

Technical Note

Project:	P17-480 Indurent Park, Newport
Subject:	Surface Water Quality Summary
Date:	April 2025
Document Reference:	17480-RLL-24-XX-RP-O-1287-P01
Prepared by	Chris Wilson – Principal Geo-Environmental Consultant
Checked & Approved by	Howel Morris – Director

Introduction

Rodgers Leask Ltd (RLL) have been commissioned by Indurent Management Limited to prepare this Technical Note to summarise the water monitoring in the reens within the Indurent Park Newport. The reen is known currently as Drain 5, at the former Llanwern Steelworks in South Wales shown on Drawing 17480-RLL-25-XX-DR-O-1293.

The water monitoring on the site has been undertaken to support the approval of the Discharge Permit and discharge of Planning Condition 4 of Decision Notice 16/1295 for a new surface water ditch which was approved in May 2017 which states:

‘No discharge of water from the approved scheme into the Monk’s Ditch shall take place until the applicant has undertaken a water quality monitoring exercise within the reens that are to drain to the ditch hereby approved. The details of that monitoring exercise shall be submitted to and agreed in writing by the LPA prior to being implemented. Upon completion of the water quality monitoring exercise the results shall be submitted to the Council for its approval. Following the Council’s written agreement that water quality is satisfactory, water from the approved ditch may be discharged to the Monk’s Ditch.’

This Technical Note provides information on the existing site drainage and the monitoring that has been undertaken to support the approval of a permit to discharge water and planning condition discharge.

Background to Reen Network and Permit

Drain 5 is located within Indurent Park Newport, the reen receives surface water from the business park prior to it being discharged into the Tata network via the north of the site, this is an interim arrangement. It is proposed that this is discharged into Monks Ditch via a permitted discharge. A plan showing the routing of Drain 5 is presented on Drawing 02554-E-120-C7.

In July 2024 the permit, referenced EPR/DB3494FH, was duly made to permit the discharge of surface waters into Monks Ditch. Following a period of consultation with Natural Resources Wales (NRW), the discharge permit was determined in March 2025 and is presented in **Appendix A**.

The permit regulates a new discharge of treated site drainage comprising surface water from the Indurent Park industrial estate during the remaining construction phases and post construction. The maximum rate of discharge is 1000 l/s. This is controlled via 2 pumps, with the main pump capable of discharging 750 l/s and a second, backup pump with a maximum discharge rate of 250 l/s. All treated site drainage will discharge to Monks Ditch.

There is off site water level monitoring of Monks Ditch to monitor available capacity is within the reën network which controls the operation of the pump.

Onsite internal reën storage network is capable of total storage volume equal to >7 days of non-pumping.

Surface water sampling

As a part of the permit application, surface water quality information was submitted to NRW in June 2024, then updated in December 2024 which included a full dataset from the Drain 5 – central position (D5-C), the proposed discharge position, dating back to May 2021. The monitoring position is shown on Drawing 17480-RLL-24-XX-DR-O-1261-P01.

Sampling has been undertaken at the D5-C position every two weeks full data between May 2021 and December 2024. Full data from positions D5-C, Monks Ditch Upstream (MD-U) and Monks Ditch Downstream (MD-D) is presented in **Appendix B**.

In **Appendix B** the results have been screened against water framework directive environmental quality standards (WFD EQS) (annual average unless only maximum average concentration (AA unless only MAC)) or the Gwent Levels SSSI water quality standards (WQS) where available. Bioavailable concentrations have been calculated where appropriate.

The majority of determinands were within compliance of the selected screening criteria with only occasional exceedances being recorded. The dataset showed an improving watercourse now containing water broadly consistent with the general water quality in Monks Ditch. During permit discussions, and as recorded in the screened data, ammoniacal nitrogen and biochemical oxygen demand were highlighted as being the most frequent determinands to exceed the criteria.

For ammoniacal nitrogen and biochemical oxygen demand (BOD), where discharge limits were applied during the permit discussions, results have been presented on a graph on the following page. Earthworks and construction timelines and rainfall from a local weather station has also been presented.

