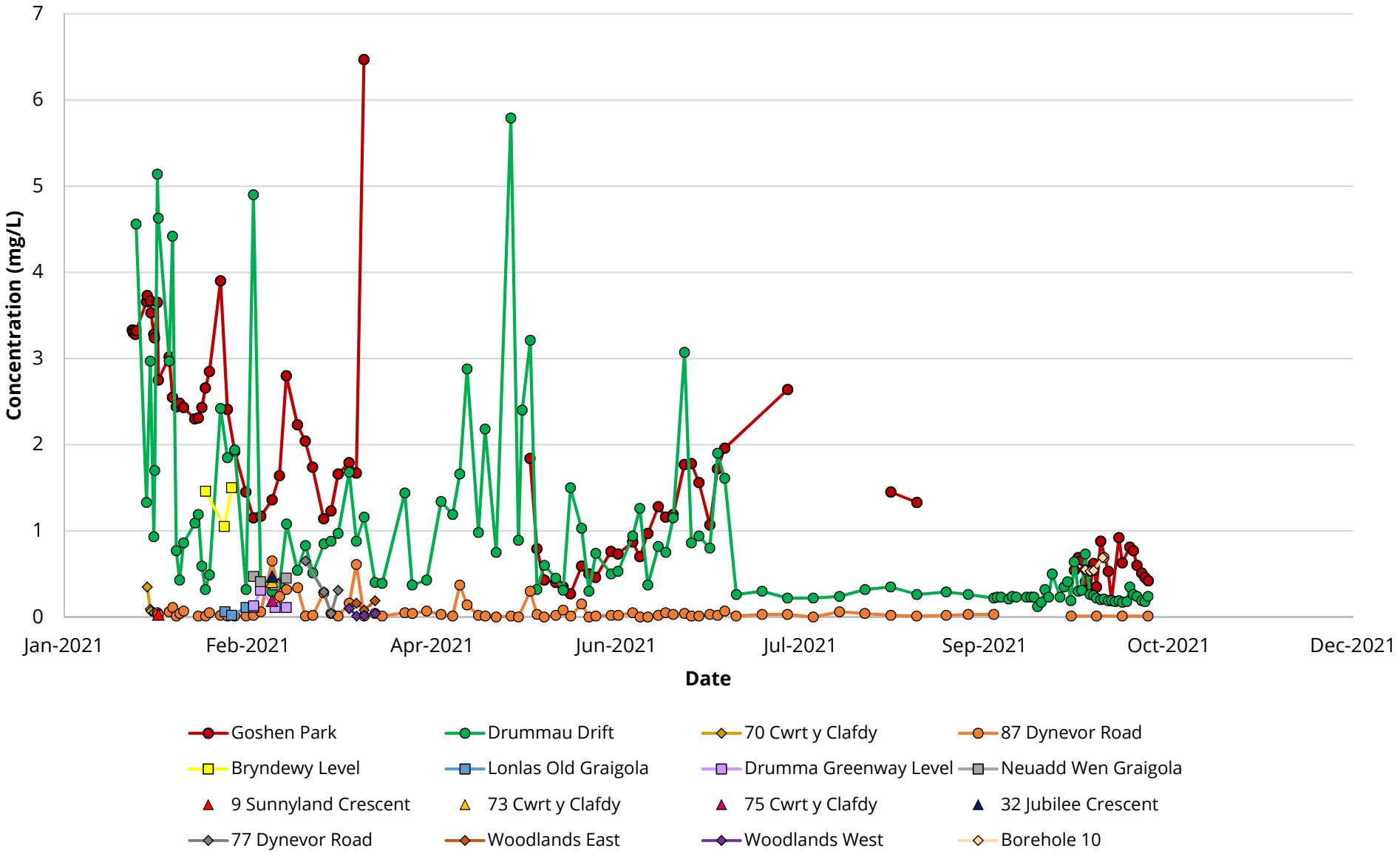
Mynydd Drumau : Sulphate



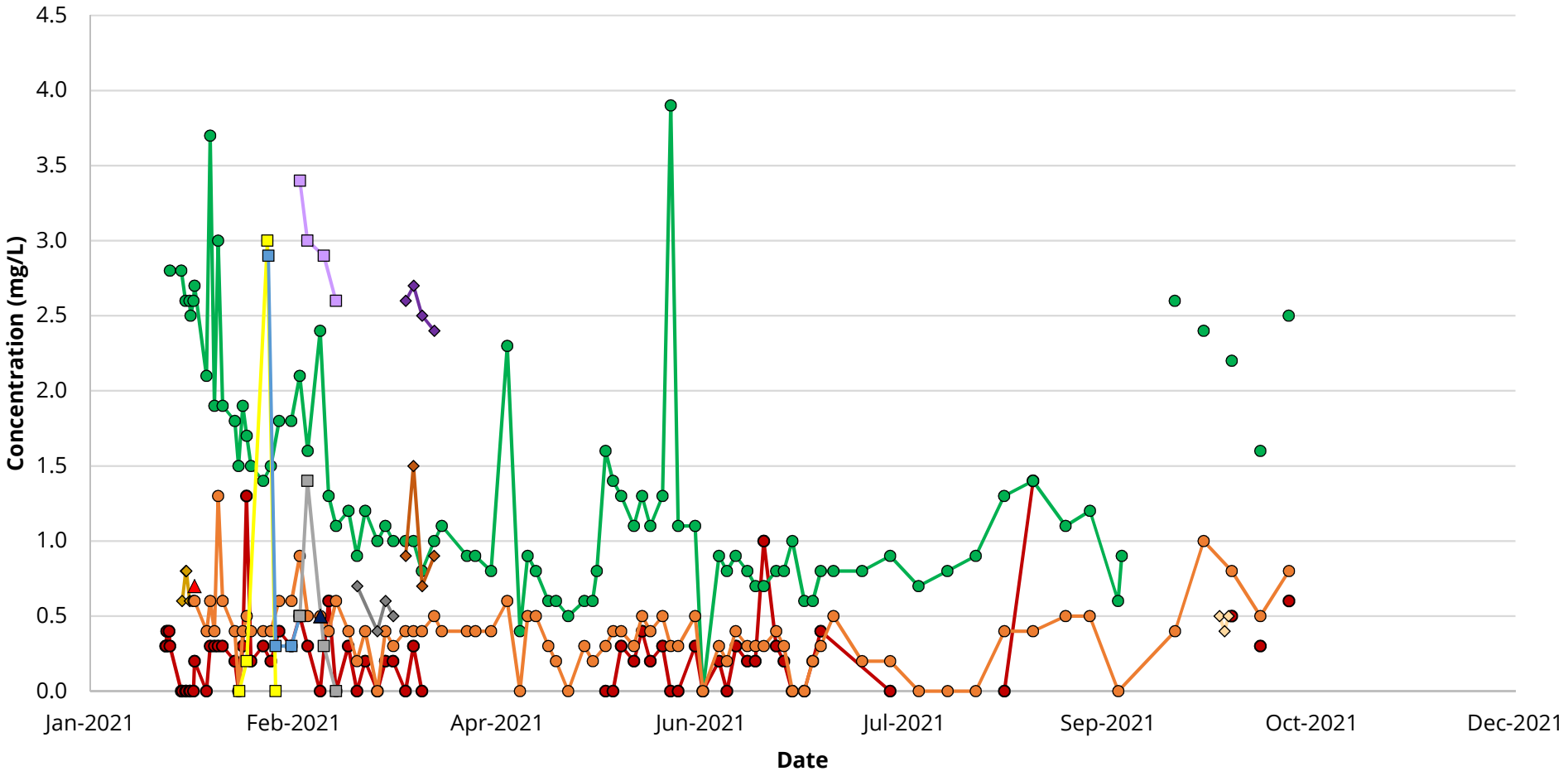
Mynydd Drumau : Dissolved Iron



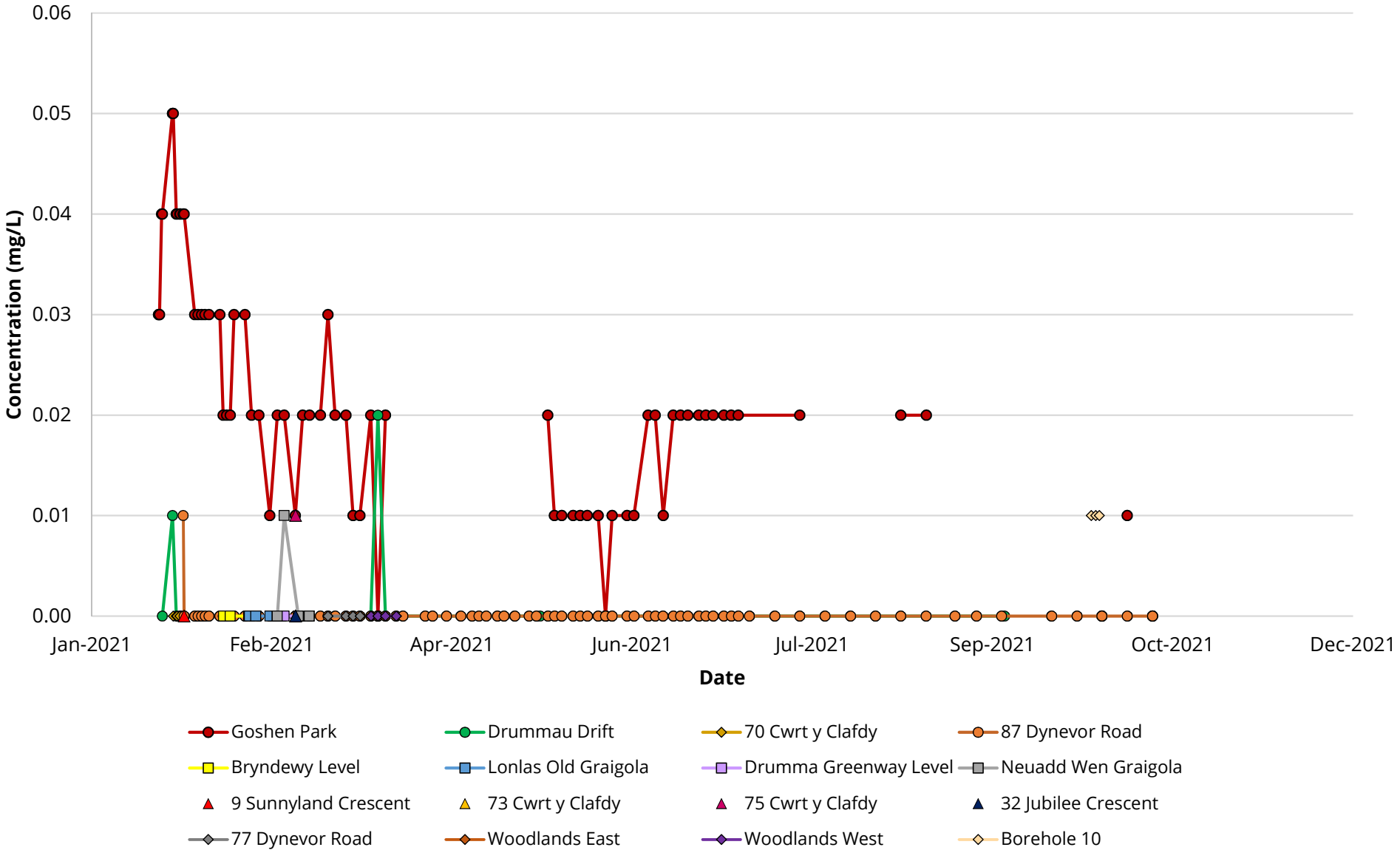
Mynydd Drumau : Total Iron



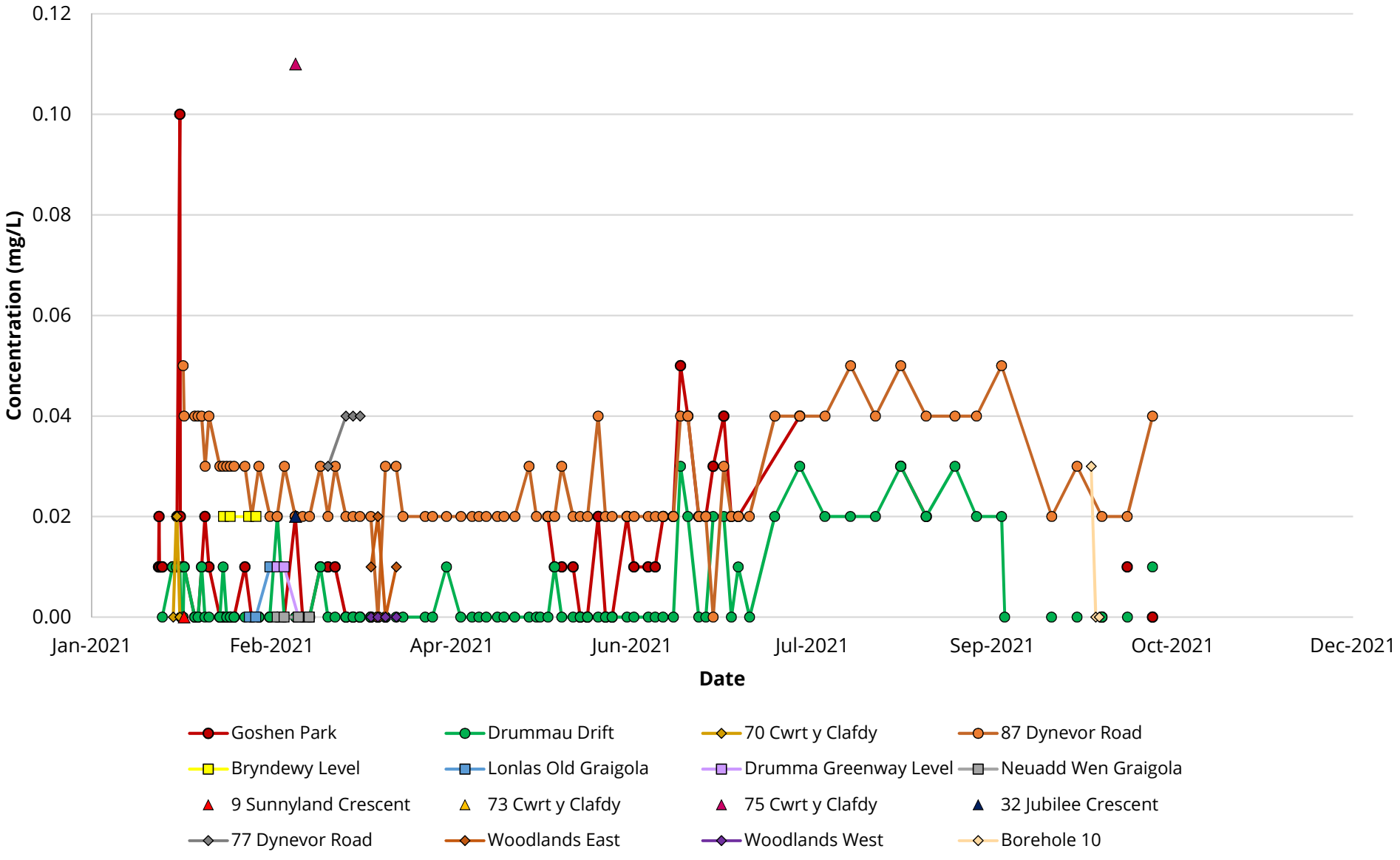