Figure 1 - D5-C Ammoniacal Nitrogen & Construction Phases

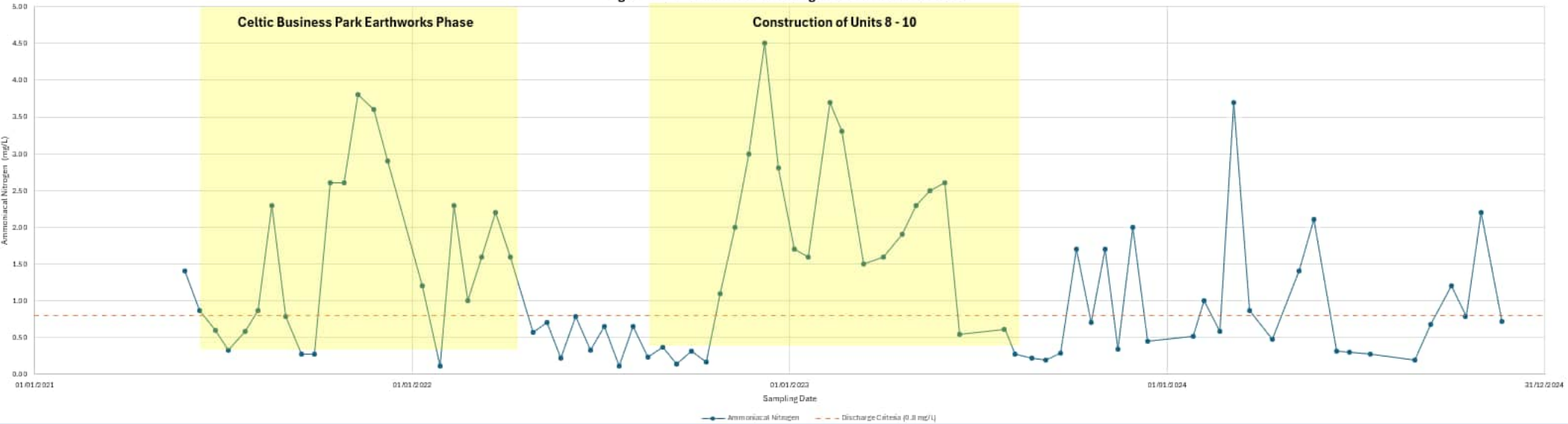


Figure 2 D5-C Ammoniacal Nitrogen & Daily Precipitation

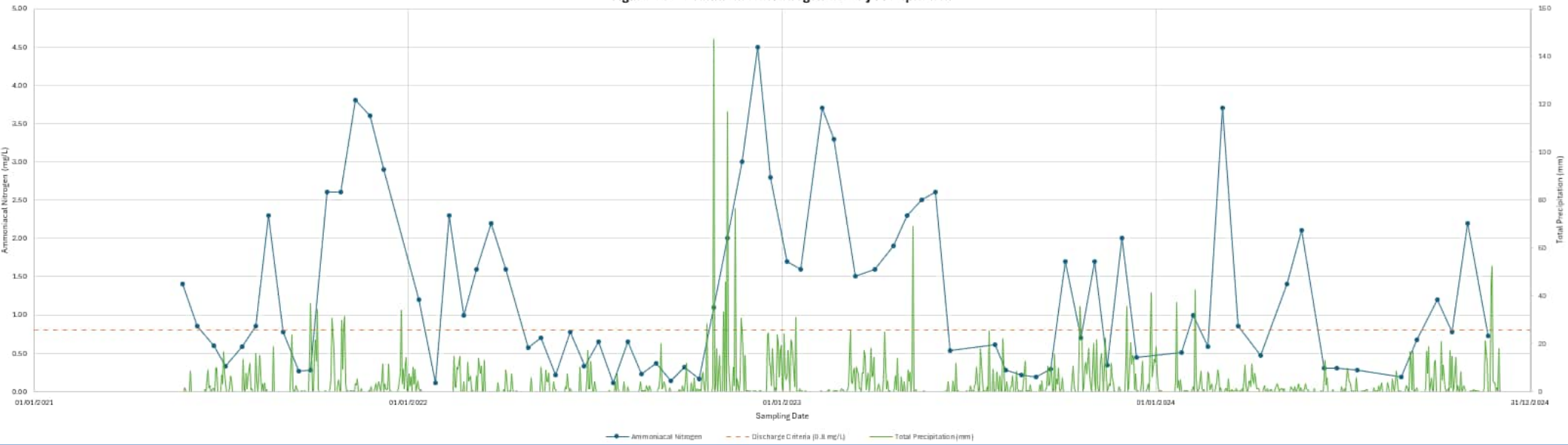


Figure 3: D5-C- BOD & Construction Phases

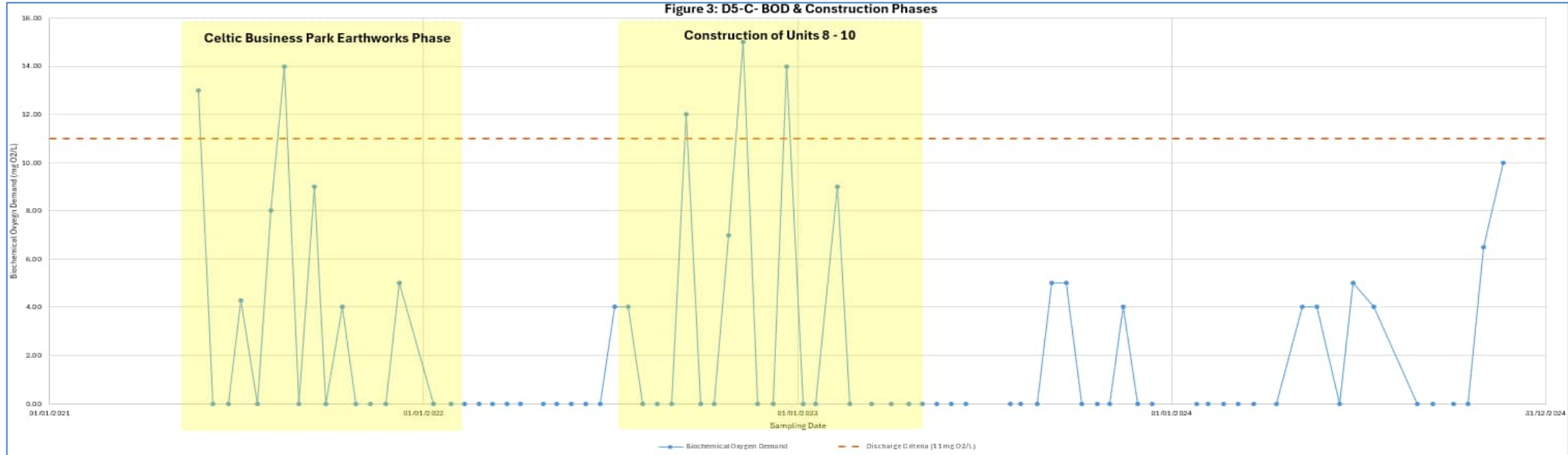
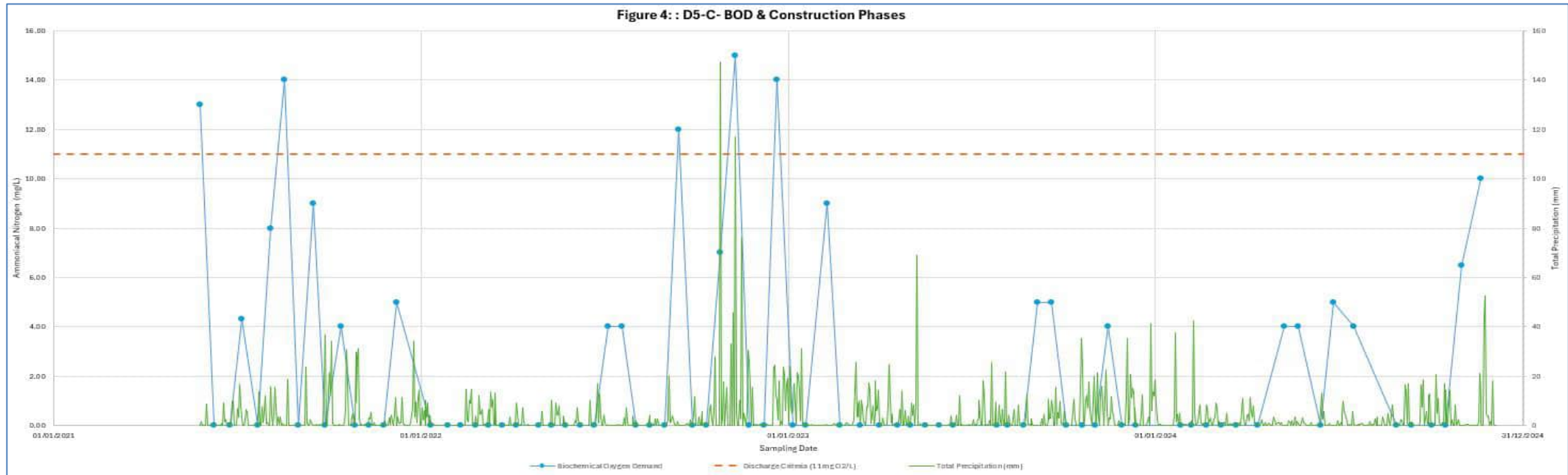


Figure 4 : D5-C- BOD & Construction Phases



Notable ContaminantsAmmoniacal Nitrogen

Ammoniacal nitrogen (ammonia) was highlighted in the permit consultation as a determinant of concern where a discharge concentration maximum of 0.8 mg/l would apply. Based on the data provided in Figure 1 for the past 3.5 years, surface water within the business park reen occasionally exceeds the 0.8mg/l concentration, although water quality has improved over time.

It is considered that the reason behind the exceedances is multifactorial.

The dates where earthworks or construction works were underway have been added to Figure 1. It is evident that the two prolonged periods of elevated ammoniacal nitrogen concentrations aligned well with when works were being undertaken on site, potentially impacting the watercourse. It is for this reason that ammoniacal nitrogen treatment for all construction waters is recommended for future development phases.

Earthworks or construction works do not provide a reason for all exceedances of the proposed criteria and therefore rainfall has been added to Figure 2. Figure 2 shows a trend of elevated ammoniacal nitrogen following prolonged periods of rainfall which may be a result of increased surface run off from exposed Made Ground on the undeveloped part of the site or influent from off site. It is thought that as the site is built out and interception increases the amount of interaction with the Made Ground will reduce and lead to a reduction in ammoniacal nitrogen entering the reen network. To mitigate intermittent exceedances of the ammonium discharge criteria the implementation of an ammoniacal nitrogen treatment system for the water in the reen is a requirement as part of the permit condition.

Seasonal change is also shown in Figures 1 and 2 to impact the ammoniacal nitrogen levels within the Business Park Reen. Ammoniacal nitrogen is an important source of nitrogen for plants and during the growing season (spring/ summer) and a reduction in concentration is evident in the reen, reeds also act as a natural filter for the waters when mature. In winter we have the converse of this where plants die back and decay, releasing ammoniacal nitrogen back into the watercourse whilst also not growing and therefore not taking up nitrogen. It is for this reason that an annual vegetation management strategy is proposed within the permit.

Biochemical Oxygen Demand

Biochemical Oxygen Demand (BOD) was highlighted in the permit as a determinant of concern where a discharge concentration maximum of 11.0mg/l would apply. Based on the data provided in Figures 3 & 4 for the past 3.5 years, surface water within the business park rarely exceeds the proposed screening criteria, an exceedance has not been recorded since 2022.

Given the only rare exceedances of BOD, direct treatment of the reens on site is not proposed at this time, however some treatments that are proposed will positively impact BOD and it should be monitored.

Review of potential pollutant impact

As a part of the permit application a review was undertaken on the impact of potential pollutants in the proposed discharge water. To determine which chemical species are potential pollutants in this case, we compared all analysed determinands for monitoring point D5-C against EQS. Those that have been recorded in reen water between August 2023 and December 2024 from the shortlist that has been assessed.

The full assessment is presented in **Appendix C**, but in summary from 28 sample sets, PAH concentrations were not detected in the reens in the period covered, with the sole exception of one naphthalene value. However, given that EQS values for some PAH are very low, they are significantly smaller than the limits of detection achieved by standard laboratory methods. It was therefore appropriate that representative PAH species, including naphthalene, are assessed using the H1 tool.

A review of the previously presented H1 assessment (PAN-025330) was also undertaken on the data, this is also provided in **Appendix C**. In conclusion, we have reviewed the risks presented by contaminants currently found in the reen system, and find that all of them pass the H1 assessment.

Requirement for Treatment

As discussed in the previous sections, to achieve the requirements of the permit, treatment is required in the Business Park Reen to achieve the required discharge limits. It is thought that the reason behind elevated ammoniacal nitrogen in the watercourse is multifactorial and therefore required a combination of treatment techniques focussed at both water with the reen and water from construction.

The following operational procedures were outlined within the permit application:

- Silt management during construction
- Settlement Lagoon retrofit for designated determinands during construction
- Automated treatment of reen network
- Vegetation management

Monitoring and Data Sharing

The treatment systems on site will be managed and controlled through the use of in situ telemetric monitoring equipment.

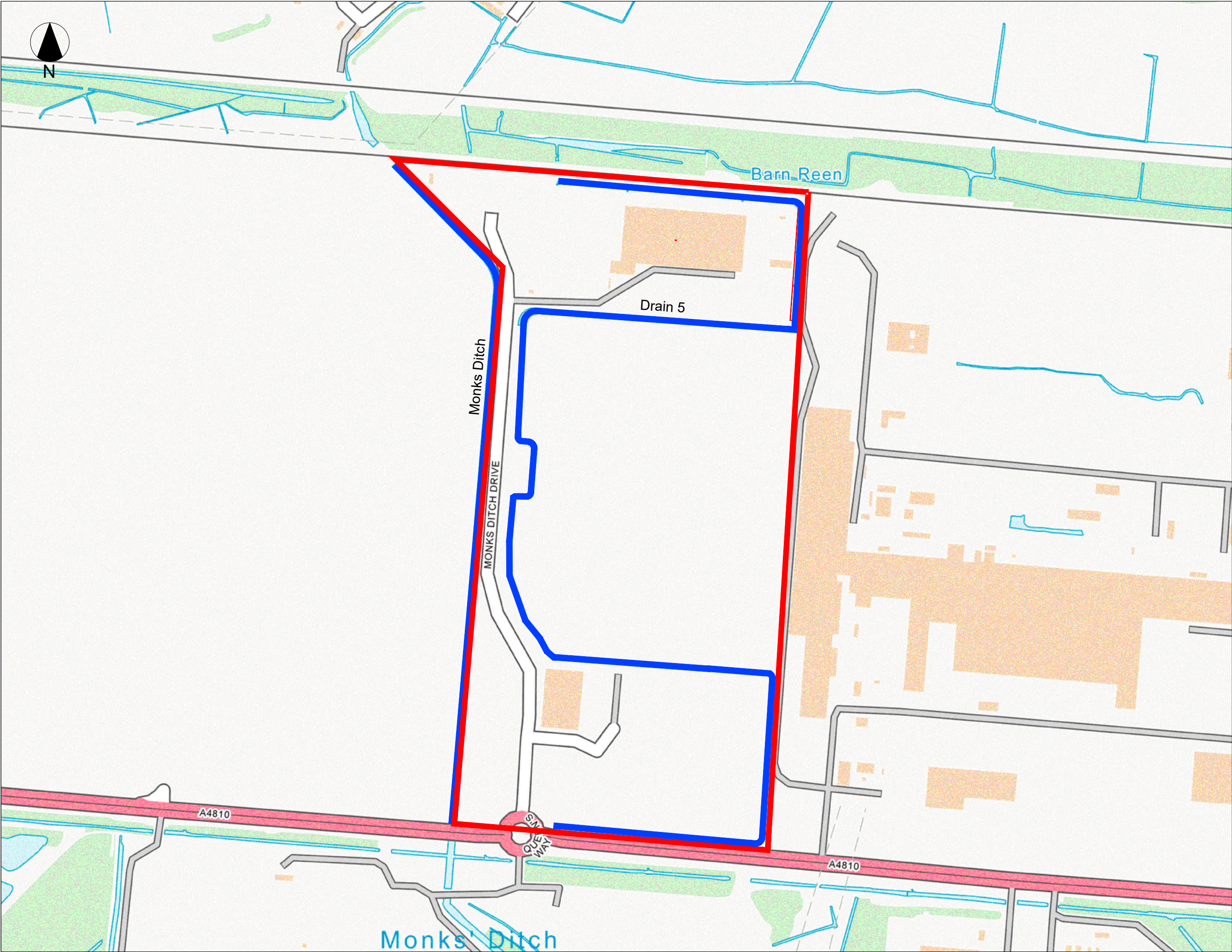
Weekday sampling shall be undertaken at the location of discharge (D5-C) for ammoniacal nitrogen, BOD, cyanide, mercury, anthracene, fluoranthene and a suitable suite of contaminants including all determinands included in the Section 5 notice. It is proposed that a summary is presented quarterly to the Environmental Officer alongside results presented in excel format.



Consulting Engineers

It is recommended that the sampling frequency is reviewed every three months based on the evolving dataset with the potential to reduce the frequency to weekly, then monthly monitoring.

Drawings



GENERAL NOTES

NO DIMENSIONS TO BE SCALED OFF THIS DRAWING.
THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECT'S AND ENGINEER'S DRAWINGS.
ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
ALL LEVELS ARE IN METRES UNLESS NOTED OTHERWISE.
ANY DISCREPANCIES NOTED ON SITE ARE TO BE REPORTED TO THE ENGINEER IMMEDIATELY.

KEY:

-  Approximate Indurent Business Park Boundary
-  Reen Section

P01	09/04/2025		First Issue	AMS	CW
Rev	Date		Amendments	By	Chk

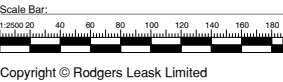


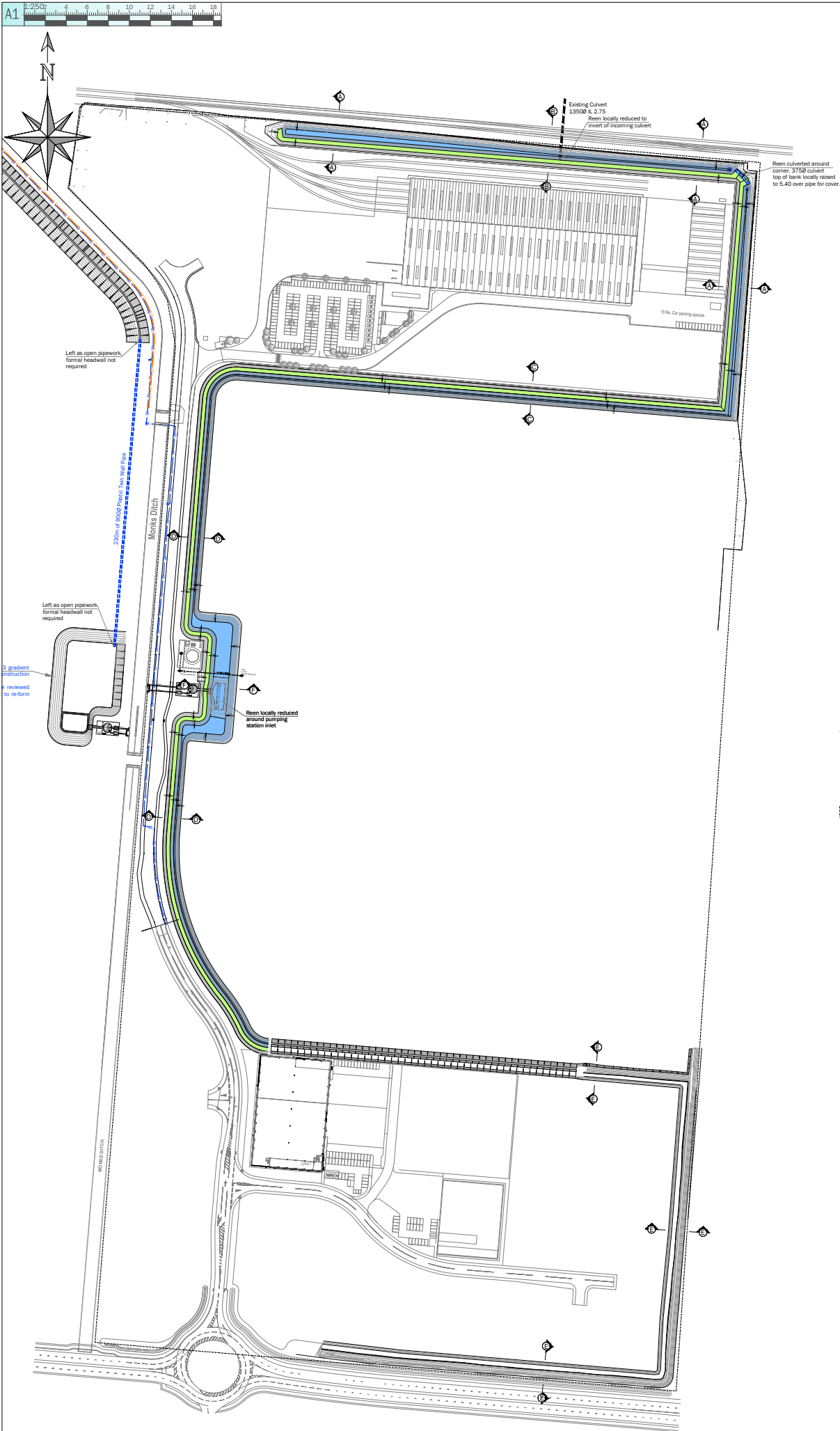
Client
Indurent

Project
**P17-480
Indurent Park Newport**

Drawing Title
**Indurent Business Park
Boundary Plan**

S2			
	Drawn	Checked	Date
1:2500 @ A1	AMS	CW	09/04/25
Drawing No.			Rev.
17480-RLL-25-XX-DR-O-1293			P01





SITE PLAN 1:2000

Volume calculations, assuming SW Pumping Station not active due to offsite constraint

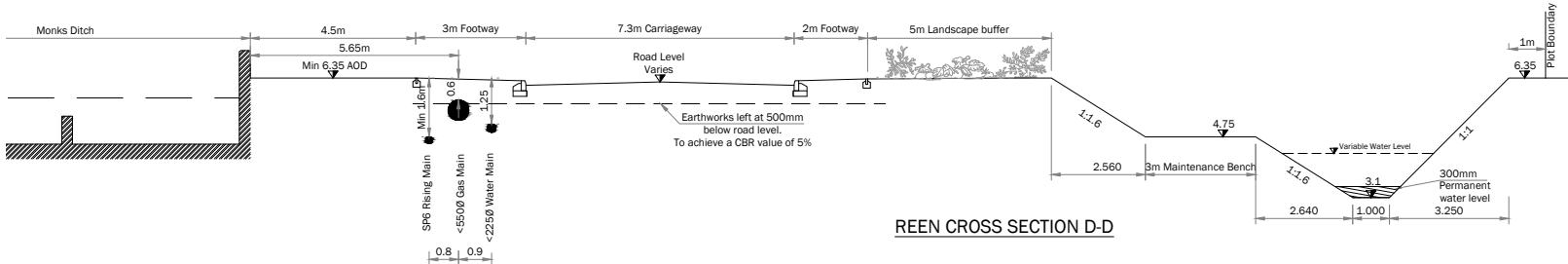
Design Criteria:

- Discharge rate based upon 3.5l/s per hectare
- Gross site area = 42ha
- Net employment land 34.4ha based on 95% impermeability at 32.65ha impermeable.
- Net infrastructure with 100% impermeability = 4.34ha
- Site discharge rate 147 l/s
- Design for rainfall event up to the 1 in 100 year (+ 40% climate change)
- Total site area: 45 hectares (gross)
- Assumed Business Park impermeable area 90%
- Reen typical cross section provides 25m²)
- Equates to min 1300m of reen network

Total developed site : 45 Hectares
Net impermeable 40.5ha (90%)
(Assuming no pumped discharge)

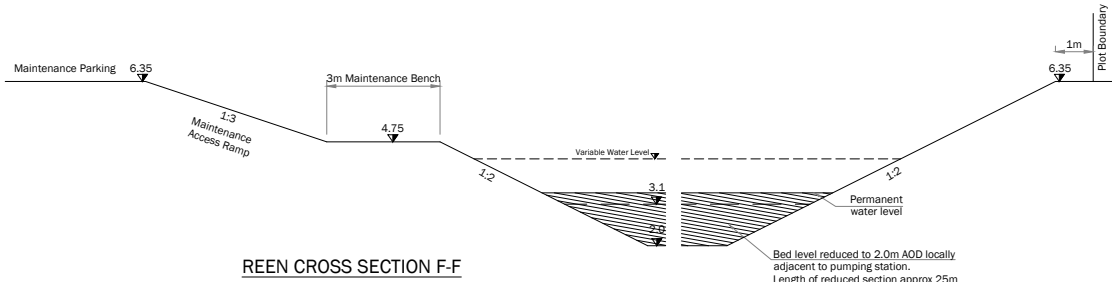
Volume available within Reen network
Indicated at critical levels