Mynydd Drumau : Nitrate



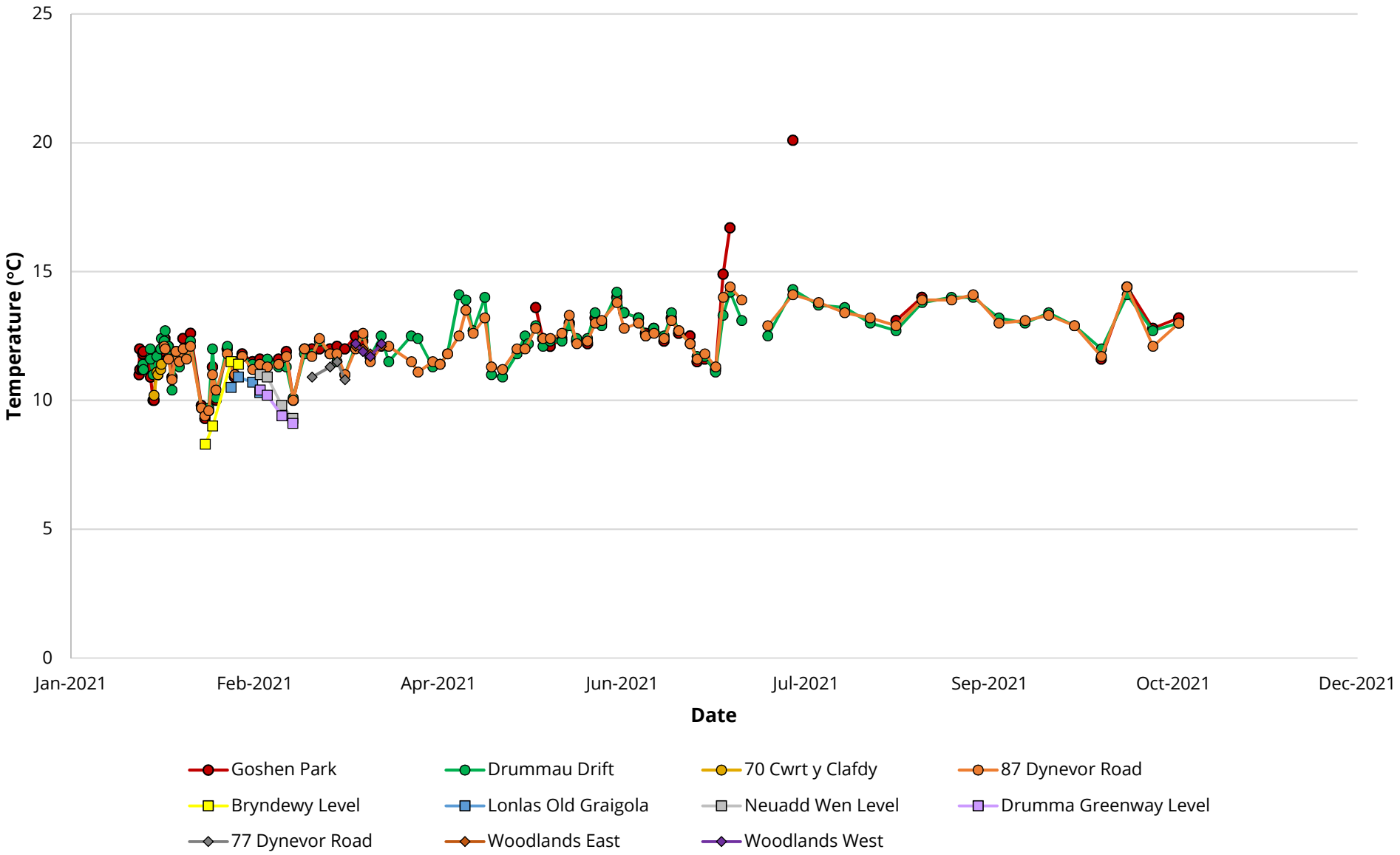
Mynydd Drumau : Nickel

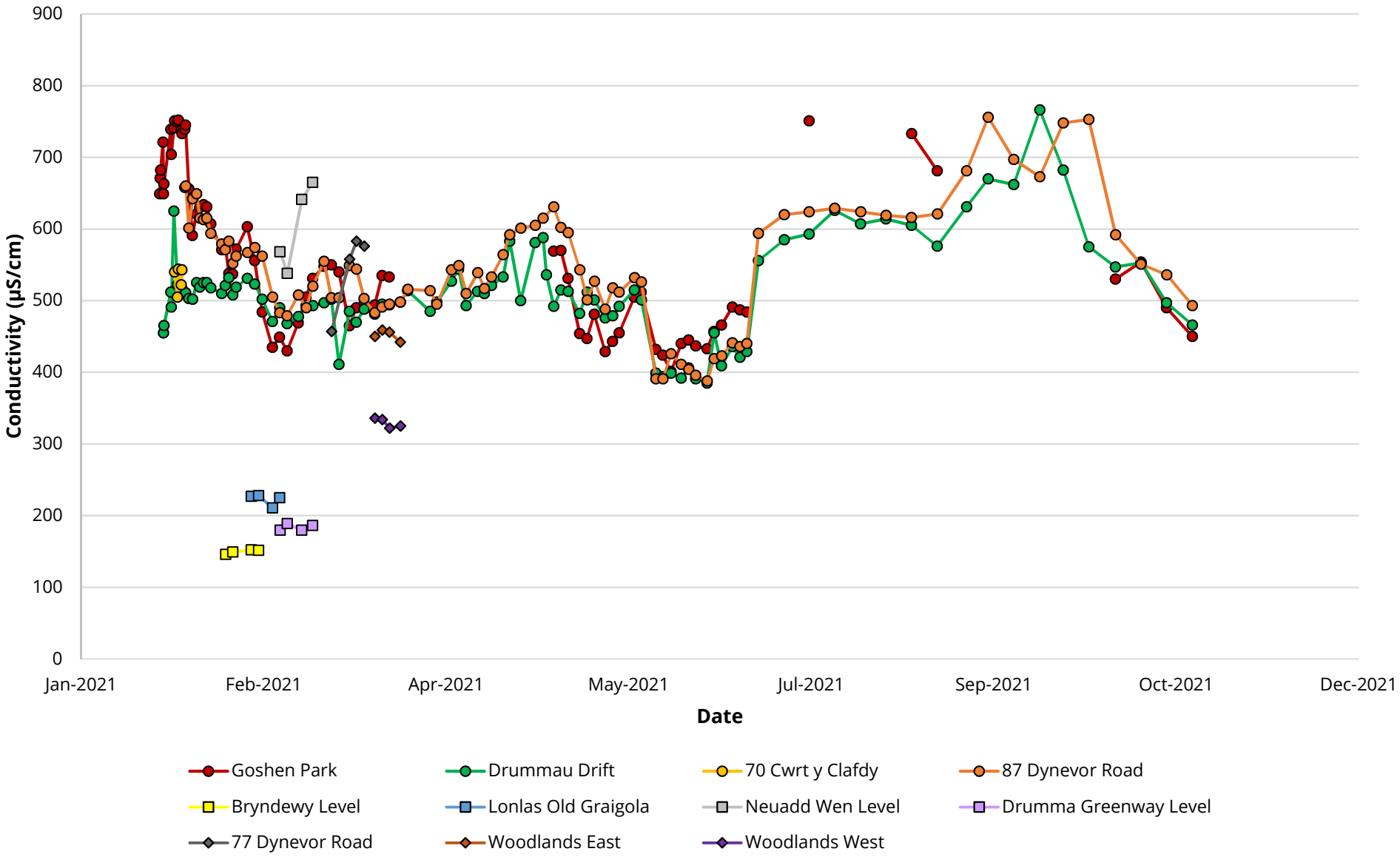


Mynydd Drumau : Zinc

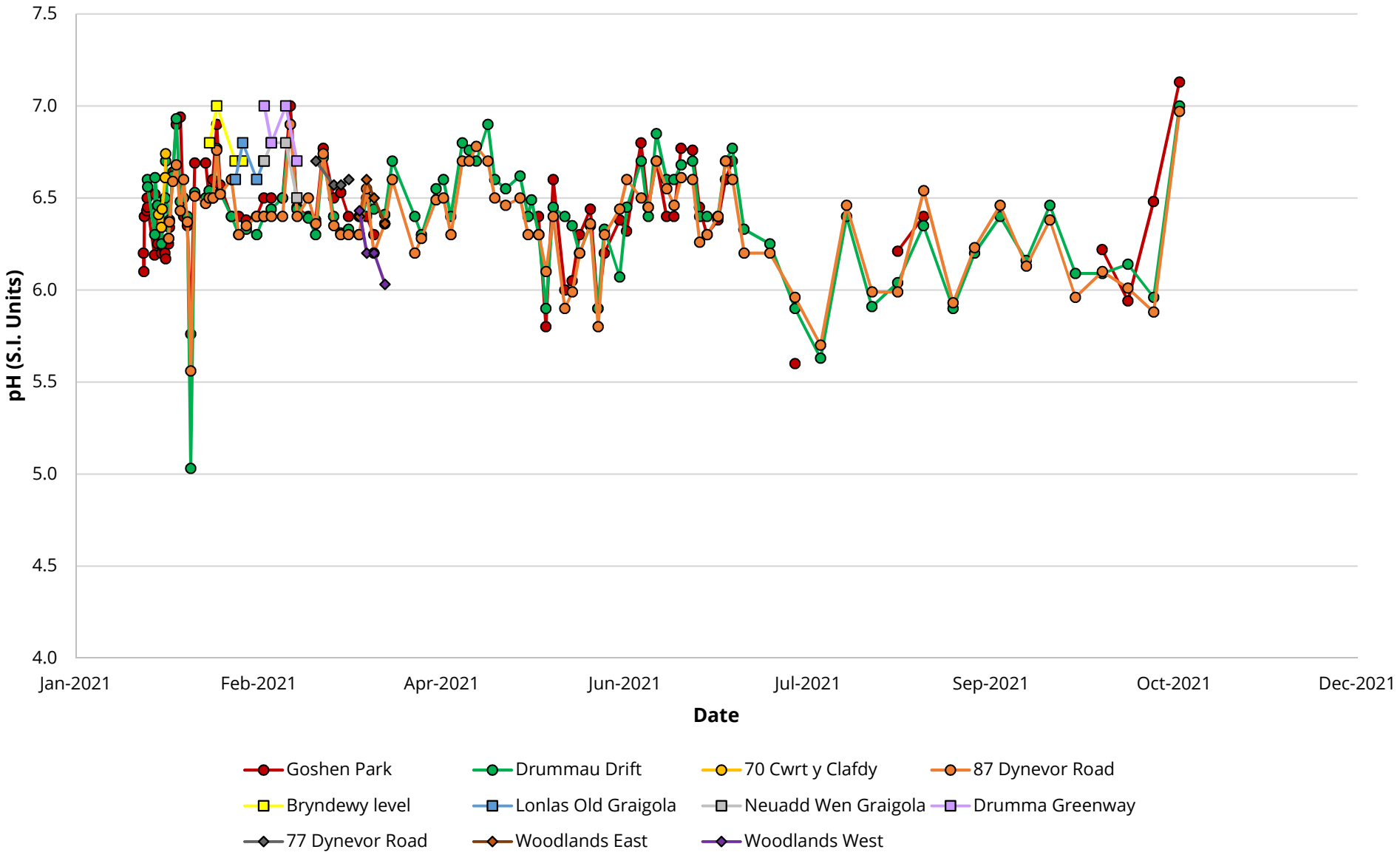


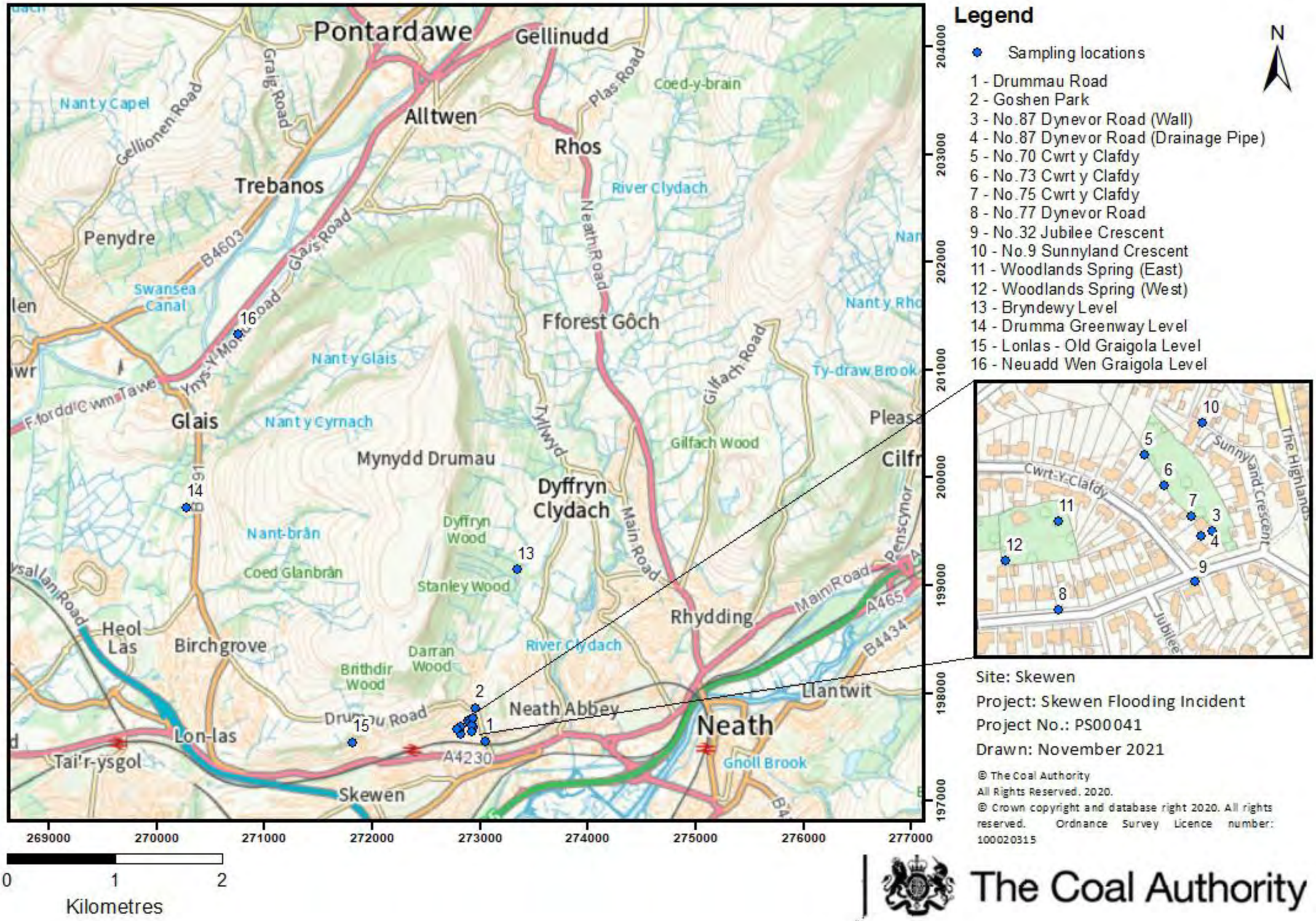
Mynydd Drumau : Water Temperature




Mynydd Drumau : Conductivity
Conductivity (µS/cm)
900
800
700
600
500
400
300
200
100
0
Jan-2021
Feb-2021
Apr-2021
May-2021
Jul-2021
Sep-2021
Oct-2021
Dec-2021
Date
Goshen Park