Storm Event	Volume Req	Water Level	Reen Volume
1 in 1	10,450m ³	6.50	62,200m ³
1 in 2	11,970m ³	6.25	54,200m ³
1 in 5	14,080m ³	6.00	46,700m ³
1 in 10	15,800m ³	5.75	39,700m ³
1 in 20	17,700m ³	5.50	33,000m ³
1 in 30	19,010m ³	5.25	26,800m ³
1 in 60	21,550m ³	5.00	21,000m ³
1 in 100	23,850m ³	4.75	15,500m ³
1 in 100+20%	29,500m ³	4.50	12,000m ³
1 in 100+40%	35,610 m ³	4.25	9,000m ³
		4.00	6,800m ³
		3.75	4,000m ³
		3.50	2,100m ³



REEN CROSS SECTION D-D

REEN CROSS SECTION E-E



REEN CROSS SECTION F-F

REEN CROSS SECTION A-A

REEN CROSS SECTION B-B

REEN CROSS SECTION C-C

REV	DATE	REVISION NOTE	BY
C7	14.05.21	Attenuation volumes added for full development areas	DMcC
C6	27.11.18	Reen sump adjusted for foul sewer	AT
C5	05.11.18	Cross Section F-F revised to 1:2	DMcC
C4	23.03.18	Cross Section E-E bank level note adjusted	DMcC
C3	22.03.18	Cross Section E-E amended	DMcC
C2	28.07.17	Reen bank to future plots set to 1:1	DMcC
C1	18-07-17	Reen banks set to 1:1.6 grade	DMcC

RJA ENGINEERING
Seven House - 19 High Street - Longbridge - Birmingham B31 2UG - Tel: 0121 516 5184
CLIENT

St. Modwen Developments

PROJECT

**Llanwern
Newport
Celtic Business Park**

DRAWING TITLE
Reen Design

DRAWING ISSUE STATUS
Construction

JOB CODE STAGE DRAWING NO. REVISION
02554 - E - 120 - C7

Revision State : P - Prelim / T - Tender / C - Construction

CLIENT REF

SCALE DESIGNED CHECKED DATE
A1@ 1:100 DMcC AC 10.05.17

GENERAL NOTES

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KEY:

● WATER SAMPLING POSITION

P01	02.05.24	FIRST DRAFT	ET CW
Rev	Date	Amendments	By Chk



Client
St Modwen Logistics

Project
P17-480 St.Modwen Park
Newport

Drawing Title
Site Surface Water Locations

INFORMATION

	Drawn	Checked	Date
NTS	ET	CW	02.05.24

Drawing No. 17480-RLL-24-XX-DR-O-1261-P01

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Appendix A – Discharge Permit EPR/DB3494FH

Permit with introductory note

The Environmental Permitting (England & Wales) Regulations 2016

Indurent Logistics Propco A14 Ltd

Trade effluent consisting of treated site
drainage serving
Indurent Park
Queens Way
Newport
NP19 4RG

Permit number

EPR/DB3494FH

Permit

The Environmental Permitting (England and Wales) Regulations 2016

Permit number

EPR/DB3494FH

The Natural Resources Body for Wales (“Natural Resources Wales”) hereby authorises, under regulation 13 of the Environmental Permitting (England and Wales) Regulations 2016

Indurent Logistics Propco A14 Ltd (“the operator”),
whose registered office is

**33-37 Athol Street
Douglas
Isle Of Man
IM1 1LB**

company registration number **OE003831**

to operate a water discharge activity at

**Indurent Park
Queens Way
Newport
NP19 4RG**

**to the extent authorised by and subject to the conditions of
this permit.**

Name	Date
Emma Jones	12/03/2025

Authorised on behalf of Natural Resources Wales

Conditions

1 Management

1.1 General management

- 1.1.1 The operator shall manage and operate the activities:
- (a) in accordance with a written management system that identifies and minimises risks of pollution, including those arising from operations, maintenance, accidents, incidents, non-conformances and those drawn to the attention of the operator as a result of complaints; and
 - (b) using sufficient competent persons and resources.
- 1.1.2 Records demonstrating compliance with condition 1.1.1 shall be maintained.
- 1.1.3 Any person having duties that are or may be affected by the matters set out in this permit shall have convenient access to a copy of it kept at or near the place where those duties are carried out.

2 Operations

2.1 Permitted activities

- 2.1.1 The operator is only authorised to carry out the activities specified in schedule 1 table S1.1 (the “activities”).

2.2 The site

- 2.2.1 The activities shall not extend beyond the site, being the land shown edged in green and the discharge shall be made at the point marked on the site plan at schedule 7 to this permit and as listed in table S3.2 (discharge points).

2.3 Operating techniques

- 2.3.1 (a) The activities shall, subject to the conditions of this permit, be operated using the techniques and in the manner described in the documentation specified in schedule 1, table S1.2, unless otherwise agreed in writing by Natural Resources Wales.

- (b) If notified by Natural Resources Wales that the activities are giving rise to pollution, the operator shall submit to Natural Resources Wales for approval within the period specified, a revision of any plan or other documentation ("plan") specified in schedule 1, table S1.2 or otherwise required under this permit which identifies and minimises the risks of pollution relevant to that plan, and shall implement the approved revised plan in place of the original from the date of approval, unless otherwise agreed in writing by Natural Resources Wales.

3 Emissions and monitoring

3.1 Emissions to water

- 3.1.1 There shall be no point source emissions to water except from the sources and emission points listed in schedule 3.
- 3.1.2 The limits given in schedule 3 shall not be exceeded.

3.2 Emissions of substances not controlled by emission limits

- 3.2.1 Emissions of substances not controlled by emission limits (excluding odour) shall not cause pollution. The operator shall not be taken to have breached this condition if appropriate measures, including, but not limited to, those specified in any approved emissions management plan, have been taken to prevent or where that is not practicable, to minimise, those emissions.
- 3.2.2 All liquids in containers, whose emission to water or land could cause pollution, shall be provided with secondary containment, unless the operator has used other appropriate measures to prevent or where that is not practicable, to minimise, leakage and spillage from the primary container.

3.3 Monitoring

- 3.3.1 Permanent means of access shall be provided to enable sampling/monitoring to be carried out in relation to the emission points specified in schedule 3 tables S3.1, S3.2 and S3.3 unless otherwise agreed in writing by Natural Resources Wales.

4 Information

4.1 Records

- 4.1.1 All records required to be made by this permit shall:
 - (a) be legible;

- (b) be made as soon as reasonably practicable;
 - (c) if amended, be amended in such a way that the original and any subsequent amendments remain legible, or are capable of retrieval; and
 - (d) be retained, unless otherwise agreed in writing by Natural Resources Wales, for at least 6 years from the date when the records were made.
- 4.1.2 The operator shall keep on site all records, plans and the management system required to be maintained by this permit, unless otherwise agreed in writing by Natural Resources Wales.

4.2 Reporting

- 4.2.1 The operator shall send all reports and notifications required by the permit to Natural Resources Wales using the contact details supplied in writing by Natural Resources Wales.

4.3 Notifications

- 4.3.1 Natural Resources Wales shall be notified without delay following the detection of:
 - (a) any malfunction, breakdown or failure of equipment or techniques, accident, or emission of a substance not controlled by an emission limit which has caused, is causing or may cause significant pollution;
 - (b) the breach of a limit specified in the permit; or
 - (c) any significant adverse environmental effects.
- 4.3.2 Any information provided under condition 4.3.1 shall be confirmed by sending the information listed in schedule 5 to this permit within the time period specified in that schedule.
- 4.3.3 Where Natural Resources Wales has requested in writing that it shall be notified when the operator is to undertake monitoring and/or spot sampling, the operator shall inform Natural Resources Wales when the relevant monitoring and/or spot sampling is to take place. The operator shall provide this information to Natural Resources Wales at least 14 days before the date the monitoring is to be undertaken.
- 4.3.4 Natural Resources Wales shall be notified within 14 days of the occurrence of the following matters, except where such disclosure is prohibited by Stock Exchange rules:

Where the operator is a registered company:

 - (a) any change in the operator's trading name, registered name or registered office address; and
 - (b) any steps taken with a view to the operator going into administration, entering into a company voluntary arrangement or being wound up.

Where the operator is a corporate body other than a registered company:

 - (a) any change in the operator's name or address; and
 - (b) any steps taken with a view to the dissolution of the operator.

- 4.3.5 Where the operator proposes to make a change in the nature or functioning, or an extension of the activities, which may have consequences for the environment and the change is not otherwise the subject of an application for approval under the Regulations or this permit:
- (a) Natural Resources Wales shall be notified at least 14 days before making the change; and
 - (b) the notification shall contain a description of the proposed change in operation.

4.4 Interpretation

- 4.4.1 In this permit the expressions listed in schedule 6 shall have the meaning given in that schedule.
- 4.4.2 In this permit references to reports and notifications mean written reports and notifications, except where reference is made to notification being made "without delay", in which case it may be provided by telephone.

Schedule 1 - Operations

Table S1.1 Activities	
Description of activity	Limits of specified activity
Discharge of trade effluent consisting of treated site drainage via Outlet 1	N/A

Table S1.2 Operating techniques		
Description of documentation	Parts	Date Received
TN1287 - Indurent Park Operational Technical Note	Page 8- Section Treatment Proposal to Page 12	20/12/2024
Indurent Park Treatment System Op_18Dec24	All	20/12/2024
Management Plan	Page 7	05/04/2024

Schedule 2 - Waste types, raw materials and fuels

Wastes are not accepted as part of the permitted activities and there are no restrictions on raw materials or fuels under this schedule.

Schedule 3 – Emissions and monitoring

Table S3.1 Point Source emissions to water (other than sewer) – emission limits and monitoring requirements						
Discharge source and discharge point ref. & location	Parameter	Limit (including unit)	Reference Period	Limit of effective range	Monitoring frequency	Compliance Statistic
Trade effluent consisting of treated site drainage via Outlet 1	Maximum daily discharge volume	86400 m ³ /day	Total daily volume	N/A	N/A	Maximum
	Maximum rate of discharge	1000 litres per second	Instantaneous (spot sample)	N/A	N/A	Maximum
	ATU-BOD as O ₂	11 mg/l	Instantaneous (spot sample)	N/A	N/A	Maximum
	Ammoniacal nitrogen (expressed as N)	0.8mg/l	Instantaneous (spot sample)	N/A	N/A	Maximum
	Suspended solids (measured after drying at 105° C)	30 mg/l	Instantaneous (spot sample)	N/A	N/A	Maximum
	pH	6 to 9	Instantaneous (spot sample)	N/A	N/A	Minimum and maximum
	Visible oil or grease	No significant trace present	Instantaneous (spot sample)	N/A	N/A	No significant trace

Table S3.2 Discharge points			
Effluent Name	Discharge Point	Discharge point NGR	Receiving water/Environment
Trade effluent consisting of treated site drainage	Outlet 1	ST 36775 86823	Monks Ditch

Table S3.3 Monitoring points			
Effluent(s) and discharge point(s)	Monitoring type	Monitoring point NGR	Monitoring point reference
Trade effluent consisting of treated site drainage via Outlet 1	Effluent sampling point	ST 36832 86829	D5-C

Schedule 4 – Reporting

“There is no reporting under this schedule”.

Schedule 5 - Notification

These pages outline the information that the operator must provide.

Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

If any information is considered commercially confidential, it should be separated from non-confidential information, supplied on a separate sheet and accompanied by an application for commercial confidentiality under the provisions of the EP Regulations.

Part A

Permit Number	EPR/DB3494FH
Name of operator	
Location of Facility	Indurent Park, Queens Way, Newport, NP19 4RJ
Time and date of the detection	

(a) Notification requirements for any malfunction, breakdown or failure of equipment or techniques, accident, or emission of a substance not controlled by an emission limit which has caused, is causing or may cause significant pollution

To be notified within 24 hours of detection	
Date and time of the event	
Reference or description of the location of the event	
Description of where any release into the environment took place	
Substances(s) potentially released	
Best estimate of the quantity or rate of release of substances	
Measures taken, or intended to be taken, to stop any emission	
Description of the failure or accident.	

(b) Notification requirements for the breach of a limit

To be notified within 24 hours of detection unless otherwise specified below	
Emission point reference/ source	
Parameter(s)	
Limit	
Measured value and uncertainty	
Date and time of monitoring	
Measures taken, or intended to be taken, to stop the emission	

Time periods for notification following detection of a breach of a limit	
Parameter	Notification period

(c) Notification requirements for the detection of any significant adverse environmental effect	
To be notified within 24 hours of detection	
Description of where the effect on the environment was detected	
Substances(s) detected	
Concentrations of substances detected	
Date of monitoring/sampling	

Part B - to be submitted as soon as practicable

Any more accurate information on the matters for notification under Part A.	
Measures taken, or intended to be taken, to prevent a recurrence of the incident	
Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission	
The dates of any unauthorised emissions from the facility in the preceding 24 months.	

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of the operator

Schedule 6 - Interpretation

"accident" means an accident that may result in pollution.

"annually" means once every year.

"application" means the application for this permit, together with any additional information supplied by the operator as part of the application and any response to a notice served under Schedule 5 to the EP Regulations.

"ATU-BOD as O₂" means the biochemical oxygen demand (measured after 5 days at 20°C with nitrification suppressed by the addition of allylthiourea).

"EP Regulations" means The Environmental Permitting (England and Wales) Regulations SI 2016 No.1154 and words and expressions used in this permit which are also used in the Regulations have the same meanings as in those Regulations.

"emissions of substances not controlled by emission limits " means emissions of substances to air, water or land from the activities, either from the emission points specified in schedule 3 or from other localised or diffuse sources, which are not controlled by an emission limit.

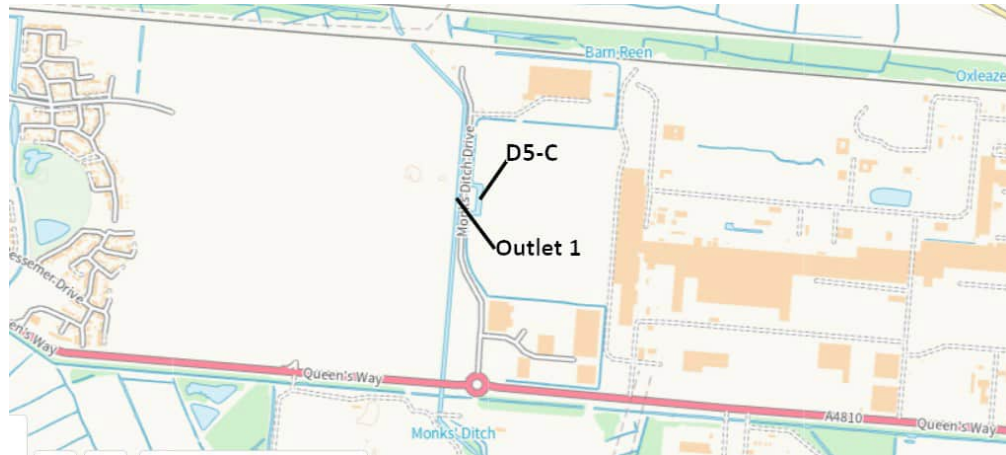
"groundwater" means all water, which is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil.

"Natural Resources Wales" means the Natural Resources Body for Wales established by article 3 of the Natural Resources Body for Wales (Establishment) Order 2012. The Natural Resources Body for Wales (Functions) Order 2013 transferred the relevant functions of the Countryside Council for Wales, and functions of the Environment Agency and the Forestry Commission in Wales to the Natural Resources Body for Wales

"quarter" means a calendar year quarter commencing on 1 January, 1 April, 1 July or 1 October.

"year" means calendar year ending 31 December.