Drummau Drift
70 Cwrt y Clafdy
87 Dynevor Road
Bryndewy Level
Lonlas Old Graigola
Neuadd Wen Level
Drumma Greenway Level
77 Dynevor Road
Woodlands East
Woodlands West

Mynydd Drumau : pH




Legend
Sampling locations
1 - Drummau Road
2 - Goshen Park
3 - No.87 Dynevor Road (Wall)
4 - No.87 Dynevor Road (Drainage Pipe)
5 - No.70 Cwrt y Clafdy
6 - No.73 Cwrt y Clafdy
7 - No.75 Cwrt y Clafdy
8 - No.77 Dynevor Road
9 - No.32 Jubilee Crescent
10 - No.9 Sunnyland Crescent
11 - Woodlands Spring (East)
12 - Woodlands Spring (West)
13 - Bryndewy Level
14 - Drumma Greenway Level
15 - Lonlas - Old Graigola Level
16 - Neuadd Wen Graigola Level
N
Pontardawe
Gellinudd
Alltwen
Rhos
Trebanos
Penydre
Fforest Gôch
Glais
Mynydd Drumau
Dyffryn Clydach
Rhydding
Neath
Neath Abbey
Llantwit
Birchgrove
Heol Las
Lon-las
Tai'r-ysgol
Skewen
Cwrt-y-Clafdy
Sunnyland Crescent
The Highlands
Jubilee
Site: Skewen
Project: Skewen Flooding Incident
Project No.: PS00041
Drawn: November 2021
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269000
270000
271000
272000
273000
274000
275000
276000
277000
204000
203000
202000
201000
200000
199000
198000
197000
0
1
2
Kilometres
The Coal Authority