Schedule 7 - Site plan



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END OF PERMIT

Appendix B – Screened Laboratory Data

Results - Water

Project: P17-488		Client: North Carolina		Order No: Q21-25059		Sampling Type: Client: North Carolina		Order No: Q21-25059		WFO EQD (AA)		Client: North Carolina		Order No: Q21-25059		GWI Leaks		Screening		Value Applied		12/18/2024		12/19/2024		12/20/2024		12/21/2024		12/22/2024		12/23/2024		12/24/2024		12/25/2024		12/26/2024		12/27/2024		12/28/2024		12/29/2024		12/30/2024		12/31/2024		1/1/2025		1/2/2025		1/3/2025		1/4/2025		1/5/2025		1/6/2025		1/7/2025		1/8/2025		1/9/2025		1/10/2025		1/11/2025		1/12/2025		1/13/2025		1/14/2025		1/15/2025		1/16/2025		1/17/2025		1/18/2025		1/19/2025		1/20/2025		1/21/2025		1/22/2025		1/23/2025		1/24/2025		1/25/2025		1/26/2025		1/27/2025		1/28/2025		1/29/2025		1/30/2025		1/31/2025		2/1/2025		2/2/2025		2/3/2025		2/4/2025		2/5/2025		2/6/2025		2/7/2025		2/8/2025		2/9/2025		2/10/2025		2/11/2025		2/12/2025		2/13/2025		2/14/2025		2/15/2025		2/16/2025		2/17/2025		2/18/2025		2/19/2025		2/20/2025		2/21/2025		2/22/2025		2/23/2025		2/24/2025		2/25/2025		2/26/2025		2/27/2025		2/28/2025		2/29/2025		3/1/2025		3/2/2025		3/3/2025		3/4/2025		3/5/2025		3/6/2025		3/7/2025		3/8/2025		3/9/2025		3/10/2025		3/11/2025		3/12/2025		3/13/2025		3/14/2025		3/15/2025		3/16/2025		3/17/2025		3/18/2025		3/19/2025		3/20/2025		3/21/2025		3/22/2025		3/23/2025		3/24/2025		3/25/2025		3/26/2025		3/27/2025		3/28/2025		3/29/2025		3/30/2025		3/31/2025		4/1/2025		4/2/2025		4/3/2025		4/4/2025		4/5/2025		4/6/2025		4/7/2025		4/8/2025		4/9/2025		4/10/2025		4/11/2025		4/12/2025		4/13/2025		4/14/2025		4/15/2025		4/16/2025		4/17/2025		4/18/2025		4/19/2025		4/20/2025		4/21/2025		4/22/2025		4/23/2025		4/24/2025		4/25/2025		4/26/2025		4/27/2025		4/28/2025		4/29/2025		4/30/2025		5/1/2025		5/2/2025		5/3/2025		5/4/2025		5/5/2025		5/6/2025		5/7/2025		5/8/2025		5/9/2025		5/10/2025		5/11/2025		5/12/2025		5/13/2025		5/14/2025		5/15/2025		5/16/2025		5/17/2025		5/18/2025		5/19/2025		5/20/2025		5/21/2025		5/22/2025		5/23/2025		5/24/2025		5/25/2025		5/26/2025		5/27/2025		5/28/2025		5/29/2025		5/30/2025		5/31/2025		6/1/2025		6/2/2025		6/3/2025		6/4/2025		6/5/2025		6/6/2025		6/7/2025		6/8/2025		6/9/2025		6/10/2025		6/11/2025		6/12/2025		6/13/2025		6/14/2025		6/15/2025		6/16/2025		6/17/2025		6/18/2025		6/19/2025		6/20/2025		6/21/2025		6/22/2025		6/23/2025		6/24/2025		6/25/2025		6/26/2025		6/27/2025		6/28/2025		6/29/2025		6/30/2025		7/1/2025		7/2/2025		7/3/2025		7/4/2025		7/5/2025		7/6/2025		7/7/2025		7/8/2025		7/9/2025		7/10/2025		7/11/2025		7/12/2025		7/13/2025		7/14/2025		7/15/2025		7/16/2025		7/17/2025		7/18/2025		7/19/2025		7/20/2025		7/21/2025		7/22/2025		7/23/2025		7/24/2025		7/25/2025		7/26/2025		7/27/2025		7/28/2025		7/29/2025		7/30/2025		7/31/2025		8/1/2025		8/2/2025		8/3/2025		8/4/2025		8/5/2025		8/6/2025		8/7/2025		8/8/2025		8/9/2025		8/10/2025		8/11/2025		8/12/2025		8/13/2025		8/14/2025		8/15/2025		8/16/2025		8/17/2025		8/18/2025		8/19/2025		8/20/2025		8/21/2025		8/22/2025		8/23/2025		8/24/2025		8/25/2025		8/26/2025		8/27/2025		8/28/2025		8/29/2025		8/30/2025		8/31/2025		9/1/2025		9/2/2025		9/3/2025		9/4/2025		9/5/2025		9/6/2025		9/7/2025		9/8/2025		9/9/2025		9/10/2025		9/11/2025		9/12/2025		9/13/2025		9/14/2025		9/15/2025		9/16/2025		9/17/2025		9/18/2025		9/19/2025		9/20/2025		9/21/2025		9/22/2025		9/23/2025		9/24/2025		9/25/2025		9/26/2025		9/27/2025		9/28/2025		9/29/2025		9/30/2025		10/1/2025		10/2/2025		10/3/2025		10/4/2025		10/5/2025		10/6/2025		10/7/2025		10/8/2025		10/9/2025		10/10/2025		10/11/2025		10/12/2025		10/13/2025		10/14/2025		10/15/2025		10/16/2025		10/17/2025		10/18/2025		10/19/2025		10/20/2025		10/21/2025		10/22/2025		10/23/2025		10/24/2025		10/25/2025		10/26/2025		10/27/2025		10/28/2025		10/29/2025		10/30/2025		10/31/2025		11/1/2025		11/2/2025		11/3/2025		11/4/2025		11/5/2025		11/6/2025		11/7/2025		11/8/2025		11/9/2025		11/10/2025		11/11/2025		11/12/2025		11/13/2025		11/14/2025		11/15/2025		11/16/2025		11/17/2025		11/18/2025		11/19/2025		11/20/2025		11/21/2025		11/22/2025		11/23/2025		11/24/2025		11/25/2025		11/26/2025		11/27/2025		11/28/2025		11/29/2025		11/30/2025		12/1/2025		12/2/2025		12/3/2025		12/4/2025		12/5/2025		12/6/2025		12/7/2025		12/8/2025		12/9/2025		12/10/2025		12/11/2025		12/12/2025		12/13/2025		12/14/2025		12/15/2025		12/16/2025		12/17/2025		12/18/2025		12/19/2025		12/20/2025		12/21/2025		12/22/2025		12/23/2025		12/24/2025		12/25/2025		12/26/2025		12/27/2025		12/28/2025		12/29/2025		12/30/2025		12/31/2025		1/1/2026		1/2/2026		1/3/2026		1/4/2026		1/5/2026		1/6/2026		1/7/2026		1/8/2026		1/9/2026		1/10/2026		1/11/2026		1/12/2026		1/13/2026		1/14/2026		1/15/2026		1/16/2026		1/17/2026		1/18/2026		1/19/2026		1/20/2026		1/21/2026		1/22/2026		1/23/2026		1/24/2026		1/25/2026		1/26/2026		1/27/2026		1/28/2026		1/29/2026		1/30/2026		1/31/2026		2/1/2026		2/2/2026		2/3/2026		2/4/2026		2/5/2026		2/6/2026		2/7/2026		2/8/2026		2/9/2026		2/10/2026		2/11/2026		2/12/2026		2/13/2026		2/14/2026		2/15/2026		2/16/2026		2/17/2026		2/18/2026		2/19/2026		2/20/2026		2/21/2026		2/22/2026		2/23/2026		2/24/2026		2/25/2026		2/26/2026		2/27/2026		2/28/2026		2/29/2026		3/1/2026		3/2/2026		3/3/2026		3/4/2026		3/5/2026		3/6/2026		3/7/2026		3/8/2026		3/9/2026		3/10/2026		3/11/2026		3/12/2026		3/13/2026		3/14/2026		3/15/2026		3/16/2026		3/17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Results - Water

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P17-543		Project: P17-544		Project: P17-545		Project: P17-546		Project: P17-547		Project: P17-548		Project: P17-549		Project: P17-550		Project: P17-551		Project: P17-552		Project: P17-553		Project: P17-554		Project: P17-555		Project: P17-556		Project: P17-557		Project: P17-558		Project: P17-559		Project: P17-560		Project: P17-561		Project: P17-562		Project: P17-563		Project: P17-564		Project: P17-565		Project: P17-566		Project: P17-567		Project: P17-568		Project: P17-569		Project: P17-570		Project: P17-571		Project: P17-572		Project: P17-573		Project: P17-574		Project: P17-575		Project: P17-576		Project: P17-577		Project: P17-578		Project: P17-579		Project: P17-580		Project: P17-581		Project: P17-582		Project: P17-583		Project: P17-584		Project: P17-585		Project: P17-586		Project: P17-587		Project: P17-588		Project: P17-589		Project: P17-590		Project: P17-591		Project: P17-592		Project: P17-593		Project: P17-594		Project: P17-595		Project: P17-596		Project: P17-597		Project: 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P17-708		Project: P17-709		Project: P17-710		Project: P17-711		Project: P17-712		Project: P17-713		Project: P17-714		Project: P17-715		Project: P17-716		Project: P17-717		Project: P17-718		Project: P17-719		Project: P17-720		Project: P17-721		Project: P17-722		Project: P17-723		Project: P17-724		Project: P17-725		Project: P17-726		Project: P17-727		Project: P17-728		Project: P17-729		Project: P17-730		Project: P17-731		Project: P17-732		Project: P17-733		Project: P17-734		Project: P17-735		Project: P17-736		Project: P17-737		Project: P17-738		Project: P17-739		Project: P17-740		Project: P17-741		Project: P17-742		Project: P17-743		Project: P17-744		Project: P17-745		Project: P17-746		Project: P17-747		Project: P17-748		Project: P17-749		Project: P17-750		Project: P17-751		Project: P17-752		Project: P17-753		Project: P17-754		Project: P17-755		Project: P17-756		Project: P17-757		Project: P17-758		Project: P17-759		Project: P17-760		Project: P17-761		Project: P17-762		Project: P17-763		Project: P17-764		Project: P17-765		Project: P17-766		Project: P17-767		Project: P17-768		Project: P17-769		Project: P17-770		Project: P17-771		Project: P17-772		Project: P17-773		Project: P17-774		Project: P17-775		Project: P17-776		Project: P17-777		Project: P17-778		Project: P17-779		Project: P17-780		Project: P17-781		Project: P17-782		Project: P17-783		Project: P17-784		Project: P17-785		Project: P17-786		Project: P17-787		Project: P17-788		Project: P17-789		Project: P17-790		Project: P17-791		Project: P17-792		Project: P17-793		Project: P17-794		Project: P17-795		Project: P17-796		Project: P17-797		Project: P17-798		Project: P17-799		Project: P17-800		Project: P17-801		Project: P17-802		Project: P17-803		Project: P17-804		Project: P17-805		Project: P17-806		Project: P17-807		Project: P17-808		Project: P17-809		Project: P17-810		Project: P17-811		Project: P17-812		Project: P17-813		Project: P17-814		Project: P17-815		Project: P17-816		Project: P17-817		Project: P17-818		Project: P17-819		Project: P17-820		Project: P17-821		Project: P17-822		Project: P17-823		Project: P17-824		Project: P17-825		Project: P17-826		Project: P17-827		Project: P17-828		Project: P17-829		Project: P17-830		Project: P17-831		Project: P17-832		Project: P17-833		Project: P17-834		Project: P17-835		Project: P17-836		Project: P17-837		Project: P17-838		Project: P17-839		Project: P17-840		Project: P17-841		Project: P17-842		Project: P17-843		Project: P17-844		Project: P17-845		Project: P17-846		Project: P17-847		Project: P17-848		Project: P17-849		Project: P17-850		Project: P17-851		Project: P17-852		Project: P17-853		Project: P17-854		Project: P17-855		Project: P17-856		Project: P17-857		Project: P17-858		Project: P17-859		Project: P17-860		Project: P17-861		Project: P17-862		Project: P17-863		Project: P17-864		Project: P17-865		Project: P17-866		Project: P17-867		Project: P17-868		Project: P17-869		Project: P17-870		Project: P17-871		Project: P17-872		Project: P17-873		Project: P17-874		Project: P17-875		Project: P17-876		Project: P17-877		Project: P17-878		Project: P17-879		Project: P17-880		Project: P17-881		Project: P17-882		Project: P17-883		Project: P17-884		Project: P17-885		Project: P17-886		Project: P17-887		Project: P17-888		Project: P17-889		Project: P17-890		Project: P17-891		Project: P17-892		Project: P17-893		Project: P17-894		Project: P17-895		Project: P17-896		Project: P17-897		Project: P17-898		Project: P17-899		Project: P17-900		Project: P17-901		Project: P17-902		Project: P17-903		Project: P17-904		Project: P17-905		Project: P17-906		Project: P17-907		Project: P17-908		Project: P17-909		Project: P17-910		Project: P17-911		Project: P17-912		Project: P17-913		Project: P17-914		Project: P17-915		Project: P17-916		Project: P17-917		Project: P17-918		Project: P17-919		Project: P17-920		Project: P17-921		Project: P17-922		Project: P17-923		Project: P17-924		Project: P17-925		Project: P17-926		Project: P17-927		Project: P17-928		Project: P17-929		Project: P17-930		Project: P17-931		Project: P17-932		Project: P17-933		Project: P17-934		Project: P17-935		Project: P17-936		Project: P17-937		Project: P17-938		Project: P17-939		Project: P17-940		Project: P17-941		Project: P17-942		Project: P17-943		Project: P17-944		Project: P17-945		Project: P17-946		Project: P17-947		Project: P17-948		Project: P17-949		Project: P17-950		Project: P17-951		Project: P17-952		Project: P17-953		Project: P17-954		Project: P17-955		Project: P17-956		Project: P17-957		Project: P17-958		Project: P17-959		Project: P17-960		Project: P17-961		Project: P17-962		Project: P17-963		Project: P17-964		Project: P17-965		Project: P17-966		Project: P17-967		Project: P17-968		Project: P17-969		Project: P17-970		Project: P17-971		Project: P17-972		Project: P17-973		Project: P17-974		Project: P17-975		Project: P17-976		Project: P17-977		Project: P17-978		Project: P17-979		Project: P17-980		Project: P17-981		Project: P17-982		Project: P17-983		Project: P17-984		Project: P17-985		Project: P17-986		Project: P17-987		Project: P17-988		Project: P17-989		Project: P17-990		Project: P17-991		Project: P17-992		Project: P17-993		Project: P17-994		Project: P17-995		Project: P17-996		Project: P17-997		Project: P17-998		Project: P17-999		Project: P17-1000	
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Results - Water

[illegible]

Results - Water

P16-669		Project: P17-480		Client: Rogers Leach Environmental		Chemical Name		WFO EOI		Gen Levels		Breeding		Value Applied		21-19084		21-19085		21-19192		21-20203		21-20241		21-20278		21-20281		21-20407		21-20273		21-23751		21-23911		21-23706		21-23918		21-41447		21-43437		22-00054		22-02294		22-05013		22-05170		22-06226		22-10174		22-13106		22-15877		22-17894		22-19878		22-21056		22-22878		22-22919		22-27388	
Order No.:		Job No.:		Order No.:		Client Name:		WFO EOI		Gen Levels		Breeding		Value Applied		21-19084		21-19085		21-19192		21-20203		21-20241		21-20278		21-20281		21-20407		21-20273		21-23751		21-23911		21-23706		21-23918		21-41447		21-43437		22-00054		22-02294		22-05013		22-05170		22-06226		22-10174		22-13106		22-15877		22-17894		22-19878		22-21056		22-22878		22-22919		22-27388	
Order No.:		Job No.:		Order No.:		Client Name:		WFO EOI		Gen Levels		Breeding		Value Applied		21-19084		21-19085		21-19192		21-20203		21-20241		21-20278		21-20281		21-20407		21-20273		21-23751		21-23911		21-23706		21-23918		21-41447		21-43437		22-00054		22-02294		22-05013		22-05170		22-06226		22-10174		22-13106		22-15877		22-17894		22-19878		22-21056		22-22878		22-22919		22-27388	
Order No.:		Job No.:		Order No.:		Client Name:		WFO EOI		Gen Levels		Breeding		Value Applied		21-19084		21-19085		21-19192		21-20203		21-20241		21-20278		21-20281		21-20407		21-20273		21-23751		21-23911		21-23706		21-23918		21-41447		21-43437		22-00054		22-02294		22-05013		22-05170		22-06226		22-10174		22-13106		22-15877		22-17894		22-19878		22-21056		22-22878		22-22919		22-27388	
Order No.:		Job No.:		Order No.:		Client Name:		WFO EOI		Gen Levels		Breeding		Value Applied		21-19084		21-19085		21-19192		21-20203		21-20241		21-20278		21-20281		21-20407		21-20273		21-23751		21-23911		21-23706		21-23918		21-41447		21-43437		22-00054		22-02294		22-05013		22-05170		22-06226		22-10174		22-13106		22-15877		22-17894		22-19878		22-21056		22-22878		22-22919		22-27388	
Order No.:		Job No.:		Order No.:		Client Name:		WFO EOI		Gen Levels		Breeding		Value Applied		21-19084		21-19085		21-19192		21-20203		21-20241		21-20278		21-20281		21-20407		21-20273		21-23751		21-23911		21-23706		21-23918		21-41447		21-43437		22-00054		22-02294		22-05013		22-05170		22-06226		22-10174		22-13106		22-15877		22-17894		22-19878		22-21056		22-22878		22-22919		22-27388	
Order No.:		Job No.:		Order No.:		Client Name:		WFO EOI		Gen Levels		Breeding		Value Applied		21-19084		21-19085		21-19192		21-20203		21-20241		21-20278		21-20281		21-20407		21-20273		21-23751		21-23911		21-23706		21-23918		21-41447		21-43437		22-00054		22-02294		22-05013		22-05170		22-06226		22-10174		22-13106		22-15877		22-17894		22-19878		22-21056		22-22878		22-22919		22-27388	
Order No.:		Job No.:		Order No.:		Client Name:		WFO EOI		Gen Levels		Breeding		Value Applied		21-19084		21-19085		21-19192		21-20203		21-20241		21-20278		21-20281		21-20407		21-20273		21-23751		21-23911		21-23706		21-23918		21-41447		21-43437		22-00054		22-02294		22-05013		22-05170		22-06226		22-10174		22-13106		22-15877		22-17894		22-19878		22-21056		22-22878		22-22919		22-27388	
Order No.:		Job No.:		Order No.:		Client Name:		WFO EOI		Gen Levels		Breeding		Value Applied		21-19084		21-19085		21-19192		21-20203		21-20241		21-20278		21-20281		21-20407		21-20273		21-23751		21-23911		21-23706		21-23918		21-41447		21-43437		22-00054		22-02294		22-05013		22-05170		22-06226		22-10174		22-13106		22-15877		22-17894		22-19878		22-21056		22-22878		22-22919		22-27388	
Order No.:		Job No.:		Order No.:		Client Name:		WFO EOI		Gen Levels		Breeding		Value Applied		21-19084		21-19085		21-19192		21-20203		21-20241		21-20278		21-20281		21-20407		21-20273		21-23751		21-23911		21-23706		21-23918		21-41447		21-43437		22-00054		22-02294		22-05013		22-05170		22-06226		22-10174		22-13106		22-15877		22-17894		22-19878		22-21056		22-22878		22-22919		22-27388	
Order No.:		Job No.:		Order No.:		Client Name:		WFO EOI		Gen Levels		Breeding		Value Applied		21-19084		21-19085		21-19192		21-20203		21-20241		21-20278		21-20281		21-20407		21-20273		21-23751		21-23911		21-23706		21-23918		21-41447		21-43437		22-00054		22-02294		22-05013		22-05170		22-06226		22-10174		22-13106		22-15877		22-17894		22-19878		22-21056		22-22878		22-22919		22-27388	
Order No.:		Job No.:		Order No.:		Client Name:		WFO EOI		Gen Levels		Breeding		Value Applied		21-19084		21-19085		21-19192		21-20203		21-20241		21-20278		21-20281		21-20407		21-20273		21-23751		21-23911		21-23706		21-23918		21-41447		21-43437		22-00054		22-02294		22-05013		22-05170		22-06226		22-10174		22-13106		22-15877		22-17894		22-19878		22-21056		22-22878		22-22919		22-27388	
Order No.:		Job No.:		Order No.:		Client Name:		WFO EOI		Gen Levels		Breeding		Value Applied		21-19084		21-19085		21-19192		21-20203		21-20241		21-20278		21-20281		21-20407		21-20273		21-23751		21-23911		21-23706		21-23918		21-41447		21-43437		22-00054		22-02294		22-05013		22-05170		22-06226		22-10174		22-13106		22-15877		22-17894		22-19878		22-21056		22-22878		22-22919		22-27388	
Order No.:		Job No.:		Order No.:		Client Name:		WFO EOI		Gen Levels		Breeding		Value Applied		21-19084		21-19085		21-19192		21-20203		21-20241		21-20278		21-20281		21-20407		21-20273		21-23751		21-23911		21-23706		21-23918		21-41447		21-43437		22-00054		22-02294		22-05013		22-05170		22-06226		22-10174		22-13106		22-15877		22-17894		22-19878		22-21056		22-22878		22-22919		22-27388	
Order No.:		Job No.:		Order No.:		Client Name:		WFO EOI		Gen Levels		Breeding		Value Applied		21-19084		21-19085		21-19192		21-20203		21-20241		21-20278		21-20281		21-20407		21-20273		21-23751		21-23911		21-23706		21-23918		21-41447		21-43437		22-00054		22-02294		22-05013		22-05170		22-06226		22-10174		22-13106		22-15877		22-17894		22-19878		22-21056		22-22878		22-22919		22-27388	
Order No.:		Job No.:		Order No.:		Client Name:		WFO EOI		Gen Levels		Breeding		Value Applied		21-19084		21-19085		21-19192		21-20203		21-20241		21-20278		21-20281		21-20407		21-20273		21-23751		21-23911		21-23706		21-23918		21-41447		21-43437		22-00054		22-02294		22-05013		22-05170		22-06226		22-10174		22-13106		22-15877		22-17894		22-19878		22-21056		22-22878		22-22919		22-27388	
Order No.:		Job No.:		Order No.:		Client Name:		WFO EOI		Gen Levels		Breeding		Value Applied		21-19084		21-19085		21-19192		21-20203		21-20241		21-20278		21-20281		21-20407		21-20273		21-23751		21-23911		21-23706		21-23918		21-41447		21-43437		22-00054		22-02294		22-05013		22-05170		22-06226		22-10174		22-13106		22-15877		22-17894		22-19878		22-21056		22-22878		22-22919		22-27388	
Order No.:		Job No.:		Order No.:		Client Name:		WFO EOI		Gen Levels		Breeding		Value Applied		21-19084		21-19085		21-19192		21-20203		21-20241		21-20278		21-20281		21-20407		21-20273		21-23751		21-23911		21-23706		21-23918		21-41447		21-43437		22-00054		22-02294		22-05013		22-05170		22-06226		22-10174		22-13106		22-15877		22-17894		22-19878		22-21056		22-22878		22-22919		22-27388	
Order No.:		Job No.:		Order No.:		Client Name:		WFO EOI		Gen Levels		Breeding		Value Applied		21-19084		21-19085		21-19192		21-20203		21-20241		21-20278		21-20281		21-20407		21-20273		21-23751		21-23911		21-23706		21-23918		21-41447		21-43437		22-00054		22-02294		22-05013		22-05170		22-06226		22-10174		22-13106		22-15877		22-17894		22-19878		22-21056		22-22878		22-22919		22-27388	
Order No.:		Job No.:		Order No.:		Client Name:		WFO EOI		Gen Levels		Breeding		Value Applied		21-19084		21-19085		21-19192		21-20203		21-20241		21-20278		21-20281		21-20407		21-20273		21-23751		21-23911		21-23706		21-23918		21-41447		21-43437		22-00054		22-02294		22-05013		22-05170		22-06226		22-10174		22-13106		22-15877		22-17894		22-19878		22-21056		22-22878		22-22919		22-27388	
Order No.:		Job No.:		Order No.:		Client Name:		WFO EOI		Gen Levels		Breeding		Value Applied		21-19084		21-19085		21-19192		21-20203		21-20241		21-20278		21-20281		21-20407		21-20273		21-23751		21-23911		21-23706		21-23918		21-41447		21-43437		22-00054		22-02294		22-05013		22-05170		22-06226		22-10174		22-13106		22-15877		22-17894		22-19878		22-21056		22-22878		22-22919		22-27388	
Order No.:		Job No.:		Order No.:		Client Name:		WFO EOI		Gen Levels		Breeding		Value Applied		21-19084		21-19085		21-19192		21-20203		21-20241		21-20278		21-20281		21-20407		21-20273		21-23751		21-23911		21-23706		21-23918		21-41447		21-43437		22-00054		22-02294		22-05013		22-05170		22-06226		22-10174		22-13106		22-15877		22-17894		22-19878		22-21056		22-22878		22-22919		22-27388	
Order No.:		Job No.:		Order No.:		Client Name:		WFO EOI		Gen Levels		Breeding		Value Applied		21-19084		21-19085		21-19192		21-20203		21-20241		21-20278		21-20281																																													

Results - Water

[illegible]

Results - Water

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Appendix C – Further Assessment

Review of potential pollutant impact

This section provides a review of the impact of potential pollutants in the proposed discharge water. To determine which chemical species are potential pollutants in this case, we compared all analysed determinands for monitoring point D5-C against EQS. Those that have been recorded in re-en water between August 2023 and December 2024 form the shortlist that has been assessed. This period was chosen since it covers the period since the last significant on-site earth movements (during which runoff of disturbed soils may have impacted re-en water quality temporarily). D5-C was selected as the appropriate sample point because it is located at the proposed discharge pumping point. The shortlisted species are shown in the table below.

Determinand	Units	LOD	EQS	Count	Detections	Min	Mean	Max	EQS exceedances	Comments
Ammoniacal Nitrogen	mg/l	0.05	0.3	28	28	0.19	0.92	3.70	21	See H1 assessment
Cyanide (Total)	mg/l	0.05	0.001	28	4	0.03	0.03	0.09	4	See H1 assessment
Copper (Dissolved)	µg/l	0.50	1	28	28	1.20	2.89	5.10	28	See note 1
Lead (Dissolved)	µg/l	0.50	1.2	28	9	0.25	0.53	2.60	2	See note 1
Vanadium (Dissolved)	µg/l	0.50	20	28	28	4.40	19.35	43.00	9	Requires H1 assessment
Zinc (Dissolved)	µg/l	2.50	10.9	28	25	1.25	9.87	49.00	11	See note 3
Cadmium (Total)	µg/l	0.11	0.25	28	8	0.06	0.10	0.45	2	See note 2
Chromium (Total)	µg/l	0.50	4.7	28	25	0.25	3.82	24.00	7	See note 2
Copper (Total)	µg/l	0.50	1	28	28	2.30	5.35	15.00	28	See note 2
Iron (Total)	µg/l	5.00	1000	28	28	37.00	393.1	1500	3	See note 2
Nickel (Total)	µg/l	0.50	4	28	26	0.25	4.12	18.00	10	See notes 1 and 2
Lead (Total)	µg/l	0.50	1.2	28	28	1.10	5.40	22.00	25	See note 2
Vanadium (Total)	µg/l	0.50	20	28	28	6.60	24.99	63.00	14	See note 2
Zinc (Total)	µg/l	2.50	10.9	28	28	6.30	40.99	240	25	See note 2

Note 1: Application of the mBAT tools provided by UKTAG indicates that even the maximum recorded concentrations of these metals do not produce an excessive bioavailable concentration.

Note 2: Given that all metals were analysed as both total and dissolved species, we assume that we can discount exceedances of the total metal concentrations since only the dissolved concentrations will be mobile and bioavailable. (Where the dissolved concentrations do not appear in the table above – e.g. for iron – this indicates that they were always below EQS.)

Note 3: The mBAT tool indicates that all analytical results with the exception of the highest recorded concentration of zinc produce acceptable bioavailable concentrations. (The second highest concentration gives a risk characterisation ratio of 0.73 in the mBAT tool.) The highest concentration is worth assessing through the H1 tool.

From 28 sample sets, PAH concentrations have not been detected in the reens in the period covered, with the sole exception of one naphthalene value. However, given that EQS values for some PAH are very low, they are significantly smaller than the limits of detection achieved by standard laboratory methods. It is therefore appropriate that representative PAH species, including naphthalene, are assessed using the H1 tool.

H1 tool review

Review of the previously presented H1 assessment (PAN-025330) shows that three PAH were included. These are shown in the table below, with the applied concentrations in the assessment tool and the relevant analytical concentration values.

Determinand	Units	LOD	EQS	Analytical data since July 2023					H1 assessment	
				Count	Detections	Min	Mean	Max	Release conc	Max release conc
Naphthalene	µg/l	0.1	0.1	28	1	<0.1	<0.1	0.65	0.33	13
Fluoranthene	µg/l	0.1	0.00017	28	0	<0.1	<0.1	<0.1	0.11	0.84
Anthracene	µg/l	0.1	0.1	28	0	<0.1	<0.1	<0.1	0.11	0.66

The table indicates that three relatively mobile PAH were selected as representatives for modelling. All three were modelled at concentrations exceeding what has been found in recent data, and in all three cases the H1 assessment indicated that they would not present an environmental risk at these concentrations. We therefore consider that no additional PAH assessment is required.

Cyanide and ammoniacal nitrogen were also previously assessed in the previous H1 assessment and passed the screening tests.

Vanadium and zinc were not included in the previous H1 assessment.¹ We applied the v7 spreadsheet version, conservatively taking the concentrations of Va and Zn to be the mean of all analytical results to date from D5-C. With these values, both determinands fail screening tests 1 and 2; zinc passes screening test 3, but vanadium fails. However, vanadium passes screening test 4.

Chromium VI, like the PAH, has been analysed and is not detected, but has a detection limit above the EQS. If we run the H1 assessment on the assumption that Cr(VI) concentrations are at 10 µg/l (half the value of the limit of detection given), and with an assumed low background concentration (0.1 µg/l), this fails all tests. However, as shown in the table below,

¹ These two determinands are not available as possible selections in the H1 assessment tool v8 spreadsheet held by HFCL; we do however have a copy of the previous v7 version which does include them. We have requested but not yet received an updated v8 spreadsheet from the Environment Agency.

there are available results at a lower detection limit for dissolved chromium (undifferentiated). If we assume that the dissolved chromium concentrations are entirely composed of Cr(VI), with no Cr(III), the substance passes screening test 4. Since the Cr(VI) concentration cannot exceed the total concentration of chromium, this conservative assessment indicates that Cr(VI) does not present a significant risk.

Determinand	Units	LOD	EQS	Count	Detections	Min	Mean	Max	EQS exceedances
Chromium (Dissolved)	µg/l	0.50	4.7	28	17	<0.5	0.77	2.10	0
Chromium (Total)	µg/l	0.50	4.7	28	25	<0.5	3.82	24.00	7
Chromium (Hexavalent)	µg/l	20	3.4	28	0	<20	<20	<20	undetermined

In conclusion, we have reviewed the risks presented by contaminants currently found in the re-en system, and find that all of them pass the H1 assessment.